

*The* NATIONAL  
HORTICULTURAL  
MAGAZINE



JULY

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1931

# The American Horticultural Society

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A. H. Barnes

*Erythronium montanum*, the Avalanche Lily on Mount Ranier

By courtesy of the National Geographic Society



# Erythronium

By CARL PURDY

A flower that is either charming in some way or decidedly unpleasant in some way is almost sure to have a popular name. Wherever erythroniums are among the wild flowers the women and children love them and consequently name them. In Europe there was but one species and that is everywhere there called Dog's-Tooth Violet. Its Latin name too is merely the same thing or rather just *Dens-Canis* or Dog's Tooth. A more inappropriate name could hardly have been given it, if we judge by first impression, but the flowers are violet in color and the bulbs are the shape of a dog's incisor tooth—not so bad after all.

Rather widely scattered throughout the eastern half of North America are several species and here they are called either Adder's-Tongue, Dog's Tooth Violet, or Trout Lilies. The Adder's Tongue would seem to be named from the shape of the leaf; the Trout Lily from the spotted leaf.

On Mount Ranier, *Erythronium montanum* grows in such numbers as to give a white color to the landscape and there it is the Avalanche Lily, while *E. grandiflorum*, which is less plentiful, is the Yellow Avalanche Lily.

Move on down the coast to Astoria and we have Star Lilies; not so bad, for the half opened flower is certainly a six-pointed star. In Oregon generally they are Fawn Lilies from the spotting of the leaves, although in a few places Adder's Tongue is used and was probably brought from the East by early settlers. In northwestern California they are usually Easter Lilies, owing to the fact that they are in flower at Easter and are used in decoration. Lake County in that region makes an exception for there they are Chemise Lilies. Chemise, I may remark, is a shrub which covers wide expanses of

hilly country and gives the erythronium the light shade that it loves. When I was a boy here they were Adam and Eve. Often they have two flowers, the upper larger, hence the name.

If I were writing a treatise on the value of scientific names for flowers, I could hardly give a better example of the confusion to which popular names lead us. The word erythronium means just the one thing all over the world while these popular names mean nothing away from the immediate neighborhood where used. In Mariposa County erythroniums are Mariposa Lilies and the *Calochortus* are Mariposa Tulips and correctly.

While erythroniums are not true lilies they are among the genera most closely allied to true lilies. They are native of woodlands in rather mild to cool climates or on mountains well up in the cool regions. In order to give a general idea of the genus I will treat the one European species and the few eastern American species very briefly. I have no personal knowledge of them so will rely upon Bailey's *Cyclopedia* for my data.

But first as to some botanical terms used in the description of erythroniums. If this article were written solely for popular use I might sufficiently designate the species by color, locality or some other salient points, but as some may like to be able to understand the botanical characters, I will briefly treat them in that way also.

The flowers of all lilies are divided into six parts and the outer parts are not just like the three inner parts. In flowers generally these parts are called petals and sepals but in lilies they are called the segments of the perianth; for convenience I will use the word petals for all of them. In very many erythroniums down close to the bottom of the inside of the inner petals there



*Lillian Guernsey**Erythronium revolutum—Pink Beauty*

are little knobs which are called auricles (ears). Very many bulbs propagate by little bulbs produced either on the side of the parent bulb or at the end of short stems from the parent bulb. Some erythroniums propagate one of these ways, some the other, and some by neither, but only from seeds.

In botany a key is a very convenient expedient for finding the name of a plant. If, for instance, I should tell

you that a man had a wart behind his ear you could not miss him far. If I added that he was cross-eyed, the identification would be almost perfect, and if I added that he was 30 years old, there would not be one chance in ten million that you would get the wrong man. Botanical keys are built in just that way. The things seized upon to identify a plant may seem small, yet they are characteristic.





*Lillian Guernsey*

*Erythronium revolutum*



## KEY TO ERYTHRONIUMS.

## Group 1. European.

*Erythronium dens-canis*, the original Dog's-Tooth Violet. Mottled leaves; single violet-colored flower.

## Group 2. American. East of the Rocky Mountains. All one-flowered.

*E. americanum* has leaves mottled with brown and a single yellow flower. The three inner petals have auricles at the base. It grows in rich soil in moist woodlands and has many offsets on slender underground stems. Widely scattered east of the Mississippi.

*E. albidum*. Has no auricles and the leaves are not mottled. Flowers pinkish white. Ontario to New York and Minnesota to Texas.

*E. mesachoreum*. Has neither offsets nor mottling on the leaves; flowers lavender with broadly spreading petals. Iowa, Kansas, and Missouri.

*E. propullans*. Has offsets near the middle of the underground stem. The leaves are green with a little mottling and the flowers are rose-colored with a yellow base. South Ontario to Minnesota.

## Group 3. Western America, from the Rocky Mountains to the Pacific.

General remarks: Earlier botanists put stress on the size of the flowers. For instance the first named species was *E. grandiflorum* or Great-Flowered Erythronium. Another was named *E. giganteum* or Giant Erythronium, while still later botanists have named one *E. parviflorum* or Small-Flowered Erythronium. As a matter of fact there is but one western American erythronium which could be spoken of as different in size of flower, and that is *E. purpurascens*, which is really small-flowered. In all other species, size is a matter of soil, climate, or other conditions and any species may be smaller or larger in accordance with

those conditions. The same is generally true as to the number of flowers. In the forms of *E. revolutum*, four flowers to a stem may be the largest number found, but in other species they may far exceed that number, with eighteen as the largest number that I have ever seen. Whenever fire burns over the beds the flowers are larger and more numerous.

## SUB-GROUP 1.

Leaves not mottled. Petals auricled.

*E. grandiflorum*. Leaves a light green; style 3-cleft at the top. Flowers bright yellow in the type. This species has a very wide distribution. If you began high in the Rocky Mountains in Colorado and followed them into Canada; if you went high in all of the ranges of the Cascades; if you traversed the plateaus between these mountains and went down the slopes on both sides of the canyon of the Columbia River you would find *E. grandiflorum* at intervals. If then you went along the Cascades, you would still find it at high elevations to some distance south of the Oregon and California border, but always in high mountains.

There are several forms. Some botanists have named the eastern form *E. parviflorum*, yet it is not small-flowered and has no distinctive difference. It is true that in some regions it has red anthers but even in the same region many flowers will have yellow anthers.

Variety *album* is found in the plateau regions of northern Idaho and eastern Washington and is, of course, white-flowered with a slight greenish tint. This was first described as *E. grandiflorum albiflorum*.

I have named a variety *robustum* from the low elevations on the Columbia River because it seems to be much easier to grow here.

*E. tuolumnensis* has very large leaves of a deep green; large conical bulbs which offset like a tulip with the offsets



inside the covering of the mother bulb. The flowers are a deep rich yellow. When the leaves and stems are dry they cling so strongly to the bulb that it takes an effort to detach them. This species, one of the most distinct of all erythroniums, was discovered by Professor Applegate, of Stanford University, in 1930, and is limited to a very small area in Tuolumne County in the Sierra Nevada region of California at about 3,000 feet elevation.

*E. purpurascens* has narrow undulate leaves of a dark green color with metallic tints. The flowers are never large and are a light yellow or almost white, tinted purple. It grows at from 5,000 to 7,000 feet in the Sierra Nevada Mountains, a region of heavy snowfalls and late springs.

*E. montanum* is the Avalanche Lily of the State of Washington. Its leaves are broad and its flowers are pure white with orange base. Its home is high on the peaks of Washington and Oregon, in full open sun and it grows in such profusion there as to color the landscape. It is a very lovely species but my experience is that it is utterly intractable in cultivation. Instead of starting growth with moisture in the spring as all others do, it lies dormant until its usual growing season, which is July or August, when it meets utterly hopeless growing conditions.

#### SUB-GROUP 2.

Leaves mottled.

Section 1. Species inhabiting well-drained lands in cool places. No offsets. Propagation only by seeds.

*E. californicum*. Leaves richly mottled with brown; style 3-cleft; auricles on inner petals. In the type the color is a light yellow, deepening gradually to rich yellow at the center. A very fine species growing in the coast ranges of California, beginning fifty miles north of San Francisco and extending about two hundred miles to the north.

Variety Bicolor, discovered by myself in 1930, has flowers with the outer

half pure white, the inner half almost orange and a very pronounced and delightful fragrance. Found in southernmost part of the range of the species. A very lovely form and possibly will prove to be finest of all in cultivation.

Variety White Beauty, found at the northern extreme of the range of the species in Humboldt County, California. The color is really a slightly creamy white, which by comparison is white. At the inner base there is a zone of maroon to almost red in many flowers. In the wild it only grows in very rocky places and even in the fissures of rocks. At one point I saw fine flowering bulbs in the fissures of an almost perpendicular cliff. It takes to ordinary soils wonderfully well and Van Tubergren, one of the best European authorities, considers it the best garden erythronium.

*E. hendersonii* has an undivided style, richly mottled leaves, and a flower which is lavender in its upper two-thirds and deep brown-maroon at the center. In its color perhaps the most distinct of all erythroniums and one of the most charming. Found on either side of the Oregon-Californian border for perhaps fifty miles and well back from the ocean.

*E. citrinum* has an undivided style, richly mottled leaves and a flower which is pure white on outer half and citron at center. The stem is much stiffer than related species. For perhaps fifty miles on Oregon-California line, beginning thirty miles from the ocean.

*E. howellii* alone has no auricles on petals but is otherwise close to *E. citrinum*. The flower opens white on outer portion and citron at the center and within a day or so begins to turn pinkish until it is decidedly pink. Habitat same as last three species.

Section 2. With offsets borne on slender thread-like underground stems.

*E. hartwegii* and *E. purdyi* comprise this group. They are alike too in the



peculiar way in which the flowers are borne. All other erythroniums have the flowers, if more than one, in a raceme but in these two the flowers are borne in a sessile umbel so that each appears to be on a separate stem like a bunch of flowers in a bouquet holder. In *E. hartwegii* the flower is light yellow, deepening to bright orange at the center; in *E. purdyi* it is white with a very pale lemon center. All other erythroniums have bulbs which speedily suffer if exposed to the air and would lose all vitality in a week or so, but the bulbs of these two are thickly coated and would keep months if fully exposed, and, in fact, have about the keeping qualities of the tulip. In their native homes they live in a decidedly hot portion of the foothill region of the Sierra Nevada Mountains of California where there are no dense shades. The soil is open and never wet and in summer gets to be very dry. The eastern rock garden has no section even in full sun as hot as these bulbs live in habitually. They force well in pots if handled as Dutch forcing bulbs are. Both can be planted successfully in much hotter and drier regions and locations than any other.

### SUB-GROUP 3. THE REVOLUTUM GROUP.

Leaves mottled; petals auricled, with broad auricles which join to make a sort of ring at base of petals. Stamens with the filaments broad at base and coming to a point. In all others the stamens are slender throughout. The name *revolutum* implies that the petals turn back more closely than in any other species, but that is not true. They at first open broadly with little curve but eventually curve well back. The type has a flower of much firmness and has stout stems.

The forms of *E. revolutum* have quite different habitats from any other western species. They are found in decidedly moist soils and prefer a rich loam. In the rainy season the soil is often quite moist to wet. I have seen

beds over which a little stream flowed for months in the early season and often have dug them when ripe in soil which was so wet as to be sticky. Later it gets dryer, although always at least barely moist. In my garden I had a bed of *E. johnsonii* one year planted in a soil which was moist but not wet. Excessive rains made it almost a quagmire all winter, yet they were happy.

*E. revolutum* type is exceedingly well marked in general appearance but changes in color from region to region. At the south it begins in Mendocino County, California, about 80 miles north of San Francisco and about 12 miles from the ocean. This is a region of heavy winter rains and many summer fogs. At that point the color is white tinted lavender to light lavender. The species follows at about the same distance from the ocean going north, and in Humboldt County, 140 miles north, is all soft lavender-pink. This is Pink Beauty. On north it extends, always not far from the sea coast, and in another hundred miles is in a deep pink form and with leaves having dark mottlings. Other forms have light mottling. This is a new form for the gardens which will go out as Rose Beauty.

Another hundred miles and in northwestern Oregon, it is a real rose with white center and this is *E. johnsonii* or *E. revolutum johnsonii*. Another move up the coast and it is found in a similar rose-colored form but with orange center. I have not had specimens from farther north excepting from central British Columbia, where it has the same form as at its beginning in California. Given right conditions, *E. revolutum* stands above all other species.

*E. revolutum watsonii* is also known as *E. giganteum*. The name *E. giganteum* was first employed for a form of *E. grandiflorum* so can not be used. I really believe that it should be considered a separate species. It has the mottled leaves, the stout stem, the large auricles and the broad based





*E. L. Crandall*

*Once established in a congenial environment erythroniums self sow and perpetuate themselves for years*

filaments of the type, yet is not nearly so stout a plant, nor so erect. There are many forms of it. Only two of them have been named either horticulturally or botanically. The color varies from pure white banded maroon at the base to a rich cream color with or without zones of maroon. At its best some of the forms are the most lovely of all erythroniums. Purdy's White is a named form with pure white and maroon zone. *E. revolutum praecox* is

rich cream with a zone of brown and is a most lovely flower. From a botanical standpoint it would not be worth while to name others of the forms, yet from a garden standpoint several of them are desirable enough to merit garden names. The species begins about fifty miles north of the Oregon-California border and extends north in the moist interior, west of the Cascades section, far into British Columbia. This then covers the species



known in the West, with the exception of one that Professor Applegate found in the Siskiyou Mountains but has not yet published.

#### HARDINESS OF ERYTHRONIUMS

Of course the East American species are hardy for they grow wild almost all over the region from Nebraska east and into Canada. The western species have been planted very widely in gardens throughout the East from Montreal south and there is not a particle of doubt as to their hardiness.

#### CULTURE OF ERYTHRONIUMS

First some words as to handling of bulbs. With the exception of *E. hartwegii* and *E. purdyii*, the bulbs will dry out enough to decrease vitality when out of the ground in a short time unless packed in barely moist packing material and kept in a cool, shaded place. They are not bulbs which can be kept in a store in open bins, nor are they bulbs which can be shipped in dry material or in any other than a painstaking way. When the one who is to plant them gets them, they simply must be speedily planted or else kept in barely moist material in a cool place. Still again they must not be planted in dry soil. This caution is as a rule unnecessary east of the Rockies, for in September and on, when the bulbs would reach the planter, the soil is almost sure to be at least moist. In the West the caution is strictly wise. I have lost many bulbs by planting in dry ground or by planting in moist ground which, during a long fall drought, lost its moisture. But on the Pacific Coast when the soil is dry it is dry. Three or four months exposure to a hot sun leaves very little moisture in the surface soil.

