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Donald F. Merrett

Iris reticulata

Daffodil Notes

By John C. Wister

Readers of The National Horticultural Magazine have had from time to time the opportunity to see the beautiful photographs of new daffodil varieties grown by Mr. Morrison and photographed by Miss Lilian A. Guernsey. They are therefore more familiar with some of the new varieties than are the readers of other garden magazines. The National Horticultural Magazine, however, has not published in recent years any comprehensive series of notes on daffodil varieties, so that the present seems a good time to call attention to the great advance that has been made not only by breeders in producing these varieties, but also the advance in recent years in the commercial production of daffodils by growers in this country. The daffodil embargo in 1925 cut us off from European supplies and by so doing gave impetus to a number of growers, both Dutch and American, to grow daffodil bulbs on a large scale in this country. At present production is probably greatest in the Puget Sound region, but there are large plantings in the East, notably in Virginia and on Long Island.

Many of these new growers started out growing nothing but Emperor, Empress, King Alfred, Lucifer, Barrii, Conspicuous, Poeticus Ornatus and varieties of that general type and age, but they have been quick to see the need of keeping the American public interested in this flower by the introduction of new varieties and have gone in for a larger scale production of novelties than is seen in many other flowers, with the result that now, seven years after the embargo, it is quite possible for us to buy many splendid varieties at prices which are not greatly in advance of European prices if the wage scales of the different countries are considered.

Until very recent years there had not been in this country an interest in fine daffodil varieties similar to the interest in iris and peony varieties which dates back a matter of twenty years or more. The interest, however, is growing and will undoubtedly grow very rapidly in the next five or ten years as the varieties that I am about to mention become available to all at reasonable prices. While at present most of them can be had in this country, it would be necessary to go to a number of different growers to get them and to pay very high prices for some of them.

The fact that daffodils in the past have not assumed the importance of irises, peonies, phlox, dahlias, gladiolus, chrysanthemums or other popular flowers is rather strange, as no flower adapts itself to more different conditions than does the daffodil, nor are any of the other flowers easier to grow. Daffodil culture has its difficulties as the culture of other plants has, but no difficulties to explain the apparent hesitation of the public to plant them as they should be planted. To begin with, they can be grown in many different types of gardens beginning with the smallest flower pot in a house window. They are suited to small gardens, formal or informal, and to large gardens and to mass naturalizing in meadow and woodland. They give a long season of bloom if varieties are properly chosen and in

those portions of the country which are favored by reasonably mild climates they increase rapidly. This increase is slower in colder regions as one comes north, but within the general range of most of the gardening interest in this country they will succeed admirably.

I should like to emphasize the fact that in the Daffodil family we have a great range of form of flower and with it quite a range in season. The trumpet varieties are in general descended from *Narcissus pseudo-narcissus* of the British Isles and other parts of Northern Europe and are the earliest. They may be had in bloom in March and early April in the climate of Washington, D. C. Poet Daffodils which are descended from *Narcissus poeticus* from France and Switzerland bring up the end of the season in May, and the many hybrids and intermediate types fill in the weeks between the two extremes. After the flowers have gone many American gardeners are thoughtless enough to allow some of the foliage to be destroyed, thereby weakening the bulbs. It is curious that this habit persists when practically all gardeners after a minute's thought would realize that it must be injurious to the plant. Another bad practice which is common is to defer planting until late in the fall. This habit undoubtedly was started by the seedsmen who in former years could not get their importations from Holland ready to sell in their stores until some time in October. Now these same dealers believe that the American public will not buy bulbs earlier because they are absorbed with vacations or because they have lost interest in gardens during the heated weeks of the summer. I fear very much that the dealers may be right in this assumption, but the fact remains that the proper time to lift and replant daffodils is immediately after they have become dormant, which in the section between Washington and New York is approximately the last week in June for most kinds. It is true that in occasional seasons like that of 1931 growth will continue on some varieties until the middle of July, but this is very unusual. I know from my own experience that bulbs lifted early in July and cleaned and replanted soon after the 15th of July have begun to produce new roots as early as the first week in August, thereby getting a good start in their growth for the next year. This date will of course vary with the weather and also with the variety, but I have never heard anything to indicate that any daffodil is benefitted by waiting to plant it in September, October or November.

I should like now to consider briefly some of the varieties in different sections, taking the sections in the order of the classification of the Royal Horticultural Society. To begin with, we have the Yellow Trumpet section, which is the section that most people think of when the name daffodil is mentioned. The best known varieties are of course Golden Spur, Emperor and King Alfred and they have already proven their important place in our plantings in the past. I have never been able to keep Golden Spur in good condition in my own garden for many years and I have been able to get earlier flowers from the Early Yellow Trumpet, which is sometimes found practically naturalized in Virginia, North Carolina and Tennessee. This is a starry flower without the fine exhibition points which Mr. Morrison tries to illustrate in the photographs in this magazine, but it is welcome for its earliness and well worth growing in all the milder sections. I cannot speak with any authority as to

its vigor when you get north of New York, but it may be that it is not as hardy as Emperor and varieties of that type.

I have grown a number of Yellow Trumpet varieties which seem to me deserve an important place in all gardens in the future. Among the earliest to bloom, if not the earliest, is Winter Gold, introduced by Barr in 1927. It is a beautiful color but has a perianth that is slightly inclined to twist. Almost as early in some seasons is Luxor (Richardson, 1924). This is very much bigger and flowers are said to be over five inches in diameter in England. The trumpet is bell-mouthed and the plant is exceptionally strong. Goldbeater also is quite early and tall and large. If we may jump from the earliest of Trumpets to the latest by way of contrast, there are two varieties of recent origin which may prove of great value to us in the future. Both are products of Guy L. Wilson in Ireland, the first, King of May, being introduced in 1922. In Mr. Wilson's garden it does not open until May and keeps in condition until *recurvus* comes along. In Philadelphia it has not proved as late as this, but in years when Winter Gold has come on March 28th it has come out as late as April 20th and lasted sometimes as long as the 4th of May. Even if it were not late it would be an outstanding variety because it holds its trumpet so boldly upright, which gives it great decorative value. It seems to me that the expert gardener could keep this variety for late blooming by lifting it every year and keeping it out of the ground rather late. A very unusual variety, often two or three days later than King of May, is Giant Muticus, also from Mr. Wilson. It is distinct in having a totally different type of flower with a large spreading perianth which is entirely at right angles to the long and very narrow rich yellow trumpet. The color is not as much of a self as that of King of May or as that of Emperor. In 1930 Mr. Wilson introduced a variety said to be even later than these two and most appropriately named it Last Out.

Coming between these two extremes of season we might well consider two extremes in color of varieties that are still generally considered Yellow Trumpets. Two varieties stand out for their deep rich yellow color. The first, Prospector, was introduced by Engleheart about 1920 and is a rather smallish flower compared to the giants that we have been mentioning, but its color makes it stand out in any collection. Of similar color, perhaps even more brilliantly golden is Yukon, introduced about 1925. This was raised either by Engleheart or The Brodie, the English records on this do not seem clear, nor has correspondence with the gentlemen named been able to clear up the question. A great contrast of these two flowers is Moonlight, which is a decidedly pale yellow, so much so that some lists consider it as a Bicolor or a White Trumpet, but it certainly is neither of these, so that it is really hard to give it any exact place. It is most useful for contrast with the darker flowers mentioned.

Perhaps even lovelier is Solferino, a Van Tubergen 1922 variety which is a perfect self color of the softest pale yellow. Of similar color and with a trumpet that opens out rather than being narrow is Citronella, Van Tubergen 1929. The Van Tubergen firm evidently likes this pale color type, as in 1930 it introduced another one under the name of Seraphim which is much the color of Solferino, but is smaller and less rough, a much

more refined flower of the type of Dawson City.

Dawson City has been illustrated in THE NATIONAL HORTICULTURAL MAGAZINE for January, 1932, and a good description of it is given there. It is certainly one of the finest of our modern varieties. Another very fine one also from Van Tubergen is Apotheosis, but Golden Flag and Honey Boy from G. L. Wilson should not be forgotten.

Two new ones that I am watching with particular interest are Loyalist and Royalist; both of them are of unusual perfection of form, which characterizes the products of the modern Daffodil breeder.

These are but a few of the Yellow Trumpets which are desirable in addition to Emperor, King Alfred, Golden Ray, Robert Sydenham, Van Waveren's Giant, Herbert Smith and Whistler.

DeGraaff particularly has many fine new varieties in this section which are being grown in Oregon and offered to the trade so that they should soon be available.

WHITE TRUMPETS

Mr. Morrison, in a recent lecture, showed a picture of Moschatus of Haworth as an indication of the long way that we have come in getting additional size, better form and taller flowers in the White Trumpets. There are endless new varieties to be considered here, and all of them are unbelievably better than old Madame DeGraaff which for many years was the standard of perfection. Among the small types more suitable for rock gardens than for the ordinary garden are Alice Knights and Loveliness from Barr and DeGraaff respectively. Mrs. Robert Sydenham and Peter Barr are also very popular among the smaller flowers. It seems to me that the best White Trumpet which is in commerce today at a price which encourages the amateur to buy is Mrs. E. H. Krelage. It has had a long period of testing, is a good grower, splendid bloomer and in every way a beautiful flower. It must be admitted, however, that like many of the older varieties it is not pure white at first and that sometimes the yellowness in its trumpet persists quite a number of days.

Beersheba was, I believe, first flowered in this country in Mr. Morrison's garden. It is very early but with me has never been a large flower in spite of published reports that I have read about it. It has beautiful form and the perianth stands out wonderfully at right angles to the trumpet. It may not open white the first day but very quickly becomes the purest of white flowers. Eskimo and Gaza are two other beautiful white flowers but are not large. Those who like tall flowers should grow Everest in their places. It is a beautiful flower and a fine strong grower. The strength of some of the newer varieties is perhaps best illustrated in Kantara, which to me at least is not as attractive as the flowers which have gone before but which has given me nine flowers on a single bulb the second year. Four more varieties for good measure are White Conqueror, White Emperor, White Dame and White Frost. A less well known variety which is larger and perhaps not such splendid form is Roxanne and Corinth and Kenbane are perhaps equally as good.

BICOLOR TRUMPETS

This group like the others has seen many additions in recent years which have put Empress, Victoria and other similar varieties entirely out of the running. There are several different types of Bicolor Trumpets, the old

color contrast as exemplified by Empress being now seen in Aeolus, Edison and John Farquhar, while a new type of less contrast with paler perianth has come to make our gardens still more lovely and bridge the gap between the Bicolor Trumpets and the White Trumpets. Moira O'Neill, Comely, Lady Primrose are representative of this type and are flowers that no garden should be without. For the rock garden older varieties like W. P. Milner, Apricot, Mrs. W. T. Ware and Frostbound are still desirable.

A variety apparently little known in this country is Golden Beauty, which was introduced about 1924. It is entirely distinct from all the others in having a trumpet that is nearly orange yellow and it is for this reason very striking. The flower is small and not remarkable otherwise. No one abroad seems to be able to give information as to where or by whom this variety was originated.

A flower approaching the color contrast of Van Waveren's Giant is Herod, which is valuable for its lateness. Varieties that are newer in my garden and which give great promise are Bonython, which is almost as pale as Moira O'Neill, and Carmel, of similar coloring. A very large flower, though not of such exquisite proportion, is Mrs. Wakefield Christie-Miller, and perhaps still larger is Rosemorran Giant. In this section perhaps should be considered also Rosary, which is famous for its pink trumpet. It is one of the most exquisite of flowers and I am sorry to say that I can do nothing but give a bad report about it otherwise, as I cannot keep it healthy and only newly imported bulbs bloom well for me. I am hoping that Lovenest, which is something of this same type of pink, although not as beautiful, may prove to be a better grower, and I am hoping still more that the Giant Leedsi variety Mrs. R. O. Backhouse will prove a good grower for me and thereby take the place of Rosary. Another variety which I have only seen once but which has a slight trace of pink in the trumpet is Athalia.

According to the Royal Horticultural Society Classification, the Incomparabilis Section comes next and is generally divided into Yellow and Bicolor. I have had so much trouble with this classification in trying to fit in various varieties where they belong that I have still further divided it and will present the older varieties here according to their size as well as their color. The small Yellow Incomps. are known in all gardens and among the oldest and best of them are Frank Miles, Gloria Mundi, Homespun, Leonie, Orange Buffer and Torch. Slightly newer are Edrin or Egrin (there seems to be some difference of opinion about the spelling) from Watts. Slightly larger than the varieties mentioned is Gallipoli, which is very late and has some gorgeous coloring. Frilled Robin also is beautiful for its coloring and for its habit and it does not hang its head quite as much as Gallipoli.

Quite different but still rather belonging to this section than to the Giants is Croesus, which is one of the finest of all daffodils. It is now being grown in this country in considerable quantity and should soon become reasonable in price.

Among the smaller Bicolor Incomps. Lucifer, Lemon Drop, Orangeman and Will Scarlett are among the best known varieties to be considered. R. M. Tobin is a newer Dutch variety, which is a great improvement over Lucifer in flower but still has to prove whether it is as vigorous and healthy a grower. Very valuable for lateness

is Nannie Nunn, and perhaps what makes it late is the fact that it is very close to the Barri section in form. Another great favorite of mine is Prince Fushimi.

Let me now consider the types of Giant Incomps. Among the yellow varieties Sir Watkin is of course very old, but its earliness still makes it of great value, particularly as it is available at a low price and can be used in quantity. Newer and very good for the general garden are Pilgrimage, which seems to me quite the best of a number of new varieties of that general type, Henrietta, which is early, and Lucinius, which is much later. Very distinct is Woven Gold, which has a deep orange cup. It is classed as a self yellow rather than a Bicolor, but the cup makes a great contrast with the pale yellow perianth, which is as pale as that of Sir Watkin.

Some of the new varieties of this group approach Yellow Trumpets in their size and general form. One of these is Wheel of Fortune, which in my garden over a period of six years has year in and year out proved itself one of the finest of all varieties. It retains its color and form through the worst of weather, hot waves followed by thunder storms and freezes affecting it little when they ruin all the flowers around it. Most daffodil varieties start at a high price and become cheaper year by year, but this one is an exception and the price has been going up, so great has been the demand for it.

Into the Giant Yellow Incomp. group must also be placed a number of recent triumphs of the European breeders, which are only just getting to this country. Some of them have a great deal of orange or red in the cup, and stand out in the garden for that reason. They will undoubtedly in a future classification be given a separate compartment all their own. The first and perhaps the most famous of this race was Fortune, which recently has been selling for more than $125 a bulb. Most of these varieties are beyond the pocketbook of the average gardener, but I should like to mention a few of them here to put them on record and to ask our gardeners to watch for them when they do become more plentiful and therefore cheaper. Some of the finest are Donatello, Damson, Fortune's Pride, Loud Speaker, Killigrew, Orange King, Orange Glow and Sunset Glow, and there are many more which are like these and perhaps just as good.

Varieties of similar type but with a white perianth which puts them in the Bicolor section bring us to a class of flowers of which there are many to be had at fairly reasonable prices compared to Fortune and others. Among these I should like to mention Fleetwing, Lioba, Loch Fyne, Market Gem and Mrs. John Hoog, the last named being so close to a Trumpet that it has in the past been considered a Trumpet rather than an Incomp.

Newer and more expensive than these are Bodilly and Galopin. As in the yellow section, there are a number of varieties to be considered here also which have red in the cup, some of the most beautiful being Argonne, Blazing Sword and Franciscus Drake. John Evelyn, Warlock and Clava should also be considered here. I must not linger over these varieties too much, however, as there are still so many other classes to be considered, but before leaving this section I should like to again emphasize to our readers that here are to be found some of the most remarkable advances ever made in the breeding of daffodils.

YELLOW BARRII

Conspicuus, which was introduced by Backhouse in 1880, has long been the standard Yellow Barrii in American gardens. It is a fine flower for naturalizing and has well deserved its popularity. Those who like it will find Rarity, introduced by Bath in 1927, to be a very similar flower but very much later and valuable for this quality. Brilliancy and Bath's Flame are by some people considered glorified types of Conspicuus. They are larger and the color is much better; both are early. Two rather pale yellows are Castile and Nobility, and Torchlight is rather smaller. Sunrise differs in having a perianth that is practically white but has yellow rays like the rays of the sun going down the center of each petal. I should not like to be without Bonfire, Blood Orange, Glitter, Harpagon, or Jasper, all of which are but slight variants of the general type. Among the newer varieties, Danger and Marquis are exceedingly fine, both of them having very strong color. Here should be considered also Tredore and Treskerby, both of them large and with deep red eyes.

While the Yellow Barrii section is comparatively small in spite of the addition of recent new varieties, the varieties under the heading White Barrii almost legion and any choice made between some of the older ones must be purely arbitrary. I have always been fond of Albatross and Sea Gull for midseason. I find Southern Star very valuable for earliness and Mrs. C. J. Hunt and Moonlight Pride equally so for lateness. Firebrand is small but bright in color and good for massing. Two very beautiful varieties which under my conditions have not proved satisfactory growers are Dragoon and Miss Wilmott. I hope that I shall learn their requirements as they are well worth a continued struggle. Many varieties sent out in recent years are much like these older types but with slight improvements. Bird of Paradise for instance seems to hold its color later than does Albatross. A very conspicuous advance, however, is the variety Firetail, introduced in 1910 and still considered a novelty as the stock is scarce and those who have it do not wish to sell much. This opens with a slight tint of yellow in the perianth but quickly turns to a fine creamy white with a flat cup of deep orange and scarlet, the color lasting very well in the sun. In England it is considered one of the coming market flowers and while it is grown by the thousands it still retails at a price that discourages much buying. A totally different type is White Star and it is rather well described by that name as the perianth is loose and starry. Among newer varieties I like particularly Galata by the Brodie in 1927, and Kilter from P. D. Williams in the same year. Carminowe, is particularly striking on account of its large and very flat crimson eye which makes a wonderful contrast with its snow white perianth. St. Anthony and Sunstar are valuable because extremely late. Therapia is one of the best of the new introductions and Shackleton and Coverack Gem will surely become popular when time gives them a chance to be known.

