

C.J. Hunt

Jan 22 1877

The
Latest
Hobby.



Queen Daffadowndilly has come into Town
In yellow petticoats, and a green gown.

Property Of
American Daffodil Society, Inc.

MR. R. CHATWIN CARTWRIGHT'S & MR. ARTHUR R. GOODWIN'S

INIMITABLE PAMPHLET

How to Raise
Daffodils from Seed

WITH A LIST OF THE

Finest Varieties.

—: 1908 :—

CARTWRIGHT & GOODWIN,
BLAKEBROOK,
KIDDERMINSTER.

Telegraphic Address:- "Daffodil, Kidderminster."

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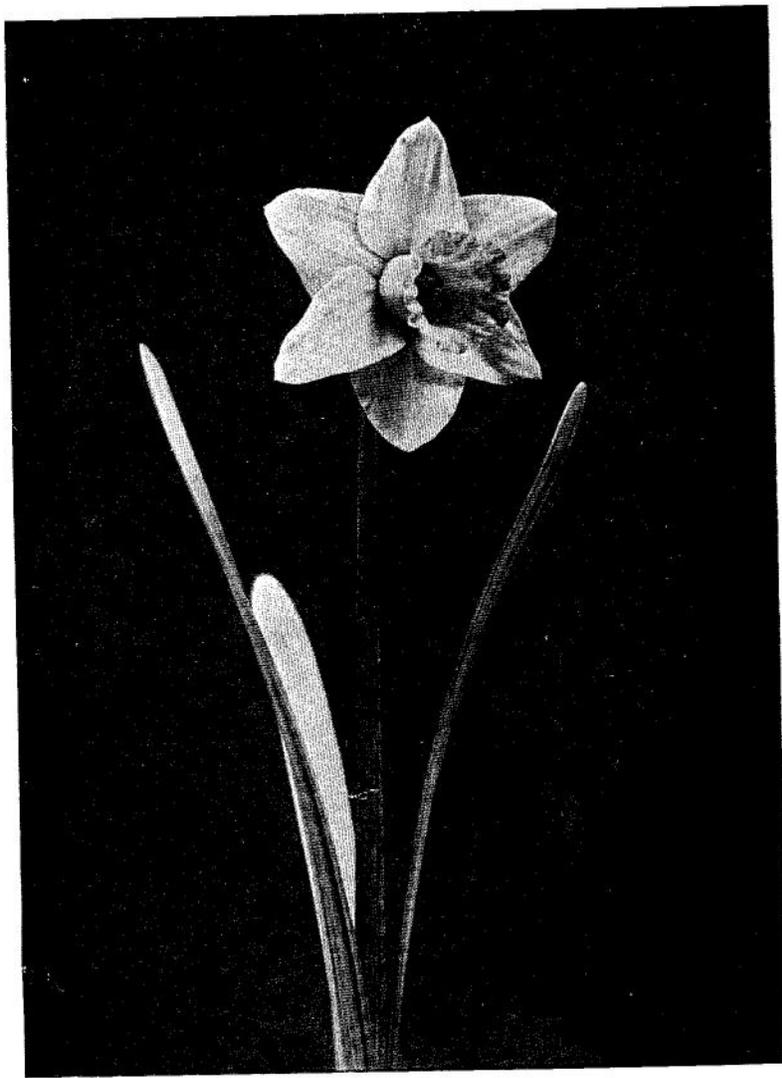
Dear Mr Cartwright,

That lovely White Trumpet Daffodil of yours "Miss Clinch" is, in my opinion, far and away the most beautiful flower of its own class in the Show. And I am inclined to think that for exquisite purity of color and refinement of form, it is the most beautiful White Trumpet in existence at present.

Yours truly

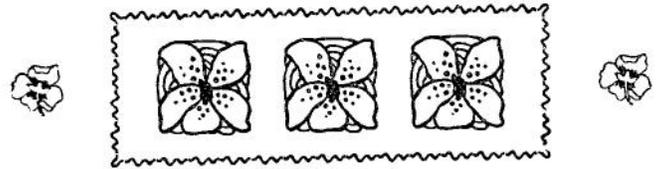
Robert H. Englehead.

"MISS CLINCH" (Cartwright).



EXHIBITED AT THE MIDLAND DAFFODIL SOCIETY'S SHOW
APRIL 23RD, 1907.

(See letter from Mr. Englehead.)



How to Raise Daffodils from Seed.

EARLY HISTORY.

WE have the authority of Holy Writ for saying that there is no new thing under the sun, but it is certainly rather surprising to find that what we have described on the cover of our pamphlet as "The Latest Hobby" was actually known to that splendid old gardener, Theophrastus of Eresus, who cultivated plants, and described them, several hundred years before the birth of Christ. Listen to what he says of the "Narkissos" or, as we now write it, Narcissus. "Its leaves spread on the ground like the Asphodel, but are broader like those of Lilies; its stalk is leafless, and bears at the top an herbaceous flower, and dark-coloured fruit enclosed in a vessel of an oblong figure; this fruit falling down sprouts spontaneously, *though some gather it for sowing*. The roots also are planted, which are large, round, and fleshy."

Coming to a much later date we find that many of our early English writers on gardening were fully aware of the fact that Daffodils, (or Narcissi, to give the genus its name of widest application), could be raised from seed, and advised their readers to practice it. Both Gerard and Parkinson draw attention to the subject, the latter in his oft-quoted "**Paradisi in sole Paradisus Terrestris,**" published in 1629, being careful in several cases to note those varieties that seed and those that do not. In this connection it is interesting to find that he says in writing of 'The great None such or Incomparable Daffodill': "After the flower is past, sometimes there cometh (for it doth not often) a round greene head, and black round seed therein, like unto other Daffodils, but greater."

THE FIRST GARDEN SEEDLING.

As far as we are able to ascertain the very first variety ever reared from seed, for the identity of which there is any direct evidence in print, was raised by John Parkinson, in his London garden. This is called by him *Pseudonarcissus aureus Hispanicus flore pleno* (the great double yellow Spanish bastard Daffodill) at page 103 of his "Paradisus," where he thus speaks of it: "I thinke none ever had this kinde before my selfe, nor did I my selfe ever see it before the yeare 1618, for it is of mine own raising, and flowering first in my Garden." Again, on page 104, he says of it: "It is risen from the seede of the great Spanish single kinde, which I sowed in mine owne Garden, and cherished it, untill it gave such a flower as is described."

This extract is of peculiar interest because it proves that seedling Daffodils were occasionally being raised by the early seventeenth century gardeners, although cross-fertilisation was not then practised.

One of the most interesting of the earlier books on gardening is John Evelyn's "**Kalendarium Hortense**:" or The Gard'ners Almanac, directing what he is to do Monethly through out the Year." It is quite evident that the author of this little book was perfectly conversant with the fact that Daffodils could be raised from seed, for in the Fourth Edition, published in 1671, under 'Work to be done in the parterre and flower garden in June' (page 65), he says, "Gather the ripe seeds of Flowers worth the saving, as of choice Oriental Jacynth, Narcissus (the two lesser, pale spurious Daffodils of a whitish green, often produce varieties)," etc.

MILLER ON SEED RAISING.

At a still later date we find a very full account of the management of seedlings, as then practised, in Phillip Miller's admirable "Gardener's Dictionary," published in 1724, which is well worth reproducing here. According to this writer "the characters" of the Narcissus are: "It hath a Lily flower, consisting of one leaf, which is Bell-shap'd, and cut into six segments, which incircle its Middle like a Crown; but the em-palement, which commonly rises out of a Membranous Vagina, turns to an oblong or roundish Fruit, which is triangular, and gapes in three Parts, is divided into three Cells, and full of roundish Seeds."

After giving a list of the species (?) known to him, as well as a description of them, he goes on to say: "There are several other Varieties of these Flowers, which are annually brought over from Holland and Flanders, where the Gardeners

are very industrious in raising these and most other Bulbous-rooted Flowers from Seeds, whereby they continually procure some new Varieties, which recompenses them for their Trouble and Expence: But in England there are very few Persons who have Patience to propagate any of these Flowers that Way, it being commonly five Years before they can expect to see the Fruits of their Labour: however, after the first five Years are passed, if there be Seeds sown every Year, there will be annually a Succession of Flowers to show themselves; so that there will be a continual Expectation; which will take off the Tediousness which, during the first five Years, might be very troublesome for some Persons; and the annual Production of new Flowers corresponding to the annual Sowing, it will be as if Product arose soon after.

The not practising this Method, has occasion'd our sending Abroad annually for great quantities of Flower-Roots, which have been kept up to a great Price, on account of the great Demand for 'em in England; whereas if we were as industrious to propagate them as our Neighbours, we might soon vie with them, if not out-do 'em in most Sorts of Flowers; as may be easily seen by the vast Variety of Carnations, Auricula's, Ranuncula's, &c., which are what have been produc'd from Seeds in England, and do exceed every thing of those Kinds in any Part of Europe.

I shall therefore first lay down the Method of propagating these Flowers from Seeds; and afterwards proceed to the necessary Directions for increasing them from Off-sets; with the manner of treating the Roots, to produce strong Flowers.

You must be very careful, in saving your Seeds, to gather none but from such Flowers as have good Properties, and particularly from such only as have many Flowers upon a Stalk, that flower tall, and have beautiful Cups to their Flowers; from such you may expect to have good Flowers produc'd: but if you sow ordinary Seed, it is only putting yourself to Trouble and Expence to no Purpose; since from such Seeds there can be no Hopes of procuring any valuable Flowers.

Having provided your self with good Seeds, you must procure either some shallow Cases or flat Pans made on purpose for the raising of Seedlings, which should have Holes in their Bottoms, to let the Moisture pass off; these must be fill'd with fresh light sandy Earth about the Beginning of August, (this being the best Season for sowing the Seeds of most Bulbous-rooted Flowers) which must be levell'd very even; then sow the Seeds thereon pretty thick, covering 'em all over with fine sifted light Earth about half an Inch thick, and place the Cases or Pans in a Situation where they may have only the Morning

Sun 'till about Ten o'Clock, where they should remain untill the Beginning of October, when they must be remov'd into a warmer Situation, placing 'em upon Bricks, that the Air may freely pass under the Cases, which will preserve 'em from being too moist. They should also be expos'd to the full Sun, but screen'd from the cold North and East Winds, where they may remain until the Beginning of April, by which time the Plants will be up, when you must carefully clear 'em from Weeds; and if the season should prove dry, they must be frequently water'd: The Cases should also now be remov'd into their former shady Position; for the heat of the Noon-day Sun will be too great for the young Plants.

The latter-end of June, when the Leaves of the Plants are decay'd, you should take off the upper Surface of the Earth in the Cases, (which by that time will have contracted a Mossiness, and, if suffer'd to remain, will greatly injure the young Roots), observing not to take it so deep as to touch the Roots; then sift some fresh light Earth over the Surface about half an Inch thick, which will greatly strengthen the Roots: The same should also be repeated in October, when the Cases are mov'd into the Sun.

During the Summer-season, if the Weather should prove very wet, and the Earth in the Cases appear very moist, you must remove 'em into the Sun 'till the Earth be dry again; for if the Roots receive much Wet during the time they are unactive, it very often rots them; therefore you must never give 'em any Water after their Leaves are decay'd, but only place 'em in the Shade, (as was before directed.)

Thus you should manage 'em the two first Seasons, 'till their Leaves are decay'd the second Summer after sowing, when you should carefully take up the Roots; which may be done by sifting the Earth with a fine Sieve, whereby the Roots will be easily separated from the Earth; then having prepared a bed or two of good fresh light Earth, in proportion to the Quantity of your Roots, you should plant 'em therein at about three Inches distant every Way, and about three Inches deep in the Ground.

These Beds should be rais'd above the Level of the Ground, in proportion to the Moisture of the Soil, which if dry, three Inches will be enough; but if it be wet, they must be rais'd six or eight Inches high, and laid a little rounding to shoot off the Wet.

If these Beds are made in July, which is the best time to transplant the Roots, the Weeds will soon after appear very thick; therefore you should gently hough the Surface of the

Ground to destroy 'em; being very careful not to cut so deep as to touch any of the Roots; and this should be repeated as often as may be found necessary by the Growth of the Weeds, observing always to do it in dry Weather, that they may be effectually destroy'd: And towards the latter-end of October, after having intirely clear'd the Beds from Weeds, you should sift a little rich light Earth over 'em about an Inch thick, the Goodness of which will be wash'd down to the Roots by the Winter's Rain, which will greatly encourage their Shooting in the Spring.

If the Cold should be severe in Winter, you should cover the Beds with Pease-haulm, or some such light Covering, to prevent the Frost from penetrating the Ground to the Roots, which might greatly injure 'em while they are so young.

In the Spring when the Plants begin to appear above-ground, you must greatly stir the Surface of the Ground, clearing it from Weeds, &c., in doing of which, you should be careful not to injure the Plants: and if the Season should prove dry, you should now-and-then gently refresh 'em with Water, which will strengthen the Roots.

When their Leaves are decay'd, you should clear the Beds from Weeds, and sift a little Earth over 'em, (as before directed); which must also be repeated in October, in like manner; and so on every Year continu'd 'till the Roots flower, when you should mark all such as promise well, which should be taken up as soon as their Leaves decay, and planted at a greater Distance in new-prepared Beds: But those which do not flower, or those you do not greatly esteem, should be permitted to remain in the same Bed; therefore, in taking up those Roots which you mark'd; you must be careful not to disturb the Roots of those left, and also to level the Earth again, and sift some fresh Earth over the Beds (as before), to encourage the Roots, for it often happens, in the seedlings of these Flowers, that at their first time of Blowing, their Flowers do seldom appear half so beautiful as they do the second or third Year; for which Reason none of them should be rejected until they have flower'd two or three times, that so you may be assured of their Worth."

Two centuries almost have rolled by since Miller wrote this very full account of the management of seedling Daffodils, and yet there is little that we need add to it to-day. The only point to marvel at is that none of these earlier writers make any mention of the art of cross-fertilisation, and we can only conclude that it must have been unknown to them.

DAFFODILS IN THE SEVENTEENTH CENTURY.

Several of the sumptuous flower-books published in the early part of the seventeenth century contain figures of hybrid Narcissi, but it is quite unlikely that they were artificially raised, being no doubt produced naturally in the native habitats of the Narcissi, as well as by the process of seed-sowing, the bees and other insects having first of all performed their allotted task as marriage priests. Rudbeck's *Campi Elysii*, a work of great beauty and excessive rarity, there being only one perfect copy known, which is in the Sherardian Library at Oxford, contains plates of many fine Narcissi that are indubitably of hybrid origin.

Other fine old works that contain figures of hybrid Daffodils are the *Jardin Du Roy*, the *Theatrum Florae* of Rudbeck, and Emanuel Sweert's *Florilegium Renovatum*. Undoubtedly many of Rudbeck's plates are exaggerated, and Dean Herbert, on page 298 of his *Amaryllidaceae*, says: "I find reason to place little faith on the correctness of the engravings of that period." Again, on page 309, he says: "The result of careful examination of the old engravings of Narcisseae, is that the various authors copied from each other with great inaccuracy, and not from nature, and that no faith is to be given to any remarkable appearance in their works which shall not be verified by specimens." In at least one instance, however, Herbert's scepticism led him astray, for on page 305 of the same work he denounces Rudbeck's figure of *Narcissus cyclamineus* in *Theatrum Florae* as "another absurdity which will never be found to exist. It is probably an execrable representation of *Ganymedes capax* (i.e. *N. calathinus*.) with the margin of the cup incorrectly given; and, looking at the rest of Rudbeck's figures, I have no hesitation in rejecting it as a non-entity."

However unreliable the plates in these old works may be, they are of singular interest to the student of Daffodils, and the very fact that they were considered worthy of illustration proves that the popularity of these flowers is not of mushroom growth.

DEAN HERBERT & HIS WORK.

We have already stated that none of these earlier writers tells us anything about the cross-fertilisation of Daffodils, and careful search has not revealed the slightest reference to the subject until the year 1843, when a plate representing six hybrids that had been artificially raised by the Hon. & Rev.

William Herbert, who was the last warden of the Collegiate Church of Manchester, and the first Dean when it became a Cathedral, appeared in Edwards' Botanical Register (vol. xxix. plate 38.), a copy of which may be seen in the Lindley Library of the Royal Horticultural Society. As being the first authenticated hybrids not of spontaneous origin these are of especial interest, and as the work in which they are contained may not be readily accessible to all our readers, we think the particulars as to their parentage are well worth giving here.

