

The NATIONAL
HORTICULTURAL
MAGAZINE



JOURNAL OF THE AMERICAN HORTICULTURAL SOCIETY

JULY, 1938

The American Horticultural Society

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The National Horticultural Magazine

VOL. 17

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No. 3

JULY, 1938

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Published quarterly by The American Horticultural Society. Publication office, 32nd St. and Elm Ave., Baltimore, Md. Editorial office, Room 821, Washington Loan and Trust Building, Washington, D. C. Contributions from all members are cordially invited and should be sent to the Editorial office. A subscription to the magazine is included in the annual dues to all members; to non-members the price is seventy-five cents the copy, three dollars a year.



Lilian A. Guernsey

Crocus sativus

Autumnal Crocuses

ALFRED BATES

SEVERAL times during the last twelve years various species of autumnal flowering crocuses have been planted in my garden in southern New Jersey. With exception of the two well known species, *speciosus* and *zonatus* none of them have settled down to make themselves at home; one or two did not even put in a first appearance before leaving me forever. This lack of permanence I have always attributed to two causes over which I had little control and not to any lack of hardiness of the plants themselves. In the first place the freshly imported corms reach us so late in the season that they are weakened by being out of the soil so much longer than they should be. So the effort to make growth above ground without sufficient roots is too great a tax on their strength. The other cause is lack of protection of the foliage during the first winter in our fitful climate. This could have been remedied easily had I been able to be at the garden at all times; but that is an impossibility. Very often I cannot get to it oftener than once a month after Christmas until spring is well advanced. So the leaves are frozen during heavy frosts when a handful of dry litter or an evergreen bough placed over them in very cold weather might have saved them. A constant mulch would be even worse than no protection as it would smother them. This section of the genus makes its growth during the winter and the leaves must have air, light and sun in order to store up food for the new corm. This fact is proven by the

late flowering *ochroleucus* which has managed to go on for ten years in my neglected garden because it has the slight protection of a dwarf evergreen.

In the late spring of last year I moved into a house which had an unheated conservatory on its southern side and a large enough yard space to make a garden. Here I could keep daily watch over my plants, for it was near where I am employed, so I decided to make a test of all the autumnal flowering crocuses I could import from Barr & Sons. They were ordered in early July with instructions to ship as soon as possible. Later several which Barr could not supply were ordered from Wayside Gardens and were not planted at the same time because of their late arrival.

The idea of the test was to check time of flowering, height of the blossoms and number per corm, to place the color according to Ridgway's Color Standards and to photograph them as they bloomed. To do this it was decided to plant six corms of each species or variety in a standard six-inch pot, sink the pots in a sunny and protected part of the border, bring them into the unheated conservatory as the buds appeared and when they had finished flowering replace the pots in the border and protect the foliage with evergreens during very hard frosts. When a pot began to flower a numbered label was inserted to identify the species in the photograph and also to definitely place the time of flowering.

The soil mixture was to be the same for all save *C. iridiflorus* which

demands more humus. This soil mixture was carefully measured and thoroughly mixed several days before use. An old tin quart cup was used and the proportion was:—

3 quarts of good garden soil which had been sifted through a $\frac{1}{4}$ " mesh

1 quart of commercial humus (leaf mold was not available)

$\frac{1}{2}$ quart of coarse sand

$\frac{1}{2}$ pint of steamed bone flour.

The soil for *iridiflorus* was 1 quart soil, 1 quart humus, 1 pint sand and 3 tablespoons of bone flour.

As the pots were new they were soaked for forty-eight hours as were also the broken crocks which were to be used for drainage. A layer of these was placed in the pots which were then half filled with the soil mixture which was firmly pressed down. Then more soil was gradually added and gently pressed down until the soil level was two inches below the top of the pot. A thin layer of sand was spread over the soil and the corms placed on it, one in the center with the other five equidistant around the central one and the pot filled to the brim. The soil was then firmly pressed down and more added until the pots were level full. The pots were completely filled because I wanted the corms as deeply planted as possible; if I were doing it again I should use seven-inch standard pots and plant the corms three inches below the level of the top. Crocuses need a fairly deep root run and in the garden they should be planted at least four inches deep; five is none too deep in light soils. As each pot was planted, it was placed in a deep pan of water until the moisture was showing on the top soil. It is needless to say that each pot was carefully labeled as the corms were planted. They were

then sunk in the garden so that the top of the pot was about half an inch below ground level and soil added until even with the garden.

In the following report all were supplied by Barr and planted on September 6th except *C. speciosus* vars. *Artabir*, *globosus* and *Pollux*; *iridiflorus*, *hyemalis* and *laevigatus* var. *Fontenayi* which were planted September 26th. The imported lot arrived two weeks before their planting, just as I had been called out of town. This two-week delay may have been the cause of some of them not flowering, for all the corms were sound.

As buds appeared the pot was lifted, the extra soil carefully removed and the numbered label placed. The pot was then taken inside in order to protect the flowers from changes in the weather; but this was a mistake for the sunshine through the glass was so hot that many of the blossoms hurried through their life period much faster than they would have done out in the garden where the days were cooler and the nights cold.

The following list is arranged in the order of the appearance of the first blossom, and it does not agree with the schedule of flowering given by English writers. All color terms are from Ridgway's Color Standards. I cannot claim that they are all *absolutely* correct because just as the flowers began to open extraneous circumstances cut down my time so that I could not follow a regular schedule in regard to time of day and age of flower. Both of these specifications are very important. The quality and tone of the shades of the lavenders and violets vary greatly according to the intensity and quality of light, and I had to make the comparisons in morning light, at midday or late afternoon. Then, too, there were cloudy

days and sunny ones. The only constant factor was that the charting was always done indoors near a window facing the east. I always tried to use a flower which had been open for one day only, but I fear that too often the blossom was older. I can, therefore, only claim a close approximation even though each flower was checked three times—the method being to check ground color, venation, throat, stigma, anthers; and then go over in the same order twice.

Another explanation is necessary. It was intended to photograph every pot as it came into flower but in planning this we overlooked the fact that Mr. Frank Martine and myself both worked. As he went to business in New York, he was compelled to leave by eight o'clock in the morning, returning after six P. M. This meant that there was not enough light to take pictures except on Saturdays and Sundays, and the crocuses refused to accommodate us for almost every one was at its prime during the week. I have therefore included only the best of the pictures and in most cases have shown the unopened flower instead of following the original intention of having one of the closed and one of the open blossom.

1. *C. speciosus* var. *albus*, Hort. Began flowering October 2nd and continued until October 15th; three belated ones opened November 7th, fading on November 15th. There were fourteen flowers from the six corms. Blossoms were from 4½ to 5 inches high; of good texture, but were slightly smaller than the flowers of the type. Color, a pure and unmarked white which in the throat gradually changed to Picric Yellow. The stigmata, divided into many fine threads, were Capucine Yellow and were very effective against the white

of the flower. Anthers were between Maize Yellow and Buff Yellow. There were no leaves at flowering.

This variety was "found by Mr. Van Tubergen among plants . . . collected near Schemacha," according to Bowles. Johnson's Gardener's Dictionary gives the date of introduction as 1907.

2. *C. zonatus*, Gay. Began flowering October 7th, continuing until October 20th. But in the garden a new planting of twenty-five which had been set out exactly a month before the test lot was planted began blooming October 2nd and continued until November 4th. (My two old plantings in the Bridgeton garden began October 3rd and continued for two weeks; they were planted in 1926 and 1928 and are in need of transplanting). My color notes on this species and two others are illegible, water was spilled on them, but as every one knows the rosy pinkish flowers of this species I hope my carelessness will be overlooked. Height of flower was uniformly 3½ inches. I can read a note, and also distinctly remember, there was a great variation in the intensity of color—some being much paler than usual. I have never seen any variation before. This will need to be checked another year. Some of the corms both in the pot and in the garden did not bloom, yet I clearly remember both sets of corms were firm and large. Those in the garden were planted in rather heavy soil and at a depth of six inches, while those in the pot were in rather light soil and not more than three inches deep. I cannot explain the poor flowering. Bowles says this species "generally appear early in September soon after the first heavy rains." I have never had them flower until the end of the month; even one year when I gave them sev-

eral heavy soakings with the hose over a period of three weeks in late August and early September. There are no leaves at flowering.

The name refers to the zone of orange spots in the throat. Being native to Mt. Lebanon and Mt. Hermon and on through the mountains of Cilicia, it takes kindly to our hot dry summers and should easily establish itself here provided we allow it to ripen its leaves. It was first introduced to English gardens in 1855.

3. *C. speciosus*, Bieberstein. Began flowering October 9th and continued until October 25th; seven belated blossoms flowered from November 5th to November 22nd. In the garden a new planting of twenty-five which were planted a month before the test lot and at a depth of six inches flowered from October 17th until November 4th. In the test lot there were fourteen flowers from six corms. (Two old plantings in Bridgeton garden which were set out in 1926 and in 1928 flowered from October 10th to October 30th—one in partial shade has seeded itself.) Height of flowers varied from 4½ to 6 inches; they were large and of such firm texture that they withstood heavy rains and wind until past their prime; this observation refers to the flowers in the garden. In color they are Pallid Bluish Violet shading down to white at the extreme base before changing into Pale Greenish Yellow in the throat, the very numerous and pronounced veins are Blue Violet; both colors are slightly paler on the exterior. The veining is so heavy that it gives the flower a very blue effect at a little distance. The numerous threadlike divisions of the stigma are Capucine Yellow and very effective. The anthers are between deep chrome and light orange yellow. The flowers are

slightly fragrant. There are no leaves at flowering.

The name means showy, fine looking. It is a very widely spread species occurring in eastern Europe, Asia Minor as far east as Persia, and north to the northern shores of the Black Sea. Having so wide a range it is not surprising that it has several varieties. It was introduced into England in 1808.

4. *C. speciosus* var. *Aitchisonii*, Foster. Began flowering October 9th and continued until November 17th; a gradual succession of bloom, all told there were sixteen blossoms from the six corms. My observations do not agree with Bowles and for that reason I took color notes from the later flowers as well as the first out. As my first notes were made from a fully matured bloom I made the second check from one which had just opened and will give it first. Height of all was uniformly six inches. Color, Pallid Bluish Violet paling to almost white, veins near Wistaria Violet and quite pronounced but not so numerous as in the type; throat white, only slightly tinged Massicot Yellow; stigma, as effective as in type but Cadmium Orange; anthers, Empire Yellow. The more mature flower deepens to Light Violet paling to Pallid Violet at base; veins deep Blue Violet; throat, paler than Pallid Blue Violet and slightly tinged Massicot Yellow; stigma Mikado Orange; anthers, Deep Chrome. I could detect no increase in size from the largest flowers of the type. Bowles states it is the largest flowered of the autumnal crocuses and "It is paler than the typical form and less veined, of a pale uniform shade of lavender within, and almost white outside when in bud." I am wondering if I have the right plant. The several forms of *speciosus* will certainly need

to be checked again.

5. *C. pulchellus*, Herbert. Began flowering October 10th and continued until November 9th; fourteen flowers from the six corms. A dozen corms planted in the garden on October 12th flowered well from October 28th to November 12th. I had this species in Bridgeton in 1928 but it died out after its third year. Height of flower $3\frac{3}{4}$ to 4 inches. Color, an even Pallid Bluish Violet; veins, Spectrum Violet; these run the full length of the tepals and are slender and clear-cut but those on the three outer segments are slightly feathered; throat, apricot yellow in sharp contrast from the color of the blade; stigmata, empire yellow; anthers, white. Bowles states there are only five veins on each segment, but I noticed several blossoms with seven.

There are no leaves at flowering but they begin to appear as the blossoms begin to fade.

The name means beautiful. It has been listed here in America through a typographical error as *pusillus*. It is a native of the region around the Bosphorus from whence it came to England in 1670. It is one of the loveliest and every effort should be made to accustom it to our gardens.

6. *C. speciosus* var. *Pollux*, Hort. Began blooming October 13th and continued until October 25th. There were eleven flowers from four corms; the other two did not blossom nor did they make any growth later. The color notes of this plant were also spoilt; this is to be greatly regretted for it was new to me and is not mentioned in Bowles' Handbook of Crocus and Colchicum. Wayside Gardens' catalog describes it as being "Pale violet-blue, exterior silvery white; very large." I cannot remember any silvery white exterior nor any great size to it. All I can recall is that

it bloomed in mass, was nice but not outstanding and that there were a great number of aphids on the buds. The only part of my notes which I can decipher is the height of $4\frac{3}{4}$ inches.

7. *C. speciosus* var. *Artabir*, Hort. Bloomed from October 16th to October 28th; there were 8 flowers from 4 corms, the other two made no growth. Height of flower $4\frac{1}{2}$ inches. The rest of notes was washed out. I only remember I was not greatly impressed, in fact, was rather disappointed in it for Bowles, although he ignores it in his crocus book, says, in My Garden in Autumn and Winter—that it approaches "var. *Aitchisonii*, both in size and color, but is not so large, nor so late in flowering." And shows a lovely picture of a little group of it blooming in his rock garden. He also states that Van Tubergen received it from one of their collectors who was working the territory around Artabir and that it increases nicely.

8. *C. speciosus* var. *globosus*, Hort. Began flowering October 21st and continued until November 23rd. There were nineteen blossoms from the six corms. While the first flowers were only 5 inches high the later ones reached $6\frac{1}{2}$ inches. The shape of the flowers is only slightly more globular than those of the type. The ground color was Wistaria Violet, deepening to Bradley's Violet at the tips of the segments; veins, Dull Bluish Violet; throat, Pale Lemon Yellow which pales to white as it reaches the color of the blade; stigmata, Flame Scarlet and very effective; anthers, Capucine Yellow. The coloring of the entire flower deepens with age. I considered it the most desirable of the *speciosus* varieties as they flowered in the test. Bowles speaks of it as a smaller and later variety with an extra amount of

blue. It was introduced by Smith, of Worcester, early in this century. This whole *speciosus* group must be rechecked and compared after they have had a year's growth in this country.