Erythroniums can be grown well in a great variety of soils. Drainage is necessary and shade too. Not a dense shade but about the degree of shade that an apple tree gives. They will grow and make great leaves in dense shade but the flowering will get less and less under those circumstances. I have seen fine plants in gravel, in sticky clay, in sandy loam, and in soil three-fourths broken rocks, so that I would say that they are very adaptable to soil so long as there is a moderate amount of humus and a shady position. If I were making a soil especially for them it would be a light loam mixed with one-fourth grit and quite a little leaf mold.

The bulbs are long and slender and the top is smaller. They must be planted upright. A careful measurement in my garden shows that the bulb seems to do best when planted to a depth from four to five inches, which mean a cover of  $2\frac{1}{2}$  to  $3\frac{1}{2}$  inches. The caution as to not planting in dry soil does not apply after the planting time. When they are established they retain vitality perfectly in soil in which they would suffer at first. The bulbs can be obtained after September 1st and should be planted before December 1st. With good care they are in fair condition until New Year, yet the tendency is to suffer after mid-November.

If the gardner observes these simple rules he will find erythroniums most easy to grow, easy to maintain, and that a bed will continue in beauty for years. Under right conditions they self sow and it takes at least four years for the seedlings to reach the flowering stage. If seeds are sown they may come up in spring or they may lie dormant until the spring of the succeeding year. In my experience they do the latter more often.



# Epiphytes or Air Plants

By CHARLES TORREY SIMPSON

The air plants, like the great vines, were developed in tropical forests and both are due to the intense struggle for space, light, air and food. The vines are found to-day not only in tropical and semi-tropical forests but pretty well throughout the temperate regions, while the air plants, such as I shall discuss, are all inhabitants of the warmer parts of the earth, and live on trees and sometimes rocks.

There are in the neighborhood of 6,000 species of ferns in the world, nearly all shade loving; the larger part natives of warm regions and dwellers in forests. Among these epiphytic ferns are a number of polypodiums, all the platyceriums or Stag horns, Nephrolepis or Sword ferns, several fine aspleniums, the striking and beautiful campyloneurums or Strap ferns, Davallia, Grammitis, and others. Their dust-like spores have doubtless been wind carried to the ends of the earth.

The bromeliads or air pines number some 900 species and are confined to the warmer parts of the New World. They are striking and tropical looking plants, for the most part having seed that is wind blown. But not always. In Cuba an immense bromeliad covers the trees in places, bearing long pendulous spikes of small flowers followed by a sort of capsule filled with sticky sweet pulp in which is indigestible seed, the whole eagerly relished by birds. They devour the pulp of the plant, *Hohenbergia penduliflora*, and in doing so their feet, beaks and sometimes feathers become daubed with the pulp. Then when they alight on other trees it comes in contact with the bark and sticks to it, leaving many seeds to start life in the new environment. The seeds which were swallowed are passed through, on to other trees perhaps, so that one might say the latter

traveled first class while the former went in the steerage. Some of the Bromeliads bear beautiful bracts and flowers and are among the chief ornaments of our hothouses, among which are *Billbergia thyrsoides* and *Aechmea*, both of which have large spikes of magnificent bloom; *Caraguata lingulata* or Heart of Fire, whose center colors up to a blood red at blooming time, together with many others, which are grown for their handsome flowers or variegated leaves.

It is probable that the progenitor of the bromeliads might have had seeds like those of a *Hohenbergia* and that it called in the assistance of the birds in planting them on the trees up in the region of light and room. Once the hairy seeds have been caught on the wind, the rain beats them down until they come in contact with the bark where they germinate and grow. These baby air plants are among the cutest things I know.

So far as I have seen, the bromeliads catch and hold water in the base of the plant, the encircling leaves closing so tight that it doesn't leak out. I am convinced that when needed they secrete water, for no matter how long a dry spell may last here the larger plants always have water in their bases. Dead leaves, bits of bark, twigs, insects, tree frogs and all sorts of trash fall into these little cisterns and the result is a fermented mess of dirty brown water that looks and smells exactly like liquid manure—just what it is, and it doubtless feeds and stimulates the plant. Many of the pitchers of *Nepenthes*, also those of our sarracenias are filled with water that must have been secreted as in some cases it is found within them before they open.

In the lower West Indies and northern South America there are



found high up on the mountains certain utricularias or bladderworts living in the open bases of some of the air pines. These bromeliads are large and contain a considerable amount of water in which the former grow. They belong to a rather large family that is widely distributed over the world and its members are nearly all dwellers in mud or water. There are perhaps several species of these growing in these little elevated cisterns where they seem to be completely at home, even to sending out thread-like runners which search about for other hosts into which they can send out other roots and thus establish new plants. Certainly these utricularias are among the most wonderful productions of the vegetable kingdom, a proof of the intelligence that is displayed wherever life is found on this planet.

The New World Tropics are far richer in epiphytic plants than the old. In the latter are a large number of ferns found on trees and rocks. *Nephrolepis*, the Sword ferns and several *Pteris* grow in both hemispheres; there is the genus *Davallia*, all the members of which have exquisitely delicate foliage, some of them more or less epiphytic; the splendid and astonishing staghorns, *Platycerium*, all large plants with sterile leaves lying close to the roots and forked fertile ones that look somewhat like the horns of a stag. There is the beautiful bird's nest fern, *Asplenium nidus*, with elegant, entire broad leaves four feet long and eight inches wide, that in places usurps entire trees to the exclusion of everything else. There are the strange pitcher plants of the Orient, mostly climbers which sever their connection with the ground; there are hosts of orchids, hoyas, the lovely *Aeschynanthus*, *Peperomia* and many others.

Besides the air pines the New World forests are full of various cacti, especially the epiphyllums; there are countless orchids, the great *Anthurium huegeli* whose leaves rival those of the bird's nest fern; there are marantas and millions of begonias. I have seen

in Cuba and Honduras the lower part of cliffs so completely covered with a growth of begonias that for long distances no rock was visible, a rare and astonishing sight, for although these plants are ordinarily found growing in soil yet here they were strictly epiphytic.

It may surprise some of my readers when I say that a large number of trees and shrubs are true air plants in the warmer parts of the world. Several of the rhododendrons grow as epiphytes, especially along the south slope of the Himalayas and a good many of the *Ficus* begin life as air plants, their seeds being deposited on the limbs of other trees by birds, and, until their long, hanging roots have reached the earth, they live on the atmosphere. This is true of the *clusias*, the *wightias* and other forms of strangling trees and vines. In the grounds at my home is a vigorous young live oak with a stem an inch and a half in diameter and fully six feet high, which is completely epiphytic on a palmetto from Texas, and with it on the same palm are a half dozen young strangling figs. Although the oaks have never had much practice as stranglers this specimen is growing faster than any of the *Ficus*. Some bird doubtless dropped an acorn from an oak not far away which fell among the "boots" of the palm and it took to the new situation as if to the manner born.

Not all plants which live in the air do so because of being crowded. In central Cuba I visited an extensive savanna having occasional shrubs and *Copernicia* palms, some of them being 20 feet high. The dead bases of the leaves remained on for years and supported a botanical garden and menagerie. Here were a variety of cacti, including the delicate *Rhipsalis cassutha*, a large number of orchids, tillandsias, and some other epiphytes. They were not in the least crowded but the seeds were probably dropped by birds, and as the interior of the rubbish was always moist it made an admirable





*Hohenbergia pendulifera*

In western Cuba it grows on the trees in great masses. The somewhat scurfy leaves are four feet long and as many inches wide, the bloom stems are long and pendulous, bearing short spikes of inconspicuous flowers followed by capsules containing seed in a sweet pulp. It is a most striking plant and is readily grown from seed or suckers

place for them. If by any chance one of these air plants had fallen it would almost certainly have been destroyed by fires which often sweep over this savanna.

Florida is exceedingly rich in air plants both as to number of species and individuals, as we have not less than 80 wild forms that are more or less epiphytic, and nearly all of these are confined to its lower portion. Of these the wild pines, though not the most numerous as to species, form the great mass. There are not less than 18 of these of which the common or long moss, *Tillandsia usneoides*, is found in all hammocks, wooded swamps and sometimes in pine woods. This weird and striking plant has a wide distribution, being found from Wildwood, near the south tip of New Jersey, to lower Brazil. Another form

with more silvery threads has been found in lower Florida that may be a distinct species. *Tillandsia utriculata* has fine, strong arched leaves and a flower stem more than six feet high, and frequently is seen growing on the highest limbs of our loftiest trees—a most striking object. Another fine species is *T. fasciculata*, with flattened spikes of carmine bracts and blue flowers. Still another one with spirally twisted leaves which are cross-barred is rather attractive. *Guzmania* with soft green leaves and a spike of white, brown and dazzling red flowers is very handsome. Besides these we have a couple of *Catopsis* with white flowers that are quite pretty.

We have at least 25 species of tropical ferns in lower Florida that are wholly or in part epiphytic and among them is a *Blechnum* which lives in





*Cyrtopodium punctatum*

*A handsome orchid growing on a live oak in the hammock of the author*

low woods and grows well upon the trunks of trees. The curious grass fern, *Vittaria*, hangs in tufts from the trunks of trees, mostly cabbage palmettos, and the serpent fern, *Phlebodium*, sends its knotted roots along the dead boots below their crowns. Another very rare and curious fern has been found among the dead bases of the palmetto leaves. Its long-stemmed fronds somewhat resemble a human hand, hence the common name "hand fern," and the scientific one *Cheiroglossa* is from two Greek words meaning "hand tongue."

There is a large superb fern found occasionally in our hammocks, sometimes in wet humus but oftener well up on the trunks of trees; one of the spleenworts, *Asplenium serratum*. Its beautiful leaves are long and strap-like, serrated at the edges, and the color is a rich, almost bronzy green, giving to the forest a wonderfully tropical appearance. Another Strap fern, *Campyloneurum*, is much more common but is almost equally beautiful, and while it is often found growing on decaying logs it ascends well up on to reclining tree trunks. We have three very attractive polypodys, one the resurrec-

tion fern, which usually grows on the live oaks, which dries up so completely sometimes during droughts that its leaves are brown and may be snapped off, but if a quarter of an inch of rain falls it at once revives, turns rich green, and grows again as if nothing had happened. The other two are rare but it is worth a long search to find them, as they have the most elegant and delicately cut fronds. Here are two *Nephrolepis* or Sword ferns, one cultivated everywhere under the name of Boston fern and the other more robust. Both may grow on the ground and the latter, *N. biserrata*, occasionally has fronds more than 25 feet long. They are especially abundant under the leaf crowns of the cabbage palmettos and are strikingly decorative. If one will carefully examine the trunks of our swamp buttonwoods there will sometimes be found curious twiggy plants looking not unlike yellowish club mosses and related to them. This is *Psilotum nude*, that bears small yellowish berries, and it is possible that it may be parasitical as its roots penetrate sometimes into the solid wood.

I mentioned the fact that some of



the tropical and sub-tropical trees may be epiphytic and here we have in south Florida at least four that are so, the two wild figs and two clusias, the latter having been seen on the lower Keys. Who knows but the live oak, of which I mentioned an example growing on a palm at my place, is taking lessons from the terrible strangling fig, and as it has so often been a victim of that monster it is trying to retaliate?

We have fully 25 species of epiphytal orchids in south Florida, all of which are interesting and a few very attractive. *Cyrtopodium punctatum* sits on trees and it turns its roots upward so as to form a perfect basket in which all sorts of rubbish are caught, thus furnishing fertilizer for the plant. Its curious spikes of greenish and red brown flowers are quite attractive. *Oncidium* is represented by three species and a variety and *O. luridum*, with its arching, much branched spikes, often ten feet long, of dainty variegated flowers is a wonder, while *O. carthaginense* is equally fine. We have three vanillas which begin life as ordinary vines but which later sever connection with the ground and become epiphytic. They send out

adventitious roots which hold their succulent stems fast to the trees. There are a number of epidendrums, weeds among orchids as they are often called, but a few of them are really fine and on the southwest coast is that anomaly *Dendrophylas lindeni*, one of the strangest plants on this globe, which consists of a great mass of fleshy roots that crawl over a tree trunk, absolutely without leaves or growing stems, but bearing directly from its base great snowy white flowers of unbelievable form and beauty. There are a few epiphytic cacti and among them is the curious *Rhipsalis cassutha* which sends down long cord-like stems no longer than an ordinary wire, which has recently been found here on palmettos. Not long ago a *Peperomia* (which is also an air plant) was discovered here with leathery leaves and rat-tail spikes of greenish flowers.

The epiphytes are a most striking feature of our lower Florida hammocks and they impart to them a strange tropical appearance. The long mosses sometimes hanging in festoons for forty or more feet are weirdly and solemnly beautiful; they typify the spirit of the forest and are unlike anything else on the face of the earth.

## Some New Lilac Hybrids

By W. T. MACCOUN

The blooming season of lilacs is a long one for one genus of shrubs, being from the latter part of May until the first week of July at Ottawa. It would be longer if *S. oblata* and *S. oblata giralddii* were hardy, but they are not. The season of lilacs is opened by the varieties of the hybrid *S. vulgaris* × *S. oblata giralddii*, such as Necker, Vaubon and Pascal, and there is a gradually increasing list of charming varieties from this cross. Then follow the many varieties of *S. vulgaris*, the best of which are due to the work of

V. Lemoine and Son, Nancy, France, as are the varieties from the hybrid just referred to. There are now quite a number of new, or comparatively new, Chinese species from which, doubtless, will come many attractive varieties through hybridization.

The species *Syringa reflexa*, or Nodding lilac, is quite hardy at Ottawa, and as it seemed to the writer to offer great possibilities as a parent in obtaining varieties with more showy pendulous panicles than that species, and would be likely to give varieties





*Syringa prestoniae* var. *Miranda*

following those of *S. vulgaris* in season, Miss Isabella Preston, Specialist in Ornamental Horticulture at Ottawa, was asked to cross this species with *S. villosa* and *S. josikaea*, these being very hardy species; *S. villosa*, especially, being hardy in the coldest parts of Canada.

The *Syringa villosa*, which is called the Chinese lilac at Ottawa, grows to a large size there, attaining a height of fifteen to twenty feet and with a width almost as great. It is a fairly attractive shrub, blooming in early June after the varieties of *S. vulgaris* are over. The panicles are medium in size

and the flowers pinkish lilac in color. The Hungarian lilac (*S. josikaea*) is somewhat similar but there is more purple in the flowers and the leaves are glossier. It makes the best hedge of any of the lilacs tested for this purpose. The Nodding lilac (*S. reflexa*), while not as hardy as the other two, is quite hardy at Ottawa. The pendulous, compact and narrow panicles make this a very distinct species. The flowers, especially in bud, are bright pink.