- No. 1.—*Narcissus Diomedes* var. *Crichtoni*. From the seed of the tiny Trumpet Daffodil *Narcissus minimus*, by the pollen of a form of *Narcissus Tazetta* (the Polyanthus *Narcissus*). This is a twin-flowered form of what we now call *N. tridymus*, with pale yellow segments and long deep yellow cup.
- No. 2.—*Narcissus pallidus*. This is a seedling from *Narcissus minor*, fertilised with pollen of the white Trumpet Daffodil, *N. moschatus*. The result is a flower very similar to the wild English Daffodil (*N. pseudo-Narcissus*), but paler.
- No. 3.—*Narcissus Spofforthiae*. Raised from seed of *N. incomparabilis* fertilised by pollen of *N. poeticus stellaris*. This somewhat resembles *Burbidgei* "Little Dirk." The segments of the perianth incurve, and overlap one another, in colour a very pale yellow. The cup is rimmed with orange-red, but in the plate of the R.H.S. copy this has faded.
- No. 4.—*Narcissus Spofforthiae* var. *spurius*. This is a very poor form of the *Barrii* section from the same seed-pod as No. 3., with long wingy segments.
- No. 5.—*Narcissus incomparabilis aurantius*. This was raised from seeds of a form of *Narcissus pseudonarcissus* crossed with *N. poeticus stellaris*. Quite a showy flower, with white perianth and an orange rimmed cup.
- No. 6.—*Narcissus sub-concolor*. A seedling from *N. minimus*, crossed with pollen of *N. poeticus stellaris*. Similar to No. 4 in appearance, but has a better perianth.

Anyone who has studied Herbert's masterly treatise on the *Amaryllidaceae*, and his paper entitled "On crosses and hybrid intermixtures," will quickly understand what led him to choose the Narcissi for his experiments. The mere fact that the wild Daffodil abounded in his neighbourhood, and the knowledge that nearly all the members of the family were

hardy and produced seed in the open without it being in the slightest degree necessary to afford them any artificial protection, as in the case of so many other plants of this order, are most probably the reasons that decided this choice. But, whatever the reasons, his choice was a most happy one for, to use his own words, "no genus exhibits such a diversity in the most important parts as Ajax (Trumpet) and *Narcissus verus* (Pheasant Eye), still less in which such plants are capable of interbreeding ad infinitum, and imposing their mongrel produce upon botanists as natural species, and even as genera connecting the widely separate forms of the true natural sections or species."

In an interesting paper that accompanies the plate of these hybrids Herbert tells us that they "have been raised with many others from seed at Spofforth, and are amongst those which have already flowered. Eight years ago (i.e. 1835) a collection of the various known *Narcissi* was made there; for the completion of an arrangement of *Amaryllidaceae*; and from a desire of seeing the fruit of the intermediate kinds"

Despite the fact that Herbert appreciated, long before anyone else had given any thought to the subject, the importance of, and the future in store for, the science of cross-fertilisation, we do not find him claiming priority for his own experiments. Instead, after closely examining the engravings of *Narcissi* in several of the old works to which we have already made reference, he comes to the conclusion that "some of the old crosses seem to have been lost, and it is not clear that any decidedly new intermixture has been raised till lately in the last two centuries; which gives reason to suppose that M. Franqueville of Cambray, mentioned by Parkinson, or some other cultivator, at or before that period, had discovered the secret of crossbreeding, and made a profit by the sale of his novelties, and that his secret died with him." Be this as it may, we certainly have no record of the fact, and the probability is that the hybrids of these old books were purely natural ones introduced into gardens from their native European habitats. As showing how keenly alive Herbert was to the immense possibilities opened out by his discovery, we cannot do better than quote the concluding portion of his paper:—"It is desirable to call the attention of the humblest cultivators, of every labourer indeed, or operative, who has a spot of garden, or a ledge at his window, to the infinite variety of *Narcissi* that may be thus raised, and most easily in pots at his window, if not exposed too much to sun and wind, offering him a source of harmless and interesting amusement, and perhaps a little profit and celebrity. The six anthers should be carefully taken out

before the flower which is to bear the seed, blows. This may be done through a slit cut in the tube; and the yellow dust from another sort must be applied to the point of the style. The two-flowered *N. biflorus*, which has no ovules, may be an accidental mule, barren from extreme old age, (perhaps many centuries), as well as from hybridity."

We have dwelt at considerable length upon Herbert's work because it is not at all familiar to the present generation. At a time when very little indeed was known about the hybridisation of plants we find that both his methods and conceptions were singularly modern and original. The manner in which he set to work to verify the parentage of some of the old hybrids shows how thorough were his investigations, and it is to a great extent due to his careful elucidation of the theory of hybridising *Narcissi* that these flowers occupy the foremost position they do to-day. The fact that he was a good classical scholar, a draughtsman and a linguist, as well as a good botanist and a painstaking horticulturist, assisted him in the production of several botanical treatises which hold a high position in horticultural literature and are full of explicit information.

EDWARD LEEDS & HIS WORK.

We do not know how many followers Herbert had in his generation, but only two or three appear to have been successful, and these are men whose names are now well-known to all devotees of the flower. In Moore's & Ayre's "Gardeners' Magazine of Botany," Vol. III., pages 169 and 289, published 1850-1, six hybrid *Narcissi*, raised by Mr. Edward Leeds, Longford Bridge, Manchester, are illustrated. It has always been a moot point as to whether Mr. Leeds was induced to rear seedling *Narcissi* through reading Herbert's writings on the subject. In all probability this was not the case, because we are distinctly told that he had been engaged in rearing cross-bred *Narcissi* many years before the date at which his own seedlings were figured. It has been suggested as quite probable that when he commenced his work he collected as his tools the most desirable garden forms of *Narcissi* which he could find, and also that he corresponded with Herbert on the subject, but, though the latter was just the man to impart his knowledge and his materials freely to a fellow-worker, we have no evidence that any of Herbert's seedlings found their way into the Longford Bridge collection. That Herbert's collection of *Narcissi* nine years prior to the publication of his "Amaryllidaceae" was not a very extensive one is proved by a letter written by him from Spofforth on August 30, 1828, in which he

regrets not being able to assist a correspondent in these words: "I should be very willing to assist you in making your collection [of *Narcissi*] if I were able, but I really have never much attended to the *Narcissi*." As we have already stated six of Mr. Leeds' seedlings were figured in Moore's & Ayre's valuable magazine, (a copy of which will be found in the library of the Linnean Society), and accompanying the plates we find not only ample detailed descriptions of the six varieties, but also some interesting information as to how these were bred, in addition to some very valuable details as to the rearing of seedling *Narcissi* generally from Mr. Leeds' own pen. It is most interesting to find him acknowledging the writings of his contemporary, Dean Herbert, on the same subject, and, as has been before suggested, it seems quite possible that Mr. Leeds was encouraged by the information on the hybridising of *Narcissi* previously published by the Dean of Manchester, even if these writings were not actually the inducement of his efforts in this direction. The following transcripts from "The Gardeners' Magazine of Botany" tell their own tale:—Page 169, three varieties of seedling *Narcissi* are figured on a lithographed plate, C. T. Rosenberg being the artist. These three varieties are described as follows:

1. ***N. poculiformis elegans***. (Now called *N. Leedsii elegans*). Flowers large; segments of the perianth more than twice the length of the cup, somewhat undulated, creamy white, cupcyathiform, with a crenulate nankin-coloured margin; spathe narrow and much elongated.

2. ***N. Leedsii***. Flowers large; segments of the perianth broadly and obtusely oval, about twice the length of the cup, yellow, spreading plane; cup between cyathiform and cupulate, deep yellow; the margin indistinctly lobed, and of a deep bright orange colour: spathe somewhat elongated.

This is now called *incomparabilis* "Figaro."

3. ***N. major superbus***. Flowers very deep yellow; segments ovate spreading; scarcely equalling the broad campanulate cup, which is plaited, deeply lobed, and spreading at the margin; spathe short, obtuse. Apparently now lost to cultivation.

The fine varieties of *Narcissus* represented in the accompanying plate are seedlings raised by E. Leeds, Esq., of St. Ann's, Manchester, a gentleman who has been for many years engaged in the cross-breeding of this tribe of plants, and who has originated many distinct and beautiful varieties. Those now figured along with some other very handsome seedlings, which we shall publish shortly, were most obligingly sent to us

last April by Mr. Leeds, who gives the following account of their origin:

The variety *poculiformis elegans* was obtained from *poculiformis (montanus)* crossed with *N. poeticus angustifolius*.

N. Leedsii, differing chiefly from *incomparabilis* in the colour of the margin of the cup, was produced from major crossed with *poeticus*, which latter has communicated to it the deep orange ring.

N. major superbus is a seedling from major or *Ajax maximus*.

"There is no end," writes Mr. Leeds, "to the varieties and elegant forms that may be obtained. It is quite clear, however, that *incomparabilis* is no species. I think *bicolor* is not a species, and that the number of species is very small. The late Dean Herbert in his papers on this tribe mentions *N. montanus* as being difficult to obtain seeds from. I have three crops of seedlings from this crossed both with long and short-tubed kinds; it will cross with *Ajax* of all sorts, with *poeticus* and *poeticus angustifolius*, and I think with the *Rush-leaved species*. *Calathinus*, (meaning a variety of *N. odoratus* incorrectly figured in the Botanical Magazine under this name), never seeds with me, but its pollen fertilises the long-tubed species. *Bicolor* seeds occasionally, but not freely. I have varieties from this with *angustifolius*, *poeticus*, and *poculiformis*, also *pumilus (i.e. minimus)*; they are all very distinct and curious. *Moschatus* and *tortuosus* seed pretty freely; they will cross with *poeticus*, *poculiformis*, and any of the long-tubed kinds, and the produce is always beautiful. I think much remains to be done in the production of fine hybrids of this beautiful tribe of plants, and it may be mentioned these are not ephemeral productions like many modern florists' flowers, but will last for centuries with very little care as the common kinds have done in our gardens." In the same volume, page 289, is another coloured plate as before, also containing three of Mr. Leeds' seedlings. These are as follows:—

1. ***N. aureo-tinctus***. Flowers large; segments of the perianth twice as long as the cup, oblong-lanceolate, spreading, sulphur coloured; cup almost cylindrical, yellow, faintly tinged with orange on the margin; spathe one-flowered, about as long as the pedicel.

This variety obtained a First Class Certificate from the Royal Horticultural Society on March 19th, 1878, when exhibited by Messrs. Barr & Sugden. Later on it was re-named "Fair Helen," but has long since been superseded by better flowers.

2. **N. incomparabilis expansus.** Flowers large; segments of the perianth oblong-obtuse, mucronate, plane, spreading sulphur yellow; cup short, expanded, and indistinctly lobed, bright yellow, spathe rather exceeding the pedicel.

A F.C.C. was also awarded by the R.H.S. when shown by Messrs. Barr & Sugden on April 22nd, 1879. It was afterwards re-named "Bianca," but has now almost dropped out of cultivation. Must not be confused with a variety of the same name raised by Mr. Engleheart.

3. **N. bicolor maximus.** Flowers large; segments of the perianth oblong-ovate, spreading pale yellow, equalling the larger deeper yellow funnel-shaped cup, which is lobed and wavy at the margin; spathe one-flowered, more than twice as long as the pedicel; leaves $1\frac{1}{4}$ inches broad. This is the well-known variety "Grande."

Here again we are told that "the annexed figures are representations of some other of the Narcissi raised by E. Leeds, Esq., of Manchester, and referred to at page 169. The varieties now published, though perhaps less strikingly novel in appearance than those just alluded to, are yet very handsome and showy plants, and quite different from any of the kinds at present in cultivation. The most remarkable is perhaps *N. bicolor maximus*, which has leaves resembling those of *Pancreatum maritimum* more than the foliage of a *Narcissus*; the flowers, too, are very large, though not possessing novelty of colour. In this respect *N. aureo-tinctus*, with its pretty tinge of orange on the cup, is a desirable variety, though possessing a less perfect form than some others as regards the perianth; it is remarkable also for its straight-sided cup.

N. incomparabilis expansus is remarkable for the wide-spreading form of its cup and the broad flat lobes of its perianth. The variety *N. bicolor maximus* was obtained from *bicolor*, crossed either with *maximus* or *propinquus*; *N. aureo-tinctus*, Mr. Leeds believes to have been produced between *propinquus* and *calathinus* (odorus); while *N. incomparabilis expansus* is the offspring of major crossed with *poeticus*."

At page 169, under the head of "culture," the editors publish some hints on raising seedlings, and their treatment, given them by Mr. Leeds. They are well worth reproducing here:—"To obtain good varieties it is needful the previous season to plant the roots of some of each kind in pots and to bring them into the greenhouse in spring to flower, so as to obtain pollen of the late-flowering kinds to cross with those which otherwise would have passed away before these were in flower. With me the plants always seed best in the open

ground. When the seed-vessels begin to swell the flower-stems should be carefully tied up and watched until the seeds turn black. I do not wait until the seed-vessel bursts, as many seeds in that case fall to the ground and are lost, but take them off when mature with a portion of the stem, which I insert in the earth in a seed pot or pan provided for their reception. I place them in a north aspect, and the seeds in due season are shed as it were naturally into the pot of earth. I allow the seeds to harden for a month on the surface before covering them with half an inch depth of sandy soil. The soil should be two-thirds pure loam and one-third sharp sand; the drainage composed of rough and turfy soil. In October I plunge the seed pots in a cold frame facing the south, and the young plants begin to appear in December and throughout the winter, according to their kinds and the mildness of the weather. It is needful in their earliest stages to look well after slugs and snails. The seedlings should be protected from frosts, but should have abundance of air, or they will soon draw. As soon as they will stand exposure, plunge the pots under some sheltered wall or hedge, and they will form their first bulbs. Let them become dry in summer, and if it be a wet season, turn the pots on their sides until the time for them to grow again. Let them remain in the seed pots and top-dress them with fresh loamy soil. When the bulbs are two years old, prepare, in an open, airy situation, a bed of good loam mixed with sharp sand; prepare the bed as for Tulips, &c., covering the entire surface with sand, in which the bulbs should be embedded; plant the roots in rows 3 inches apart, and each root 1 inch apart in the row. They will stand three years in this bed, when they may be finally removed into a fresh bed of similar soil to flower; a few will flower the fifth year, but the greater portion not until the seventh. I do not take up the flowering roots oftener than every third season, but top-dress the beds every autumn. A little thoroughly decayed hotbed manure mixed with the surface soil aids them to produce fine flowers, but it must be decomposed, or it will do harm. The beds should be well drained, the prepared soil at least two feet deep, and the situation sheltered from north and east winds, which do much damage to the flowers."

We need make no apology for the length of these extracts, because we feel that Leeds' work among Daffodils was a great one, and such details of his life that we have been able to obtain cannot fail to be of interest to our friends and correspondents.

Edward Leeds was a stockbroker, and died April 4th, 1877. For the last six years of his life he was an invalid, and had

lost the use of his legs, so that he could only be wheeled about in his garden in a bath chair. When a lad at school he had a fancy for flowers, and spent his pocket money in plants, which he bought at Smithydoor Market in Old Manchester. His father lived in Cheetham Hill, but removed to Longford, where he and his son lived for forty-two years, during the whole of which time the garden was kept up with the most loving and careful attention. It was then the meeting place for many old Lancashire florists. Tulips, Auriculas, Carnations, and Pinks were grown there as hobbies, and the wider cultivation of alpiners and herbaceous plants was also pursued with ardour. Sir William Hooker, of Kew, used to correspond with him, and the herbarium formed by him was sent to Kew just before he died. A man of singularly quiet and unobtrusive habits, he appears to have been little known beyond his own small circle of intimate friends. The manner in which his seedling *Narcissi* came into the market is extremely interesting. When in failing health, in 1874, he decided to sell his entire collection, and wrote to Mr. Peter Barr, asking £100 for it, saying that if it did not realise that sum he would destroy it by "digging it in." Mr. Barr did not feel disposed to find so large a sum, but remembering that the Rev. John Nelson was a lover of *Narcissi* and an enthusiast in the culture of all bulbs and herbaceous plants, he mentioned the matter to him, and both of them grieved much at the idea that such a fine collection should be destroyed; and, that the hybridisation of the *Narcissi* of a lifetime should not be lost to posterity, it occurred to Mr. Nelson that if he could get a few others to join in the purchase this might be avoided. Eventually half the collection went to Mr. Barr; the remainder being divided equally among the Rev. J. Nelson, his brother-in-law, Mr. W. Burnley Hume, and their mutual friends, Mr. Herbert J. Adams and Mr. G. J. Braikenridge who subscribed the amount of the purchase-money and thus saved this valuable collection. In it were included such varieties as Capt. Nelson, John Nelson, Grandee, Wm. Goldring, Frank Miles, Cynosure, Princess Mary, Katherine Spurrell, Nelsoni major and Nelsoni aurantius.

