

*The* NATIONAL  
HORTICULTURAL  
MAGAZINE



JOURNAL OF THE AMERICAN HORTICULTURAL SOCIETY

OCTOBER, 1933

# The American Horticultural Society

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# The National Horticultural Magazine

Vol. 12

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No. 4

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Published quarterly by The American Horticultural Society. Publication office, 1918 Harford Ave., Baltimore, Md. Editorial office, 116 Chestnut Street, Takoma Park, D. C. Contributions from all members are cordially invited and should be sent to the Editorial office. Advertising Manager, Mr. J. S. Elms, P. O. Box 27, Kensington, Md. A subscription to the magazine is included in the annual dues of all members, to non-members the price is seventy-five cents the copy, three dollars a year.



*Kaufmann-Fabry*

*An outdoor rock garden, arranged by the William Oman Nursery Company (above). An historical Italian garden by Charles Fiore, Landscape Architect, at the rear of the Horticultural Building.*

# Horticultural Features at A Century of Progress

BY FRANK K. BALTHIS

Horticulturists visiting A Century of Progress who have visited our former World's Fairs will probably be amazed at the apparent lack of any extensive landscape effects at the present Fair. However, there are features which are worthy of mention, but inasmuch as there was not sufficient space for great mass planting, either as foundation planting or to exhibit what may be accomplished with typical bedding plants, the effects are hardly comparable to those obtained at St. Louis in 1904. Yet there are bits of planting here and there that are worthy of mention. The object of A Century of Progress was to present the advance of industry during the past hundred years, and this has been done in the industries but Horticulture is excluded. In the beginning the Fair officials stated that no room would be available for extensive horticultural projects, and so horticulture received attention from only a small group of enthusiasts. Later, a committee with Mrs. Walter Brewster as Chairman was appointed to consider the advisability of arranging a continuous flower show during the period of the Fair. This fell through on account of a lack of funds and a suitable place to stage a show that would be truly representative. Later on a small group of showmen, not horticulturists, conceived the plan of erecting a building to house a flower show, commercial exhibits, with a four acre plot adjoining on which a series of small gardens would be

laid out. The building erected, the gardens arranged together have become one of the chief attractions of the Fair, and at this date, are increasingly popular. Horticulturists as a group somehow failed to realize the importance the building and grounds would assume and consequently very few national horticultural organizations have taken part. Nevertheless Chicago florists, the large parks, and individuals have aided in every possible way to make the displays a success.

Mr. John Servas, Director of the interior displays in the Horticultural Building, conceived the idea of staging a series of dioramic replicas of garden accents, scenes of interest to gardeners and lovers of beauty, such as a Tropical View, a bit of the Indiana Sand Dunes, a Fern Dell, a Desert Garden, a Mountain Stream with suggestive plantings, interiors showing the proper method of floral decorations, and others of equal interest. These dioramas ranged from the large, central space 66 feet long and 25 feet deep, to the smaller size of 25 feet wide and the same length. They have been quite successful and from comments heard among visitors are much enjoyed.

The maintenance of a continuous flower show has demonstrated that to be eminently successful a continuous supply of materials must be at hand. The lateness of the undertaking prevented the national shows from being held in the building, but many of the large flower establish-

ments have seen to it that flowers were always ready when the changes were made. The value of these flower shows as a means of education and advertising cannot be questioned for the attendance has reached about 15,000 daily. Considering the fact that these visitors come from all parts of America makes it possible to instantly recognize the fact that they carry away information that could not have been presented in any other way.

The outdoor gardens are, for the most part, suggested as studies for the average gardener who has only a city lot to embellish. As an example, several Japanese Gardens, with their unique lanterns, miniature bridges, tea houses, and vegetation present a real outdoor laboratory for observing these gardens. Aquatic gardening is represented by a good display from Trickers, Inc., and by several formal plantings in basins in special gardens. A large Italian garden by Charles Fiore furnished the central division of the garden groups—this garden contained statuary, masses of evergreens, formal perennial plantations, four large basins, and two allees of tall Lombardies and *Arbor Vitae* excited more than passing interest. An Appletree Garden designed by Mr. Kenneth Bangs, L.A., was pronounced one of the finest examples of a backyard garden retreat. Only one attempt was made to utilize the old-time carpet bedding with the usual collection of *Alternanthera*, *Santolina*, *Echeveria*, and kindred plants. Three men's garden clubs—the Men's Garden Clubs of the Chicago Region—designed and executed a typical informal backyard garden. It included a

background of evergreens and deciduous shrubs, with a foreground of miscellaneous perennials and annuals. A California hacienda, with its low-walled garden containing many tropical plants and typical architecture, is a pleasing feature. However, as a popular attraction, the rose garden with its formal design and 6,500 plants of 104 varieties, has astounded the visitor and has given a new impetus to this important plant. There has been an abundance of bloom since early June and a quarter of a million people have registered their names as being especially interested in these plants.

Strangely, the public seems more attracted to the showy garden containing an undulating surface, meandering stream, and a miscellaneous planting of rockery plants, aquatics, a millwheel, tea house and other physical appurtenances than one which is adapted to their own use, but such is the case. The Millpond Garden is quite extensive and meets the approval of the visitor. Vaughan's Seed Store exhibit is noteworthy for the great variety of flowering plants and comments are frequently heard that "I want a blaze of flowers just like that." There can be no gainsaying the fact that these gardens are among the most educational of any exhibit on the Fair Grounds. The entire display is said to be the best of any at the Fair.

The display of *Gladiolus* at this time has reached the height of flowering perfection. The plots containing the plants are located where every visitor must see them and the arrangement is for color harmony—each hue being placed by itself but represented by many varieties. An interesting feature is plots of the new originations by various firms of

national prominence; the colors are bewildering, but it has given the visitor the opportunity of knowing what advance has been made with this important group of plants.

A large section is devoted exclusively to Dahlias; 5,000 roots, all accurately named, and containing the outstanding older kinds, with a large representation of the newer varieties, make the display particularly educational and worth while. The culture of these plants is in the hands of expert gardeners, men who are thoroughly familiar with their habits and who are available at all times to supply competent information.

