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K. N. Marriage

Gentiana parryi

Some Gentians of the Colorado Rockies

KATHLEEN MARRIAGE

One clear sunny day last September when the mountains had taken on their steel-engraving look, a hanker for a last-climb-before-winter led us up there; wasn't there seed to be collected still of polemoniums and mertensias that mature late?

We drove about a hundred miles, over Ute and Wilkerson Passes through South Park to Mosquito Pass. The name "South Park" may be misleading; it is not an artificial park and it is not enclosed except by the rampart or foothills on one side and by the backbone of the continental divide on the other. It is a levelish area, 8,000 to 9,000 feet elevation, about forty miles wide by one hundred miles long; its streams are fed by melting snow from 14,000 foot peaks. Here and there rise humps 1,000 feet or so above its floor. Both humps and plain, as well as the high mountains beyond, are happy hunting grounds for a botanist.

Often we have whisked too rapidly through this "park" en route to the alpine scree of Mt. Lincoln and Silverheels. This was a day to linger in the park where the South Platte River, in its infancy, meanders through squidgy meadows rich in gentians. There were acres of them in full bloom; the showiest was *G. elegans*, Rocky Mountain Fringed Gentian, an annual, whole purple-blue lakes of them. The tube of the flower flares so that the upper half is horizontal, thus presenting to the world at large enough flat area to carry its rich color strikingly. Several flowers cluster on a slender one-foot stem; foliage is light green and little of it.

In the wettest meadows were occasional patches of *Gentiana forwoodii*, a new one to us though we had visited

this meadow in gentian time for years. Perhaps it showed up because this was an unusually rainy summer. A casual glance could mistake this *G. forwoodii* for *G. affinis* until the calyx, rounded instead of lobed, decides its identity. Its flowers are deep glowing purple with attractive yellow stamens. One variation from its sisters and its cousins and its aunts is that its flower stems grow vertically and parallel to each other from a vague wide crown instead of radiating from a well defined centre.

On the higher drier slopes of the valley is *G. affinis*, its flowers so tubular that it looks rather smug and exclusive. Still it is worth having in the garden, easy to establish and blooms well in cultivation. Looking through my flower press after the autumn's catch I found that all these gentians retained their color and that *G. affinis* had changed to a brighter intense blue, almost a deep turquoise. When blue dyes follow tires this may perhaps prove useful.

On peaty hummocks in these meadows were close mats of *Thalictrum alpinum* with white stars of *Pleurogyne fontana* and *Parnassia fimbriata* springing from them, and the lavender purple saucers of *Campanula parryi* posing on pillows of light grey *Antennaria* foliage.

It is easy to loiter in these fields but we must get on higher if we are to beat the snow to those seeds, through Fairplay past the new monster dredger chewing up and spitting out thousands of tons of soil and rock in the hope of a mouthful of gold. Our treasures will be growing here after the gold is all gone. A poem "Goldboat" by Belle Turnbull, gives the best description yet of these mountains around Hoosier



K. N. Marriage

Gentiana elegans, about half natural size, as viewed from above

Pass. Pardon the digression. Back to our Gentians; we go on higher through the mining village of Alma, up Buckskin Creek where the so-called road is maintained to reach the gold mines, their rickety buildings perched in the most precarious places here and there on the bare rocky mountain side.

The search for flowers which may prove to be of garden value is a fine excuse for leaving work to go on a tramp in the hills. The urge to go on, to see what may be growing near the snowdrift on that next peak, is whetted by the clear heady air, the grand majesty of these mountains "icy mountains high on mountains piled," and whipped-cream clouds making delectable pat-

terns against the intense blue of the sky.

Our objective is a meadow at 13,000 feet elevation which is free of snow for less than three months each summer. The flowers that grow there! more species and greater quantity than in any area I know, and Colorado is rich in such areas. Last July *Gentiana romanzovii* was looking at its loveliest; there are still a few blooms though the ground is frozen tight.

A gentian cousin widely distributed in the Rockies from 7,000 to 10,000 feet is *Frasera speciosa*, not colorful but both plant and flower have distinctive form. A rigid thick stem, two to three feet high, stands very erect and



H. L. Standley

Gentiana elegans



Upper, *Gentiana forwoodii*—Harold Roberts
Lower, *Gentiana barbellata*—K. N. Marriage



K. N. Marriage

Gentiana romanzovii, half natural size; and as it grows



K. N. Marriage

Frasera speciosa

in the axils of its leaves bears clusters of small greenish white flowers that on close inspection remind one of a passion flower.

The loveliest of the Rocky Mountain perennial gentians is *G. parryi*—or *G. calycosa*; there seems to be slight grounds for separation of them (or it) into two species. This grows along

the south slope of mountain valleys, covered with snow all winter and dry before snow comes again. Several leafy stems grow from a central crown to a height of about fifteen inches, each stem carrying at its summit a cluster of open-mouthed trumpets of purest gentian blue, their greenish white throats neatly striped with black.



K. N. Marriage

Eustoma andrewsii

Young plants move easily and are permanent in the garden but they like to become well established before they decide to bloom. Patient gardeners grow them from seed which, by the way, arrives in fascinating little double-

spouted pitchers. There is a plant of this *Gentiana parryi* in a wheel track near the well at our mountain cabin; it is frequently driven over until late enough in summer to be recognized as a plant that intends to bloom. Each

*C. B. Abbot**North Star gold mine**Harold Roberts**Gentiana Fraseri*

year it blooms profusely in spite (or is it because?) of this treatment.

Here and there in the high plains country east of the Rockies by an occasional stream or irrigation ditch is found a first cousin of the gentians that's very lovely and quite different from the modest hesitate-to-open kinds. *Eustoma andrewsii*, named after that veteran collector and grower, the late D. M. Andrews of Boulder. The large flowers of this *Eustoma* on foot-high leafy stems are a clean lavender shading to blue purple with a double-eyed stigma that sits up and looks at you. The foliage is blue green and quite decorative in its own right. When someone discovers what charm to sing over this to make it grow easily in captivity it is going to be a sensation. So far both collected plants and those grown from seed have barely existed, looking a sorry imitation of the beautiful things in the wild. Where we have found them, the soil was wet sticky clay which tested pH 9! The surrounding vegetation agreed; there was a variety of grasses none of which the cattle would eat.

The real find of this jaunt was at sundown when we made a last stop on Hoosier Pass to gather some seeds of *Mertensia bakeri*. There came by on the breeze the strongest scent of Christmas cakes baking; immediately we followed it down wind and found a little colony of the precious *Gentiana barbellata* filling the air with its spicy fragrance. The open flowers of steely blue have a finely cut longish fringe (setaceous-lacerate to be correct and cruel).

Here at 11,000 feet the whole plant keeps low, less than eight inches high. The light green color and smooth texture of the leaves makes their light-value so nearly that of the flowers that they are difficult to differentiate in a photograph. None but a color film does justice to this Gentian, but the sun is gone and it is too nearly dark for a kodachrome. Why not camp here and take one in the morning? Next morning the pass was a foot deep in snow. Next year if our tires last—— It's only a hundred miles away, and what about bicycling?