THE RAISER OF "HORSFIELDII."

Our pamphlet would be incomplete without a reference to Mr. John Horsfield, a handloom weaver by trade, and the raiser of the bicolor Daffodil that bears his name. Horsfield was an excellent scientific botanist, and president of the Prestwich Botanical Society for 32 years. *Narcissus Horsfieldii* appears to have been raised about 1845, and is reputed to be the result of crossing *N. bicolor* with the pollen from a very

fine flower of the wild *Pseudo Narcissus*. From the same batch of seedlings there were two other forms, one of them resembling "Princeps." Horsfield died in 1854, and the entire stock of the bulbs of his Daffodil were then sold for the benefit of his widow. There was then twenty-eight flowering bulbs and nine small ones, the large ones realising one shilling and sixpence each—not a very magnificent sum compared with the prices now asked for novelties of value!

WILLIAM BACKHOUSE & HIS WORK.

But of all the leading pioneers in rearing cross-bred Daffodils most credit is due to Mr. W. Backhouse, who lived at St. John's, Wolsingham, Durham. Considering the limited material with which he had to work the results he achieved were nothing short of marvellous. Unfortunately we have no definite knowledge as to how he raised those six magnificent varieties, Emperor, Empress, Weardale Perfection, Gloria Mundi and Barrii conspicuus, which have gained world-wide popularity. In answer to an enquiry that we addressed to him, his son Mr. Henry Backhouse wrote to us as follows:—"My father the late William Backhouse, when he retired from business, went to live on some property of his near Wolsingham in the county of Durham. Here, during the last twelve years of his life, he raised numerous varieties of *Narcissi*; years 1857—1869. At the present time I grow the following varieties of his raising:—Emperor, Empress, Weardale Perfection, Kaiser, M. J. Berkeley, J. B. M. Camm, Mrs. Camm, Mrs. Vincent, Matson Vincent, Golden Prince, P. R. Barr, Dorrien-Smith, Chas. Dickens, Eliza Turck, Pandora, John Parkinson, Gloria Mundi, C. J. Backhouse, Blackwell, Queen Sophia, Barrii conspicuus, Dorothy Wemyss, Crown Prince, Autocrat, James Bateman, Sensation, Flora Wilson, Beauty, Mrs. Bowley, Vanessa, Little Dirk, Pickwick, Orphée, Baroness Heath, The Pet, John Bain, Ellen Barr, Agnes Barr, Nelsoni William Backhouse, Stanley, Mrs. Backhouse, Tri-dymus The Type and Duke of Albany."

Although, as we have already stated, Mr. Backhouse left no complete records of his work, there is an interesting article from his pen in "The Gardeners' Chronicle" for June 10th, 1865 relative to the subject. In it he says, "The Daffodils *Narcissus major*, *Pseudo Narcissus minor* & *moschatus*, cross with one another, and the produce seeds as freely as the parents. The colours are not merely intermediate, but of all shades between the colours of the parents, where these differ, as in *moschatus*. *N. bicolor* seeds badly and is deficient in pollen, but from crosses of the other Daffodils with it I have raised

some of the largest and finest of the class. These also seed badly, and their produce has a tendency to revert to the Daffodil. The roots of *N. bicolor* are very large, and shaped somewhat differently from the others, and the crosses from it have the same peculiarity; the colours of the seedlings vary from those of their parents through white with lemon cups to almost pure white. From the Daffodils crossed by *N. poeticus angustifolius* the kinds called foetidus (*Queltia foetida*) by Dean Herbert are produced, and the cross is intermediate between the parents when *N. major* and *N. Pseudo-Narcissus* are used, but with *N. poeticus* the variety is greater, and some with very finely expanded cups occur. The variety also seems to be greater when some of the seedling varieties of the Daffodil are used. These crosses seed very sparingly, but may be occasionally got to produce seed by a cross with either parent; those with the Daffodil having shorter cups than *N. major* and *moschatus*, and those with *N. poeticus* being intermediate, with generally a red edge to the cup. Seeds I have sown from plants not artificially impregnated produce the same result, some showing the Daffodil and others the poeticus type. The orange tints on some of these crosses vary in different seasons. On many the cup will one year be orange-tinted and the next plain yellow.

The Daffodils crossed by *N. Tazetta* produce plants intermediate between the two in general, but sometimes the cup is not longer than in *N. Tazetta*: the flowers on each stalk vary—two, four, and up to six occurring. These crosses vary in colour and size according to the nature of the parent *Tazetta*; but the produce does not seed, except that last year one pod producing one seed occurred from perhaps a couple of hundred flowers. A warmer climate than mine might produce different results. No pollen is to be got from it to cross with the Daffodil parent.

The percentage of seedlings showing striking peculiarities is but small from any of these crosses; and the colours only partially follow what might be expected from the parents; the cross from *N. moschatus* by poeticus not being always white; and I have from foetidus by poeticus some with green flowers.

Before dusting with the pollen I cut out the stamens, except in the kinds which only seed when crossed; but in out-of-door plants, when there are numerous others about of the same genus, there is no certainty but that sometimes the bees may be the authors of a different cross. I have sometimes tied the mouth of the cup in Daffodils for a time to prevent access, but in most cases the result shows the intended cross to have taken place."

As far as we are aware these short notes are all that Mr. W. Backhouse penned concerning his experiments.

Whether or not he had more material to work with than his predecessors Herbert, and Leeds, it would be difficult to say, but it seems highly probable that this was the case. The manysidedness of his work can be gauged by the splendid results that he achieved in all three sections, Magni (Trumpet), Medio (Chalice-cupped), and Parvi (Small-cupped). In the former he was particularly fortunate, and we hesitate to think what the average exhibitor would do even to-day were he for some reason debarred from exhibiting any of the Backhouse Trumpet varieties.

Turning to the Medio section we find that many of our most indispensable flowers are of his raising. *Gloria Mundi*, one of the most superb flowers ever raised, *Queen Sophia* and *Barrii conspicuus* are a trio that we could ill afford to be without even in these days of marked advance and rapid progress.

In the Parvi section the delectable *John Bain* bravely holds its own, while *Ellen Barr* and *Agnes Barr* are still most useful flowers.

There is not the slightest doubt that the wonderful developments in size, form and colouring, for which Mr. Backhouse was mainly responsible, were the means of attracting much attention to Daffodils and extending their popularity.

Among those who, about this time, were attracted to follow the fortunes of the Daffodil we might mention Mr. F. W. Burbridge, Rev. John Nelson, Rev. W. Kendal, Rev. C. Wolley Dod, Rev. A. Rawson and Mr. W. Brockbank, all of whom have alas! been removed from our midst. Of those happily still with us Mr. Peter Barr, Rev. G. H. Engleheart, Rev. W. Wilks, Messrs. James Walker, Bennett-Poë, Scrase-Dickins, Dorrien-Smith and W. B. Hartland are the most prominent. To many of these as students, collectors and cultivators we owe a deep debt of gratitude, but to refer individually to their work, does not, of course, lie within the province of this pamphlet, which is concerned purely with the subject of hybridisation. In this connection one name, and one only, will at once occur to every reader—that of the

REV. GEORGE HERBERT ENGLEHEART.

Following in the steps of his renowned ancestor Dean Herbert, as a devoted student of Daffodils and as a hybridist in those of the brilliant northerners, Leeds and Backhouse, and their more recent followers, Mr. Engleheart has easily outstripped them all, and now stands alone as the greatest living raiser of new forms of these beautiful flowers. For almost 30

years he has patiently laboured amongst them, and the abounding success with which he has met is but the due reward for his arduous toil. Nor has he confined his efforts to any one section, or simply worked to improve existing types, but has obtained new departures that would have astonished the earlier workers in this fascinating field of horticulture.

"Good wine needs no bush," and there is therefore no need for us to eulogise his work further. Happily he is still with us, and whenever we enter our gardens in Daffodil time, or visit the Spring exhibitions, we greet flowers that have been born into the world through the means of his patient labour, and selected by his refined taste.

THE REWARD OF THE HYBRIDIST.

Needless to add Mr. Engleheart has now many followers, who with the enormously superior materials which he has provided them, have an even better chance than was ever afforded him. Those who have not followed the fortunes of the Daffodil this last decade would scarcely credit the wonderful improvements and developments in size, form and colouring which have taken place. Each year we get more and more beautiful flowers, and exquisite gains in size, form and colour are proceeding apace. The range of colouring, formerly restricted to quite a few colours, now includes many lovely shades of white, cream, ivory, citron, olive, green, salmon, pink, rose, scarlet, crimson, orange, apricot, peach, buff, lemon, canary, sulphur, gold, primrose, and all other gradations of yellow.

In such work as this there is, of course, no finality, and much still remains to be accomplished. The immense strides that have been made are, after all, but the work of quite a few individuals. Year by year the popular taste for these plants grows stronger, filling up, as they do, a blank in the garden during March and April, when flowers are still relatively scarce. If those readers of this pamphlet who have not yet succumbed to the fascination of this delightful hobby are thereby spurred on to emulate the magnificent example of Leeds, Backhouse and Engleheart, enter into the true spirit of the cult of this hardy spring flower, and follow out its peculiar lines of beauty, then its object will have succeeded.

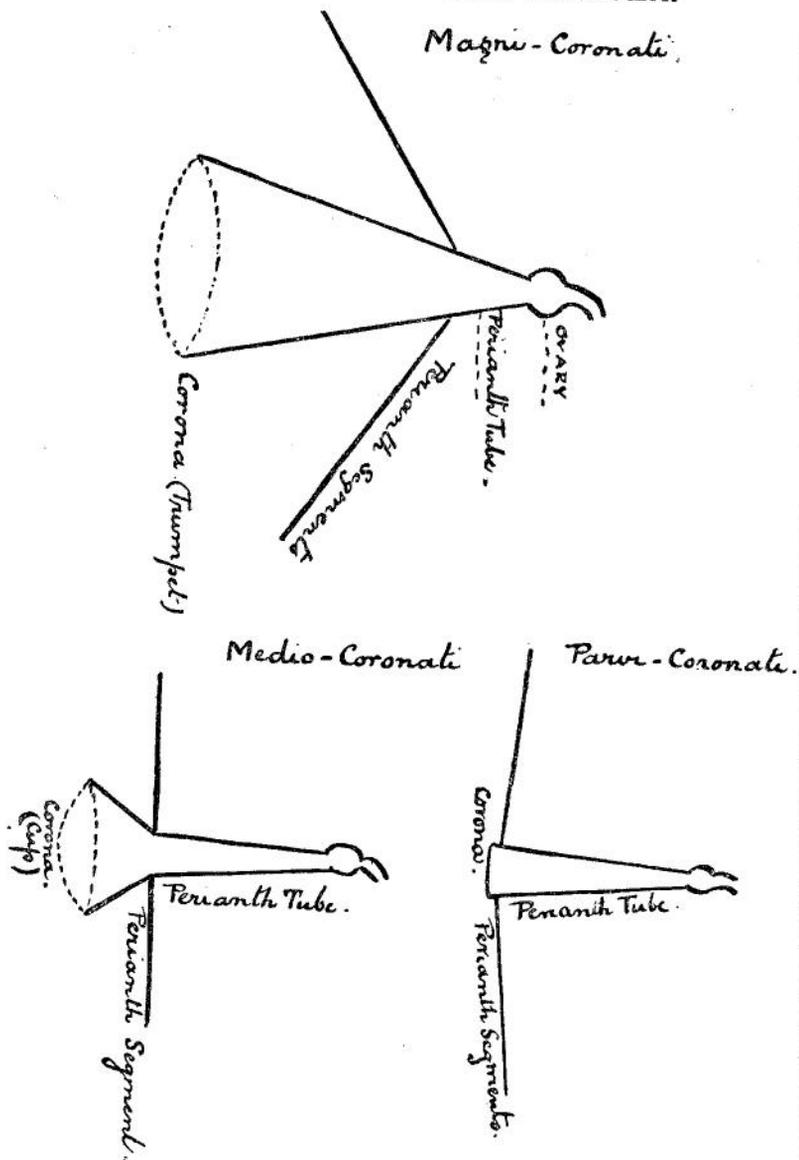
It must already be quite apparent to those of our readers who have not commenced to raise Daffodils from seed that the process is not by any means a very elaborate one, as some would have us believe. Time, care, patience, trouble and discrimination are all alike needed, but these are necessities in every walk of life.

The beginner should first of all start by getting a collection of all the standard sorts and then cultivate them to the highest pitch of perfection. In so doing he will quickly train his eye to know what are the exact points that go to make a good flower; he will also soon get to understand in which direction there lies a chance of effecting improvements, and a visit to some of the leading shows will still further increase his knowledge in both these respects.

In order to hybridise any race of plants successfully something more than a mere 'nodding acquaintance' with its members is necessary, and the Narcissi form no exception. The two points with which the would-be hybridist must make himself conversant are:—

- (1) The structural variations of the flower, and its natural mode of fertilisation.
- (2) The parentage of the natural hybrids.

STRUCTURE OF THE FLOWER.



Dealing briefly with the first point, we cannot do better than advise any reader whose ideas on the subject are in the slightest degree hazy to at once invest 2/6 in a copy of "**The Book of the Daffodil**," by the late Mr. Bourne, which belongs to the excellent series of 'Handbooks of Practical Gardening' published by Mr. John Lane. Through the courtesy of the publisher we are enabled to reproduce three excellent diagrams from this work, by which the veriest novice will be able to grasp the external anatomy of the flower in each of its three sections. These diagrams were suggested to Mr. Bourne by two that appear in "The Narcissus at the Antipodes," and we feel sure that the following lucid remarks anent the internal structure of the Daffodil which appear in that work, will prove most helpful to the beginner:—

"If you take the seed capsule at the base of a freshly-opened Narcissus, and cut it up, you will find it full of little round bodies called ovules, which look like seeds, and which, if left to grow, must in time, one would think, mature into seeds. But if at the end of the season you take another capsule of the same variety and open it, you will find, as likely as not, that there is no seed; that the little ovules which promised to become seed, though still visibly there, have dried up without coming to anything, the reason being that the nucleus has not been quickened into life by contact with the fertilising pollen. Examined further it will be seen that the whole structure that rises above the ovary and is sheathed by the flower is contrived for the purpose of securing the fertilisation of the ovule necessary to convert it into seed. The centre of the apparatus is a long fleshy column called the style, which terminates above in a flat tabular surface called the stigma. In a Trumpet Daffodil there cluster round and along the style six smaller shafts (filaments), terminating severally in a little club-head, each head being thickly powdered with a white or yellow dust. The club-head is called an anther, and the dust is the fertilising pollen.

Mode of Fertilisation.—Now, to bring about the fertilisation of the ovule, the pollen grains must find their way on to the stigma, which exudes a gum, designed to retain the pollen when it once reaches its destination. From the stigma the pollen forces its way along channels in the style into the ovary, where, by some mysterious union, it converts the ovules into seeds, that is, in effect, into little bulbs, each capable of growing into a new plant. A glance at a diagram of the Trumpet Narcissus will show that, if left to itself, such a flower has little chance of fertilisation, for the stamens reach up only about

two-thirds the height of the style. Unless, therefore, a bee or a camel's-hair brush transfers the pollen on to the stigma surface, a Trumpet Daffodil cannot seed. And as it is likely that the bee, equally with the camel's-hair brush, will bring pollen from some other flower lately visited, the whole arrangement is admirably calculated to secure cross-fertilisation. The bee, fresh perhaps from the plunder of a "Maximus," bounces into an "Emperor," and the first thing he strikes is the stigma, leaving upon it a daub of the "Maximus" gold-dust. Then he goes down further into the trumpet, rolling himself afresh in pollen-flour, and after rifling the sweets of "Emperor" flies away to carry its dust to some other Narcissus. All the hybridiser does, therefore, is to take the place of the bee. He rolls his brush in whatever pollen he may select, and daubs it on the gummy stigma, where it adheres, and in due time affects its purpose.