Many buildings which house exhibits by the great industrial firms are surrounded by groups of trees, such as Crataegus, Elms, and other well known species and varieties. In addition, certain firms have contributed something to horticulture by arranging unique displays of flowering plants, such as the excellent effect obtained by mass planting of lavender Petunias in large formal beds to harmonize with the colors of the buildings.

Small, inclosed gardens have been arranged by the various states in connection with their interior displays. The Florida patio contains a large formal garden with numerous plants that are commonly used in that warm country. Especially colorful are the great specimens of Crotons or Codeums, as they are botanically known. Gardens of this type lend variety and give the northerner an opportunity to learn something of the design used, the type of plants, and the effect generally obtained. The Florida interests fur-

nished a real Orange Grove, a small plot filled with Sugar Cane and fruiting Pineapples, the latter proving a living object lesson to the uninitiated by demonstrating the fact that this luscious fruit grows on a low, acaulescent plant and not on trees. The orange trees were standard as to size, shipped ready boxed, and contain a considerable number of fruits, much to the enjoyment of the hot-house gardener.

A group of Seminole Indians, with their primitive mode of habitations, is one of the groups engaged by the Florida Commission, and to make all more realistic several fruiting Coconut Palms guard the entrance to the exhibit. Within the enclosure several leafless trees have been clothed with various Tillandsias and other Bromeliads, indicative of southern vegetation.

Beds of flowering annuals are met with in the most unexpected places, but on the whole the space is so limited that none of the broad vistas, great masses arranged for foundation planting, scroll work or extensive carpet bedding will be seen. The lawns are surprisingly good when it is considered that they were created since only last spring. In fact, the lateness of the season, and the hurry incident to the advanced date of the opening, made it necessary to bring in many thousand yards of sod from the blue hills of Kentucky and practically arrange a ready made lawn. As the season advances into the cooler weather of autumn the glare of the Illinois sun will be tempered with the long stretches of verdant green which will be softening to the eye and arouse a feeling of intense pleasure.



# A Garden of Pentstemons

BY D. M. ANDREWS

A treasure, not buried nor hidden, but proclaimed by its absence from most of our gardens, is the pentstemon.

The rumor that pentstemons are short-lived in the garden is at least equivalent to "faint praise," but the condemnation may have been given too much credence. The appeal of these charming westerners is so varied and so irresistible that it seems worth while to set aside prejudice, and if possible come to "know our pentstemons."

Differences of environment which occur in the wild are always to be considered significant when plants are brought into cultivation. The western distribution of pentstemons so exceeds that of the eastern states that it seems to place added emphasis upon the dictum of environment. Surely, it is a fair inference that this galaxy of beautiful forms has found in the west a set of conditions very much to their individual liking.

The total number of western species, conservatively estimated at well above one hundred, have for their habitat about every possible environment from the Pacific coast line to the high peaks and valleys of the Rocky Mountains and the dry plains extending to the eastward.

As should be expected, these plants and their flowers show a diversity almost unparalleled. Obviously a relationship must exist, which resolves the total number of species into several well-defined groups. To this extent the bugbear of mere numbers gives away. Only consistent representation is desired, out of the dupli-

cation which must occur within these groups when species are based upon minor characters. Nor does every member of this variform clan attain to a high standard of excellence. It is well also, to consider cultural facility in submitting any list of wildlings for the garden, and these values should be arrived at by actual trial, rather than by any process of reasoning.

The pentstemons of the Colorado mountains and plains are sufficiently representative to embrace about all the essential subdivisions, with the possible exception of the shrubby forms of the extreme west. Moreover, these inland forms, developed under the combined influence of altitude and a northern latitude, are of utmost hardiness. Authentic records of fifty to sixty degrees below zero are not unknown in the mountain region.

The environmental difference between the eastern states and the Rocky Mountain region is mainly that of moisture. The relation of moisture, or the lack of it, to altitude has interesting phases; but the simple effect of altitude is to shorten the growing season. Due to this, mountain plants mature earlier and consequently are hardier than sea-level plants of the same latitude. Plants adapt themselves so promptly that acclimatization is accomplished with facility between sea level and 5,000 to 7,000 feet above, or vice versa. The perfect accommodation of plants to or from an arid climate is effected with more difficulty. As this applies with equal import to plants other

than pentstemon, a proper analysis of the conditions and response is of general value.

The annual rainfall of Colorado varies from about 12 inches on the plains to nearly three times that amount in the higher mountain areas. Instead of an actual precipitation of one to three inches, month by month, the seasonal distribution is quite unequal. The period favorable to spring growth corresponds very nearly to the maximum moisture content of the soil, which begins with the accumulation from winter snows, to which is added at intervals copious spring rains.

The transition of springtime is progressive in a mountainous region, and from the plains its deliberate procession to the higher levels occupies a considerable period of time. The awakening impulses are warmth and moisture. The melting of winter snow clears the deck for action.

When the wet season is so brief, the period of relative dormancy is correspondingly extended. In the highest mountains this means a winter of added months. Outside the mountains but little rain falls from midsummer to the end of autumn. Winter snow is variable, with dry, bare ground for extended intervals. Quite surely native plants are survivors, rather than choosers, of such extremes. Desert plants supply notable examples of specialization to meet such conditions. A complete reversal from aridity to excessive humidity would be fatal in some instances; but even that child of the desert, the cactus, would favor moderation, as opposed to deprivation. Perfect drainage is of necessity a relative condition.

The pentstemons of the plains and foothills occupy an anomalous posi-

tion. Their storage facilities are scanty. They have neither tubers, nor yet fleshy stems nor other substance to tide them over depression. It would appear that they are a young race ecologically, with these facilities undeveloped. Yet characteristic of many of them is the lavish charm of their flowering. When at their best this sometimes expends itself in a climax of performance, which is in truth their undoing. But an hour of glory may rate higher than useful years; at least it is more exciting.

It is no uncommon occurrence for a natural colony of *Pentstemon unilateralis*, notably ephemeral, to flourish and empurple a large area with its flowering and then disappear completely until two or three seasons later when renewed by seedlings. In the garden such vanishing acts are apt to be construed as final. Successful culture must deal with this inconsistency of duration.

