

FROM A LETTER TO DR. DAVID WILLIS

BRIAN S. DUNCAN, *Omagh, Northern Ireland*

(from the Newsletter of the Northern Ireland Daffodil Group, January, 1981)

A request to extend my "Aims on Breeding" article to cover background information, etc., has caused much self-searching to trace the origin of my interest in daffodils. We never do know where a step will lead and my difficulty is in pin-pointing that first step which set me on the daffodil trail.

A simple 'why' can be a most difficult question and when once put to me with regard to my daffodil breeding activities I confess I was lost for a satisfactory answer. My head was a whirl of incoherent and confused reasons. That anyone should even ask such a fundamental question was almost inconceivable and unthinkable. In answer I was only able to say "Just because I likes 'em" and quoted the old gardener's saying:

"Different people has different h'opinions,

Some likes carrots and some likes h'onions."

The question lingers, however, and brings me back to consideration of that first step, the influences, the interest, the personal contacts and exposures to daffodils which might have paved the way to a most absorbing and rewarding pastime.

Though I would not rule out heredity and environment as factors, I suspect that being born the fifth of six sons of a County Antrim dairy farmer may be more important. There was no hope of a farm being provided for a fifth son and in any case my interests, as a boy, put bird watching, airplane spotting and modelling, football, hockey, cricket, and even pressing wild flowers before milking, mucking out, and making hay. As a result I went to an Agricultural College, after leaving school, and I took a mild interest in agricultural botany and plant recognition. I was fascinated to learn that man could improve plants by cross breeding. I learnt a little about the famous Ulster varieties of potatoes raised by John Clarke of Ballycastle, the Stormont varieties of oats raised by the Ministry of Agriculture Plant Breeding Research Station. The people who performed these miracles were regarded with awe - they were boffins of an unknown mysterious world to which I could never hope to aspire.

Early exposure to daffodils was limited to Van Sion (though I didn't then know it by name) which I only just remember being uprooted from an out-farm and being replanted by the hundred in straight lines and circles around our new farm house, which was completed about 1939. I also have a fairly vivid memory, from about the same time, of finding an 'odd' daffodil in the orchard which my mother told me was a Pheasant's Eye. For twenty years after seeing the Pheasant's Eye I do not have a single recollection of particularly noticing a daffodil of any kind.

The next step which aroused these dormant and barely recognizable grains of interest was undoubtedly my marriage in 1959. I had to find a house; that house was surrounded by almost half an acre of compacted till and builder's rubble. Pride of home ownership demanded action in that garden so it was plowed and planted in broccoli whilst I sought information and ideas about layout and plants. My ideas were limited to roses and daffodils-every garden had roses and daffodils! Friends who had any knowledge of gardening were pressed into discussion on the topic and snippets of information on daffodils

are vaguely recalled. An office colleague, Mr. William Wilson, told me about having bought Beersheba when it was 1.00 pound per bulb and I think he may have mentioned the name of a certain Guy Wilson but the name did not really register except as sort of confusion with a famous creamery manager from Fintona named Wilson Guy who wrote as Mat Mulcahey for the *Tyrone Constitution*.

Mr. Alan Smith, a former college contemporary who had studied horticulture, produced a landscape plan for our new garden with all sorts of unknown botanical names which stirred my curiosity. I had to put faces to those names and as a result developed an interest in trees and shrubs and other garden plants.

In the autumn of 1960 I bought a collection of daffodils to fit into pockets in the already planted shrub borders. In my innocence and ignorance I thought that Unsurpassable was all that its name implied, Beersheba was the peerless white and that Fortune and Mrs. R. O. Backhouse were steps into the future for color.

These and similar 'wonders' recorded on film were proudly presented to Alan Smith as evidence of my newfound horticultural skill and judgement of selection. Alas, deflation followed. With due regard for my pride, Alan patiently listened to my exaltations and then he diplomatically, but emphatically let me know that perhaps my flowers might not be quite the world-beaters I had imagined. Still incredulous, I wanted to know just how any daffodils could possibly be better. He then told me about Guy Wilson and his daffodils. He told me about working with Guy Wilson in his student days, about helping to set up daffodil displays at the London Daffodil Shows and about the wonderful new daffodil creations from Broughshane.

Alan Smith illustrated the points of improvement sought by hybridists by criticizing aspects of my flowers - form, proportion, substance, texture, symmetry, depth of color, stem, neck and poise. I began to wonder what kind of monstrosities I had dared to present for admiration. I could not immediately be disloyal to my flowers and I lamely replied that I still thought they were nice and that they were good enough for me. I did, however, accept the list of names and addresses of the specialist daffodil growers which Alan Smith gave me - but without serious intent. It was no good! The damage was done! He had destroyed my enjoyment and pride in my flowers. Each and every one was subject to critical examination - they all had many of the faults which had been detailed.

On reporting this story to our clergyman friend, the late Rev. A. E. C. Rowan, he told me about seeing magnificent daffodils at an Omagh Horticultural Society spring meeting. These daffodils were grown by Major General and Mrs. D. G. Moore, Mountfield Lodge, Omagh - only eight miles away. This seemed to corroborate Alan Smith's remarks. Evidence was building up and there were links in the chain as on subsequent visits to Mountfield it was found that the bulbs had mostly been obtained from Guy Wilson.