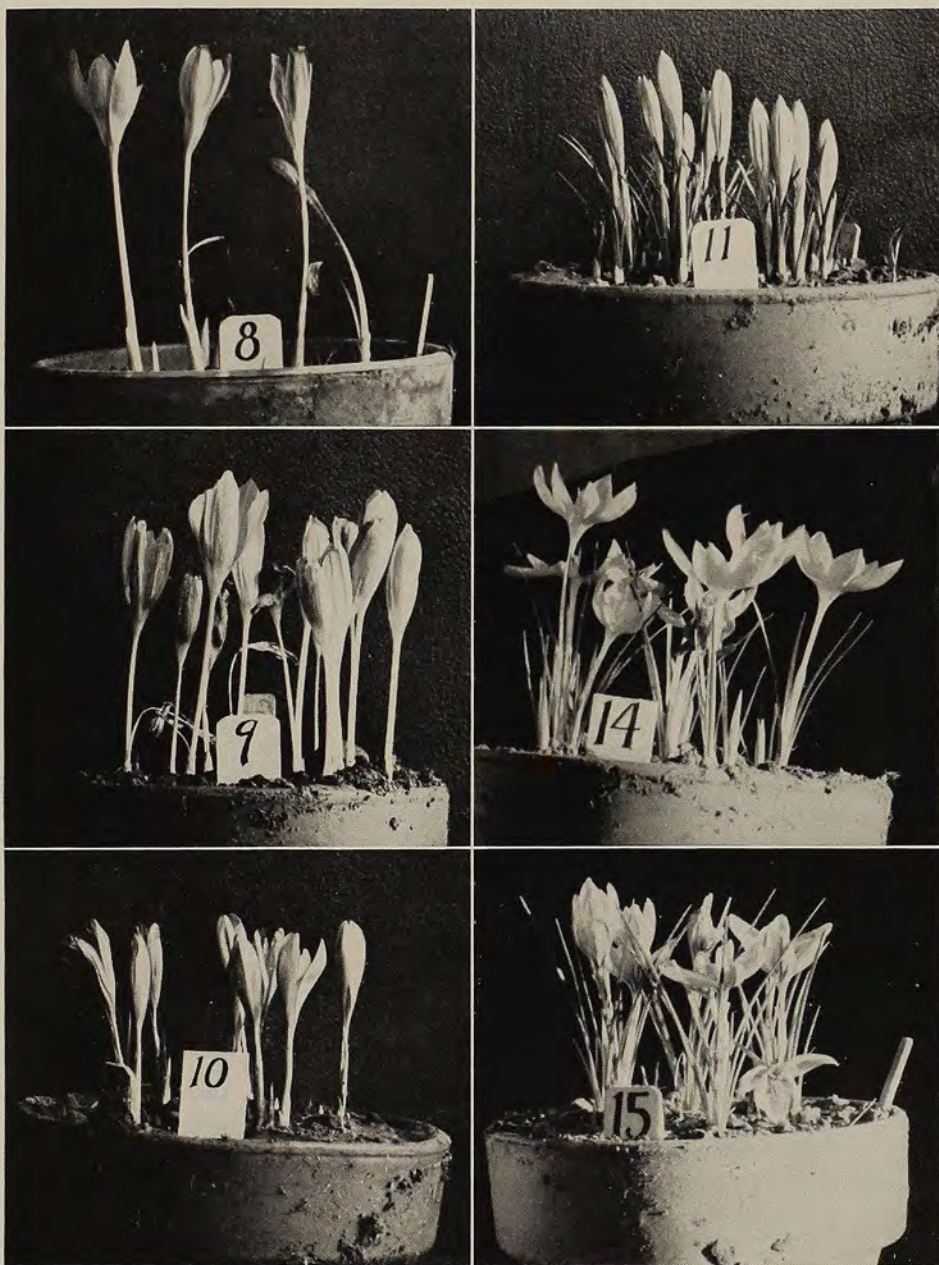
9. *C. karduchorum*, Kotschky. Began flowering October 23rd and continued until November 20th. Eighteen flowers from five corms, the other made no appearance. Height of flower, $4\frac{1}{2}$ inches. Color, almost uniformly Light Lavender Violet save for a very few slender veins of dark madder violet which are heaviest at the throat which is white—these veins hardly show; stigmata, pale cream; anthers, slightly lighter than the stigmata—both reflect the color of the blade in a delightful manner. Bowles has a lovely drawing of this in his book; but neither the drawing nor his description agree with the flowers I had for they both show a more pronounced venation. In all other respects my check lot agrees; can there be two forms? There are no leaves at flowering. This species made a beautiful showing in the pot and would make an excellent group in the rock garden; but Bowles makes this sad observation, "I have failed to establish it here, I believe, chiefly owing to a very peculiar habit that caused the flowering shoot to grow to one side underground instead of straight upward. Unless the soil was removed and the shoot and corm tilted upward, it failed to reach the light and flowers and leaves rotted off underground. I tried planting on a very steep slope and covering it with loose sand but without success." Was this the reason one of my corms failed to make a showing? Yet I had no trouble with five of them. I am wondering how my corms will behave this coming autumn.

The name refers to its native home, Kurdistan; and while it was first found in 1859, it was not introduced into cultivation until 1910.

10. *C. medius*, Balbis. Began flowering October 27th and continued until November 12th. Fifteen flowers from the six corms. Height of flower 3 inches. Color, an even Lavender Violet with a very heavy veining of Nigrosin Violet massed at the base of the segments; throat, cream to white, but so narrow that it shows only as a white eye amid the dark star of the veins; stigmata, Grenadine Red and finely branched and very conspicuous; anthers, Capucine Buff and quite small. Leaves were beginning to show above ground at time of flowering. The darkest in color of the lot and very lovely. Have had it in the Bridgeton garden over a period of several years but it finally died out; more because it was smothered by maiden pink than through any weakness in its constitution. The wide open flowers are lovely with the strongly contrasted star of dark veins.

It was named because it was considered to be intermediate between *sativus* and *nudiflorus*; and is restricted in habitat to the Riviera, extending eastward to Genoa. It was introduced into cultivation in 1843.

11. *C. asturicus*, Herbert. Began flowering October 28th and continued until November 9th; very uniform in its flowering, two beautiful ones continued until the 20th. Fifteen blossoms from the six corms. Height of flower was $3\frac{1}{2}$ inches. Color, the effect was almost Wistaria Violet because of many thin and finely feathered veins of Soft Bluish Violet on a Pale Wistaria Violet ground; throat, Sulphur Yellow; stigmata, large and Flame Scarlet; anthers, Orange. The throat was bearded and only a few



8. *Crocus speciosus* var. *globosus*, 9. *C. karduchorum*, 10. *C. medius*, 11. *C. asturicus*, 14. *C. longiflorus*, 15. *C. longiflorus* var. *melitensis*. The pot labels are $\frac{7}{8}$ inch wide.

had any stripes. Bowles says the throats are frequently striped and that they, the flowers, vary in their shades of purple or lilac but mine were all the same shade. It was a very lovely flower and well worth every effort to make permanent. Bowles says field mice are very fond of it. Leaves were up to two and a quarter inches high at flowering.

It was named for the part of Spain from which it comes and was introduced in 1842.

12. *C. nudiflorus*, James Smith. Began blooming October 30 and lasted until November 6th, as there was but one flower from the six corms, later all corms sent up foliage. In the Bridgeton garden there were seven flowers over a period of a month; more will be said of these later. Height of flower was $3\frac{1}{2}$ inches. Color, between Bradley's Violet and Wistaria Violet; no veining; throat, so very pale as to be almost white; stigmata, Orange; anthers, Pale Lemon Yellow. There were no leaves at flowering. The corms were very small, which accounts for the poor flowering. This species increases by underground stolons which spread out to several inches from the corm and, in the garden, they are often grubbed out if the corms have not been planted deep. My first lot in the Bridgeton garden disappeared after the second season for this reason. In 1930 a half dozen were planted in an area enclosed with several deeply buried stones to keep these stolons from wandering away; this method has proved effective and the corms have flowered each year. All corms I have had have been very small and I have come to the conclusion that fully developed ones are seldom sent out. It is a lovely flower and every effort should be made to make it feel at home. Bowles sug-

gests planting it "in borders or in turf where it need not be disturbed and can be allowed to wander and colonize as it pleases."

Its name explains itself, but it seems rather silly as there are so many other crocuses which also flower without their leaves. It grows wild on both sides of the Pyrenees and was first introduced into cultivation in 1798.

13. *C. Salzmannii*, Gay. Began flowering November 3rd and continued until November 28th; eleven blooms from the six corms. Height of flower, 5 inches; a large flower but quite thin in texture. Color, between Light Mauve and Lilac; veins, Manganese Violet, but are thin and few so they hardly count in the color effect; throat, Mustard Yellow, flaming up into the segments; stigmata, Light Orange Yellow; anthers, Cadmium Yellow. In effect the buds are Light Wistaria Blue. Leaves are $4\frac{1}{2}$ inches at flowering. In spite of the thin substance of the flower this species forms a good garden effect. Have had it in the Bridgeton garden since 1927 and up to 1933, when I dug it up to divide the increase among several friends, it bloomed heavily; judging from my previous experience I consider eleven flowers from six corms a poor showing. After 1933 mice found it and my planting was reduced to two corms, which have gradually multiplied since then and are doing nicely. In the American trade the species is usually not supplied but the var. *erectophyllus*, see further down the list, is supplied in its place without stating that it is a form of the species.

It was named in honor of the botanist Salzmann and occurs in southern Spain and also across the Straits of Gibraltar in northern Africa; and although it comes from so southern

a land it is quite hardy in our gardens. It was first introduced into England in 1831.

14. *C. longiflorus*, Rafinesque-Schmaltz. Began blooming November 5th and continued until November 26th; fifteen flowers from the six corms. Height of flower, $4\frac{1}{2}$ inches. Color, Light Lavender Violet with faint venation of Pleroma Violet, the venation is heaviest at the base of the segments; throat, Empire Yellow; stigmata, Scarlet Red; anthers, Buff Yellow. The flowers are delightfully fragrant, a scent which is between that of lilac and violets. The large flowers open quite flat in the sun and give a much more bluish effect than the color description denotes. Leaves, up to $2\frac{1}{2}$ inches high at flowering. Have never had this species before but having seen it I never want to be without it no matter how hard to grow it may prove.

The name was very badly chosen for it is not a long flower at all, but it has the prior right over the more apt name of *odorus* which Bernardi gave it. It and its several forms are natives of southern Italy, Sicily and Malta. First introduced into cultivation in 1810, according to Johnson's *Gardener's Dictionary*; according to Paxton's *Botanical Dictionary*, as *longiflorus* it was introduced in 1843, as *odorus*, in 1830. These are things which disturb my methodical soul.

15. *C. longiflorus* var. *melitensis*, Herbert. Began flowering November 6th and continued until November 25th; twelve blossoms from the six corms. Height of flower $3\frac{3}{4}$ inches. Color, near Light Lavender Violet with heavy venation of Haematoxylin Violet (ground color slightly lighter than type and veins deeper) the veins were beautifully feathered and massed at the

base of segments forming a strong contrast with the Deep Chrome of the throat; stigmata, Scarlet Red and more prominent than in the type; anthers, Deep Chrome. A stunningly beautiful flower but not so large as the type. The fragrance was the same and the two pots of blossoms scented the whole conservatory on sunny days. Leaves, 3 inches high at flowering and there were more of them than in the type.

As the varietal name implies, it is a native of the Island of Malta. I can find no record of its introduction. Bowles says that it varies as to the external markings. "They may appear as basal lines only, or as branched featherings reaching to the tips of the segments, or again as cloudy blotches on the lower halves." Mine were quite uniformly the same, probably because they were all offspring from the same clone.

16. *C. Tournefortii*, Gay. Flowered from November 6th to 12th. My notes read, "first flower ahead of others;" the others never came. Height of flower, $4\frac{3}{4}$ inches. Color, Light Mauve to Mauve with no veins; throat, Light Greenish Yellow; stigmata, Orange Yellow; anthers, Deep Chrome. A thin textured, fragile flower but very lovely. Leaves were $4\frac{1}{2}$ inches high at flowering. All corms sent up leaves so they must have been too young to flower, for Bowles speaks of it as free flowering. He also says the anthers are white. If it were not that my flower agreed with his note that "once flowers open they refuse to close again," this difference in the color of the anthers would lead me to think mine were not the true species. I am hoping for a better showing in another year.

It was named for the botanist Tour-

neforte and is found only in the islands of the Greek Archipelago. First introduced in 1831.

17. *C. ochroleucus*, Boissier. Began flowering November 6th and continued until November 30th. Ten flowers from five corms, one not blooming. Flowers 3 inches high. Color, white with veins which seem almost transparent. Bowles says "veined with lines that appear gray, more from being transparent than from containing any pigment." Throat, Picard Yellow with two oval blotches of Capucine Yellow at the base of each segment; stigmata, Straw Yellow; anthers, Cream; Bowles says they are white. Leaves were 4 inches high when the flowers opened. I have had a small clump of this species in the Bridgeton garden since 1930, and it is badly overgrown with other things, but it regularly flowers in late November and early December. Another clump, which lasted from 1926 until 1931, also blossomed at the same time. Therefore, the test lot was several weeks ahead of time and also had fully developed leaves with all the flowers; both Bridgeton groups acted up to Bowles' observation in that they sent up their first bloom when the leaves were just beginning to show above ground. The flower is thin textured and frail and has a starry appearance which is caused by the narrow segments, but it has a charm and daintiness which is pleasant in the garden at this time of year.

The name refers to the white and yellow of the blossom. It is a native of Syria and extends into Galilee; but it is thoroughly hardy in spite of its southern habitat. It was introduced into cultivation in 1862.

18. *C. sativus* var. *Elwesii*, Maw. Began flowering November 7th and continued until November 28th; fif-

teen blossoms from the six corms. Height of flower 6 inches. Color, Pallid Violet with a few faint veins of Light Violet; throat, Marguerite Yellow to almost pure white; stigmata, between Scarlet Red and Spectrum Red, but not so large nor do they hang out as far as in the type; anthers, Deep Chrome Yellow. A beautiful pale flower of brilliant contrasts. As the type did not flower I cannot make an accurate comparison; but as I remember it in the Bridgeton garden, where it has flourished for a dozen years, this variety is a larger flower and paler in color and of a thinner texture. Leaves $3\frac{3}{4}$ inches high at flowering.

It was named for Mr. Elwes, who found it in Smyrna.

19. *C. Salzmannii* var. *erectophyllus*, Hort. Began flowering November 10th and continued until November 26th; eight blossoms from five corms. Height of flower $3\frac{1}{2}$ inches. Color, between Light Violet and Light Hyssop Violet with some flaming on outside of segments of Violet Ultramarine; throat, Citron Yellow; stigmata, Orange Chrome; anthers, Cadmium Orange. A smaller flower than that of the type but of better substance and deeper color. Leaves 3 inches high at flowering. It is said to often flower before the leaves are up and I have seen in several gardens plants under the type name which were undoubtedly this variety, because of the deeper and smaller flowers which were blooming with the foliage just showing above ground. Bowles says it has never been traced to its native home, so it may be a form which has developed under cultivation. It seems to me a better varietal name might have been chosen, for I can not notice that the leaves are any more erect than in the species.

20. *C. iridiflorus*, Heuffel. As the

Kew Hand-list accepts this name instead of the older one of *byzantinus* and Bowles uses it in his book on this genus I use it here, even though the Kew Index selects the other. As Bowles says in defense, "Ker adopts it, but without a description, in the 'Botanical Magazine' for 1808, under t. 1111.—But it is so misleading that Ker's bare mention of it is surely best disregarded." He did not reach this decision lightly, for he used the earlier name both in his book "My Garden in Autumn" (1915), and in an article on autumnal crocuses in the Journal of the R.H.S. (1923). Johnson's Gardener's Dictionary and Nicholson's Dictionary of Gardening both accept *iridiflorus* as did Maw and Sir Arthur Hort. Therefore we should have no compunction in using the better descriptive name.

Began flowering November 23rd and continued until December 15th; three flowers from as many corms. The other corms did not produce leaves later on. This has been my experience with this species; seemingly good corms fail to grow. Have tried it three times in the Bridgeton garden with no success and I attribute the failure to the late planting of the corms. This is borne out by the results of this test for the corms were planted earlier than any of the other lots with a result that three lived. If we could only get this species into the ground in late August at the latest so it could make a natural root growth I feel certain it would easily establish itself and then flower in its natural season, which is late October, instead of the period given here. Always remember it is a shade-loving plant and should be planted in cool, moist places, among choice ferns is the suggestion made by Bowles. It is so lovely a flower that every effort

should be made to make it feel at home in our gardens.

The flower differs from other crocuses in that the three outer segments are about double the size of the three inner ones which always stand erect while the large outer segments have a tendency to reflex, which causes the flower to look not unlike an iris. I found it a difficult flower to place in Ridgway; color of outer segments, Lavender Violet deepening to Pleroma Violet at the edge and very slightly veined Pleroma Violet, inner segments near Mauve with three parallel veins of a bluer Haematoxilin Violet than I could find in Ridgway; throat, white; stigmata, Pleroma Violet; anthers, Pale Yellow Orange with a pinkish cast. Flowers were 3 inches high and blossomed without the leaves which followed very soon after and were much larger in width than any other crocus and of a uniform deep green above. The exact shade was not checked with Ridgway.

The iris-flowered crocus is native to Hungary and Transylvania, but does not extend eastward to Byzantium, as the older name would imply. It seems to have been grown in English gardens for slightly over a century, but I can not find its exact date of introduction. As Parkinson knew it as *byzantinus*, it must have been in England many, many years longer.

21. *C. laevigatus* var. *Fontenayi*, Bowles. Began flowering December 30th and continued until January 20th; eight flowers from four corms, two made leaves only. Flowers were 1¾ inches high and bloomed among the leaves which were 2 to 3 inches long. Color, near Lilac, veined Nigrosin Violet very heavily on exterior of the three outer segments, but very lightly on the exterior of the three inner segments. I could see no buff

on the exterior and it should have been there; throat, Capucine Orange, which shows through but does not count for much when looking down upon the open flower because the throat is narrow; stigmata, Bittersweet Orange; anthers, Light Buff. Because of the heavy striping on the exterior of the outer segments the bud is very inconspicuous even when close by. When corms have recovered their vitality I should say this will be a lovely thing for the alpine house or in a very well protected spot in the rock garden for it flowers so uniformly and its lasting qualities are so long. I failed to note any pronounced fragrance but Bowles says the type is one of the most fragrant, a characteristic which I should think would be present in all its forms. The species itself does not seem to be listed in the trade, which is to be regretted for it is said to be a beautiful white. It is native to Greece, from whence it was introduced into cultivation in 1838. The variety seems to grow only in the district around Athens.