Miss Preston was successful in crossing *S. reflexa* with both *S. villosa* and *S. josikaea* in 1920, and from these





*Syringa prestoniae* var. *W. T. Macoun*

hybrids there were obtained in the first generation some 299 seedlings. A few of these bloomed in 1923, and the remainder in 1924, and the results were very striking. The panicles of most of the varieties were much larger than either of the parents and the size of the panicles and number of them made the bushes appear to be one mass of bloom. There was great variation in the size and shape of the flowers and the panicles of a small proportion of the varieties had a distinctly drooping habit though not quite as marked as *S. reflexa*.

The odor of *S. villosa* is rather un-

pleasant, but some of the varieties of the hybrid have very little of this and with others it is almost pleasant.

As Mrs. Susan Delano McKelvey was preparing a monograph on the lilac she was anxious to see these hybrids, and on June 20 and 21, 1927, she visited the Experimental Farm, Ottawa, with Mr. Alfred Rehder of the Arnold Arboretum, and after seeing these lilacs, which were then in full bloom, she suggested the name *S. prestoniae* for the hybrid *S. villosa* × *reflexa*, and also named two varieties to describe in her book, namely, Isabella and W. T. Macoun.



The diversity of color of the flowers of *S. prestoniae* is not as great as is desired. They range from pale flesh colored or almost white to purplish lilac, but more and better bright ones are needed.

There have been fifty-three varieties named and all have been given the names of Shakespeare's heroines, except the two varieties above referred to.

Several years further test are necessary to determine which are the most satisfactory varieties, but the following are considered some of the best varieties of *S. prestoniae* at the present time: Audrey, Catherine, Cassandra, Celia, Cordelia, Diana, Hermia, Isabella, Juliet, Margaret, Miranda, Nerissa, Regan, Rosalind, Tamora, Ursula, Valeria, Viola, Virgilia, W. T. Macoun.

Following are descriptions of some of these, which were published in the Annual Report of the Division of Horticulture, Ottawa, for 1928; others will appear later.

Audrey (No. 20-14-195)—Flower panicle 9 inches long and 9 inches wide, with long lower branches with drooping tips. Bud daphne red to laelia pink. Expanded bloom purplish lilac fading to almost white within, pale laelia pink without. Tube long, funnellform, broadening at the throat, lobes large, roundish, reflexed, 1/2 inch long and 3/8 inch across.

Juliet (No. 20-14-241)—Flower panicle 6 1/2 inches long, 5 inches wide, long cone shaped, widest a little above center. Bud vinaceous purple to purplish lilac. Expanded purplish lilac within, laelia pink without. Tube flattish, with distinct bulge at throat, lobes opening horizontal, tips reflexed, 1/2 inch long, 5/16 inch across.

Margaret (No. 20-14-221)—Flower panicles 8 1/2 inches long, 7 inches wide, lower side branches very long, widest at three-quarters of height, short tip. Bud laelia pink to light pinkish lilac. Expanded almost white within, light pinkish lilac

without. Tube long funnel-shape, broadening gradually towards the throat, lobe tips reflexed, 5/8 inch long, 5/16 inch across.

Miranda (No. 20-14-38)—Flower panicle 10 1/2 inches long, 9 inches wide, broad at base, tapering to a point; two laterals bloom later; tips inclined to droop. Bud daphne pink to pale Persian lilac. Expanded bloom white with pale Lobelia violet shading in tube within; pale Persian lilac to pale laelia pink without. Tube long, narrow, lobes 5/8 inch long, 3/8 inch across.

Nerissa (No. 20-14-49)—Flower panicle 8 1/2 inches long, 8 inches wide, broad at base, tapering to point, drooping tips. Bud tourmaline pink to pale laelia pink. Expanded very pale vinaceous fawn, tinged with palest mauve within; pale vinaceous fawn tinged with palest mauve without. Tube long, narrow, broader at mouth, lobes deeply reflexed with hooked tips, 3/8 inch long, 5/16 inch across.

Regan (No. 20-14-251)—Flower panicles 6 1/2 inches long, 3 3/4 inches wide, medium narrow based cone, tips drooping. Bud vinaceous purple to laelia pink. Expanded bloom very pale, almost white, tinged with lilac at throat within; pale lilac without. Tube long funnel, narrowed at base, lobes expanding horizontal, 9/16 inch long, 3/8 inch across.

Rosalind (No. 20-14-233)—Flower panicles 14 inches long, 16 inches wide. The two large lateral branches bloom later and grow longer than center one. Bud laelia pink to light pinkish lilac, expanded very light pinkish lilac to almost white within, light pinkish lilac without. Tube long, narrow, wider at throat; lobes opening horizontal, 9/16 inch long, 3/8 inch across.

Ursula (No. 20-14-214)—Flower panicles 11 1/2 inches long, 7 inches wide, tall cone, widest at two-thirds of height. Bud daphne pink to light pinkish lilac. Expanded white faintly tinged with pale lilac within; light



pinkish lilac without. Tube long, funnel-shape, widening evenly towards throat, lobes large, opening horizontal,  $\frac{5}{8}$  inch long,  $\frac{7}{16}$  inch across.

*Viola* (No. 20-14-180)—Flower panicles  $9\frac{1}{2}$  inches long,  $9\frac{1}{2}$  inches wide, broad at base, tapering to point, widely branched, with drooping tips. Bud light perilla purple to purplish lilac; expanded purplish lilac with white hook within; light pinkish lilac without fading to pale lilac. Tube long, flattish, bulging at throat, lobes expanding horizontal,  $\frac{1}{2}$  inch long,  $\frac{5}{16}$  inch across.

*Virgilia* (No. 20-14-211)—Flower panicles  $8\frac{1}{2}$  inches long, 9 inches wide. Shape varies from broad bunch to shortish cone, tips drooping. Bud Tourmaline pink to pale laelia pink; expanded pale lilac within, very light pinkish lilac without. Tube long, flattish, lobes opening horizontal, later deeply reflexed,  $\frac{1}{2}$  inch long,  $\frac{5}{16}$  inch across.

In addition to these are the more technical descriptions of *Isabella* and W. T. Macoun which appeared in the monograph on "The Lilac" by Mrs. Susan Delano McKelvey, which are as follows:

*Isabella* (Preston No. 20-14-114)—

The individual flower is small in size,  $\frac{7}{12}$  inch long, with a corolla  $\frac{1}{4}$  inch in diameter. The corolla-tube is slender, funnellform. The corolla-lobes are small, pointed at the apex, cucullate, with a minute hook; they expand to a right angle with the corolla-tube. The anthers are the same size as those of *S. villosa* and inserted in the same position in the corolla-tube; they are visible in the expanded flower but inconspicuous. Their colour is in bud deep Purplish Vinaceous to Light Vinaceous-Lilac (XLIV); when expanded Pale Vinaceous-Lilac without, white with an eye of Pale Vinaceous-Lilac

(XLIV) within. The clusters are frequently a foot long and of equal breadth at their base; they terminate leafy shoots often 9 inches long. The basal subdivisions of the inflorescence are not infrequently 8 inches long, and droop for half their length while the secondary basal subdivisions show the same tendency. Except near the top of the cluster all the subdivisions are wide-spreading. For the most part the clusters appear from terminal buds, are held erect and are extremely large and showy. The rhachis, pedicel and calyx are green, as in *S. villosa*, lacking the bronze colour found in the form W. T. Macoun and others. The foliage is bright green and glabrous above, pubescent and paler beneath. The winter buds are ovoid with acute apex, the flower bud  $\frac{7}{16}$  inches long more or less, the scales reddish-brown with yellower brown margins, the lower pair acute, and conspicuously keeled, the upper pairs rounded, scarcely keeled, all glabrous or minutely puberulous near margins, slightly lustrous, the margins very broken. The leaf-scar much raised, shallow shield-shaped, not conspicuous, medium size; the bundle-trace slightly curved. The capsule is oblong, obtuse, non-verrucose,  $\frac{2}{3}$  to  $\frac{3}{4}$  inches long, each valve ending in a short, slender tip.

W. T. Macoun (Preston No. 20-14-51)—In this form the individual flower is large,  $\frac{7}{8}$  inch long, with stout, funnellform corolla-tube and a wide throat. The corolla-lobes are broad, acute at apex, cucullate, with a short hook. They are held erect, never expanding to a right angle with the corolla-tube. The anthers are large,  $\frac{3}{16}$  inch long, or about the size of those of *S. villosa*, and are inserted just below the mouth. They are visible in the expanded flower but not conspicuous because of the position of the corolla-lobes. The colour of the flowers is in bud Vinaceous-Purple turning to Tourmaline



Pink to Laelia Pink (XXXVIII); when expanded, the tube Laelia Pink, the lobes Pale Laelia Pink without, white with shadings of Pale Laelia Pink (XXXVIII) within. The clusters, frequently 9 inches long and 7 inches broad, are produced on leafy shoots 7 to 8 inches long. Their basal subdivisions are often 5 inches long. The clusters taper from a broad base to a narrow top and droop slightly for a part of their length. They appear frequently in threes, from one terminal and two opposite lateral buds on the same branchlet; the rhachis, pedicel, and calyx are tinged Dark Indian Red (XXVII); the rhachis is slightly puberulous, but not the calyx or pedicel. The winter-buds are ovoid with acute apex, the flower bud 7/16 inch long more or less, the scales reddish brown with yellowish brown margins, acute or rounded, the lower pair conspicuously keeled, the upper pairs less so, glabrous or minutely puberulous, slightly lustrous. The leaf-scar slightly raised, shallow shield-shaped, inconspicuous, medium size; the bundle-trace only slightly curved. The capsule is oblong, obtuse, non-verrucose, 2/3 inch long, each valve ending in a short, slender tip.

Wood of a number of varieties of *S. prestoniae* has been sent to nurserymen in Canada and the United States and these should soon be available in the trade.

Seeds of some of the best varieties was sown but in the bushes of the second generation, grown from this seed, which have now been blooming for several years, there are few, if any, that are better than the first generation.

The same year, 1920, that *S. villosa* and *S. reflexa* were successfully crossed, a cross was made by Miss Preston between *S. josikaea* and *S. reflexa*. From this cross but one seedling resulted, which was not of outstanding merit. The flowers had a little more purple in them than in the other hybrid. Seed was sown, however, from this one bush and by 1930 there were sufficient flowers on the bushes of this second generation to judge their merits; and among them are a few with flowers of a more attractive and truer pinker color than the *S. prestoniae* varieties, and the panicles being of a pleasing form, they are quite promising. None of these have yet been named nor distributed.

Other work in lilac breeding is under way as the lilac is a very useful and popular shrub and new and better varieties are constantly being sought.



Commercial packs of *Victoria* (left) and *Mitchell's Early* (right). The brassica leaves are used to cover the pack. Shimizu, Japan



# Open Air Winter Forcing of Strawberries in Japan

*More Leaves from the Explorers' Notebook*

By P. H. DORSETT AND W. J. MORSE

*The unique method of forcing strawberries pictured in the following explorers' notes lends itself to adaptation for the American home garden, large or small. Where a corner or odd bit of*

*ground is yielded to the growing of small fruits or where their culture is attempted on a more pretentious scale for the home table it commends itself for trial.—ED.*

The commercial winter forcing of strawberries in the open, without pits, frames, glass houses or artificial heat, is an accomplishment of Japanese horticulturists which is not only a unique and most interesting practice, but also one which, it is believed, does not exist outside of the Flowery Kingdom, and even there is confined to Kunozan, a small mountain on the west coast of Suruga Bay, within a few miles of Shizuoka, Shizuoka-ken.

The southern slope of this mountain rises out of the bay and along its edge runs forever and anon the silvery surf of the whispering waves as they break upon the shore. In places little more than a hundred yards or so from the surf are vegetable forcing frames and occasionally the slanting rubble faced beds of strawberries, one of the best and perhaps most popular small fruits grown. The latter, however, are for the most part grown on the mountain slopes.

We learned that on this southern slope of Kunozan, warmed in winter by gentle sunshine and the warm ocean currents which pass nearby, a little more than a quarter of a century ago, 1903, a Mr. Tsunekichi Kwashima, who lived near the entrance of Toshogu Shrine on Kunozan and kept a tea house there, first used rubble faced slanting beds in which to grow strawberries in winter. From this meager beginning of perhaps a few square feet of space has developed an industry

covering many thousand square feet of the southern slope of the mountain, which returned to those engaged in this enterprise in 1930 upwards of 70,000 yen (approximately \$35,000), and the industry is annually being extended.

About 9:15 on the morning of Tuesday, January 23, 1930, we took a bus at the city of Shizuoka for the village of Shimizu in the winter strawberry forcing section at the base of Mt. Kuno on Suruga Bay. As we recall, it was a lovely sunshiny morning and the ten or twelve mile bus ride through the rice paddy fields and along the narrow one-way streets, sometimes too narrow for the passing of carts and cars, was both interesting and most refreshing.

In the vicinity of and at Shimizu the lower and more level land between the road and the bay is primarily devoted to the frame forcing of vegetables, and in some instances extending to within a few hundred yards of the water. Even here we occasionally found stone-faced strawberry beds which on this date were almost completely covered with plants in flower and fruit; these, however, are the exception for the bulk of this crop is grown in these special beds along the mountain side.

At Kuno we stopped in to visit with Mr. S. Yamashita to look over his mountain-side planting of stone-faced strawberries in their odd stone-faced beds. Mr. Yamashita, we were advised, is the second largest grower of strawberries for the winter market in





*Rubble-faced strawberry beds on a mountainside at Kuno, Japan*

this region. He uses both rubble stone and concrete blocks to face his strawberry beds, but primarily the former. The concrete blocks are a newer innovation with him and their value in comparison with the old time water-washed rubble has not as yet been thoroughly demonstrated.

Mr. Yamashita grows four varieties of berries—Fukuba, Naruo, Victoria, and Excelsior—and all told has 40,000 plants under cultivation. The Fukuba is said to have been developed by a dietitian in the Imperial Household, and therefore bears his name. This is a beautiful oblong pointed berry an inch or more through at its base and two inches or more in length. It colors up well, even through the interior, and is of good flavor and quality. The Naruo berry, said to have originated in the Osaka district, is another fine large, long, pointed red berry which, from our observations, we are inclined to regard as even superior to the Fukuba.

The Victoria is said to have been introduced from England. It is a large, round, deep red berry, highly colored and very attractive. It, too, ripens up well and is of good flavor and quality, and is very popular in Tokyo.

We learned, much to our surprise, that each season the beds are razed, the rubble or concrete blocks re-set, fresh, rich garden soil filled in behind the facing, usually to the depth of about a foot and the new wall re-set with new plants grown especially for this purpose.