Colorado Springs, Colorado

Morea and the Moon

KNIGHT DUNLAP

Since the middle of July, 1941, I have been keeping written records on the blooming habits of four clumps of *Morea iridoides* growing on my premises. This *Morea* is an iris-like plant, with handsome white blossoms marked with blue and gold. Its best blossoming season, in this area, begins in the latter part of February or the early part of March, the blooms increasing in abundance through April, May and June. In late August the blossoms become progressively fewer, and from October to February there are only occasional blossoms. One of my two major clumps, which is well fertilized and watered, but which receives only the midday sun in the spring, summer and fall, produces, in its best periods, from 40 to 50 blossoms. The other, which has a northeast exposure, poor soil and scanty water, produces from 20 to 30 blossoms in the same periods. Each blooming period lasts from four to seven days, but the individual blossoms last only about 36 hours each, so that for exact counting it would be necessary to tag each blossom as it opens (which I have not done).

The other two clumps are minor, struggling under bad conditions of exposure, soil, water, and competition with other plants; and producing from one to four blossoms each, or skipping a blooming period completely. The number of blossoms is reduced by hardship, as well as by allowing the seed pods to remain on the plants and by unwise trimming off the old flower stalks.

For two years I had been puzzled by the blooming habits of these *Moreas*. Growing under different conditions, they commenced blooming on or about the same day, and all ceased blooming as coincidentally; the blooming periods

and "off" periods alternating with strange regularity. It finally occurred to me that their periods kept step with the phases of the moon; whereupon I commenced to keep records of the beginnings and endings of the blooming periods, and of the moon's phases. I recorded merely the calendar dates of the new moon, first quarter, full moon and last quarter, paying no attention to the hour; although it is now evident that for a more accurate study the hour is important.

The *Moreas* bloom normally within two periods in each lunar month. One period commences on the date of the first quarter, and ends the day before the full moon. The other period runs from the date of the last quarter up to the new moon. In the other phases (new moon and full moon), there are normally no blossoms. In a blooming quarter, the first blossoms may appear on the first day, or on the second or third day. By the last day of the quarter, sometimes a day or two earlier, the last blossom has withered; the petals either dropped off or curled up. In the winter season, even the best plants may pass one or more bloom quarters entirely.

There have been occasional exceptions, which puzzled me at first, but which are now explicable. In this area, about a mile and a half from the Pacific Ocean, we are subject, in the summer, to periods of foggy weather. The fog seldom descends to the ground level, but obscures the sun for a part or all of the forenoon, and so provides us with cool summer weather. A stretch of these days of high fog in the forenoons definitely delays the blossoming of the *Moreas*. In one such stretch the blossom buds whitened (showed the

white of the petals), slowly in the normal bloom period, but none opened until the day before the end of the quarter, and the last blossom was not off until the second day of the normal "off" quarter.

Aside from the particular delay just described, there have been occasional buds which whitened at the end of a normal bloom quarter and opened in the early part of the "off" quarter. For the most part, buds which have not whitened by the end of the bloom quarter simply hold over until the next bloom quarter. Five blossoms have appeared prematurely, one of them two days in advance of the normal bloom period; and I now suspect that these were from buds which were almost ready to whiten at the end of the preceding bloom period, and so had a slight start on the next period.

During the fall, winter, and early spring, when the days are clear, there are no exceptions. One or more plants may pass a normal bloom quarter without blooming; but if blossoms appear at all, they are well within the normal bloom periods. Having kept a record of all exceptions for fourteen months, with estimates of the total number of blossoms, I can safely put the number of exceptions as between one and two *per cent* of the total number of blooms.

During the last nine months I have had under observation eight other clumps of *Moreas*. Four clumps, thriving under excellent conditions, are in the same city block as mine. The other four are about two miles further east, in dry soil, warmer in summer and cooler in winter than at my location. All eight of these clumps have agreed with mine in their blooming and "off" periods. When my *Moreas* have made exceptions, there have been sometimes (not always) exceptions made by one or more of these others. The coincidence of bloom periods and

"off" periods with the moon's quarters is certainly no accident.

Several persons have suggested that *Moreas* should be subjected to polarized light under controlled laboratory conditions. This would require an elaborate greenhouse set-up, since *Moreas* do not blossom well in the five-gallon containers in which they are grown in commercial nurseries. I have thought of protecting a plant in normal soil from moonlight by covering it by a tent. From the fact that the first and last quarters are blooming periods, it might be inferred that the moonlight has nothing to do with the periodicity; but the phenomena are more complex than at first appears. Observation of plants with longer blooming periods is necessary, for these may still "follow the moon." Since this possibility occurred to me, I have been observing a shrub which has blooming periods of approximately three weeks, with "off" periods of one week. For the last five months this shrub has commenced to bloom at the end of the new moon quarter, or early in the first quarter; has bloomed through the full moon and last quarter; and ceased blooming about the date of the new moon. Longer observation, on more shrubs of this species (the *Datura* commonly called "Angel's trumpet"), is required.

Meanwhile, I am satisfied to present evidence confirming the principle familiar to students of mythology, namely: *Ancient superstitions often have foundation in fact.* The case of the old Arabian belief that mosquito bites communicate the infection of malarial fever is only one illustration among many. This was reported by Captain Richard F. Burton, in 1850, in his book, *First Footsteps in East Africa*, but for many years thereafter scientists regarded as merely a curious superstition. *Los Angeles, Calif.*

Hybrids of *Rosa Setigera*

STEPHEN F. HAMBLIN

The only American climbing wild rose is *Rosa setigera*. As a garden plant it has been developed mostly by American breeders. Of the work of Samuel Feast and others (about 1843) there still may be in gardens Queen of the Prairies (rosy red), Baltimore Belle (blush white), and at times others. These plants are a sort of climbing Hybrid Perpetual. American Pillar (Dr. W. van Fleet, 1902) was developed from *R. setigera*, perhaps as a hybrid with Crimson Rambler. It is practically a gigantic form of *R. setigera*, blooming earlier, single, light red, in huge panicles. It has been used abroad as parent of several seedlings, much as the *R. multiflora* Ramblers in effect.

The greatest advance in the use of this rose as a parent for hardy climbers has come through the many seedlings of M. H. Horvath, with HT. forms as the other parent. They are strong thorny growers, not at all like Ramblers, but truly large-flowered climbers, even more stiff of stem than Dr. W. van Fleet, considered as type of the hardy climbers with large solitary flowers. The plants are slightly hardier than the usual large-flowered climber, the hardiest climbers with large flowers, the foliage mostly of HT. character, the fruits very large.

The foundation of many of these climbing roses is a combination of *Rosa setigera* × *zichuraiana*, a very rampant grower, with slender very thorny stems, blooming late in June, pale pink in color, the flowers clustered, a true Rambler, of general habit of *R. zichuraiana*. This was produced by M. H. Horvath before 1925. Many crosses were made of this and garden sorts,

some not formally named and few released for sale.