Of the four species which did not flower I have never seen *C. hadriaticus*, white flowered and closely related to *sativus*; *niveus*, said to be the most beautiful of the white autumnal species; and *hyemalis*, a very late flowering white.

The fourth, *C. sativus*, made very vigorous growth, but no flowers; however, I have grown this plant in the Bridgeton garden since 1926, and while I cannot give color notes I can say that it is most hardy and increases rapidly. I only wish the record of its flowering was as good as

that of its increase. From notes I find it bloomed well the first year (1926) and then flowered less each year until 1930. In July of that year I moved it from a semi-shady spot to full sun. I had carefully searched the soil of its old home and was sure I had gotten all the corms, but that autumn seven flowered in the old shady spot, but only one of the transplanted ones bloomed. There were over two dozen of them. From 1931 on both plantings have flowered regularly, sometimes more heavily than others.

C. cancellatus was not obtainable last autumn; nor were either of its varieties. I have had its variety *cili-cicus* in the Bridgeton garden. Planted in 1926, it bloomed nicely for several years. My recollection of it was that it had a slight feathering of purple upon a lavender ground (these are not Ridgway color terms), and that it was liked by everyone who saw it. I had foolishly planted it close to a path which in winter was cleared of snow, and I fear that the snow shovel cut off its leaves too frequently for its good health, for when in the summer of 1930 I diligently searched for it I could find only two large corms and two very small ones. These were carefully planted and gave two blossoms that autumn and increased and flowered until the autumn of 1935, when they failed to appear. We all suppose that the by-the-day helper, whose one ambition to weed the rock garden had been granted early that spring, had pulled them out, thinking they were grass. I am sure of its hardiness and consider it one of the most desirable.

Various Muscari

B. Y. MORRISON

ALTHOUGH they are by no means new or rare, the various grape hyacinths that form the section *Leopoldia* of the genus *Muscari* are not often seen in gardens. If they do appear in gardens, they are usually there by inheritance from older gardens or because of the curiosity of the gardener. Those described in these notes were assembled because the flowering of *Muscari comosum*, which was illustrated in the July, 1937, issue of this magazine, stirred that final inertia into action.

The bulbs were planted in late autumn after the last narcissi were planted and like them were placed in deep, rich soil on the edge of open woods. As the season has developed, it may appear that the site chosen was a little drier than might be ideal, since some of the clumps needed watering to bring their blooms into full development. All the notes were taken on May 6 save the notes for *Muscari plumosum*, which develops last of all (May 16).

The illustrations show the general character of the inflorescence and the notes under each head give the general details and the color notations. It is believed that the differentiation between the lower (fertile) flowers and the upper (sterile) flowers will be quite apparent.

Muscari comosum

Fertile flowers—Dark Olive Buff at base, darkening to Woodbrown at top, the lips at the nearly closed mouth Dark Olive Buff. The upper fertile flowers Dark Hyssop Violet, lips light. Sterile flowers—mauve—ascending.

Fertile flowers with longer pedicels than in *M. Pinardi* and standing almost at right angles to stem even after flowering, while those of *Pinardi* tend to droop.

Muscari plumosum

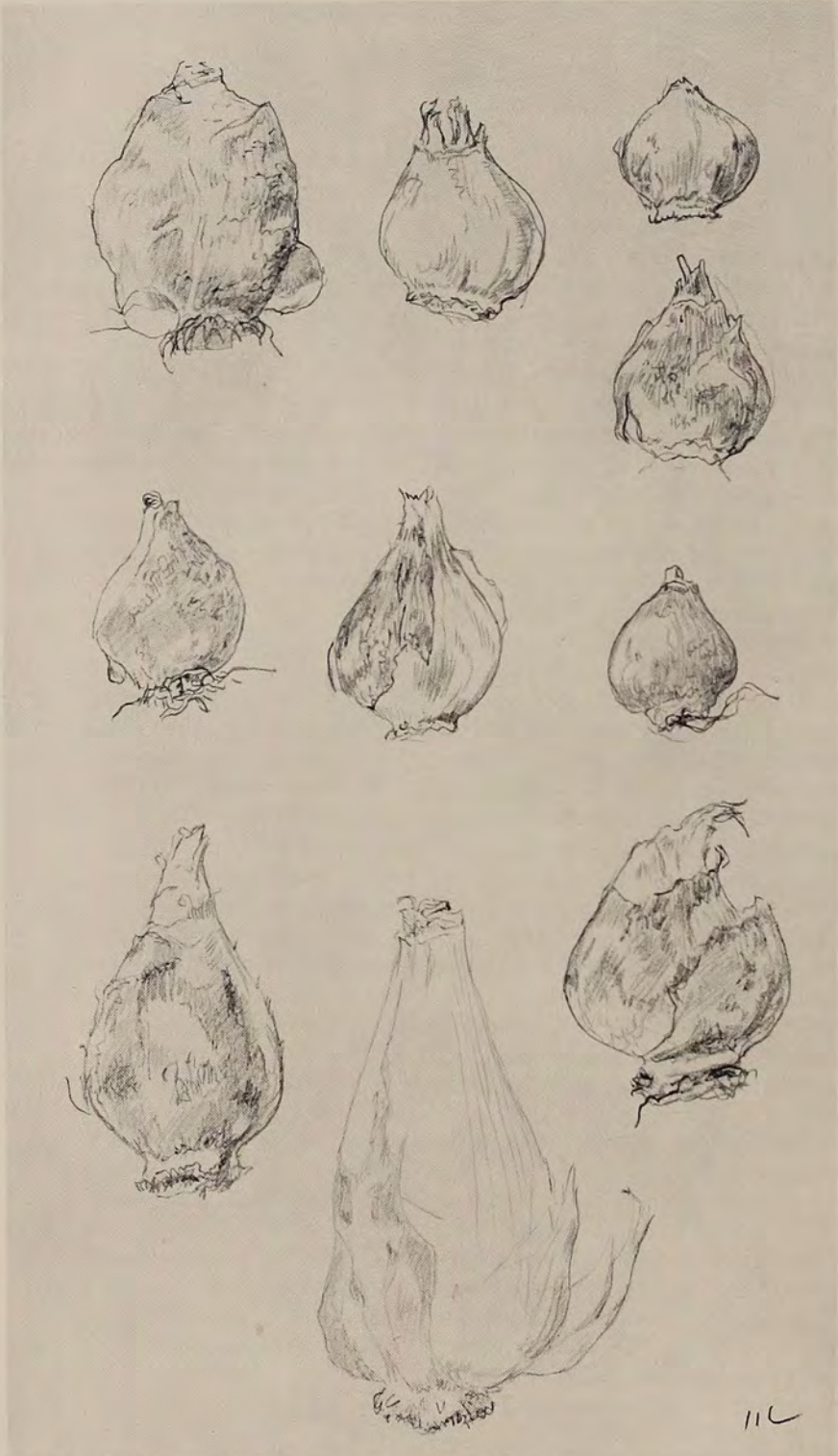
Later than *plumosum monstrosum*, more vigorous in plant growth, but less vigorous in flowering and later. As spike comes up it is a dull pinkish brown; when opened, the color lies between Mauve and Mauvette with tips of Woodbrown. Scentless.

Muscari plumosum monstrosum

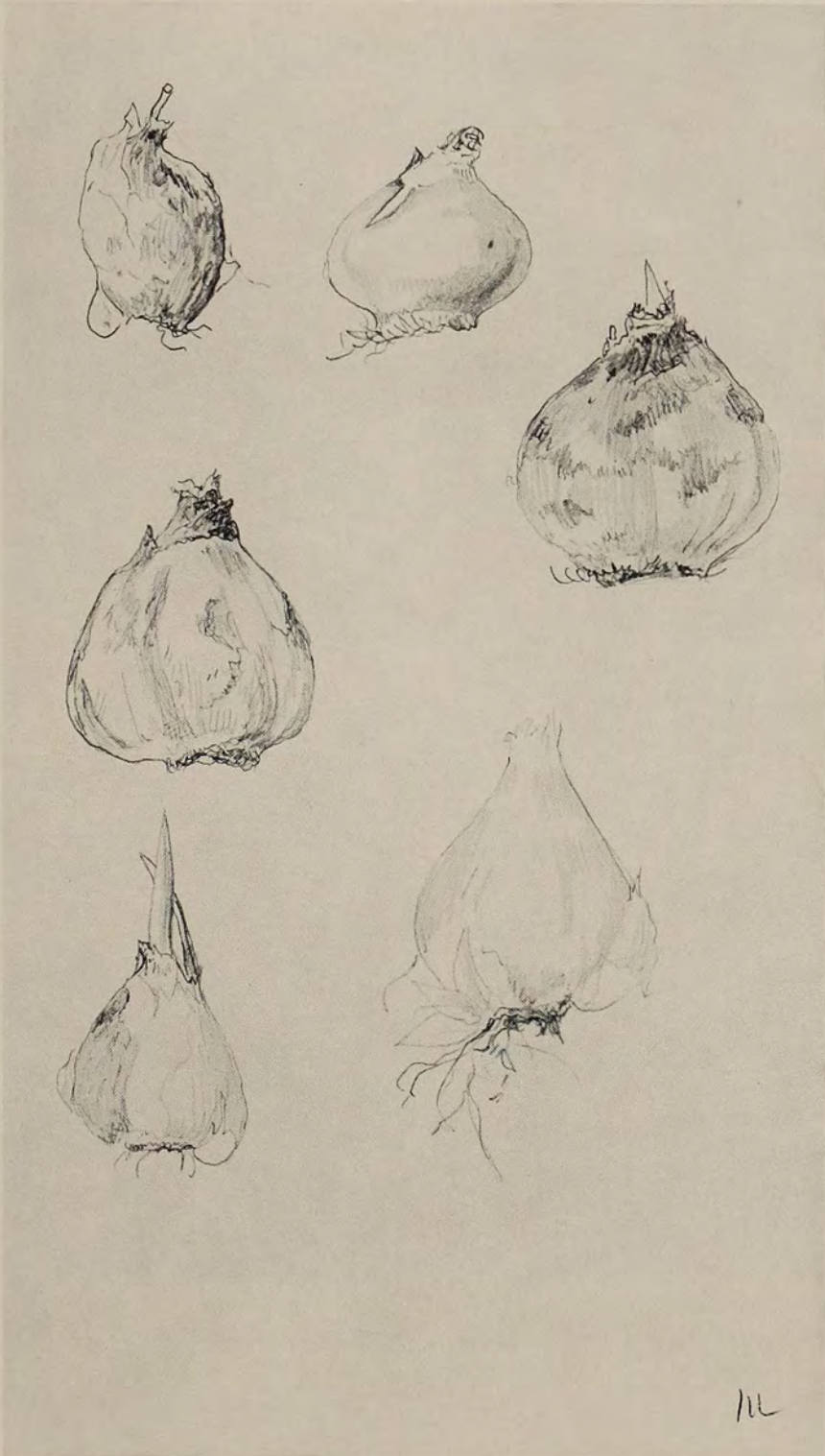
Two to four blue-green but not specially glaucous leaves (between Pois Green and American Green of Ridgway) occur with each inflorescence. The flower stalk is of the same hue lightening toward the tip. The inflorescence is without flowers, but is made up of branches, some branched again on which are various small bracts and at times abortive flowers, the whole colored that clear blue lavender that one associates with *Phlox divaricata*, but which has the Ridgway name of Mauve.

In the garden this develops slowly and in its first stages is most unprepossessing, dull and pinkish. If the season is dry, the stalk does not develop well, but a little water will bring it quickly into condition. The "flowers" last almost two weeks if the weather does not turn too hot. Naturally there is no scent.

If there is a fault, it is that the stalks are not stiff but lop about in their foliage.



Bulbs of *Muscari*, natural size—*Armenaicum*, *Argeai alubum*, *azureum*, *botryoides*, *comosum*, *azuricum*, *amphibolis*, *moschatum*, *moschatum flavum*, *moschatum mayor*



Bulbs of Muscari, natural size—neglectum, paradoxum, Pinardi, plumosum, polyanthum album, plumosum monstrosum



Lilian A. Guernsey

Muscari plumosum



Lilian A. Guernsey

Muscari plumosum monstruosum



Lilian A. Guernsey

Muscari Pinardi



Lilian A. Guernsey

Muscari Massayanum



Lilian A. Guernsey

Muscari sp.

Muscari Pinardi

When this first develops it is not quite as showy as *M. comosum*, but soon its inflorescence becomes showier as the colors in the sterile portion of the stalk are clearer and brighter.

The plant produces 5-7 leaves for each inflorescence, glaucous and channelled, not over one-half inch wide.

The stalk of the inflorescence is light green (Biscay Green) becoming lighter as it passes into the inflorescence and turning a blue lavender at the sterile tip (between Lavender Violet and Deep Chicory Blue of Ridgway).

The lowest fertile flowers are green (Water Green shaded at base and the swollen tip with Light Grape Green), the small lobes that almost close the mouth are dark brown (Clove Brown). The middle number of the fertile flowers are green at the tip but all the rest of the flower is flushed with purple (Manganese Purple). All the fertile flowers have short pedicels and tend to droop.

The sterile flowers have longer pedicels that ascend. The flowers are pinkish lavender (Lilac) which contrast clearly with the bluer-toned pedicels. Scentless. May 6.

Muscari Massayanum

This belongs to the group with *Pinardi*, *comosum* and their kind. The lower fertile flowers are dull green (between Dark Olive Buff and Grape Green, of Ridgway) with the small lobes and the tip of the flower almost black (Clove Brown, of Ridgway). The stalk itself is light green (Biscay Green) tinged purplish where it rises from the leaves and turning a clear pink as it grows toward the sterile flowers (Pale Rosalane Purple).

The fertile flowers have rather short pedicels and make one think of those of the musk hyacinths. The sterile flowers have pedicels up to one-half inch long, giving somewhat the same tasselled effect that one finds in *comosum*. The fertile flowers just below the sterile flowers are flushed with the same pink as the sterile flowers, but are duller because of the underlying green.

The leaves are usually two to each inflorescence, up to three-fourths inch wide, glaucous green and almost channelled. Scentless. May 6.

This species, which I owe to the kindness of Mr. Hoog, of C. G. Van Tubergen, Ltd., is not yet introduced to cultivation, but was sent in order that it might be recorded with these other species at this time.

Muscari sp.

This muscari from Turkey is more strange than beautiful. It bears three to five hyacinth-like leaves, which are more yellow green than these others (Light Cress Green). As the inflorescences appear in the leaf fascicle, they appear as though they were to be a creamy mass, but as the stalk develops the pedicels of the fertile flowers lengthen to almost three inches and the flowers darken to brown (Clove Brown). There are relatively few sterile flowers which are a very light greenish white (Sea Foam Green) with short pedicels and no marked difference from the fertile flowers in carriage or bearing. The flowers just below them are brown, tipped with cream that darkens gradually until the whole flower is brown. Scentless.

Although bulbs of other species are shown in the drawings, notes on their flowering will follow at another time.

The Order of Bloom of Hardy Woody Trees and Shrubs

DONALD WYMAN, *Arnold Arboretum*

GARDENS are always being conscientiously planned to have flowers in bloom at certain definite times. Not only is this true of annuals and herbaceous plants, but of woody trees and shrubs as well. During the past five years the author has taken a great interest in recording the blooming dates of the woody trees and shrubs both in the Rochester Parks at Rochester, New York, and in the Arnold Arboretum at Boston. Careful notes have been taken during this period on the actual dates at which the flowers of many woody plants completely open, and sufficient data has been gathered to offer it in one complete list. It should be remembered that the actual day of opening of the flowers of an individual plant may vary from year to year, depending on the current weather conditions. Also, the date of opening in Boston would be later than that in New York, Philadelphia, or Washington, but the sequence of bloom of these plants remains the same. It is necessary only to check on approximate dates in different localities to orient the approximate dates in the following list.

In checking over the list, another important item to keep in mind continually is the fact that, though a certain plant may be listed as blooming the first part of May, it may remain effective from the landscape point of view and in full bloom for two or three weeks, and so can be used in combination with other plants that normally first start to bloom considerably later.

As an example, *Spiraea prunifolia plena* started to bloom last year at the Arboretum on May first and was in full bloom until May twenty-second. On the other hand, a plant like *Ame-lanchier canadensis* started to bloom April thirtieth, and the petals had fallen within five days. Consequently, the length of time the flowers remain on the plant is important, varying considerably with the local weather conditions. As a rule, the plants with double flowers last considerably longer than do those varieties with single flowers.