In laying up the rubble a row of the largest size stones used is laid at the bottom and the lower row of concrete blocks is also wider by about three inches than those above them. The rubble stones are placed so that the plants when set are staggered and about six inches apart each way. The concrete blocks of the lower row are about two inches in thickness, nine inches wide and eighteen inches in length





*Picking berries from a bed faced with concrete blocks. The bamboo supports are for the matting covering used at night to conserve heat*

with three V-shaped openings, each about two and three-fourth inches at the widest portion and about the same to the apex. The rows of concrete blocks above the base row are the same as those at the bottom except that they are only six inches wide. The concrete blocks when put in position are placed so that the V-shaped openings are staggered and the plants when set in these openings are six inches apart each way. Such accurate placing as this is not possible where the rubble stone is used.

The slant of the stone-faced strawberry beds is, as nearly as we could figure out, about 60 degrees and their width from four to five feet more or less, and from a few feet to several hundred or more in length, depending on the location and other conditions.

In order to conserve the heat absorbed during the day by the rubble stones and the concrete blocks, straw

matting made in long rolls is set up in front of the beds during the night. It is held away from the berries by a low protecting reed barrier extending 10 to 12 inches out from the top and usually two rows of wire, or light bamboo poles tacked along a row of stakes lengthwise of the beds.

After thanking our host for his kindness and assuring him of our very great pleasure in having an opportunity to see his unusual strawberry plantation, we bade him adieu and proceeded to the village of Shimizu, where we visited Mr. D. Hagiwara, by far the largest grower of winter strawberries on Kunozan. We spent the better part of half a day with Mr. Hagiwara looking over his plantation, making pictures and getting information.

About two-thirds of his beds devoted to the forcing of strawberries are faced with water-washed rubble stones and the remaining one-third with cement





*Portion of rubble-faced bed of Naruo variety. Larger stones are used at the bottom*

blocks. The number of plants grown here this year is 200,000. The sale of berries from Mr. Hagiwara's plantings last year amounted to 111,000 boxes, from which he realized gross yen 30,000 (approximately \$15,000), but he hoped to do much better than this during the present season. The two varieties grown here are Victoria and Mitchell's Early. Victoria predominates in the plantings and in our estimation is a finer, better all-around berry than the Mitchell's Early. This latter variety is an elongated berry of a light pinkish red color. It did not impress us as being in the same class with Noruo or Fukuba or even Victoria.

The Japanese practice of packing strawberries for market in so far as we have had an opportunity to observe, is quite different from that practiced in the United States. In Japan, except for wholesale trade, the fruit is graded and packed in single layers. The boxes are made of wood, at least we do not recall having seen anything but wood used in this connection. The boxes are made from 1 1/2 to 2 inches deep and varying widths and lengths. The ends are about 5/8 of an inch in thickness, the sides about 1/4 of an inch and the top and bottom 3/8 to 1/4 of an inch in thickness.

In some instances pieces of green leaves of a plant said to be *Lycoris*





Portion of a cement block-faced bed of the *Victoria* variety. The notched blocks give exact spacing

*radiata* are used to separate the rows of berries; in some instances the fruit is laid on leaves of a species of *Brassica*, and then covered with the same kind of leaves. Then again the fruit will be placed on small boughs of *Chamaecyparis* and then covered with leaves of *Brassica* before the lid is fastened down. They are also packed in shredded paper which has the appearance of being a rather soft tissue paper. Still another practice is to bed the fruit on a layer of *Brassica* leaves and have small rolled cotton along the sides and ends of the box and between the fruit.

The practice in packing followed by Mr. D. Hagiwara is to first grade the

fruit and then place the berries of each grade in rows in the box. Pieces of green leaves of what we were told was *Lycoris radiata*, the width of the box, are placed between the ends of the box and the fruit, and also between each row of fruit. After the box is filled the fruit is covered with a layer of *Brassica* leaves and then the top is nailed on. Normally the boxes contain 8, 9, 16, and 25 individual berries, depending on the size of the box and the grade of the fruit.

The boxes are stacked and bound together in parcels of up to 50 with rice straw rope, a product used throughout Japan because of its toughness and strength.



# The Ismene Lilies

By ROY G. PIERCE

The Ismene lily, *Hymenocallis calathina* Nichols., is a native of Peru and Bolivia, belonging to the Amaryllis family. It is closely allied to the Crinums and Pancratiums. In fact at one time it was known as *Pancratium calathina*, at another as *Ismene calathina*. For derivation of the term Ismene, we turn to the Greek. Ismene appears in Greek mythology as daughter of Oedipus and Jocasta, and sister of Antigone. She also appears in Sophocles' tragedies "Oedipus at Colonus" and "Antigone." This Ismene lily was introduced into cultivation in 1794 according to Baker.<sup>1</sup> By 1817 we find the flower pictured in the Botanical Register. Some of the members of the Genus *Hymenocallis* are well known as spider lilies, and are native of the Southern States. Species of *Hymenocallis* are only known from the Americas.

On account of the ease with which the Ismene Lily (*H. calathina*) can be grown out of doors in the United States, and because of its delicate beauty and fragrance, this lily deserves, I believe, to be much wider planted than it is at present. The bulb sends up a number of long strap-like leaves, somewhat like those of the amaryllis, and a long stalk, called a scape, at the top of which are produced from one to five lily-white flowers. The flowers are funnel-shaped, the tube being from 3 to 4½ inches long. They are greenish within, while green stripes also run out from the center toward the edge of the cup. The edge of the flower is not even and smooth like that of the Easter lily, but fringed or ragged, giving the effect of an unfinished flower hastily cut from white paper. There are also six narrow white segments one half inch wide borne outside the cup, giving the flower a star-like ap-

pearance. The corolla-like cup or perianth varies in width from 3 to 3½ inches, but from tip to tip of the narrow segments, it is at least 5 or 6 inches. While their fragrance is delicate, it is quite pervasive, their presence in the garden being detected even before the flowers are caught sight of.

I have been growing the Ismene lily in my District of Columbia garden for over ten years, blooms being secured each year from the larger bulbs. My practice with the bulbs has been to store them uncovered in a dry cool cellar, though above freezing temperature. The bulbs are planted from 6 to 10 inches apart in April, if they are going in ground not occupied by other bulbs during the winter, or in May after the tulips are through flowering, if they are to occupy the former tulip bed. The bulbs even if planted early usually will bloom in late June. Bulbs planted as late as May 31, have bloomed in less than 4 weeks. There is one record of bulbs being planted in June, in hot weather, which bloomed in less than two weeks. I believe that from the standpoint of bulb development that the earlier the bulbs are in the ground after the last date of freezing weather, the better, for late planting seems to give early flowering at the expense of the bulb. The bulbs are planted so that the tops are from 2 to 3 inches below the level of the soil. Attached to the base of the bulbs are numerous fleshy roots. Care is taken so that the soil is dug deep enough, and fertilized deep enough, so that these roots are in good soil. Some latitude is possible in the depth of planting, for a neighbor, Mr. W. T. Simmons, planted mature bulbs in a heavy clay soil at different depths ranging from 1 to 8 inches below the surface, and secured flowers in each case. In the fall the bulbs are dug

<sup>1</sup>Baker, J. G. Amaryllideae, 1888.





*Ismene lily flower and bud*



before freezing weather, the tops being left on for several weeks. The tops are then cut off 4 or 5 inches above the bulb and the bulbs are spread out on the cellar floor to thoroughly dry, after which they are piled in a carton for the remainder of the winter.

Propagation secured naturally is somewhat slow. When the bulbs have grown to about maximum size, they split up into 2 or 3 bulbs, sometimes into two about equal-sized bulbs, both of them being of flowering size. Little off-shoot bulbs  $\frac{1}{4}$  to  $\frac{1}{2}$  inch in diameter are also frequently produced at the base of the larger bulbs. Inadvertently I learned how to secure a large number of bulbs quickly. In digging the bulbs one fall, just before freezing weather set in, I wounded one of the bulbs severely with the spading fork. Rather than throw this damaged bulb away, the next spring I planted it with the rest to see what it would do. Though the planted bulb was large no flower appeared, but many leaves were sent up and at the season's end 8 or 10 small bulbs were dug, in place of the one or two larger ones. Since that time I have frequently injured a bulb or two in digging them with the spading fork but have almost uniformly profited by it by securing a number of small bulbs. Of course it must be admitted that the flowering-sized bulbs were lost when they split up, but there was a gain in the number of plants. Seed bearing is scanty in Washington, only one or two large fleshy seeds being produced per stalk when the flowers are pollinated. So far I have been unable to product plants from these seeds.

While I use this lily in a group or bed in the flower border with 10 to 20 or more bulbs in a group, I believe that they are also useful planted singly in a bed with annuals or perennials, the brilliant green foliage adding to the general attractiveness of the bed. The Ismene lily also makes an attractive potted plant for the house or conservatory, being grown like an amaryllis. However, instead of the bulb being placed partly above the surface of the ground

it is planted usually with the top of the bulb just below the surface of the soil.

The Ismene lily has succeeded in this country in various places. Through personal correspondence I am informed of its success in Connecticut, Nebraska and California. Through the courtesy of Dr. David Griffiths, bulb expert of the Department of Agriculture, I have been permitted to see the file of short articles on the Ismene lily, culled from many magazines. While several writers note difficulty in securing flowers from their bulbs, other writers from New York, Pennsylvania, Minnesota, Iowa, Illinois, and Texas state they have been successful in securing blooms. A letter from Mr. H. Nehrling of Florida, veteran plant grower, written to me in 1923 states that "For the Ismenes our soil is too light and our climate too humid."

Besides the white Ismene lily there is a yellow Ismene, *Hymenocallis amancaes* (Ruiz & Pav.) which is practically unknown in this country. This species is reported to be native in Peru and Chile. Albert Pam<sup>1</sup> writes that he has been growing this yellow Ismene for over 20 years in Hertfordshire, England, having obtained the bulbs from Peru himself. From the photograph shown by Mr. Pam and the botanical description of the flower, it would seem to be quite similar in form to *H. calathina*. He states that "the flowers are very sweetly scented, three inches across, yellow striped with green, and the flat scape is over 3 feet high."

Mr. Pam's experience in growing this flower in pots is interesting and may furnish a clue to its culture in this country. He writes: "As with all Peruvian bulbs, *Hymenocallis amancaes* must be kept quite dry during the resting season; when the leaves have died down I cover the pot with a sheet of glass and the plants receive no water until the new growth is two to three

<sup>1</sup>Pam, Albert. Indoor Plants—*Hymenocallis amancaes*. (The Gardeners' Chronicle, Vol. LXXXVI, Third series, p. 107.)



inches high in early summer; from then onwards the plants must receive increasing amounts until the flowers are over, when water must again be decreased. It should not be forgotten that in the coastal districts of Peru it hardly ever rains, the only moisture which vegetation ordinarily receives is from drizzles, heavy dews and mists; all plants from these parts and from the north of Chile must, therefore, be kept decidedly on the dry side, except when in full growth, if they are to be grown successfully."

Introductions of this yellow *Ismene* have already been made into this

country, two lots containing 36 bulbs having been received by the Division of Foreign Plant Introduction of the Bureau of Plant Industry in 1926. These bulbs have already been distributed to several places in the country and it is hoped that reports of their behavior will soon find their way into the horticultural magazines, in order that the American public may know the possible range of its growth in the country and its requirements.

If the yellow *Ismene* should prove as adaptable to growing in the United States as the white *Ismene* seems to be it would indeed be a treasure.

## The Amateur Makes a Rock Garden

By ELSE M. FRYE

All through the length and breadth of this country there are folk who would work in a rock garden. The plants themselves bewitch them; the difficulties of their culture intrigue them. To those whose labors are confined to city lots and who consequently have not space and obviously not the means to carry through Reginald Farrer's admirable instructions, this little account of a beginner's rock garden is dedicated.

Farrer's two volumes are my most treasured books, those that are most frequently open on my table. It is not my intention to minimize his work in the slightest degree nor do I contend that my way is better, for I do not think it is, though it has been the road to heart's desire for me. My only excuse for this peroration is that I have had much happiness and tangible success in my own backyard garden and way even though compelled to ignore and violate most of the rock garden proprieties. To be quite fair with my readers, however, wherever it has seemed imperative for them to consult authoritative opinion there has been placed a number which corresponds to that of a page in the introduc-

tion to "The English Rock Garden" where will be found set forth the proper way.

The chanciness of happenings is part of the excitement of living. I shudder to think how easily instead of the rock garden I might have had an expanse of lawn, probably none too good and full of weeds, since there is much wild land around us. Our house is built on two levels on a side hill, sloping sharply into a ravine which is at all times a place of beauty. In winter tall firs afford the only green. Red-stemmed maples and alders of dusky purple add their color. Now in spring the maples are hung with soft yellow flowers and their golden young foliage. The alders are a luscious apple-green. The ravine is here and there shattered—so breath-taking it is—by the heavenly white of the dogwoods at their most glorious season. In the other direction we can look far into blue atmosphere over a small valley, an end of Lake Washington, and to the Cascade foothills and ranges which for more than half the year are snow-capped and always glowing with the loveliness of distant color. Northward and west the outlook is uninter-





*The two older portions of the rock garden with a little of the newest portion in the foreground*

esting and need not have been mentioned at all except for the necessity of making my own background. One can not have a rock garden bounded by the neighbor's bank nor by one's own house-walls (27). Shrubs of various shapes and sizes, evergreen and deciduous, with rock plants among them for ground cover, form a screen. It is not so bald as it sounds.

To have any garden at all, we had to make a very extensive fill. It was our good fortune at that time to have in the neighborhood many fraternity houses and some apartment houses under construction. Our bank was a convenient dumping ground for excess dirt and day after day, truck after truck, hundreds of loads were backed in and dumped. At last at the extreme edge a ridge of sharp, gray, sterile "hard-pan" was left. It was thought that in a short time this would settle and the whole would be comparatively

level. But it did not and it was an arid and unsightly thing. A man was hired to bring his horses and scrape it off and over. When he arrived he was afraid to put his horses on and he went home and left us to our unhappy meditations. In the mean time, a few thistles, prickly lettuce and horsetails had taken hold so we knew the pile would support some forms of vegetation.

One inspired morning we decided to have a rock garden there. My husband pulled and hauled our mound into a rather interesting contour. Some rocks were brought in, not at all what we most would have liked but the despised granite which is most available in this region (29). We brought in at one time and another a great deal of leaf mold and peat to provide sustenance and to loosen the soil. At that time I had not differentiated plants into wall plants and rock garden plants. It





*The stairway with the two older parts of the rock garden to the right*

was perhaps as well—I know it saved me much disappointment. It was mostly wall plants which fell into my hands and they prospered and the effect was quite worth the labor and effort in my own eyes at least.