The first to be named and released was Mrs. F. F. PRENTISS (1925), being set-wich × Lady Alice Stanley, HT. This is probably the best of all once-flowering hardy large-flowered climbing roses in vigor, productiveness and hardiness. The flowers are of HT. form, large and clustered, full and flat when expanded to show the center, clear pink in color, slightly darker than Dr. W. van Fleet, fading to pale pink. The usual size is 2½ inches across, the flowers fragrant (HT.), produced very freely from mid-June to mid-July in our northern states, in a long blooming period. It sets fruit freely, the hips quite large and well colored in winter. Thus it is specially adapted as a hardy climber where the native *R. setigera* is hardy. Its seedlings give quite a range of flower in size and color, and some show an everblooming character. One seedling gave pure *R. setigera* in leaf and habit, the flowers very double. Though Mrs. F. F. Prentiss has been offered by dealers, it is now not in the trade—a pity. The others of this series are similar in growth, differing mostly in the color of flower.

There are three dark red forms to date:

PRESIDENT COOLIDGE (1925) is set-wich × Chateau de Clos Vougeot, HT. The flowers appear singly, not as abundantly as on most sorts, very full, firm and doubled to the center, almost a Zinnia in form, deepest red in color. In flower form and color it is the best dark red of the large-flowered climbers for our northern states. The color holds well, and each flower lasts many days. It produces few fruits. It is not in the

trade, and has been but little distributed.

CAPTAIN KIDD (1934) is a *setigera* seedling \times Hoosier Beauty, HT. It is described as very double, dark red, but it is not in the trade and rarely is seen.

THOR (1940) is (*R. ALPHA* ?? \times *R. XANTHINA*) \times President Coolidge. The flower is very large, of double Peony form, dark red, almost scarlet, like a big red peony in effect. This good rose is in the trade.

Very like Mrs. F. F. Prentiss in color are:

JEAN LAFITTE (1934) is from a *setigera* seedling \times Willowmere, of Pernetiana parentage. The flowers are said to be very double, dark pink, and though it is in some gardens, it is not available.

HERCULES (1938) is Doubloons \times Charles P. Kilham, HT. The flower is very large and double, often solitary, with globular center rose pink in color. It fruits freely. This is now in the trade and has all the values of the rare Mrs. F. F. Prentiss.

FEDERATION (1939) is (*R. setigera* \times Mrs. F. F. Prentiss) \times Director Rubio, HT. The flower is large and loose, of large petals, clear pink to rosy pink in color, the least double of the group, but the inner petals hide the stamens at first, like a loose peony. The flower is at least three inches across, with little fragrance, the petals curled in age, holding their color well. The special character is size of flower. Fruits are produced freely. This rose is in the trade.

MEDA (1942), most recent of the group, is (*R. setigera* \times Mme. Butterfly hybrid) \times Golden Dawn, HT. The bud is very pointed, and the very large flower (often 4 inches) opens out flat, showing the center, the color soft shrimp pink, fading to flesh white, with little fragrance. Fruits are produced freely, huge globular green hips,

rarely showing red color. These three are very alike at a distance, with larger flowers than Mrs. F. F. Prentiss or the normal Dr. W. van Fleet.

Very similar, but with orange tinge to the pink flower, are:

BUFF KING (1939), *R. setigera* \times unrecorded pollen, the flowers soft pink and pale yellow. This is available, and also *Mercurius* (1940) which is Doubloons \times *R. damascena*) \times Clio, HP., the large flowers pale pink with lemon tinge. They are rather like Meda in general effect, the pink color being more prominent than the yellow.

With white flowers:

LONG JOHN SILVER (1934), from a *setigera* seedling \times Sunburst, HT., has very large creamy white flowers, but it is not in the trade and is rarely seen. So also *Iceland Queen* (1938) with no parentage record, very large and double, pure white, but not in the trade, though in some gardens.

POLARIS (1939), the union of *set-wich* \times Austrian Copper, is somewhat different. The flowers are of but medium size, pure white, not very double, opening flat, some 2 inches across, borne in broad panicles. It is a sort of double white *setigera*, with slight fragrance. The plant has Rambler foliage and makes very long slender thorny stems. It makes no fruits. It has been offered by dealers, but should be classed as a double white American Pillar, rather than a climber with HT. form of flowers.

Only one yellow is known as yet, this better known than all others of this group. DOUBLOONS (1934) is a *setigera* seedling \times Austrian Copper. The bud is conical, the flower quite full, rather flat when opened, of very clear deep yellow, holding its shape and color well. Fruits are produced abundantly. This is the hardiest of climbers with large yellow flowers, and is perhaps the most widely planted of the climbers

with large yellow HT. flowers. There is little fragrance. Many dealers offer this rose, and some of the other colors of this group are suggested as its companions.

In regions where some Large-flowered sorts are not quite hardy, these *setigera* sorts of Horvath will usually survive the winter without special protection or being taken down from their posts. They are very thorny plants, the stems very stiff and stout, not at all pliant as are the Ramblers. Except for added winter hardiness the roses of this group are very like other robust sorts of the Large-flowered Climbers.

Some of the seedlings of the *setigera*-HT. crosses were bush sorts, differing from the usual HT. only in greater winter hardiness. The first two were DOORYARD DELIGHT and MRS. FRANK B. STEARNS (1937), very similar and perhaps the same plant, the parentage being *R. setigera* × Lady Alice Stanley, HT. The flowers are of medium size, very double, clustered, of clear rose pink color. They are vigorous growers, very free blooming all season. Their special character is extreme hardiness, being unharmed by winter in our northern states without any winter covering, to be treated as HP. or Polyantha in hardiness. Though these two have been in the trade, they are rarely seen.

PINK PROFUSION (1938) is Mrs. F. F. Prentiss × Lady Alice Stanley, HT. The plant is very vigorous, but not tall; very slender, like a "Floribunda" sort. The flowers are rather small, very double (80 petals), like a

small or pompon Zinnia, of two tones of pink. If you like small HT. roses these are very delightful, and more double than most "Floribunda" sorts. This is in the nursery trade.

MABELLE STEARNS (1938), from Mrs. F. F. Prentiss × Souv. de Georges Pernet, HT., is a normal HT. plant, strong growing, with flowers of normal size, very double (80 petals), the petals somewhat curled back and overlapping like a full Zinnia, of peach pink color. It blooms freely all summer, as any good HT. rose should do. This is available.

SCARLANO or FAUST (1938), supposed to be (*R. setigera* × Papoose?) × Paul's Scarlet Climber, IC., gives loosely double flowers of cerise red, somewhat like Paul's Scarlet, or the old Gruss an Teplitz. This is also very hardy in our northern winters. It has been in the trade.

Here are, then, four HT. roses of *R. setigera* parentage. Among thousands of modern HT. sorts they receive little notice. But in our northern states, where the usual HT. rose must have special winter covering, their added hardiness is of definite value. There should be more of this group.