The matter could not rest, I just had to see some of these 'miracle' flowers. The catalogues arrived and in the autumn of 1962 one bulb of each of twelve varieties at 2/6 each were purchased from G. L. Wilson Ltd. When they flowered I understood; William Wilson, Alan Smith, and Rev. Rowan were right. Not only was there improved color, size, and substance, but I became aware of beauty of form, texture, balance, and proportion - aesthetic qualities not previously appreciated. I was now hooked! I must see more of

these better daffodils and learn more about them. I persuaded the local Horticultural Society to introduce an element of competition into the daffodil display evening in May, 1963, and to invite Mr. Tom Bloomer as judge and speaker/demonstrator.

That show and demonstration of 6th May, 1963, and the opportunity to meet and talk to Mr. Tom Bloomer provided the 'coup de grace' and confirmed me as an incurable member of the 'yellow fever' fraternity. To my great surprise and delight, flowers from my twelve bulbs had won eight of the twelve single bloom classes and my Cantatrice was Best Bloom in show. Other winning varieties were Kingscourt, Galway, Polindra, Rosario, Golden Ducat, Charity May, and Actaea. Despite these successes my few flowers were overshadowed by the magnificent selection of the latest and most beautiful daffodils, including some with really pink cups, which Mr. Bloomer brought for his demonstration on grooming and staging for exhibition. Many were seedlings of his own raising and he also demonstrated the technicalities of hybridization. Here, at last, was a chance to meet a man who had actually bred new varieties of plants.

I am sure I must have peppered poor Tom with a myriad of the most ridiculous questions that evening. He must have recognized some spark of interest and enthusiasm which he fanned and kindled with patient helpful advice, encouragement, and a gift of some of his demonstration daffodils. Tom was so modest and made it all seem so easy that suddenly I realized that daffodil breeding was something which I could possibly undertake myself, albeit in a very small way.

My first cross was made a few days later when a flower of Kilworth opened - the last and only remaining bud on my 'big twelve' plants. Pollen from a pink flower (Interim or a seedling) in Tom's gift lot was applied to the stigma of Kilworth with such great determination, clumsiness, and nervous anticipation that a successful mating seemed highly improbable!

The basic aim of that first cross was simply to find if I could manage the mechanical intricacies of applying pollen and persuading the flower to produce seed. Only three or four seeds resulted which were planted and germinated in a small clay pot. The baby bulblets had a tough job surviving the next couple of years as they suffered the hardships of neglect and ignorant care in their confined and often arid quarters. Tom Bloomer had told me that with such parents they were unlikely to amount to much which may account their existence had not been in vain, they had been living proof that even I could produce daffodil seedlings. Fifteen years and many thousands of seedlings later that may not seem important, but to me it was breaking the sound barrier. The seemingly impossible was now possible. I could become a plant hybridist - a daffodil raiser. An old fascination and a new interest could be combined.

Interest developed with this realization, and R.H.S. *Daffodil Yearbooks*, catalogues and any other available daffodil literature were begged, bought, or borrowed from a wide variety of sources. Pedigrees, cultivation methods and show reports were studied in detail. With awe, I read about and became familiar with the names and achievements of the great daffodil raisers of the past. Incidentally, the first R.H.S. *Yearbook* (1963) which I purchased contained the obituaries of both Mr. G. L. Wilson and Mr. J. L. Richardson. It is a source of disappointment that I never had an opportunity to meet them personally.

The following spring, 1964, was one of reconnaissance; first visits were made to Prospect House, to Tom Bloomer, W. J. Dunlop, and even to the London Daffodil Show. I had the audacity to enter flowers in the Novice Section that year and great was the amusement at home as I cut, stapled, and joined two shoe boxes and prepared a cotton woollined travelling bed for my two flowers - Ceylon and Trouseau which were the only ones open on 6th April. Though the Ceylon did gain a fourth prize the object of entering was primarily to get an Exhibitor's Pass to get into the show early to enjoy and experience the hurly-burly of show preparations and to have time to study the flowers.

By the end of the 1964 flowering season I had seen many of the best flowers available at that time. Mr. Lea's Canisp which was the Best Bloom in London; Mrs. Richardson's Rose Royale and Olympic Gold seen in Waterford, were flowers of such perfection and beauty that further improvement seemed both unlikely and unnecessary. Nevertheless I was determined to have a go. I could not afford to buy Rose Royale at 35.00 pounds per bulb (as it was at that time) so I would have to raise my own. Mrs. Richardson very generously gave me some flowers to bring home including blooms of Rose Royale, Rosedew, Debutante, Salmon Trout and Rose Caprice. Obviously the idea of breeding pinks had excited my imagination because the previous autumn I had bought single bulbs of all the cheaper pinks from Mrs. Richardson and Mr. Dunlop. Imagine my great excitement and gratitude as I drove home dreaming of crosses to be made with those gift flowers which were laden with pollen of a breeding potential which my pocket could not possibly provide. In that spring of 1964, my first 'serious' crosses were made and seventeen out of twenty-two crosses involved pink parents.

The visits of 1964 became annual pilgrimages during that long five-year wait until the first seedlings flowered. More crosses were made each year and the stock of bulbs for exhibition and breeding was gradually up-graded by purchases from the professional growers and gifts from amateurs Tom Bloomer and W. J. Bankhead.

The competition at the Northern Ireland and London shows became increasingly enjoyable as I got to know fellow competitors and learned to appreciate the standards required for any chance of success. After some modest success at Northern Ireland shows I managed to win the Novice Twelve Bloom class in London in 1968. When, two years later I had several first prizes in Amateur Single Bloom classes I felt I was making some progress. I was gaining some confidence for selection of seedlings if and when the time came - I determined from the start that I would be ruthless in selection as all the books advised. In this respect I'm afraid I have failed - I keep too many seedlings in the hope that they will improve in future years. A very few do improve, most do not.