There are many devices of nature whereby plants rank as perennial. All the Colorado pentstemons are perennial, but their mechanism for carrying on does not invariably function. Being under the necessity of renewing the rosette or of producing laterals or buds from the old crown, a lush growth at flowering time, followed by heavy seed production, may result in complete exhaustion from which there is no rallying. A moderate growth induced by a lean soil and a sparing but dependable supply of moisture will afford optimum conditions for the dry-land species of the plains and foothills. The mountain and alpine types are more tolerant of moisture. A medium loam, inclining to sandiness yet firm, with provision for good drainage and with full sun, will accommodate all species.

In humid climates their winter care must include good surface drainage. A warm, sunny slope, or an elevation of the rockery, or the edge of a terrace will best provide for this. Where alternations of temperature are extreme, a loose open mulch of evergreen boughs or excelsior will prove beneficial.

There are two, and perhaps three ways, to have a good display of pentstemons. Either method is quite as sure as our provision for many other flowers. One may start with plants or with seeds. The first is to employ nature's method, avoiding those known to be short-lived. After flowering take care to remove old stems promptly, stir the soil and water if very dry. When the formation of buds or laterals is evident, further activity should not be encouraged.

A second method is to remove the stems and transplant to a new position. Protect or shade until reestablished and then remove all covering. A cold frame may give the best solution for wintering in severe climates. From the cold frame they may be planted out before growth is much advanced.

A third method, which provides always a supply of vigorous young plants, is to devote a small space each autumn to the growing of seedlings. The seeds should be sown before winter in a seed bed or cold frame, to germinate in the spring and flower the second summer. Spring or summer sowings are not recommended, as the seeds apparently require the action of frost. If not crowded, the seedlings grow rapidly, and should be transplanted to nursery bed when large enough to handle.

The season of pentstemon is from May to August; the later date covering the end of the procession at

mountain elevations. When brought down to the garden the mountain forms flower a month to six weeks earlier, so that June is the gala month. The festivity is heralded by floral trumpets of white, pink, lilac, lavender, blue, purple and scarlet. From tiny rock-creepers, their stature varies to three or four feet. Their range of altitude is from the plain, 4,000 to 5,000 feet, to alpine summits of 12,000 to 13,000 feet. As to moisture, some are abstemious, while most of the mountain species welcome the refreshment of daily showers which prevail during the early summer. In their preference for sweet or acid soil, they are probably circumneutral, without antipathy to either.

The amount of moisture required by a plant is of all its needs the most difficult to prescribe. It becomes, then, the one major factor which the grower must acquire through experience. In the case of new and untried plants this factor calls for a rare discernment of vegetative well-being if failures are to be avoided. With a fair knowledge of a plant's habitat this sort of exploration is not too difficult, and brings within the reach of every garden the joys of discovery and mild adventure, with sufficient promise of success.

In the brief descriptions of the salient species of Colorado, the mountain pentstemons comprise about one-half of the total number, and seem slightly more amenable to garden conditions. Those of the foothills and plains are considered together as having the same moisture requirements. In my Colorado garden both groups are grown under overhead sprays as an insurance against excessive drought.

Of those described not all are at



*Pentstemon angustifolius*

once available. The surest way to bring them permanently into cultivation is to call for them whenever offered.

*Pentstemon angustifolius*. Syn. *P. coeruleus*. Less than one foot tall, short-stemmed spikes of clear coerulean blossoms with rosy buds. Certainly the most charming of the plains species; early flowering, with very glaucous foliage.

*P. albidus*. About one foot, flow-

ers dull-white. A neat plant of good habit and well worth growing, although the flowers lack the clarity that would make it an indispensable.

*P. ambiguus*. Eighteen inches, diffusely branched, flowers rose-white, sandy plains. Of distinct and graceful habit, easily grown.

*P. Eriantherus*. Syn. *P. cristatus*. Stout, leafy, dwarf, the flowers of largest size, lavender to lilac or purple. One of the most lovely, com-

ing to the edge of Colorado from the plains of Wyoming. A single attempt at cultivation was unsuccessful and further experiment is necessary.

*Pentstemon grandiflorus* approaches the border of Colorado from Nebraska and from Oklahoma. Its 3-foot stems bear the most superb trumpets of royal purple. It grows readily from seed and the young rosettes transplant easily. Here certainty ceases, for the story has failed to realize a happy ending within my limited experience. A soil test from the Nebraska station was alkaline, *P. Eriantherus*, ditto. Lime may be the answer for both species.

*Pentstemon secundiflorus* belongs to the foothills and plains. It has thick glaucous foliage, and the rosy lilac blossoms have a broad limb and face in one direction. It attains 15 to 18 inches, is rather easily grown and fairly permanent. Its subspecies, *P. lavendulus*, is found much higher in the mountains, is more slender, lower, and forms clumps of many stems. A dependable plant of rock garden proportions.

*Pentstemon strictus*, and its allied form, *P. strictiformis*, belong to the rather arid mountain parks or broad valleys. Easily grown, but not long-lived, they are of the habit of *P. unilateralis*, but more slender, having one-sided racemes of blue-purple flowers to two feet tall. Its inflated perianth is characteristic.

*Pentstemon Torreyi* of the Colorado foothills and lower mountain valleys, is quite distinct from the Texas or Mexican species, *P. barbatus*, sometimes erroneously listed as *P. barbatus*, var. *Torreyi*. The Colorado plant is less than three feet, flowers earlier, and differs in foliage, the rosette leaves being broad and tinged purple underneath. The scar-

let of its flowers is intense. Of easy culture, but should be divided and transplanted after flowering, or renewed from seeds which grow readily. Another scarlet-flowered species is *P. Trichander*. In the garden it grows equally well, seems a little more permanent, and is very floriferous. It comes from the Mesa Verde, in south-western Colorado. Here also is found the semi-shrubby *P. Eatoni*, also bearing scarlet flowers, but its garden behavior is unknown.

*P. unilateralis* is a tall plant, exceptionally floriferous in shades of blue and purple. Has been proposed as a cut flower, but is short-lived.

Of the mountain types, *P. alpinus* is outstanding. It may be considered a species of many forms and extended range, from the high mountains to the plain, or else one may separate the form which extends out upon the plain, under the name, *P. glaber*. Other synonyms also have been based upon fancied differences, but all differences merge more or less completely when the plants are cultivated. Its habit is compact, and in the mountains few-flowered and very dwarf. The plains form attains nearly two feet. The flowers are large, deep blue, and in the garden the plant is enormously productive. After its orgy of flowering it has the disconcerting way of making its exit after ripening a quantity of seed. It frequently self-sows.