As time went on I learned more and became more ambitious. I wanted space for true alpiners and rock plants. It may not be amiss to state what I mean by those terms. An "alpine," strictly speaking, is a native of mountains above timberline or of regions so far toward the Poles that conditions are identical. "Rock plants" is a much more flexible term. They are a cosmopolitan group and may be garnered from lowlands and highlands, dry or moist situations and even from such special conditions as bogs and seashores. They must be dwarf—and that must be a hereditary characteristic, so that in the comfort of the garden they will not take on an undue

ampleness nor sprawl in an unbecoming fashion.

More rocks were brought in. My husband piled the earth here and there and made high places and low places and little paths among them. All the artfulness and knowledge and feeling for contour which he had absorbed while tramping the vast rock gardens of the western mountains was utilized and adapted to our own small spot which was in no way to resemble a miniature mountain range. It is intended only as a suitable background and condition for certain rather specialized plants. Thus will beauty best be served. He built a wide, rough stairway with broad and shallow treads, from the upper garden to the lower. Its cracks and intentional crevices were soon overgrown with trailing plants and tufts. It is attractive, and serving a utilitarian purpose it does not in the least have the air of an



appendage. Irregularly shaped cement blocks were laid in the paths for stepping stones.

This last fall, just five years after the rock garden germ took hold of us, the remainder of the upper garden has been added to the rock garden. The whole situation and aspect have been greatly improved thereby. This time we proceeded a little differently. The whole level was spaded to a depth of twelve inches and sifted through a half inch screen and lightened with a generous amount of finely shredded peat (28). This is contrary to all rules, but with our sticky, cementy soil, we have learned this to be the best procedure. My husband again did the contour work, not exactly as he had planned but a little as he might, because of water and drainage pipes. He placed all but the largest rocks, and the very largest were hauled and shifted by means of a winch, till they looked as right as was possible with the material in hand (31).

In placing the rocks, we had not the temerity, nor indeed any desire, to do anything but follow the rules. Even in this raw stage, beauty of contour and placement was evident. Though built at three different periods there was not a trace of lack of sequence and coherence. The rock garden is one thing, the extensions are growth, not additions. Tranquility and harmony abide there.

Looking out from the living room windows, it seemed to us that our stepping stones, especially if more were placed in the new paths, were quite too much in the eye. This of course would be more true in the winter than in the summer. We thereupon decided to remove them. Now when our treasures begin to spill their seeds into the paths and they take hold there, it will no longer seem bare, but quite natural and altogether charming.

Now I could continue with the technical description and the botanical names of the plants we have gathered together, but I shall restrain myself and will instead tell you about certain

general kinds of plants that were used. Dwarf shrubs and shrublets, both coniferous and flowering ones, will do a great deal for a rock garden landscape. They add proportion, up and down balance as well as winter-time interest, summer-time shade and adequate background for some little piece of alpine fragility. This class of plants is very hard to get, but by poking about from one to several kinds were found in nearly every nursery where we adventured.

Another useful class of plants are the little, dwarf, rock ferns. They are mostly evergreen and therefore a boon in winter. There is a sturdiness about them at all times that is captivating. They often helped to break the sharpness of a rock ledge or made a pleasant green on a bank.

There are many creeping plants with beautiful foliage, evergreen and deciduous, and often with beautiful flowers as well. This type of plant is not so delicate as some—if one part is injured by rough usage, it is likely that other parts are rooted and anchored. Such plants were used along the paths and over steeper parts where they were an aid in retaining the soil.

By far the greatest number of alpine plants are those making little tufts and rosettes. They are the dearest beauties of the rock garden and there are many hundreds from which to choose. Up and down and in and out among our rocks, they make a fascinating pattern.

In this northwest corner of the United States our climate is so mild and equable that there are but very few weeks when we can not have some color in the rock garden. In February, there were blossoming Christmas roses, several saxifrages, alpine primroses, hardy cyclamen, snow drops, winter aconite, scillas and so on. But to bring it into sudden glad bloom early in the spring we use species bulbs—wildings from every corner of the earth. Dwarf tulips, tiny narcissi, low iris, the delicate species crocus, fritillaria, the whole erythronium aggregation and



many more may be had. Wherever these were blooming in spring, there will be a vacant spot in summer. There are many dwarfs and much loveliness among annuals if one will trouble to seek them out. Such we used to cover and add glow when it is needed to otherwise barren spots.

Of course the best months for planting in our country are March and April when the earth is just awaking, or August and September while there still remains a short season for readjustment. In our garden planting goes on continuously throughout the months, but with us planting is not one operation. For a long time the subject is under observation—to be sure it is convalescing properly. If it is too cold, it is sheltered with small boughs, pine needles or a piece of gunny-sacking, or if a frost has lifted it out of the ground it must be firmly and quickly pressed back. If it is drooping unduly, the evaporation must be reduced. It is well to know the habitat and nature—susceptibilities and aversions—of each plant.

It was some time before I saw that it was neither beautiful nor natural for plants to be isolated and separated from others—they are more gregarious than animals. As for the effect, it is far better to get several plants of one kind and plant them in a drift than it is to get the same number of plants and one of each species. It has been difficult for me to discipline and confine myself to this precept. Having a collecting mind, when I acquire a new plant, my interest is immediately aroused and extended to all its kith and kin, good, bad and indifferent. To overcome and employ this magpie interest, I collect other things—colorful bowls, jars, bottles, baskets and what not. These small drifts will not look too well the first year. Their limits will be too clear and well defined. Thereafter, however, when their seedlings are wandering abroad, the whole will take on a spontaneous and careless air which simulates nature itself. To make the effect of our despised rock

less stark and crude, the plants were set in as closely to them as was possible so that they lean over them and make some sort of connection between them and the earth.

We found it possible to have a rock garden in which the plant material costs very little money and one in which it may cost a great deal, and the former need not be any less beautiful than the latter. If plants that have been long in cultivation and are hardy and fairly easily propagated are chosen they will be comparatively inexpensive. If one chooses to furnish the rock garden with plants that have just lately been discovered in the mountain wilds of Asia and of which it is difficult to get cuttings or even seeds, or whose idiosyncrasies one does not exactly understand, the garden will cost anywhere from ten to two hundred times as much as in the first instance. The very romance of these later plant discoveries adds a zest to the thrill and excitement of the garden—one would not be human if such acquisitions did not put one a little more on top of the world.

In any business, the owner, to persist, must see it partly from the viewpoint of his patrons. In most cases we were entirely safe in throwing ourselves on the mercy of the nurserymen. They were a human lot and took pride in helping us get what we wanted and needed, showed us treasures that might be available in the future and often helped in eking out what was at hand in a way of which the layman could have no knowledge.

In this garden of ours there are no pools or brooks—partly because of lack of time and money perhaps; but more that they have not suited the location. It is essentially a dry garden, sloping toward the rising sun and with breeze and wind forever hastening over it. In this particular spot, it would have seemed like the introduction of something entirely foreign. One morning, when the world was not so interesting and shining as usual, I did get up to build a bird bath. A shallow



circular hollow was scooped out, the first layers of cement were smoothed with a paddle and the last with the hands, not too carefully, so that the movement and finger-tips are apparent. There is a softness about cement that hands have modeled, and a harshness about hands that have modeled cement. I like it. The birds like it. Around it in a little open space are growing bog plants, ferns and such.

Here are no gnomes, storks standing on one leg or two, fat frogs, such as never were in any pond, no other excrescences of cement, plaster of paris or what not. If I could, I would have a small statue, created specially for a favored spot, of some exquisite and earthly child's figure, challenging all who passed with the glory of the day and the happiness of the garden.

By this time you are assured that rock gardening is a very serious business! It is my hope that you will also think it extremely fascinating with much of accumulative happiness to boot. In this form of gardening there is the freedom and elation concomitant with the creation of beauty, the relaxation and excitement of plant-hunting in the wilds and nurseries or vicariously in books and catalogs, and lastly all the romance of plant geography and relations awaiting a winter's night.

Apologia: This account savors much of an egotistical and insufferable garden pest. I could wish it were much less pedantic and had more of a gentle shepherd manner, bearing, instead of the shepherd's crook, an alpine stock in one hand, an *Eritrichium* of shining blue in the other!

## The Idealist in the Garden

Good gardening, in my opinion, does not consist of an excellent garden plan or a splendid series of color combinations and floral pictures throughout the growing season as much as it consists of making each plant thoroughly at home and in extending the flowering season into the dreary winter months that are usually thought of as drab and unprofitable. The ideal garden is one that is always interesting and attractive with some sort of bloom showing except when covered with snow, and even then the snow will make pictures of enchanting beauty with the evergreens and the berried shrubs. And when the snow melts—to find flowers bursting into blossom!

The mongrel viola which results from natural crossing of the Johnny-jump-up and *Viola cornuta* and the hybrid violas will bloom all through the coldest winter and always give a touch of purple with a varying amount of gold in every nook where their

wind-blown seed has settled. In the coldest weather the flowers will be bronzed and almost stemless and very much larger than they are during the late spring when they have grown spindly and weedy.

From late December on into the spring, excepting during bitterly cold weather, the chaste beauty of the snow-drop may always be depended upon to provide a steady succession of bloom. By planting *Galanthus byzantinus*, which with me is the first to flower—usually about Christmas, *G. cilicicus*, *G. elwesii*, and *G. fosteri*, among some of the small-leaved, slender-growing ivies both for protection and to throw up the snow-drops into bold relief, one may have flowers until the more widely planted *G. nivalis* begins to bloom and carries the flowering season to the time when the scillas and winter aconites begin to add more color to the garden. But for brilliancy of display during the winter months there is nothing that so



generously pays for its space as the several species of winter-blooming crocus.

*Crocus sieberi* is always the first to bloom and only once during the last seven years has it failed to open its lovely orange-throated chalices of amethyst during mid-January. It has multiplied so freely that now it is a carpet of color and the flowers are so closely packed that the beauty of their shape is completely lost. Soon after it has begun to flower, *C. imperati* starts to open its soft lavender-purple stars. This crocus varies greatly; my first lot were pale in their purple with hardly any touch of buff on their three outer segments, which in the best forms makes this crocus the loveliest of all. The second lot were rather deeper in tone and had a more pronounced striping on the exteriors, but on a greyish ground, not buff. The next autumn I went to a small New York firm which dealt in all these small delights and sold them at prices that were in reach of slender incomes, but, alas, is now no more—may that dear woman's soul rest in peace among the spirit flowers of the things she loved so well and always handled so truly, amen—and I asked for six corms of this crocus from each source that supplied her and the result was that I at last got the desired buff and purple type. This does not increase as rapidly as the other forms, but it does increase and it blooms better every year and that is the main point.

Before these two have finished *C. tomasinianus* begins to flower. This crocus name is usually spelled with two m's, which is incorrect, and being a stickler for correct nomenclature I must pause to quote the Crocus King on this point. E. A. Bowles says that it was "named by Dean Herbert after his friend Signor Tomasini of Trieste. Herbert always spelt the name of both his friend and the plant with a single "m" and the modern spelling of Tommasinianus is incorrect." In my garden the label has the double "m" and it always worries me to see it, but

painted zinc labels are tedious to make and every time a new batch are being made I forget the poor little fellow and so must continue to explain to visitors who write its name down that I am a procrastinator. Its starry flowers of lavender make lively pools of color during sunny days in February, but vanish and seem never to have been there at all on cloudy days, for it has a habit of tightly closing up at night and only opening in the sun, and as the backs of the outside segments are dull and greyish they melt into the tones of the rocks and earth and the dead leaves that lie about.

I have never had the heart to carpet thickly over these daring heralds of the spring. I am not afraid to see the kindly earth about my growing plants and also I have a fear that a thick carpet over these little corms may rob them of their summer baking. White thyme is the only thing I know of which is thin enough in mass to let the sun's heat through and into the soil and yet protect the flowers from being splashed by the rain, but I hate to repeat white thyme over everything, and so have hit upon a thick covering of stone chips about some of these early bloomers, and I find that it answers the purpose admirably both in satisfying my aesthetic eye and in protecting the flowers from mud. Two years ago I experimented with the first lot of *C. imperati* which had increased madly and planted two *Nierembergia rivularis* plants over them; the result was exactly the opposite of what I had expected, for the crocuses almost worried the cup flowers to death by spearing through the plants' matted roots. So far each has lived, for by the time the summer blooming plant has recovered itself the crocuses have had their sun bath and have stored up energy enough for their next year's blooming.

As *C. susianus* stubbornly refuses to bloom for me, though I have tried it from several different dealers, and have planted it deep and have planted it shallow and in several parts of the



garden, and now have come to the conclusion that it needs a heavier soil than I am able to provide for it, and as I must have yellow crocuses at any price I invested in three other yellow species last autumn. All of them scheduled to bloom early in the year. *C. vitellinus*, *C. aureus* and *C. korolkowii* were duly planted in very prominent places in the rock garden so that they could make a "burst of glory" during late December and on into February. Time passed and the three species described above had bloomed and gone when "aureus" began to send up fat buds of deepest purple that opened out into identically the self-same flower as the Dutch hybrid "Purpurea Grandiflora," which was blooming in another part of the garden, and shortly afterward "vitellinus" duplicated "Mont Blanc," and my rage knew no bounds. How a dealer figures he can get away with a thing like this is more than I can understand, for the simplest beginner in gardening would know the difference of color at least. I would advise any one who orders these two species and receives corms that look like the Dutch hybrid corms and are as large to send them back at once, for they will surely prove to be wrong. I had planted mine with misgiving in my heart when I saw the size and shape of the corms.

As though to make up for my disappointment in these two, the other newcomer to the garden proved most delightful. For a full month *C. korolkowii* continued to bloom in golden splendor, every corm sending up many starry flowers of richest yellow heavily striped with brown on the backs of the outer segments. It flowers with its foliage above the ground and so to some extent avoids the need of a carpet, but I had planted it on the outskirts of a planting of *Linum alpinum* and the feathery blue-green foliage of the alpine flax made a most delightful picture with the shining stars of the crocus. Though it is said to bloom from late December to February, mine did not start to flower until the latter month had begun; but this last winter was

exceptional and all my crocuses were much later than usual, so perhaps when it has become established it will prove to be the first to flower. The corms of this species are as large as those of a gladiolus and so should be planted a greater distance apart than those of other crocuses that they may not become overcrowded too soon.