Thus, in both the Large-flowered Climbers and the bush HT. sorts it is possible, through the work of M. H. Horvath, to build in added winter hardiness from *R. setigera* as a parent. These hybrids are scarcely different from the hardy climbers or bush roses produced from Asiatic *R. multiflora* or *R. wichuraiana*, but *R. setigera* is a very hardy native species.

Rock Garden Notes

ROBERT C. MONCURE, *Editor*

COLCHICUMS

It is a great pity that the gardening public is in general so indifferent to the finer forms of the colchicums. The little *autumnale* it is true is seen, poorly and inadequately represented here and there; but how many gardens possess a fine group of any one of the large-flowered species? Considering that the bulbs take no special care and are perfectly hardy even in northern latitudes, the neglect of these autumn-blooming delights is really inexcusable.

My bulbs have come mostly from the firm of van Tubergen in Haarlem, Holland, and consequently the names on them are only as accurate as those under which they existed in the Dutch nursery. My *C. Bornmülleri* bears very large cup-shaped flowers standing above ground 6-8 inches and the cups themselves about 3 inches deep, with rounded petals; this is one of the earliest to bloom.

The dates of bloom and even the order of blooming of the different forms of colchicum are extremely variable. Generally the first blooms appear late in August or in the first days of September; but in one year I noted the first flowers as appearing on August 9th. The various forms appear in succession to almost the end of October or even into November. I suppose the date of blooming depends largely on the maturing of the corms during the summer, and therefore varies with the average temperatures.

C. speciosum is one of the best of the group, blooming late, and, at least as I have it, with a twist at the end of the petals. The stature is about the same as in *Bornmülleri*. The color is good, and the flowers have a delicate and

agreeable odor. The plant is a good doer and multiplies very satisfactorily.

The variety *album* has rounded petals and is of a lovely ivory white color. This is one of the choicest of all colchicums but unfortunately the plant seems never to be very happy and my experience with it leads me to feel that if I have as many bulbs one year as I had the year before, I am doing pretty well. Possibly a careful study of this variety grown under different conditions might teach us what it wants in the way of soil or exposure. Meanwhile it must remain one of those tantalizing subjects which one would willingly coddle if one knew what sort of coddling it wanted.

C. giganteum is a large-flowered species marked "late-flowering" in the van Tubergen catalogue; but if mine is correctly named it should rather be called early-flowering.

C. cilicicum has flowers that vary in color from light to dark and is distinct from the preceding species in that the flowers which are borne quite near the ground are quite shallow, like shallow cups, and the stamens which are somewhat long project out beyond the edges of the petals.

C. byzantinum may be a form of *autumnale* and is not very different in my garden from the hybrid named Lilac Wonder, mentioned again below. The petals are long and strap-shaped, the color a uniform rather deep reddish lilac.

C. autumnale exists in many varieties, all pretty but none comparable to the large-flowered species. The double white and double pink forms are among the latest to bloom of all the colchicums. The double pink sometimes



Silvia Saunders

Colchicum Bornmülleri. In flower; in foliage (May and June)



Silvia Saunders

Colchicum—Van Tubergen Red—tasselated hybrid—Gladiolus in background



Silvia Saunders

Colchicum agrippinum (Bozeles)

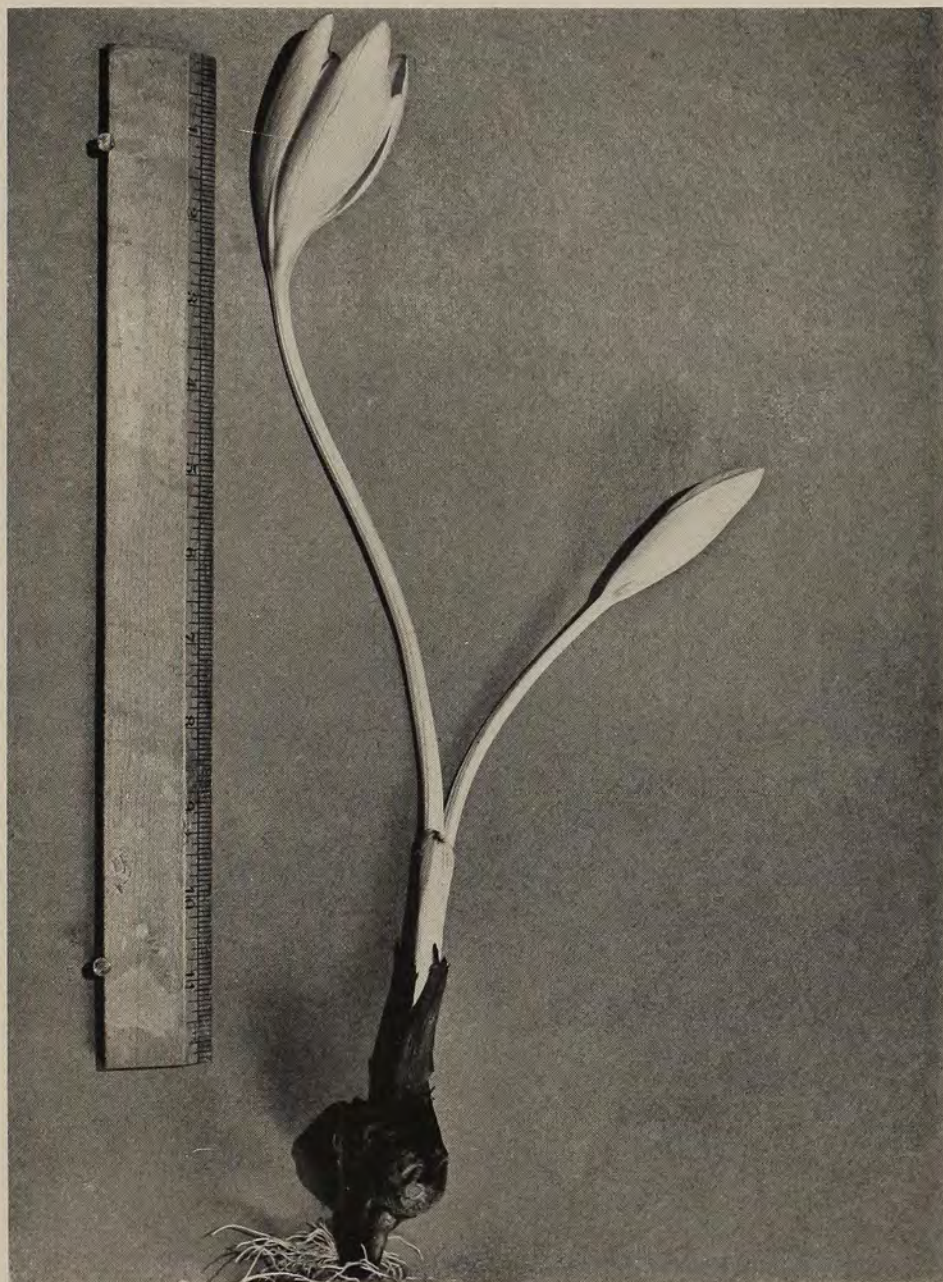
tries to mature its blooms in November, and is then likely to be caught in the first snows, whereupon it resigns itself to a long sleep through the winter, and in spring it makes still more unsuccessful attempts to expand its flowers.