*Pentstemon Crandallii* is a gem from one particular mountain valley. Isolated from its kind at a high altitude and under severe climatic stress, it has developed a supreme indifference to ordinary hardship. It is at once a charming thing in the rock garden and dependable as well. The most alpine of several mat-forming species, of which *P. caespitosus* is



*Pentstemon secundiflorus*

the type, it spreads its evergreen carpet of minute foliage, which is submerged in June with a myriad of small bells in shades of lavender. It roots deeply and abundantly from each runner, and is reliably perennial.

*Pentstemon gracilis* is a slender

plant found on moist slopes, and rarely exceeds ten inches. Its color is lavender and it is easily grown.

*Pentstemon Hallii*. A charming alpine of six-inch stature from the mountains of central Colorado. The clumps of several slender stems bear



*Pentstemon caespitosus*

a number of large inflated flowers of deep blue. Easily grown and quite permanent.

*Pentstemon Harbourii*, a low mat-forming alpine from the highest peaks of Colorado, is the sole representative of a distinct group. Flowers deep blue.

*Pentstemon procerus* may be taken as the type of several species which are more or less synonymous. They are not of great importance, but are easily grown and permanent. It only remains to select the representative combining the best points, which may be *P. Rydbergii*. An undetermined one which I have in the garden may be the choice. They are characterized by a very compact inflorescence of

small blue flowers, and are found at rather high altitudes in moist or dry places.

*Pentstemon saxosorum* is a good, dwarf form resembling *P. strictus*, but having a better root system and therefore more permanent. About a foot in height, rather slender, and like all other pentstemons of moderate growth, it resents crowding.

*Pentstemon virens* has been confused until recently with *P. humilis*, partly because two plants have masqueraded under the latter name. *P. virens* is the abundant species of the eastern slope of the mountains near Boulder and Denver, from the foothills up to 11,000 feet. Quite often it dominates whole hillsides with



*Pentstemon virens*

sheets of blue, the color in the aggregate quite far removed from violet or purple.

Here it may be mentioned parenthetically, that the critical observer will discover in the flowers of blue pentstemons, so called, traces of purple or red. In the expanded limb of the flower the blue predominates, so that the general effect may be quite truly blue. Partial albinism may occur, resulting in the omission of all the blue cells. The flowers of such

are clear pink or rose, and often are very beautiful. Complete albinism is more frequent, resulting in pure white.

*Pentstemon virens* is dwarf, the flower stems, 8 to 12 inches in height, springing freely from the mat-like clumps of dark green foliage. It is of utmost value for the garden, as it is easily grown, increases freely, so that it renews itself with much certainty. A pure white variety is in cultivation.





*Lilian A. Guernsey*

*Urceolina miniata*

[See page 369]

# Dwarf Roses

BY KATHERINE FORDING FELLOWS

A little rose for the rock garden!

For a long time this was an unfulfilled hope and then along came *Rosa Rouletti* and our ardent wish was gratified. The surprising thing was, that it is more to be desired than anything we had dared to imagine. It is suited to the rock garden, being a miniature, well proportioned in branch and leaf, full of life, and easily grown from cuttings. Little plants, newly rooted, will begin blooming when but two or three inches high. The little double flowers are rose-pink in color, measuring about a half inch across, the center being yellow. It blooms continuously from May until frost takes the buds in November. The foliage is especially good and very persistent, some of the leaves remaining on all winter. At one time this last winter, the thermometer registered thirty degrees below zero and the plants were not harmed.

There is something so irresistible about this jewel-like rose that people who are not much given to gardening fall down before it. Mr. Correvon says that it belongs to the India group but that no one knows its history. A friend of his found it growing in a little Swiss village where it was used as a house plant, being counted too precious to risk outside in their cold winters. Mr. Correvon succeeded in getting cuttings, thus propagating and distributing it, and naming it for Colonel Roulet—the friend who had told him about it.

A rosarian might be scornful of such a tiny rose but we rock gardeners will welcome such roses, as they

suit our needs. To come suddenly upon a colony of them blooming gayly gives one the sensation of having discovered a haunt of the fairies.

Finding so much pleasure in growing *Rouletti* and belonging to the class that "never is, but always-to-be-blest," it was natural to want other midget roses and thus with a mind turned to roses I have gone about like the inquiring reporter and have had some success. Certain people advocate that if you wish earnestly enough for anything, you will get it! Be that as it may, I wished and right out of the blue came another little rose. On February 20th, when the ground was white with snow, the postman brought me a package containing three little rose bushes in full bloom. They came from a man in Florida who had read that I had *Rouletti* and who wished to know if his rose was the same. It was not. Although of the midget class, it grows somewhat taller. Six inches is supposed to be the limit with *Rouletti* while the new rose has grown to nine inches and may grow even a little taller as it gets established. The flowers are not much larger and open about the same color, but while *Rouletti* fades to a lighter color, this rose holds its color better and instead of a yellow center, the tiny petals are gathered tight in the center, giving it the appearance of the old hundred leaved rose in miniature. In both cases the flowers are borne on single stems rather than in clusters, and both are everblooming. *Rouletti* is a roguish little sprite smiling up at you

while the other is on more slender and graceful lines, the flower stems being a little longer.

This spring I bought a rose listed as *Lawranceana* and, so far, it seems the same as the one from Florida. This rose was named for a Miss Mary Lawrance of London, England, who made exquisite paintings of it. Earlier these roses were used as edgings and were popular but they were lost track of until recently they are again attracting attention. They are said to be found occasionally in some of the old gardens of the South.

Pompon de Paris. This rose is listed with the "Fairy Roses" but as to growth and blossom it is about a size larger than *Lawranceana*. The flowers measure about an inch across and are deep pink in color. It is everblooming also.

A rose came to me from a garden in Virginia under the name of "*Chinensis-minima*." It is very different in appearance from the preceding ones. The individual leaves are even smaller and of a more vivid green. From its manner of growth, it seems to have a wandering root and may form little colonies. It bloomed when but six inches high but has since then grown two inches taller. The flower is double—a delicate pink—and the petals are narrow and heart shaped. As yet it has not been free with its blossoms but may do better when it feels at home. The buds are rounder and fuller than the other midgets and the flowers measure one inch across.