INTERNAL STRUCTURE OF NARCISSUS POETICUS.

An examination of the internal economy of the *N. Poeticus* will show that the arrangement of style and stamens differs from that of the Trumpet Narcissus, and appears rather to favour self-fertilisation. The style is arranged exactly as on the Trumpet Daffodil, but the stamens have no long shaft as in the other, being reduced entirely to anthers, rounded flour-coloured knobs fixed to the side of the tube, three on a level with the stigma or rising a trifle above it, and three on a lower level slightly below the stigma. If you look into the centre of a *N. Poeticus* you will see that the stigma is smothered between three cushions of pollen, and that it is difficult for such a flower to avoid self-fertilisation. In fertilising a Trumpet Daffodil, all that is necessary is to dust the selected pollen on the stigma; but if it is desired to cross-fertilise the varieties of *N. Poeticus*, it is necessary first to prevent self-fertilisation by cutting out the anthers of the flower operated on."

INTERNAL STRUCTURE OF *N. INCOMPARABILIS*.

A glance at the diagram will show that *Narcissus incomparabilis* lies midway between the Trumpet Narcissus and the *Poeticus* Narcissus. As far as the external structure is concerned, the chief variations of form of which a Narcissus is capable are owing to the sliding, as it were, of the whorl of perianth segments along the tube of the flower. The internal

arrangements of the *incomparabilis* varieties are likewise intermediate in character. The stamens are arranged in one set or series, but instead of the filaments springing free from near the base of the flower-tube, as in the Trumpet Daffodil, they only spring free at about two-thirds the length of the tube. The positions of the stamens vary slightly in different varieties, but are generally intermediate between those of the stamens of the Daffodil and of the *Poeticus* flower.

Natural Hybrids.

Undoubtedly what led Dean Herbert to make experiments was the fact that he was suspicious that several so-called species of Narcissi were natural hybrids, and he proved this in two cases, *i.e.* *N. incomparabilis* and *N. odorus*. Mr. Engleheart has since gone over the ground traversed or indicated by his ancestor, the results being as follows:—

Seed Parent.	Pollen Parent.	
(1) <i>N. pseudo-Narcissus</i>	x <i>N. poeticus</i>	= <i>N. incomparabilis</i> .
(2) <i>N. pseudo-Narcissus</i>	x <i>N. jonquilla</i>	= <i>N. odorus</i> .
(3) <i>N. tazetta</i> x <i>N. jonquilla</i>	= <i>N. intermedius</i> .
(4) <i>N. tazetta</i> x <i>N. poeticus</i>	= <i>N. biflorus</i> .
(5) <i>N. poeticus</i>	... x <i>N. moschatus</i>	= <i>N. montanus</i> .
(6) <i>N. poeticus</i>	... x <i>N. jonquilla</i>	= <i>N. gracilis</i> .
(7) <i>N. bicolor</i> x <i>N. poeticus</i>	= <i>N. Macleaii</i> .
(8) <i>N. pseudo-Narcissus</i>	x <i>N. triandrus</i>	= <i>N. Johnstoni</i> .

For greater surety these were raised in successive generations and nearly all the crosses were effected both ways, each flower employed being used both as seed-parent and pollen-parent. This alternation did not hide the identity of the resulting hybrid, but only caused certain differences in form and colour. The whole subject of these natural hybrids is an intensely interesting one, but space will not allow us to discuss it further here. Our chief concern lies with the garden forms of modern production, and we pass at once to the consideration of this important subject.

Magni Coronati.

SELF YELLOW TRUMPET DAFFODILS.

(First Early Section).

We are only following the usual precedent by giving pride of place to the Daffodil proper, *i.e.* the Trumpet or Ajax Daffodil and its varieties. Everyone, we suppose, knows the

type, the English wild Daffodil or Lent Lily—the Garland of old writers. As a cultivated plant it has, of course, shared in the immense changes and improvements which have taken place in the whole family, and, though few of us take the trouble to grow the wild plant in our gardens, it would, we think, be rather difficult to find a garden in which it was not represented by one or other of the fine forms that have been developed under cultivation. Some time ago we remember reading in one of the trade lists the remark that “we have plenty of good trumpets,” a statement with which those who go in for either exhibiting or cross-fertilising will certainly not concur. For our part we have on more than one occasion experienced the greatest difficulty in getting the requisite number of varieties to enable us to compete at the exhibitions in the classes set apart for these flowers. Especially has this been the case with the self-yellow varieties, which seem to have been strangely neglected, and we should certainly advise the beginner to try his hand at improving this class. Nearly all of what are known as the first early varieties in this section are unfortunately of very uncertain constitution, and, though they seed freely as a rule and are easy to intercross, the progeny is generally weak and disappointing. Six sorts are usually to be found in catalogues:—Tenby (*obvallaris*), Henry Irving, Golden Spur, Excelsior, Santa Maria and Golden Bell. Of these by far the most vigorous is **Golden Bell**, one of Mr. Engleheart's earliest hybrids, the parentage of which is worth recording. The seedbearer was a large wild trumpet Daffodil something like Countess of Annesley, while the pollen plant was Emperor. It seeds moderately well with us, and, though not a flower of the best form, is extremely floriferous. The **Tenby Daffodil** succeeds well with us, and seems a constant seeder everywhere, so much so that unless it is de-anthered very early in the bud state it quickly gets self-fertilised. Apropos of this variety, Mr. Engleheart made some most interesting comments in a paper he read before the Royal Horticultural Society on April 9th, 1889. “When visiting,” he said, “the grounds of my good friend Mr. Walker and others, it has often been my thought—how few first-class market varieties there are, and how many gaps there are crying to be filled up. Thus, at the beginning of the Narcissus season I see “Tenby” all alone, so far as Trumpet Daffodils are concerned, for some while; and I am sure that Mr. Walker would like half an acre of a flower as early, as bright, and as stiff as “Tenby,” but twice as big and productive of more bloom to the bulb, for “Tenby” is not very free in this respect. Well, I think that this is an attainable thing, either by sowing considerable breadths of seed of “Tenby” (it bears seed abundantly)

and selecting from the seedlings, or by crossing it with such Daffodils as Golden Spur or Maximus.”

Considering that “Tenby” seeds so freely, and is such a perfect flower, it is certainly rather a wonder that more good seedlings have not been produced from it. Perhaps its earliness has been rather against this, but by retarding it, and gently forcing some of the finer mid-season yellow Ajax, it is quite possible to effect a cross between the two with, probably, very satisfactory results. Our own seedling, Mervyn, is a case in point. A cross between “Tenby” and Mme. de Graaff should produce some useful flowers, and there are other combinations which will quickly suggest themselves. We have some seedlings growing between “Tenby” and N. triandrus, but are rather afraid of their constitution. The only chance seedling from “Tenby” that has been certificated is Alert (Pearson), which is an extremely pretty flower, of good constitution and a free seeder.

“Any hybridiser,” says the author of ‘The Narcissus at the Antipodes,’ who admires the style of N. *obvallaris* (“Tenby”) may, if he chooses, create a series of very pretty variants from this Daffodil. With a view to retaining its peculiarly neat character, it is best to cross it with Daffodils of trim form, resembling itself. *Obvallaris* combined with Nanus has given several interesting diminutive forms. One of these, about half the size of *obvallaris* and a pale yellow colour, is of a somewhat novel character, having the edge of its pretty trumpet sharply turned back.”

Of course, since Mr. Engleheart spoke the words we have referred to, many additions have been made to this early-flowering section, as a glance at our own collection will show. One of the best is **Gold Cup**, raised by Mr. Engleheart, and undoubtedly of “Tenby” origin. The plant is of stiff, erect growth, and strong and vigorous. The well-shaped flower is about twice the size of “Tenby” with something of its form, and lasts a long time in bloom. The colour is a pure brilliant gold, most distinct. It is a free seeder and we can most strongly recommend it.

Another of these lovely early Daffodils to which we would direct attention is **Felicity**, a flower of an exquisite and unique shade of uniform soft light yellow. This passes to a beautiful delicate shade when picked, and is especially attractive in artificial light. The flowers are of large size, with daintily frilled trumpet. It is a strong, healthy grower and remarkably floriferous.

Golden Spur needs no praise from us. Everyone knows it, grows it, and justly admires it. Unfortunately its seedlings

are, as a rule, weakly, but it is useful as a pollen parent, and we recommend it to be retarded by late planting in order to use its pollen upon some of the later sorts.

Excelsior is somewhat similar, but is a flower of greater substance and has a better constitution. It should certainly be made a note of for hybridising purposes. **Henry Irving** evidently succeeds very well in New Zealand, for the author of "The Narcissus at the Antipodes" describes it as "one of the finest Daffodils in cultivation, finer than Emperor in my opinion." It is, however, a most uncertain doer and its seedlings are usually very weakly.

Santa Maria, a wild Spanish Daffodil, is equally uncertain, but is worth a place in every collection as a pollen parent on account of its superb colour, being the darkest yellow variety in general cultivation. Like most wild Daffodils it seeds freely enough. The segments (petals) have a characteristic twist which, in our opinion, adds to the beauty of this particular flower. There are people, however, who are cranky on this subject and think no flower is worth growing unless its perianth is as stiff as a piece of cardboard. Surely such a standard as this does not constitute true elegance in a flower. **Golden Trumpet** (Pearson) is a nice early flower and has proved a splendid doer with us. Though by no means a first-class flower it surpasses both Henry Irving and Golden Spur in earliness. This plant only forms tiny seed pods and these contain but few good seeds.

On the whole we do not recommend the intercrossing of these early varieties simply because several of them are of indifferent constitution and their progeny is weak. What we do, however, advise is that they should be used in conjunction with the second early and midseason sorts that are of vigorous and healthy growth, and so ensure seedlings with plenty of stamina. Crossed with pollen from the best forms of poeticus (forced) they should yield incomparabilis varieties equalling Blackwell in earliness, and by hurrying Autocrat into bloom its pollen should be employed in trying to produce good self-yellow varieties of the same section.

SECOND EARLY SECTION.

This includes those varieties that flower at the very end of March and the beginning of April. Of these we give pride of place to **King Alfred**. Ever since its introduction by Mr. Kendall in 1899, this truly magnificent flower has taken a foremost position at every Daffodil exhibition throughout the country, and each year its popularity increases. To the

hybridist it is proving of inestimable value both as a seed and pollen parent, while of its beauty in the garden there can be no two opinions. The plant is of tall, vigorous growth, blooms freely, and has fine blue foliage. The flower somewhat resembles Maximus, (we incline to the belief that it was raised from Maximus x Emperor), but the great fringed crown and bold perianth segments are of far greater substance and better form. The colour is very striking, a rich, clear golden-yellow. To grow this fine plant to perfection the chief desiderata are a good deep loam, plenty of moisture, and a warm sheltered position. Already many beautiful flowers have been obtained by using this variety as a parent. At the Truro Show last year the first prize for the finest bloom of an English-raised trumpet Daffodil not in commerce was gained by Mr. P. D. Williams with Michael, a most perfect yellow flower raised from Emperor crossed with this flower. Another raiser showed us some exquisite seedlings raised from Mme. de Graaff x King Alfred, ranging from deepest yellow almost to white. By crossing such varieties as Monarch with it good results are fairly certain to be obtained. We have found King Alfred to seed freely, but it is as a pollen parent that we have made the most use of it. Since the appearance of King Alfred it has been truthfully said that no self-yellow Ajax has been introduced to commerce which can in any way compare with it in value. But this statement is no longer true because **The Rising Sun** is, unquestionably, every whit as beautiful, besides possessing a much better constitution. Exhibited for the first time at the Royal Horticultural Society's meeting on April 3rd, 1906, before 22 members of the Narcissus Committee, it was much eulogised, and received an unanimous Award of Merit. The following extract from "The Gardeners' Chronicle" of April 7th, 1906, voices the general opinion of all those who saw this most magnificent flower: 'This is one of the very best formed trumpet Daffodils, as regular and symmetrical as any florist could desire. The trumpet is expanded at the apex, and very much frilled, and the colour of perianth and trumpet is of the richest yellow.' We need scarcely add much to the foregoing description, except to say that this variety blooms early in the season, possesses lasting qualities that are nothing short of remarkable, is a very free seeder, and of such brilliant colouring that the whole flower shines as though burnished. The outstanding feature of the flower lies in the exquisitely formed trumpet, which is finely recurved, and frilled and gashed at the rim. The broad, overlapping, pointed perianth segments are of great substance and of perfect form; the whole flower being well-proportioned and of large size. The plant is vigorous and possesses a sound,

healthy constitution. Both for crossing and exhibition purposes it is absolutely indispensable.

Another variety that we can strongly recommend is **Goldseeker** (Dawson), a flower of rare beauty and perfect form, entirely distinct from anything in cultivation. It may be best described as a glorified form of the "Tenby" Daffodil with an extremely fine recurving rim, the whole flower being stained with rich, deep, glowing orange-yellow, surpassing Santa Maria in intensity. The well-proportioned trumpet, crisped and reflexed, is $1\frac{1}{4}$ inches across at the mouth, while the perianth segments twist slightly. The flower is of splendid substance, and on each occasion that it was exhibited won encomiums from all the best judges, and is specially referred to in the R.H.S. Journal for December, 1906. The plant is a strong grower, quick increaser, and forms large bulbs. Its unique colouring makes it of the utmost value for cross-fertilisation.

Maximus has proved a useful Daffodil to the hybridist, and until the arrival of King Alfred was the best variety of a rich golden colour. It is not one of the easiest to grow, doing best in a warm position where it should be deeply planted and seldom disturbed. With us it can only be described as a fair seeder, but we have found it more useful as a pollen parent. We should not, however, recommend its use now that King Alfred can be obtained at a fairly moderate price. Of seedlings from Maximus by far the best known is **M. J. Berkeley**, raised by the late Mr. W. Backhouse. When well grown this is a very fine flower, but its constitution is most uncertain, and it is very subject to 'yellow stripe.' This, however, should not deter the hybridist from growing it, for it is a remarkably free seeder and a good pollen flower. We believe that Mr. Engleheart has used it extensively, and we know for certain that it is one of the parents of Brilliancy, one of the finest incomparabilis forms that we have ever seen, which gained an Award of Merit from the R.H.S. on April 3rd, 1906. It may be best described as a glorified Barrii conspicuus, and was probably the outcome of crossing M. J. Berkeley with one of the new Poeticus.

MID AND LATE SEASON SECTION.

Emperor is, of course, the best known of all the varieties in this section, and wherever Daffodils are cultivated it is sure to find a place. The fact that it seeds freely in most situations, and possesses a magnificent constitution, makes it of inestimable value to the hybridist. Curiously enough its raiser, Mr. W.

Backhouse, found that it seeded badly with him, while Mr. Engleheart's experience is exactly the reverse, as he says "Emperor always seeds with great freedom." This, too, is the experience of the author of 'The Narcissus at the Antipodes', who says, "Emperor is a good Daffodil to work upon. The beginner could not choose a more hopeful subject on which to operate. It seeds freely, and promises all sorts of combinations to the enterprising hybridiser. I have myself raised one or two interesting seedlings from this Daffodil..... One who begins hybridising will naturally be curious as to the result which will come from crossing a large yellow Daffodil like Emperor with one of the Spanish sulphur Daffodils, such as Albicans—a Mme. de Graaff, if such luck may be. What one really gets for the most part, is something very like Princeps; and I have no doubt that Princeps originated in a cross between a large yellow self Trumpet and a sulphur Trumpet. Indeed, some of my seedlings from this combination are almost indistinguishable from Princeps. And a Princeps, if you come to think of it, is exactly what one ought to expect from the amalgamation of two such Daffodils—an Emperor, in short subdued into something approaching the long narrow petals, funnel trumpet, and pale colour of Albicans. But, though this is the general character of this particular cross, some of the progeny are striking flowers. One feature that many of them have derived from the struggle for predominance between the broad stiff perianth segments of Emperor and the flimsy, somewhat twisted segments of Albicans, is a markedly tortuous form of petal, so that the whole flower takes the shape of a steamer's propeller. Another characteristic is the length and narrowness of the trumpet. Some of these seedlings, which pale almost to white, may prove worth growing, and if they turn out seed bearers should prove useful as fresh points of departure."