GIANT LEEDSII

There is something about the purity of color in the Leedsii section which often makes me think that it is the most beautiful of all. I have many favorites among the older varieties, even such a variety as Mermaid being grown in my garden in quantity and being very popular. Its strong point of course is its earliness but it cannot

compare in purity of color and fine form with some of the newer types. Another very early variety that is extremely strong growing and large is Alicea, raised by Mr. Copeland, 1922. It is apt to open yellow but becomes white with age. Mr. Morrison has often criticized Her Grace on account of the short stem and the habit of hanging the head, but in spite of his criticism it is still one of my favorites. He and I, however, both agree that Mitylene is one of the finest of the whole group. However, the friendship that we have over this variety is severely parted again when we come to Silver Fox, which I like and which he thinks too ragged. One of the largest of this class and comparatively new is Tenedos and in spite of its size it is not rough or coarse. White Nile is a very early variety and White Pearl quite late, giving us again the different seasons. One of the loveliest is Puritan Maid which is not pure white at all but has a cup with a lovely cream color and this same color is seen also in the wider cup of Phyllida. Blizzard is another one of the useful late varieties as are Abadia and Basilia. Those who like size more than perfection of form will like Gertie Millar and Naxos, both of which are splendid growers and fine flowers. Daisy Shaffer, Niphetos and Tunis should also be mentioned here.

The most sensational flower in this section, however, is probably the one that wonderful breeder, the late Mrs. R. O. Backhouse named for herself. This was registered by the Royal Horticultural Society as long ago as 1906, but apparently has only recently come on the market in any quantity and it is still selling I believe at more than $25 a bulb. No more beautiful flower than this can be imagined with its gorgeous salmon pink cup which is almost as long as a White Trumpet, so that some dealers are a little bit doubtful into which class to place it. I have bloomed it in my own garden and found it as fine there as in the nurseries who are producing it commercially, and I hope that it will prove a strong grower and thereby make us willing to forget Rosary which evidently is not going to be successful in this climate.

LEEDSII

The smaller Leedsiis are equally attractive to most people and are of course wonderfully suited to naturalizing either in grass or woods. The old Leedsi type was first introduced in 1883 and it is still procurable from some growers and is charming in the grass or in the rock garden. Much better known, however, are White Lady which is late and Queen of the North which is a little earlier. They can be used either for garden or for naturalizing. White City is better than White Lady. St. Olaf and San Ilario are valuable not only for their beauty but for their lateness. I have always liked Arion ever since the second year when one bulb gave me seven flowers. Here is one of the purest whites of the entire section. A new type of Leedsi which has a very flat crown is the variety Silver Plane from New Zealand. It has met with much favorable comment in England but with me so far has been rather weak in growth. I hope that it will become acclimatized and live up to its reputation. Two varieties which can be classed with Leedsi but which some people consider with the Triandrus section are Undine and Niveth. They have the purest stainless white which is characteristic of the Triandrus. Two varieties that I saw last year for the first time in Mrs. Davis' garden in Nashville are Nellie and Mrs. Nettie O'Melveny. They are tall and seem

to be splendid growers and if they do as well further north should become very popular.

The Triandrus section has not been well known probably both because the varieties were scarce and expensive and because some of them at least did not prove very strong growers. Among the smaller pure white varieties Agnes Harvey, Icicle and Thalia are very lovely. Queen of Spain is equally small and is yellow.

Then there should be considered a set which might be called Giant Triandrus or Trumpet Triandrus, among which are Harvest Moon, one parent of which is said to be King Alfred. It has a form approaching the Trumpet but the pale smooth yellow of the Triandrus section. J. T. Bennett-Poe is fine, and so are Alope and Cingalee. All of these varieties excite the greatest admiration when first seen and they should become popular if they can be produced in quantities large enough to allow them to be sold at reasonable prices. Some of these are growing better for me now than when I first tried them eight or ten years ago and I am hoping that I will learn their requirements in my climate. My observation leads me to believe that they grow much better in Washington than in Philadelphia and part of that may be climate and part soil, but perhaps the most important part, the skill of the growers around Washington.

Another little grown section is the section of Cyclamineus Hybrids. It is hard to believe that the tiny Cyclamineus species which is a rock garden plant can have given us such fine varieties. The most important of these in my opinion is February Gold, raised by DeGraaff and introduced about 1925. I value it for its earliness, having had it as early as the 20th of March in exposed situations in my Philadelphia garden. It is a good bloomer and though I have been warned that this entire section is likely to be poor growers in my climate it seems to have done well so far. The perianth is lemon yellow and slightly reflexing as would be expected in this section. The trumpet is fine orange yellow, beautifully frilled at the margin. March Sunshine is much like this but a few days later in bloom and therefore not quite as valuable. Orange Glory has a much deeper color and is over two weeks later. Quite distinct is Cyclataz introduced by A. W. Tate in 1922. As the name indicates, it is the hybrid between *cyclamineus* and *tazetta*. It is only five or six inches high and bears two to three flowers on a stem and in general resembles a tiny miniature yellow Poetaz variety.

The Jonquilla Section has been one to interest me extremely even if the name does bring up from so many sources the unhappy questions—"Are not all Daffodils Jonquils?" and then the second well known question "What is the difference between a Jonquil and a Narcissus and a Daffodil?" These are painful inquiries because they come so often. The Jonquil Group which are all closely related to Narcissus Jonquil have its onion-like foliage. All of them have the pure yellow color of the wild Jonquil of Southern Europe and many of them have its lovely fragrance. The type itself is late and blooms in Philadelphia almost the end of April, in fact it is so late that every year on looking at a bed of it the impression is given that it is not going to bloom. There are a number of types of this on the market. My original ones came from Van Waveren in Holland about ten years ago and are as beautiful as any that I have seen. *Rugulosus* is also a lovely type, is earlier blooming and has a rather large flower, while Orange Queen is

striking in any collection for its deep color and should be planted with *rugulosus* for contrast.

Among Jonquil Hybrids one of the finest is Golden Sceptre, raised by De-Graaff and introduced in 1908. Its trumpet parent is said to have been Monarch. It is one of the largest of the Jonquil type, has the typical Jonquil clearness of color and smoothness of petal, is delightfully fragrant and unlike most others in this section has only one flower to the stem. Buttercup is a good deal like this, and so is Lady Hillingdon, which is more apt to have two on a stem. Sanda is still another of this same general group. Quite different, however, is Sweet Nancy which is a paler color and hangs its head and often in spite of carrying more than one flower on a stem gives the general impression more of a Yellow Incomp. or Yellow Barrii than a Jonquil. Some newer varieties in this group are Golden Perfection, Llanarth, Trevithian and Solleret. As practically all the varieties referred to are deep Jonquil yellow color, I will mention the fact that a creamy white variety White Wedgewood is very lovely. Its appearance would lead one to suppose it is a Hybrid with a Triandrus Section.

While the Triandrus, Cyclamineus and Jonquil Sections are comparatively little known, the Poetaz Group is of course widely becoming much appreciated for its fragrance. The cross between Poetaz and Tazetta that made this race possible was said to have been made first by Vanderschoot about thirty years ago. Today we have many fine varieties to choose from but in general the older ones are a great deal alike. In whites we have Early Perfection for early, Laurens Koster for midseason, Antigone, Mignon and Sycamore for late. In yellow, Haemon is a good midseason variety and Sovereign a good late one. About the only variety that is standing out on account of its color is Orange Cup and its name indicates its appearance. Of recent years English breeders have specialized on varieties with larger flowers and fewer of them and among the new varieties of this type which bear one or two flowers to a stem may be mentioned Medusa, Glorious and Sky Blaze.

POETICUS

There are so many fine Poet varieties to choose from that the task is endless. For naturalizing in meadow or woodland there is, however, nothing very much better than *ornatus* or *recurvus*, the first early and the second late. For garden use, however, there are many varieties of finer size, form and color. The earliest to open in my garden is Thelma, raised by Van Waveren and put on the market in 1903; while the last to bloom are Dactyl, Dulcimer and Sarchedon. Coming in midseason the following are all desirable but for any but the expert there is little to say for one variety more than the other. I have grown Beka, Cassandra, Epic, John Masefield, Juliet, Nightingale, Rupert Brook, Snow King, and Sonata and like them all and would really hate to do without any of them. Changes of form are of course being brought out by breeders and more and more is the red color in the eye becoming a solid red rather than a red rim around yellow. This is noticeable particularly in the Ace of Diamonds and in the newer Inca, but in the latter case the brick red instead of being red throughout turns to green in the center, thus giving quite an unusual contrast. In cooler climates the Poeticus types can be kept in bloom until mid-May or even until June, but in Philadelphia we are apt to get very hot weather

about May 5th or 10th which hurries them along. The latest date that I have had them has been May 18th and that after all gives me a pretty long Daffodil season which begins sometime between March 12th and 20th.

There remain still other sections to be considered. The double varieties which were formerly very popular have long ago lost much of their popularity. I have grown most of the common ones and discarded most of them long ago. However, I still grow and like Primrose Phoenix, and among newer ones I find Hollands Glory, Mary Copeland, Irene Copeland and Twink exceedingly interesting. They are entirely different in type from the older ones and I think gardeners are foolish to remark that they do not like Doubles until they have seen these newer kinds.

Many skilled gardeners grow some of the smaller species of daffodils in their rock gardens. I have no such position and therefore cannot have success in the ordinary border with *bulbocodium, cyclamineus, minimus* or *triandrus albus*. The one I regret the most is *minimus* as it is so early. I have had it here on the 12th of March and hope some day that I have it again.

By contrast *gracilis* blooms with *recurvus* and lasts sometimes until the 18th or 19th of May. Indeed one year I had some flowers on some new bulbs as late as May 28th, although they were hardly ornamental at that time. *Caniculatus* strangely seems to do quite well with me, and this lovely little Tazetta type never fails to interest visitors. *Lobularis nanus* and *minor* are small yellow trumpets have done well for me and given me early bloom. Persons with rock gardens should grow all of the smaller species and their varieties. No more fascinating types of plants can be found out in dealing with the other sections I have tried to emphasize varieties which under any conditions have proved vigorous and which therefore I presume will increase fast in the nurseries and become reasonable in price for all of us. Under present business conditions, few of us can buy Fortune or some of the other very expensive kinds, but I know that it will not be many years before these can be had from American growers at reasonable prices. I urge therefore all amateur gardeners to be on the watch for the advent of these newer varieties into the catalogs of the various dealers.

Pennsylvania.

Classification

As many years ago as 1908, the Council of the Royal Horticultural Society of Great Britain appointed a committee to consider the classification of the ever-growing list of daffodil varieties. The work of that committee was revised in 1915 and again in 1923 and the latest report of their findings appears in the edition of the booklet published by the society under the name of "Classified List of Daffodil Names" (1931). Since this classification inevitably forms the basis of the classification used in this country, particularly at narcissus shows, it is being reprinted in full in this issue with a proper expression of our indebtedness to the Royal Horticultural Society.

DIVISION 1.—*Trumpet Daffodils.*

Distinguishing character — Trumpet or crown as long as or longer than the perianth segments.

(a) Varieties with yellow or lemon coloured trumpets, and perianth of same shade or lighter (but not white).

(b) Varieties with white trumpets and perianth.

(c) Bi-color varieties, i. e., those having a white or whitish perianth and a trumpet coloured yellow, lemon, or primrose, etc.

DIVISION 2.—*Incomparabilis.*

Distinguishing character — Cup or crown not less than one-third but less than equal to the length of the perianth segments.

(a) Yellow shades with or without red colouring on the cup.

(b) Bi-color varieties with white or whitish perianth, and self-yellow, red-stained, or red cup.

DIVISION 3.—*Barrii* (Incorporating Burbidgei).

Distinguishing character — Cup or crown less than one-third the length of the perianth segments.

(a) Yellow shades, with or without red colouring on the cup.

(b) Bi-color varieties with white or whitish perianth and self-yellow, red-stained, or red cup.

DIVISION 4.—*Leedsii.*

Distinguishing character—Perianth white, and cup or crown white, cream or pale citron, sometimes tinged with pink or apricot.

(a) Cup or crown not less than one-third but less than equal to the length of the perianth segments.

(b) Cup or crown less than one-third the length of the perianth segments.

DIVISION 5.—*Triandrus Hybrids.*

All varieties obviously containing *N. triandrus* blood, such as Queen of Spain, Earl Grey, Eleanor Berkeley, Moonstone and Agnes Harvey.

(a) Cup or crown not less than one-third but less than equal to the length of the perianth segments.

(b) Cup or crown less than one-third the length of the perianth segments.

DIVISION 6.—*Cyclamineus Hybrids.*

DIVISION 7.—*Jonquilla Hybrids.*

All varieties of *N. Jonquilla* parentage, such as Buttercup, *odorus*, etc.

DIVISION 8.—*Tazetta and Tazetta Hybrids.*

To include *N. Tridymus, poetaz* varieties, the Dutch varieties of Polyanthus Narcissus, *N. biflorus, N. Muzart,* and *N. intermedius.*

DIVISION 9.—*Poeticus Varieties.*

DIVISION 10.—*Double Varieties.*

DIVISION 11.—To include *N. Bulbocodium, N. cyclamineus, N. triandrus, N. juncifolius, N. gracilis, N. Jonquilla, N. Tazetta* (sp.), *N. viridiflorus,* etc.

Lilian A. Guernsey

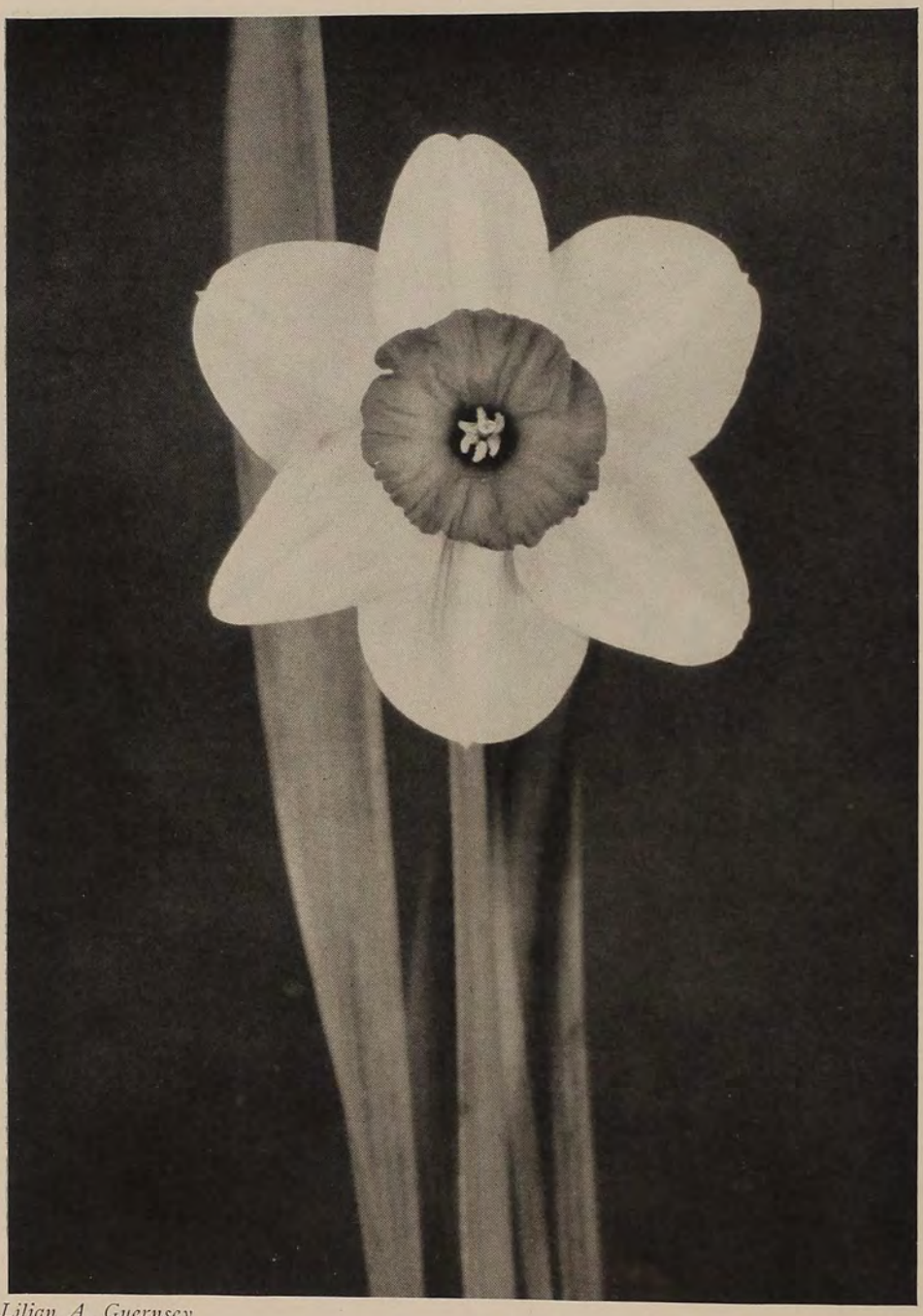
DIV. 1A—*Trumpet Narcissus, Dawson City*