Looking back on those earlier years it is interesting to note how my aims and ambitions changed and developed. From the first basic achievement of carrying out the cross pollination and germinating the seed came the desire to see the first seedlings flower. The need to develop some expertise for assessment of seedlings then became important followed by a desire to check that assessment on the show bench against the best named varieties. Almost unconsciously the sights were raised as targets were achieved. There were many thrills at each stage-the excitement and anticipation of watching the very first flower buds about to open; the disappointment with the throwbacks and the elation as a promising one unfolds. Then the first local show bench success for a seedling, this is the stamp of approval by an expert judge-a heady experience indeed!

My first such experience was at the 1971 Ballymena Show when a pink seedling from that Rose Royale pollen of 1964 won both the single and three bloom classes for pinks. The seedling was later named *Premiere* because of this first success, because it is the first pink to open each season, and because it was to be the first of my seedlings to be registered. *Premiere* is not a world beater but it has had several more successes, including a win in the pink class at the 1978 London Competition. It is valued for its earliness and has received favorable comment in London Show reports, attracting attention because of its neat perky form and bright green eye.

When *Lilac Charm*, my little pink cyclamineus hybrid with distinct lilac tones in its long and beautifully flanged trumpet, won its class at the 1973 London Daffodil Show another ambition was achieved-to win a class in London with a seedling of my own raising. *Lilac Charm* repeated this success in London in 1974 and 1975 to complete a 'hattrick' and show it was no fluke. Yet I feel I can claim no especial credit for *Lilac Charm* despite the general admiration and acclaim it has received. Its 'cyclamineus' ancestry is in some doubt and though the cross was made in the hope of getting strong pinks and possibly bluish tints I certainly did not expect such a delightful surprise. The characteristics of *N. cyclamineus* are so 'clearly evident' that I suspect the intervention of a highly imaginative bee somewhere in its pedigree. It is this chance of a break and the diversity and variation amongst seedlings which is so gripping and absorbing. I was lucky to find these two promising flowers so early which were a great encouragement to continue.

Additional pleasing show successes and milestones were achieved when D. 190 (Mount Angel 3W-YR) was selected as Best Unregistered Seedling and Best Division 3 flower at the 1975 Omagh Show; when *Delta Wings* (6W-P) won the Best Bloom award at Omagh in 1977 and when my group of seedlings won the major twelve bloom class against open competition at Omagh in 1978.

The ultimate ambitions of any serious daffodil hybridist still dangle like the proverbial carrot before a donkey-they are to win Best Bloom at London with a seedling and to win the Engleheart Cup for twelve seedlings raised by the exhibitor. To achieve the first of these would be like winning a lottery-you cannot really plan to win but you must have your name in the hat. The Engleheart Cup is different and infinitely more difficult - dedication and perseverance linked with hard work and enthusiasm will be required if this one is to be achieved. So far as I know the cup has not been won by any breeder of less than twenty years experience. Also, it has always remained in the hands of the landed and wealthy where financial and labor resources restricted neither the choice of breeding stock nor the time available for the work involved.

With this knowledge and in full realization of the enormity of the task it is perhaps foolhardy and presumptuous to harbor even slight hope of ever winning the Trophy, but proceed I will, though I disapprove of the traditional color balance which seems to demand at least three Y-R flowers (inevitably rather similar) in the twelve. I think the widest possible range of types, consistent with a well balanced exhibit, should be shown. However, crosses towards meeting the unwritten obligation have been more recently included in my breeding program and some promising flowers are emerging. I was encouraged by the standard of my twelve seedlings at Omagh 1978 which were much better than my twelve which came third in the Engleheart class ten days earlier. I think the gap is narrowing but there is still much ground to make up. This ensures that the thrill and anticipation of examining each year's new seedlings will not diminish.

Daffodil shows are great fun, as the results of the breeder's skill or good fortune are brought together for comparison and appraisal. In addition to the judges' opinions, remarks of admiration or criticism by fellow enthusiasts are helpful in determining the fate of particular seedlings. Important as shows may be as sources of entertainment, as outlets for competitive urges, as public displays of the best in daffodils, and as a means of keeping up to date with developments, they are not an end in themselves. Without the shows and the boost to ego which winning and favorable comment give, there would be little incentive to hybridize, beyond the purely commercial. So far as I know a fortune has not yet been made by a daffodil breeder so the commercial incentive is not strong. Shows, therefore, through the amateur fun they provide, are the spur to encourage improvement in the *Narcissus* genus - or so I try to convince myself when beset by a conscience which questions some aspects of the morality, the motivation, the egotism, and the selfishness involved in competitive exhibition. This justification begs the further question - is the improvement of the *Narcissus* genus important, necessary, or even desirable? I am happy to remember that John Kendall raised King Alfred about 80-90 years ago. It was a sensation then and has since provided employment for thousands, pleasure for millions, and brightened the flower sellers' barrows in the streets of London for half a century. During all this time, by the hand of hybridists, it was being used as a stepping stone to the beauty and perfection we see today in a host of varieties of different forms and colors, e.g. Midas Touch, Newcastle, White Star, Golden Joy, Amber Castle, Loch Hope, Torridon, Don Carlos, Irish Rover, Ringleader, Broomhill, Achduart, Doctor Hugh, Purbeck, Beauvallon, and Gay Challenger.