I have a pretty tessellated form which may be *agrippinum* or *variegatum*. It is an early bloomer and the flowers are decorative in the garden but of little value for cutting since they break off at the ground whereas in many of the other forms if the flower is pulled gently up it detaches itself from the base of the bulb and comes out with a stem a foot or more in length.

It is sad that the colchicums have such a narrow range of color. The makers of catalogues try to get round this by describing the deeper-colored sorts in such terms as deep ruby, ruby red, and the lighter colors as heliotrope, light lilac, etc., but to my eye they are all in shades of reddish lilac

except the few white forms. *Bornmülleri* in certain lights looks almost lavender, but seen close-to it turns out to be just another pale reddish-lilac. If the expression reddish-lilac conveys the impression that the color is not agreeable, then another term should be found, for the colors are always pleasant and sometimes beautiful.

When the new hybrid forms were first offered in the van Tubergen catalogue in about 1928 the list included Autumn Queen, Beaconsfield, Daendels, Lilac Wonder, Princess Astrid, Rubens, The Giant, and Waterlily, and later the varieties Premier and Violet Queen were added. Several of these are almost identical except for a slight difference of season and in more recent catalogues Daendels, Rubens, and Beaconsfield have been dropped out. The really distinct forms are Waterlily which is a double, The Giant which is distinctly lighter in color than the



Silvia Saunders

Colchicum speciosum, bulb in drought season of 1934

others, and Lilac Wonder which has no tessellations. Of the remaining, Princess Astrid, Premier, and Autumn Queen are scarcely distinguishable, but Violet Queen is distinct from them, being of a really darker shade.

These hybrids are said to be the results of crosses between *giganteum* and the species *Sibthorpi*, excepting Waterlily, which was produced by crossing *C. speciosum album* with *autumnale album plenum*. The *Sibthorpi* crosses are all tessellated in alternate squares of reddish and almost white, which character they get from the *Sibthorpi* parent. They are a very valuable addition to the short list of available forms of the genus. I should say that Autumn Queen (or Princess Astrid), The Giant, and Lilac Wonder are as good as even the finest of the species among which I should put *speciosum* and *Bornmülleri* at the top.

None of the hybrids have borne seed for me, and their pollens all appear to be sterile. I have made tests on all the forms I possess, and the van Tubergen hybrids as well as *C. byzantinum* and *C. Agrippinum* show almost no vitality at all. If the hybrids could be induced to set seed there might be some very good things in the second generation plants.

Growing colchicums from seed takes a little patience since the seed often requires three years to germinate and one has to count on another three or four years before there is any hope of bloom. Crosses are not easily made, for the flowers of September do not produce their seed until the following May or June and it is then not so easy to identify the seedpods that are the results of the previous autumn's crossings. I believe, however, that the genus would be extremely interesting to work with, judging by the remarkable hybrids that have been introduced by van Tubergen.

STERNBERGIA LUTEA

This plant does so well with me that I am encouraged to urge it on the attention of gardeners. It seems to be almost unknown to the gardening public and my visitors are amazed to see its lovely bright yellow flowers in October. I am always on the watch for it and have run across it only twice in my limited travels, once in a garden in Italy and a few days ago in a grass border at Radio City in New York, where it was growing beside a few colchicums. Probably most of the passers-by who noticed it at all took it for a spring crocus which had lost count of the months. I know of course that it is to be found in the gardens of intelligent and discriminating horticulturists in many parts of the country. What I plead for is a more general use of it.

The plant thrives for me, and if there is a "secret" in its cultivation I should think it lies in planting the bulbs rather deep. Mine are down 6-8 inches in the ground, and they bloom plentifully from September to late October or even into November. I have in fact a photograph of a group of them dated November 22, 1940, and showing the flowers still brave and bright, though in our latitude they had by that time withstood several hard freezes.

I have never seen a seed on my Sternbergias, and I wonder under what conditions seed is ever set and when it matures. Perhaps those who grow the plant farther south may get occasional seeds from it.

IRIS HISTRIOIDES AND RETICULATA

I get so much pleasure from the bright sapphire blooms of *Iris histrioides* that I would like to spread the good news about it. Unfortunately I do not know why it makes itself so much at home in my garden, for I un-

derstand that others sometimes have trouble in growing it. My soil is a heavy clay, lightened with coal ashes and enriched with cow manure. I do not think that anyone looking at it would think it was a choice preparation for the entertainment of a fastidious guest. Yet I have patches of *histrioides* of 7-8 feet square in which it takes the whole space to itself and multiplies incredibly. Planted seeds germinate so that they look like young grass and begin to bloom in two or three years after germinating. The bulbs get no special consideration, no fertilization and no protection in winter beyond a little straw thrown over them. Perhaps they enjoy being neglected.

The blooming date here varies around March 20th and depends on when the snow melts off and exposes the ground; for as soon as that happens *histrioides* bursts into bloom. Some-

times one half of a patch is in full bloom while the other end is still under snow.

The flowers vary a little in their shade of blue and the bed as a whole looks rather like a great opal.

I. reticulata is also doing well for me now, though some years ago I had much less success with it. It also seeds freely and the seeds germinate profusely. The bright purple form is a most beautiful flower, though the light blue forms are also fine things, some of them much finer than the variety *Cantab* which has long been in the catalogues. The ones I speak of have come in among collected forms from Persia which were sometimes offered a few years ago.

These early bulbous irises are really a form of garden magic in the earliest days of spring and it is too bad that any garden should be without them.

A. P. SAUNDERS

Rhododendron Notes

CLEMENT GRAY BOWERS, *Editor*

Rhododendron Albrechtii Max. (See page 23)

This particular species probably will always have a purely fictitious value in my own garden because it was so difficult to obtain, and because in the purchase of seed, which provides the easiest method of import from abroad, it happened over and over again that the resulting plants were either the Korean azalea (*R. yedoense poukhanense* Nakai) or the Korean rhododendron (*R. mucronulatum*) neither of which resemble the desired plant.

It belongs to the section *Rhodora* which is represented by the beautiful *R. Vaseyi* Gray of our own Appalachians and *R. canadense* Torrey of the New England states with extensions northward "toward Labrador" and southward to northern Pennsylvania and New Jersey. The Oriental members are *R. pentaphyllum* Max. of which as yet we have flowered no true plants and *R. nipponicum* Matsumura, of which we have never had seed or plants.

At a first glance, the casual glance of the gardener that always annoys the taxonomist, the plant has more the superficial characteristics of *R. Schlippenbachii*, a member of another section, and like that species is fairly slow in growth during the initial years, particularly if there is any shortage of moisture in the soil.