Lilian A. Guernsey

Div. 1b—*Trumpet Naricssus, White Conqueror* (below)
Div. 1c—*Trumpet Narcissus, Tapin* (above)

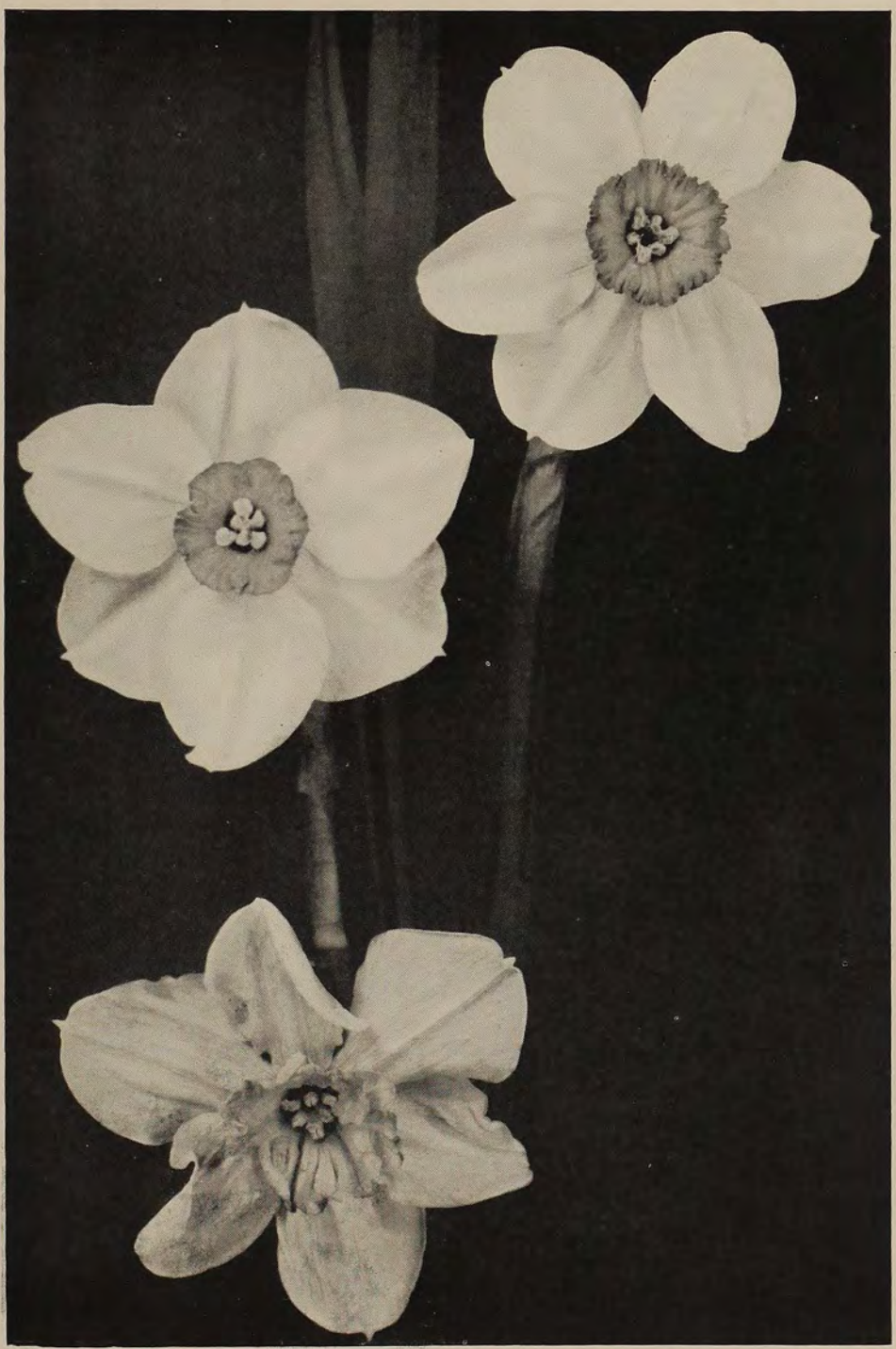
Lilian A. Guernsey

DIV. 2A—*Incomparabilis Narcissus, Pilgrimage*



Lilian A. Guernsey

DIV. 2B—*Incomparabilis Narcissus, Croesus*



Lilian A. Guernsey

DIV. 3—*Barrii Narcissus, Crimson Braid and Sunstar*
DIV. 2—*Narcissus, Bacchus,* (lower)

Lilian A. Guernsey

DIV. 4B—*Leedsii Narcissus, The Fawn and Irish Pearl*

Lilian A. Guernsey

DIV. 5A—*Triandrus Narcissus, Cingalee*

Lilian A. Guernsey

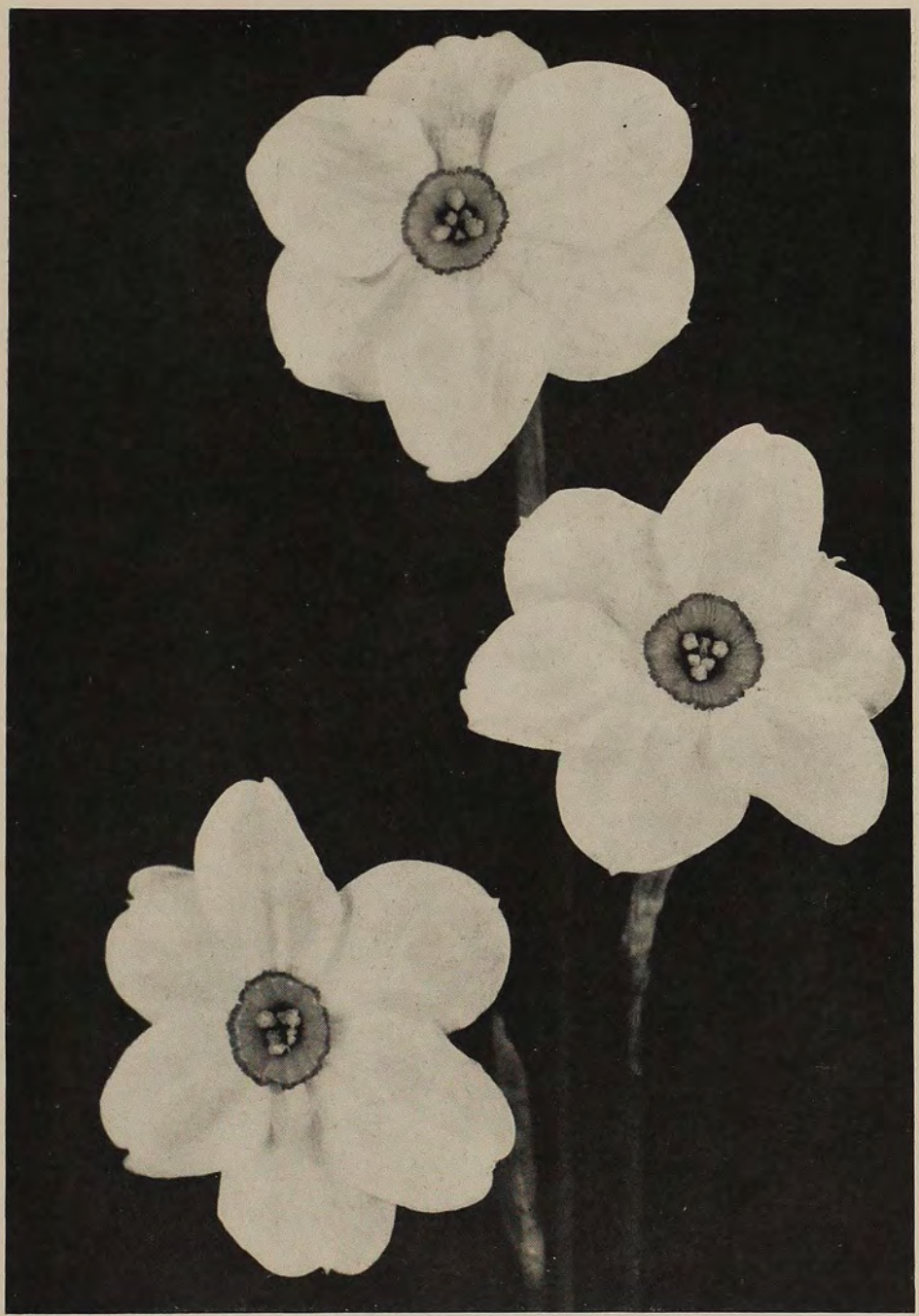
DIV. 7—*Jonquilla Hybrid, Narcissus odorus*

Lilian A. Guernsey

DIV. 8—*Narcissus tazetta, Soliel d'Or*

Lilian A. Guernsey

DIV. 8—*Narcissus Poetaz, Medusa*



Lilian A. Guernsey

DIV. 9—*Narcissus poeticus, Ringdove, Dulcimer, Sonata*

Donald F. Merrett

Donald F. Merrett

DIV. 11—MISCELLANEOUS SPECIES
Narcissus nanus (above)
Narcissus bulbocodium (below)

The Narcissus Family

By Fred L. Delkin

In 1926, the year preceding the rigid quarantine on the narcissus, there were imported into the United States 142,384,199 narcissus bulbs. Last year, with the depression on, with Regulation 14, Quarantine 37 in full force, and with the American growers turning off millions of bulbs there were still brought in from other countries, mostly Holland, 5,203,930 bulbs of this flower. From such figures it would seem that the American people are great narcissus enthusiasts. Yet, as a matter of fact, we are not. Beyond an universal recognition of the large yellow trumpet daffodils we are confused even as to the distinction between narcissi, daffodils, and jonquils.

Although the bulk of our importations are of the trumpet daffodils the latter are, by no means, the majority of the narcissus family. For years, the Englishman through his catalogs and the Dutchman through his salesmen have endeavored to impress this fact upon us. Even our own seedsmen have listed common varieties of many of the other forms. It took a federal quarantine, the establishment of a bulb industry, and a national awakening of garden interests, however, for us to begin giving this flower the consideration it deserves.

In the last few years, among the millions of bulbs that have been brought in, there have been included members from all branches of the family. More than this, there have been included in generous quantity, considering their cost, most of the finest European novelties. In one plot of ground too small to be adequate for a family vegetable garden I have seen blooming $16,000 worth of these bulbs. Flower shows of these English and Dutch novelties have incited the wonder and admiration of flower lovers to such an extent that everywhere there are those asking what of this family of plants and the wonderful modern creations.

To study the narcissus it is best to follow the outline of the Royal Horticultural Society of England. Here we find that the cultivated forms have been separated, for convenience, into eleven divisions. In the first four of these we find the segregation made upon the comparative length of the cup, crown, corolla, or trumpet to that of the perianth segments. For a casual examination shows us that all but the double flowers of the narcissus are alike in construction. They have the six petaled perianth faced with central corolla or crown. Variation occurs in the number of flowers to a stem, in the form and size of the flower parts, and in the color from fiery orange-red through the deepest yellow-orange, through brilliant golden yellow to the palest lemon yellows and creams to cream-white, and even to the purest glistening white. In many of the newer varieties apricot and coral pink are appearing. The flowers may be self-colored or may have as many as three distinct colors in contrast.

Besides the cultivated hybrids there are many wild forms grown in gardens. Their separate hybrids give rise to the fifth, sixth, seventh, and eighth

divisions. They, themselves, grouped together as "Various" form the eleventh. Narcissus poeticus and the double forms comprise the two remaining groups.

The wild forms of the last division are the miniature flowers so highly prized for rock gardens—the bulbocodiums or hoop petticoat daffodils; the wild forms of N. triandrus, including the exquisite "Angels' Tears" and the natural hybrid, Queen of Spain; N. cyclamineus; N. juncifolius; N. Jonquilla; N. gracilis; N. Tazetta; and others. It is these that give us the key to the great variation in the modern hybrids.

When diversity of color and form are found in nature much is to be expected from cross-breeding. Much has been accomplished. In the classified list of the Royal Horticultural Society there are some five hundred names of varieties that are known to be in cultivation as well as many more names than this of kinds either lost to cultivation of surpassed by more modern varieties. That the most ardent collector would attempt to grow all of these is hardly to be expected; that it would be worth while is not to be advocated. Those of us who have had experience in growing many varieties of a plant know that there are always a comparatively small number worthy of care and attention while the others, if not almost duplicates, are quite inferior. We have learned that the latest variety at the highest price is not necessarily the finest flower and that often it is well to wait several seasons before making final judgment.

Were I, to-day, making a selection of the modern narcissus I would certainly include in it one member, at least, from each of the divisions. Then of each division I would want the finest representative. Knowing the unreliability of the price factor, of the date of introduction, and, also, the glowing catalog descriptions I would rely almost entirely upon the first hand information I have obtained in my own fields and in those of other growers and upon the knowledge gathered at all the principal shows held here in the Pacific Northwest.

As we look over the first division we find the Trumpet Daffodils separated into three classes. There are the yellow trumpets with yellow perianth, the yellow daffodils; the yellow trumpets with white perianth, the bi-colors; and the white trumpets with white perianth, the white daffodils. When it comes to the large golden trumpets, whether of the yellow daffodils or the bi-colors, one might say that the sommercial florists have well exploited these. When one has such varieties as King Alfred, Tresserve, Olympia, Van Waveren's Giant, and Spring Glory, one has aristocratic flowers. This is true in spite of the fact that none of these can be classed as novelties. This is true in spite of the fact that dozens and dozens of new names have been added since their introduction, most of which are destined for oblivion. Flower varieties are like literary efforts. The judgment of time, alone can give their true value. When a variety attains commercial importance it may be considered a classic. Nor is it easily displaced by the latest new issue. I have seen a half dozen so called improvements on King Alfred which although they might have had some minor quality to recommend them, were lacking in essential features. They were either of a lighter color, of a shorter stem, hung their head, failed to multiply, or were so like the King, himself, that the price of two dollars a bulb was the only distinction between them and the twenty cent flower.

Yet, the best varieties are super-

seded by the hundredth or ten thousandth new seedling. There is a deep yellow daffodil that unmistakeably stands out and overtops King Alfred. Diotima, originated by De Graaff, is a distinct improvement in the yellow trumpets. It is a huge flower, tall of stem, heavy of substance with thick waxy petals such as are found only in the best of the late novelties. It has a trumpet that carries one into estacies. It is perfectly formed, round at the mouth, wide open, and with an edge beautifully rolled and crimpled. Having chosen this one, I will pass up the rest of the golden trumpets, whether bi-colors or self-colors. I am not interested in kinds that are just better than commercial sorts. I am looking for distinction.

Of the light yellow to cream trumpets we have seen too little. For years we have had, but few have grown, Weardale Perfection (Backhouse, 1894), a large, handsome flower. With the advent of such fine things as Robert E. Lee it looses its prominence. This latter flower, said to be the best bi-color of 1928, a De Graaff origination, will be present to be reckoned with for sometime to come. It is of enormous size, has a pure white broad and overlapping perianth and a light yellow trumpet that is wide open and beautifully frilled.

Just where these light colored bicolors leave off and the white trumpet daffodils begin it is hard to say. There really are none with pure white trumpets. I think Peter Barr with its waxy ivory trumpet and its white perianth comes as close as most to being a white flower. Although introduced by Barr in 1902, it still is an outstanding variety with a form quite distinct from most of the trumpets. Said to be whiter still and the very finest white trumpet daffodil is Beersheba, a flower of great size which it has not been my fortune to see. It received a first class certificate from the Royal Horticultural Society in 1926. Another fine member that I have seen is Lord Louis Mountbatten (De Graaff, 1926). It, too, is very large and has a pure white perianth of fine form with a splendid trumpet of light yellow fading to creamy white.

Of the pink daffodils I feel in a position to say little. Of the two known to me I prefer Lovenest (Backhouse, 1925), to the variety Mrs. R. O. Backhouse (Backhouse, 1906), the so-called "pink daffodil." To me the coral edge ivory trumpet of the former is more pleasing than the entirely pink one of the latter. The charm of these flowers is principally for the connoisseur. No doubt, there will emerge more distinct tones of this color so that describing them we may use pink in the ordinary meaning of the word.

I think that, at the present time, the most distinctive advance among the narcissi is to be found in the next three divisions of the family, among the Incomparabilis, Leedsii, and Barrii classes. The new creations are such an advance over the kinds of our seedsmen's catalogs such as Lucifer, White Lady, and Albatross that we are compelled to stare at them in amazement. Because we are well supplied with the yellow trumpet daffodils these are, by contrast, doubly desirable. That these will break through precedence and rival the Trumpets as florist flowers does not seem improbable.