Late February always brings the last two crocus species that I have, *C. biflorus* and *C. versicolor*. The former has never done any great feat in regard to increase such as the others have and so does not make so large a display of its white, purple-striped flowers. But it is not happily planted for it grows through a mat of *Cotoneaster microphylla* and so does not have the summer baking that it needs. It makes such a charming picture as it blooms through the dark glossy green foliage of the little shrub that I have left it there, preferring to cut back that side of the cotoneaster every once in a while when it has grown too thick. *C. versicolor*, on the other hand, has seeded itself all through a patch of the border and seems to be willing to grow everywhere. It was planted under a white lilac before the rock garden came into being, and though twice I have dug up the corms and replanted them elsewhere it is still thickly carpeting the ground where it was first planted. I do not have the white form, but only the lavender one with purple markings, and so far none of the seedlings have given me any of the paler sort. A chance grouping of it with *Veronica incana* has delighted me for several years now; true, it is not a gay combination, but the grey of the veronica foliage and the lavender and purple of the crocus flowers is very pleasing. Some day I hope to add *C. chrysanthus* to this group, for I am sure that a yellow and grey combine would be most lovely, and then *C. chrysanthus* would have finished blooming before *C. versicolor* begins—and even if it had not the picture would not be spoiled. But yearly I search through the catalogs, hoping against hope that



I shall find the golden crocus for sale in America, and always feel a keen disappointment. It seems to be plentiful enough abroad, and it is not expensive as prices go nowadays, but our bulb dealers have so far ignored it as a salable article.

Before the pageant of the crocus is gone, *Iris reticulata* begins to flower, and very soon after *I. persica* joins with it; some day I hope to have all the varieties of these two jewels and then perhaps I shall pass into nirvana. At present they and the other junos are beyond the reach of any purse but that belonging to a Croesus. So until the year that I get the right sweep-stake ticket they are only the substance of desire, and I content myself with the dwarf bearded iris for early spring color. Nor am I suffering any hardship by so doing, for some of the loveliest things in the floral kingdom are among these early flowering hybrids, and hybrids they certainly are, though catalogs may call them "pumila." When one has once seen a real *I. pumila*, even "caerulea" and "atroviolacea" seem large.

Being determined to see just what Dykes meant when he said that none of the dwarf bearded iris in the trade lists were pure *I. pumila*, I got seed from Correvon and waited results. In flower and in leaf they are lower than the smallest of my named varieties, which is *I. caerulea*; perhaps most people would prefer the larger flower of the trade varieties, but to my eye the true *I. pumila* is charming and I only regret that so far mine have only given me a limited color range. A deep red-purple which is very like "atroviolacea" and two rather similar shades of canary yellow, or perhaps lemon yellow, would be more nearly right. I had great hopes of getting a pinkish one like that pictured in the plate in Dykes' monograph, but since having talked with several who know more about this species than I do I am rather inclined to think that the artist of that plate had an artistic color eye that is denied to most of us. My

seedlings bloom just ahead, by only a day or two, of their larger kindred. I do not mean to imply that I do not like the dwarf hybrids; quite the contrary, for if I had more space I should want every one I could get to cheer the early days of spring with their color and to relieve the yellow of my daffodils, but as one grows older the shape and proportion of a flower count for more than mere color mass. There is usually a gracefulness, a nice adjustment of proportion between the parts of the bloom and the foliage in species and in natural hybrids that is not always found in man-made hybrids; for man breeds for color or size while nature just develops.

Most of the older varieties have this delicate refinement much more than the new ones where size of flower and height of stem has been the aim of the hybridizer; so I like "azurea," "atroviolacea," "caerulea," and "Socrates" much better than such huge-flowered varieties as "Alpin" and "Schneekuppe." Most of the hybrids raised by the late Mr. Burchfield are charming and retain this niceness of proportion and so rank high in my regard. However, I feel rather like a radical in the iris world, for should I ever bring myself to score iris and give them a percent I should mark many of the huge-flowered ones that now bask in the public favor and a high rating quite low, and give many of the slighted beauties of perfect shape and form a very high mark, so that what I say should be read as the ravings of a rabid iconoclast. Then, too, I do not have every dwarf that has been introduced nor have I seen them all—and that does make a difference.

Even so, I shall dare to praise some of those I have because I have found them pleasing and have learned to love them, and after all what more can be expected of a plant. Among yellows I shall always like "Sonny," "Nugget," and "Harbor Lights"; the future may add to this list but it will never take any of these three away. I like their form and their color. Beginning



with the first, which is a good deep color, the next is lighter in tone, and the last is of a soft lemon. I should like to have added "Orange Queen," if only for its color, which is even deeper than "Sonny," but it is just a trifle large for its height, and I would add "Glee" but that I have only had it this season as a new plant and want to know it better. I have no whites which I can praise highly enough to put in first place. "Wigan" always delights me with its brownish-red coloring and its good proportions. If there were more brown in it I should like it even better than I do, for then I could use it with the yellows to make one of those rich effects that I am fond of making with the brown Breeder and yellow Cottage tulips.

In blues I like the color of "Cyanæa,"—I mean the old variety, for I understand that Burchfield had one of the same name but lighter in color,—but I like it for its color only, for it is clumsy in its size as though it belonged to a taller growing plant. "Niobe" and "Marocain" are much more to my liking, and when I am able to have, as I sometimes do, *Alyssum montanum* blooming near them they make a gloriously barbaric show that knocks the eye out. "Black Midget" is an airy little dusky beauty that shall always stand high in my regard, and of course "atroviolacea," if only for its profusion of bloom. In lighter shades of blue both "azurea" and "caerulea" can never be omitted. I feel that I have been unfair in naming these, for I have only a small collection, and so may have slighted some that deserve mention, and I hope that some one who has a larger number of these dwarfs will take the trouble to write them up, for the catalog descriptions are always so brief when it comes to these little fellows that hardly more than the color is ever given.

In that happy day when my Argosy returns I shall have a very long and very wide straight path,—and so violate all rules of pretty gardening,—and along the path will be wide borders

whose edges will be planted with groups of these dwarf iris and daffodils, and many of the early trailing rock plants, for the path shall be edged irregularly with rocks. I shall not care if it be rather bare of bloom in summer, for I shall have had my spring delight, and crocuses will paint the autumn and the winter with bright color.

A few years ago I added the iris "Shushan" to the garden, and when it bloomed I immediately fell in love with the whole group of Pogo-cyclus hybrids. There is a subtle charm about their wierd and somber beauty that is quite difficult to define, and they increase with moderation, which is a great asset in a small garden where there is little space for extension. So completely have I fallen under the spell of their charm that had I more space at my disposal I should add all of them to the garden to the exclusion of any of the newer tall bearded wonders. "Zwanenburg," which every one knows, I had had for years and had been growing it in a level border, but I felt that the others needed different treatment and a dryer site than the level ground would furnish, so where the path dips down to the rock garden and an eighteen-inch high dry wall holds up the corner of the border a place was made ready by digging in bonemeal and old plaster and crushed oyster shells and here the plants were set out. They have done exceedingly well and much to my surprise they attract much more interest from the casual visitor than the tall bearded ones do.

The first to flower, blooming even before Zwanenburg, is "Mons. Steichen," or is the name spelled with an "r" between the second and third letter?—the only two catalogs where it is listed spell it each way and the Iris Check List does not give it, so I know not which is the correct spelling, but I do know that it is a most marvelously beautiful flower. I can come no nearer describing it than to say that it is of pearly whiteness flushed with pale blue and with yellow, and there is



a deep wine-red velvety blotch just below the beard. It did not grow to the height of fifteen inches, which is usually assigned to it in the catalogs, and I liked it much better for that. Next in period of bloom came "Parvar" and then in a day or so later "Parsam"; both are of about the same height, not more than twenty inches, and are also of somewhat the same effect. The former is of a brownish, blackish violet, deep and somber with a large mossy deep brown beard; the latter is more reddish in hue with a pronounced deep blotch below the heavy beard. Among yellow blooming plants or grey foliage in the rock garden they would be much more effective than they were where I have planted them, where they have to compete with their larger and brighter relatives. "Hamadan" blooms next and is of about the same height; the flowers are larger and fuller than those of the two mentioned above and are of a uniform rich violet with a deep black beard and a white throat that is overlaid with purple veins. "Shushan" is of a deep violet purple that lights up in the sun-

light till it looks like the rich violet stained glass of a church window, and the rich burnt orange of its beard enhances its beauty. All of these have styles of varying tones of bronze which add to the richness of the flowers. "Carmelo," which is not a member of this group, but a Korolkowi hybrid, lightens the color tone of my little planting with its lighter, greyer blue flowers and contrasts with the round blossoms of these hybrids, for in shape it has inherited the long narrow form of *I. korolkowi*, and so makes a splendid foil for the darker beauties. Last to bloom and taller is "Lady Lilford." Its flower is larger than any of the others, so large in fact that it should please those who must have their flowers large before they can admire them. It is of fine globular shape and of a rich deep violet blue-purple with a heavy black beard. My one casualty was "Ferakan," which died before it flowered, and as no catalog describes it, not even that of the dealer from whom I got it, I have no idea what I have missed this year.

## The Southern Cypress as a Columnar Landscape Tree

By DAVID FAIRCHILD

I do not know just why there is to many a remarkable charm attached to a columnar or a pyramidal tree. The hundreds of pyramidal Italian cypresses which I once photographed on the Adriatic side of the peninsula of Italy have lived in my memory side by side with some glorious specimens in the garden of Retiro near Malaga and the finest I ever saw in the little cemetery in Chico, California. They have a curious way of fixing their form on one's memory. Perhaps it is their very definiteness in form that makes their images persist in the brain.

I think that the finest columnar tree of any description that I ever saw was in Virginia. And it was a swamp cypress (*Taxodium distichum*) which is not in nature columnar in form at all.

We were driving along towards Smithfield, Virginia, in October of 1927 when suddenly there rose on the landscape a beautiful dark green column. I rubbed my eyes and stared at it. I thought I knew the flora of Virginia fairly well. I did not think there could be any such a tree in the state without my having ever seen it before.





*A trimmed Southern Cypress, Taxodium distichum, in Virginia*

I was thoroughly puzzled. Near it was standing a beautiful specimen of the swamp cypress, such as one often meets in Virginia landscapes.

We were near Hodges Ferry. As the farm gate of the place where this remarkable tree was growing stood open, we drove in and got out to examine the specimen. Mr. John E. Wright, the owner of the farm, came out of his house to see who his visitors were. I pointed at the tree and enquired where he had gotten such a superb thing. He laughed and explained that the boys had put up a

radio in his house and in order to do so had found it necessary to trim up the cypress tree which stood in the way. It was, in fact, the companion to the other cypress in the yard. They had done the trimming very carefully and thoroughly. They had cut back all the main branches to about two feet in length. This had been done two years previously and the branches had produced an abundance of small branches having a dark green foliage in striking contrast with the color of the leaves on the other tree.

These branches on the cypress are





*The Chateau Chenonceaux Garden on the Cher, France  
Sugar loaf box trees and haystack arborvitae and Viburnum tinus, the latter in bloom*

arranged spirally on the trunk, a fact which I had not previously noticed, but which was made evident on the pruned tree and gave to it a charm that I have never seen on any other artificially trimmed tree. The eye unconsciously started in at the bottom of an imaginary circular stairway and wound its ascent around and around the tree to its summit, remaining all the time in the shade of beautiful dark green foliage.

My photograph does not do the tree justice. It does not come up to my memory of the peculiar charm of the tree as I saw it that October morning in Virginia. In principle I have never been a friend of topiary work of any kind and that which one sees for example in the surroundings of the Chateaux on the Loire is too grotesque for me to understand. It is in fact worth recalling that there was a time

when our forefathers' taste in plants went only so far as to see in them material out of which to carve with the pruning shears something grotesque and eternally green and alive.

I wonder if anywhere in Europe the Taxodium has been used for topiary work. The plant is often grown there in gardens. It is in fact quite a favorite on the Riviera. Perhaps it has never appealed to the topiary artist because of its deciduous character. Then, too, perhaps the fact that "the boys" had left the specimen I saw alone after their first assault on it may have done the trick and prevented the columnar tree from being just another trimmed-up piece of work.

With the growth of the art of landscape gardening in our great southland where the cypress is at home, might it not be worth experimenting with this tree to see what could be done. There



is no reason why trimmed trees should not be used where their formality tends to gradually bring the stiff and harsh outlines of architecture into harmony with the sweeping flowing lines of a natural landscape. Consider the tree as a part of the building, not a part of the garden, if you choose.

I have too many friends who abhor

all kinds of tree trimming to wish to bring down on my head their disapproval by advocating the trimming up of the superb cypress trees scattered about through our landscape but I do wish that these friends would motor to Hodges Ferry, Virginia, and see this tree before they condemn me for sending this photograph to the Magazine.

## A Book or Two

*Rainbow Fragments*, by J. Marion Shull, a Garden Book of the Iris with illustrations in full color from paintings by the author. Doubleday, Doran & Co.

There has grown up a considerable literature of the iris since the late William R. Dykes' monumental monograph, *The Genus Iris*. Mr. Shull, who has attained considerable fame as an iris breeder with his *Morning Splendor*, *Coppersmith*, *Julia Marlowe*, and others well known in up-to-date iris gardens, adds the latest. In several respects it is the best of the several garden books of the iris.

The author does not endeavor to cover the entire genus but limits himself to the tall bearded section which is preeminently the iris of gardens. Mr. Shull has placed a vast amount of information between the covers of this handsome volume with the usual typographical excellence of Doubleday, Doran garden books and has added to its attractions colored plates of 18 varieties from paintings by himself. The reproductions are unusually good.

The book is marked by much good sense and plain speaking. The author writes from personal experience and does not fall back upon popular legend or tradition. He explodes the oft-repeated statement that the tall bearded iris needs and likes lime.

He answers the question concerning cutting off the leaves when irises grow shabby in late summer in the negative, declaring this weakens the plant. In fact, all through the book in entertaining style are packed similar bits of wisdom.

To the writer, the chapter on the production of new varieties is the most interesting in the book. The author explains the theory of chromosomes and how they operate in simple language that a layman can readily comprehend, while admitting that geneticists might cavil at some of his statements as too positive. However, they may be safely ignored in their interest of the clarity of the explanation.

Mr. Shull does not agree with those who complain of too many new varieties. He says: "There are not and never will be too many really good varieties, and always there is room for the better and the best." He also speaks of the delight of a breeder of irises in producing a garden of varieties all of his own introduction or a majority of them, at least; of home growing as giving an originality of interest not otherwise attainable. Many gardeners have found this true.

The most adverse criticism of the book will center around the statement that the average iris show can be rated



at little less than a failure and that such shows had better not be held. Mr. Shull's reasons are sound enough from one viewpoint—that is, that under artificial light and in halls where there is not ample daylight, the iris can not be shown in its true beauty. This is quite true. The average iris show is utterly worthless so far as giving the slightest idea of the garden value of an iris. Such an idea should be discarded in viewing a show.

The display does show the best irises for indoor decoration and for this purpose, while hopeless as commercial cut flowers, the author admits they rival the gladiolus when cut in the home garden and taken directly into the home without marring the flowers. They open all their buds equally well with the gladiolus.