The flowering crabapples are excellent examples of plants of which the blooming period depends upon the vagaries of the weather. Many are more interesting in bud than in full flower, and if there is a long period of cool, cloudy weather when the buds are not open they may remain in good condition without opening for some time and be colorful and effective for two weeks or more. On the other hand, if a warm hot spell forces the buds to open at once, the flowers may be gone in less than a week. Since these conditions vary considerably, those interested in using such plants must study them carefully and use local conditions as a basis for determining the length of time their flowers may be expected to be of ornamental value.

Wherever possible, yearly records have been kept of definite individual plants, since one individual of the same variety, growing in a warm sun-

ny spot, will undoubtedly bloom earlier than another which is more exposed. This entire list is based on blooming dates in Boston and has been correlated with records kept by Prof. J. G. Jack of the Arnold Arboretum between 1887 and 1893. Because of lack of space, many varietal names have not been given, the species being sufficient. Among the large number of Japanese cherries and *Syringa vulgaris* varieties, there are some that bloom earlier than others, but in most cases it was thought better to refrain from cluttering up this list with too many names. Not all the plants listed are of value for their flowers, but they

have simply been included as a matter of record. A plant is only listed for a particular date when it is in full bloom from the landscape point of view, though its flower buds might be rather conspicuous for some period before. For instance, *Pieris floribunda* or *P. japonica* are listed only once in the following list, yet the flower buds of both are conspicuous a greater part of the late winter. Consequently, there are no hard and fast date lines set up in the following list, but the general sequence and the association of plants at particular times is of considerable value to all interested in woody trees and shrubs.

ORDER OF BLOOM

FEBRUARY

Hamamelis vernalis

MARCH

Acer saccharinum

Hamamelis japonica and varieties

Hamamelis mollis

Prinsepia sinensis starting to leaf

Salix species

(Snowdrop and Crocus)

EARLY APRIL

Acer rubrum

Alnus incana

Alnus rugosa

Cornus mas

Cornus officinalis

Corylus americana

Corylus Avellana

Corylus Colurna

Corylus cornuta

Corylus heterophylla

Corylus maxima

Corylus maxima purpurea

Corylus Vilmorinii

Daphne Mezereum

Erica carnea

Forsythia ovata

Jasminum nudiflorum

Lonicera fragrantissima

Lonicera praeiflorens

Lonicera Standishii

Pieris japonica

Populus species

Prunus Davidiana

Rhododendron dauricum

Rhododendron dauricum sempervirens

Viburnum fragrans

MID-APRIL

Abeliophyllum distichum

Acer Negundo

Benzoin aestivale

Berberis Thunbergii starting to leaf

Betula species

Cercidiphyllum japonicum

Corylopsis glabrescens

Corylopsis pauciflora

Corylopsis spicata

Corylopsis Veitchiana

Corylopsis Willmottiae

Dirca palustris

Epigaea repens

Forsythia europaea

Forsythia intermedia and varieties

Forsythia suspensa

Forsythia viridissima

Lonicera Morrowii starting to leaf

Lonicera tatarica starting to leaf

Pieris floribunda

Rhododendron mucronulatum

Salix blanda starting to leaf

Shepherdia argentea

Shepherdia canadensis

Viburnum Sieboldii

Ulmus americana

LATE APRIL

Acer circinatum

Acer diabolicum purpurascens

Acer platanoides

Aesculus species—leaves well advanced

Euptelea Franchetii
Euptelea polyandra
Larix species starting to leaf
Lonicera Altmanni pilosiuscula
Lonicera coerulea edulis
Lonicera tenuipes
Maddenia hypoleuca
Magnolia denudata
Magnolia kobus
Magnolia stellata
Malus baccata mandshurica
Myrica Gale
Prinsepia sinensis
Prunus apetala
Prunus Armeniaca
Prunus canescens
Prunus cerasifera
Prunus concinna
Prunus cyclamina
Prunus dasycarpa
Prunus Fenzliana
Prunus incisa
Prunus mandshurica
Prunus nigra
Prunus nipponica
Prunus Sargentii
Prunus salicina
Prunus Simonii
Prunus subhirtella and varieties
Prunus tomentosa
Prunus tomentella
Prunus triloba
Prunus yedoensis
Vinca minor and varieties

EARLY MAY

Acer saccharum
Alyssum gemonense
Amelanchier amabilis
Amelanchier canadensis
Amelanchier grandiflora
Amelanchier laevis
Amelanchier oblongifolia
Amelanchier sanguinea
Amelanchier stolonifera
Andromeda glaucophylla
Cassandra calyculata
Crataegus arnoldiana
Chaenomeles lagenaria and varieties
Cydonia oblonga
Cytisus Beanii
Cytisus decumbens
Cytisus elongatus
Daphne Cneorum
 (Dandelion)
Forestiera acuminata
Iberis Tenoreana
Ledum groenlandicum
Leitneria floridana

Lonicera canadensis
Lonicera coerulea
Lonicera gracilipes
Lonicera saccata
Magnolia salicifolia
Magnolia Soulangeana
Magnolia Soulangeana alba
Magnolia Soulangeana Alexandrina
Magnolia Soulangeana amabilis
Magnolia Soulangeana Brozsonii
Magnolia Soulangeana Candolliana
Magnolia Soulangeana rustica
Magnolia Soulangeana Norbertiana
Magnolia Soulangeana speciosa
Magnolia Soulangeana verbanica
Malus astracantha
Malus brevipes
Malus micromalus
Mahonia Aquifolium
Mahonia repens
 (Narcissus)
Nemophanthus mucronata
Phlox subulata
Prunus allegheniensis
Prunus americana
Prunus avium
Prunus cerasus
Prunus domestica
Prunus Fontanesiana
Prunus glandulosa
Prunus hortulana
Prunus incana
Prunus japonica
Prunus lanata
Prunus maritima
Prunus Maximowiczii
Prunus Munsoniana
Prunus orthosepala
Prunus Padus and varieties
Prunus Persica
Prunus serrulata (many double flowered forms start to bloom and continue for two weeks at least, depending on the variety, some being slightly earlier than others)
Prunus Slavinii
Pyrus amygdaliformis
Pyrus communis and varieties
Pyrus Michauxii
Pyrus phaeocarpa
Pyrus serotina
Pyrus salicifolia
Pyrus ussuriensis
Rhododendron canadense
Rhododendron obtusum amoenum
Rhododendron obtusum Hinodegiri
Rhododendron venustum
Ribes alpestre

- Ribes alpinum*
Ribes aureum
Ribes diacantha
Ribes Gordonianum
Ribes inebrians
Ribes irriguum
Ribes odoratum
Ribes orientale heterotrichum
Ribes pinetorum
Ribes robustum
Ribes setosum
Spiraea arguta
Spiraea chamaedryfolia ulmifolia
Spiraea hypericifolia acuta
Spiraea media
Spiraea multiflora
Spiraea pikoziensis
Spiraea prunifolia
Spiraea prunifolia plena
Spiraea Thunbergii
 (Tulips)
Vaccinium species
Viburnum alnifolium
Viburnum bitchiuensis
Viburnum buddleifolium
Viburnum burejaeticum
Viburnum shensianum
 (Violets)
Xanthorrhiza simplicissima
Zanthoxylum americanum
- MID-MAY
- Aesculus carnea*
Aesculus Hippocastanum
Akebia lobata
Akebia quinata
Alyssum gemonense
Alyssum saxatile
Amelasorbis Jackii
Aristolochia mandshuriensis
 (Aubretia deltoidea)
Berberis dictyophylla
Berberis Dielsiana
Berberis stenophylla
Berberis Thunbergii
Berberis vulgaris
Calycanthus floridus
Caragana arborescens
Caragana chamlagu
Caragana Maximowicziana
Cercis canadensis
Cercis chinensis
Coriaria japonica
Cornus florida
Coronilla emeroides
Cytisus praecox
Cytisus purgans
Cytisus purpurea
Cytisus ratisbonensis
- Cytisus Rochelii*
Cytisus scoparius
Cytisus triflorus
Daphne caucasica
Daphne Cneorum
Diercilla "Fleur de Mai"
Elacagnus multiflora
Enkianthus perulatus
Evonymus alata
Exochorda Giraldui
Exochorda Korolkovii
Exochorda macrantha
Exochorda grandiflora
Exochorda racemosa
Forestiera neo-mexicana
Fothergilla Gardenii
Fothergilla major
Fothergilla monticola
Halesia carolina
Halesia monticola
Kerria japonica
Lonicera alpigena
Lonicera microphylla
Lonicera muendeniensis
Lonicera muscaviensis
Lonicera syringantha
Lonicera syringantha Wolfii
Lonicera tibetica
Lonicera Xylosteum
Magnolia Fraseri
Magnolia liliflora nigra
Malus adstringens
Malus arnoldiana
Malus atrosanguinea
Malus baccata
Malus floribunda
Malus glabrata
Malus Halliana Parkmanii
Malus hupehensis
Malus prunifolia
Malus pumila
Malus pumila Niedzwetzkyana
Malus purpurea
Malus robusta
Malus Sieboldii
Malus Soularai
Malus spectabilis
Malus sylvestris
Malus zumi calocarpa
Pachysandra terminalis
 (Papaver orientale)
Potentilla fruticosa Friedrichseni
Prinsepia uniflora
Prunus angustifolia Watsonii
Prunus glandulosa and varieties
Prunus Grayana
Prunus insititia
Prunus Maackii

Prunus mexicana
Prunus Persica—double flowered varieties
Prunus pumila susquehanae
Prunus serrulata—several double flowered varieties
Prunus Sieboldii
Prunus virginiana
Quercus species
Rhododendron carolinianum
Rhododendron Fraseri
Rhododendron obtusum Kaempferi
Rhododendron reticulatum
Rhododendron Schlippenbachii
Rhododendron Vaseyi
Rhododendron yedoense poukhanense
Rhodotypos scandens
Rhus canadensis
Ribes fasciculatum
Ribes sanguineum
Ribes pinetorum
Rosa Primula
Sambucus pubens
Sibiraea laevigata
Spiraea canescens
Spiraea gemmata
Spiraea hypericifolia
Spiraea inflexa
Spiraea mollifolia
Spiraea oxyodon
Spiraea pubescens
Syringa hyacinthiflora and varieties
Syringa hyacinthiflora Lamartine
Syringa hyacinthiflora Mirabeau
Syringa hyacinthiflora Pascal
Syringa hyacinthiflora plena
Syringa hyacinthiflora Vauban
Syringa oblata dilatata
Syringa oblata Giraldui
Syringa pinnatifolia
Syringa vulgaris; with approximately 300 varieties it is impossible to list them here as "Early," "Medium," or "Late," though some might be so listed.
Viburnum Carlesii
Viburnum Lantana
Viburnum mongolicum
Viburnum Wrightii

LATE MAY

Acer Ginnala
Aronia arbutifolia
Asimina triloba
Berberis amurensis
Berberis Julianae
Berberis Vernae
Berberis verruculosa
 (Buttercup)
Ceanothus ovatus
Celastrus species

Chaenomeles lagenaria kermesina semiplena
Cornus alternifolia
Cornus controversa
Cornus stolonifera
Coronilla emeroides
Cotoneaster adpressa
Cotoneaster multiflora
Cotoneaster racemiflora
Crataegus Oxyacantha
Crataegus pruinosa
Crataegus punctata
Daphne Giraldui
 (Daylilies)
Deutzia candelabrum
Deutzia gracilis
Deutzia hypoleuca
Deutzia Lemoinei
Deutzia parviflora
Deutzia rosea and varieties
Dierzwillia—several species and many varieties
Elaeagnus longipes
Elaeagnus umbellata
Enkianthus campanulatus
Enkianthus deflexus
Fendlera Wrightii
Genista pilosa
Iberis sempervirens
Juglans Sieboldiana
Leucothoe racemosa
Lonicera amoena
Lonicera bella rosea
Lonicera charysantha
Lonicera Korolkovii
Lonicera Maackii
Lonicera Morrowii
Lonicera punicea
Lonicera tatarica and varieties
Lonicera Xylosteum
Magnolia cordata
Magnolia Soulangeana Lennei
Magnolia tripetala
Malus angustifolia
Malus bracteata
Malus coronaria
Malus coronaria Charlottae
Malus dulca
Malus glaucescens
Malus ioensis
Malus ioensis plena
Malus Sargentii
Malus spectabilis Riversii
Malus Scheideckeri
Malus toringoides
Neillia sinensis
Paeonia suffruticosa
Petteria ramentacea
Philadelphus hirsutus

Philadelphus Schrenkii
Photinia villosa
Physocarpus murensis
Physocarpus monogynus
Prunus Lannesiana
Prunus laurocerasus schipkaensis
Prunus pennsylvanica
Prunus serotina
Rhamnus cathartica
Rhododendron atlanticum
Rhododendron molle hybrids
 Albert
 Boule de Neige
 Daisy
 Duke of York (Fortunei hybrid)
 Mont Blanc
 Viola
Rhododendron gandavense hybrids
Rhododendron molle hybrids
Rhododendron nudiflorum
Rhododendron obtusum arnoldianum
Rhododendron obtusum japonicum
Rhododendron roseum
Rhododendron Smirnowii
Robinia Elliottii
Robinia fertilis
Robinia hispida
Robinia Kelseyi
Robinia Slavini
Rosa acicularis Engelmannii
Rosa Hugonis
Rosa spinosissima varieties
Rosa xanthina
Rubus deliciosus
Smilax rotundifolia
Spiraea blanda
Spiraea Blumei
Spiraea cantoniensis
Spiraea chamaedryfolia
Spiraea cinerea
Spiraea nipponica
Spiraea trilobata
Spiraea Vanhouttei
Spiraea Wilsonii
Staphylea colchica
Staphylea trifolia
Styrax Obassia
Symplocos paniculata
Syringa chinensis
Syringa Julianae
Syringa Meyeri
Syringa microphylla
Syringa persica
Syringa pinetorum
Syringa Potanini
Syringa pubescens
Syringa velutina
Syringa vulgaris and many varieties

Syringa Wolfii
Syringa yunnanensis
Tamarix parviflora
Thymus serpyllum
Vaccinium corymbosum
Viburnum affine
Viburnum erosum
Viburnum Lentago
Viburnum Opulus roseum
Viburnum rhytidophyllum
Viburnum rufidulum
Viburnum Sieboldii
Viburnum tomentosum
Viburnum tomentosum sterile
Viburnum trilobum
Wisteria floribunda and varieties
Wisteria sinensis and varieties

EARLY JUNE

Actinidia arguta
Buddleia alternifolia
Chionanthus retusa
Chionanthus virginica
Cladrastis lutea
Clematis glauca angustifolia
Clematis recta
Colutea species
Cornus alba
Cornus kousa chinensis
Cornus rugosa
Cotinus coggygria
Crataegus cordata
Crataegus crus-galli
Crataegus Oxyacantha Paulii
Daphne pontica
Decaisnea Fargesii
Elaeagnus angustifolia
Evonymus atropurpurea
Genista hispanica
Genista tinctoria
Helianthemum nummularium
Hydrangea petiolaris
Hydrangea xanthoneura Wilsonii
Idesia polycarpa
Ilex opaca
Jamesia americana
Kolkwitzia amabilis
Laburnum alpinum
Laburnum anagyroides
Laburnum Watereri
Leucothoe Catesbaei
Lonicera Maackii podocarpa
Lonicera minutiflora
Lonicera Ruprechtiana
Lonicera xylosteoides
Lycium species
Magnolia parviflora
Phellodendron amurense
Philadelphus Schrenkii

Physocarpus amurensis
Physocarpus intermedia
Physocarpus opulifolius
Potentilla fruticosa varieties
Pterostyrax hispida
Rhamnus Frangula
Rhododendron arbutifolium
Rhododendron calendulaceum
Rhododendron catawbiense
Rhododendron ferrugineum
Rhododendron gandavense hybrids
Rhododendron Catawbiense hybrids:
 album elegans
 album grandiflorum
 atrosanguineum
 caractacus
 C. S. Sargent
 Delicatissimum
 Everestianum
 F. D. Goodman
 Flushing
 General Grant
 Henrietta Sargent
 H. H. Hunnewell
 H. W. Sargent
 James Macintosh
 John Bateman
 Kettledrum
 Lady Armstrong
 Mabel Parsons
 Mrs. C. S. Sargent
 purpureum grandiflorum
Rhododendron minus
Rhododendron malle hybrids
Rhus Potanini
Robinia Hartwigii
Robinia Pseudoacacia
Rosa acicularis
Rosa arnoldiana
Rosa blanda
Rosa canina
Rosa foetida Harrisoni
Rosa foetida persiana
Rosa Helenae
Rosa multiflora
Rosa rugosa
Rosa spinosissima
Rosa virginiana
Rosa Webbiana
Rosa Willmottiae
Sassafras albidum
Sorbus aucuparia
Spiraea dasyantha
Spiraea trichocarpa
Staphylea pinnata
Styrax americana
Styrax japonica
Syringa Henryi varieties