In these three classes much confusion arises in distinguishing one from another. Yet, clear enough are the distinctions if one follows the rules of the Society. Flowers that have cups or crowns from one-third to nearly the length of the perianth segments belong to the Incomparabilis, if

their crowns are dark in color. With this same proviso, flowers that have their cups or crowns less than one-third the length of the perianth segments belong to the Barrii. Flowers that have pale yellow to white crowns of the lengths of either those of the Incomparabilis or the Barrii belong to the Leedsii. The difficulty arises from the inaccuracy of the eye as a yardstick. Whether a trumpet is as great as or just a little less than the perianth segments is a matter not always apparent. Consequently there is a natural tendency to bunch the three classes and separate them unconsciously into two groups—those with trumpets almost as long as the perianth segments and those with trumpets that are plainly shorter. This has given rise to the unsanctioned classification Giant Leedsii where the trumpets are so similar in size to those of the Trumpet Daffodils that many of these flowers are mistaken for the latter. Two splendid examples of these are Lord Kitchener (Backhouse, 1905), and Silver Star (Backhouse). In the Incomparabilis we find flowers of similar form. The old favorite, Sir Watkins, has always been sold indiscriminately in the florist shops with the yellow trumpets.

Because they are quite different from the Trumpet Daffodils I prefer the shorter crowned varieties. From these latter will I make selections for my collection. As I have said before, one should not be prejudiced by the date of introduction. No better illustration is there than my selection of Croesus, a variety brought out by Williams in 1912. Among any of the latest aristocrats it will always receive notice. I select it not because it has the most fiery cup, not because it is of unusual size. Other varieties surpass it in these respects. I choose it because, all in all, it is distinctive. It is of splendid form, well proportioned in all its parts. It is a rapid multiplier and produces a great number of flowers to each bulb. It is destined for extensive commercial use. Also distinctive and marked for commerce are Mrs. Barclay and Diana Kastner. Both are Barrii; the former brought out by Polman-Mooy in 1925, the latter by Backhouse in 1924. In both of these varieties it is the contrast of white, yellow, and orange-red in large, full, round flowers formed of broad overlapping perianth segments with clear cut centers that gives them pronounced worth. Another splendid kind is Firetail (Crosfield, 1925). I choose it because it is different. It has a splendid flat, round, disc-like perianth of overlapping segments with a small center of self-colored orange-red. But, one most likely to take the blue ribbon is Fleur, a Barrii (Backhouse, 1927). It is a handsome flower, large, splendidly proportioned, and contrasting a flat cup of reddish orange against a clear white perianth. A well defined feature of many of the best novelties is an intense flutting at the edge of the cup. In some cases, like that of John Evelyn (Copeland, 1925), there is a triple frill that is extremely pleasing. This added to a wide open cup of exquisite apricot-orange backed by a disc-like perianth of white gives us, indeed, a bloom of rare beauty. Of similar form, but a Leedsii instead of an Incomparabilis, is Daisy Schaffer (De Graaff, 1925). Its cup is pale creamy yellow with edge of deeper tone. With the choice of these few I leave these divisions, knowing that they are filled with many gems of rarest beauty and that somewhere, unknown to me, there are seedlings harbored that will eclipse even the best I have already seen.

The fifth division, the Triandrus Hybrid group, with its clustered flow-

ers usually of white, is quite unlike any of the other groups. The addition of any member gives variety to a narcissus collection. Of the kinds I have seen Thalia is, by far, the most pleasing. It bears on stems of average height three or more ivory-white flowers composed of long, widely separated, outstretched perianth segments centered with downturned skirt-like cups. Like the other large hybrids of this section, it is quite hardy in spite of its Triandrus parentage.

Of the next division, the Cyclamineus Hybrids, there is one quite worthy of cultivation, February Gold (De Graaff). Having much the appearance of a small yellow trumpet daffodil, it shows its cyclamineus blood in slightly reflexed perianth and distinctly ridged trumpet. It is a very early bloomer and its flowers remain in condition for an exceedingly long time. For growing in pots and the large rockery it is quite valuable.

Strange it is that the word Jonquil, often wrongly used to designate other members of the family, is better known than the flower for which it stands. Yet, poor, indeed, is the garden that does not have some member of this group. To me the most precious of all is the smallest, the little rush leaf Jonquil which really belongs under the eleventh division. Its clusters or intense yellow flowers are each laden with a whole house-full of perfume. Another wild form is the larger flowered, less heavily scented Campernelle which gives rise to varying garden forms—Campernelle Giganteus, larger yet, and Campernelle Plenus, a double form. Cross-breeding with the Jonquils has produced some interesting hybrids. There are the very large Jonquil-like types such as Tullus Hostilius (De Graaff). Then there are the large, one flower to a stem, trumpet-like types such as Golden Sceptre (De Graaff, 1914). And there is the cluster of sweet scented white and cream flowers found in White Wedgewood (De Graaff), a variety well worthy of growing. Being in this group of the deepest yellow flowers found in the narcissus, it is a very rare novelty. Too bad it is that the Jonquil has not received more attention, for it is a most splendid garden subject. It is a vigorous grower, a most prodigal multiplier and a splendid long-keeping cut flower that is far more graceful than the huge trumpet daffodils which we follow the crowds in admiring.

Probably as widely known as any narcissi are two members of the eighth division of Tazetta Hybrids. They are the Paper White Narcissus and Grand Soleil d'Or, "the Yellow Paper White." For bowl culture in living rooms they are the most popular flowers. Few can be so successfully forced. To this class belongs, also, the Chinese Sacred Lily. Of these three the Paper White is the one that is tender. Its culture outside, except in warm sections of our country such as Florida, Texas, and California where it is grown commercially by the millions, is next to impossible. Where winters are not too severe the other two will easily become garden subjects. In Washington and Oregon bulbs of Grand Soleil d'Or are commercially grown.

Crosses with the above and the Poet's Narcissus has given us a remarkable sub-division of this group, the Poetaz Narcissus. This class is certainly worthy of far more attention than it has ever received. Here are flowers that recommend themselves to everyone. All they need is a simple introduction to be accepted as the life of the party. Their flowers far exceed in size those of the bunch flowered parent and they are borne in clusters of three to a dozen or more to

a stem, each flower spike a bouquet in itself. In them are found the whole range of colors existing in the narcissus. Golden Perfection (De Graaff, 1926), is one of the newer and finer varieties. The perianths are sulphur yellow, the cups deep golden. Each flower is large and beautifully formed. Cheerfulness (Van der Schoot, 1926), is very attractive. It is made up of pure white double flowers. Glorious (Williams, 1923) is a dazzling thing. Its flowers are white with cups of brilliant red. They are perfectly formed and of unusual size. There are other fine kinds that should be had in our gardens.

For naturalizing there is nothing so satisfactory as the ninth group, the Poet's Narcissus. It thrives under the most disadvantageous conditions and increases surprisingly. Those who have seen it waving in the Alpine meadows of Switzerland know what a remarkable picture it can paint. In recent years, in England, there has been a lot of interest shown in developing new varieties of this species. I wonder at this fact. Of all the divisions of the narcissus, it seems to me, this is the one less likely to produce distinctive kinds. Yet, there are listed in Barr and Sons, an English catalog, no less than thirty named kinds, all of which have flowers of a snowy white perianth and a small disc of a cup yellow or greenish yellow bordered with red. And this is but a small list of the named varieties of this snowy white flower, so white that it makes the so-called pure white of the other narcissi seem cream in comparison. But, although there has been brought about very little change of form and color, there has been a steady and marked evolution. The reflexed perianth of the old Pheasant's Eye (Poeticus recurvus) has been ironed out so that in the variety Glory of Lisse we have a flat, imbricated perianth. And in this latter variety we have a larger flower with an earlier blooming date and, in all, a finer thing than either Recurvus or Ornatus. For mass planting I would certainly recommend it. But, for my collection, I would want several of the latest kinds. They show a slight increase in size and they have more substance in all their floral parts with intensified brilliancy in the coloring of the eyes, giving a glistening chaste appearance noticeable by contrast with the older sorts.

Never so popular as the single have been the double forms of the narcissus, the tenth division. The old double trumpet Von Sion would be popular enough if it did not burst its trumpet and split up into green petals. It is among the double Incomparabilis that the most attractive members are to be found. Here is the Phoenix band—Sulphur Phoenix, Golden Phoenix, Orange Phoenix, and Primrose Phoenix, large, many petaled flowers resembling in form a full blown rose. Of these Primrose is, by far, the superior flower. Quite an advance in the entire class of doubles are the remarkable new varieties, Twink (De Graaff, 1926) and Mary Copeland (Copeland, 1926). These two will do much to bring popularity to the double forms. Twink is a robust grower with strong, stiff stem. It is but semi-double and is composed of loose creamy yellow petals interspersed with those of brilliant deep orange. Mary Copeland is the most striking member of the group. Also semi-double, its petals are pure white and orange-red interspersed in clean-cut contrast.

Washington.

J. G. Bacher

Primula aurantiaca

Primulas in My Garden

By Rae S. Berry

I wonder how many of us who garden, start with the definite idea of growing or specializing in any particular plant? Not many, I imagine—and of those few I doubt whether any are impelled by love of the plant they choose; perhaps rarity, or popularity, or some such reason governs their choice. But to me has come the joy of almost having a plant choose me, of happening on the particular plant that fitted my garden, my purse, my surroundings, bringing with it the opportunity of growing up with the species, expanding with it as my horizon expanded, and my love for it and my interest in it, grew.

So it was that a shady, tiny plot in back of our house on a small city lot was the reason for my beginning with Primroses many years ago. Not Primulas to me then—just Primroses with their cheery response in surroundings that other plants found uncongenial.

Nearly everything I have, I have raised from seed, to me the most fascinating part of the work, if you except the final crowning of success with flowering blooms, but while you do not always succeed in blooming all kinds, even after giving them everything that has been recommended for them—with the addition of ideas of your own—you are fairly sure of raising them from seed if these few simple rules are followed.

I am careful of my pots; if they are to be used a second time, I clean and sterilize them. I always use fresh soil; make my mixture of soil and sand and leaf mold of the accepted proportions; put plenty of drainage in the pots, cover with tiny bits of moss and some coarse soil before I put mixture in; make it fairly firm, stand pots in water till saturated; drain at least two hours before sowing seed; sow thinly—cover fine seeds almost not at all, larger ones barely; keep it dark 'till germination begins, never allowing seeds to dry out and always watering by immersion. And when germination starts — anywhere from two weeks to two years—bring to light; this is the very commonplace of seed sowing, the same directions as are found in every book of growing alpines from seed, and the fact that everyone agrees on the subject shows its importance.

And now, would you like to follow me around that little plot to see the result of my efforts? Let's begin at the North bed facing South, the bed with the largest amount of sunshine. Such an innocent-appearing bed with its cover of stone chips,—but we dug down three feet, throwing out the subsoil, put in first large pieces of broken brick—covered them with moss; then smaller pieces of brick and stones before we returned the soil to the bed, soil well mixed with sand and stone chips for drainage, well-heartened with peat and leaf mold, with lime added as we planted the little lovers, leaving one end free for those intolerant of lime.

Here I have put my two year old alpine primulas, big thrifty plants all, that I hope will bloom this spring.

First comes Minima. It put that in first because it seemed the most precious one and interspersed it with plants of Gentiana Verna (raised from seed also), the combination recommended by Farrer and other authorities. Then come all the other two year olds—Glaucescens, Clusiana, Carniolica, Calycina, Wulfeniana, Spectabilis, Integrifolia, Villosa, Hirsuta, Pedemontana — not exactly in the order written, but all there. Here is also a batch of the old Red Dusty Miller, but that is going to be moved. It's very pretty and free flowering, though not always dusty and sometimes not red—but it's too large a plant for this bed, and does not need quite such special treatment.

Across a path just wide enough to step on,—I have so little room I can't waste it on paths—I have the Alpine Primulas I raised this year from seed, and a few I separated, which will take another year before they reach blooming size. Here is a large batch of "The General," Elizabeth Fry, Breviscarpa, Viscosa, more Clusiana, and Carniolica and Hirsuta—Faldonside and Pubescens in variety.

Across the next path where it begins to be shadier I have a nice big bed of Littoniana, both the Giant form and the type. This is certainly one of the most striking Primulas. It is so wholly different from any other kind that one would never recognize those poker-like blooms of red bracts topped with tiny lavender

J. G. Bacher

Primula vittata
Primula microdonta, background left

flowers, the whole on long stems, as belonging to the family unless the leaves were seen; those green, hairy leaves that tell the tale of a "miffy" plant, one apt to die off in winter of excess moisture, unless drainage is specially attended to. "Little Men of Thibet" they are called, such an appropriate nickname once you have seen the blooms. I have had some plants bloom three years in succession, though increasing very little in size; but to make sure, I always pollenize some and raise new ones each year, very little trouble with fresh seed, and so well worthwhile to make

sure of their spectacular blooms. And if you let them grow two years before blooming, you will have much stronger plants, much more likely to survive after flowering.

Across the next path—a little less sun, a little more shade—is my bed of special treasures where I gloat—yes, I really do gloat! First comes Nutans, that loveliest of lovely beauties, with its powdered stems and flowers of such a lovely lavender blue. Then sharing the bed, which has had special attention paid to drainage, and peaty soil, not too heavy, are other "fussy-kinds"—Lepta, Muscarioides, Cyanantha, Conica, Chrysopa, Conspersa, Menzesiana — kinds that are only too eager to disappear if afflicted with too much winter moisture, and so have a tent-like affair over them, made of suntex and looking like a huge white butterfly hovering over the bed, only removed when—and if—it snows.

Across the next path—more shade still, less sun—are plants of this year's sowing. Thrifty-looking when I planted them this autumn, but too small to expect flowers from them for another year. A large reserve plot of Littoniana and Cyanantha, many Pulchella, and odds and ends of other kinds—only a few of each.

My next bed is filled with Aurantiaca, Chungensis, Cockburniana, all of that lovely clear orange shade that is so striking; a few Serratifolia, yellow with a deeper splash of orange on it, and at the shadiest end, where I've made a sort of little cave for them to keep off the sun, are plants of Primula—Omphalogramma Vincaeflora, which seem to take particular pleasure in sticking their roots out of the ground with every frost, leaving the heart-buds as if on stilts.

In my shadiest bed, I have Sikkimensis, a plant I particularly love, with its clear yellow drooping flowers and its clean, fresh scent. With me, it is never a profuse bloomer, but it's a sound perennial and always with some flowers.

Secundiflora, its lovely dark rose-colored counterpart, shares the bed, as does also Waltoni—which latter is apt to come in so many washy shades that you wonder where it received its description of "Port-wine" color (if you know what that means), unless you are fortunate enough to get the very best seed. My first plants were the real shade but I lost them—or rather, lost track of them when I had too much to do—and I'm busy now, each year, raising more and more seedlings, hoping for the lost glory—so far without success. Secundiflora really should not be in this bed, as it likes more sunshine and less moisture after blooming, but one of the winter tents, turned into a summer cover, does the trick. Tucked into odd corners of this bed—so odd that only seeing is believing—are other kinds, a few each of Frondosa, Farinosa, Scotica, Longiflora, Heucherifolia, Lichiangensis Hapala.

The last bed stretching across the back has to shelter many kinds, because of lack of room. Lovely Nivalids, like Chionantha, Parryi, Sino-plantaginea, Sino-Purpurea — one of Dr. Rock's introductions of the same lovely color as Secundiflora but with full head of bloom instead of one-sided, different colored Sieboldiis, a large lot of Wardii and Involucrata, always so cheerful and free blooming above their small, glossy, oval green leaves, with their dear, bland-faced flowers.

Around all these beds I have put rocks and stones and in the crevices I have tucked many lovely things, Marginata, with such lovely lavender flowers. I raise a fresh batch from seed each year, hoping — or rather

J. G. Bacher

Primula heucherifolia

praying—for a Linda Pope; Allionii, with a north exposure and under an overchanging rock; Forrestii and Redolens and Suffrutescens in their rock crannines, all growing nicely, but Marginata, the only one that has bloomed so far.

Perhaps you wonder why I have made no mention of the wonderful Asiatic species, in spectacular colors and sizes, that have rather "stolen the show" these last few years. They are lovely plants but need no especial care, if moisture and drainage are properly attended to. Among these are the lovely Candelabras in gorgeous colors, the Microdontas in bewildering variety; Florindae with its huge mop-heads of yellow blooms—these flourish with me like weeds. I did not dig down the three feet I should have done for these beds, but compromised by lifting the beds quite a bit; the unsightly edges are easily managed by sticking in a few rocks—any size, any shape — and growing attractive trailers all along. Such a bed, if watered well, will answer every practical purpose, even if planted of necessity, as mine has been—in more sun than is really good for it, and will give a gorgeous mass of color in June and later, more sparing display in autumn; and to prolong the bloom, I edged it with low-growing, early varieties, Juliae, Helenae, Wanda, blue *acaulis*, and as many as I could of the lovely *rosea*—so easy

to grow and excelled in color by none. I think if I were allowed but one primula this would be my choice; moisture-loving but enduring sunshine—seeding well, easy to grow, and of the most glorious clear rose color. If, on summer afternoons the leaves in this bed begin to droop from the heat, I give them an extra sprinkle, and as soon as the sun is off the bed, they begin to revive.

I have many more primulas that I have not room enough to mention here, but this is enough to show what you can do for a beginning. It's true that I garden on a city lot—but it's in a city singularly free from atmospheric impurities—while we are not very much above sea level, we are very near the mountains—the real mountains with "everlasting snows"—while we have practically no rain the whole summer through, we have water in abundance and in marvelous purity, from those same mountains, and no matter how warm our days, our nights are always cool, giving Primulas a chance to recover the freshness lost during the heat of the day.