Iris shows, because of the difference between the indoor and outdoor appearance of the flower, have necessitated a different standard for show bloom and for garden value. The popularity of iris shows attests the value garden people attach to them as well as the public at large.

Mr. Shull's list of 64 of the better varieties will perhaps be regarded as a rather curious one by many iris enthusiasts. There is no denying the value of all the plants included, but it is surprising to find some of them included, although the writer is glad to see the old timer, Kochii, retained in the list as it has no rival of its color to displace it.

A general list is included with a tabulation which for conciseness and inclusiveness of descriptive detail might be taken for a model as might the form of description of the 64 selected varieties.

Of the 340 varieties, Mr. Shull rates only six as very good in garden value. These are Citronella, Cardinal, Esplendido, Julia Marlowe, Queen Caterina, and Tropic Seas.

This selection would hardly gain very general agreement as there is nothing more contentious or less susceptible to settlement than any selec-

tion of "the best" six or any other number. Mr. Shull does not attempt to make any such selection but merely gives them as his own personal preference. The list does not contain any of the more recent and high-priced novelties.

The list is interesting in showing the differing influences in iris collections. In Mr. Shull's list Bliss leads with 51 and Miss Sturtevant comes next with 44, and Vilmorin third with 22. Gardens in various parts of the country show differing preferences as to irises and their breeders. In the middle west the Cayeux and Sass influence is much stronger than that of Bliss, except as to vast quantities of Dominion seedlings from various sources aside from Bliss' own originations. Miss Sturtevant is equally widely and popularly represented, both in her own originations and in seedlings originating from some of her plants such as Shekinah, Sherbert, and Nancy Orne. Farther west as the climate becomes more favorable the Mohr-Mitchell seedlings increase in number.

Forty-four different breeders are represented in Mr. Shull's list—twenty-five of them American breeders.

The book is a valuable addition to iris literature and will stand reading more than once.

*Fruit and Fruitculture in the Dutch East Indies.* J. J. Ochse in collaboration with R. C. Bakhuizen van der Brink. Kolff and Co., Batavia-Centrum. Java.

Mr. J. J. Ochse has produced a very charmingly illustrated book on the fruits of the Dutch East Indies and is to be congratulated. The colored illustrations, of which there are 57 full plates, will make many of our tropical American horticulturists envious, for in these days the illustration of fruit species by means of colored plates has become so expensive that few books are able to stand the expense of their use.

Naturally, the interest in this book



which, although published in the Dutch East Indies, is in English, will be confined largely to those who have become familiar with tropical fruits through travel in the tropics or through residence in Florida or California or Hawaii. Since the numbers of such is increasing rapidly and since already there are garden clubs in all of the southernmost cities of Florida, the number of such interested readers should be considerable.

I have been asked during my residence in Florida so many hundreds of times what this or that tropical fruit looked like that I am delighted to see this book of Mr. Ochse appear so that I can recommend it to all of those who want to know what the fruits with which they are sure sooner or later going to play, look like in colors.

With many of those figured and described they may be familiar but even so their friends who visit them from the north are not, and always ask to see photographs of them when they come in the winter during which season the fruits are green or just beginning to form.

Of those treated by Mr. Ochse the following are cultivated commonly or here and there in South Florida: Mango (*Mangifera indica*), Hog Plum (*Spondias cythera*), Sour Sop (*Annona muricata*), Custard Apple (*Annona reticulata*), Sugar Apple (*Annona squamosa*), Pineapple (*Ananas cosmosus*), Papaya (*Carica papaya*), Persimmon or Kaki (*Diospyros kaki*), Bignay (*Antidesma bunius*), Avocado (*Persea americana*), Banana (*Musa paradisiaca* and *M. chinensis*), Java plum (*Eugenia cumini* syn. *Syzigium cumini*), Carambola (*Averrhoa carambola*), Passion fruit (*Passiflora edulis*), Pomegranate (*Punica granatum*), Citrus fruits (all of the species figured), Sapodilla (*Achras sapota*).

Of those which will be new to the Florida horticulturists the following are represented by beautiful plates: Gandaria (*Bouea macrophylla*), Bauno (*Mangifera caesia*), Bachang (*Mangifera foetida*), Bumbum (*Mangifera odorata*),

Durian (*Durio zibethinus*), Rambai (*Baccaurea racemosa*), Kapoondoong (*Baccaurea dulcis*), Lovi-lovi (*Flacourtia inermis*), Rukam (*Flacourtia rukam*), Moendoe (*Garcinia dulcis*), Mangosteen (*Garcinia mangostana*), several plants of which are growing now in Chapman Field Garden near Coconut Grove. Namnam (*Cynometra cauliflora*), Doekoe (*Lansium domesticum*), Kokosan, a form of *Lansium domesticum*, Katjapi (*Sandoricum koetjape*), Champedak (*Artocarpus champeden*), Jack (*Artocarpus integra*), of which species there are a few trees which have fruited in South Florida. Pisang sereebou (*Musa chiloearpa*), a remarkable species described by Backer which sometimes produces as many as 3137 fruits on a single raceme. Jambu ayer (*Eugenia aquea*), Wax jambo (*Eugenia javanica*), Malay Apple (*Eugenia malaccensis*), Salak (*Salacca edulis*), Granadilla (*Passiflora quadrangularis*), which has, I think, fruited in Florida. Mauritius raspberry (*Rubus rosifolius*), Ramboetan (*Nephelium lappaceum*), Kampoelasan (*Nephelium mutabile*).

Those familiar with the bright colored citrus fruits of typical citrus regions will wonder at the paler colors of the Javanese representatives of this genus as portrayed in Mr. Ochse's book. They should realize that as a rule the citrus fruits of the rainy tropics are not bright colored. They will miss some of the forms with which they are familiar also—particularly the newer hybrids which have come into the gardens of this country. Of the pink fleshed Shaddock (plate 47) specimens of which Mr. Ochse presented to the reviewer when he was in Java in 1926, perhaps more will be heard later on in this country, for as salad fruits they are remarkably showy and interesting. The fruit which Mr. Ochse calls the "Japansche Citroen" and of which he also presented the Department with plants has turned out to be identical with what in south Florida is known as the Rangpur Lime.

Having on my own place ninety



species of edible fruiting plants, either as small specimens or actually in fruit, perhaps I may be warranted in enquiring if Mr. Ochse intends to supplement his most excellent volume with another where will be portrayed at least the following:

*Annona cherimola*, *Annona diversifolia*, *Annona senegalensis*, *Garcinia livingstonii*, *Garcinia morella*, *Garcinia spicata*, *Garcinia cornea*, *Rheedia madruno*, *Flacourtia ramontchi*, *Clausenia lansium*, *Ficus roxburghii*, *Lucuma nervosa*, *Mammea americana*, *Myrciaria cauliflora*, *Musa glauca*, *Passiflora laurifolia*, *Strychnos spinosa*, *Casimiroa edulis*, *Casimiroa tetrameria*, *Litsea chinensis*, *Eugenia dombeyi*, *Ziziphus mauritanico* *Meliococca*, *bijuga*, *Dialium guineensis*, *Eugenia uniflora*, *Anacardium occidentale*, *Antidesma nitida*, *Synsepalum dulcificum*, and others which it were a bit pedantic to enumerate.

It appeals to me as something well worth the effort and expense to bring together in some such form as Mr. Ochse has so well done the data and visual coloration which will inspire amateurs living in tropical or subtropical regions to engage in the cultivation of a wide variety of these tropical trees and shrubs whose culture has an absorbing interest and fascination for those who want to get away from the whirl of business life.

The rôle of the book with colored plates is quite a different one from that of the ephemeral pamphlet which gets lost and almost never gets bound in the homes of the horticulturist of to-day.

DAVID FAIRCHILD.

*Perennial Gardens*, by H. Stuart Orloff. The Macmillan Company, New York, 1931, 88 pages, illustrated. \$1.25

If you have never had a landscape architect pass judgment on your perennial garden and you are at all curious regarding such an opinion, you will enjoy reading this book. It views such gardens not through the kaleidoscopic glass of the plant lover but through the analyzing lens of the man trained in design who advocates "creating garden pictures" by giving "as much attention to the assembling and placing of plants as the artist gives to each daub of paint."

The book develops its thesis well and may be used to guide one in the fundamental lay-out of a perennial garden. The book deals not only with aesthetics of perennial gardens but gives practical advice concerning soil preparation, fertilization, and culture.

The author's cultural instructions, designed to guide the amateur over pitfalls which are likely to be lying in wait for him, are commendable, although lime is given rather an exalted position as a cultural boon. Likewise is the recommendation for a soil analysis too promising as a panacea for an ailing soil.

The book contains a number of illustrations of planting plans to serve as guides for correct plant arrangement; the final chapter is devoted to a list of varieties of herbaceous perennials arranged according to color, height, and time of blossoming.

This is not a book effervescing with new ideas, but a practical guide which can be read and filed for reference purposes.

D. V. L.



## From Our Affiliated Organizations

### TAKOMA HORTICULTURAL CLUB, TAKOMA PARK, MD.-D. C.

The Takoma Horticultural Club of Takoma Park, Md.-D. C., with 193 paid-up members at the end of 1930, continued its policy of working for the general horticultural improvement of Takoma Park and vicinity. It holds monthly meetings in the Takoma Branch of the Public Library the fourth Monday of each month (except during the summer and in December), all of which are open to the public. Special shows were held for the narcissus, tulip, iris, rose and gladiolus, while a mixed show was held in the fall for fruits, flowers and vegetables.

The Club continued to purchase garden books for the library, to carry on its exchange and instruction departments, and to purchase bulbs from Holland on a large scale. Of these bulbs there were 15,300 tulips, 3,200 crocus, and 6,500 lilies, hyacinths, squills, grape hyacinths, winter aconite, and snowdrops. Noteworthy is the number of its members who continue to act as judges of flower shows and as lecturers for other Clubs in the vicinity of Washington and elsewhere.

ROY G. PIERCE.

### THE GARDEN CLUB OF ENGLEWOOD, NEW JERSEY

These spring months have been fraught with much interesting activity on the part of our club, which may help the program planners of other Garden Clubs.

A schedule was sent to each member naming the week and month when each other member felt her garden would look its best.

The days selected for visiting were Mondays, Wednesdays and Fridays.

Many members offered to serve tea

on the date when they wished their gardens visited, and from three o'clock until half after six we were busy flitting hither and yon to see these lovely bits of design and bloom and then would foregather at the designated house for tea and exchange of horticultural experiences.

When all have been visited, each member sends her paper to the Program Chairman with her preferences marked for first, second and third award in each group.

Each group consisted of gardens listed in each two week category.

Believing that flowers and trees make life much more beautifully worth while, our Conservation Committee this spring persuaded the Girl Scouts to look at life through our lenses and, as their contribution, they planted sixteen dogwood trees and many Forsythia bushes in Depot Park and will care for them whenever they need help to combat untoward conditions.

EDITH M. BENEDICT WURTS.

### NOTES FROM THE AMERICAN FUCHSIA SOCIETY

The American Fuchsia Society has issued several publications in the interest of its members. These include the reprint of Miss Alice Eastwood's article in the April, 1930, number of the National Horticultural Magazine, entitled "The True Species of Fuchsia Cultivated in California," and the following mimeographed information:

Suggestions for Propagating and Hybridizing Fuchsia, by H. A. Greene, Bulletin #5A, List of Newly Imported Fuchsias from England, and Bulletin #B, Cultural Hints on Fuchsias, by George Budgeon.



# The Gardener's Pocketbook

## Raising Primulas from Seed.

With the strict embargo on foreign plant material, making it difficult to import; the consequent scarcity and high prices of unusual foreign plants; it becomes necessary for some of us to raise the desired plants from seed. Of course the simplest and easiest way, if one can afford it, is to buy them from a reliable nursery. Heavy losses from one cause and another, and the difficulty and care in bringing young plants through infancy, justify high prices. However, if one has plenty of patience, and a keen gardener is necessarily endowed with that virtue, or must acquire it, raising plants from seed is a very satisfactory and fascinating experience. Time, also, must be taken into consideration, as germination of the seed is not the end, but only the beginning.

We have raised many alpiners from seed, and of late have turned our attention largely to primulas. We have had many failures, but only count the successes, as a gardener can not afford to be discouraged. In raising primulas from seed, or any other plants, for that matter, the seed should be fresh, and the *best* that can be obtained from reliable sources. It is false economy to buy cheap seed.

Some authorities advise sowing primula seed as soon as ripe, but in this section of the country (the Chicago region), that is all very well if a greenhouse is available, but if not, and the seed germinates promptly, the plants are often too small to go safely through the winter, and the same thing happens if the seed is sown too late in the spring. Primulas have a way of throwing their roots out of the ground with freezing and thawing in early spring, and standing on tippy toes as it were, so that very young plants are sometimes weakened thereby, or destroyed.

So we have found that the best time, here, to sow the seed is in early winter, and let it get the action of frost and a good covering of snow, both of which assist in germination. A long cold period is very desirable, and then, if possible, gentle heat. We have a number of flats of uniform size, which may be made out of odds and ends of crating or other lumber. These are about three and one-half inches deep, and have wide cracks or holes in the bottoms to allow for drainage. In these flats we first put a layer of broken flower pots, cinders, pebbles, or such like, for drainage, and over that sphagnum moss to keep the soil from sifting through, and also to hold the moisture. Over this goes the soil, which is a mixture of good black loam, peat (or leaf mold) and sand in equal parts, to within an inch of the top of the flat. The soil mixture may be put through a quarter-inch sieve, with a layer of very fine soil on top, on which to sow the seed. It is desirable to scald the soil in the flats a day or two ahead of the seed sowing, or use semesan, to disinfect the soil. Sow the seed thinly, as if the seedlings are too crowded there is danger of their damping off, and they will be attenuated. Cover the seeds with fine soil or sand their own depth, no more, and press down firmly with a block of wood. In the case of very fine seeds, barely pressing them in is sufficient. (Primula seeds vary from coarse to very fine, according to the species.) Water with a very fine spray, or immerse the flat in water, not quite its own depth, until the soil becomes moist. The flats may then be put out into an improvised frame, or in whatever way may be convenient, to become frozen, and if possible to get a good covering of snow. They must be protected from beating rains, and well shaded as mild weather approaches. We put



glass over them when the snow goes, and an extra covering of paper or burlap to keep them shaded until after the seeds have germinated. The flats must never be allowed to dry out.

The young seedlings should be pricked out as soon as they can be handled, and transplanted into other flats; still keeping them shaded from the bright sun. (Young primulas must be protected from the sun for several months.) When they have become sturdier we transplant them into the coldframe, where they remain until large enough to go into the open ground. Plenty of moisture, with good drainage, is imperative for primulas, from the seedling stage on into maturity.