Besides these elfin-like roses there are certain others that seem, to me, suitable for the small garden. I am not a rosarian or a judge of roses—just an amateur growing the roses that give me most pleasure and that are suited to our cold winters. We

find in the lists today many alluring descriptions of little roses, some of which are comparatively new and others which while not new are seldom seen. In making a list of those I will mention, I have given first place to Cecil Brunner—also called "Sweetheart Rose," and sometimes referred to as the "Fairy Rose." After making the acquaintance of the true Fairies, one can easily distinguish a difference between these and other little roses. Cecil Brunner—one of the daintiest—is enough larger to be classed as a primary while the fairies are but kindergartners, so small that they need to be in numbers in order to make any display.

Cecile Brunner, as an individual flower, is much more pretentious. It is beautiful as to form and color and has fragrance. An opening bud is exquisite and the open flower is deep shell pink at the center. These flowers come in clusters and bloom through the summer. I feel fortunate in possessing a dozen plants and as they grow easily from cuttings, I plan to have more as I belong to the class which Dr. McFarland so humorously describes as capable of getting a twig to emit roots at one end and leaves at the other. This rose belongs to the group known as Polyantha and there are many in this class from which we may choose.

Baby Doll is another dainty Polyantha—also listed as Tip-Top. Neither name seems to satisfy me. The latter is too commercial sounding and the former does not seem dignified enough for so lovely a flower. The buds are deep yellow and bright pink at the end. As the flower unfolds, it is bright with color but when fully open appears a white rose whose petals have been splashed with bright pink and there is a yellow glow from

within which lights it up beautifully. It is very double and measures about two inches across. It blooms continuously and freshly opened flowers seem all dressed up in ruffles.

La Marne. I have been growing this rose for seven years and time makes me value it the more. While it is a Polyantha, it is stronger growing and has larger leaves than the preceding ones. The semi-double flowers are blush-white, edged with bright pink, and the outside of the petals is the same deep pink. I have seen the rose described as single, but with me it has ten petals and many flowers have two more short petals which give a hooded effect to the yellow stamens. As the flowers grow old the stamens change to brown; the old blossoms fade but do not fall and so need to be clipped off. Some count this a fault but I have nothing but praise for this rose and count on it for cutting all through the summer. New plants from cuttings begin blooming when but eight or ten inches tall and well established plants are in bloom quite continuously. The foliage is dark and of a heavy texture, making a low mass from which the flower stems rise from fifteen to eighteen inches. The flower clusters are large, often carrying from fifteen to thirty flowers. Some plants which have only morning sun are colored exquisitely, reminding me of crab-apple blossoms. They are very fragrant and keep well when cut.

Jessie. This rose was purchased at the same time as La Marne and has proven very dependable. The flowers are bright crimson and are in clusters—the individual flower being small. A group of these plants provide attractive color all summer and are fine for cutting.

Eblouissant. A rose that is com-

paratively new in the garden but in this, its first season, it has been outstanding and for rich color and free blooming it ranks high. It is dwarf in growth and the foliage is good. The flowers are deep scarlet and the clusters of blossoms make a mass of brilliant color, lasting very well. The petals are often quilled like little cactus dahlias and I have observed the quilled effect especially when the flowers are cut and stand in water. I have noticed that when the plant has been covered with clustered blossoms, this is followed by flowers on single stems as though the plant was conserving its strength for the next grand display.

Golden Salmon. A mass of these flowers is as bright as a bonfire. The flowers are small and in clusters but extremely bright and hold the color. They are not good mixers and if placed with rose color—all is spoiled. Rightly placed they give a glowing color that is attractive.

Baby Tausendschön. This rose has been described as a dwarf form of the climbing Tausendschön. Like the climber it is thornless and the flowers which are in clusters vary in coloring—in the same cluster are white, pink, and rose. The buds have a fine silky texture and the flowers are frilled. The rose listed as Echo must be similar if not the same.

Katharina Zeimet. Have grown this rose for some time. It is pure white and the small, fragrant double flowers come in clusters. I have enjoyed it but have wanted one more dwarf as the flower stems are often two feet tall. George Elger was recommended as being white when open. The buds are very yellow but when open the flower is but cream color. Its form is beautiful but with me it wilts when cut.

I am growing some China roses which are small and interesting. *Hermosa*, we are told, has been a favorite for three generations. The plants are small and bushy and bloom the season through. The flowers are double and are borne in sprays and also on single stems. The color is a pleasing pink.

A vase filled with the dainty flowers of *Laurette Messimy* makes a pleasing picture. Color, form, and fragrance all score high with me. The color is bright pink with a yellow glow from within which brightens it up considerably. The center is filled with yellow stamens cupped by some short petals. It is a rather loose flower and has an airy grace that makes it quite elegant.

*Cramoisi Superieur* is even smaller than *Laurette Messimy* and differs also as to form and color. It has more petals but is not fluffy and the color is a deep, velvety crimson—very lovely.

Another rose listed with the Chinas is *Viridiflora*. This is the green rose—a dwarf, everblooming plant. The buds come in clusters, quite smart looking and full of promise but open up—a joke. Instead of the soft, delicate petals you have imagined, they are of a heavy texture, leaf-like, having the appearance of a wreath of leaves brought together at the center. It keeps up appearance in everblooming fashion and there are always nice buds to show your friends. I believe that Mother Nature loves a joke and I do too. Don't you?

*Gruss an Aachen* is a *Polyantha* rose but the individual flower is so large and beautiful that one could easily believe it to be a Tea Rose. The buds are orange-red and yellow but the flowers open a flesh pink with a touch of salmon. The plant is

dwarf with a strong branching habit and blooms freely. The color is variable according to the weather. In late summer it takes on extra color.

*Foliolosa*. This rose is often spoken of as the little Texas rose. It is a diminutive species with single, white flowers. The leaves are very narrow and of a shiny, heavy texture which with its graceful manner of growth gives it a willow-like appearance. It does not wear its thorns conspicuously and at first I thought it did not have any. There is but one flower to a stem and they measure about two inches across—seeming large for the plant, which grows from eight to fifteen inches tall according to the soil. It has a long period of bloom.