Books recommended: Primulas for Garden and Greenhouse, by Cox and Taylor. The Primulas of Europe, by Dr. McWatt. Journal of the R. H. S. for January, 1929. Farrer's English Rock Garden.

Portland, Oregon.

Trials of a Sunset Gardener

By Sydney B. Mitchell

Even outside times of depression, we have such a hangover of pessimism that we almost invariably associate the word "trials" with unpleasant things meant either to try our souls or just to stress the cussedness of nature, depending largely on one's sense of sin. Trials, however, in these vaporings of a gardener looking literally towards the Golden Gate, have only the meaning applied in R. H. S. literature, that is, attempts to find out what certain plants are worth, particularly a few not well known and likely to be happy in a semi-arid state, the adjective having reference to our dry summers, not to our limited adherence to the eighteenth amendment.

Whenever anyone says Mediterranean plants I sit up and take notice and notes. Consequently, when I saw in Sir William Lawrence's most interesting garden at Burford, Surrey, England, a small pinkish single composite and learned that it was *Chrysanthemum Mawii*, raised from seed collected by Lady Lawrence in Morocco, I expressed a receptive attitude to trying it in California and received seed in the fall of 1930. This, sown in a flat early the following spring, germinated well, and by midsummer the plants, then eight or ten inches high, were producing flowers varying from pale flesh to a deeper, clearer pink, singly on thin upright stems. It is not a showy thing and could certainly be improved by selection, but the flowers are dainty, the foliage fine and furzy and apparently persistent in my garden, and it is nearly always in flower, some blooms being evident today, though it is Christmas week and we have had frosts and rain. It should be worth trying as far north as Washington, D. C., on the east

coast and Victoria, B. C., on the west. In colder climates, sowed early, it might be treated as an annual, though it is perennial here, even shrubby. To the rougher rock gardens it would give color when high alpines are only a promise.

Hibiscus trionum, which I am told is the same as *Hibiscus africanus* listed by Thompson & Morgan, is an unusual annual I raised from seed from Sir William Lawrence. He described it as a New Zealander, flowers 3½ inches across, pale primrose with a large mulberry blotch in the center; plant shrubby in habit, the bottom branches growing at right angles to the main stem, covering the ground and growing to a height of 4 feet. Raised in a flat in early spring, through neglect it did not get transplanted into the garden until July, but nevertheless flowered cheerfully at 2 feet high, and its shortlived blooms proved interesting and very attractive, suggesting some of our lovely native calochortus. Recommended for adventurous gardeners as a flower which will easily grow for and on one, but not for those who must have everything so brilliant as to hurt one's eyes.

Campanula Loreyi is a pretty, dark blue annual bellflower, hardly a foot high, easy to grow, germinating like mustard, and flowering in midsummer with large, flat flowers. As most rock gardens then are more subjects for apology than admiration, I strongly advise ameliorating that season of their discontent with a few dwarf annuals, this among them. There is also a white form I haven't grown. Don't confuse this with the so-called perennial *Campanula laurii,* a taller, airier, more bell-like, lavender member of the family, which would certainly be admitted to the rock garden as a real alpine, though in mine it really blooms itself to death every summer, self sowing and flowering again each year as an annual.

England is just now trying out a lot of South African flowers, chiefly annuals, T. Hay, the enterprising superintendent of Hyde Park, and the firm of Sutton and Sons being leaders in the movement. Such is the enterprise of most of our Pacific coast seedsmen that though all South African plants are far better adapted to California than to colder and rainier England, we will generally have to get our seeds from there. I saw a good many on trial during the summer of 1930, and selected two for my garden. One of these, *Dimorphotheca pluvialis ringens* (synonymous with Calendula pluvialis ringens), is less known than *D. aurantiaca* or its hybrids, but equally worth growing. It is a hardy annual, about 10 inches high, its well-finished, white, daisy-like flowers having a lovely blue zone around the darker center. Raised in flats and transplanted to the rock garden in a dry, sunny place, it was much admired. It is very easy to grow. For the other I took *Ursinia anthemoides,* another annual of the easiest culture. The type has lovely clear orange flowers of most attractive daisy form, with long petals and a purple zone, but I chose the mixture, which gave me flowers from pale yellow to orange, including shades of buff to which I am partial. All blending beautifully, they made a nice little patch in full sun, where they remained open longer than most of these sun-loving South Africans. In my dry garden they were dwarfer than in England, and I should rather expect this to be true in American gardens elsewhere. As I was most interested in the daintier, dwarfer annuals, I passed up *Venidium calendulaceum,* which is a strong-growing, easy an-

nual, better for the border than the rock garden, nor did I get seed of *Venidium fastuosum*, which seemed to me much overrated, its growth and flowers being coarse, the latter with centers too large for their petals, and often deformed. Later someone gave me seed, which did not germinate. I gather it is hard to get started.

English amateur plant explorers in Spain have been collecting seed of Linarias which have not yet graced our gardens. While this is a pure guess, I think that the *Linaria alpina hybrida* recently offered in England are crosses of some of these dwarf mountain perennials with the more common *Linaria alpina*. They are easy little things, flowering with me the same season as sown, but giving every appearance of permanency, their almost flat foliage being quite persistent here. At present the colors are a bit dull; old gold, purples, smoky yellows and other unexciting blends, but doubtless by a selection of the clearer colors they will be valuable in warm, dry rock gardens, and, praise be, they flowered in summer, though whether this is their habit or merely due to ebullience of their youth I am still uncertain.

The perennial *Scabiosa caucasica* I had never enthused over, though it is much grown by local cut flower men, for its lovely lavender color, but when I saw the fine selected forms raised by breeders like Isaac House, Westbury-on-Trym, Bristol, England, I was readily separated from two-and-six, which means in American money about sixty-five cents, for a packet of seed, as I couldn't readily import the plants without soil on the roots, for they transplant rather badly. Sown at once in a sandy soil in which lime had been mixed, I got thirteen plants, and today I have flowers on my table cut from them. Mine are mostly lovely lavenders, mauves, and powder-blues with far larger and frillier petals, and more of them, than in the older forms, but one can also get dark blues and pure whites. I gave them a sunny place, good drainage, and a cupful of lime mixed in the soil about each little plant as I moved it from the flat, and they seem as happy to be here as I am to have them. Don't confuse this perennial with the annual scabious, whose large center earned it the name of Old Ladies' Pincushion. The beauty of the perennial is in its relatively small center and large guard petals. It keeps with me two weeks in water.

In the autumn of 1930 I was suddenly struck dumb — a considerable achievement, my friends say—by what looked like a lovely golden carnation growing on a marigold plant in Berkeley's most beautiful garden. Next winter, while trying at a men's garden club to find what it was, I was overheard by Arthur Navlet, of the Charles E. Navlet Co., Oakland, who sent me a package of this novelty which his firm, with considerable enterprise and some loss, had imported from the English introducer, who had given it the name of *Guinea Gold*. They will list it next year as the *Carnation-flowered African Marigold*, for few Americans know what a guinea is, and many of them would tell you it is what is put in a purse to throw at a varlet. But under any name, it is by all odds the best marigold I have seen, its loose form and glorious color, both coming absolutely true in every plant I had, its medium growth, lack of rank odor, and long blooming and lasting qualities marking it for continued inclusion in my annual seed list.

One English picture I can't get out of my mind is of *Cytisus Kewensis* in its home and in other large rock

gardens, drooping over ledges like a creamy waterfall. Last summer in Victoria, B. C., I saw that certain sections of this continent could do it equally well. This wonderful broom, being a hybrid, can't be raised from seed, but I have found it in the highly unusual list of the Rockmarge Alpine Gardens, Medina, Washington, so it is already in my garden, in a sunny spot just above a three-foot stone wall. I am going to urge its planting wherever there is a suitable position and the climate is not too severe. It and about a dozen other brooms are on my 1932 list.

Most of my 1931 trials were from seed which can be obtained here or imported from abroad without fuss or permits. I had others, but this is not the time or place to discuss them.

California.

Blue Alliums for the Garden

By H. S. Boothman

I am afraid that all members of the Onion Tribe are like the Dog with a Bad Name, but like the dog they have redeeming qualities and are deserving of more attention. It is undoubtedly true that some Alliums have a noxious smell, but there are one or two with a delicious fragrance and the majority do not betray their odors unless they are bruised. The flowers of many are most beautiful indeed and *A. narcissiflora* is an example of these, but its flowers are rose colored and the Alliums with blue flowers are here under review. The blue flowered Onions come to us chiefly from Eastern Asia and are perfectly hardy everywhere. They are worthy of places in the border and rock garden where their beauty will be appreciated in summer and early fall. The conditions of culture are easily provided, for they are not particular and a moist neutral soil in sun or half-shade is ideal.

Allium albo-pilosum can be one of the most striking plants in any garden. It looks best when it has a dark background which serves to heighten the effect of the flower spikes and if planted at the base of a wall or fence, or in front of a dark-leaved evergreen shrub, this effect can be obtained. The height to which the flower stems rise may be one or two feet and this depends on the conditions of growth and the position. From very whitish leaves the stout stems rise and produce in late summer enormous balls of pale lilac flowers. These balls are composed of hundreds of six-rayed stars about an inch across and each star is attached to the main stem by a slender stalk and all radiate from the very top of the stout stem. This attractive plant does not need protection from frost, but some shelter from strong winds is desirable.

Allium azureum is the same as *A. caeruleum* and is a very easy plant to grow. It has very slender stems which arise to a height of a foot or so, and the stems are crowned with a head of brilliant sky-blue flowers. It is one of the earliest of the blue onions to flower and is also one of the oldest, for it was introduced into cultivation in 1840 and came from Russia.

A. Beesianum is a beauty collected in China in 1904 by Forrest whilst

Donald F. Merrett

Allium Beesianum

collecting plants for Messrs. Bees, Ltd., of Liverpool, England, and is worthy of a place in everybody's garden. It makes a very fine plant for the front of the herbacious border and looks well on a large rockery. From tufts of rather flat, bluish-green leaves the flower stems arise in profusion and carry clusters of flowers of a deep, clear blue. The flowers hang down like bells and are about a quarter of an inch wide at the mouth. There are many flowers to each cluster and each has a stalk of half an inch long. Very closely akin to *A. Beesianum* is *Allium Farreri.* The habit is the same and the leaves and flowers are similar except that, instead of growing to a height of nine inches, it is but six inches tall and is therefore more suitable for rock-work. Even more suitable for the rock garden than *A. Farreri* is *Allium Purdomi.* Here the leaves are very fine and rush-like and only a couple of inches long. The stems grow a little longer than the leaves and carry the clusters of pure blue bells just above the tops of the leaves. The flowers in this case are smaller but their lack of size is counterbalanced by their extreme grace and delicacy. Both these two Alliums were collected in Tibet by Reginald Farrer and his companion, W. Purdom.

On plate 3 in Farrer's "English Rock Garden" there is an excellent photograph of *Allium cyaneum* var *dasystemon* but incorrectly bears the name *A. c.* var. *macrostemon* and the plant is best known in gardens as *A. kansuense.* This is a very beautiful

plant growing about nine inches high all adangle with blue bells on flopping stems. *Allium cyaneum* is very similar but has these differences.

In *A. kansuense* the leaves are flat and channelled and the stamens do not protrude beyond the mouth of the bell, whilst the leaves of *A. cyaneum* are rolled and the stamens do protrude. Allium cyaneum is not so tall and flowers a little later.

In addition to the individual prettiness of these blue onions they are all the more welcome because they flower at a time of the year when there is but little blue to be found in the garden, and I consider that their ease of culture and showiness make them indispensable. They are all easily raised from seed sown in spring.

England.

A Pollinating Cabinet and How I Use It

By Florence Edna Foote

Every year the nursery catalogues tempt us with alluring lists of the new novelties of the year and many gardeners get the keenest enjoyment from growing them, always hoping they will be lovelier than anything they have ever grown before.

But the pleasure they experience cannot compare to the great happiness and satisfaction enjoyed by the person who has patiently worked to produce a fine new variety, either by careful selection and propagation of the best of existing varieties which have been naturally cross-fertilized by the wind or insects, or else by hand-pollination. Every treasure we grow in our gardens has originally come from a wild source and has, through the years, been developed by patient workers with an ideal in mind.

Before I began hybridising daffodils, I tried to find a satisfactory pollinating kit on the market, but I failed. I wanted to keep for use the pollen of at least two hundred varieties of narcissi. I worked out the detail of a cabinet to fit my needs and my husband had it made in his furniture factory. However, the box could be made by any cabinet maker, and, because I should have been glad for such helpful information, I am going to carefully describe it for the benefit of anyone who wishes to enjoy a perfectly satisfactory kit.

My cabinet is built of solid American walnut. It is 14½ inches wide, 13 inches deep and 10½ inches high. The ends are dove-tailed to the top and bottom to assure strength and to prevent warping. The sliding front is removable, giving access to the interior, which contains five pollen drawers and also a bottom drawer to hold pencil, scissors, tweezers, magnifying glass, tags, note-book and blue pencil. One section has a removable copper box in which I place granulated calcium chloride crystals, which absorb the moisture and prevent the pollen-grains from spoiling.

Each of the five pollen drawers has twenty spaces—four rows of five each. The bottom of each space is slightly hollowed out so that a large size glass watch crystal fits into it, and a ½-inch hole is made in the

center to allow the free action of the calcium chloride. Each watch crystal is held in place by four brass pins which extend up two-thirds of an inch high, so that, by inverting a second watch crystal over the first, the pollen is prevented from spilling out and a second variety of pollen can be stacked on top of the first, thus giving a capacity of two hundred pollen varieties.

Very large watches have gone out of style, but I found a jeweler who had several hundred of these large crystals stored away. He was delighted to sell them for five cents each.

I print the name of the variety of my flower in ink on the *glue* side of a Dennison (Number 361) label, which is exactly as wide as the crystal, and moisten the ends which easily adhere to the glass. The name shows plainly through the glass.

Before blooming time, I work out and note down the crosses I wish to make. Then, as each flower opens, before the insects have a chance to get at it, *I carefully* remove the an-

thers (emasculate) before they have opened and spilled out their pollen, and put them on the labelled watch crystal. I allow them to dry a day or two, until the pollen-grains have fluffed up, after which I invert a second crystal over them to keep them pure.

When the stigma of the variety I have chosen to be the mother (or seed parent) becomes slightly sticky looking, I very, very gently touch it with my little finger, on which I have collected some of the pollen-grains from the variety I have chosen for the male parent. Dr. Stout uses the tip of his finger for transferring pollen to the stigma and I have found it entirely satisfactory with daffodils. Some hybridisers prefer to use a small camel's hair brush, which I think is too wasteful when one has only a wee amount of valuable pollen. Of course, I am careful to put no pressure on the delicate, easily bruised stigma.

Then I loosely fasten a Dennison yellow marking tag around the stem of the pollinated flower, first marking the cross (Fortune x Coverack Gem or 18 x 36) and the *date* of the cross, using a blue Blaisdell china-marking pencil, which is quite water and weather-proof and lasts until I gather the ripened seeds above two months later. For holding the seeds, I use what is called a "coin envelope," 2¼"x2¼", marking on it also the cross, date of cross and date of gathering seeds, giving me a check for my records.

I plant the seeds at once, each variety carefully labelled, and, five years later, I shall hope to have created some lovely new variety of beauty and merit which never would have existed except for my enthusiasm and loving care.

Grand Rapids, Michigan.

North Carolina Note

A rather recent and valuable introduction in the plant world is *Euonymus pulchellus*, a small-leaved, dwarf, bush euonymus. It has proven itself, in this climate, very resistant to heat and drought, growing under the outer branches of an eleagnus bush in a spot both shady and very dry. It is of upright growth, having many stems coming up from the roots, with very small leaves. It is easily pruned, and is a good substitute for dwarf box, which it very much resembles.

Another small shrubby plant that seems to withstand dry conditions is *Santolina chamaecyparissus*. With practically no attention being paid to it, it went through the driest fall on record in this part of the country, with apparently no injurious effects.

Saxifraga cordifolia has also proven itself more resistant to drought than I had any idea it would. I can also recommend *Ajuga reptans* as a good ground cover, even under oak trees where the ground is very dry. It will sometimes wither badly, but it does live.

A very choice plant that I seldom see mentioned is *Hypericum calycinum*. It is a slow growing, evergreen sub-shrub, or ground cover, spreading by stolons, covered through the summer with large golden yellow blossoms of the characteristic hypericum type. It makes a lovely fringe on the outer edges of a large shrub, or is pretty growing on the slope of a terrace. It increases rapidly and seems to stand all sorts of weather.

Isabel B. Busbee.

Raleigh, N. C.

Saxifrage Notes II

By Florens DeBevoise

In 1872, when Engler wrote his monograph on the Genus Saxifraga, there were only 166 species known to gardeners. Today there are almost 400 true species and many thousands of hybrids, making by far the most extensive genus of rock plants. They are found in all great mountain chains in the northern hemisphere, some extending to the further arctic stations and others along the Andes and the Antarctic circle. A few even descend to the hot limestone rocks of the Mediterranean region. For the sake of convenience the genus has been divided into seventeen sections, many of these, however, are not suitable for use in rock gardens. In size and form the different species of Saxifraga differ widely; the minute *S. baldensis* producing rosettes scarcely one half inch in height showing no resemblance to *S. peltata* which sends up its large leaves on stalks from two to three feet high. It may be said that there is a type of Saxifraga which can be used with good effect for every type of garden and the flowering period of the many varieties extends throughout the greater portion of the year. Certain varieties coming into bloom very early, others following on into the later summer and autumn.