All the above flowers, each of which would grace any exhibitor's collection and add beauty to any garden have King Alfred three, four, five, or six generations back in their pedigree. All my little show successes fade into insignificance against this record, but the example is one which provides the greatest justification for daffodil hybridizing. King Alfred has long since been eclipsed as an exhibition, garden, and commercial flower, but, so long as daffodils are grown the influence of John Kendall's King Alfred will remain. The case of King Alfred and other daffodils which have been superseded, even during my own short experience, tempt me to quote the lines of Herrick, though extending the thoughts to the life-span of varieties rather than the blooms:

*"Fair Daffodils, we weep to see
you haste away so soon, . . ."*

and

*"We have short time to stay as you,
We have as short a spring, . . ."*

Even the very best new daffodil introductions can only have a relatively short run of popularity. Progress seems to be slow yet few varieties survive as top exhibition flowers for twenty years, and only a minute fraction of these ever achieve wider acclaim as commercial bulbs or cut flowers.

In daffodil breeding as in most things, the achievements of the past and present are but the stepping-stones to the future. This and the further realization that this year's perfection is likely to be the mediocrity of the next decade are sobering thoughts which brings the significance of daffodil breeding into perspective. Those of us involved should enjoy our seedlings while we can-and if they are good enough perhaps they may be permitted to influence the future.

The perfect daffodil has not yet been raised; there is scope for improvement in every sub-division and color combination. I find it difficult to visualize a standard of perfection beyond that which my eyes have seen. I think it is easier to think in terms of combinations of the best qualities of the best flowers available. Sometimes this means simply intercrossing the two best flowers of the type or sometimes going back to one which has a particularly desirable characteristic. One of the characteristics which requires more attention is the general one of consistency of performance - so many varieties produce only a small proportion of show quality blooms. I often make notes of imaginary crosses in the winter evenings. Alas, the temporary loss of these notes, a poor memory, the rush of other springtime activities and the fact that the chosen parents may not be in flower at the same time all seem to combine to thwart such well-intentioned plans.

What are the flowers of my mind's-eye to be like? I will deal briefly with my aims for future improvement and development in the usual classification order, though there may be some overlapping of subdivisions.

DIVISION 1 — TRUMPET DAFFODILS

The yellow trumpets have progressed little since Kingscourt appeared in 1938 despite thousands of seedlings being flowered and numerous varieties being registered. This indicates that a new approach is necessary. Apart from King's Ransom (poor in other respects) and Midas Touch, no deep golden yellow trumpet has a sufficiently wide based 'ace of spades' perianth segment as found in Empress of Ireland—a white trumpet. It may take two generations or more but I think major improvements may come from crossing Empress of Ireland with deep golden trumpets such as Arctic Gold, King's Ransom, or Midas Touch. I have a nice 1 Y-Y seedling from Empress of Ireland × Joybell to be named Verdant which may prove useful in skipping a generation. I have hopes that such crosses may help increase virus resistance in yellow trumpets and provide useful breeding material for better bi-color trumpets. I am aware that to suggest crossing yellow with white amounts almost to sacrilege but progress has been so slight that I think the gamble is worthwhile. My yellow trumpet vision has the form and size of Empress of Ireland combined with the deep gold and shining smooth texture of Arctic Gold or Midas Touch.

How about a consistent bi-color trumpet of similar form to Empress of Ireland, White Star, or a good Newcastle, with a perianth of poeticus white and a trumpet of maximus gold? Such must be the ideal, but I confess to a feeling of inadequacy when considering crosses towards this ideal. I have flowered several hundred seedlings from numerous crosses but muddy or stained perianths mar those with good trumpet color; pale trumpets always seem to attach themselves to those with good white perianths.

White Empress, which is the purest white trumpet I know, sometimes yields bi-colors even when crossed with another white. It may have possibilities if crossed with the American-raised Descanso and Wahkeena which have good white perianths and smooth texture. One or two of Mr. Bloomer's new seedlings may prove to be better than Newcastle, but the perianths are not pure white—they will be crossed with the abovenamed Americans. Though I will continue to dabble in this sub-division, I feel results are more likely to come from someone like Malcolm Bradbury, a young man from Essex, who is making a specialty of this sub-division—may he produce that pure white/unfading deep gold bi-color of my dreams.

With Tom Bloomer's White Star in the field, it is difficult to imagine further improvement—it has purity of color, smoothness of texture, elegance of form,

consistency, great dignity and size combined with vigor of growth, length of stem, and a show bench record unequalled for a flower of its age. Nevertheless, there is room for variation in similar quality and I look forward to a white trumpet amalgam comprising the glistening whiteness of White Empress, the breadth of petal of Empress of Ireland, and the poise of Panache combined with those White Star qualities already listed. I would like to have three or four variations on this theme. Trumpets of the slender form and green eye of Silent Valley or with the generous flange of White Empress or the finely toothed edge of White Majesty should satisfy most tastes. I have made crosses towards these ends and only patience and time will indicate the success or otherwise of my efforts. In such a high-class field anything new will have to be really exceptional as regards flower quality, though added stem length and resistance to basal rot would be worthy improvements.

The reversed bi-color trumpets are a pretty uncouth lot in a very early stage of development. They are all still a long way off the ideal of a deep golden perianth and a pure white trumpet and the form of even the best is poor. Grant Mitsch's American-raised Honeybird is about the best I have seen, but it is an 'on-off' sort of flower of imprecise contrast. I think progress is likely to come from the progeny of the Division 2 Daydream. I have some seedlings from it which show nice depth of color and contrast whereas Honeybird has yielded little to excite interest. Carncairn's Gin and Lime is receiving acclaim and should be a worthy parent as should many more recent Mitsch varieties and seedlings with which I am unacquainted. Some of Mrs. Richardson's near trumpet Camelot × Daydream seedlings such as Avalon, Amber Castle, and Cairngorm crossed back to Daydream might produce good flowers from Divisions 1 and 2.