Syringa Josikaea varieties
Syringa Komarovii
Syringa Komarovii Sargentiana
Syringa Prestonae
Syringa reflexa
Syringa Szeveginczovii
Syringa tomentella
Syringa villosa
Syringa Wilsonii
Syringa Wolfii
Viburnum cassinoides
Viburnum dentatus
Viburnum dilatatum
Viburnum Opulus
Viburnum prunifolium
Viburnum Sargentii

MID-JUNE

Amorpha fruticosa
Castanea pumila
Catalpa speciosa
Ceanothus pallidus rosea
Celastrus scandens
Colutea arborescens
Cornus Amomum
Cornus Bretschneideri
Cornus coreana
Cornus kousa
Cornus paniculata
Cytisus supinus
Deutzia scabra
Dierrevilla "Congo"
Diospyros virginiana
Evonymus europaea
Evonymus Fortunei vegeta
Gymnocladus dioica
Hydrangea Bretschneideri
Ilex glabra
Kalmia angustifolia
Kalmia latifolia
Ligustrum obtusifolium
Ligustrum obtusifolium Regelianum
Ligustrum vulgare
Liriodendron Tulipifera
Lonicera Brownii
Lonicera iberica
Lonicera japonica Halliana
Lonicera Periclymenum
Lyonia ligustrina
Lyonia mariana
Magnolia virginiana
Periploca sepium
Philadelphus coronarius
Philadelphus cymosus varieties
Philadelphus inodorus
Philadelphus grandiflorus
Philadelphus laxus
Philadelphus Lemoinei and varieties
Philadelphus maximum

Philadelphus pubescens
Philadelphus splendens and varieties
Philadelphus tomentosus
Philadelphus virginialis and varieties
Rosa arvensis
Rosa dahurica
Rosa Jacksoni
Rosa micrantha
Rosa multiflora cathayensis
Rosa Paulii
Rosa rugosa kamtschatica
Rubus allegheniensis
Sophora viciifolia
Spiraea Henryi
Spiraea Menziesii
Spiraea nipponica rotundifolia
Spiraea Veitchii
Symphoricarpos racemosus laevigatus
Syringa amurensis
Syringa pekinensis
Vaccinium stamineum
Viburnum acerifolium
Viburnum dilatatum hispidum
Viburnum erosum
Viburnum molle
Viburnum pubescens
Zenobia pulverulenta

LATE JUNE

Acanthopanax Sieboldianus
Acanthopanax senticosus
Actinidia polygama
Amorpha glabra
Cornus macrophylla
Cotoneaster salicifolia
Cytisus albus
Cytisus supinus
Diervilla "Eva Rathke"
Deutzia myriantha
Deutzia scabra varieties
Genista anglica
Halimodendron halodendron
Ilex crenata
Indigofera decora
Indigofera Kirilowii
Indigofera Potaninii
Itea virginica
Lonicera Henryi
Periploca graeca
Rhododendron arborescens
Rhododendron maximum
Rhus typhina
Rosa anemoniflora
Rosa carolina
Rosa damascena
Rosa multiflora
Rubus odoratus
Sambucus canadensis

Schizophragma hydrangeoides
Sorbaria sorbifolia
Spiraea brachybotrys
Spiraea bumalda
Spiraea latifolia
Spiraea pyramidata
Spiraea rubra
Spiraea tomentosa
Spiraea virginiana
Spiraea Watsoniana
Stewartia koreana
Tilia species
Tripterygium Regelii
Yucca glauca

EARLY JULY

Buddleia japonica
Castanea species
Cytisus nigricans
Diervilla "Congo"
Holodiscus discolor
Ilex verticillata
Indigofera amblyantha
Maackia amurensis
Rhus glabra
Rosa setigera
Spiraea Billiardii

MID-JULY

Aesculus parviflora
Amorpha brachycarpa
Amorpha fruticosa
Berberis aggregata
Catalpa ovata
Catalpa speciosa
Ceanothus americanus
Clematis Jackmani
Diervilla Lonicera
Hydrangea arborescens grandiflora
Hydrangea cinerea
Hydrangea paniculata praecox
Hydrangea quercifolia
Hydrangea serrata
Hypericum aureum
Hypericum Kalmianum
Koeleruteria paniculata
Lespedeza bicolor
Lonicera sempervirens
Rhododendron viscosum
Securinega suffruticosa
Sorbaria sorbifolia
Sphaeralcea remota
Spiraea alba
Spiraea albiflora
Spiraea Douglasii
Tamarix odessana
Tamarix pentandra
Yucca filamentosa

LATE JULY

Albizia julibrissin rosea
Aralia spinosa
Buddleia albiflora
Callicarpa species
Calluna vulgaris varieties
Campsis radicans
Cephalanthus occidentalis
Clethra acuminata
Clethra alnifolia
Hydrangea radiata
Hypericum prolificum
Indigofera pulchella
Ligustrum Quihoui
Lonicera involucrata serotina
Nandina domestica
Oxydendrum arboreum
Sorbaria arborea
Spiraea bumalda "Anthony Waterer"

AUGUST

Abelia grandiflora
Buddleia Davidii magnifica
Clematis virginiana
Clematis Vitalba

Evodia Daniellii
Hibiscus syriacus varieties
Hydrangea arborescens
Hydrangea macrophylla
Hydrangea paniculata
Hydrangea paniculata grandiflora
Hypericum Dawsonianum
Lespedeza Buergeri praecox
Lespedeza cyrtobotrya
Lonicera Heckrottii
Paulownia tomentosa
Polygonum Aubertii
Sophora japonica
Symphoricarpos vulgaris
Vitex Agnus-castus alba
Vitex Negundo incisa

SEPTEMBER

Clematis paniculata
Clerodendron trichotomum
Elsholtzia Stauntoni
Gordonia alata mohi

OCTOBER

Hamamelis virginiana

Rhododendron Notes

Rhododendron reticulatum (See page 206)

Under this name are grouped those plants which once carried the names of *dilatatum* and *rhombicum* but as no plant of any of these names has ever been common in cultivation here, the possible confusion is not so serious as if plants had been distributed under all three names! Apparently the confusion among the botanists rose from the fact that the plant is variable in many of its characters, and that no one botanist saw enough material to recognize the transition. All this was clearly pointed out in "A Monograph of Azaleas" by Rehder & Wilson (p. 83-87) and can be seen for oneself if a larger number of seedlings are raised from mixed seeds.

Seedlings grow quickly and well in their first year but develop into a twiggy bush rather slowly after that, with the pattern of growth familiar to those who have grown Kampfer's azalea from seed. Like this latter, the tendency is to make tall leaders which branch in more or less whorled branches bare enough in themselves, the growth going on to two-three feet before a great mass of flowering twigs has been developed on the laterals.

Here the early flowering begins before *R. mucronulatum* is out of flower but the plant seems less easily deceived into precarious flowering than that species. There is some variation in the flowering as related to the leafing out but in the main the flower masses are well ahead of the leaves.

A considerable number of plants have been raised from seed here in the hope, so far not realized, that among them might be some very pleasant color variations, perhaps even a few white forms, since whites have been reported. Relatively few of the plants have flowered as yet and the variations have not been very interesting, chiefly in the size of the flowers and the degree or intensity of the color. A few of the palest lavenders and one or two of the deepest magentas appear to be worthy of segregation, but it is probable that the entire mass will make a lovely early scene even should no special individuals appear.

The problem of using this species is essentially that of finding a place where its color masses will not conflict with others. Many people have no use for the color and so would not care for the plant but as it grows here, it makes a very welcome variance from the whites of early spireas, the greenish-yellows of forsythia, or the strong reds and pinks of chaenomeles.

Washington, D. C.

Rhododendron speciosum (See page 207)

Various notes about this species have appeared in our Journal but it was not until this season that a record photograph could be made. The plants were purchased in Georgia but have lived here for many years under the same conditions that suit our own native azaleas. Other plants collected in Georgia in areas where this species is



Lilian A. Guernsey

[See page 205]

Rhododendron reticulatum



Lilian A. Guernsey

[See page 205]

Rhododendron speciosum



Lilian A. Guernsey

[See page 209]

Rhododendron linearifolium

known to occur, have flowered only in part, but so far have turned out to be natural hybrids between *speciosum* and *canescens* which suggest some of the so-called Ghent azaleas.

The specimens observed in the wild are low shrubs and seem to occur most often on gravelly slopes with few trees and scattered underbrush. Like other azaleas of its tribe, it sprouts freely from the stumps if cut or burned over and flowers while quite small.

From the gardener's point of view, it is useful in combination with *calendulaceum* since here it is earlier than that species and provides as vivid a scarlet color as the best *calendulaceum*. If one has seen typical plants of *speciosum* with the very slender tubes to the flowers and a much more spectacular display of stamens, he as a gardener is not likely to be confused, although as a botanist he may need to whip out his hand lens to discover if the corolla tube is covered with "a short villous pubescence interspersed with pilose hairs" rather than "glandular hairs" such as mark *calendulaceum*.

It is probable that some day a wide collection should be made of the hybrids that exist in the wild and that the plant should be used again in hybridizing as doubtless it was once in the production of many of the Ghent hybrids. This last is, of course, more or less conjecture, but it is interesting to note that Sweet's "Hortus Britannicus" (1826) carries a considerable list of named varieties of *speciosum* which may or may not properly belong there.

The plant is figured in Curtis Botanical Magazine for 1792 (vol. VI t. 180), a volume that contains many other American natives (*Phlox divaricata*, *Kalmia latifolia*, *K. glauca*, *Cypripedium acaule*, *Lupinus perennis*, *Draconocephalum senticulatum* [now more properly *Physostegia virginica*], *Cypri-*

pedium album [now properly *C. spectabile*]). The late E. H. Wilson quotes this in his work already referred to but does not comment naturally upon the cultural advice which is as good now as then.

Washington, D. C.

Rhododendron linearifolium (See page 208)

For the gardener, the easiest description of this floriferous azalea would be to describe it as a rosy pink form of *R. mucronatum* with its corolla slashed into five linear segments. The gardener of course, would recognize in the name *R. mucronatum* the large-flowered white azalea of gardens that has had a great variety of names, such as *Azalea indica alba*, *A. ledifolia alba*, etc.

Like that species, the subject of our note makes a twiggy shrub up to about three feet high with a broader flattish top that displays the flowers to advantage. The hairy leaves are more or less evergreen, the oldest leaves dropping most freely in severe winters. The flower buds are sometimes destroyed under these temperatures, but injury to flowers more often comes when late spring frosts occur after the flowers are out of the protecting bud scales and partially developed.

The flowers are less showy than those of azaleas with normal corollas, but are quite showy enough to make a good display as they are carried above the leaves and not hidden as are those of the variety of *R. indicum* known as Kin-no-zai and illustrated in this Journal, July, 1937 (p. 194).

Seeds purchased from Japan under this name produced some plants that flowered like the species, but a certain percentage produced flowers with undivided corollas like those of *R. linearifolium* var. *macrosepalum*.

Washington, D. C.

A Book or Two

The Gardener's Day Book. By Richardson Wright. J. B. Lippincott Company, Philadelphia, 1938. 384 pages. \$2.50.

Those innumerable readers who delighted in *The Gardener's Bed Book* will open this with anticipation and not be disappointed, for it contains the same admixture of short pieces and long, of succinct advice and apparently airy persiflage. There is a paragraph or two for each day, with italicized bits between and a "long piece" for the closing of each month.

There are strange bits, cheek by jowl, in this volume that disclose the catholicity of Mr. Wright's reading and the agility of his active mind, as well as the diversity of his tastes and experiences. Most of it you will like, not much but very much indeed.

Alpine House Culture for Amateurs. By Gwendolyn Alney. Country Life Ltd., London: Charles Scribner's Sons, New York, 1938. 188 pages, illustrated. \$2.50.

This is a rather better looking book than Mr. Boothman's, but it is patterned more or less after the same inevitable structure and plan. One can have both books to advantage but of the two Mrs. Alney's gives a broader view of the present day practices of English gardeners whose Alpine houses are their pride and joy, and whose pots and pans of well grown plants make the flower shows an amazing sight.

The Alpine House. By Stuart Boothman. Rush & Warwick (Bedford) Ltd., Harpur Printing Works, Bed-

ford, England. 150 pages, illustrated. 5 shillings.

In gardening, sooner or later, one comes to the stage where he wishes that he could control every factor of nature, regulating sun and shade, wetness and drought, outwitting rain and wind. The Alpine house does this for the rock gardener, in so far as any one can ever outwit nature.

Mr. Boothman's book is written clearly and pleasantly, with a beginning instructive section and an encyclopedic part that goes from A to W, for no Z's confuse the scheme. Tables follow for those too lazy to read the very good text.

Among the illustrations, too great a number show campanulas, but as we like campanulas, we can't be as insulting as we often are.

Our Shade Trees. By Ephraim Porter Felt. The Orange Judd Publishing Co., New York, 1938. 187 pages, illustrated. \$2.00.

This is essentially a reference handbook. It is intended for use by people who have fine trees and care to keep them in health. It can be read through from cover to cover, but one probably will not do that more than once, coming back to it rather as giving an answer to particular questions.

Salads and Herbs. By Cora, Rose and Bob Brown. J. B. Lippincott Company, Philadelphia, 1938. 274 pages. \$1.75.

If one is fussy about the location of one's books upon his shelves, and prides himself that they show by their location something of their content, he

may move this volume more than once in the growing collection that has to do with herbs but it will doubtless come to rest nearer the cook book end of the shelf than elsewhere, since it is eating, not growing, that is the main issue.

After the abominable fashion of reviewers, the first pages are read with greater care than those that follow, and this reviewer is aghast to read on page 30, at the end of the discussion of lemon balm, "Balm is difficult to raise, hence seldom seen."

Here, alas, balm is difficult to exterminate, for it self sows with almost catnip-like prodigality, and so quite nastily, one wonders. But we, of course, have none of the distinctions so bravely set out on the jacket—no hand hewn beams, no shades of departed opera singers—so perhaps our balm fulfills its normal plebeian round.

On page 90 one finds the bit devoted to "Marigold," but there is never a word to suggest that this marigold is no marigold, but a calendula; that your "egg dishes" might have an odd taste if you used marigold in place of calendula.

So, retreating with perhaps unreasonable caution, the reviewer is tempted to urge that one follow these Browns with restraint and try their concoctions on that devoted member of one's family who is least likely to rebel if some present vagary produces a result not calculated in the first place.

Plant Hunter's Paradise. By F. Kingdon Ward. The Macmillan Company, New York, 1938. 347 pages, illustrated. \$3.50.

Kingdon Ward has written so much and so often of his plant hunting in the Orient that one follows agreeably each new volume as it appears. This time

the scene is Burma and the land beyond.

Like most other books from his pen, this is a travel book with stress upon the flora and fauna and the native people as they help or interfere. For most of us, it is that and no more, since most of the plants it records are not likely to find a place in our country, and so not much in our affections. Some, to be sure, will be cherished by those gardeners who keep rock plants and their kin in pans in the alpine house, and some will thrive in our Northwest, but for the most of us, they will remain plants of paradise and not for this life save in our imaginations.

Everyman's Wild Flowers and Trees.

By Miles Hadfield. E. P. Dutton and Co., Inc., New York, 1938. 384 pages, illustrated. \$2.00.

The title page reads in part, "Five hundred of the British wild flowers, trees, shrubs, grasses and ferns, described and illustrated, 384 in colour after Sowerby's British Wild Flowers, and 120 from line drawings by the Author."

This is designed, as the title suggests, for Everyman, and is worded and planned for him and no other. It begins briefly with chapters on The Parts of a Plant, Flower Types, and How Plants are Classified, all of which must be read before the book can be used by the lay reader. These should present no difficulty, since they are compact and clear with simple terms, good definitions and excellent diagrams.

Many of the plants included have no relation to our own flora, but this is no detraction to the pleasures of the book.

Annuals for Your Garden. By Daniel J. Foley. The Macmillan Company,

New York, 1938. 96 pages, illustrated in color. \$1.00.