*Nitida*. This little species is native to our north-eastern states and is reported to grow as far north as Newfoundland, so we do not need to question its being hardy. I believe it, with *foliolosa*, is to be counted precious. The flowers are small, only about an inch across, and one to a stem. They are deep rose in color—two rows of petals and a rather large center. It has the everblooming habit and the foliage colors beautifully in late summer. Because it is small, one needs several plants to make a display.

*Spithamea*. Another little rose native to the U. S. comes from California. Mr. Purdy says it grows plentifully on his place and is seldom higher than four or five inches. The flowers are single and pink. As I had heard the name questioned, I asked Mr. Purdy as to that and he said it was the name given by Sereno Watson in the Grew Herbarium and that Doctor Jepson also uses it in his late botany of California. My plant was purchased in the fall of '31. It grew rather indifferently last season

but this year has been thrifty but did not bloom. I will expect blossoms another year.

*Stellata.* A small rose from New Mexico, sometimes called the desert rose. Baily says that it is not hardy but Mr. D. M. Andrews tells me that it is hardy at Boulder, Colorado. Early this spring I bought a plant and for a time it prospered and then calamity overtook it. The leaves turned yellow and I lost it—but not from cold. It is unusual in appearance—not very rose-like as to foliage and I might have mistaken it for a refined gooseberry. It is very thorny and the stems are covered with stellate hairs which give it a grayish color. I have ordered another plant and hope for success. Mr. Andrews says the flowers are deep rose followed by purplish bur-like fruits and that it blooms a long time and likes a dry, sunny place.

These little roses have a cheerful effect in the garden as most of them give color after the majority of the garden plants are through blooming. Until this season, I have not given them the attention they deserve but suddenly I developed a harmless

form of this rose fever and began studying the subject. I am now using them as edgings—for example: A planting of iris has irregular paths running through it. Just after the iris bloomed this season, they were cut back and the edges prepared for low growing roses. Six dozen plants were set out, one dozen of each variety. For all it was June and the weather warm, they started to grow, putting up new growth and buds. They soon began blooming and have been all, and more, than I had hoped for. More little plants will soon be ready to place as I am increasing certain ones which I value most and in imagination I can see the beauty they will contribute another season. In the rock garden I am using the smallest ones and as their colonies increase they will make their presence felt more and more.

I use the roses for cut flowers and as the blossoms fade, I have looked at them and imagined the growing possibilities in those twigs and have acted accordingly.

Thus my rose borders lengthen and the rose fever mounts higher.

Belvidere, Ill.



Lilian A. Guernsey

*Brodiaea lactea*

# Brodiaea

BY CARL PURDY

This is a wonderfully diversified group of bulbous plants which is confined almost to the real Pacific Slope, that is the region in California, Oregon, Washington, and British Columbia between the ocean and the tops of the Sierra Nevadas and the Cascades.

Like too many other genera this genus has been the plaything of too many, various-minded botanists, much to the confusion of the student and gardener. When, as a boy, I first began to learn of them, I was told of *Brodiaea*, *Milla*, *Triteleia*, *Stropholirion*, and other genera. Then Baker made a thorough revision and merged nearly all of them into the one genus, *Brodiaea*. Others have had their turn in reviving the old names or digging up new ones from musty records very much to the discomfiture of the gardener or student who cares nothing for their quibbles or priorities but very much for names that they can tie to. In Bailey's *Cyclopaedia*, Baker is followed but with *Brodiaea coccinea* as *Brevoortia* and *B. volubilis* as *Stropholirion*. In 1923 Dr. Abrams of Stanford University, in his "Illustrated Botany of the Pacific States," again revives the old names. Dr. Jepson of the University of California again, in his *Manual*, merges all under *Brodiaea*. I prefer to follow him, but for the help of any who have had them under the varied names, I will give Dr. Abrams generic name with each section.

Treating all as a single genus, we find that all have small, flat corms. These corms like those of the gladiolus are entirely absorbed in the growth of the new plant and an entirely new

corm is formed every year. They all have slender basal leaves, some rounded like grass, others in narrow blades. Similarly all have the floral parts arranged in threes and the flowers that do not have differentiated parts like petals and sepals but uniform segments united in a regular. Alike they have slender, wiry stems or peduncles, flowers in umbels although some look like heads and each flower on a very slender stem or pedicel.

*Brodiaea*s have wonderful lasting quality when cut. They will last for weeks in water and small buds will develop and even out of water some of them will last days in a cool atmosphere.

*Brodiaea*s divide well into a number of groups. I give the Group Number and following it is the name given it as a species by Dr. Abrams and some others.

## GROUP I. CALLIPRORA

*Brodiaea ixioides* Wats. The Golden *Brodiaea* varies greatly. There are little subalpines included and various color or form variations. All are pretty but the finest is *B. ixioides splendens* Hort., or, according to Abrams, *scabra*. It may be eighteen inches high with as many as thirty fine flowers. The tube is short and the segments spread flatly much like a phlox flower. The color is a fine yellow with a brownish band down each center. Sierra Nevada upper foothills, almost the entire length.

## GROUP II. HESPEROSCORDUM

*Brodiaea lactea* Wats. in its typical form is low growing, that is under



twelve inches. The milky white flowers have a very short tube and a spreading limb and as many as twenty flowers in an umbel. Widely distributed in northern California.

*Brodiaea lactea* var. *lilacinum* Hort. Has larger flowers and varies in color from white and shades of lilac to deep bluish lavender. The bulb makes offsets freely and its forms dense masses, always in decidedly moist to wet places. It is found from north central California to British Columbia.

#### GROUP III. TRITELEIA

*Brodiaea Howellii* Wats. is found from Puget Sound to the Columbia River Country, east of the Cascades in northeastern Oregon. The umbels bear from a few to fifteen flowers. The flowers are rather tubular and a deep violet purple. Quite a pretty plant.

*Brodiaea Howellii* var. *lilacina* Hort. is like the type but larger flowered and of an exquisite porcelain tinge. Always in moist grounds and one of the prettiest brodiaeas.

*Brodiaea laxa* Wats. has flowers one and one-half inches or more long with a funnel shaped tube two-thirds their length and spreading limbs. While in poor soils they may be six inches high and few-flowered, in rich soils they may be two and one-half feet high and I have had them with ninety flowers.