Pink trumpets are few and mostly raised in America, New Zealand, and Australia. Rima from Mitsch is probably best known, the color is good, cup length is not in doubt, but the general form and consistency leave much to be desired. Richardson's Rosedew [Div. 2] was quite nice but had a muddy perianth, impure coppery shades, and was susceptible to virus. This is a field wide open for someone wishing to concentrate on a particular type. I saw some promising new ones at Mitsch's in Oregon but perianths were still not pure white. Rima is an obvious parent and it might be interesting to try it with Lilac Charm which has a full length trumpet. From my winter-planned crosses which never got done, I see the suggestions of Empress of Ireland and Preamble × Rima and Rose Royale which still seem like fair ideas to produce first generation breeding material. I crossed Rima × Rosedew in 1970 and it did not yield one flower worthy of selection for further trial—rightly or wrongly I blamed Rosedew which had a yellow trumpet grandfather, which may further explain its tendency to stripe. A few Antipodean pink trumpets have been obtained and I hope to make greater efforts in this class in the future—the ideal may be a long way off but improvement should be possible with well-planned crosses.

Red trumpets on yellow perianths are now with us though generally in inferior quality. John Lea's Glenfarclas, of doubtful measurement but trumpet appearance, is the nearest thing to a show quality flower in this color. I have now crossed it with some of the Backhouse varieties—Deseado, Dalinda, etc.—and await the results. The Australian raised Trumpet Call has been obtained for breeding purposes but I think best results might be obtained by crossing Midas Touch or Golden Jewel (which are reputed to have Ceylon in their pedigree through Camelot) with Glenfarclas, Loch Owskeich, and little Jetfire, the American red-nosed cyclamineus. I have repeatedly crossed Loch

Owskeich with deep gold trumpet varieties and applied pollen of Jetfire and Satellite to similar varieties but no seed resulted. The rough cold weather of the early season may account for the infertility and it may be necessary to store early pollen for application to later flowering varieties. A big breakthrough is due in the yellow/red trumpets and I expect it to come from John Lea in England or Bill Pannill in the USA.

There is another trumpet possibility which would seem to be far in the future, i.e. white perianth and red trumpet. My neglected winter proposals towards this end propose both Preamble and Newcastle being crossed with Norval, Irish Rover, Loch Owskeich, and Irish Light as a source of possible further breeding material. On further reflection the 1 Y-R's mentioned in the paragraph above should also be used. Mr. Bruce James showed a Preamble seedling with a distinct orange flush in London several years ago which might have breeding potential, though progeny of Preamble is seldom seen in public. Certainly I think a flower of Preamble form with pure white perianth and unfading orange/red trumpet could be an attractive novelty well worth pursuing. Rather than take the line of breeding suggested above I might be tempted to take the pink approach. Deeper, redder pinks are available with longer cups than the orange/reds and the perianths may also be whiter.

Variations on the theme of orange/red trumpets on either yellow or white perianths would be the rimmed kinds as we have in Divisions 2 and 3. If we can add green eyes then the color range is just about complete apart from an all orange or all red flower.

There is so much more scope for outstanding color breaks and development in the trumpet sub-divisions compared with Divisions 2 and 3. I hope to make more crosses on the lines suggested in the hope of making some progress. Two, three, or more generations may be required to achieve acceptable standards in these trumpets of the future. I would like to be around to witness the arrival of some such flowers whether raised by my own hand or by another.

DIVISION 2 — LARGE-CUPPED DAFFODILS

Galway and Ormeau had a long reign as leaders in the all yellow class. Suddenly with the emergence of Camelot and Golden Aura, and now their progeny, we have a bevy of real beauties but as yet no clear leader. Golden Joy, Golden Jewel, Golden Aura, and Amber Castle have been crossed with such flowers as Joybell, Daydream, Arkle, and Barnsdale Wood in the hope of producing something of a more distinctive style in at least equal quality. I fancy a deep golden full sized flower after the style of Joybell with its beautifully shaped petals and trumpet roll. Daydream might give a really top quality self lemon flower. Pollen of Arkle and Barnsdale Wood might yield a trumpet of Golden Joy quality and a step towards a red trumpet respectively. Such are my aims; this sub-division should be rewarding in the production of perfect seedlings for exhibition.

John Lea's success in perfecting the 2 Y-R flowers is well known and daunting to any would-be follower. However, Y-R seedlings are essential for any Angleheart aspirants so they must be included in my breeding program. I have planned my crosses to give a variety of well proportioned cup shapes and perianth shapes. Hopefully these variations will be combined with intensity of color and sunproof qualities.

For narrow tubular or cylindrical cups, I have used Irish Light, Rathowen Flame, Torridon, and Loch Hope. For a typical cup chape, Shining Light and

Gettysburg are included in the program, and Barnsdale Wood and Bunclody will hopefully give well proportioned bowl shaped crowns. The Division 3 flowers Ulster Bank, Sabine Hay, Altruist, Achduart, and Montego should oblige with button or saucer shaped crowns. These crosses should also give Division 3 flowers, perhaps some with red-flushed petals. Having neglected the yellow/reds in earlier years, I have much leeway to make up.

There is room for something new in the rimmed Y/R class and I have been using Mr. Bloomer's April Magnet and Mr. deNavarro's Gettysburg in my crosses. Both have better perianth colors than Ringmaster or Balalaika, and Gettysburg has the deepest red rim I have ever seen in this class.