Since we discovered that *Schlippenbachii* responded very nicely to extra water, especially during midsummer when flower buds are in formation, we tried the treatment on *Albrechtii* with no greater results than a few small twigs and the few flower buds that were cut to make the photograph published herewith.

In the Rehder and Wilson "Monograph on Azaleas" long out of print but recently reissued by the Arnold Arboretum (p. 92) it is recorded that the plant was collected by "Dr. Michael Albrecht of the Russian Consulate in Hakodate, and was found by Maximowicz also in the vicinity of Hakodate in 1861." Sargent sent seeds to the Arnold Arboretum in 1892 and Wilson in 1914.

Wilson writes further that "the habit is sparse and the flowers are not large but the color is intense and the plant is graceful and attractive." He says elsewhere in the text that the color is "rich red purple."

We can concur in that the habit as yet is sparse but the flowers do not seem really small nor the color "rich red purple," a designation that suggests many other plants but not azaleas, which to my eye may be red-purple but scarcely "rich." Although any color description is perilous, my eye records the color of this species as belonging to the hues of *mucronulatum* or *dilatatum* with more of rose pink added and a better calyx substance to give it body.

The illustration gives the general aspect of the blooms that come out as the foliage shoots are coming into growth, not unlike the habit of *R. vaseyi*, in this, or even of *R. Schlippenbachii*. The photograph was taken on April 25, 1941, which was for us a fairly dry spring but with flowers appearing more or less in normal sequence. No flowers appeared in 1942, due probably to the fact that the autumn of 1941 was excessively dry and no irrigation was given.

If growth continues to be so uncertain and flowering so irregular, there is



Robert L. Taylor

[See page 22]

Rhododendron Albrechtii
Natural size.

little likelihood that this azalea will assume an important role in the garden here. If we can find the combination to suit it, and it grows well and flow-

ers freely, it should add a valuable note to the time when the late Chinese magnolias and late flowering squills make a fine picture here.

The Gardener's Pocketbook

MIDWEST NOTES

Azalea viscosa

The swamp honeysuckle needs no introduction to the people of the eastern states, but here in the mid-west it is a novelty. Many of the native azaleas are commonly termed honeysuckles of some kind or another. The flowers are small, tubular, with pointed recurving petals, and long exserted stamens that strongly resemble the common honeysuckle at first glance.

The swamp honeysuckle although an inhabitant of moist places will grow quite well in ordinary moist situations. Of course, it requires the same soil as other members of the heath family—that is, an open porous soil well filled with humus, and one that is usually acid in reaction. The swamp honeysuckle is a low twiggy shrub with ovate leaves and white flowers in small clusters on the tips of the branches. These flowers are fragrant and borne in the latter half of June and lasting into July.

In Chicago conditions this species has proved to be absolutely hardy and a dependable bloomer. Although not conspicuously showy it is an attractive shrub and serves as an excellent basing for taller material. For naturalizing or for intimate appeal I recommend this azalea for any place in the Middle West where the soils are suitable or can be made so.

Iris Kaempferi

The Oriental iris is one of the showiest members of the genus. The flowers are rather flat and large in size. Flowers from six inches in diameter are the rule, and larger ones are frequent. The color range of the bearded iris is lacking and so most of the varie-

ties are in tones or shades of purple and blue with some whites being in evidence.

This is one plant that deserves more widespread cultivation if its needs were more clearly stated. Much of the erroneous ideas about this species and its culture center about the confusion existing between this and *Iris laevigata*. While the two species are closely related and bear a resemblance in flower, the habitat is quite distinct. *Iris laevigata* is a true swamp dweller and needs an abundance of water while *I. Kaempferi* grows in areas that are occasionally flooded but not continuously swampy. Consequently *I. kaempferi* need not be treated as a bog plant but may be handled like any other perennial. All that is necessary is a good loam with periodic waterings during dry spells, especially near blooming time. Applications of fertilizer are helpful. The rhizome is short and branches to form a compact clump. The small size of the rhizome will necessitate treating the plant like delphiniums rather than iris. Attention to prevent winter heaving, division when the clump becomes crowded, removal of dead and injured parts to keep disease from spreading are some of the points to be observed.

The bug-a-boo of acid soil for this plant traces back to the myth that wet soils are acid, and the confusion of this species with the water-loving *I. laevigata*. In this region, at least, soil tests indicate that the soils in a valley are alkaline while the surrounding hills are acid. This condition is brought by the water dissolving and carrying away the lime from the upland soil and depositing it in the valley. Unless there is definite evidence that a swamp plant is

growing in an acid condition such as a peat deposit of acid nature it should be given a neutral soil. This iris is not a true swamp plant and so the happy medium of a good loam is quite suitable. Alkaline fertilizers such as manure and bone meal may also be used.

There are only two points to be watched for in cultivating this species and that is to provide good light and to prevent drought during the summer. The flowers appear toward the end of June and the first of July. Occasionally the flower spike will be attacked by the iris borer. The borer does not bother the foliage to any serious extent but does sometimes enter the flower stalk and generally works upward instead of downward. This is an unusual procedure for an iris borer and may lead to the overlooking of the pest, as it is customary to watch the foliage at that time for the borer on other iris.

No more beautiful iris exists than this species and its time of bloom comes after the profusion of bearded iris and peonies and at a time when showy perennials are highly desirable. Treated like a delphinium or a dianthus, this species will well repay its place in any mid-western garden.

SOME NOTES ON A VICTORY GARDEN

Victory gardening is bringing a new emphasis into the horticultural world with more vegetables and back yard gardens sharing the spotlight. Perhaps one of the most important lines of inquiry is in the field of new varieties. Here all kinds of claims by originators are encountered and a great amount of interest in these super statements occurs. One of these so-called new vegetables is an old form of lettuce in which the flower stalk is eaten instead of the leaves. In the young condition the leaves are used as ordinary

leaf lettuce with no outstanding claim to merit. This variety which is widely heralded as something new, is called asparagus lettuce in the old English works and is dismissed as being found among the foreign population by a standard American work. The coining of a new name for this form of lettuce is either a lack of common and accepted knowledge or an attempt to fool the public.

Tomatoes enjoy one of the first places in most gardens. Staking has long been the accepted method of confining the vines in small areas. Recently North Dakota Agricultural Experiment station has developed a strain of tomatoes that is prolific, of excellent quality, and dwarf. These varieties were originated from some of the standard canning varieties, and were intended to meet the hot, dry conditions found in the Dakotas. Of these varieties disseminated Bounty is the best known. My experience indicates that this is the most satisfactory variety for the Victory gardener who has limited space. In spite of only taking about an eighteen inch square in the garden each plant will outproduce any vine of spreading habit, as the fruit is clustered and the several branches of the plant more than compensate for the few long ones of the older sorts.