The plants belonging to each group have similar habits of growth and the soil requirements are practically the same.

The Euaeizoon Group

This group includes the various silver encrusted types and is without doubt the most valuable and attractive for rock garden planting. It is distinguished by various forms of rosettes, some quite close and compact in the smaller species and others of a much larger, looser and more spreading formation. The foliage of all the plants contained in this group is of a hard fleshy nature. It is rather curious that these plants in their high mountain homes have developed a means of conserving their water supply and cutting down transpiration somewhat similar to those of xerophitic nature found among the cactus family of our Western deserts. Their thick leathery leaves present a silvery or frosted appearance due to the fact that portions of the surface and the margins of the leaves are studded with tiny deposits or accumulations of calcium carbonate. These deposits mark the stomata or pores of the leaf surface and the mechanism is perfectly adjusted to the needs of the plant. In most plants the stomata or pores open or close according to the atmospheric conditions, but with the Saxifraga they remain open at all times and in order to prevent an undue amount of transpiration or the escape of water vapor from the leaves, calcium salts in solution are absorbed from the soil and secreted by the leaf and are exuded at the pores. These small encrustations perform the function of tiny trap doors shutting down tightly during dry weather, but when water falls on the plant, or during the night when the temperature is lower, more water is secreted by soaking under the lime encrustations, filling the small depressions and being

quickly absorbed by the water conducting vessels and cells of the plant. The roots of plants have a peculiar function called "selective capacity" which allows them to absorb a sufficient quantity of a particular substance from the soil even when it exists in only minute quantities. It is for this reason that the Saxifraga retain their lime encrustations even when found growing on rocks of granitic formation.

The manner of the distribution of the calcareous deposits on the foliage varies considerably in different species, completely covering the leaf surfaces in certain types and appearing only along the saw tooth margin of others. In the eastern United States the Euaeizoon Group thrives in a north, northeastern, or eastern aspect. This arrangement of situation may be accomplished by placing the stones so as to provide the required shade during the heat of the day. Those with heavily encrusted leaf surfaces will do quite well, however, in a more sunny, exposed situation, if given artificial shade during July and August. This may be arranged by placing small branches of evergreens in such a position that the plants are protected from the intense rays of the sun during the warmest part of the day. The soil should be a good light garden loam with plenty of grit and stone chips added. Of course, as we all know, perfect drainage is a necessity. With a few exceptions this group prefers lime which may be given in the form of crushed oyster shells and egg shells, if desired, or lime. The crowns of the plants should never be allowed to come into direct contact with the soil. Clean sand and stone chips should be worked close under the leaves. They should be planted in crevices and on a sloping surface to avoid the effect of moisture remaining about their crowns, which if allowed to do so is prone to cause rot during humid weather. A mixture of stone chips, sand, and leaf mold should be given as a top dressing two or three times a year. In this climate a light covering of salt hay or evergreen branches is beneficial during the winters; not so much to protect them from the cold as from the dry, frosty winds and to screen them from the sun when their leaves are frozen. I have found that in my garden the season of growth ceases in July and starts again during the cooler weather of October continuing until the ground is frozen.

All the Aeizoon varieties are of easy culture in our Eastern climate. They increase rapidly; self sown seedlings quickly establish themselves in cracks and crevices making silver masses among the rocks in a very short time. Some thirty varieties of this specie are grown in gardens.

S. Aeizoon (S. Aizoon of catalogues) is the most abundant as well as the most varied of the Euaeizoon Group; for while it is typical of this section, its form is often modified by soil and aspect and it hybridizes freely with all species of its own kind. It forms a neat, close rosette which may be distinguished from other varieties of the species by the serrations on its gray-green, lime encrusted leaves. These serrations point upward and forward instead of outward, as in many other forms. The flowers vary from white to cream color on stems two to five inches high. *S. Aeizoon rosea* is a variety having soft pink blossoms which is sometimes sent out as S. atropurpurea; flowering period May and June. *S. Aeizoon* ranges over the mountains of Europe and the Arctic regions and is the only

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Saxifraga lingulata Alberti

one of the group to cross into North America. It is seldom found at any great heights and is more abundant and produces a finer growth in the granitic and sandstone rather than calcareous regions.

S. Aeizoon var. *balcana* (sometimes spelled balkana) has smaller rosettes than the type and is a paler shade of green. In May it produces charming white flowers strongly flecked with red. The little stems are also red and about four to five inches high. Like *S. Aeizoon* it prefers a soil containing very little, if any, lime and, if dampness is not allowed to settle about its crowns, it does very well.

S. Aeizoon var. *baldensis* produces minute rosettes all tightly clustering into fascinating little silver mounds. The leaves are ash gray, short, thick, and dentate with apex rounded. The rosettes are its chief attraction, as the cream colored flowers are small and inconspicuous. It is found in the mountains of North Italy.

S. Aeizoon var. *brevifolia* is only slightly larger than the preceding. This is sometimes known as S. Aiz. minor.

S. Aeizoon var. *flavescens* is of easy cultivation and its form is good. The straw colored flowers are borne on stems five to six inches high. It is a very free bloomer.

S. Aeizoon var. lagraveana is perhaps the greatest gem in this species. It has tiny rosettes, heavily silvered and bears cream flowers on ruddy stems 5 inches high. Its clustered masses in the rock garden are most decorative and it has also been found

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Saxifraga kolenatiana major

very useful in the popular "dish gardens" if sufficient drainage has been provided.

S. Aeizoon var. *notata* is of similar habit and growth except that the leaves recurve and it is a little more compact. The corn color blooms, however, are not so fine on their red, glandular 6-inch stems as *S. Aeizoon* var. *lagraveana*.

S. altissima is not often seen in gardens. The rosettes are large and very handsome of a blue gray color. The leaves are long and quite narrow, recurving outward with the heavily silvered teeth along the margin pointing upward as in *S. Aeizoon*. The stem is erect and thick, glandular, hairy and of reddish color. The abundant blooms are creamy white, often dotted with red. It blooms in July and August in its native haunts in the lower Alps of the upper Styria and earlier in this section of the United States.

S. cartilaginia is a species found in the Caucasus and Asia Minor of slightly larger form than *S. Aeizoon rosea* and smaller than *S. Kolenatiana major* which is often confused with it. The stems are six to nine inches high, glandular with few leaves; the oval panicle of flowers varying from pale to deepest pink. It blooms in May and June.

S. catalaunica from the Pyrenees has fine rosettes formed of recurved leaves with a silver margin. The lovely white flowers are produced in loose panicles during May and June. When grown in a crevice or planted in a wall the display is most effective.

A. cochlearis produces masses of neat, dense, little pale greenish-blue

silvery cushions formed of spoon-shaped, narrow, outcurving leaves with a slight swelling near the tip. The reddish stems are glandular and about six to nine inches tall. The pure white flowers make a most entrancing effect in April. This species comes from the calcareous regions of the Ligurian Apennines.

S. Cotyledon is distributed among the mountain ranges from the Pyrenees and Alps to Lapland. One of the most startlingly beautiful of the race with rosettes from four to eight inches in diameter formed of tongue-shaped leaves of glistening dark green which are heavily dotted near the serrated margin with lime encrustations. The deep red stems are from two to three feet tall covered with lovely white blossoms flecked with red. The flowers are finely formed. A mass of these beautiful blooms waving in the breeze is a sight not soon forgotten. After flowering, the rosette dies, which seems a bit sad, but really makes little difference as the plant usually has borne numerous off-shoots or small rosettes which will carry on the bloom for the next season. There are many fine varieties and intermediate forms of *S. Cotyledon*, the largest being *S. C. islandica*. Perhaps the finest is *S. C. caterhamensis*, although *S. C. montavoniensis* and var. *pyramidalis* are also very fine. The stem of the latter branches into bloom from the base and the flowers are spotted with pink. In var. *pyrenaica* the leaves are more sharply pointed and the plumes of white flowers not so tall as the type. The numerous forms of *S. Macnabiana* claim *S. Cotyledon* as a parent or relative. In order to obtain specimen plants of *S. Cotyledon* side shoots should be removed, thus leaving the parent rosette to develop. The side shoots may be started in sand until root growth begins; then planted in a good loamy soil with plenty of limestone grit where they in turn will produce fine blooms the second year. If placed in poor soil, however, they will give a smaller bloom the following year. When *S. Cotyledon* is planted among other members of the Euaeizoon Group one may expect many interesting and beautiful results from the seedlings as it crosses very freely with other saxifrages.

S. crustata is sometimes mentioned as *S. incrustata* and is found chiefly in calcareous formations of the Eastern Alps. The size varies but the rosette is always beautiful with its narrow, recurving, glossy, blue-green leaves heavily beaded in silver along the margin. The creamy flowers are produced in rather close panicles on short, stocky stems. It is useful for its charming rosettes rather than the flowers. Its culture is easy in half shady situations.

S. florenta is a handsome, though difficult species. It is found in the granitic and higher elevations of the Maritime Alps. The rosettes are of long, sharply pointed leaves which curve inward. They have no suggestion of lime encrustations. After the fourth year it sends up a glandular flower spike in the autumn, somewhat resembling *S. longifolia*, but only about twelve inches high and entirely covered with lavendar flowers on the short branching stems. It ranges among the higher cliffs of the Maritime Alps.

S. Hostii is a delightful thing from the Central European Alps. It produces offsets freely and hybridizes generously with all its kind; a perfectly hardy type and apparently with no particular preference as to soil as

it has flourished equally well on very heavy and acid soil as well as on good loam containing grit and lime in my garden. Its rosettes are very handsome of long, rather broad leaves which are blunt at the tips and strongly marked with silver along the rounded and scalloped margin. Some authorities give *S. altissima* as a variety of *S. Hostii,* while others proclaim this a true species.

S. lingulata in its various forms brings a feeling of pride and joy to the soul of the gardener. In grace and beauty they rank among the best of this group. Their habitat appears to be confined to the Italian ranges of the Maritime Alps. *S. lingulata* is distinguished by long, narrow, acute leaves which curve outward in rather an erect manner. They are of hard, leathery substance and with a definite widening near the tip; of a deep gray green color, beautifully edged with silver, the tall flower spikes have a habit of drooping gracefully and are covered with large, brilliant, white blossoms. *S. lingulata* and its varieties may be easily grown from seed or propagated from offsets.

S. l. australis has rosettes formed of leaves which are rather longer and broader than the type and with a flatter surface. Its flowering sprays are clear white or at times flecked with pink.

S. l. var. *Bellardii* has very long, narrow leaves deeply grooved and rather wiry, heavily silvered and formed into a cushion effect rather than a rosette. The flowers are white and it increases amazingly.

S. l. var. *lantoscana* has a preference for cool, shady situations where it soon fills any crevices which it may touch. It is characterized by rather short, blunt, spathulate leaves which are slightly convex on the upper surface. The snowy flowers appear on arching sprays in May and June. It derives its name from the Lantosque Valley. There has been some confusion concerning *S. lantoscana* and its forms, a few authorities insisting that it is a true species.

S. longifolia is the great glory of the race. Its habitat is entirely confined to the limestone formations throughout the Pyrenees. Its gray-green rosettes are highly frosted with lime and the long, narrow, sharply pointed leaves curve outward and slightly downward, which makes it rather a difficult subject to wedge into a crevice, for like all Euaeizoons it should be planted firmly and always on a sloping or perpendicular ledge as it thoroughly dislikes moisture settling about its lovely crown and detests having its leaves contact the soil. It prefers a good, fat loam with plenty of lime. If starved it will come into bloom more quickly, which is not altogether desirable as, being monocarpic, it blooms but once and then dies. *S. longifolia* makes no side shoots, but seeds freely. It is most effective when planted in a wall, its large, silvery rosettes going highly ornamental and the huge brush-like panicle of bloom is often as much as three feet in length. To prevent crossing with other Saxifrages, a piece of gauze should be placed over the flower spike selected for seed, as otherwise very few of the seedlings will come true. However, all such crosses may prove valuable and interesting. The seeds should be planted as soon as ripe in very gritty soil. Keep seed pans covered with a piece of glass to hold an even temperature and always water from below. The seedlings should be pricked off as soon as the second pair of leaves appear and planted in thumb pots.

S. mutata appears to be very scarce in this country while in England it has been grown in gardens since 1779. It ranges over the Central European Alps and is very distinct from other varieties. The rosettes are about 4 inches in diameter and somewhat resemble *S. Cotyledon,* though the leaves are shorter, stiffer and broader near the top, of a gray green color and fringed with hairs, the suggestion of gloss on the leaves being due to a slightly sticky substance. The stem rises to a foot or more, branches freely and is covered with copper colored blooms dotted with a darker shade. Its long blooming period extends from July until late autumn. *S. mutata* usually dies after flowering and rarely produces side shoots, but like *S. longifolia,* it grows readily from seed which it produces in great abundance. It thrives best in shady aspects.

Adaptation of West American Perennials to Climate

By Carl Purdy

The great area from the Rocky Mountains west to the Pacific Coast and along the Pacific Coast as far north as South Central Oregon has a climate in which rain or snow falls from autumn till April or May, a few showers then till late June and from then till early September it is practically rainless. And not only rainless, but during the rainless period humidity is very low and temperatures high in most regions. During the past season there was practically no rain in California after April until early October.

The wide variety of bulbous plants native to the above described area are admirably fitted for such a climate for they begin growth as soon as rains reach their base and ripen up and remain perfectly dormant in summer. The same thing is true of the tulips, bulbous irises and other bulbs of the arid regions of Asia Minor and on East. True lilies might seem to be an exception to this but they are very deep seated and either live in moist lands or in the moister wooded areas.

Perennial plants unless in moister soils could not survive such dessication if they were not especially adapted to it and they are wonderfully so.

Just as *Ranunculus asiaticus,* the species which gives our gardens the French and Turban types, has the little knots of roots which become bone dry and stay dormant so long, the West American delphiniums with a single exception have roots which become perfectly dry.

Delphinium cardinale has a long slender branched root and when it is ripe it has to be handled with care, it is so brittle.

It is hard to believe that it has any vitality, yet if it is soaked a few hours this dry stick fills with moisture and becomes fleshy.

Many of the blue delphiniums have quite compact root masses not unlike the roots of *Ranunculus Asiaticus* but not so thick.

These can be stored perfectly dry in the dryest of places for a year or two and stay vital. I have tested *D. cardinale* after two years' absolutely

dry handling and found it would grow well and do not doubt that any Delphiniums could be kept out several years.

Those who know *Mertensia Virginica* know how easily its dormant root can be kept out of the ground. The West American Cynoglossums and Lappulas as well as Mertensias also become dormant and although one could hardly keep them out of the ground dry they can be stored in barely moist earth while in the wild they are uninjured by the very dry conditions.

Violas are the last plants which would be supposed to be fortified for extreme drouth yet we have many West American species which are quite as well fitted as the preceding.

Although frail looking little plants they are deep seated and have a crown at about three inches in depth and after flowering all soft parts disappear and only the little crown and the fibrous roots both apparently quite dry remain.

Viola pedunculata, our finest species when in full growth, has a number of stems coming from a single crown and making a mass as much as a foot across. In ripening all of the underground stems disappear, leaving a dense tuft of fibrous roots which look anything but alive. A few weeks after a rain new under ground stems are starting up.

The perennial Oenotheras also are well fitted for drouth.

O. Californica certainly does not look like it for its root system is very slender, but it weathers desert conditions both in the Mohave and the Colorado deserts.

O. Ovata is in a class by itself in Oenotheras for its thick fleshy root is more like a bulb. It could be dug and summered on a shelf without decreased vitality.

The West American Silenes have carrot-like roots which when ripe have no fibrous roots. These roots are at most ¾-in. diameter, and go very deep, straight down.

We once saw a plant of *Silene Californica* on a road bank which had slid out. It was down fully five feet. Little wonder that this species can often be seen in flower long after other flowers are gone.

At the summit of these roots short stems arise and these are covered with white buds when dormant. The widely spread plant of the early season dies down to these stubby stems.

It is our practice to dig these ripened roots and to store them in pits about 3½ feet deep and there to layer in barely moist earth. Our sprinkling system covers these pits and keeps the soil from getting too dry and these stored dormant plants can be shipped to Europe by simply packing in barely moist peat insulated with wax paper.

One of the most familiar plants in the east is *Dodecatheon Meadia,* the Shooting Star. There are many Dodecatheons in the West belonging to two very different groups.

Dodecatheon Jeffreyii and its larger variety redolens grows in our mountains at 5,000 to 9,000 feet altitude in meadows or open wet woods. They are large plants and the var. *redolens* has leaves as much as 21 inches long and stout stems two feet high or even more.

During the early season the soil is decidedly wet, but after the snow goes these meadows become very dry. The clusters of roots are very drouth resistant and can be dug and kept dry for months with no injury.

Only one of the other group of

Dodecatheons grows in moist or wet soils. Generally they are natives of hilly slopes under open brush with moisture enough early and very dry later. The roots form a flat rosette more often with not over 3 inches of soil cover.

The little root rosettes become so dry as to break with the least pressure and when ripe can be dug and kept in the dryest of rooms for months with no loss of vitality. But if they are soaked a few hours they fill full of moisture and are most decidedly alive.