Looking through my records I find very few crosses have been made to yield 2 W-Y flowers—only Aldergrove, Tudor Minstrel, Dunmurry, Irish Minstrel, and May Queen appear, and I have no really worthwhile seedlings from any of them. More promising seedlings have appeared by accident from Joybell × Empress of Ireland and Easter Moon × Knowehead. I have great faith in the progeny of Joybell as future parents for a variety of types. Seedling D.490 from Easter Moon × Knowehead shows promise—it has a deep green eye, distinct style, and should be a useful breeder. I hope to intercross seedlings from above crosses with the American raised Chapeau (Evans) which I rate about the best I've seen of this type.

The children of Kilworth × Arbar were lauded and eulogized when they hit the London shows. They are still about the best around but their faults are as many as their merits. It is easy to list the improvements one would wish to make—greater consistency, whiter petals, earlier flowering, cleaner, better bulb quality, resistance to sun scorch. It is not so easy to suggest a reliable line to take to achieve these improvements, but I think this is one case where a continuation of line or inbreeding will only exacerbate and perpetuate the problems. I have not done much with this type, but one or two promising flowers have come from pollen of Don Carlos and Norval on to some of the older Division 3 flowers such as Mahmoud, Merlin, and Omagh. I await with interest the results of crosses involving Royal Coachman, Ohio, Ulster Star, Irish Rover, and Doctor Hugh. In future it might pay to almost start again by crossing Easter Moon progeny with some of the best white/reds—perhaps Don Carlos or Brahms. Progress will be slow but I aim to try. Easter Moon is such a prolific parent of quality flowers that I even plan to cross it with some of the best yellow/reds and several other unlikely mates—such sacrilege!

Nearly all the 2 W-R flowers have bowl shaped crowns and the variations listed for the yellow/reds are equally desirable here but much more difficult to attain. Apart from Buncrana and Glorietta, which are pale in color, there is little narrow cupped material to use for breeding—back to Easter Moon again!

From the beginning I have had a particular liking for the pink crowned flowers and a high proportion of my crosses involve pinks. Rose Royale, Dailmanach, and Fair Prospect perhaps set the overall standard by which future flowers should be judged. Other flowers have particularly desirable qualities such as purer white perianths, purer, redder or violet-tinted pink, unfading colors, and longer stems. Again I think a change of direction is needed to get away from constantly inbreeding like with like. Some of the American flowers are really white and red/pink and though they may lack the smoothness and breadth of petal of our best, I hope they will transmit their good qualities without detriment to form. The influence of Easter Moon is already evident through John Lea's Dailmanach and by crossing it with Violetta I have some interesting pale lilac-toned flowers. Some Australian and New Zealand pinks have also been added to the 'stud' for further mixing of the genes.

My newly named Fragrant Rose is an interesting break. Not only has it very deep color in a reddish copper narrow pink cup which seems resistant to sun but it has a most delightful fragrance which reminds me of the rose Super Star (Tropicana in the USA). I cannot be sure of its parentage because of gross accidental mixing of seed in 1967, but the only possibility would seem to be Roseworthy seedling \times Merlin. Such a cross would seem daft and I have no idea why the cross was made but if Fragrant Rose is the result then similar crosses to get fragrance and small cupped pinks are worth trying. To date Jewel Song has figured in all my pink small cupped efforts and on checking I find that it was crossed with Fragrant Rose in 1973 before the latter was christened. Only four plants resulted and if they flowered this year they passed unnoticed. Fragrant Rose was crossed with two Merlin seedlings last year, primarily towards intensifying fragrance but a good pink small cup would be an acceptable bonus or substitute.

There is great scope for improving the rimmed pinks—Rainbow, Drumboe, Infatuation, and Coral Ribbon are all attractive in their different ways but they are not the ultimate. Mr. deNavarro's Tomphubil and his seedling No. 108 figure most prominently in my hopes for improvements; the latter has an amazing raspberry red rim. My own Pismo Beach is a new style rimmed variety which should prove useful for crossing with shorter cupped varieties such as the American-raised Audubon.

Still on pinks, I confess to having made some crosses with Polonaise which may yield split corona pinks with better perianths and deeper color. It certainly does give seedlings which can be seen a field length away and which can be relied upon to attract attention.

The yellow/pinks are now receiving more attention—the suggestion of such a color combination invokes very definite and opposing reactions. Mitsch's Milestone was the first to be commercially available; simultaneously or shortly afterwards seedlings were appearing in New Zealand, Ballymena, Omagh, and on Mitsch's doorstep with the Murray Evans versions. It is difficult to visualize how far one wants to develop this color combination. Does a Maximus gold perianth with a cup color like Violetta stretch the imagination beyond the bounds of good taste? On the other hand a pink cup like Rose Royale on a lemon perianth like Daydream would seem to be most appealing. I have made quite a few crosses involving Milestone, my own Brindisi, Undertone, and Pink Mink as well as some of the Tom Bloomer and Murray Evans seedlings. Probably Rima and Rosedew should be used because of the yellow in their background.

I think, perhaps, some of the smoothest and best show flowers I have raised are in the white Division 2 class. All are in very early stages of development and have been raised from Easter Moon crossed with Empress of Ireland, Knowehead, Stainless, White Star, and Silent Valley. Good as some of these seedlings seem to be, only time will tell if they can match or better such top quality varieties as Canisp, Broomhill, Ben Hee, Misty Glen, and Glenside. From some of the above crosses, especially Easter Moon \times Silent Valley, I had hoped to add deeper, more pronounced green eyes. Unfortunately when the desired green eye appears, it seems to be accompanied by a greenish cast which spoils the purity of whiteness in the perianth. Though this spoils white varieties, it makes me wonder if it might be used to develop a green flower—if crossed with the greenest of the sulphur shades.