Emperor is the parent of many of our lovely modern Daffodils, especially incomparabilis forms. We should suggest to a beginner to start by crossing it with some of the best Poeticus varieties, such as Virgil and Horace, also with incomparabilis varieties like Queen Sophia, Gloria Mundi and Lulworth. It should also be crossed with the best of the large Trumpet Daffodils in each section, particularly King Alfred, Monarch, Weardale Perfection, Duke of Bedford and Mme. de Graaff. By crossing it with the little N. triandrus, or with N. calathinus, those most exquisite Fuchsia-flowered Daffodils known as N. Johnstoni are produced. Of these we propose to say more later.

Of seedlings from Emperor there are two in our collection that we can strongly recommend, *i.e.*, Mervyn and Outpost. **Mervyn** is a fine, bold, handsome flower of uniform soft yellow, raised from Emperor and obvallaris. It opens a few days before Emperor, and is of equally good growth and constitution. The trumpet is bold and straight, with recurving rim; perianth very firm and well formed. This is invaluable for seeding and a great acquisition to exhibitors. **Outpost** is a very fine and valuable early Ajax in the way of Emperor, but larger, rounder, and of softer and more refined colour. It comes a week or ten days before Emperor; is wonderfully profuse in bloom, and extremely robust. This was raised by Mr. Engleheart. We were positively delighted with this Daffodil as seen in Lady M. Boscawen's exhibit at Truro last year.

Kaiser is an interesting selection from Emperor, which we obtained from Mr. Henry Backhouse, who, when sending us the bulbs, wrote as follows: "With reference to Kaiser. More than 10 years ago I was staying with my brother C. J. Backhouse, who lives at Wolsingham, Durham. He pointed out to me a clump of Daffodils growing in his garden then in flower. He asked me to compare them with Emperor, and we both came to the conclusion they were finer than any other lots of Emperor then in flower there. My brother lifted this clump the following summer and gave me 4 bulbs; some of the descendants of which I send you. The following spring I fertilised all the flowers, every one of which set, and ever since I have found it a very free setter, very different from Emperor, which in the North is only a moderate seeder."

Although Emperor is a free seeder over most parts of England, it is quite surpassed in this respect by the variety **P. R. Barr**. Apart from obvallaris and other wild species and varieties, this is the most prolific seeder among the Trumpet Daffodils, and even in a bad year it seldom fails. It was one of the late Mr. W. Backhouse's raising, and may be best described as a smaller, more refined, deeper-coloured Emperor. It is the parent of one of the best mid-season yellow Trumpets in our collection, *i.e.*, **Monarch**. This is a grand flower of large size and noble proportions. The trumpet and perianth are a rich full yellow, and of great substance and refinement. With us it has proved a reliable seeder and the seed is very large; it is also a quick increaser. Already it has proved both a splendid seed and pollen parent, and those grand varieties Peter Barr, Pearl of Kent, Cleopatra and Lord Medway were all obtained through its agency.

Cleopatra is an even better flower than Monarch, being

larger and yet more refined. It, too, is a reliable seeder. **Lord Medway**, of which we hold the entire stock, is a superb variety raised from seed of Monarch sown in 1900, the pollen parent not being known. Exhibited for the first time by the raiser, Rev. G. P. Haydon, in the class for single Ajax blooms at the show of the Kent, Surrey and Sussex Daffodil Society on April 20th, 1906, it easily secured the premier prize, being placed in front of King Alfred and Peter Barr. The flower is something like a large Emperor, but far more perfect and refined in shape, with beautifully rounded segments. The plant is of great vigour and forms immense bulbs.

Another very fine variety, which is of the greatest value to the cross-breeder, is **Lord Roberts**. This is a taller grower than Emperor, and is of strong constitution; its flowers are of enormous size, well-formed and massive, colour golden-yellow. **Kings Norton** is another giant yellow that we can recommend. We have not been able to seed it, but it proved most effective as a pollen parent last year. We have found both **Glory of Leiden** and **Mrs. J. H. Veitch** to be difficult to seed, and only a very small percentage is obtainable from each. One of the latest to flower in this section is **Sol** (Engleheart). This is a large flower, with firm, well-set perianth of soft, pale yellow and a long and broad crown of deep, rich yellow. This plant is extremely robust, with broad, dark green foliage, and is a sure seeder.

BICOLOR TRUMPET DAFFODILS.

This section has been immensely strengthened of late years, and there is now a choice of many excellent sorts. Of the large-flowered varieties **Duke of Bedford** is the earliest, opening with us before Horsfieldii. It is a really magnificent Daffodil and should find a place in every collection, being of vigorous growth and a sure seeder. The pure white perianth is broad and of great size, and the clear soft yellow trumpet is of splendid form. The flower is very large and pleasingly scented. **Horsfieldii** is, of course, well-known to everyone, but bears such a close resemblance to Empress that few persons can tell them apart when cut. But when growing side by side the difference is more apparent. For one thing the foliage of Horsfieldii is stout enough to hold itself erect, while the leaves of Empress are strongly recurved. They differ, moreover, in the shade of tint of the leafage; Horsfieldii is the greenest, while that of Empress has a silvery lustre, which is plainly seen when in large breadths. Moreover, the last-named enjoys a rich moist soil, while Horsfieldii prefers one that is lighter

and not so rich. *Horsfieldii* is a pretty free seeder, but there are not many seeds in each pod. Some good flowers have been raised from it, e.g., *Lady Margaret Boscawen*, which was the result of crossing it by pollen of *Poeticus ornatus*, but as a rule its seedlings are of inferior quality, and with so many other superior bicolors in commerce there is no necessity to use it.

Empress, in our opinion, is far superior to *Horsfieldii*, and on strong land this superiority is clearly evident. With us it is a bad seeder, and we know of many who have utterly failed with it; yet Mr. Engleheart states that he has obtained seed from it "in some quantity." This, however, is not the experience of a friend of ours who lives in the South and devotes a lot of time to crossing *Narcissi*, for he writes to us as follows: "Empress and the Camms are no use and I never employ them now. The result of fertilising Empress largely for several years was a total of three pods, each pod containing one seed. Very little pollen is produced." Nevertheless some very beautiful flowers have been raised from Empress, and it is the reputed parent of *Mme. de Graaff*, albicans being the pollen parent. Fertilised by pollen of *Poeticus ornatus* it has given us several fine *Nelsoni* forms, the variety Amber being one of the best of these. It was also the seed-parent of Miss Willmott's exquisite *Countess Grey*, one of the best of all the graceful triandrus hybrids. Although Empress produces but little fertile pollen except under favourable circumstances, it was the pollen parent of those splendid flowers *Albatross* and *Seagull*, *Poeticus ornatus* in this case being the seedbearer. It cannot, however, be recommended to the beginner, because it is only by crossing large breadths of it that seed is likely to be obtained, and even then some of the seedlings are often very slow in coming into bloom.

Grandee is another indifferent seeder, and here again it is necessary to cross a large number of flowers in order to get a small percentage of seed. Its chief fault as a parent is its shortness of stem, and on this account it must not be crossed with varieties of the same tendency. Many of the so-called *Nelsoni* varieties have been raised from Grandee by crossing it with *N. poeticus*, and we should imagine that *Ceres*, *Resolute*, *Strongbow* and *Lemondrop* were all produced in this way. They have the drooping habit of Grandee intensified, and are only seen at their best when planted on the top of a rockery. By far the best hybrid of Grandee with which we are acquainted is **Dorothy Kingsmill**, and this resulted from crossing it by pollen of *N. triandrus calathinus*. Both in form and colour

it is a most exquisite flower, with pure white perianth and long straight lemon-yellow trumpet of drooping habit. It was exhibited before the R.H.S. on April 24th, 1900, and received a First Class Certificate. We can confidently recommend this lovely plant as it is a good doer and seeds well.

Another flower of faultless beauty is **Cygnat**, raised by the Rev. G. P. Haydon. This is perhaps the most refined bicolor in our collection, and the numerous Awards of Merit it has gained are sufficient testimony to the high esteem in which it is held. It has a broad, white, elegantly twisted perianth and a long, soft yellow trumpet with daintily recurved rim. This has proved a good grower and seeder, and when more plentiful is certain to become a most popular flower.

Weardale Perfection is, of course, indispensable to every collection, and we are the fortunate possessors of a large stock. Not only is it a strong, vigorous grower and quick increaser, but it is also a free seeder and a very good pollen parent. In the latter way it is particularly useful, and a great many superb white Trumpets have been produced by crossing *Mme. de Graaff* with it. Unfortunately its seedlings are often disappointing.

Victoria is a fine well-formed bicolor that must on no account be overlooked by the hybridist. Unfortunately it is extremely difficult to seed to *Poeticus* or *Incomparabilis* forms, and when crossed with Trumpets and triandrus only one flower in six or seven will seed even under favourable conditions, and then there are very few seeds in each pod. In spite of this we think so highly of the flower that it is well worth working at.

Glory of Noordwijk has proved very fine with us, and is a free seeder. It may be best described as a glorified Empress, and comes about twice the size of that variety. It is a splendid grower, and we highly recommend it for hybridising as it produces plenty of fertile pollen.

Mrs. Walter T. Ware is a very free seeder, but is too small and short in the stem. **Mme. Plemp** also seeds freely, but in our opinion is too rough and coarse to use. **J. B. M. Camm** rarely seeds, and its pollen is of no use.

It is evident that there is still plenty of room for good bicolors, and we cannot help thinking how much yet remains to be accomplished. For instance, we sadly want a bicolor with a rich golden trumpet like that of *King Alfred*. Perhaps a cross between the last-named and *Mme. de Graaff* may give us this much desired result.

WHITE TRUMPET DAFFODILS.

The flowers comprised in this section are some of the most delectable of the whole race, and the immense improvements which have been made in them of recent years have greatly increased their popularity. White Trumpet Daffodils are no modern production, as some would appear to think; they have been with us for all time past, but, though pretty, were very small, being represented by the wild Pyrenean *N. moschatus*, also *N. albicans*, *N. cernuus*, *N. tortuosus*, &c. In the year 1883, however, there bloomed in the well-known bulb nurseries of M. M. de Graaff at Leyden, Holland, a flower that marked an epoch in the seedling history of white Daffodils. This was no other than the now much prized variety **Madame de Graaff**. We have already suggested that it was the result of a cross between Empress and albicans, but as it was a chance seedling there can be no clear proof of its parentage. Mme. de Graaff and Glory of Leyden were originally offered at £7 10s. 0d. per pair, *i.e.*, one bulb of each, and those who were fortunate enough to invest in them found the transaction to be a most profitable one. From the moment of its introduction Mme. de Graaff held a foremost position, and to-day it is unquestionably the most popular Daffodil in cultivation. At the plebiscite held at the Midland Daffodil Society's Show in 1905 it was placed at the top of the poll, and each year it increases in public favour. Its splendid vigour, exquisite form, and chaste purity are qualities that commend it to everyone, and it is not surprising that the hybridist should see in it visions of a new race. Fortunately it has proved an excellent seed and pollen parent, with the result that we are now reaping a harvest of flowers the beauty of which has caused more delights and surprises than words can express.

But with all this advance it seems to us that the white Trumpet Daffodil is still in its infancy, as since the introduction of Mme. de Graaff, little, if any, progress was made until 1903. That year was marked by a very real advance in these flowers, and every succeeding year they have shown improvement. Most of these superb new flowers have been produced by crossing Mme. de Graaff with the best of the yellow and bicolor Trumpets such as Monarch and Weardale, and it is as well to know that by inter-crossing white and yellow Daffodils one sometimes obtains from the same pod both pure white and wholly yellow flowers, in addition to bicolors. Some of the loveliest of all Narcissi are easily obtained by crossing Mme. de Graaff with the pollen of *N. triandrus albus* and *calathinus*. Only last season we had the good fortune to see some hundreds

of the most exquisite flowers raised from this cross, and blooming in their fourth year from seed, and we feel quite positive that no one could have seen these beds of pendulous, Fuchsia-like flowers of waxen substance and refined colouring, varying from pure white to delicate tones of creamy white, without becoming a convert to this most fascinating pursuit. In passing we might mention that all triandrus hybrids dislike a cold wet soil or one that is highly manured.

We, ourselves, have not been altogether idle as far as the improvement of the white trumpets are concerned, and we are, indeed, proud to think that our seedling **Miss Clinch** has attained the pre-eminence which Mr. Engleheart has so kindly accorded it. Although we have been induced to part with the entire stock of this variety, we are glad to be able to offer bulbs of the almost equally beautiful sort, **Ailsa**, of which we hold the entire stock. This is a peerless flower of the *purest* white, with the growth and carriage of Empress, veritably the last word in white Ajax for many a year to come. It received an unanimous Award of Merit on April 30th, 1907, and is described in "The Garden" for July 13th of that year as "the whitest trumpet Daffodil yet raised and a good flower in all respects." We cannot too strongly recommend it as it is a sure seeder. It was raised by Mr. Ernest Crosfield, who has accomplished such splendid work in this section. Of the famous **Peter Barr** we also hold a fine healthy stock; this has proved a good seeder and a most reliable pollen flower. One of our greatest favourites in this section is **Mrs. H. D. Betteridge**. In all ways this is a most lovely flower, being most artistically formed and of a uniform, clear ivory-white throughout. The trumpet is long, straight, and beautifully fringed at the mouth, while the well-formed perianth is broad and imbricated, with a distinct fluting on its surface. Of the new white trumpet Daffodils we consider *this to be by far the best at a moderate price*. It is a splendid grower and free seeder, and we recommend it with the utmost confidence. For perfect refinement and beauty of tone no flower surpasses **Mrs. Robert Sydenham**. This is an almost pure white self of excellent proportion, form and substance. It has a broad, firm, white perianth, and a trumpet that is pure white even before expanding, and elegantly frilled and recurved. We well remember how much we were struck with the great beauty of this flower on the first occasion that it was exhibited by its raisers Messrs. de Graaff Bros. This was at the Birmingham show in 1903, where it obtained an Award of Merit, an honour subsequently endorsed by the Narcissus Committee of the R.H.S. We believe we are right in saying that this variety,

Francesca, and Mrs. George Barr were all from the same source, and simply the produce of self-fertilised Mme. de Graaff. Like its parent Mrs. R. Sydenham produces seed, and can be confidently recommended to the hybridiser. **Mrs. Camm**, though of rare beauty, is useless for the purposes of cross-fertilisation, as also is Mrs. Vincent. Mrs. Thompson, Mrs. Burbidge and William Goldring are all good seed-bearers, but do not come up to present day standards. **W. P. Milner** is undoubtedly the most charming of the small white Daffodils, and is a particularly good pollen parent. We have seen some charming seedlings from it. **Pallidus Praecox**, the very early wild Pyrenean Daffodil, mentioned by Parkinson, is another remarkably free seeder, and by intercrossing it with *obvallaris* we have obtained some very pretty variants from it.

Medio-Coronati.

MEDIUM or CHALICE-CUPPED DAFFODILS.

(Including the *Incomparabilis*, *Barrii*, *Nelsoni*, and *Leedsii* sections.)

Incomparabilis Section. We hope we have already made plain to the novice that all the flowers in this group are intermediate between the very variable Trumpet Daffodil and the various forms of *Narcissus poeticus*. Thus the *Nelsoni* forms are simply the outcome of crossing *bicolor* trumpets with *N. poeticus*, while in the case of the *Leedsii* forms a *white* Trumpet Daffodil is the *Ajax* parent. In some catalogues one finds these Medium-crowned Daffodils sub-divided into nine or ten sections, a proceeding that is entirely unnecessary, and terribly bewildering to the ordinary individual. For instance, there is no sense or reason in retaining the denomination *N. Barrii*, and years ago Mr. Engleheart expressed the opinion that it might be dropped without disadvantage, and the flowers now under it merged in *N. incomparabilis*. At one time they were supposed to differ from *incomparabilis* in shortness of crown, but nowadays such distinctions have become confusing, and, as both the so-called *Barrii* and *incomparabilis* forms come from the same cross, and often from the same seed-pod, we have adopted Mr. Engleheart's suggestion and grouped them together. We shall also include with them the *Nelsoni* forms, leaving the *Leedsii* section for separate treatment.