By the way, this group of Dodecatheons has a novel method of propagation. Some of the roots are in the shape of oblong branches rounded at both ends and when the root is ripe these detach at a touch. Each becomes a plant. Others of the regular roots may also detach to make new plants.

All Lewisias are admirably fitted to withstand drouth.

Lewisia rediviva is notable in that regard for the roots of plants collected for herbariums have been taken after a year or two as pressed plants and grown. All of the high mountain deciduous sorts have similar drouth resisting qualities, although not so intensified.

The evergreen species live in cold regions and there become dormant soon after flowering and can then withstand drouth for months when in the ground. And even more than that.

One of my collectors writes that a bundle of *Lewisia Howellii* roots which had been wrapped in dry moss was overlooked in the store room for a year and when planted grew well. The leaves will die off, but the root retains vitality.

The roots of our Ranunculus are very slender and fibrous, but they, too, ripen and withstand any summer's heat uninjured.

Many perennials of the Umbelliferae or Carrot family are as well armed as are others related to the sunflower, like Wyethia and Helianthella.

Some of the Umbelliferous family, as, for instance, Carum, have a little bulb-like root eminently fitted for drouth, while Eryngiums, with a little tuft of hard roots, stands any amount of heated soil.

One of the most remarkable adaptations to such conditions is in some Mimulus, like *M. luteus*.

They grow in very moist places, that is, in winter, and are of a lush, watery growth and apparently are annuals, but they have little stolons, which lie in the ground to carry on.

The stolons lie shallow and are literally baked on some dry waterfalls during the summer.

I have cited some of the most striking instances of this adaptation to drouth, but there are many others.

On the practical side my own work is leading me more and more to the belief that in culture these plants should be handled and treated like bulbs. That is, if collected from the wild or for sale from garden-grown plants, the roots should be dug when fully dormant, stored in moist soil or barely moist peat, and shipped and handled fully dormant.

Practically all of the fibrous roots of the season are shed as the root ripens and is so handled new growth starts with planting and there is little set-back.

The Gardener's Pocketbook

ILEX PERNYI

Ilex Pernyi is a superlatively beautiful small tree.

For the informal little home yard where space is a consideration and whose owner only wants the best the small space permits, and who tends each growing thing with loving care, or for those who live in the country where spacious grounds permit wide choice of material, or for the strictly formal garden with hundreds of acres as a background, for any of these, there can be no more desirable small tree, beautiful for 365 days every year.

It is one of the many valuable gifts that we owe to Dr. E. H. Wilson, who brought it into cultivation in 1900.

Its native home is China, where it grows to a height of about 35 feet.

In his very interesting and classical book, "Aristocrats of the Garden," Dr. Wilson recommends *Ilex Pernyi* "for the Pacific Slope and Other Favored Regions."

I have had an *Ilex Pernyi* for 18 years and it has never during any winter lost or browned a leaf.

About 14 of these years it passed on my Maryland farm, 35 miles south of Philadelphia and the remaining years here at Gladwynne. This little Ilex is slow growing and mine after all these years is now only 5 feet tall.

Of course the fact that it was moved several times, though always carefully and with a large ball, undoubtedly checked its growth to a certain extent.

Several times it made annual growths of about 8 and 9 inches. Which I believe goes to show that with care, watering during dry weather, and a favorable situation and part shade, it should do much better.

The leaves of *Ilex Pernyi* are very small, only about one inch long and half inch wide, which is just about one-sixth the size of the leaf of our native holly.

But the leaves are a greener green and the bright and shining upper surfaces make them conspicuous at all times of the year.

In spring the young shoots and leaves are a pretty glowing red and their brilliant lustre gives them a very rich appearance.

The flowers of *Ilex Pernyi* add little until they produce their gorgeous autumn burden.

Myriads of scarlet berries nestle closely to the branches and are almost as stemless as barnacles clinging to a rock.

I originally imported two of these trees from England, but their first winter here I forgot that rabbits do not hibernate and that when they get hungry they invariably seek a choice evergreen to feed upon.

So by foul means they both lost their leaves their first winter here, and one poor young thing was incapable of recovering.

So far none of my seeds have germinated although carefully stratified according to usual methods and kept labeled for four to five years.

I am glad to say, however, that

layering is a very simple and successful method of increase and the young plants can be separated in a year's time.

As *Ilex Pernyi* branches right down to the ground, it is an easy matter to make a little bed of about one-third each of soil, sand and peat, and bury part of a branch and hold it down with a stone about two or three times the size of a brick.

The stone has the added virtue of helping to retain the moisture in the ground in summer.

I have put down layers like this both in spring and in autumn and they rarely fail. Surprising as it may seem, sometimes these young plants bloom and bear their fruits at the tender age of two years.

It seems to require very much the same soil and situation as our own *I. opaca*, namely, a well drained position and an acid soil.

This little tree stands close to the fore in competition for winter beauty. It is when the snow is on the ground that we love and appreciate our evergreens the most. With its tiny shining leaves on slender drooping branches all strung with red and standing out sharply against the white, it makes a winter picture not easily forgotten.

MARY G. HENRY.

VIOLA PEDATA

In the R. H. S. Journal for September, 1931, there is a very interesting survey of the Genus Viola, and though it is entitled a "Short Survey" it is done in the thorough-going English manner and after perusing twenty closely printed pages we find a second part is to appear in January, 1932.

Lieut. Col. Enever Todd has made a great contribution to our knowledge of this genus which is universally loved. Only lately some one asked me why I did not write up the violets, as they had not been properly done. I can humbly recommend them to this monograph and they will realize how much there is to know.

I am referring to part of it now for the statements made on *V. pedata* a variety that has been an especial treasure in my Chester County neighborhood all my life and more, for there is a tradition coming down from my grandmother and great grandmother as to where the two-colored form was to be found, a most prized secret.

Lieut. Col. Todd evidently cultivates most of the species he writes about, which makes his remarks doubly interesting and important to the gardener. Of *Viola pedata* he says as follows: "*V. pedata* is probably the most beautiful of the American violets and this is no mean tribute. It is monotypic not associated with other cut-leaved species such as *VV. pinnata* and *chyrophylloides*. The plant is stemless and without stolons; the root is thick, fleshy and vertical; there are no cleistogamic blooms; etc., "the blooms are large the two upper petals dark violet, the others lilac, and all beardless. The spur is short the anthers a conspicuous orange. The concolor variety in which all the petals are lilac is the most common form. The Linnean species was the bi-color form; yet owing to the erroneous description of the all-lilac figure in the Botanical Magazine (year 1789) as *V. pedata* L. the all-lilac form has been known for more than a hundred years as *V. pedata* while the bi-color form which is the real species has been regarded as the variety. In nature it belongs to dry fields and open woods; in cultivation it is apparently difficult. Yet a bun-

dle of dried-up roots came to me from the center of the United States and after five weeks' journey were put in the ground with the faintest of hopes and bloomed profusely in full sun and light soil on top of a mound, where no moisture can possibly collect—and this in sun-baked Kent. The normal flowering time is April—June; but *V. pedata* has the happy habit of putting up many flowers in late summer and autumn."

Let us contrast this behavior of the plant on its English sojourn with what we have experienced of its habits in its own home, or rather one of its homes, for it flourishes in the Alleghany mountains in West Virginia and from Washington north to Massachusetts and from there to Minnesota.

We, in my childhood in Pennsylvania, always eagerly sought the bi-color form, that even in my grandmother's day was rare in our woods, so she said, and was called the Pansy-violet, and we also fell into the error perpetrated by the Botanical Magazine, and thought the all-lilac was the species and the bi-color the variety, being no botanists ourselves, how could we think the scarce and precious pansy-violets were the species when everywhere the ground was covered with thousands of the all-lilac flowers. Col. Todd says it is a native of dry fields and open woods—with us it is always found on stony banks on roadsides or wood cutter's trails in thin woods and where the soil is of that flaky crumbly texture known as shale, that splits and peels almost as mica does. Also this soil is in variably acid and small huckleberry bushes, sweet fern and other growth of like character form shade and shelter for the tiny rootstocks that go straight down, vertically as Col. Todd says.

The flowering time is very brief with us. On a late April day they suddenly appear like a gentle garment of soft celestial blue lavender over stony grassless banks we know so well. A few days later they have gone.

We have transplanted successfully, but never in quantities and they are not happy for more than a year or so because we have never tried to duplicate those shaly gravelly banks. When Col. Todd says the roots sent him were put into the ground after five weeks on the way, and then bloomed profusely in dry ground in sun-baked Kent, we can only sink back with a sigh as we realize what cool moist conditions those words written by an Englishman convey to our American minds. Could England be sun-baked in our meaning of the word, if she tried. The violets probably thought it was April once more and took up their appointed times and season. And though the Colonel says they have the happy habit of putting up many flowers in late summer and autumn, we feel it must be that cool English moist air again hoodwinking them into thinking there was not much time between Aprils, and so they began again, for we have never found this Autumn flowering in their native home if they are lucky enough to remain where they were in Spring for *Viola pedata,* this most exquisite of our wild flowers, is fast disappearing as each rural road is made into its modern macadam horror and the banks pared of all roots of fern and bush, which are thrown in neat piles to be burned, a most unnecessary shearing of beauty, while the road engineer stands proudly, looking at the bare straight lines of his finished work.

Frances Edge McIlvaine.
Pennsylvania.

D. M. Andrews

Mertensia Bakeri

TWO MOUNTAIN BLUEBELLS

On rather dry slopes in the high mountain valleys of northern Colorado, grows a Mertensia quite unlike the Virginia Bluebell of the eastern states. Indeed, there is a lengthy series of these western forms, but it would be difficult to conceive one more attractive than *Mertensia Bakeri,* with its soft velvety foliage and early flower bells of absolute blue.

Flowering before the mountain roads are clear of snow, few visitors see it or suspect its existence, as the leaves promptly die away after flowering.

In the garden it has succeeded in a light loam with half-time shade. Its moisture requirement, never very great, is even less after flowering; so that a well-drained crevice in the rock garden, large enough for two or three of the small roots, is a favorable location. It makes little clumps of several stems, not to exceed six inches and more often less, but its intensity of color is irresistible.

If placed so the edge of a rock will shield the root from sunbaking, a general shade is unnecessary; if its taproot can follow down the cool side of an imbedded rock, so much the better. Like most Mertensias, it may be transplanted almost any time, but with less setback while dormant in summer or autumn. If seeds be produced they will germinate readily but they fall immediately upon ripening.

D. M. Andrews

Mertensia ciliata

It is possible to divide the old crowns, but this is a slow method of increase and somewhat uncertain.

Another bluebell which grows almost everywhere along streams and in gulches is *Mertensia ciliata.* It revels in shade and moisture, making a lush growth two feet or more in height. It likes the icy water of melting snow cascading at its feet, or perhaps it only tolerates such conditions; for in the garden it will thrive in any good mellow soil, even if rather dry. It has the valuable feature of retaining its foliage all summer, and any new growth will flower at whatever season.

The flower cluster is rather compact at first, but soon expands into a loose graceful spray with the development for new buds for a long season. The bells are pale blue, small but freely produced, and are displayed well above the glaucus foliage.

Its proneness to variation has led botanists to describe several varieties or subspecies. The most important of these is La Plata Bluebell, *Mertensia Platensis.* Its bells are large, deep blue, and the plant neat, semidwarf, forming good clumps. It grows on drier slopes. It is just as easily grown as ciliata, and may prove the favorite of the two, but surely both will be welcome. Both of these forms are increased readily by division of the clumps; any small fragment with a bud will grow.

D. M. Andrews.

Boulder, Colorado.

Lilium amabile Palib. (See page 143.)

Like the lily in the last issue, the subject of this note is from Korea and correspondingly hardy in its constitution provided that it is given the proper care. From the small white bulbs are produced the yard high stems with leathery green leaves and heavy textured dull red orange flowers spotted with black.

I do not agree with the late Mr. E. H. Wilson who ranked it as a specialist's lily because it is very easily raised from seed and comes soon to flowering. At Foxden, this lily blooms at the end of June. Its round stems are covered with a furry gray down, are about two and one-half feet high, and are well clothed with broad leaves also furry beneath. The flowers are nodding, of dull orange color with their reflexed segments marked with raised brownish-purple spots. They measure about four inches across. The pollen is dark orange red like the filaments, but the anthers before opening are pinkish orange.

Here we have raised it from seed sown out-of-doors in frames such as are used for *regale* and *tenuifolium*. All the plants raised so seem to be both hardy and permanent, the two most important factors in the cultivation of lilies.

HELEN M. FOX.

Peekskill, N. Y.

Pimpinella anisum L. (See page 144.)

Anise.

This charming annual comes readily from seed that should be sown where the plants are to grow. It bears flowers six weeks after sowing of seed and as the seeds are delicious as flavoring in cakes and breads, it is well worth growing if only for this use. Seeds collected in one's own garden are far fresher and more aromatic than those bought from the druggist who may have gotten them from Europe.

It is a graceful member of the Umbelliferae and produces three sorts of leaves, all of them somewhat tomentose. The first are very much cut, pinnate and scraggly; the second, roundish with deeply toothed margins and the third are like the second but have in addition two deep incisions. The yellowish white flowers are borne in umbels at the tips of the stems. The leaves taste of liquorice camphor and other herbs, and are pleasant when a few are put in a green salad. The plant smells of anise when crushed.

HELEN M. FOX.

Peekskill, N. Y.

Iris reticulata Bieb. (See page 84.)

Of all the early bulbous iris, this is perhaps the best known, although curiously enough there are enough examples of *Iris persica* in eastern gardens to make that even earlier flowering species a familiar one. This spring, the first bulbous iris to flower here was form Cantab, which is much like *reticulata* save that it is a rather smaller flower on the whole and has a clear but noy light blue lavendar color.

Almost immediately on its heels came the sea green and blue flowers of *Iris persica* with their velvet tips and orange blotches. And then *histrioides* with even more lovely blue coloring and white markings, while last of all came *reticulata* itself just in time to be sheeted with snow and ice for the only real storm of the winter.

Now that it has been demonstrated that these iris all rejoice on a warm sunny bank, with somewhat gritty soil, there is every reason to believe that they will grow along as happily as the species tulips and the California brodiaeas that have already graced that bank. Deep planting and a light

Edward Van Altena

(See page 142)

Lilium amabile

(See page 142)

Anise (Pimpinella anisum)

sandy mulch are all the attentions that are given and so slowly and surely the increase has come along into flowering rewarding us every March and often February as well, with the flowers that vie with the earliest crocus and snowdrops.

Washington, D. C.

Beloperone guttata T. S. Brand. (See page 146.)

The ideal house plant is one which will not only survive, but grow well in the hot, dry air of the average dwelling. Next in importance is a free-flowering habit, and if it can be easily and cheaply obtained, it is indeed, ideal. The Beloperone meets these conditions very well. Its smooth, dark green leaves will endure the dust, but one must watch for the red spider, which attacks all plants, quite impartially, if the room is too warm. If the Beloperone leaves begin to turn yellow and fall, examine the under side and you will probably see the delicate webs, behind which the red spider conducts his evil work. A sharp spray of cold water is necessary to break these webs and drown the little pest. If you are persistent, and spray the plant each day for a week or more, taking care to wet the under surface of the leaves thoroughly, victory will be yours. If you will turn off your radiators on sunny days between ten and four, and admit fresh air between eleven and two, you will be less likely to find red spider on your house plants. Incidentally, the health of your family will improve, and there will be fewer cracks in your furniture.

Beloperone cuttings root easily in the sand, in August or September. When well rooted, pot firmly in any good soil. While the plant is still quite small, begin pinching back the tips. Continue this treatment as the plant grows, remembering that each branch-tip is sure to bloom, therefore the more branches, the more blooms. The Beloperone likes light and sun, and should be grown as close to the glass as possible, or it will become tall and leggy, reaching for the light. A bay window or the corner of a sun-porch would be ideal for it. If the cuttings were taken in August or September, they should begin to bloom in February and the blossoms, or rather the showy red and yellow bracts will persist for eight or nine months.

The showy "flowers," composed of overlapping bracts, are about three inches long and half an inch in diameter, and are borne in axillary and terminal clusters. The base is a soft "neutral orange" (Sedgewick color chart, No. 10) shading to "lemon yellow (Sedgewick No. 2) at the tip, but the general effect is red and yellow. The true flower is white, two lipped, the lower lip heavily marked with pale purple, and hangs between the bracts at the tip of the spray. These sprays are quite small at first, and a clear pale green, which begins to flush with color at the base as it grows. When they are about an inch long, the first flower appears at the tip. As the spray grows longer, new flowers appear, always near the tip, and the older ones drop, leaving behind the thread-like pistil still hanging to the spray. It is a most persistent bloomer over a long period.

It is well to take new cuttings each fall, as the old plant becomes hard wooded and leggy. The photographed plant is two years old, and shows this tendency very well. It is a native of tropical America, and belongs to the Justicia group. Until two years ago, when it appeared in Dreer's catalogue, it was exceedingly scarce.

BESSIE W. BUXTON.

Massachusetts.

Thomas

(See page 145)

Beloperone guttata

New Seeds to Try

By Sherman R. Duffy

The miracle of spring repeats itself and with it the catalogues of the miracles of the vegetable world. They are a most interesting type of literature of varied style and degrees of elegance. Reading them this spring, it becomes evident that patience has stepped off her grievous smiling monument and into the garden where watchful waiting seems to have taken up a non-political abode.