Iris reticulata

During the first week in April the small purple flowers of *Iris reticulata* bloom. A casual visitor might think of small crocus but the more spreading shape of the flower would serve to dispel any doubts if one looked closely. This iris grows from a small netted bulb about the size of a crocus. There is one advantage to this species over the more common crocus and that is the freedom from rodent damage which depletes crocus plantings. The foliage

is grass-like and appears after the flowers. It is not touched by rabbits and so plantings will persist indefinitely. As with most bulbous plants, a light soil is preferred. Seemingly the plant is not overly particular and will grow in sun or shade. I prefer planting in the flower border as using in the grass of lawns would necessitate cutting the foliage when the lawn is mowed. The foliage lasts until the middle of summer and the plant would likely die out if the foliage were consistently removed too early. The eating of crocus leaves by rabbits is the major factor in their short life span in these regions.

ELDRED E. GREEN

Camellia hybrid J. C. Williams

The late Mr. J. C. Williams of Caerhays Castle, Cornwall, was the first to grow the species now named *Camellia saluenensis*, which he raised from seed imported from China by his collector, the late Mr. George Forrest.

The plants so raised had small serrated leaves and semi-double pink flowers like those of *Camellia reticulata* in color and shape, but smaller. They proved very charming shrubs.

In successive years, Mr. J. C. Williams crossed this species with, it is understood, the red form of *Camellia japonica*, and raised a number of hybrids, not differing so greatly from one another that they need be distinguished, and it is these that have been named *Camellia* hybrid J. C. Williams.

The hybrid is a compact, close growing shrub with dark green leaves, smaller than those of the familiar *Camellia japonica*, but larger than those of *C. saluenensis*. It is more vigorous in growth than either plant. The flowers are semi-double, larger than those of *C. saluenensis*, which they much resemble, of a good pale pink color, and

showing in the center a bunch of bright yellow stamens.

The plant is very hardy, having stood at Bodnant a prolonged frost falling to zero Fahrenheit without the slightest injury to bark, shoots or flower buds; indeed some of the flowers opened quite uninjured within a week of the disappearance of the frost. What, however, most distinguishes this hybrid from all other camellias is the wonderful wealth of blossom that it produces. It begins to flower when it is a foot high, while on larger plants, twigs nine or ten inches long will each have seven or eight flower buds on them, usually with three to five terminal buds and the rest axillary. On one of these plants, a branch 22 inches long and as much through carried a count of no less than 293 flower buds, and this branch was a fair average sample of the plant and group.

The flowers open in batches, so that if some are damaged by frost when they are open, as may perchance be the case in our variable English climate, others come out to take their place. This succession gives a flowering season in the early spring of perhaps three months. Moreover, the dead flowers fall off neatly to the ground, and the plants do not require hand picking to keep them sightly, as is the case with some other camellias.

The plant is easily propagated from cuttings; it grows very freely, and appreciates perhaps a less shady place than most of its family—indeed a western aspect suits it in England. This hybrid will prove itself one of the best plants ever introduced to English gardens.

The late Mr. J. C. Williams did very many things for gardening, but nothing, I think, of greater value than to produce for us this best of all camellias.

ABERCONWAY

Bodnant, Tal-y-Cafn, North Wales

Perhaps?

For years there has been a popular belief that various phases of the moon affect the germination of seeds, as well as the growth of plants. Indeed, not very long ago, in "Reader's Digest," an article appeared quoting the investigations of Mrs. Kolisko, who had published through the Anthroposophical Agricultural Foundation of England a monograph entitled "Moon and Plant Growth." Briefly, as a result of her experiments, she had come to the conclusion that seeds of certain vegetables, such as carrots and radishes, if planted two days before full moon, germinated more rapidly, and the ensuing crops thrived better than when plantings were made at any other phase of the moon.

And now comes a highly regarded organization devoted to horticultural and botanical research, the John Innes Institution of England, which, without mentioning Mrs. Kolisko's treatise, performed similar experiments, and came to the conclusion that the moon had no consistent effect on the germination of seeds. The results of their investigation were published in the October, 1941, issue of the Royal Horticultural Society.

The Innes Institution experimented both with indoor and outdoor sowings. Five different kinds of vegetable seeds were used. Extensive records were kept, and the results were carefully tabulated. Considering the outdoor sowings first, the records did not indicate any evidence that any of the four quarters of the moon affected the time of germination. The Institution gives various reasons for believing that the large fluctuations in germination outside are to be attributed to causes other than the moon, such as rising and falling temperatures, rainfall, etc.

In experiments made indoors, the Innes Institution points out that here

changes due to climatic conditions may be better controlled than outdoors. Referring to their graphs, on which they plotted the results of their investigation, they observe that a somewhat quicker germination occurred when plantings were made at the April full moon, whereas beans planted indoors at the June and July new moon germinated more quickly than those planted just before full moon.

"At first glance," states the report, "it would appear that the April full moon has a marked lunar effect, but further reflection makes this highly doubtful. First of all, there was no corresponding effect outdoors. . . . Secondly, no other full moon had any effect in speeding up germination, so showing a curious lack of consistency in the results."

In short, the conclusion arrived at is that there is no consistent effect of the moon to be observed either in indoor or outdoor sowings. Sowing in good condition of soil and weather will always give good results, while sowing with the moon will convey little or no advantage.

ROBERT M. SENIOR.

Tithonia rotundifolia (See page 29)

It is with a certain hesitation that the name given above is attached to the picture given, since the specimens were not submitted to any taxonomist for final naming. Whatever its ultimate naming should be, the flowers were taken from a plant raised from seeds called *Tithonia speciosa*, a name now reduced to that which heads this note. The flowers were raised in the garden of David Lumsden who has had more fortune than most in getting an abundant flowering here, before any early frost cut down the rampant plants.

The genus, which apparently extends from Central America with a proper detour in Mexico, and in the West Indies, exhibits those forms which are borderline cases between herb and shrub, such as one finds in cotton, which is tree-like in some species and in the tropics, but can be raised by us as an annual.

As far as has been discovered there is no special trick in germinating the seeds nor in setting out the hungry young plants which settle down to the business of growing up with very good grace, provided one gives them plenty to eat and a warm sun. Those best known to me, had an excellent soil but not enough sunlight, so they grew even taller than they might have and were correspondingly slower in coming into flower. They also seemed to make only a modest root system so that some were blown down just as sunflowers sometimes are.

If one is literal, the plants can only be described as coarse and rough; if one is more temperate, doubtless they might be described as bold. Up they go, like the sunflower, but with a tendency to branching that recalls our own greater rag-weed, but unlike that plant topped with inconspicuous if deadly flowers (to hayfever victims), this has each shoot and branch terminated with the sort of flower one can well see in the illustration, which gives the flowers about two-thirds their natural size. It shows well enough the structure of the head, the details of the disc-florets and their shedding pollen; it even suggests the dahlia-like quality of the ray-florets but it cannot suggest the intensity of color that is borne by the latter, an orange that approaches some of the hues found in the peel of a well-ripened mandarin orange, a color that approaches the intensity of vermilion while still well within the bounds of orange.

Like the zinnia it keeps well when cut and like that flower should have as few leaves as possible under water since their rough, really harsh, surfaces begin to decay swiftly and remind one of the good Elizabethan adjective that we all know and falter to use.