The major portion of this attractive book is devoted to a series of paragraphs arranged in alphabetical fashion beginning with acroclinium and ending with zinnia and recording between these two most of the familiar and some of the less familiar annuals that should be known by the beginning gardener.

Each text has two portions, a descriptive paragraph which gives the visual image and another that gives brief cultural directions and remarks, clearly and pleasantly written.

The shorter introductory portion gives suggestions for the use of "Annuals in the Landscape," "Starting Annuals from Seed" and a report on "The All-America Selections" listing those plants that have won distinction since 1932.

Soilless Growth of Plants. By Carleton Ellis and Miller W. Swaney. Reinhold Publishing Corporation, New York, 1938. 155 pages, illustrated. \$2.75.

There has been so much talk of late about growing plants without soil that it is particularly fortunate that this volume should appear. It is written with particular clarity and should make plain to anyone the fundamentals of these practices. Chapter six "Special Chemicals" carries the discussion into several other fields, all of which should be understood by the veriest amateur and many of which can be brought to use by him in part if not entirely.

The Garden of Pinks. By L. H. Bailey. The Macmillan Company, New York, 1938. 142 pages, illustrated. \$3.00.

In format, this is similar to *The Garden of Gourds* which appeared in

1937. It has the same type of delightful black and white drawings and colored frontispiece. Chapters on "Insect and other Animal Pests of Dianthus" by P. P. Pirone add to the value of the book.

The opening chapter gives the personal data which has led to the writing of the book with a quotation from *The Garden Lover* which Dr. Bailey feels no one may have read. He is wrong but the quotation is a pleasant reminder for rereading.

The main portion of the book is devoted to a discussion of the six main groups of garden pinks, a chapter on rock garden pinks and the two chapters mentioned above. The book closes with an enumeration of species of *Dianthus* and a key to significant species. As Dr. Bailey has indicated that some of the text and various of the opinions will be altered in future editions, one may look upon this as useful for the present, and a first step in clarifying some of the problems that confront the gardener who buys a plant in good faith and finds it quite at variance from its true self as described in books. There are various bits that one might wish expanded, but that is often the case in good books.

Planning and Planting Your Own Place. By Louis Van de Boe. The Macmillan Company, New York, 1938. 290 pages, illustrated. \$4.50.

This is a valuable and useful book, planned with care and written with clarity. It meets the problem of condensing within one volume an amazing mass of material with considerable success.

The author is concerned primarily with the small place rather than the town home or the country estate. His work is the result of many years of

personal experience and has been fortified by the assistance of various persons whose help is acknowledged in the Preface. The problem is approached from the point of view of the landscape architect for the planning and carried over into the field of the home owner for the maintenance. It is recommended.

Flower Shows and How to Stage Them. By Adele S. Fisher. Richard R. Smith, New York, 1938. 176 pages, illustrated. \$5.00.

The flower show becomes a more complicated problem every year with astonishing invasions into the fields of architecture, pageantry, archaeology and Heaven knows what else. Confusion has often arisen because of a lack of understanding of the mechanics of organization.

The book is divided into parts—Flower Show Technique; Flower Shows of the Past; The Educational Viewpoint in Flower Shows. There are photographs, sketches, diagrams and all manner of illustrations. One has the feeling after reading the book that it is all rather elaborate and expensive, but one is grateful nevertheless for the definite data that it does contain.

Horticultural Programs and Horticultural Work. By Sarah V. Coombs. Office of the National Council of State Garden Clubs, Inc., 30 Rockefeller Plaza, New York, 1938. 32 pages. Twenty-five cents.

This booklet opens with a list of nineteen possible projects for a garden club. It continues with three questionnaires — Botanical, Horticultural, Cultural, for which both questions and answers are supplied. Some of the questions are the intriguing sort that allow more than one correct answer which always pleases the answerer,

and dismays the questioner unless he or she is fully awake! Three special projects are fully outlined and two more are added for good measure. Each can be used "as is" and also as a pattern for developing a project with another plant subject.

This is a grand book for program chairmen, but will mean work for members if its suggestions are really embraced.

The Gardener's Omnibus. Edited for the Massachusetts Horticultural Society by E. H. Farrington. Hale, Cushman and Flint, Boston, 1938. 886 pages, illustrated.

The author of the Foreword is at great pains to say that this is not an encyclopedia but is discreet enough not to venture a definition of an omnibus, and as this reviewer's experience with omnibuses in print has been slight, the book was opened with some uncertainty. Like the fictional omnibuses, the book is fat and heavy, with paper so thin and dull that scant justice is done the illustrations. The subject matter, newly written in part, but mostly gathered from Horticulture, touches all phases of gardening existent and most of the fringes.

The chief fault to be found, if there must be one, is the fact that much of the material is fragmentary. The organization is good, the sequences of thought and development excellent. In fact so much is good that one wants to find it all quite complete, even if then it would become an encyclopedia, which was not the intention.

The Gladiolus, 1938 Yearbook of the New England Gladiolus Society (International Edition). Secretary, Albin K. Parker, 93 Day St., Norwood, Mass. Regular membership, \$1.00. 232 pages, illustrated. Australia, Canada, Czechoslovakia,

England, Estonia, Germany, Hawaii, New Zealand, the Philippine Islands, Scotland, Spain, Tasmania, Trinidad are all represented in messages and short articles of varying importance but uniform interest, before page 62 where the United States takes up the theme—with comments on cultural practices and varietal opinions. The remainder of this useful volume is taken up with articles on nearly all of the main factors that confront the gladiolus grower whether amateur or professional.

Naamlijst van Coniferen. By P. den Ouden, Boskooische Handelsdrukkerij, Boskoop, The Netherlands, 1937.

This is a list of Latin names with the proper authorities, prepared by the author as a member of the Dendrological Society of the Netherlands in order "to give the nurseryman, trader and amateur gardener a practical list of Conifers with their different names and synonyms, as well as many common names in use." It seems to have been prepared with great skill to fulfil this purpose.

It is composed of several lists—first, a list of correct Latin names with authorities or origins; second, a list of names, for which the correct name is given in a second column; third, a section of common names, made in four

sections, with the Dutch, English, French and German common names followed by the correct Latin equivalents.

There is no descriptive matter in the book.

Hardy Azaleas. By Clement G. Bowers—Reprinted from the *Journal of the New York Botanical Garden*, New York, 1938. 24 pages, illustrated. 25 cents.

The first paper "Hardy Azaleas for Beauty of Form and Color in the Garden" is colored, as indeed are all the other papers, too much by the necessities of the audience to which it was first addressed. Particular stress is laid upon those species and clones, native and introduced, that are hardy to cold, and some of the strictures, such as that against *R. canescens*, would be out of order in the South.

The second paper "Cultural Notes on Hardy Deciduous Azaleas" is less affected by this geographic factor, but even some of the remarks about water available through midsummer would have a different significance here.

The third paper, "Observations of Hardiness in Ghent Hybrid Azaleas and their Allies" is the most valuable in that it brings to sharp attention that hardiness, in its common meaning of ability to withstand low winter temperatures, is not the most important factor in this group of plants.

The Gardener's Pocketbook

MIDWEST HORTICULTURAL SOCIETY NOTES

Gaillardia, Goblin

One of the choicest perennials being offered this year is a new variety of *Gaillardia grandiflora* called Goblin. It is the first really dwarf variety, growing only 12 to 15 inches high and compact in habit. Blooming profusely throughout the summer and autumn, it makes a remarkably showy edging plant for the perennial border, along paths or in the rock garden. I was never one to confine the rock garden to true alpines only. The flowers are large for the size of the plant, yellow bordered with deep red. There should be no difficulty in selecting dwarf edging plants this year with such novelties as *Cuphea* Firefly, rosy scarlet; *Nierembergia caerulea* (described in the April issue); and *Zinnia linearis*, bright orange, being offered.

Acer campestre [See page 216]

The Hedge Maple or English Cork Maple, *Acer campestre*, is one which is seldom seen in this country. It is a small tree growing about 20 feet tall in this locality, with rough bark full of fissures. I have heard it said that the wood is often beautifully veined. A native of Great Britain, it is usually described as a round-headed tree, although the specimen illustrated is distinctly pyramidal, the branches extending down to the soil. Since it stands pruning well and is slow growing and compact by nature, gardeners find it adaptable for hedges. Contrary to most maples, the 3 to 5 lobed leaves

are blunt, pubescent and light green beneath. The small handsome leaves are only 2½ to 3 inches wide and exude a milky sap when broken.

Where space is limited I see no reason why the Hedge Maple could not be used as a lawn specimen, the foliage assuming a brilliant yellow color in autumn. Another advantage is that this maple will tolerate a poorer soil than many of its relatives.

Lonicera Korolkowi floribunda

A shrub admirably suited as a specimen plant is the Broad Blueleaf Honeysuckle, *Lonicera korolkowi floribunda*. Its foliage is a peculiar shade of bluish gray seldom found among shrubs. This floriferous variety of the Persian Honeysuckle grows about 10 to 12 feet tall here and is wider in diameter, which indicates that it needs plenty of room in order to develop to its best. The leaves are broad-ovate, slightly pubescent above, more densely so beneath, usually rounded at the base with acute tips. In June the bush is covered with tiny pink flowers which form an effective contrast with the gray-green leaves. The upper lip of the corolla is divided to the middle or slightly beyond. As if Nature was not satisfied with this display, fall brings an equal abundance of brilliant red berries. This variety is being offered more frequently in recent years but is still far from common.

Dwarf Alberta Spruce [See page 217]

For anyone desiring a slow growing pyramidal little evergreen for use in a small formal garden or a rock garden, the Dwarf Alberta Spruce, *Picea*



Courtesy, The Morton Arboretum

[See page 215]

Acer campestre
Hedge Maple



Courtesy, The Morton Arboretum

[See page 215]

Picea glauca conica
Dwarf Alberta Spruce

glauca conica, would be a choice acquisition. Although introduced in the Arnold Arboretum in 1904, having been discovered in the Canadian Rockies by Mr. J. G. Jack, it is still comparatively rare and is listed by only a few nurserymen.

Its habit is very dense and compact—the thickly set branches coming just above the ground and tapering to form a perfect pyramid. At maturity it will probably reach a height of 5 feet, but this will take many years. The annual growth is only half an inch to an inch, which explains the rather high cost of a small tree.

The home owner seeking a formal evergreen for a restricted space could find nothing more desirable than a Dwarf Alberta Spruce. I would advise shading it from the winter sun to avoid burning of the needles.

ROBERT VAN TRESS.

Garfield Park, Chicago, Ill.

Gloriosa Rothschildiana and *G. superba* [See pages 219, 221]

The *Gloriosas* or "Glory Lilies" are among the most interesting and unusual of tuberous rooted plants, and deserve a much greater share of horticultural popularity than is accorded to them in the United States today. They have almost all the factors which go to make a well-liked garden subject: color, beauty, ease of culture and utility as a cut flower.

It is not generally known that *Gloriosa* lilies make splendid cut flowers and pot plants, but such is the case. A vase of either *G. superba* or *G. Rothschildiana* as shown in the accompanying photographs will be an object of distinguished attractiveness for more than a week when handled in the house with the same care given to ordinary cut flowers.

It is likewise not generally known

that strong *Gloriosa Rothschildiana* tubers may be planted out in the open garden border in northern states, after warm settled weather has arrived in May, and will bloom profusely in the late summer weeks. The writer has record of one bulb which produced 22 blossoms under similar treatment.

Gloriosa Rothschildiana, from East Africa, is the showier sister of the two best known species. It has flowers of yellow and bright scarlet, deepening to red lake as the blooms mature. There are reported yellow varieties. *Gloriosa superba*, also found in Asia, has orange shaded flowers, opening more or less yellow and deepening to orange brown as the flowers fade. They are not as large as those of *G. Rothschildiana*, but are produced in greater profusion, and the plants remain in good flowering condition over a longer period.

The flowers are very distinctive in the vegetable kingdom. They are almost sensationally breath-taking in beauty, spectacular in color. They resemble some of the more fantastic orchids, but have a grace and colorful charm exceeding most orchids by far. They have no perfume.

Gloriosas, it should be explained, are "bulb vines." They climb by tendrils on the ends of the leaves which clasp and hold firmly to any light material, as wire, bamboo sticks or strings. The tubers are unusual in shape, being mostly of the shape of the letters "L" and "V." Occasionally there are three armed tubers, and sometimes the tubers grow straight. These tubers make planting in small pots somewhat difficult, as the large sizes may be six inches or more in length for each arm. Three or four tubers may be planted in an eight or ten inch pot, with a little careful arranging.



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Gloriosa Rothschildiana

The tubers grow only from the buds or "eyes" on the ends of the arms. For this reason one has to handle the tubers as if they were glass, since the slightest slip will injure the eye on one or both of the arms, and they will not grow. The bulbs are usually shipped in fine peat moss or sawdust. They are planted flat in the soil, about three inches deep.

Gloriosa superba roots are exceedingly easy to handle because they grow only once a year, and are dormant the rest of the time. They may be started in pots from February to June or planted outside in warm climates and left undisturbed for years. After making the season's growth, the bulbs of this species go dormant, usually in October or November, and the vine yellows and dries up. In greenhouse practice it is customary to dry them off in their pots at this time, and store them in the dirt until spring.

Gloriosa Rothschildiana roots are much more temperamental, however, and will perplex the most skilful grower to handle a large stock of them uniformly. If the bulbs are planted in the late spring, they will bloom in a few weeks, and go dormant in early fall, only to start into growth again in a few weeks if not dug immediately. Even if dug and dried off properly after maturing the foliage, *G. Rothschildiana* roots will start to sprout in a few weeks unless stored at fairly low temperatures, which is not recommended. Nothing is known about the proper temperatures for storing the bulbs to hold them dormant and at the same time retain their vitality.

When the tubers start to sprout, it is best to plant them as soon as possible, although they may be held out of the ground a few weeks safely. After sprouting the tubers begin to wither and will dry up considerably

if held out of the ground too long. In other words, it is possible to grow *G. Rothschildiana* tubers two or even three times a year under some conditions, as in the greenhouse or in frost-free plantings outdoors.

The tubers renew themselves each growth or growing period, with both the aforementioned species. The new tuber forms at the end of whichever arm of the old tuber that grows. Usually only one of the arms will produce a vine, although occasionally both will grow. Sometimes one arm of a tuber produces a vine and the other a small tuber without any growth above ground, these small tubers so produced being often round or oval in shape. When planted the next season they will make good plants and normal tubers again.

Gloriosa superba sets seed readily and naturally in the open, and propagation from that source is easy. *G. Rothschildiana* can be increased by seed with equal facility except that it requires hand pollination to set appreciable quantities of seed. Cross-pollination between different plants in bloom seems to set more seed than self-pollination.

The seeds are not large, being about the size of grape seeds, and should not be planted for several months after harvesting. This period of ripening seems necessary for the seed to obtain the best germination. In any case, the seeds will take their own sweet time about coming up. Some will sprout in six weeks, and in six months there will still be a few just starting, while the first comers have already ripened their foliage and matured their baby tubers.

Any good garden soil suits *Gloriosas*. For potting, a soil about one half sandy leafmold and one half garden loam is good, with the addition



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Gloriosa superba

of some coarse sand. The tubers do not require much fertilization, although they will respond to good treatment. Manures should be used with caution. The writer has seen giant plants produced on rich soil, 10 feet or more high and with flowers six to eight inches across, while the tubers were as long as the forearm and as thick as one's wrist. These of course were exceptional.

These bulbs were first extensively grown in the United States by Dr. Henry Nehrling of Gotha, Fla., and Mr. Theodore L. Mead, of Oviedo, Fla., late pioneer horticulturists of the Southeast.

Seeds may be started in a sandy leafmold soil in flats or pots, and the first tiny tubers allowed to ripen without disturbing the flats. The next season the tubers will make blooming size growth. *Gloriosa superba*, in the writer's experience, will flower from smaller roots than *G. Rothschildiana*. The tubers of *Gloriosas* require very good drainage conditions.

Gloriosa virescens, *G. Plantii*, *G. Leopoldii* and a plant known as *Gloriosa "Roehrsiana"* are available in the trade in the form of seeds or tubers in Europe, Africa and America. *G. virescens* is reported to be a small version of *G. Rothschildiana*, while *G. Leopoldii*, from the colored botanical plates, is a showy yellow orange type, and *G. Plantii* is reported to be more orange to orange-red. There are other "bulb vines" of similar nature which should be well worth trying more extensively in America, as *Littonia modesta* and *Sandersonia aurantiaca*.