Where formerly our high geared, impatient speed spurned the slow growth of plants requiring more than one or two seasons from seed, now the catalogues indicate a willingness and enthusiasm on the part of gardeners to grow almost anything from trees down to the humblest herb from seed. One finds seed of shrubs and bulbs listed more and more freely. Plant growing seems to breed a spirit of optimism. Last spring, on a visit to a plant breeder's farm, I found a long row of seedling pears just up from seed, a series of crosses, and the breeder who had planted the seed in his 60's.

In my own garden are plants growing from seed that ten or twenty years ago would not have been contemplated as possibilities, lilacs, tulips, daffodils, tree peonies, none of which is likely to bloom in anything less than five years, from seed—and few so soon as that. Only a few years ago one might have searched in vain to find such seeds listed in catalogues. Lilies, iris, and gladiolus from seed are now a commonplace—and the gardener makes his own crosses.

Growing the beautiful *Lilium regale* from seed is now a common practice as it can be so raised as easily as any garden perennial and a small percentage of the plants may bloom the second year, depending on the culture given. Catalogues this year offer seed of *regale* hybrids, notably crosses of *L. regale* and *L. Sargentii*. This hybrid has received commendation in England, the first of the series appearing in the United States. The chief advantage claimed is giving a later flowering *L. regale* type with some variation in form and coloring. Hybrids of *L. regale* and *L. sulphurcum* have been offered as *L. sulphurgale* or *sulphurale* for several seasons, but these hybrids showed no improvement over *regale* and the yellow coloring of *sulphureum* was not notably present in such seedlings as have fallen under observation.

Other lilies easily grown from seed are the beautiful little coral lily of Siberia, *L. tenuifolium*, seed of which is now generally offered. It deserves to be raised in quantity from seed. Miss Wilmott's lily, a graceful and miniature tiger type, is another easily raised from seed and a fine garden lily. Seed of this lily is offered in English catalogues.

Freesias are now grown from seed planted early in the spring by many gardeners, the plants kept in continuous growth, coming into bloom, ordinarily, the following March or April. The new *Leucocoryne* from South America is offered as a novelty, a newcomer in American lists, and is

reported as being as easy of growth from seed as the freesias. It is for greenhouse or indoor growth. The "Glory of the Sun," as it is called in South America, has been flatteringly received and praised as cut flower material because of its fine blue coloring.

The California dog-tooth violet, erythroniums, some of which do not reproduce as readily from bulbs as others, are now offered in many seed lists. They are beautiful early spring bulbs and are hardy in the eastern states. Seeds offer an easy method of obtaining a liberal supply of them. Sow in a shady situation thinly, and allow the plants to develop.

Tulip species are offered in a number of catalogues, notably the very early "Water Lily" tulip, *T. Kaufmanniana,* so called from the widely expanded bloom resting so close to the ground, as to suggest a nymphea in miniature. Tulip seed may not germinate for some months, in the writer's experience.

Coming to shrubs from seed, the exceptionally fine Beauty Bush, kolkwitzia, is in seed lists this year. What advantage there may be in raising this shrub from seed, except as an economy measure to obtain a large quantity of it, is not apparent, as it is listed by all nurseries. It is, however, one of the very finest shrubs of recent introduction, entirely hardy, of graceful habit and when covered with its small weigela-like bloom, well merits its common name. I saw several huge specimens of this shrub last spring more than six feet high and eight feet in diameter, and there is no finer shrub of its season. Grow it either from seed or from nursery plants.

The growing of lilacs from seed is rather rare, yet I encountered some very fine seedling lilacs last spring. When the fact is considered that a lilac from seed is likely to give bloom in four or five years and a sucker, the usual home method of propagation, may not bloom for from seven to ten years, home crossed lilac seedlings look like an altogether practical plant breeding pastime. No seed is offered in American catalogues, but in some European lists species are occasionally noted. Seed sown when ripe in the fall germinates the next spring or may lie in the ground even longer.

Another shrub easily raised from seed and blooming the second year is the buddleia or summer lilac. While this is by nature a shrub, it kills back nearly to the ground in climates where zero or near zero weather may be expected in winter and may treated as a perennial. With a good mulch the roots survive and send up growth early with a full crop of bloom. It is much used in effective plantings with African marigolds. A packet of seed will give many more plants than anyone would want as it germinates freely.

The outstanding novelty of the year among annuals is the new semi-double nasturium, Golden Gleam, originated by the Bodgers of California. Unlike the old fashioned double nasturtium in dark red which did not seed, but was propagated by cuttings, the newcomer produces seed. It is a beautiful rich yellow in color and a very free bloomer. It was well distributed for trial last year and won awards both here and abroad.

It is an intermediate type, being neither a true dwarf nor a tall type, sending out runners from the main stem to a length of around a foot and a half and when full grown bursts into bloom all over the plant, the blooms being held on long stems well

above the foliage. Each plant needs plenty of room to develop. The blooms are of large size and unusually endowed with the typical nasturtium spicy fragrance.

The growing of annual asters has received severe setbacks in the last few years, due to wilts, yellows, beetles and other causes. The aster has followed a not unusual history of a plant that has been highly developed in seeming to yield readily to disease. This year we have offered a wilt-resistant strain, said to be of much more vigorous constitution. New colors and types in the well known strains are offered.

Annual larkspurs which have become popular greenhouse cutting material, show an interesting development which has increased their usefulness as a cut flower in what is called the imperial type. This type branches from the base, much after the type of the late branching aster, instead of the laterals of the usual form. These larkspurs are a variant of the hyacinth flowering strain and unusually fine garden plants as well as magnificent bouquet material, produring much more bloom per plant than the older form. The color range is now wide.

In general, the flower seed novelties of the year in annuals are limited to new colors and improvements of various types already in existence. The zinnia has a number of additions in the orange and yellow shades in the colossal and dahlia flowered sections. The pumilas have new and better colored salmon rose types, long a favorite. Zinnia borders, planned to color for midsummer and fall display, are becoming increasingly popular. No annual gives so wide a range of color in such lavish and colorful profusion as this one, ranging in height from less than a foot to 4 feet.

From California growers comes a yellow All-double African marigold to join the orange form introduced last year. A new type marigold, Guinea Gold, which seems half way between the tall French and African types, is one of the fine novelties of the year. This was tested last year and approved wherever seen as the finest of the clear yellow marigold types for freedom of bloom and garden display.

American catalogues this year generally list the ursinia, one of the South African composites allied to venidium, arctotis, and dimorphotheca. The ursinia is a deep orange with a darker halo and dark center, somewhat suggestive of the handsome and striking *Venidium venustum,* but of easier culture than the latter. *Venidium venustum* seems to be of poor germinating quality and needs considerable care to bring it along. This writer has had no luck with it.

The Coltness dahlias, grown as annuals as easily as zinnias, have achieved much popularity and deservedly so. English seedsmen have developed a new type by crossing the coltness and Charm dahlias, a miniature peony-flowered type, giving a dwarf dahlia as easily grown as the Coltness in a semi-double form.

In the perennials, one of the most interesting developments is in the primroses. Although not yet noted in American catalogues, English catalogues list seeds of hybrids of the giant yellow primrose, *Primula Florindae* and its smaller and more refined relative, *P. sikkimensis,* giving the robust growth of the former, which is too big and coarse to be truly primrosy, with more of the delicate beauty of *sikkimensis,* according to descriptions.

Prunus serrulata Lindl. Oriental cherry. Variety Fukurokuju.

The name of this cherry variety, Fukurokuju ("good fortune and long life") is another example of the delicacy of fancy that the Japanese often exercise in bestowing names on their garden plants. For the occidental gardener, however, the name calls up the picture of a stiffly upright tree, ultimately often 30 feet high, with a moderately broad crown, rarely somewhat spreading. The young leaves are brownish-green and are usually further developed at flowering time than are those of many of the other varieties. The mature leaves when compared with those of other flowering cherries appear to be rounder and not infrequently have rounded instead of acuminate tips. The flower buds are deep pink, globose-truncate, and the narrowly triangular green or reddish-green sepals are nearly always entire. The semidouble flowers, with about 15 rounded-oval shallowly notched petals, are often nearly 2 inches across, opening rather flat, very pale pink, almost white in the center, with pink margins. These flowers are in clusters of two to four, and show a marked tendency to be borne in large globular masses at or near the ends of the dark-gray branches. Because of the relative shortness and thickness of the peduncles and pedicels the flower clusters are quite stiff with scarcely any tendency to droop.

Fukurokuju is one of the varieties included in the famous cherry collection in Potomac Park in Washington, but of the two-score trees planted in 1912, for some unknown reason only two or three have survived. A few other trees in the vicinity of Washington are growing vigorously, so the unhappy fate of the Potomac Park trees cannot be attributed to a varietal idiosyncrasy. With the possible exception of the Arnold Arboretum, Jamaica Plain, Mass., there is no other locality besides the vicinity of Washington where Fukurokuju is grown in the United States, nor is it yet in the trade in this country. There is no apparent reason why it should not be much more widely grown. At this point, however, mention should be made of a very similar variety now well established in central California and recently introduced into other parts of the Pacific Coast. This is Tankoshinju (Pink Pearl), which differs from Fukurokuju chiefly in the shape of its sepals, which are broadly triangular, in having flowers slightly more double and possibly a little deeper pink, and a somewhat more spreading habit of growth.

The stiffness of the flower clusters of Fukurokuju suggests that it be allowed to branch from near the base of the trunk, instead of pruning the trunk in order to walk beneath during flowering time, as is often desirable with varieties having pendulous clusters. There is no more lovely sight than a low-branched tree of this variety in full bloom on a well-kept lawn, for, given proper care, the mass of flowers is so great that most of the young foliage and branches are entirely hidden.

PAUL RUSSELL.
Washington, D. C.

E. L. Crandall

Oriental Cherry, Fukurokuju

A Book or Two

The American Home Book of Gardening. By Leonard Barron. Doubleday Doran and Co., Inc. Garden City, New York, 1931. Illustrated.

This little book is one of a series in The American Home Library. As the author tells us it is a selection from talks given over the radio, which he has enlarged. It is written for the beginner and yet it is so chatty and runs along so smoothly that for the more advanced gardener reading this book is like listening to a review of a well known subject. Every now and then it is a good thing to be reminded of fundamentals. Most of us are apt to become careless and when our seeds do not come up or shrubs die after transplanting we might seek for the explanation in the fact that we have neglected some simple thing that every beginner should know. At least this is often the experience of one old time gardener who should be wiser but is not.

Mr. Barron is a bit didactic as one generally has to be in this kind of writing and we may not agree with all his rules but so much he says is so wise and he tells beginners so delightfully how to build hot beds and cold frames or how to transplant trees and shrubs and start seeds that he has the same effect on the reader which an enthusiastically written cook book would have, one just longs to get out of doors and dig.

All Through the Year, A Practical Manual of Pacific Coast Gardening. By Martha E. Phillips. The McDonald Publishing Co. Printed by Mission Press, San Francisco, 1931.

This is a chatty book, somewhat feminine in its approach and treatment written by a very experienced gardener who lives in the land of perpetual sunshine and little rain. Mrs. Phillips has run a garden column in a magazine for years and has lectured to garden clubs very often and her book shows a practiced pen. It is exactly what the subtitle indicates and as such must be useful to those living out on the Pacific Coast.

As I write this I wonder whether it is really more fun to live where one gardens all through the year, and where one can have those delectable sweet smelling orange blossoms, jasmines and laurel trees on one's front yard. Or is it more exciting to have one's garden go to sleep tucked away under a blanket of snow for about four months during which time one imagines and contrives all sorts of alluring conmbinations for "next year" after the enforced rest? Each one of us probably either likes his own garden best or prefers the other person's according to his temperament.

Ernest H. Wilson, Plant Hunter. By Edward I. Farrington. The Stratford Co., Boston, Mass., 1931. 198 pages. Illustrated. $2.50.

A very compact record of the work of the late E. H. Wilson, giving a friendly resumé of the life and history of the man whose work has made such a profound impression upon ornamental horticulture, not only here but all over the English speaking world. Much of the data is not new but it is of great value to have under one cover. The list of plants introduced by Wilson is not a complete one, but contains rather those plants that have made or should make a place for themselves in our gardens.

Garden Maintenance. By H. Stuart Ortloff and Henry B. Raymore. The Macmillan Company, New York, 1932. 302 pages. Illustrated. $2.50.

This excellent book is written for the home gardener in terms that he

can understand. It starts in with a discussion of the soil which is as it should be and then proceeds to the discussion of the needs of the plants that go into the home development; coming next to a general chapter on insects and diseases. So much for the phases of home and garden making that have to do with the earliest stages of the garden life. The remainder of the book deals with the garden practices the gardener should know as soon as his garden begins growing; pruning, transplanting, propagation, winter protection, with a final paragraph on special plants and their foibles and on garden tools.

The Outdoor Living Room. By L. W. Ramsay and C. H. Lawrence. The Macmillan Company, New York, 1932. 120 pages. Illustrated. $2.50.

Remembering Mr. Ramsay's valuable book, Landscaping the Home Grounds, one is somewhat disappointed in this volume. The material is brief, the presentation to the point and concise, the diagrams pertinent, the illustrations clear and for the most part inviting.

The difficulty lies in the fact, perhaps, that the authors boldly state that "this, then, is the ideal of America today—to make the yard something more than a setting for the house * * * an outdoor living room, affording a charming background for the whole family and an ideal spot for social intercourse where the family can lunch during the warm summer days, etc." The discussion that follows, however, is straight landscape stuff with undue emphasis on tables, chairs, and sun shades; and there are no persuasive arguments that lead the reader to believe that the thesis of the book is based upon anything but the authors' assertions. Since there are many excellent reasons why one's yard and garden should not be an outdoor living room, etc., it is unfortunate that the authors have not forestalled such criticisms.

The Gardener's Friend and Other Pests. By George S. Chappell and Ridgely Hunt. Frederick A. Stokes Co., New York, 1931. 291 pages, illustrated.

An excellent book, quite scandalous, pleasantly accurate and thoroughly delightful if one has reached the point where a joke on oneself is not anathema. For these enlightened souls it should be taken as a bracer after flower shows or garden club conventions. If it could be administered to the unenlightened before flower shows or garden club conventions, these fiendish convocations might rapidly go out of favor.

The Gardener's Year. By Karel Capek. G. P. Putnam's Sons, New York, 1931. 160 pages. Illustrated.

In great contrast to the last volume is this European text, translated from the Czech by M. and R. Weatherall. Here is the same spirit of raillery, but no venom, no delicious malice. The gardener guilty of all the sins so humorously touched upon, of all the vanities so carefully laid bare, of all the evasions and delusions so assiduously practiced, can read of himself, chuckle pleasantly, and then return to his sins, his evasions, his vanities. This should prove that this is a less valuable book than The Gardener's Friend, but one wonders, remembering such ancient fables as that of The Sun and The Wind.

A Delectable Garden. By Bernard Palissy. Translated by Helen Morgenthau Fox. The Watch Hill Press, Peekskill, New York, 1931. 54 pages, frontispiece.

This is a delectable book, exquisitely printed, translated with a tender solicitude for the character and atmosphere of the original and put together in a volume that delights both hand and eye.

The original text, the translator tells us has had no previous translation into English. Like many of the books of its time, it has immediate and obvious predecessors, in this case one especially but for those of us who have no access to the literature of that time, when garden making was being born in various guises, this translation done with great skill in the English of the period of Palissy, will serve admirably to vivify the scene and help us to understand the qualities that were desired in garden work then. We might well pause to consider the differences making due allowance for the personal interests of the potter, Palissy, as we observe the motives that prompted the making of the garden, motives rooted in the one hundred and fourth Psalm, and then go out to view our own garden making with a quickened eye.

Year Book of The New England Gladiolus Society. Published by the Society, C. W. Brown, Secretary, Ashland, Mass., 1932. 180 pages, illustrated.

Each year has seen the development of the Year Book of this enthusiastic group of gladiolus growers, but this copy is larger and finer than any that have gone before. Every possible opinion and shade of opinion concerning gladiolus seems to have been voiced and there are reports on shows in all parts of the world as well as in New England. In fact the feature of the book that impresses itself most forcibly is the fact that the book is not limited to New England in any way but reaches out to all parts of the gladiolus world for its enthusiasms and reports. The society is to be congratulated.

Planning and Planting the Home Garden. By Pauline Murray. The Orange Judd Publishing Company, New York, 1932. 412 pages, illustrated. $3.50.

In her introduction the author of this volume says very definitely that she has not written for "people who have a knowledge of gardening" but for "those, who, having had previously little or no experience, suddenly find themselves confronted with the problem of planting their home grounds." This very definitely limits the field of discussion and determines the presentation.

The result is a series of chapters that might almost stand alone. After preliminary chapters on the What, When and Where of planting, the writer comes to more specific chapters on the various types of plant materials. After describing the materials, she turns to a discussion of their use in planning and in the making of plans, while the remainder of the book is given over to rather specialized matters about which the beginner will be enthused long before he has mastered the first chapters!

The illustrations are excellent and in delightful taste; the diagrams are clear but in many cases open to discussion. The text is lucid and brief but often given over to too arbitrary statements, particularly those related to choices in plants, which are essentially Eastern in character. Nevertheless the beginner will certainly find a safe middle ground to follow in his beginnings from which, when he has earned his release he may escape to whatever vagaries and idiosyncrasies he may develop as an ancient gardener.