DIVISION 3 — SMALL CUPPED DAFFODILS

Advocat and D. 345 (to be registered as Mint Julep) are my only worthwhile all yellow Division 3 flowers. Both were raised accidentally from Woodland Prince pollen when the aim was really for deeper colored 3 W-Y flowers. More recently some of Dr. Throckmorton's toned daffodils and Mr. W. A. Noton's Citronita have been obtained as additional breeding stock. I hope Mr. John Blanchard's Ferndale can also be added in the near future as it has probably the deepest color of any in this class.

John Lea's Achduart, D.B. Milne's Altruist and Sabine Hay have recently appeared to provide unlimited potential for improvement and development in a class for so long dominated by the unreliable Chungking and Doubtful. Crossing this trio with Montego and my own Ulster Bank should give some promising results, including some so-called 'all red' seedlings to which sunproof qualities must be added in future. Intercrossing the Y/R's of Division 2 and 3 should give seedlings in both divisions—an example of several cases where dual or triple purpose crosses can be made.

What is the best white/yellow small cup? Show records will indicate Aircastle as the leader, but it is often more yellow than its winning neighbor in the 3 Y-Y class. Woodland Prince has about the best color but a tendency to be asymmetric. Syracuse is perfect in form but lacking in color and poise. By crossing these two and Crepello, some nice seedlings have been obtained but smoothness and good form seem to be accompanied by weak color and vice versa. The ideal of pure white and deep gold is as elusive here as in Divisions 1 and 2.

Since the early 1960's, Rockall has been almost unchallenged as leader of its class. Coming from that prolific Kilworth × Arbar cross, it was such a complete contrast in style from its predecessors Matapan and Mahmoud that it was once aptly described as a galloping interloper in the 3 W-R division. My preference is for a rounder, broader petalled flower, and it was with this in mind that I went back to Mahmoud and Enniskillen and crossed them with Don Carlos which resulted in three flowers of some promise, namely Doctor Hugh, Red Rooster, and Dunskey. Merlin × Avenger has also given a seedling of interest—D. 109—which is an extremely durable and consistent flower of Rockall coloring but much rounder form. Further crosses have been made involving Rockall, and several quite promising seedlings have been selected for further trial. In the meantime I regard Doctor Hugh and Red Rooster as fairly reasonable improvements in purity of whiteness, breadth of petal, and attractiveness.

Merlin still sets the standard by which all rimmed varieties must be judged. Other good ones provide variations in form, but few have such pure white perianths or such clearly defined rim color. Merlin is therefore the obvious parent but the selection of pollen may as well be left to the bees. To cross deliberately for increased size, which is a doubtfully desirable aim, is likely to result in a loss of whiteness. From one open pollinated pod of Merlin yielding three seeds I got Mount Angel, a large pure white 3 W-YYR which already has a good show record; Ringway 3 W-YYR of very distinct triangular form with an extremely sharply defined deep red rim, and Narya 3 Y-YYR, a small jewel-smooth flower. I have a high regard for Merlin as a breeder and crosses should not be confined to its own class—remember it is the most probable parent of Fragrant Rose 2 W-GPP. So it might be worth crossing with pinks. Good quality rims are relatively easy to raise; attention needs to be paid to bulb quality and sun resistance in selection of those for naming. Some of Sir

Frank Harrison's have lovely green eyes and delicate orange rims combined with good bulbs and growth habits—unfortunately most are very late flowering, but for their other qualities they should be used for breeding. My aims in this class are not clearly defined in my own mind, but they are so attractive that I keep making crosses in the hope of adding further variety and refinement to an already varied and refined lot. There is, however, room for much improvement in Division 2 versions of rimmed varieties, and this improvement is likely to come from the 3's.

Verona is a lovely flower and has had about as long a run at the top as Rockall in its class, but it is not very white. My aim here is to breed earlier flowers with really deep green eyes and of poeticus whiteness. I have used Verona, Monksilver, Cool Crystal, and Dallas as well as some of my own seedlings but it is difficult to imagine earlier flowers from such parentage—and alternatives are not obvious. Division 2 Stainless and Easter Moon are possibles, but two generations may be required—perhaps Trouville, an almost white 2 W-Y from Verona × Stainless will provide the key to earlier flowers in this class. Whatever the flowering season an amalgam of the best qualities of the quartet of 3 W-W's mentioned would be a welcomed find in my seedling beds.

DIVISION 4 — DOUBLE DAFFODILS

So much had been done with doubles at Waterford that there seemed little point in pursuing further except in so far as new colors were concerned. Accordingly my efforts were devoted to trying to raise pink doubles. I purchased a Richardson seedling R. 3509 (Falaise × Debutante) in which I thought I saw a hint of pink. The flower proved fertile and was crossed with the highly colored Polonaise which I thought might aid doubling because of its deeply fluted and wide mouthed large cup. From this cross I was very lucky to get Pink Pageant and Pink Paradise, both of which are fertile. There is a further little double seedling from this cross which has distinct lilac tones—perhaps even more definite than Lilac Charm. I have made many 'pink double' crosses using these and some of Murray Evans varieties and seedlings which are more red/pink and white but not so well formed. I await the results of these crosses with keen anticipation. Depth and clarity of color, purity of whiteness, and that lilac tone are pursuits for the future.