Dean Herbert, as we have already shown, was the first person to prove that the *Incomparable*, *Peerless*, or *Nonpareil* Daffodil of the old gardeners was not really a species, but a

hybrid of very ancient origin. Leeds and Backhouse amply corroborated the truth of this, and since then Mr. Engleheart and numerous other raisers have demonstrated the endless possibilities obtainable by bringing about intermarriages between the numerous Trumpet Daffodils and the *poeticus* *Narcissus*. This cross can be made both ways, but it should be remembered that in at least nine cases out of ten the male is prepotent in determining both the form and colour of the resulting hybrid. Anyone who has crossed Emperor or some other self-yellow Trumpet with *poeticus* pollen will recognise that as regards colour this is most marked, the seedlings in nearly every instance having white perianth segments. According to Mr. Engleheart this is why out of the immense number of flowers of *N. incomparabilis* that originally came from the Leeds and Backhouse collections, there were very few with perianths of a decided yellow, in comparison with those that had white or pale yellow perianths. The reason is that it is more difficult to obtain hybrids from *N. poeticus* than by its pollen, because it is much more quickly self-fertilised on opening than the Trumpet Daffodil. Then, again, white-perianth flowers are certainly the more attractive, and it is therefore not unlikely that the Leeds and Backhouse seedlings belonging to this section were raised from Trumpet Daffodils by pollen of *N. poeticus*, which order of cross-fertilisation has also the greater tendency to produce the red cups, so deservedly prized for their brightness and the vivid colour they impart to the garden. The prepotence of the pollen-parent in its influence upon form can be gauged by the fact that this same order of cross-fertilisation produces the shorter crowned forms known as *N. Barrii* rather than *N. incomparabilis*, while the reversed cross gives a greater proportion of the latter longer-crowned forms. The ease with which these 'half-way' flowers can be produced accounts for the large number of varieties now before the public. Some of the latest forms, which have as their pollen parents such brilliant flowers as *Virgil* and *Horace*, are of most gorgeous colouring, and there is no doubt that the introduction of the splendid new *poeticus* *Narcissus* has been an immense assistance to the hybridist. The great variety of shape and tint now to be found in this group is likely to be multiplied considerably in the near future, and when we remember that these hybrids in their turn will intermarry among themselves and with their parents, the Trumpet Daffodils and the Pheasant-eyes, it is impossible to keep count of the endless combinations that will result. Thus the beginner may breed a race of giant yellow *incomparabilis* by crossing *Princess Mary* with a large yellow Trumpet, and then cross

the best of these seedlings with pollen from such brilliant flowers as *Gloria Mundi*, *Queen Sophia*, *Orangeman* and *Castile*. By so doing he may probably add some of the rich colouring of these flowers to his next generation of giant *incomparabilis*. If, when these latter flower, they show a red or orange suffusion in their crown, it may be possible to still further intensify it by crossing them with a *poeticus*, which will add its own store of red or orange colouring matter. It must, however, be remembered that by crossing *incomparabilis* and *poeticus* we shall still further reduce the crown of the offspring. But to this we will make reference later when considering the *Parvi* or small-crowned section.

With such an *embarras de richesse* to select from, the task of deciding what varieties to grow is by no means easy. Perhaps the best way to do this will be to group those varieties together that are of much the same shade and colouring.

Commencing with the yellow flowers, **Homespun** is *facile princeps*, and is as near perfection as it is possible to attain. This is a seedling of Mr. Engleheart's, raised by crossing *Golden Spur* by pollen of *N. poeticus ornatus*, a cross that is fruitful in producing yellow *incomparabilis*. But it must be owned that one might raise thousands of seedlings from this cross without finding among them such a faultless flower as *Homespun*. The whole flower is a most distinct shade of uniform clear yellow, and of exquisite quality and texture. We first noticed it at Truro in 1903, where it was splendidly shown by Mr. J. C. Williams, the flowers measuring about 4 inches across. The plant is a vigorous grower and most floriferous. It is not a free seeder, though last season it yielded quite a nice lot of seed; as a pollen parent, however, we have found it extremely useful. We are the fortunate possessors of a fine stock of this absolutely first-class variety, and we would strongly recommend every hybridiser and exhibitor to procure it. **Autocrat** is a flower that should be in every collection. Unfortunately it refuses to seed, but its pollen is quite fertile. **Sir Watkin**, though a grand garden flower, is perfectly worthless to the hybridiser as it is a fitful seeder and its progeny is invariably poor. This variety is seldom self-fertilised, and we only once remember to have obtained a pod in this way. Its pollen, too, rarely fertilises other *Narcissi*, and Mr. Engleheart discovered by means of the microscope that this was due to the fact that it is very irregular and imperfect. Subsequent experiments proved that in order to effect a cross with this pollen it must be applied to the stigma of a flower often and plentifully to ensure the contact of some perfect grains. Some other

pollens are similar to this, and must be treated in the same fashion. **Commodore** is an excellent, but little-known, variety that is a fairly good seeder with us. It is a large, quite round flower, with broad, overlapping segments of soft chrome yellow, a distinct colour; the broad crown is lightly edged with orange, and the plant is a good grower with stout leathery foliage. One of the prettiest and most elegant of these yellow *incomparabilis* is **Frank Miles**. The characteristic curl of its segments is a feature that we much admire, and we should like to see some more flowers of its type about. We have never tried to seed this variety, so cannot say if it is fertile or not. **Resolute**, a pretty soft yellow hybrid from *Grandee*, usually classed as a *Nelsoni*, is well worth growing. So far, however, we have been unable to get it to seed.

Princess Mary, a most refined and distinct flower, with broad creamy perianth segments, and orange-stained widely expanded cup, is the one flower in this section which it is impossible for the hybridiser to be without. Not only is it the parent of all the new flat-crowned or *Engleheartii* *Narcissi*, but a number of splendid giant *incomparabilis* are being raised from it by crossing it with some of the large *Trumpet Daffodils*. Mr. E. Crosfield's *Giraffe*—a giant yellow *incomp.* with finely fringed cup—was produced by intercrossing this variety and *Mme. de Graaff*, and it is the parent of many beautiful *Burbidgei* forms to which we shall refer later. *Princess Mary* is a fairly good seeder, especially in the southern half of England, and probably no *Narcissus* gives such a percentage of good seedlings as does this variety. It should be noted that *Princess Mary* does not make very large bulbs, and that many of its seedlings frequently make quite small bulbs which throw good flowers. As a rule these seedlings are most floriferous, even the tiniest offsets producing bloom.

Among the flowers with yellow perianths and rich orange or red cups **Gloria Mundi** is still pre-eminent, and none of the modern seedlings really surpass it in brilliancy of colouring. It can only be described as a fair seeder, and we ourselves have never been particularly successful with it. Nor have we met with much encouragement in employing it as a pollen parent, and we must own to having made many futile attempts to fertilise some of the fine new *poeticus* varieties with its pollen. That this is not an impossibility was clearly demonstrated by the appearance last season of the magnificent *poeticus* *Miss Willmott*, which had *poeticus ornatus* for its seed parent and *Gloria Mundi* as its pollen parent. We believe that this superb flower was raised in the nursery of Mr. C. G.

Van Tubergen Jr. at Haarlem, Holland. **Blackwell** is the earliest of all the Chalice-cupped Narcissi, and with us it has proved to be of sterling merit, opening the first week in April and lasting in good condition for three weeks. It is a very free seeder, and, by crossing it with pollen from such flowers as poeticus Chaucer and Horace, good results should accrue. Following closely upon this variety in its period of blooming, but quite surpassing it in both form and beauty, comes **Northern Light**. This is a remarkably shapely and refined flower, with wide, overlapping segments, resembling those of Monarch both in colour and character. The crinkled crown is of medium size, and bright orange. It is an extremely strong grower, forming very large bulbs, and we can thoroughly recommend it for hybridising. This flower was much admired in our Mr. Goodwin's First Prize stand of six Medium crowned Daffodils with yellow perianths at Birmingham last season. **Queen Sophia** must not be left out of any collection. Its remarkable feature is the large, spreading, frilled cup of a peculiar shade of bright orange-apricot. It is a free seeder, and a most excellent pollen parent. Some interesting flowers should result if its pollen were used on poeticus Cassandra and Barcarolle. **Castile** is a flower of singular excellence, and, in our opinion, is one of the best varieties in the whole of our collection. The well-formed, spreading perianth segments are of good breadth and substance; their colour being sulphur tinted white. The crown is of coffee cup shape, and most distinct colour, a rich Seville orange, toned apricot. The plant is as rapid an increaser as Barrii conspicuus, and equally as strong in growth. We have found it to be a good pollen parent, but it only seeds sparingly. **C. J. Backhouse** seeds sparingly, but is of indifferent constitution, while **Barrii Conspicuus** will not seed. **Glitter** is a pretty new variety that we have not yet tested, and **Torch**, though a splendid border flower, is too rough to use. The latter, by the way, was raised from Maximus crossed by pollen of N. poeticus poetarum.

Turning to the varieties with white perianths, the earliest variety to flower in our collection is **Artemis**, which is often in bloom by the first week in April. It is a good grower and free seeder. The pearly white perianth is broad, and the yellow cup widely expanded and very handsome. **Albatross** is one of the finest flowers in this division, and is of great utility both as a seed and pollen parent. We have seen some very good seedlings from this variety by pollen of Horace, also by the use of its pollen on Princess Mary. **Seagull** closely resembles this, and was obtained out of the same seed pod. It is without the bright orange-red edge of Albatross,

but has a light edging of apricot instead. It is almost equally as useful to the hybridist both for seed and pollen. Another most indispensable flower is **Lulworth**. This is a remarkably free seeder, and its pollen is most efficacious. It was a chance seedling found by the late Mr. Kendal of Lulworth, who described it as "apparently a seedling of one of the bicolor varieties of Pseudo-Narcissus accidentally fertilised by N. poeticus angustifolius." Some excellent red-cupped varieties may be raised by crossing this variety with Horace and other fine poeticus. **Lucifer** is a most brilliant early flower, and must be in every collection. It seeds moderately well with us. **Will Scarlett** we cannot recommend as we have seen some very large batches of seedlings raised from it both by pod and pollen, and in almost every case the roughness of its perianth was reflected in the seedlings. **Orangeman** is a plant that we can commend most thoroughly; its distinct colouring always attracts immediate attention. The growth is extraordinarily vigorous, making rapid increase. Three of the flat white segments are of a fine almond shape and three are narrower, while the short, broad crown, which is broader than long, plaited, lobed, and of wonderful substance, is a deep warm orange. This vivid contrast has a most telling effect, and those of our colonial friends who are anxious to secure a first-rate novelty can be recommended to procure this. We have found it useful both for seed and pollen. **Mrs. Bowley** is a very nice refined flower that seeds fairly freely. Some very pretty red cupped varieties can be obtained from this by pollen of the new poeticus. **Lady Godiva** and **Branston** are both sports from Barrii conspicuus with white perianths. There is no comparison between them, the latter being by far the more superior flower. Indeed, we look upon it as being one of the finest exhibition varieties ever introduced, as well as a splendid garden plant. It has received two Awards of Merit and numbers of prizes. Unfortunately, like the parent from which it sported, it will not seed. **Perfectus** is another fine plant that we like very much. The late Mr. Bourne admired it, and refers to it in his book, page 72. In our opinion it is far superior to either White Wings or Louise. The plant is a most vigorous grower, forms immense bulbs, and reaches almost two feet in height. The flower is of great substance and charming symmetry, with a shapely, stiff white perianth and expanded canary-yellow cup faintly tinged orange. It makes large seed pods and gives fine bold seed. **Lady Margaret Boscawen** will sooner or later be in every collection on account of its superb decorative qualities. It is a tremendous grower and gave us a lot of fine seed last season. We consider

it quite the best of the giant bicolor incomps. **Dorothy Wemyss** is a most valuable seed parent, and being late flowering, comes in when the late flowering poeticus varieties are about. It is a fine large flower, with bold creamy white perianth, and canary-yellow cup handsomely margined with orange-red. It should be crossed with such late flowers as Beacon, Comus and Almira. **Crown Prince** is a most indifferent seeder, nor have we found it of any use as a pollen parent. **George Nicholson** has the reputation of being a shy seeder, but last season it gave us a lot of seed by pollen of Albatross, and a poeticus variety. It is a late flower of fine form and great substance. **Marina**, one of Mr. Engleheart's seedlings that gained an Award of Merit in 1899, is a rather uncommon flower. It has a white spreading creamy perianth and a large, shallow, open crown of pale lemon, and should prove useful. **Flora Wilson** is a fairly free seeder and a most reliable pollen flower, while **Stella Superba** is also a very good pollen parent for those who like this form of flower. Mr. Engleheart mentions in one of his papers on seedling Daffodils that he had found Stella itself to be sterile or very unprolific in seed-bearing. We do not think that this is the case with Stella superba for, some years ago, we crossed a large batch of this with pollen from King Alfred and every flower so crossed set seed. **Nelsoni Aurantius** is quite the best of the Nelsoni section, and we have found it to be a fairly useful pollen parent.

THE LEEDSII SECTION.

So replete with beauty is the whole family that it is an invidious task to denote any one section as surpassing another in this respect. If, however, we may be permitted to do so, then our choice would fall upon the Leedsii section as containing some of the loveliest creations which it has been man's privilege to raise. Edward Leeds, after whom this delectable section was in compliment named, was the originator of the Leedsii Type, as well as Amabilis, Elegans, and the lovely Katherine Spurrell. As we have already stated this section was originally formed to include varieties which resulted from crossing the delicate white Trumpet varieties with the various forms of the Poet's Narcissus. But nowadays the term Leedsii is a much more elastic one, for it includes many varieties that are secondary crosses. The so-called Giant Leedsii, which have been much in evidence at the shows during recent years, are all the offspring of secondary crosses. In the majority of cases they have been raised by intercrossing the large white Trumpet Daffodils like Mme. de Graaff and

Mrs. Betteridge with such Leedsii varieties as Minnie Hume and Mrs. Langtry.

The resulting plants are mostly of very good constitution, and are tall growers, quick increasers, and fairly good seeders. We have found that the pollen of Minnie Hume is very fertile, and almost every flower of Mme. de Graaff that we fertilise with it sets seed. The reverse cross does not yield anything like the quantity of seed, but this is accounted for by the fact that Minnie Hume is not, at any rate with us, quite so free a seeder as Mme. de Graaff. This latter cross also produces flowers that are the most elegant and refined. Of course, now that there are several of these splendid Giant Leedsii in commerce it behoves the hybridist to procure them for the purposes of seeding and pollenising, instead of using the smaller and inferior flowers. There seems no reason to doubt that in the years to come we shall have a race of these white Eucharis-flowered Narcissi that for purity, form, beauty of tone, and size will surpass anything at present in our gardens. Just imagine for one moment what splendid flowers we are likely to get through the intercrossing of the noblest of the new white Trumpet Daffodils and these superb Giant Leedsii! We had a glimpse of what the future has in store for us in Mr. Ernest Crosfield's Empire, a flower of marvellous beauty that was exhibited at Birmingham last season. Our collection of Leedsii varieties is a very fairly comprehensive one and contains some exquisite sorts. **White Queen**, though one of Mr. Engleheart's earlier flowers, is still, as the late Mr. Bourne described it, "one of the very finest Narcissi." It may be best described as a highly refined white Sir Watkin, and is only a moderate seeder. **Amazon**, like the last named, belongs to the Giant Leedsii race. It is a tremendous grower and most floriferous. We believe it is a Guernsey raised seedling, and was probably bred from Minnie Hume and Mme. de Graaff. It proved a moderately good pollen flower with us last season. **Ariadne** is one of the very best flowers in this section, only it will not seed. We have, however, used it successfully as a pollen parent. It is a splendid doer, and should be frequently lifted. **M. M. de Graaff** has never given us any seed up to the present. **Katherine Spurrell** is another variety that will not seed, while **Duchess of Westminster** seeds with difficulty and its progeny is generally bad. **Mrs. Langtry** seeds fairly freely and gives very white seedlings, but apt to be weak in the petal. **White Lady**, one of the loveliest of all Narcissi, is an extremely shy seeder. At one time we were under the impression that it was completely sterile, but, like many other varieties which are reputed not to

seed, it will do so occasionally—in certain seasons and to certain pollens. Last year, for instance, several of our friends were successful in inducing it to seed. We have used it as a pollen parent ourselves, but have not bothered to try and seed it. **Eoster** is a flower that will quickly find its way into all the best collections. It is only of medium size, but is so refined and novel that it always arrests attention. The light clear canary citron crown is in the form of a cup, while the fine round perianth is composed of broad white segments. The plant is of good distinct growth, with very thick hollowed foliage. We consider this to be one of the most perfect of the newer Narcissi, and as it is a good seeder we have every confidence in recommending it. Another equally good variety is **Pilgrim**. This is of much the same shape as White Lady, with pointed segments, broad and overlapping, in colour creamy-white. The crown is larger than in White Lady, crinkled and bright lemon in colour. This is also a seeder. To the hybridiser one of the most useful flowers of all in this section is **Minnie Hume**. We have already referred to the excellent results that can be attained by crossing this variety with pollen from white trumpet Daffodils. Still better results ensue if *N. triandrus calathinus* is employed as the pollen parent, for the proportion of good flowers from this cross is very large, and for perfection of shape and purity of colouring they are unexcelled. We have not been able to get any of them to set seed, but they produce a large amount of pollen which is quite fertile. This cross seems to have a far better constitution than the *Mme. de Graaff* x *calathinus* seedlings. As garden flowers some of these newer Leedsii are of extraordinary beauty, and great credit is due to Mr. Engleheart for giving us such a flower as **Waterwitch**, in our opinion quite the loveliest of them all. The whole flower is of exquisite grace and purity, and a bed of it is one of the loveliest sights imaginable. It has a splendid constitution, and we have known it grow 30 inches high. Each year its great merits are becoming increasingly recognised, and that it is finding its way into the best gardens in the land is proved by the fact that Lord Redesdale, one of our best living horticultural critics, has planted it very largely at Batsford Park, and solely on his recommendation the King has had a lot of it planted at Sandringham. **Citron** is another variety of the same class that is always immensely admired. It is a most characteristic flower, and particularly beautiful for house decoration.