WYNDHAM HAYWARD.

Winter Park, Florida

Hippeastrum rutilum var. *crocatum*
[See page 223]

Hippeastrum rutilum variety *crocatum* Herb. is representative of the sub-

genus *Lais*, another group of this tropical genus. The group as set forth by Baker in the "Handbook of the Amaryllideae" is characterized by lorate leaves, a short perianth tube not closed in at the throat, and a trifold stigma. Only three species are included in this section by Baker: the variable *H. rutilum* Herb., *H. vittatum* Herb., and *H. breviflorum* Herb. A careful study of *H. rutilum* in its several varieties may yield other valid species, when modern methods are employed. However, until such a study is available, it seems best to follow Baker's treatment.

Hippeastrum rutilum crocatum appeals to the author as the most attractive hippeastrum that has been illustrated in this magazine recently, excepting possibly *H. aulicum*. Both the color and the form of the flowers vie for the honors in a description. Baker calls the color saffron, but bright orange seems more descriptive. According to Ridgway, it is between Flame Scarlet and Mars Orange. At any rate, it is a brilliant, effective color, one that is rare in hybrid hippeastrums. The throat and the lower half of the midvein of each segment is light yellowish green (Cosse Green), in no way marring the general color effect.

The pert flowers, so saucily flaunted atop a tall stalk, are appropriately complementary to the bright and gay color. Much of its appeal is unavoidably lost in a black and white reproduction. Part of the effect is due to the tilt of the blossoms on the pedicels, but much more is due to the shape and arrangement of the perianth segments. The inner three segments are similar, as are also the three outer ones. The inner ones are appreciably narrower; otherwise, both whorls are much alike. In one respect, these flowers differ from those of most other



Lilian A. Guernsey

[See page 222]

Hippeastrum rutilum crocatum

hippeastrums. The uppermost segment, an outer one, stands noticeably alone, forming a sort of upper lip. The others are grouped together, making a large lower lip. As the illustration shows, the segments are all much waved and crisped along the margin, so much so that the tips are conspicuously twisted.

The segments of the perianth are about four inches long, and those of the outer whorl are little above an inch wide. The perianth tube is quite short, and the segments flare rather abruptly from the throat. The pedicels are about three inches long, slender, but strong enough to hold the blossoms without bending. The peduncle is quite tall (about two feet), but not particularly stout. From two to four flowers are produced in the umbel.

The leaves were only about half mature when our plant flowered in late March. At maturity, they are about 18 inches long, and about 2½ inches broad. They are notable for their flat surface, almost complete absence of a midrib, and for their almost leathery nature. Their bright glossy surface is another characteristic.

The bulbs are large, attaining a diameter of above three inches. They are almost flat on top, and hence, practically neckless. They are distinguished further by the green coats, browned only at the tip of the old leaf remnants.

The variety *crocatum* may be distinguished from the bright crimson type by its color, by the more undulate segments, the larger leaves, and the taller stem. From the scarlet variety *fulgidum*, it may be separated by its color and the smaller, more undulate segments of the flower. The other varieties likely to be seen: *citrinum*, bright yellow, and *acuminatum*, pale

pink with very acute segments—should be easily identified.

If one judges by appearance, it seems that neither the color nor the form of *H. rutilum crocatum* has been popular. Certainly, there are no visible indications of its being used in hybridization. One wonders why.

Under the name *Amaryllis crocata*, our plant is illustrated in Botanical Register, t. 38, 1815. Under the accompanying remarks may be found the following: "It is said to have been found in the Brazils by Mr. E. Woodford, and received by the way of Lisbon by Mr. Griffin, with whom it flowered in the dry-stove of his garden at South Lambeth in May last, for the first time."

To the author this is one of the worth while hippeastrums, one he hopes to admire often. It should be a splendid sight in its native setting. Here, it seems a fitting symbol of Latin America in a gay, carnival mood.

CLAUDE HOPE.

Hippeastrum organense [See page 225]

Recent issues of this magazine have carried illustrations of three species of *Hippeastrum* belonging to the subgenus *Omphalissa*: *Hippeastrum aulicum*, 17: p. 155, April, 1938; *H. psittacinum*, 17: p. 168, April, 1938; and *H. calyptatum*, 16: p. 272, October, 1937. The flowering of *Hippeastrum organense* Hooker at Washington in late March makes possible the treatment of still another species of the same subgenus.

At first glance, our present plant shows little resemblance to those other species; indeed, it is included in this group only by virtue of its lorate leaves, its short-tubed perianth, closed in at the throat by a distinct neck, and



Lilian A. Guernsey

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Hippeastrum organense

its trifold stigma. Yet because of this technical similarity, it first was described as *Amaryllis aulica* var. *glaucophylla*. Under that name it was beautifully illustrated in the Curtis Botanical Magazine of 1830, t. 2983. Later, in the same magazine, 1841, subtable 3803, Hooker raised it to species rank, a position it undoubtedly deserves. Prior to Hooker's statement, however, it had been illustrated in Mrs. Edward Bury's superb Selection of Hexandrian Plants (t.9) (1931-34), as *Amaryllis correi*ensis. One other name has been given to the plant: *Amaryllis Gardneri* Seubert.

In the company of the three above-mentioned species of this group, *Hippeastrum organense* seems like a poor country cousin in some respects. It lacks the stately splendor of *H. aulicum*; it has none of the robust growth of *H. calyptratum* or of *H. psittacinum*. However, in the size of the flower, the length of the peduncle, and in the amount of foliage at flowering time, there is a better balance than in many hippeastrums. This, alone, sets it apart from its fellows. Another distinguishing feature is the purplish color of the leaves, diluted by a rather heavy bloom.

At first glance, the flowers somewhat resemble those of *H. reginae*, although there are several distinguishing characteristics. The tube of the perianth is about a half-inch long, funnel shaped, greenish, with a small green corona in the throat. From the tube the 5-6 inch perianth flares, trumpet-like, with only the tips of the segments recurving slightly. As the illustration shows, five of the segments are of approximately the same size and shape. The sixth one, the lowermost, is distinctly narrower and stands somewhat apart from the others. The color is rich crimson (between Nepal Red

and Brazil Red) on the expanded portions, broken only by the Maroon network of veins, and by the Lettuce Green of the midveins. The color of the midveins persists to within an inch of the tip of the segments. The throat is of the same green, with lines of Maroon separating the bases of the midveins. The filaments and the style, Nepal Red in color, except for the green base, are almost as long as the segments, and, of course, are all declined.

The peduncle is moderately stout, varying from 1 to 1½ feet in height. It is Vinaceous Purple in color, and consists of a combination of heavy bloom over a purplish surface. Usually only two flowers are produced, carried on pedicels two to three inches long.

The leaves, usually six in number, are small for this group of hippeastrums. They seldom attain a greater length than 15 inches, nor a greater width than 1½ inches. They are distinctly purplish in color (practically purple at the base) and conspicuously glaucous.

The bulb is seldom more than three inches in diameter. It is flattened globose in shape, and is clothed in the brownish papery bases of the old leaves.

Hippeastrum organense is a native of southern Brazil, and was first collected at an altitude of 4,000 to 5,000 feet in the Organ Mountains, from which, of course, it derives its specific name. The first bulbs recorded in England were sent in by Mr. William Harrison to Mrs. Arnold Harrison, Aigburgh, near Liverpool. It is a rare species, and apparently little, if any, use has been made of it in hybridization.

CLAUDE HOPE.

Washington, D. C.



J. Marion Shull

[See page 228]

Hippeastrum equestre

Malva crispa

Not many annuals are grown for foliage effects. The curled mallow is one, however, that might be so used particularly in the background or as a screen. Its height varies from four to eight feet, depending on richness of soil in which it is grown; a straight stem without branches but amply clothed with large, round leaves with crisped and curled margins. Bailey's Encyclopedia mentions their use for garnishing dishes. They would be an aid and comfort in making floating flower arrangements. The flowers are inconsequential and nearly hidden close to the axils of the leaves.

BERNARD HARKNESS.

Baraboo, Wis.

Flower Show to be Held in Lima, Peru

In the morning newspaper, "La Prensa," of Lima, on May 25, 1938, it was announced that a National Flower Show will be held in Lima in September, 1938. The announcement was issued by Dr. José G. Robles, president of the Guild of Flower Growers and Horticulturists, who was quoted as saying that the contemplated exposition will be the first of its kind ever held in Peru. The month of September has been chosen because it is a spring month in this latitude and also because the anniversary of the founding of the Gremio, or guild, falls in that month. Official cooperation of the Governmental authorities will be sought and all floriculturists both professional and amateur will be invited to participate. It is hoped that a particularly complete display of all the orchids known in eastern Peru may be arranged.

It is probable that early knowledge of the planned exhibition will be of interest to American flower and garden

societies, tourist agencies, floral publications and to exporters of seeds, bulbs, fertilizers and garden and horticultural implements.

Particulars regarding the plans for the fair, which have not yet been formulated, may be obtained later from Sr. Don José G. Robles, President del Gremio de Floricultores y Horticultores, Calle Tigre No. 173, Lima, Peru.

From Homer Brett, Consul General, Lima, Peru, dated May 25, 1938.

Hippeastrum (Amaryllis) equestre, Barbados Lily. [See page 227]

Although not a true *Amaryllis* this plant is much more likely to be cataloged under that name than under its own more correct botanical cognomen, *Hippeastrum*. Just why the name should present such a strange derivative significance seems to be in doubt. The Greek "astron" is sufficiently warranted by the central star of greenish white in a flower otherwise approaching vermilion, but it is far from clear why either Latin "equus" or its Greek equivalent "hippos" should have been used. Even the supposition that the two spathe valves at the top of the scape suggested the ears of a horse calls for more than the usual amount of imagination, but we need not fathom the semantics involved to appreciate the value of this *Hippeastrum* as a house decoration.

Those of us who do not worship at the shrine of mere bigness are likely to prefer it to the gross stiffness of the *Vittata* hybrids more universally offered for sale, but whose huge size and rigidity make them about as eligible as parlor ornaments as would be the original of Rosa Bonheur's Horse Fair. These immense hybrid blossoms seem only suited to the

show bench or the enormous display windows of some great department store.

Hippeastrum equestre is much more graceful in its carriage, and the ability to carry many stems in one good-sized pot makes for a decorative value not found in the larger sorts. Its flowers are by no means diminutive even so, for when well grown they may reach a six-inch diameter with four flowers at the top of a scape two feet in height. The ten-inch lily-pan culture here shown threw eleven stems with a total of thirty-three blooms, presenting bloom continuously from February 2 to March 7. A second pot (9 inch) with eight stems, began March 3 and kept up the procession till March 21 and the advent of blooming things out of doors.

Culture of *Hippeastrum equestre* is very simple and will afford little satisfaction to the window gardener who just must work with difficult or pest-ridden subjects in order to feel the thrill of triumph that is derived from accomplishing the all but impossible. They do call for rich soil, say two-thirds good garden loam with a third of thoroughly rotted manure, but given this they will thrive for many years with ordinary care.

Being an evergreen variety no effort should be made to dry off the pot altogether, nor should the plant be exposed to hot sunshine during the summer. The specimen here illustrated spent the previous growing season on a porch rail where no direct sunshine reached it at any time, the only attention required being the normal watering that all plants need. On approach of freezing weather the pot was placed at a basement window and water withheld for a couple of weeks. This is sufficient to harden off growth without affecting any but

a few of the older leaves which turn yellow and are removed. The pots are then kept moderately watered until new growth is evident. Soon the blossom buds appear and the pot is brought into a sunny window at ordinary room temperatures and watered freely. The first watering after the rest period may be done most effectively by setting the pot in a vessel of water as hot as the hand can bear and allowing for a thorough soaking from below. Bud stems will slant strongly toward the light and the pot must be turned half around several times a week till the flowers are ready to open. During this period of bud development the ambitious gardener would probably give reasonable applications of liquid fertilizer, but the pot here illustrated has had no such pampering.

When the flowers are gone and danger of freezing is over the pots will again go onto the porch ledge and start the round all over in preparation for the next year's bloom. They will bloom all the better for a certain amount of crowding and a ten-inch lily-pan may well be started with three to five bulbs well spaced and remain so for five or six years without separation. When the pot becomes fully occupied with ten or so blooming size bulbs it is just as well to pluck out the small bulblets that continue to come and keep the pot stabilized at that point for several years, or as long as they continue to bloom freely. When crowding does finally become too great, or it is desired to redistribute the bulbs, separation may be done at the close of the resting period, setting the separated bulbs into new soil and bringing them at once into active growth by proper watering, heat and light.

J. MARION SHULL.

Chevy Chase, Md.



S. Pott

Campanula Piperi

Campanula Piperi and *Viola Flettii*
[See pages 230, 231]

These are two of the outstanding plants endemic to a confined area in the Olympic Mountains of Washington.

It has been my ambition since first collecting them over ten years ago, to establish these treasures.

After all this time by trying different ways and means I have succeeded. What a difference there is between having a plant that just lives and one that not only lives but gives of its best. So many times do we see this. We know in our hearts that

a plant is really only existing, flower it will, but as for growing as nature intended it to do that is a different matter.

There is such a wonderful satisfaction in achieving an almost impossibility, except under expensive construction.

Instead of building the usual layers of material that I do for the general run of alpines I partitioned off an area two feet deep with a surface measurement of five feet by seven feet. This depth brought me to a sandy clay bottom. This I filled with a mixture of half oak leaf mould and



S. Pott

Viola Flettii

half riddled old sods, thoroughly mixed with three times its bulk of crushed granite. The granite consisted of pieces almost the size of good sharp sand to as large as three fourths of an inch.

When this is washed down with a good force of water through a hose no soil at all is in sight. The soil is there nevertheless, just under a covering of the granite chips. When planting I only pry apart the mixture, insert the plants and thoroughly water them in.

To the novice it looks as though there was absolutely nothing for the thread like roots of the campanula

nor the long roots of the viola to live in. It is surprising how little they do require.

The pictures only show individual plants. It was necessary to take a close up of single plants to emphasize. There are many much larger groups of the campanula but only one viola was in flower and the other campanulas are still in bud. It is so difficult to get hold of a photographer at the psychological moment.

The question of water is easy. This scree I will call it, is watered any way convenient. It makes no difference whether a sprinkler is used or hand watered with a plain hose.

Plenty of water is used, the plants have never been allowed to dry out.

Anything seeds itself in this scree. Yet to look at it one wonders where the soil is wherein a seed could germinate. A close look shows a seedling cheiranthus lower left of the campanula.

To conclude I might add that I have *Collomia debilis*, that prevaricating *Pentstemon Crandallii*, and *Aquilegia brevistyla* doing far better in this scree than in the beds that I made for them.

NORMAN W. F. RANT.

More About Nierembergias

Ever since I awakened to the fact that there were other species of this genus than *rivularis*—an awakening which was due to Farrer's description of *frutescens* in The English Rock Garden—I have been keenly interested in obtaining any and all species of the group; I was pleased, therefore, to read Mrs. Fox's article in the April issue. However, my experience has in some cases been at variance with hers.

N. frutescens with me, in the sandy soil of southern New Jersey, is a reliable perennial, growing into three foot high shrubby bushes which are like "a fine spraying Flax-bush with bigger, blue-white flowers, darkened at the eye and delightfully abundant through the summer," to quote Farrer. They flower continuously from mid June until hard frost; whereas seedlings do not begin to bloom until early August, no matter whether they were raised in a cold frame or self sown. It scatters its progeny profusely about the area in which the original plants grow so that seedlings are weeded out after an ever widening circle of its friends have been supplied. How the plants can con-

tinue to flower so profusely for a period of over four months and yet ripen seed is more than I can understand. But although it self sows so plentifully I have never been able to collect seed; it is as though the green seed vessel ripens and disperses its seed the moment one's back is turned. My first plants were raised in the spring of 1927 and were given no winter protection at any time; they passed through the first two of those terrible winters early in the thirties but succumbed to the less snowy one of 1933-34, but their offspring have carried on ever since. Probably with slight and dry protection Mrs. Fox will find they will prove hardy with her in her northern garden.

There is a most desirable variety, *N. f. var. atro-violacea*, which I obtained from Mr. Robert Manda, who had received a few pot grown plants from California. It did not live through its first winter, 1931-32, but was so lovely that I should like to have it again. While the blossoms were not quite the size of those of the type they were a soft blue-violet with dark violet veins which formed a dark violet star at the base of the corolla in strong contrast with the yellow of the throat. I watched for self sown seedlings but none appeared. Bailey says it reproduces well from seed, but I have never seen it listed.