Another color break worth pursuing in doubles is all orange or all red. I think the Rev. Broadhurst once showed a flushed orange seedling in London and my own Smokey Bear from Papua × Vagabond has a distinct orange flush in the outer major petals and petaloids. It is fertile and has been crossed with Sabine Hay and Altruist in the hope of intensifying the color.

Though Acropolis's flower quality is hard to fault the bulb is poor—Monterrico × Doctor Hugh is my hope for improvement. Gay Song sometimes produces seed and it should open the way to earlier, more vigorous and purer white doubles. This is work for the future.

In the Y/R doubles, David Lloyd's Beauvallon is so good that it seems to have skipped a generation. Alas, it is susceptible to various viruses. Hopefully the stock can be revived to health; if not, then a new 'mold' will have to be formed by crossing Tahiti, Hawaii, and Tonga where possible with deep colored 2 Y-R flowers such as Barnsdale Wood.

DIVISIONS 5-9

In these divisions my interests have been confined to 6 and 9, the *cyclamineus* and the *poeticus*.

In Division 6 my interest was stimulated by the accidental arrival of Lilac Charm and Lavender Lass. These and Mrs. Reade's Foundling have been intercrossed and used with several other likely and unlikely varieties in attempting to increase the range and variety of pink cyclamineus hybrids. Some of the resultant seedlings are interesting, most are pink cupped, some with rims and there are two or three pure whites from Stainless \times Foundling. Richhill \times Foundling yielded some indeterminate colored flowers for future breeding of Y/R, W/R, W/P, or Y/P cyclamineus types—one has an orange rim.

I even wonder about raising a double cyclamineus following the appearance of a little yellow seedling with reflexed perianth and waisted $3/4$ length cup filled with smaller petaloids similar to old Van Sion. It was strangely attractive and was marked for further trial. It has given me the idea of crossing that lilac toned double with Lilac Charm and possibly other cyclamineus \times double crosses—which may result in classification difficulties. Developments in Division 6 should be exciting in the next ten to twenty years.

Though I have made a few crosses in Division 9, the old classification requirement whereby both parents had to be of the same division seriously restricted progress. Even yet "distinguishing characteristics predominant" precludes any really dramatic development. The purists may shun the idea but I feel there may be room for some progress by crossing some of the fragrant green eyed rimmed varieties from Division 3 with accepted poets. Earlier poets are also required so perhaps Actaea should be brought back for breeding purposes—it would also add vigor and size. Sir Frank Harrison's Fairmile, Fairgreen, and Lancaster; Murray Evans's Minx and Minikin; as well as Merlin and Silent Cheer could all be useful parents which might produce lovely seedlings which would give the classification purists some difficulty.

CONCLUSION

These remarks outline my basic thoughts and future aims in daffodil breeding. I fully realize that only a very small fraction of these aims can possibly be attempted, let alone achieved. The range is far too wide for any one person, never mind a part time hobbyist like myself. Nevertheless crosses have been made with many of these developments in mind and with a bit of luck something good enough to maintain interest should emerge. Greater success might be achieved by specializing in developing certain types but I'm afraid I do not have the patience or dedication to pursue a certain line through several generations.

Regardless of the success or otherwise of my hybridizing efforts, I think it is important to avoid taking it all too seriously. Daffodil growing, exhibition, and breeding should give pleasure and enjoyment to those involved and the public who happen to see the displays and new developments. It would undoubtedly be tremendously satisfying to raise a flower which might have the impact of old King Alfred, but like many raisers I expect I will have to be content with more modest and ephemeral successes.

Though I may never see many of the daffodils of my fancy in my own seedling beds, the near misses will perhaps provide a few stepping stones and help pave the way to their eventual appearance. In any case the fun is in

trying, and the fellowship of the daffodil fraternity throughout the world makes all the work worthwhile.

I end with an anonymous quotation which applies equally to life and to daffodil breeding:

"All the flowers of tomorrow are in the seeds of today."

So let it be! We must wait and see.

(The preceding article was a letter to David Willis whose seven years of research resulted in his dissertation "The History of Daffodil Breeding in Ireland" and the Doctor of Philosophy degree from the New University of Ulster.)

PEONIES, Queen of Flowers

Spectacular beauty, fragrant endurance unlimited, practically a permanent perennial. Excellent for use in landscape as an accent plant during blooming season, foliage decorative until hard frosts. Peonies — a permanent investment — will bloom for years.

Join the American Peony Society

Dues \$7.50, paid annually. Bulletin published quarterly.

Send for list of publications.



AMERICAN PEONY SOCIETY

250 INTERLACHEN RD., HOPKINS, MINN. 55343

Does Your Garden Color End Too Soon?

Join the NATIONAL CHRYSANTHEMUM SOCIETY

and enjoy colorful blooms until frost.

Your membership includes 5 issues of The CHRYSANTHEMUM. Also free BEGINNER'S HANDBOOK.

Annual dues \$7.50

Write to:

B. L. MARKHAM

2612 Beverly Blvd. SW
ROANOKE, VA 24015

HEMEROCALLIS (Daylilies)

Enjoy this wonderful flower when your daffodil season is finished. Its long bloom season will greatly expand your garden enjoyment.

Constant improvements in color, size, form and habits insure rapid growth of interest in this fine plant.

Four colorful journals a year filled with informative data on varieties, culture, performance and progress. Many Round Robins open to participation.

ONLY \$12.50 PER YEAR

Join THE AMERICAN HEMEROCALLIS SOCIETY

Joan D. Senior, Secretary DeQueen, Arkansas 71832