❧ Parvi Coronati. ❧

TRUE POETICUS.

It will be perfectly plain to any reader who has followed us thus far how deeply indebted the hybridiser is to *Narcissus poeticus* and its varieties. Indeed, it is no exaggeration to say that without it scarcely anything could have been accomplished, and our gardens would have been the poorer by quite three parts of the *Narcissi* which they now contain. As in the case of every other section these Poet's *Narcissi* have been immensely improved, and it is among them that Mr. Engleheart's finest work has been accomplished. He, and he alone, was the first to realise the great opportunities that lay within his reach, with the result that those of us who are now following up the work have none of the difficulties to contend with that Edward Leeds, for instance, had. The latter, as we know well, possessed none but inferior, narrow-petalled varieties such as *angustifolius* with which to carry out his work, the finer forms like *ornatus* being unknown to him. Mr. Engleheart was, of course, more fortunate in his choice of material. The introduction of the early, broad-petalled *ornatus* was of considerable assistance to him, and by carefully intercrossing this variety with the brilliant but flimsy-petalled *poetarum* and the late Pheasant Eye (*recurvus*) he has succeeded in bridging over the gulf between the former and the latter, and at the same time combining the cup-splendour of *poetarum*. No one unless they have waded through thousands of *ornatus* and other poeticus seedlings can have any idea of the enormous trouble which the work of selection entails, and Mr. Engleheart is to be congratulated upon the careful manner in which he has carried this out. As to which is the best of the varieties of his raising there is considerable difference of opinion. We ourselves consider **Virgil** far and away the most beautiful. Though by no means such a rapid increaser as the generality of these new poeticus, it is a tall and vigorous plant and quite distinct in character. The flower is very large, with broad, overlapping petals of great substance and purity. The eye is of large size and suffused with much dark, rich red. It is fairly early, and is indispensable for hybridising. Next in order of merit comes **Horace**. It is a superb flower with an entirely scarlet eye, more brilliant than that of the preceding variety. We have found it to be a rapid increaser and of splendid growth. The flower is of grand quality, though

perhaps not quite so solid in texture as Virgil. **Cassandra** is an extremely distinct variety. The eye is considerably smaller than in the two first-named sorts, but the perianth is larger and of even greater substance and solidity. The plant is a strong grower and of rapid increase. **Chaucer** is earlier than any of the preceding sorts, and on this account it is particularly useful for hybridising. The flower is of medium size with beautifully rounded perianth, while the flat cup is of vivid poetarum colour. **Comus** is a very late variety, but none the less useful on that account. Last season with us it stood next to Virgil in size of flower and quality of bloom, in fact we never thoroughly understood its value until then. For lasting qualities this is clearly the superior of the poeticus varieties. The very fine broad-petalled segments are of superb finish and texture, and the large eye has a ribbon edge of brilliant red, which stands both sun and frost well. **Herrick** is a rather late flower, and though not one of the largest is of extremely good substance and quality. It is a cross between ornatus and poetarum, and possesses the deep red crown of the latter. It is only of medium height. **Dante** is from the same cross, but is considerably earlier, and the segments are not so substantial. **Juliet** is a variety that we think highly of. It is of the ornatus type, but flowers slightly in advance of it. The flowers are finely shaped and have good long stems. The plant is of vigorous constitution and very free. All these varieties are of Mr. Engleheart's raising. **Almira** is a most distinct Dutch-raised flower, and, although it has a reputation for uncertainty, has never faltered on our soil. It has a very broad, undulating, well-rounded perianth of great substance and a large eye, beautifully edged with very rich red; most distinct. **Glory** is a late flower with a perianth after the old poeticus grandiflorus type and a small brilliant eye. This is also a Dutch variety. Of the older sorts the May-flowering **Recurvus** is now quite the most useful to the hybridiser. To get it into flower along with the mid-season varieties of the other sections the best plan is to grow it in a cold frame or in a very warm position under a south wall, as it will not force. It is curious that some seedlings which show a very large percentage of recurvus blood force readily, our new variety Alton Locke being a good instance.

Some of Mr. Engleheart's most recent poeticus are of wonderful size, substance and colouring. For breadth of petal none exceeds **Barcarolle**, specimens of which have been exhibited with petals measuring $1\frac{1}{2}$ inches wide. The flower is rounded and symmetrical; the eye rather on the small side, remarkably flat and rimmed with red. The plant is of vigorous

growth, slightly later than mid-season. It has already appeared in several first prize stands, and we have every confidence in recommending it. Two other splendid varieties from the same raiser, of which we hold the entire stocks, are **Sir Phillip Sidney** and **Sir John Suckling**. The former is of large size and admirable quality, with a broad, substantial, pure white perianth and a rich orange eye with deep red edge. The flower is $3\frac{3}{4}$ inches across the perianth, and the eye $\frac{5}{8}$ in.; quite distinct from any other poeticus we have seen. Sir John Suckling is a smaller flower, the pure white perianth being $2\frac{3}{4}$ inches across. The eye is of most delightful colouring. It is of rich yellow, edged with brilliant scarlet, with a tube of vivid green, and is $\frac{5}{8}$ in. across.

All the poeticus varieties without exception seed freely and are splendid pollen parents. According to Mr. Engleheart "the varieties which have a wholly red crown do not really contain more pigment than the commoner sorts, in which the colour is concentrated into a narrower and darker ring." Although this may be correct, yet we have found that **N. poeticus poetarum** imparts its pigment more readily than any other variety, and despite its flimsy petals it should still be employed when strong colour is required.

BURBIDGEI and ENGLEHEARTII SECTIONS.

Notwithstanding the flowers termed Burbidgei were described by Mr. Burbidge as "merely seminal phases of N. poeticus, the Daffodil parentage being almost if not quite obliterated," they are still perfectly distinct, and now form an important part of the hybridiser's stock-in-trade. The original Burbidgei's were the result of a secondary cross, being produced by crossing incomparabilis with N. poeticus. They differed from the former in having a shorter crown and also in their internal structure. "If to the eye, without dissection," says Mr. Engleheart in one of his papers on the subject, "any N. incomparabilis-like flower has evidently biseriate stamens, i.e., if three of the anthers are *visibly* set well below the others, as in N. poeticus, it is the result of a secondary cross."

Of course, many of our modern Burbidgei's approach so nearly to poeticus that they are almost indistinguishable from it. The varieties Eyebright and Scarlet Eye furnish good examples. Indeed, it has now become a difficult matter to clearly define what constitutes a true Burbidgei, for the varieties usually classed as such have been so intermarried by the hybridiser that but little of their original character remains. All of them have small shallow crowns, which as a general rule

are not so flat as in the true poeticus. But of recent years Mr. Engleheart has succeeded in rearing a most striking race of Narcissi having large extended crowns that are flattened and disc-like. Out of compliment to the raiser these flowers have been formed into a new section termed Engleheartii, a designation that has now become generally accepted. Nearly all of them are the offspring of Princess Mary by pollen of a poeticus form, as also are many of the true Burbidgei's such as Beacon and Blood Orange. As is well known Princess Mary has an extended shallow crown, the sides of which are, so to speak, accordion-pleated, and if pressed back with the fingers become almost flat. Many of the poeticus varieties—especially the newer forms—have perfectly flat crowns, and it is the union of these that has produced the remarkable Engleheartii or Flat-Crowned section. In nearly every case Princess Mary has been the seed-parent, but now that Mr. Engleheart has provided such splendid material, the hybridiser has no need to depend so much upon this variety, but can make use of its much improved offspring. By crossing these Engleheartii varieties with the newer poeticus, (Queen Sophia might also be employed), it is quite probable that further gains may be made towards the enlargement of the crown, indeed, we well remember Mr. Engleheart once showing us a flower in which the crown almost hid the perianth from view. Such a flower was obviously ill-proportioned, but it demonstrated the possibilities that lie in this extraordinary race of flowers.

Dealing first with the true Burbidgei's we should imagine **Ethelbert** to be one of the very best flowers in commerce. This beautiful flower was raised by Mrs. R. O. Backhouse and was one of the varieties with which that lady gained the premier prize for a group of six seedlings, all to be raised by the exhibitor, at the Midland Daffodil Society's exhibition in 1904, and on that occasion was given an Award of Merit. It is a charming flower, with pure white petals of singular solidity and a dainty saucer-shaped cup, the centre of which is tinged with soft lemon and citron, while the edge is margined with an attractive shade of light orange-red. The breadth of each individual flower is $2\frac{1}{2}$ inches. The plant is of good constitution and seeds. **Beacon** (Engleheart) is an indispensable flower to both exhibitor and hybridiser. It is rather a late variety, with broad circular creamy white perianth and a very striking deep red crown. We have found it a sure seeder and a good pollen parent. **Scarlet Eye** is well named. It is not a large flower, but the contrast between the vivid orange scarlet eye and the pure white perianth is very sharp and effective. It seeds, and

was extremely useful last year as a pollen parent. **Eyebright** is a flower of similar character but larger. It, too, is a good pollen parent and yields good seed. We strongly recommend these two varieties. **Alton Locke**, one of Mr. Engleheart's latest seedlings, is a superb Princess Mary hybrid, with broad substantial segments of the purest glistening white and overlapping. The crown is mid-way between the poeticus section and the Engleheartii section and is over one inch across; its colour a luminous citron edged with a riband of orange-red. It forces splendidly and is one of the most exquisite pot plants we have seen. **Robinet**, from the same raiser, is a recurvus hybrid of great beauty and distinction. It has an ivory perianth $2\frac{1}{4}$ inches across with an eye of orange and scarlet. This is a most prolific seed-bearer. **Firebrand**, with cream white perianth and intense fiery red cup, is indispensable to every collection as it is a sure seeder. **Dorothy** (Cartwright) is, however, far superior to it in colour and substance. This has a creamy white perianth and a cup of the most vivid scarlet, and was much admired in Mr. Cartwright's First Prize stand of twelve Parvi's at the Birmingham show last season. **Oriflamme**, though not a large flower, is fine in form and colouring. It seeds fairly well and its seedlings are generally of good quality. This variety has a brittle 'neck' so that care must be exercised in handling it. **Tom Tit** is one of the most excellent plants in this section, and never fails to seed. It has a much expanded cup of orange scarlet and an overlapping lemon-yellow perianth; it is rather early-flowering. **Bullfinch** is also a sure seeder, but makes much smaller pods than Tom Tit. The broad creamy white perianth is of good shape and substance, while the yellow crenulate cup is heavily margined with bright orange-red. **Redbreast** is a nicely proportioned flower, with cream white perianth and short cup of a uniform orange-red. **Blood Orange** is a very good flower that seeds well. It has a broad lemon petal, with very bright orange-scarlet eye. **Stonechat** is a pretty flower with yellow petals and scarlet cup, and **Robert Browning** is remarkable for the fact that its short, shallow cup opens dull coffee-colour and develops into orange-terra-cotta. The perianth is sulphur white and of good substance. The plant is free, long stemmed and vigorous, and seeds. **Hyacinth** is a late variety that seeds with extraordinary freedom. It is a pretty flower, with white petals and flat yellow eye, and is deliciously scented, hence its name. **John Bain** is too well known to need description. In passing we might just call attention to a photograph of a remarkable tridymus seedling raised from John Bain crossed with pollen of *odorus rugulosus* that appeared in the R.H.S. report of the

International Conference on Genetics, page 389. **Beatrice Heseltine** and **Falstaff** both seed freely with us, while **Ellen Barr** is only a moderate seeder.

Turning to the **Engleheartii** varieties we consider **Incognita** one of the loveliest and most useful. It does not produce much seed, but is a capital pollen parent. The flower is of large size, with a wafer-like crown of Queen Sophia colour, a beautiful and peculiar shade of orange apricot, and flat well-set, white almond-pointed petals. **Circlet** is one of the best formed flowers that we have ever seen, and is destined to become a standard variety as soon as plentiful. The pure white segments are very broad and round, while the large flat yellowish eye is edged with orange scarlet. This is a good seeder and excellent pollen parent. **Concord** is another first-class flower. In this the eye is $1\frac{1}{2}$ inches across and quite flat. The colour varies, usually it is a strong saffron-buff, but in some seasons dark copper-orange, with dark green eye. The flower is absolutely circular, with broad overlapping segments, white tinted buff. We have used this flower with great success as a pollen parent and can strongly recommend it. **Astrardente**, a seedling from Princess Mary, is a very distinct flower. The large disc-like crown is of a beautiful salmon shade; the perianth segments are white and do not overlap. A splendid pollen flower. **Armored** is an early variety, with a creamy white pointed perianth of much substance, and an almost flat, crinkled eye edged apricot-orange. It sometimes bears two flowers on a stem. **Cresset** is a small, circular flower of perfect form, with creamy white petals and a brilliant red cup. This was raised from Princess Mary by pollen of *N. poeticus poetarum*. **Harold Finn** is, like all the preceding varieties, one of Mr. Engleheart's seedlings. This has a flat, wafer-like scarlet eye and pure white petals of poeticus character. The growth is very vigorous. **Mariette** is a flower of great beauty with a clear white perianth of great substance, two inches across, and a flat saucer-eye of deep orange, edged brilliant scarlet. Of this we hold the entire stock. **Amyas Leigh**, like Mariette, one of Mr. Engleheart's latest seedlings, is a really superb flower of the highest quality. The pure white perianth is $2\frac{7}{8}$ inches across and of fine substance, while the eye is of rich orange, edged deep crimson, with bright green tube. **Coreen** is also from the same raiser, and is one of the finest flowers in this section it has been our privilege to see. The broad cream-white perianth is $3\frac{1}{2}$ inches across, and of grand substance; the flat, rich yellow eye is one inch across and suffused with deep orange. We hold the whole stocks of both the two last named varieties.

DOUBLE DAFFODILS.