Even if fresh, primula seeds do not always germinate promptly. They may take from three weeks to a year, sometimes two years or more. Frequently after a good germination straggling seedlings may appear the following year, so, if possible, do not disturb the seed flats for at least a year. Seed of *Primula scotica*, of the Farinosae section, is said to take a year to germinate, but our experience with it has been quick germination. You can never count on what primula seed will do.

This same method will apply to seeds of alpine in general, but they will not all require so much shading as primulas, after germination. This has just been our experience, and there are probably other methods as good or better. At the time of writing, late May, we have a splendid germination of a number of primula species and varieties; some that we are trying for the first time. As mentioned before, this is just the beginning. The seedlings will need much care and attention, especially through the heat and drought of summer; but it is all very much worth while, and brings its own reward.

JENNIE TILT ARMSTRONG.

*Prunus serrulata* Lindl. Oriental cherry. Variety Mikuruma-gaeshi. (See p. 219.)

Many generations ago, according to Japanese tradition, one warm spring day the Emperor of the island kingdom was enjoying a drive in the country. Suddenly his attention was arrested by the sight of a handsome cherry tree in full bloom growing by the side of the road. As the carriage rolled on the vision of that tree remained in his mind. Unable to resist the lure of such beauty, he ordered his carriage to return to the spot so that he might feast his eyes once more on the delightful spectacle. Thenceforth the tree was known as Mikuruma-gaeshi, Japanese for "returning the carriage." A descendent of this very tree is now growing in the grounds of the Imperial Palace at Kyoto, according to the late Miss Eliza Scidmore.

In this country Mikuruma-gaeshi generally makes a tree not more than fifteen feet high, rather stiffly upright in habit and branching from within two or three feet of the ground. The grayish bark shows occasional reddish brown patches, and the young twigs are dark brown. The young foliage, which appears with the flowers, is brownish green. The buds are pink and, as with single-flowered cherries in general, are more or less pointed. Usually in clusters of three, the very light-pink flowers are up to 2 inches wide, opening quite flat, and single, with an occasional extra petal or two. Owing to the shortness of the peduncles and pedicels, the flowers have less tendency to hang down than is the case with most of the double-flowered varieties. The sepals and calyx tube nearly always are brownish red. From Ariake, which it resembles superficially, this variety can be distinguished by the more upright habit of the tree and the more uniformly single flowers which are slightly pinker with flatter, less wrinkled petals.

Mikuruma-gaeshi blooms about mid-season, and is perhaps not quite so





*E. L. Crandall*

*Oriental Cherry—Mikuruma-gaeshi*



vigorous nor quite as winter-hardy as Fugenzo or Kwanzan. It is not yet a well-known variety in the United States, being listed by only one or two nurseries. Several trees are now established in Potomac Park, Washington, D. C., and this variety also is represented in the collection at the Arnold Arboretum.

It is probable that Mikuruma-gaeshi will afford greatest satisfaction as a specimen tree for the lawn, preferably with a dark background. In regard to culture, it may be treated in the same manner as other flowering cherries, and like the double-flowered varieties is propagated by grafting or budding on mazzard or on Japanese cherry seedlings.

PAUL RUSSELL.

Washington, D. C.

*Tulipa praestans*. Tubergen's variety.

Like a floral robin in my garden is *Tulip praestans*, Tubergen's variety—very early, very cheerful, very welcome.

Very early appear the leaf tips, their green always more gray, more blue, than yellow and frequently bronzed by late freezes. They sit like charming rosettes—quite close to the ground—with hearts tightly folded. Slowly these heads spread until form is seen—a large bud with one or two smaller sisters beside it on the same stem. Slowly this stem rises as does the whole rosette—the latter also spreading as the leaves unfold—and, as it rises, color begins to show just a little. Early in April—the ninth this year—the first flower opens, charming in shape, gay in color, immediately winning all beholders. The color, an orange-scarlet just right for the season, is fleckless and flawless; not even toned, much less striped. Nor are there circles at the base. The stems continue to rise until they reach the magnificent height of twelve inches, by which time all the buds have

opened, two or three to the stem, making a joyous splash of purest color.

For several years these grew, experimentally, in two different locations in my garden, until finally, two years ago, they came to rest at the head of a long, wide (nearly six feet) grass path. Now they stay and bloom there each year because they are in a direct line from a favorite garden-viewing window in the library, where, while sitting in a comfortable chair, the group of these heartening little tulips can be seen easily—so clear is their color—though they are a hundred and sixty feet away.

Protected at the north and east, exposed to full sun all day, they come for me just when its cheer is most needed. There is little at that time with which its color can conflict, and it gives clear cut contrast to early narcissi—if kept well away from yellow trumpets. To me it is most pleasing when it has good green turf immediately in front of it, and a background of some shrub, either green with young leaves or still in leafless brown.

Thinking that if a little were so good more would be better, two years ago another group was planted nearer the house. When they bloomed a week later and grew six inches taller than the first ones, in plentiful ignorance the variation was attributed to the less warm location and less well-established bulbs. Last year still another group was planted right beside the original lot, and when they also came later and grew taller, the "non-established" reason might be considered but the "location" reason could not! Was anything wrong? If so, what? The later blooms—in both later groups—were the same in size, form, and color; but instead of being enjoyable they were irritating. The small flowers were not so pleasing on the taller stem, and the color fought all the other early tulips and many other flowers. Guests, instead of saying "Oh, what is that?" took one look and spoke of something else! If definite mention were made of these tulips being disappointing,





B. W. Rhamy

Double-flowered form of bloodroot (*Sanguinaria canadensis*). This rare and beautiful form occurs wild in Washtenaw County, Michigan.

the comment was, "Yes, they are a false note."

At last, through a little study, the problem was solved. *Tulipa praestans* and the Zwanenberg variety are the later, taller varieties.

Perhaps others have had this experience, with consequent indifference to or prejudice against *Tulipa praestans*. Fortunately, *Tulipa praestans*, Tubergen's variety, had come to me first, and of that is this song of praise.

Probably most readers of this magazine grow this little species from Bokarda. If those who have not yet done so will put it into the well-drained almost imperceptibly raised spot which early spring will make the warmest and greenest in their gardens, unless they have congenital hatred of orange-scarlet, it is hard to see how they can fail to be thrilled by the eager cheer and charm of *Tulipa praestans*—Tubergen's variety.

HARRIETTE R. HALLOWAY.

Plainfield, New Jersey.

April Notes from the Garden of the Late Clarence Lown.

Under the trees and in the borders, trailing away out of sight, Puschkinias and Squills carrying the last strains of the recession of small spring bulbs.

In the upper garden, a great show of Drabas, *D. aizoides* and the somewhat larger *D. kutschyi*, growing in tufa, and in the open soil, *D. olympica*, less free of flower and more liberal with its cushioned greenery. *D. olympica* is a clearer yellow, less greenish than *D. aizoides*. Still more brilliant yellow *Douglasia vitaliana* is just coming in.

Here and there, a little tuft of that charming little white androsace, *A. carnea brigantiaca*, carrying its tiny cups on three-inch stems. *Anemone pulsatilla* and *A. patens* at their best, varying somewhat in stature and form.

Farther down, beside a bench, a magnificent clump of a double-flowering bloodroot. This thing is as beau-





*Tulipa kaufmanniana*

tiful as it is rare. The outer petals are like those of the single form, while the center is filled with quite narrow ones. There is rather more of that pale lilac shade about this form than one suspects about the single. The flower reminds one of a gardenia.

In the shadier nooks, *Corydalis solida* abounds. It has seeded itself freely for many years. It is a pleasing, subdued sort of thing. The only note of brilliancy amongst it is an occasional plant of that more robust form, with looser spikes and deeper coloring, of which I do not know the name. It appears to have seeded itself sparingly. It is a very fine plant and has a bulb like *C. solida*.

*Corydalis cava alba* is very fine just now, but there is not a great deal of it. This plant seeds less freely than *C. solida* and has a robust spike. Its foliage is larger than that of *C. solida*, and quite glaucous. The bulb is much larger than that of *C. solida* and hollow.

Amongst the early saxifragas, little *S. irvingi* is by far the prettiest sight. From the gray, rough turtle-back of its tiny rosettes rise numerous two-inch stems, topped with pale-lilac

cups, darker in the center. Near it is a piece of *S. lilacina*, which Mr. Lown prized greatly and which he tended for something like fifteen years. This little patch is about three inches wide and looks much like its neighbor, *S. irvingi*, except that it grows flat and does not mound up. *S. lilacina* shows no sign of flowers at this time.

*S. burseriana* is out in force and, near it, are a patch or two of *S. godseffiana* with pale yellow, bunched flowers rising from dark green, juniper-like foliage. *S. godseffiana* is a very fine thing.

The garden is filled with beautiful and lovely things. *Tulipa kaufmanniana* is out in all its glory and *T. biflora* tucked away shyly in a shady nook. *Erythronium hendersoni* and *E. citrinum* are at their best. *E. grandiflorum*, the robust, clear yellow, has pretty well passed out of flower. Here in the lawn, is a patch of pretty little, nameless apricot violet that seeds as freely as any wild one. The garden lacks only the visible presence of Mr. Lown himself, welcoming his Sunday morning visitors.

As I go along on tip-toe, up in an





*Draba aizoides* and *Saxifraga* on tufa rock

arborvitae tree a yellow-breasted chat discourses before his lady-love, at great length and with much poetry, of the whereabouts of the old gentleman.

P. J. VAN MELLE.

Poughkeepsie Nursery Co.

*Trachymene coerulea* (*Didiscus coerulea*), the Australian blue-lace-flower, is a rarely delicate blossom of soft but clean blue, with too much depth to be called pale. It is sixteen inches or more high. The leaves, which are somewhat hairy, are two-parted, each part further divided into three slender, acute lobes. The flowers are in umbels, two to three inches

across, and consist of many florets in which the calyx lobes are wanting and the petals of unequal size, the outer being the longer. It approves a sunny spot and light, dry soil and is at its best in July and August.

*Schizanthus retusus*, the butterfly flower, of the potato tribe, is a glandular, viscid plant from twelve to eighteen inches tall. The leaves are pinnately divided, the lobes again cut and toothed. The flowers are borne in an open, terminal cluster. The calyx is made of five narrow lobes. The corolla tube is short, the corolla somewhat obliquely two-parted and the parts





*Anemone pulsatilla*



*Corydalis, showy form of solida*

deeply cut. To this is due the fly-away appearance from which it takes its common name. The seeds within my experience have not been absolutely true to color and several faded, dingy tints had to be weeded out. However, there are many bright and gorgeous colors among them; deep rose, as well as clear pink, yellow and, best of all, a dark and glowing purple. They come easily from seed and may be sown in the open or in frames. Chile is their native land.

#### The Giant Flowering Stapelia (*S. gigantea* N. E. Br.).

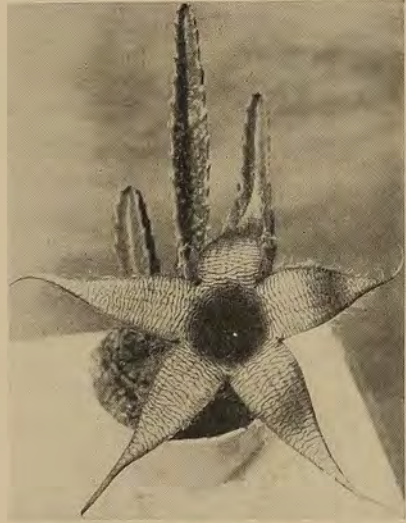
This splendid stapelia with its charming large flowers which measure 30 to 35 cm. from tip to tip, is almost entirely unknown; it has not only the largest flowers of all stapelias but belongs among the few examples of giant flowers in the plant kingdom. It is native to the Cape (Africa) and has a pronounced exotic character.

One sees it very rarely, usually in large cactus collections or in botanic gardens; in private collections one rarely finds it represented. It is also rather dear, good young plants costing 10 to 15 marks apiece.

The shoots or branches in nature grow up to 50 cm. high, are four-angled, furrowed and notched on the angles; the color is green or brownish red, like a bronzing by the sun. The yellowish flowers when closed are like a small balloon; the open flower has five large, thick, flesh-colored petals, reticulated with reddish brown tracery, which are united to form a funnel-shaped cup in which are the stamens and pistil. In the cup of this lovely flower, from which pours out the odor of decaying flesh, the blow flies lay their eggs because they believe it is dead flesh that will nourish their young flies; at least this is the case in Europe, though in Africa it may be different.

The stapelias in general like a light rich soil, mixed with sand, and full sunlight; during the period of growth they must be watered very carefully. In winter they must be watered even



*Euphorbia obesa**Stapelia gigantea*

more carefully, or better, almost not at all. In the summer one puts them in a hot bed for they flower only if they are very well grown. *Stapelia gigantea* requires more heat than the other sorts, particularly in autumn, when its growth is not completed and it is still in flower. In winter one keeps it in a temperate house. It is increased by division of the roots, by cuttings under glass or in a hot bed and by seeds.

*Stapelia* was named for a Dutch physician, J. B. Van Stapel and belongs to the milkweed family, Asclepiadaceae.

K. JOSEFSKI.

Berlin, Germany.

#### *Euphorbia obesa* Hooker.

This plant is a splendid example of the great riches of forms and colors in nature. It is not marked by great size or glowing colors, but rather by the symmetrical markings and rare color-

ing. It appears like an 8-sided umbrella covered with fancy patterned cloth when seen from above, which is, so to speak, decorated by a button. In the middle between the parts is a dark brown line and the body in general is reddish brown and green striped. This plant is 8-parted but there are also some which are 10-parted.

*E. obesa* comes from South Africa, was introduced in 1897 by MacOwen and was described and illustrated by J. D. Hooker. The first plant which came to London (Kew) soon died, but the species was not lost to cultivation as seeds and plants were soon reintroduced. Its flowers are green, dioecious. It forms no offsets and must be increased by seeds. It prefers not too heavy, rather sandy earth, a temperate house that is light and dry, and in summer may be placed in a frame like cacti, enjoying much sun.

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## The American Iris Society

THE AMERICAN IRIS SOCIETY was organized January 29, 1920, as a forum wherein garden discussion might center upon Iris. It is now entering upon its twelfth year with a membership of over twelve hundred and a record that includes the publication of thirty-seven Bulletins devoted to various phases of Iris interest.

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The Society publishes The National Horticultural Magazine, a quarterly journal issued in January, April, July and October to all its members. It publishes special bulletins from time to time as material warrants special issues.

Former bulletins of the Society may be secured from the secretary as long as copies are available. Back numbers of the magazine are also available in limited quantities.

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