The color in the type is a violet purple. *B. laxa*, Blue King, may be Jepson's variety *Tracyi* and is a deep blue. Very lovely. *B. candida* Baker or *B. laxa* var. *candida* Jepson is distinct in the fact that all of the pedicels are abruptly bent at the summit so that all of the flowers face in one direction. It is white in some localities but oftener a soft lilac near porcelain and very lovely. At its best

it is even larger than the largest *B. laxa*.

*Brodiaea Bridgesii* Wats. as oftener seen wild is not over five to nine inches high but may be two and one-half feet with very many flowers of a reddish lilac color. The stamens are in a single even row at the top of the tube. A fine plant. Sierra Nevada foothills over a long distance.

*Brodiaea peduncularis* Wats. differs from *B. laxa* in being white and in the fact that each pedicel is very long, so that the umbel may be over a foot across. It is found in places that are wet until late, like wet meadows or the beds of shallow gravelly streams and as it offsets freely, it makes great clumps. Eastern Lake County, California.

*Brodiaea Eastwoodiana* — has the same habits of growth as *P. peduncularis* Wats. but has short pedicels, making a narrow compact umbel. White. From southeastern Lake County where it is plentiful, to eastern Mendocino and north Sonoma Counties, California, where it is very rare.

In Oregon and Washington, mostly east of the Cascades in the drier interior, there is another distinctive group of *Brodiaeas*.

*Brodiaea Douglasii* Wats. is from nine inches to two feet in height and few to many-flowered. The rather smaller flowers are narrowly funnel-shaped and are a light blue vergin on light porcelain. A pretty species found east of the Cascades in as far as Utah and Montana.

*Brodiaea crocea* Wats. is a slender, rich-yellow flowered species with smallish flowers with rather spreading segments. Extreme southern Oregon and northern California.

*Brodiaea Hendersonii* Wats. is a little stouter than the last with widely spreading lobes which are dull yellow



*Lilian A. Guernsey*

*Brodiaea laxa*

colored with a dark purple band down each segment. Extreme southern Oregon in the Siskiyou region and the adjacent territory in extreme northern California.

#### GROUP IV. HOOKERA OF ABRAMS

These are quite different from any of the preceding. While other *Brodiaeas* have six stamens arranged in either one or two rows on the tube of the flower, this group has three stamens and, alternating with them, three flattish white bands which are changed stamens and are called staminodia. While our botanists have named about eight species, they vary much from one locality to another. In each locality they vary little but perhaps fifty miles away there will be some difference. The flowers of this group last a long time when cut. Stems cut in hay-making may stay fresh in the shocks for weeks.

*Brodiaea grandiflora* Smith is the Harvest *Brodiaea* in California and one of the most widely distributed of our bulbous plants. In some sections the hill slopes are colored by the purple blossoms. The flower is from one and one-fourth to one and three-fourths inches long, funnel shaped, with the tube one-third the length. There are from a few to twelve flowers, usually of a deep, waxy violet-purple. There are many sub-species and the size of the plant varies greatly. It is found from British Columbia to Lower California.

*Brodiaea californica* Lindl. is most nearly related to the last. The typical form is a small plant with pinkish flowers but in one locality it is the largest of all *Brodiaeas*. I have it fully three and one-half feet high with a very strong stem and large flowers. Rare in north central California, both Coast Ranges and Sierra foothills.

*Brodiaea stellaris* Wats. has very short stems and long pedicels. The flowers are vivid violet purple and the pure white staminodia in the center give a strong contrast. Rare from Mendocino to Humboldt Counties, California. Handsome and fine as a rock plant.

*Brodiaea terrestris* Kellogg is a little fellow with no stem above the ground and short pedicels. Rare in north California.

*Brodiaea Purdyi* Eastw. has a very short tube and long segments and is a small, compact plant, seldom over nine inches high. The segments recurve strongly and it is the only species of which that is true. A very soft pinkish-lavender. Sierra foothills from Butte to El Dorado Counties.

*Brodiaea rosea* Baker rather resembles *B. stellaris* Wats. but the pedicels are short and the color pinkish-purple. Rare in eastern Lake County, California.

*Brodiaea filifolia* Wats. is found in the extreme south of California and has very slender foliage and small violet-purple flowers.

*Brodiaea Orcuttii* Bailey from the same region resembles the last. There are several unnamed species in this series.

#### GROUP V. DICHELOSTEMMA

*Brodiaea volubilis* Baker, or the Twining *Brodiaea*, has a bulb like several other species but soon after the very slender stem comes up it begins to encircle anything which will support it and climbs just as a honeysuckle does. If it is near a bush it will climb up to a length of as much as eight feet. If no such support is at hand, it will climb over grass or plants or if there are several of the flowering stems near they will encircle each other and in thick patches, I have



*Lilian A. Guernsey*

*Brodiaea multiflora*

seen regular cables made of many such encircling flowering stems.

Its leaves are grassy and the small flowers are a very pretty pink. I have seen stems which have become detached from the bulb go on flowering in the air. Midfoothills of the Sierra Nevadas and the foothills of the Coast Range close to the interior valleys.

#### GROUP VI. ALSO DICHELOSTEMMA

*Brodiaea pulchella* Greene has a very slender, rather flexuous stem, crowned with an umbel with very short pedicels so that it appears to be a head of flowers. The flowers are small, often numerous, and of a very pretty deep violet-purple color. One and one-half to three feet high. In the middle foothills of the Sierra Nevadas and northward to Oregon and Washington.

*Brodiaea multiflora* Benth. is much like the latter. Although it really has its quite distinctive points, the ordinary observer would think them the same. Found in the same region as the last.

*Brodiaea capitata* Benth. varies greatly and there are really a number of subspecies. The most common one has slender stems a foot or two high and heads of violet-purple. It is very widely scattered through the length of California in rocky places or gritty ground. *B. capitata* var. *multiflora* Hort. is low growing and is only found in rather heavy, open slopes. There they may color the landscape in very early spring. Some one of the forms of *B. capitata* can be found in opener regions from southern California to southern Oregon.

#### GROUP VII. BREVOORTIA

*Brodiaea coccinea* Wats., the Floral Firecracker, is at once a most beauti-

ful, and novel plant. It has the grassy leaves and the bulb of *B. pulchella*. The stem is erect and from nine inches even to four feet in height and from few to very many flowered. The flowers are tubular, one to one and one-half inches long, a brilliant crimson with white staminodia at the tips, making the fuse to the firecracker. The flowers are in a loose raceme and hang gracefully. From Mendocino County in northwest California to just over the border of Oregon in lightly shaded slopes. One of the most distinctive of all of Californian wild flowers.