Mrs. Fox makes several valuable suggestions as to combinations to which I should like to add the association of the yellow and yellow-orange montbretias blooming through a cloud of the pale blue-white stars of *frutescens*. I have also found this plant useful in plantings of tall bearded iris where it continues the flowering season in an otherwise barren area; as the foliage is so light and the growth so open *frutescens* casts

but little shade over the ripening iris rhizomes.

Twice I have had seedlings of *N. fruticosa*, which in its early stages looked like *frutescens*; but both times disaster brought them to an early death, so I cannot speak of their bloom. Bailey lists it as a horticultural synonym of *frutescens* but the catalogue from Thompson and Morgan gave a difference both in height and size of flower. However, this firm no longer lists this plant, so I suppose they are one and the same.

N. caerulea is the correct name for *hippomanica* of catalogues, which is an altogether different plant. This correction was made in the Botanical Magazine in 1937, t. 9473 and reads in part, "*Nierembergia caerulea*, Gillies. A compact perennial from Cordoba, Argentine, up to one foot high, with small linear leaves and cymes of flowers—up to one inch in diameter, deep bluish-violet within, paler without. . . . It has been erroneously distributed at *N. hippomanica*, from which it differs in its larger size, its longer leaves and its violet, not rose, flowers." Thomas Hay, who introduced the plant into cultivation, in his *Plants for the Connoisseur* makes this correction; but Sampson Clay in his *Present Day Rock Garden*, written prior to 1937, adds to the confusion by mixing the two species and failing to note the rose-colored flowers. Would there could be some sort of a clearing-house for plant names to pass upon their validity before they were passed on to the general public. As long as we are correcting the name it should be noted that the diphthong is *ae* and not *oe*, as written in *HORTICULTURE*, May 15, 1938, page 227.

With me *caerulea* germinates rather poorly. I first tried it the year

Thompson and Morgan offered it the first time and got three plants only from the packet of seed. One of these was taken down to Mr. Morrison and still flourishes in his garden, where it grows in partial shade. The other two were planted in the sandy soil of southern New Jersey in full sun, where they shortly gave up the ghost; lack of proper watering during my absence may have been the cause, but I am inclined to think this plant does not want full sun, for each year since I have attempted to establish it in full sun and have always met with disaster. This year, in order to establish all the species I could get in the clay soil of a new garden in Newark, N. J., *N. caerulea*, *frutescens* and *calycina* were sown in the same seed row of the cold frame, and while the latter two germinated almost to a seed, *caerulea* produced five plants only and they were very slow in making an appearance. This time the plants have been placed in semi-shade.

Mr. Clay lists several other species which seem very attractive, but where may seed be obtained? The only other species I have ever seen listed is *N. calycina*, which Thompson and Morgan describe as growing a foot tall with "flowers white tinted with lavender." My three months old seedlings show a laxer and more fragile stem than *frutescens* of the same age and are only seven inches tall, whereas the other plant is twelve to fifteen inches high; I can see no difference in size or color of leaf. At this writing, July 8th, one plant of *frutescens* is contradicting my statement regarding seedlings not flowering until August by opening its first blossom today; none of the other plants show buds nor does *calycina*. Bailey does not list this name in the *Cyclopaedia*,

but in Hortus gives it as a synonym for *N. gracilis*. Nicholson lists both names as distinct species and so does Johnson's Gardener's Dictionary. In the former the descriptions are quite complete and claim the plants to be quite distinct in flower, height and manner of growth; so I am eagerly awaiting the flowering which in *calycina* Nicholson states is September.

This spring I received plants of *N. Veitchii* from Mr. Ivan Anderson, who tells me they have been quite hardy with him in his Arlington, Virginia, garden. It is a delightful little plant which would be in place in the choicest rock garden or at the front edge of the border which has a rock edge. It grows up to a foot high but most of its fine twiggy stems sprawl out over the ground in an open lacy mass which suggests its use as a ground cover for choice autumn crocuses. I have not had it long enough to say how large an area it will cover, but I am sure it will never be intrusive. I am praying that it prove hardy with me, but am afraid that will be an impossibility, as both Nicholson and Bailey refer to it as a greenhouse perennial and as coming from tropical America. The flowers are very much like those of *frutescens* except that the corolla tube is much longer, up to three fourths inch in length, and they are darker in color. It has been blooming continuously now for much over a month and is supposed to go on until cold weather. The leaves are smaller, both shorter and narrower, and of a gray green.

ALFRED BATES.

Two New Violets for the North [See pages 234, 236]

Violets and pansies are so universally grown and loved that mention of a new and superior species should

be welcome, particularly by northern gardeners. This should be all the more true when the violet concerned happens to belong to the well known and widely used Tricolor group.

To a few gardeners, perhaps, *Viola munbyana* Boiss. and Reut. may not be new, for it has been offered by one or two firms as a rock-garden plant. Certainly, it is not generally available. To say that a plant is new in America indicates nothing of its true horticultural age. Hence it is not surprising that *Viola munbyana* was illustrated in Wm. Robinson's English Flower Garden as early as 1883, and in Wiener Garten Zeitung and in Revue Horticole in 1884. It is again mentioned in Revue Horticole in 1897 and 1906.

As mentioned above, our violet belongs to the subgenus *Melanium*, otherwise known as the Tricolor group. Its close relatives include *V. calcarata*, of the Central European Alps, *V. Tricolor*, and *V. cornuta*; of these, *V. calcarata* is considered the closest. *V. munbyana* is a native of the mountains of Algeria and possibly of Spain. It is named in honor of M. Munby, author of a flora of Algeria.

In growth habit, it most resembles *V. Tricolor*, and is as vigorous as the wild forms of that species. Often stems reach a length of 24 to 30 inches. As numerous stems are developed from each crown, the result is a mound of growth 15 to 18 inches in diameter, and about a foot high. As one might expect, the lower half or two-thirds of the stems lie on the ground. The internodes are about two inches long, so that the growth is relatively compact.

The plants under observation were grown under glass in an unheated pit-house from seeds sown in the spring



Lilian A. Guernsey

[See page 234]

Viola Munbyana

of 1937, so that perhaps their growth has been more vigorous, and perhaps less compact than might have resulted out of doors. The first attempt at flowering was made in midwinter, but it was February before any normal flowers were produced. From that time they have been in heavy flower and even now (mid-June) show no signs of resting. One could scarcely ask for a longer season. A flower has been produced from almost every node on every stem, so one could hardly ask for a greater quantity of flowers. Doubtless, out of doors, in this climate, it would not have been so generous.

As its habit is so acceptable, so is the quality of the flowers. Standing erect on stems often 6 to 8 inches long, the flowers measure a good 1½ inches across and 2 inches vertically. The color is almost uniformly Haematoxylin Violet on the four upper petals and creamy white marked with lines of deep purple violet on the basal two-thirds of the lowest petal. The tip of this petal is the same Haematoxylin Violet fading gradually into the white area. An Empire Yellow eye gives a bright touch of contrast. In the fully spread flower, the face is almost perfectly flat. As is usual in this group, there is only a slight fragrance.

The cultural requirements seem not to differ from that of *V. cornuta*, or of *V. Tricolor*, or of the pansy. Like those, it is quite hardy at Washington, but it is doubtful if it will survive the summers except in cool situations. Certainly, it likes plenty of sun, and without it, will be stringy and weak. Farther north, it should find conditions more to its liking, and should make a satisfactory perennial.

The other violet under consideration is *V. florairiensis* Hort. and be-

longs to the same group as the two above. It is supposed to be a hybrid of *V. calcarata* and *V. cornuta*, originating in Floraire, the garden of Dr. H. Correvon, near Geneva. In *Gardener's Chronicle*, 47: p. 314, 1910, it is described as an ever-blooming plant, flowering in Floraire throughout the year. However that may be, it is strikingly similar to *V. munbyana*, as may be seen from the illustration. On the whole, it seems a little inferior; certainly, from the garden standpoint, one does not need both. Grown under glass under the same conditions, it has shown a shorter flowering period, both beginning later (March 1) and now evidently is approaching the end. A close inspection reveals differences of degree only. The flowers are smaller; the stems are shorter; and the color is slightly lighter (Bradley's Violet on the four upper petals; Soft Bluish Violet on the lowest one).

It is hoped that in the near future, it will be possible for gardeners to obtain one or the other, or both, of these handsome, cheery violets, to introduce a new note in their gardens.

CLAUDE HOPE.

Washington, D. C.

Melasmaerula graminea [See page 239]

It is not often that one yields to curiosity and orders a small bulb or two because the description sounds intriguing rather than because one knows anything about the plant. Sometimes the surprises are pleasant, sometimes merely surprising. This plant is rather of the latter class.

The corms themselves proved nothing—merely pretty affairs that suggested *babiana* or *ixia* or some such. The foliage promised little more, merely a short *montbretia*-like fan from which in time rises somewhat uncertainly the

*Lilian A. Guernsey**Viola flourensii*

[See page 236]

flower stalk. This seems quite undecided as to its direction which may be fairly ascending or almost lateral. Various branches, some of which are branched again, leave the stalk at pleasant angles but all droop and twist quite as uncertainly as the main stem. The flowers, which are white the first day, depend from the two green calyx-like bracts. The second day the flowers are creamy yellow, the third dull yellow, much the same color sequence to be

observed in Japanese honeysuckle. The flowers themselves are 6-parted, each segment with a long acuminate tip. The general effect of the whole stalk is something like that of one of the less decorative thalictrums, interesting but never quite living up to its promise.

Planted in the cool house, where freesias have succeeded, this has shown no unhappiness and is now setting seed or at least maturing small three-celled capsules.

Quoting from *Curtis Botanical Magazine* [Vol. XVII t. 615 (1803)]:

"Found by Thunberg at the Cape of Good Hope, on the Groenekloof hills, and near Bergrivier; introduced into Kew Gardens by Mr. Masson in 1787. The generic name we have derived from *melas* (black) and *sphaeros* (a globe), in allusion to the color and form of the bulblet produced on the stem, as mentioned and figured by Jacquin. In the capillary tenuity and elastic tremulousness of its branches, it reminds one of the quaking-grass *Briza*."

In the figure the flowers are shown with purplish mid-veins on each segment and more or less of a purplish flush, neither of which show in our plants.

Notes on Snowdrops.

Elwes' snowdrops, once established, show a considerable range of flowering from early winter onwards with flowers for Thanksgiving no unusual happening. Its main bloom, however, comes in the earliest spring weather, be that late February or early March. It is one of the broad-leaved species with foliage that shows at the time of flowering, modestly enough, but that develops with the season until it looks almost like the leaves of young tulips, except for its more glaucous color and somewhat different shape. The flowers are large and rather plump as compared with those of the common snowdrop, pure white with patterned markings of green on the inner segments.

The bulbs sold as *G. Byzantinus* and *G. cilicicus* run Elwes' snowdrop a fair race for precedence, with *G. plicatus* close upon their heels. These four species make the earliest group and from the casual point of view need not all be represented in the small garden. If only one were to be had of the three named after *G. Elwesii*, it might be *G.*

plicatus which is very distinct in the folded leaf-margins. *G. Byzantinus* should come next because it does sometimes flower, *en masse* if not as individuals, well ahead of *G. Elwesii*. *G. cilicicus* is most open to suspicion since it is supposed to be a hybrid and if one may judge by purchased bulbs is not always propagated by bulbs, so that in a mass one sometimes gets individuals that most resemble *G. Elwesii*.

Much later than these, in fact coming with the forms related to *G. nivalis* is the only other broad-leaved species grown here, *G. latifolius*. This has done least well on first acquaintance, being most irregular in growth and uncertain in flowering. As the common snowdrop may behave in the same fashion and later grow and thrive, it is possible that *G. latifolius* will eventually accept conditions and a new home. Meantime, it sends up its very broad, distinctly yellow-green and rather shiny leaves and graces some of them with rather slender flowers.

The common snowdrop is mid-season to late here, essentially March with no great variation in season among the various clones available, save the double form which here tends to be slow and late, especially if the season be dry.

As compared with the species already described, these plants have narrow, rather ribbonlike gray-green leaves and as the bulbs increase fairly well by offsets, the plants form grassy tufts through which the flower stems push up. The flower stems are not so long nor are the flowers so large as those of the earlier species but they make a fine show that becomes finer with each passing year.

Of the varieties of *G. nivalis* the one sold as *maximus* has the patent advantage of larger flowers without inviting the taunts of those who feel it becoming to speak disparagingly of size. The



Lilian A. Guernsey

[See page 236]

Melasmaerula graminca

variety, *viridé apice*, a name not to be found in botanical texts, carries patches of green on the outer perianth segments. These dull the white flakes as seen in the spring landscape, but make diverting variations if the flowers are picked for spring nosegays. The variety, *Scharloki*, is most intriguing also when cut, since it carries high above the drooping bell, the elongate, leafy green extensions of the bracts that once hid the flower bud. This like the last is well seen when cut.

This leaves only *G. Ikariae* for scant mention, but mention must be made since it is rather at the end of the procession when early narcissus species are beginning to make themselves felt and *Scilla sibirica* and various chionodoxas are getting ready for flowering. Aside from this the small garden need not be concerned with it.

One hesitates to be too dogmatic about how or where to grow snowdrops. After planting them in various places, some happily, some quite unfortunately, only a few generalizations seem safe. The large-flowered, broad-leaved sorts seem to accept our warm summers more quickly than the forms of the more northern *nivalis*. They are more likely to form seed here than *nivalis* in spite of their earlier flowering and are more slow in increase by bulbs. All sorts seem to appreciate leaf mold added to our well drained but heavy clay loam. All seem to do better a year or two in place and all are as patient of careful lifting and resettling while in leaf and flower as any zinnia. All seem fairly tolerant of crowding and one clump planted long ago among azaleas which are mulched with leaves, grows up contentedly through the increasing leaf layers till stems of great length can be gathered to amaze the more tidy gardeners.

Washington, D. C.

Scilla amethystina [See page 241]

If one permits himself the pleasure of an occasional exploration outside of the regular lists of the well known bulbs, various small bulbs may be found that sometimes delight one enough that he regrets his years of delay.

Among the bulbs of this sort that were planted in 1937 was the subject of this note.

The Cress Green leaves push up in a fashion that suggests a hyacinth or one of the Spanish squills and like the latter are slow to show any indication of a flowering shoot in their centers. When this finally shows, there is every evidence that it is to be an affair with many flowers. Growing slowly the flower stalk reaches up to a full ten inches before the flowers unfold.

The buds and newly opened flowers are Light Lavender Violet of Ridgway and darken to Lavender Violet with maturity. When the flowers wither, the segments, in drying, clasp the developing seed pod and show darker still, Dark Dull Violet Blue of Ridgway.

As the illustration shows, the flowering begins at the base of the inflorescence, but there is no way to show how long the flowering lasted or the shoots elongated. However, the garden notes show that the flowers were still presentable enough after three weeks.

Up to the present time it has been impossible to examine all the literature necessary to make certain that this plant should remain under this name or be reduced to a form of *Scilla pratensis*. A later note will record whether this is *S. amethystina* Visiani or *S. pratensis* Waldst. et Kit., species that were published in the early part of the 19th Century.

Washington, D. C.



Lilian A. Guernsey

[See page 240]

Scilla amethystina

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The National Horticultural Magazine

Published by and for the Society

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INVITES to membership all persons who are interested in the development of a great national society that shall serve as an ever growing center for the dissemination of the common knowledge of the members. There is no requirement for membership other than this and no reward beyond a share in the development of the organization.

For its members the society publishes *THE NATIONAL HORTICULTURAL MAGAZINE*, at the present time a quarterly of increasing importance among the horticultural publications of the day and destined to fill an even larger role as the society grows. It is published during the months of January, April, July and October and is written by and for members. Under the present organization of the society with special committees appointed for the furthering of special plant projects the members will receive advance material on narcissus, tulips, lilies, rock garden plants, conifers, nuts, and rhododendrons. Membership in the society, therefore, brings one the advantages of membership in many societies. In addition to these special projects, the usual garden subjects are covered and particular attention is paid to new or little known plants that are not commonly described elsewhere.

The American Horticultural Society invites not only personal memberships but affiliations with horticultural societies and clubs. To such it offers some special inducements in memberships. Memberships are by the calendar year.

The Annual Meeting of the Society is held in Washington, D. C., and members are invited to attend the special lectures that are given at that time. These are announced to the membership at the time of balloting.

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