When we shall have a new flurry of interest in it, who can say? But it would be a matter of horticultural interest to know, how far south one should go to find the happy limit, at which it would not be the victim of frosts and how far north one might venture, if he were to starve it a little through limited watering and an excess of sun.

Iris fulva (See page 31)

Long ago, it was decided in the joint councils of the American Iris Society and our own, that some day there should be a joint publication in which there should be a photograph of every species that could be gotten to a photographer, together with whatever notes could be assembled, that would satisfy the then-reigning taxonomist and yet not bore to stupefaction the gardener who was not above growing the wild irises. If one turns back through the pages of this journal as well as the issues of the Bulletin of the American Iris Society, before that became the victim of the bearded irises, he can note the slow progress toward that end. The fact remains, however, that the material is not yet exhausted and the text has not yet been gathered together.

Today, of course, two perils assail the project, the insistences of those rabid souls who can see only the color photograph, a group against which delicious invective could be launched; and now the war, which must delay all unnecessary publications, no matter how elevated their theme.



Lilian A. Guernsey

[See page 27]

Tithonia rotundifolia



Lewisia Tweedyi

One cannot forbear, however, to add this plate of *Iris fulva*, with flowers from the then garden of Miss Florence Thompson who has since deserted the warmer climes for one that may not smile as kindly on this southern species.

Since these notes are not designed to accompany any future text, the plant can be dismissed as a swamp species of our central to southern states, with lush foliage of varying degrees of lushness in texture and flowering stalks which are clearly enough shown in the picture. What one does not venture to describe with too much assurance, is the color of the flower. Its older name of *cuprea* is no more expressive than its present *fulva* but between them they embrace the whole from copper to rust. They do not, however, being adjectives that relate to metals, suggest the texture and substance of the perianth which has the paradoxical depth and warmth of velvet and no little of the reflective sheen that one expects of a

tissue without a pile. As can be seen, the color is not uniform, but is concentrated in the patch that underlies the lip of the stigma; and is strengthened by a venation that covers the whole of the blades. This venation is not as conspicuous as the photograph suggests but shows more and more clearly as the flower ages or if one puts it in a vivid cross light.

Here it has offered no difficulties of cultivation in ordinary soil, which for us is always acid. It has apparently been a favorite morsel for the larvae of the iris borer, which tunnel through the slender rhizomes, that usually collapse and die forthwith.

The Haunts of Lewisia Tweedyi

This beautiful flower, of distinctly North American origin, is classed by some enthusiastic rock gardeners as ranking among the first half dozen of the world's finest rock plants. Its natural habitat is strictly limited, being confined to certain parts of the Cascade



Robert Taylor

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Iris fulva

Mountains, chiefly in the State of Washington. Here, for those who know where to seek her, she reigns in queenly splendor, breath-taking in her loveliness, especially if seen at the period of greatest florescence, as was the case when the writer of this article visited her haunts three or four years ago. If the reader would also see her in all her beauty, come with me in spirit, in the month of May, along the highway that leads from Seattle eastwards through the Snoqualmie Pass, and then northward from Cle Elum to the Blewett Pass, that crosses the Cascades at an elevation of somewhat less than 3,000 feet. Here, nestling among the rocks and scree, in certain favorable localities, will be found the plants that produce these lovely flowers.

The plants consist of rosettes composed of numerous fleshy, obovate leaves from 4 to 6 inches in length and an inch to 2 inches in width. If the visit happens to coincide with the flowering season, the larger plants will be found to have a number of scapes averaging 6 inches to a foot in length, on which are borne loose clusters of buds and flowers, the latter being nearly two inches in diameter, of an exquisite, silky-smooth texture, and found in varying delicate shades of apricot, salmon and cream. Probably the nearest thing to which the florets can be compared, is an exquisite miniature water-lily. If one can visualize a large plant of *Lewisia Tweedyi*, with twenty to thirty of these lovely two-inch blossoms open at once, borne on scapes branching out informally in all directions among the green leaves, one can have some conception of the vision of beauty that meets the eye.

Should the *Tweedyi* not yet be in bloom in the Blewett Pass, we can press on northward to Leavenworth, and then out westwards towards Ste-

vens Pass. A few miles west of Leavenworth, we will again find the object of our search. *Lewisia Tweedyi* loves plenty of root drainage, and consequently one finds it growing on the steep slopes of broken rock and detritus. In such a medium the roots will sometimes be found to penetrate to a distance of 3 to 4 feet, thus insuring luxuriant growth. They are also found at times growing on the sides of the mountain, in the fissures of great boulders that tower aloft 50 to 100 feet. Here, too, they can be sure of perfect drainage, and, safe from both the cupidity of predatory man and the destructive trampling of animals, they are able to attain very perfect development. Some specimens seen thus hanging from the sides of huge rocks, 50 or more feet above reach, had large quantities of bloom and covered an area nearly as large as a bushel basket. Another important factor noted in the habitat is the presence of light shade, since they are generally found on hill-sides where there are trees growing, broken by open spaces; often also among rocks and detritus under large conifers where they get some sunshine in the early morning or in the evening, but are sheltered from the direct rays of the mid-day sun.

Many other rock garden treasures are to be found where *Tweedyi* thrives. *Lewisia rediviva* is to be found in considerable numbers in the more open spaces. There are quantities of *Erythronium grandiflorum*, in the varietal form with striking red anthers. *Fritillaria pudica* is there and little colonies of brodiaea and masses of alliums. On certain slopes where the shade is somewhat deeper, and there is an abundance of moisture, may also be found quantities of *Dodecatheon pauciflorum* which rather belies its name, for here they are quite free-blooming. These and

numerous candidates for the rock garden, reward the diligent searcher.

Those who would make *Lewisia Tweedyi* happy in their rock garden, would do well to remember the three important points mentioned above, namely, adequate drainage, partial shade and protection from excessive moisture. The first is insured by providing plenty of scree for the roots to develop. The second and third conditions are secured in our garden by planting horizontally, under rocks, with the crown of the plant protected by the over-hanging ledge of rock. In this way, the crown is guarded from excessive moisture that might induce rot. It is also protected from the hot midday sun, but at the same time can get plenty of light.

Lewisia Tweedyi may be propagated by means of divisions of rooted side shoots, and from seed. The first method is somewhat precarious. Propaga-

tion by seed is the most satisfactory. Seed does not set readily, and much better results will be attained if one resorts to hand pollination. If the seed is sown when comparatively fresh, it will germinate readily. Two years must pass before flowering. They may be grown in boxes, in a medium consisting to a considerable extent of leaf mold and scree. If the soil is kept moist without too constant sprinkling, there will be less danger of injuries to the crowns. When the plants have developed to a good size, they may be transplanted to the rock garden, taking due care to protect them from excessive direct sun and excessive water on the crowns. Here, after they have become established they should reward the owner with a wealth of bloom that will amply repay the care bestowed.

MILTON JACK

Hatzic, B. C., Canada

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