Considering that these have fallen into such neglect, it is curious that the first seedling of which we have any authentic record was a double-flowered variety. As we have already mentioned, this was raised by John Parkinson in 1618. Since then most things have progressed, but double Daffodils seem to have stood still, and very few good ones have made their appearance of recent years. In a paper read before the R.H.S. on April 9th, 1889, Mr. Engleheart made the following interesting remarks anent this subject:—"Enough attention has not been paid to the raising of *double* seedlings. Double Daffodils seed more often than is supposed. A very double Daffodil often has the stigma perfect and visible among the tightly packed petals if the flower is well examined. It is because there is seldom a large pod that the seed is unnoticed. A few seeds may not uncommonly be found in what looks merely like the rather swollen end of the pedicel. I have seedlings of the common "Double Telamonius" now in flower, and several other gardeners can say the same. Hybrid or crossed doubles are not impossibilities. In 1885 I noticed the stigma protruding from the tightly-double trunk of a few flowers of double cernuus. I marked them, and obtained nineteen seeds, eleven of which grew. Out of curiosity I dusted the stigma of one or two with pollen from a yellow Ajax—I believe it was spurius—which was growing near at hand. This spring one of the eleven seedlings is flowering, and the cross was evidently effectual, for the flower—so far as I could judge of it in its half-opened state before I left home—is drooping, like cernuus, but so yellow as to be almost precisely like the common double yellow. The ten unflowered seedlings seem to vary in leaf and habit, and I may have more oddities to report next year. It may be of service to hybridisers to know that the pollen of double Narcissi commonly gives doubleness to single flowers fertilised with it."

Mr. Engleheart has raised some extremely pretty doubles by crossing poeticus ornatus with pollen of the old double yellow, (Telamonius plenus), which everyone grows. We consider **Argent** to be the best of these. It has splendid stiff stems that stand erect in the worst gale, very different to the Phœnix varieties that have such weak ones. We have seen some very pretty seedling doubles that were obtained by crossing Minnie Hume by pollen of this same double yellow. If a flower of this latter variety be examined it will generally be found to have plenty of good pollen, and as this is very fertile there is not much difficulty in getting flowers to seed to it.

We should certainly recommend the novice to try his hand at raising doubles. There is plenty of room for good ones, and, by crossing some of the highly coloured poeticus with pollen of the old double yellow, some fine results might reasonably be expected. A double ornatus is also badly wanted, but this seems unattainable. We have never found any pollen in flowers of the late double poeticus which blooms in June, and we question whether it has ever been known either to seed or produce good pollen. At present the only raiser who seems to be working at these doubles is Mr. W. F. M. Copeland, of Stone, and he has already produced several very pretty flowers.

PRACTICAL DETAILS.

Sterility in hybrids.

As a rule Daffodils do not form seed unless hand fertilised, although there are a few, consisting chiefly of varieties originally found wild, that bear good crops of seed from chance fertilisation. On the other hand some of the choicer kinds appear to be completely sterile, no matter what pains are taken to pollinate them. Herbert remarked that "the pollen of Narcissi cultivated long becomes obsolete and sterile," but in this he was probably mistaken. Something analogous has been observed in other plants, and the probability is that he extended it to the Narcissi as a hypothesis which has never been actually proved. He had a large foreign correspondence, and an Italian botanist, Professor Tenore, of Naples, told him that *N. odorus*, (Campnello, or properly *Gampnello* jonquil), had been known to seed in Italy. This must have been an error—probably Professor Tenore mixed up a polyanthus *Narcissus* with *odorus*, as both are sometimes called "campnello" in Italian. Then Herbert supposed that *odorus* had originally been fertile but had become sterile in cultivation—hence his hypothesis. As a matter of fact very few Narcissi are entirely sterile. Those that have imperfect ovules are usually the result of *violent* crosses, *i.e.*, between parents naturally remote from one another. For instance hybrids between a polyanthus *Narcissus* and a trumpet, or between a jonquil and a trumpet, are *mostly* sterile. The only forthcoming explanation, (which is really no explanation), is this—that these violent crosses cause a shock and commotion in the vegetative tissue of the plant, *i.e.*, in its *growing* material and functions, so that all its centre of gravity, so to speak, is shifted away from its reproductive to its vegetative function. One might put it this way, that with the sudden shock of an infusion of strange blood the plant has to think

"how am I to live and grow?" and cannot spare any energy for seeding. Such plants increase at the root still, because that process is more of a vegetative one.

Artificial cross-fertilisation.

It is surprising to what an extent artificial fertilisation affects the seed-bearing capacity of varieties, which, left alone, are ordinarily infertile. Some Narcissi are said by botanists to be "proterandrous," *i.e.*, they ripen and shed their pollen before the stigma is receptive. In spite of this we believe in removing the anthers from every flower that it is intended to cross, including the trumpet Daffodils. It is a good plan to prepare before the commencement of the season a list of crosses that it is desired to obtain. This is a subject to which a good deal of thought must be given, and if it is left to the last moment it is extremely improbable that good results will accrue. This list should therefore be carefully mapped out in advance, and before the rush and scurry of the season—after all but a short one—begins. Haphazard work may produce good results at times, but it cannot produce *the best*.

Having settled well beforehand what objects one has in view, the next important thing to do is to watch the flowers closely and *remove their anthers at the right moment*. This operation is best performed with a small pair of surgical forceps, and the correct time to do it is before the flowers are properly out and their pollen up. In the trumpet Daffodils this operation should be performed just when the perianth has begun to separate itself from the crown, while with the incomparables it should be done directly before the flowers open. In the case of the *poeticus* varieties it is much the best to de-anther them in as early a stage as possible, as the pollen is often up almost before the flower is three-parts open. It is pretty easy to de-anther these by forcing the flower open, as at that period the anthers project almost at a level with the stigma and are then easily extracted. But if the flower is once allowed to open, and the anthers recede into the position in which they commence to shed their pollen, then the probability is that it has become self-fertilised. The best time of all to de-anther Narcissi is in the *early* morning, and the process is so simple that even a child may be taught to carry it out. But it is a most desirable precaution that the operation should be *cleanly* and *thoroughly* done, as if a tiny fragment of the anther is left in a flower it may lead to self-fertilisation, and all one's time will be wasted.

Immediately the de-anthered flowers are expanded they

must be fertilised by pollen of another variety. (In the case of poeticus varieties they may be actually de-anthered and crossed at the same time). Now the right time to do this is just when the stigma is in its most receptive condition. If the beginner is in doubt on this point he may perhaps find a small magnifying glass rather helpful, as by this means he will see whether the stigma is gummy enough to retain the pollen grains. As a rule, however, a flower is generally in a condition to be fertilised as soon as it is open. Later on the surface of the stigma becomes dry and the pollen will not then adhere. Pollen should be applied by means of a small camel's hair brush, which should be slightly moistened by putting it in the mouth just prior to collecting the pollen on to it. A good idea is to fit the brush into a small glass test tube so as to protect the pollen from wind. This can be easily accomplished by putting the handle of the brush through a small cork which will fit into the tube and so make it air-tight.

Great care must be exercised to *keep the pollen brushes clean*, as if a single grain of a foreign pollen—especially of such potent pollen as triandrus and poeticus—happen to be left upon the brush, it may just result in the production of a cross quite opposite to that which was intended. But, it may well be asked, how can bees and other insects be prevented from fertilising the flowers during the period that elapses between them being de-anthered and hand-fertilised? To this we may reply that, while this does undoubtedly occur at times, it happens so seldom as not to be seriously troubled about. Some people who have never had much to do with cross-fertilising Daffodils have on occasions recommended that flowers should be protected "from wind or insect-carried pollen with glass or fine muslin." This advice was given by the late Mr. Bourne in "The Book of the Daffodil," but, though sound in theory, is quite impossible—as well as unnecessary—to carry out in practice. No doubt certain flowers are often self-fertilised, but in most cases we have found that, if the operation is properly carried out, and seed is produced, the result generally shows the desired cross to have taken place.

A great deal naturally depends upon the climatic conditions that prevail at the time a cross is made as to whether it proves effective or not. In cold sunless seasons it may be advisable to *pollinate flowers more than once*, on the chance of getting better conditions—i.e., securing a receptive moment—the second time than the first. If we have time, however, we always make a point, whatever the season, to pollinate our flowers twice over. But on the other hand there is just the

chance that "messing about" with the stigma too much may defeat one's object, and cause something equivalent to abortion in animals.

In addition to climatic conditions, environment has a good deal to do with the seed-bearing capacity of Narcissi. Last season, which with us was a good one for seed, we had a complaint from one of our friends that nearly all his crosses had failed to take. But when we saw the position that his bulbs occupied we were not in the least surprised. They were in a sheltered, half-shaded part of the garden where the flowers were seen to perfection, and where neither sun nor wind could harm them. Such a position as this was not, of course, conducive to the production of seed. Mr. Engleheart grows his Narcissi in an open field, sheltered from the North, it is true, but with a Southern slope and full exposure to sun, which is exactly what is required. In the "Report of the R.H.S. Conference on Genetics" Mr. H. H. B. Bradley, of Sydney, Australia, has much of interest to say concerning the influence of weather and position as they effect the seeding of Narcissi. It is his experience that near the coast, with a dry climate, the variety Emperor only seeds with difficulty, while on the mountains where the season is later and the climate moister almost every bloom that is not cut sets seed. It is curious that he should find M. M. de Graaff a free seeder, while Minnie Hume hardly gives him any seed.

If it is desired to use the pollen of a flower that one also wishes to seed, the anthers must be carefully preserved and placed in a glass-topped box such as is used for entomological purposes. These are as good as anything we have as yet found for ripening the anthers in or for keeping pollen. By tilting the lid air can be admitted, or shut they are fairly air tight. *Pollen usually keeps good about three weeks*, and in these boxes does not seem to heat as it does in tubes. Metal boxes with glass tops are *not* advised as they get hot or cold quickly, and are apt to rust inside. The best time of day to carry out the cross-fertilisation is between 10 a.m. and 4 p.m., but in good weather it may be done successfully at almost any time of the day.

One of the most important summaries that Darwin gives in his "Origin of Species" is the inference that the most robust offspring results from the marriage of plants which are different varieties of the same species, and which have been grown with *varying conditions* of soil, climate, etc. Writing on this subject to "The Garden" in May, 1905, a correspondent makes the following interesting remarks:—"For the last three years various people have kindly sent me pollen flowers of Narcissi for crossing purposes, and I have kept very careful

records of the results, which for the three years are almost identical. The average number per cent. of flowers crossed with the pollen from a distance that set seed exceeded that of flowers crossed with home pollen. Similarly the average number of seeds per pod from the foreign pollen was higher than that from the home pollen, and the germination of the former was slightly better than the latter. These results have worked out almost exactly the same each year, *i.e.*, the averages of the three years together coincide almost exactly with those of any one year. I cannot say that I can detect any difference in the vigour of the seedlings, but for this purpose one would have to experiment with exactly the same crosses, half of a batch of any one variety being crossed with a flower grown at home, and the other half with the same variety grown at a distance. One might then obtain some interesting information as to the effect the foreign pollen has as regards the vigour, size, &c., on the resulting seedlings."

Daffodils in pots under glass rarely give much seed. This seems to be due to the fact that they dislike root restriction. If pollen of the later varieties, *e.g.*, Mme. de Graaff and the poeticus varieties, is required for using on the earlier flowers, it is a good plan to plant the bulbs in boxes and keep them in a cold frame. By this means it is easy to get them into flower considerably before their recognised time of blooming. If grown in a greenhouse the temperature should never be allowed to go above 50° Fahr., and the plants must be kept near the glass.

After a cross is made it should be recorded on a wooden label and placed in front of the plant operated on. It saves a lot of time to dust a whole row or clump of one variety with the same pollen, so that it is only necessary to record on one label the particular pollen used. Directly it is apparent that a cross has proved effective and the pod is beginning to swell, it is as well to fasten up the stalk to a small stick so as to run no risk of it being broken off at the collar by heavy rain or wind. But it must not be tied so tightly as not to allow a free flow of sap to perfect and mature the seed. The ripening period of the seed depends on whether the plant is an early or late flowering one. In a warm sunny season seed of the earliest varieties will be perfected by the end of May, and most of the poeticus by the middle or end of June. But in a season like 1907 a good deal of poeticus seed never ripened until quite late in July, and, as in 1903, numbers of pods completely rotted after the seed was partly matured. When the pods are nearing maturity great watchfulness must be exercised so that they are gathered before they burst and their precious contents are scattered and lost. No rule can be laid down to say when this

must be performed. Usually the pod itself gives warning that it is ripe by becoming yellow. The stalk also begins to get withered and sapless. But in a wet season the seed often becomes quite ripe before either pod or stalk show the slightest traces of yellowness, and in such a case great care must be exercised. Rather than gather the pod before the seeds therein are perfected it is best to make a small incision in the pod with a knife just to ascertain whether the seed is ripe or not. When thoroughly ripe the seeds are quite black and shining. Some people prefer to leave them in the pod after it is gathered and allow it to shed its contents naturally into the receptacle in which it has been placed. For our own part we always empty the pod of seeds and place them in a pill box, noting the parentage on the lid. At the end of July they should be sown in shallow boxes. The size of these rather depends on the fancy of the individual and the size of the frame that they have to go in. The neatest and handiest that we have ever seen were 8 in. x 8 in. x 4 in. deep. The boxes should be made with a drainage crack down the centre, and before filling them with soil some moss should be placed over this to keep it open. The compost should be composed of old turfy loam with a good proportion of sand and grit to lighten it. The seed should have about one to 1½ inches of soil over it, and the boxes should not be filled quite full. After the seed is sown and duly labelled the boxes should be placed in a cold frame on sand or ashes, care being taken that no snails or slugs have made the frame their headquarters. Here they must be kept just moist, and during the day the lights should be removed except during heavy rain. Although perfectly hardy, they should be protected from the hardest frost by placing some covering over the lights. During the winter plenty of air should be given when possible, and about December the little plants will be seen making their appearance and looking rather like tiny onions. As soon as they begin to come through a dressing of cocoa-nut fibre may be given to keep down moss and liverwort and to preserve moisture. As soon as all danger of hard frost is over the lights may be removed every day and only put on at night when a sharp spring frost is threatened. Very careful attention is necessary to prevent their growth being checked through allowing them to get dry, as this will stunt and probably hinder them from flowering as soon as they otherwise might. Directly the plants are large enough—which is generally at the end of two years—they may be planted out in three feet beds, raised slightly above the level and composed of fairly light loam into which some fine bone meal has been incorporated in the proportion of two ounces to the square yard.

The beds must be kept well hoed and free from weeds, and when the plants appear above ground a dusting of superphosphate of lime will be helpful to them. A few precocious youngsters may bloom at three years of age, at four most of them will bloom if they have been properly attended to. Some of the large Ajax varieties, however, take five, six, and seven years to bloom, but these will often bloom in 4 or 5 years with proper management. To the beginner the first few years of waiting may seem rather long, but as Miller quaintly says "after the first five years are past, if there be seeds sown every year, there will be annually a succession of flowers to show themselves; so that there will be a continual expectation"

As the seedlings flower they must be carefully watched and all the promising ones labelled for removal to another bed. It is as well not to be in too much of a hurry to discard seedlings that at first sight do not appear to be worth keeping, for sometimes a seedling will improve beyond recognition in its second or third year of flowering and after it has settled down. Some seedlings increase with extraordinary rapidity, while others are just as slow. Sometimes soil has a lot to do with this, but constitution and management are mainly responsible.

CONCLUSION.

Much more might be written on the subject as it is a well-nigh inexhaustible one. The great interest that is now being displayed in the hybridisation of Daffodils, and the better flowers that we are, in consequence, getting, afford the sole excuses for putting forward this little pamphlet. We need scarcely add that the *experienced* cultivator will find nothing new in its pages; this could hardly be expected, for the subject is such an interminable one that the experience of more than a life-time would be necessary to deal with it adequately.

Only those who have experienced the delights of raising Narcissi from seed know what a fascinating pursuit it is. With what eager anticipation one enters the garden on a fresh April morning to visit the beds of seedlings, and see what new beauty of our own creation has sprung up, as it were, in the night!

These marvellous flowers that spring in their clean lovely dresses out of the worn face of the dingy world, a miracle of beauty silently performed every year, bring more of poetic mystery with them than any other of the countless transformations of life that charm and perplex us.

Cartwright & Goodwin,
(R. Chatwin Cartwright & Arthur R. Goodwin).



The ADS was founded in 1954 to promote a wider interest in daffodils. The society and its members have set the standard for daffodil shows and judging and continues to encourage scientific research on the genus *Narcissus*.

As a member, enjoy benefits such as quarterly issues of *The Daffodil Journal*, an invitation to attend the Society's annual national convention, and the company of other daffodil enthusiasts!



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