#### BRODIAEAS AS GARDEN FLOWERS

It is to be noted that in all of the regions where they grow, there is a midsummer period when there is little moisture in the soil and when the foliage dies and the bulb ripens hard. Rains come in September or October and root growth begins. There is no leaf growth until growing weather comes, which may be as early as February and as late as May in the higher country.

In the wild they are to be found in many soils, varying from the stickiest clay, which dries as hard as bricks in the summer, to sands and gritty soils. More often they are in a loose, woodland loam. Doubtless the soil is acid in some of these region and without question sweet or neutral more generally. They do better where it is not acid.

While some species are found where the ground is wet all winter, they do as well with ordinary moisture and good drainage is by far safer. They like moderate moisture until about a month after flowering.

Their depth in the wild varies from one and one-half to ten inches but it is safe to give all a cover of three inches.

It is probable that all are hardy throughout the East and several self-seed and go wild in Massachusetts and Delaware and would doubtless do so elsewhere. Stephen Hamblin did not find that *B. coccinea* and *B. volubilis* wintered at Lexington, Massachusetts, but a correspondent in Massachusetts flowered a large assortment of Brodiaeas after the most trying kind of weather.

Brodiaeas are not plants that cover much ground and they can be planted in groups with three to seven inch in-

tervals to advantage. Single plants are pretty among plants not over a foot high. *B. coccinea* is especially fine among low ferns.

It might be difficult to make a selection from so many species. Really all are beautiful and worth while. Possibly the following choice of one in each type might comprise the very best.

*Brodiaea ixoides splendens*, *B. laxa* Purple King, *B. coronaria*, *B. grandiflora*, *B. stellaris*, *B. coccinea*, *B. pulchella*, *B. volubilis*.

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## Note

Members of the Society in 1931 will remember that illustrations have already been published of several species of brodiaea. In the January issue, page 63 there is a picture of *Brodiaea Hendersonii*, discussed by Mr. Purdy on page 306 of this issue; on page 154, of the April issue is the illustration of *Brodiaea capitata*, discussed on page 304 of this issue; on page 287 of the October issue is illustrated *Brodiaea grandiflora* discussed on page 302 of this issue. All issues of that year are available to a limited extent and may be purchased on inquiry of the Secretary.

It was hoped that we might be able to reprint these illustrations with the present text, but it seemed advisable to include only three new illustrations and to hold all of the blocks until such a time as we can issue a booklet on California bulbs, at which time we can reprint not only the illustrations of brodiaea and calochortus that have appeared but many new illustrations that have been gathered in the intervals between the appearance of the several articles.

The editor feels moved to say that brodiaeas have been quite permanent residents of his garden for many years. Most of them increase only sparingly, but some few, particularly *laxa*, *californica* and *lactea* show definite increase. Flourishing under conditions that suit crocus and tulips, they seem perfectly at home and certainly add much of interest to the mixed planting. It is urged, therefore, that gardeners living in climates comparable to that of Washington, D. C., should try some of these most interesting natives of the Pacific Coast ranges.



*Arthur D. Slavin*

*Pinus Thunbergii*

## Forms of Pine—II

BY ARTHUR D. SLAVIN

If order of mention should be based on utility and popularity I am perhaps guilty of an infraction of the rule. I refer to *Pinus Thunbergii*, the Japanese Black pine. In its native country where it has been cultivated for many centuries, it is known as the Kuro-matsu Tree. Vast plantings of this species both ornamental and economic in aspect have made it the best known member of the genus in Japan. It is one of the conifers especially propagated by the orientals for pot culture and is thus dwarfed for use in Japanese gardens. Dallimore and Jackson state that it is grown in the state forests of its native country on the basis of a forty to eighty year rotation which statement would signify that its use as an economic timber is of some importance. E. H. Wilson quotes it as a tree of irregular habit with twisted trunk and spreading branches when grown in the open while in the forest it assumes the narrow habit of most conifers.

It was introduced into this country about 1880 but enjoyed only a scattered distribution until the past two decades. It may now be listed as one of the most common and excellent species. In years to come when the opportunity for observation of many specimens becomes possible it will be found most likely that it follows the same habit of growth as in its ancestral home. At the present time, specimens upwards of thirty years old show a pyramidal habit with straight trunk and horizontally spreading branches which curve gracefully upwards towards the ends. Specimens sixteen years old from seed are now seventeen feet tall and, in many in-

stances, have the same dimension in breadth. The branching while not more dense than in the other pines, extends from the very base of the tree and makes for a fullness and breadth not found in many other representatives of the group. The foliage is outstanding, dark green, stout, pungent and twisted, it is arranged in pairs, each leaf measuring from two and a half to more than seven inches long. The cones are much in evidence even on young trees and are arranged in clustered masses along the branches. Quite often they are permanent, remaining on the tree long after maturity. They are not difficult to recognize and furnish a simple means of identifying the species. A short stalk attaches them to the branches and they are ovoid in shape measuring about two and a half inches long. The terminal buds are also a matter of distinction, appearing in late winter and often two inches long, their silvery color imparts a life-like attitude to this tree before the other conifers begin their seasonal development.

This tree is particularly adapted to light sandy soils, a factor which has made it a most popular material for seashore planting. I have seen specimens thriving along beaches where the drifting sand has caused the lower branches to become almost completely inundated. As a screen for wind protection along open shores it finds few competitors and its use as a medium sized wind break is fast becoming popular. Specimen plantings of this fine tree are to be encouraged. Sufficient space for the development of its lower branches is a factor which cannot be over-estimated and a well-



placed specimen is sure to prove an addition of beauty and dignity to the grounds.

*Pinus densiflora*, the second of the Japanese Hard pines, is known as the Aka-matsu Tree in its native country. Considered the most common pine in Japan, it is seldom seen in cultivation in this country except when represented by its several ornamental varieties. Its close resemblance in many ways to the Scots pine so commonly cultivated in this country is probably the foremost reason why it is not in great demand. It appears to do best in a light, sandy, well-drained soil and does not suffer from our coldest winters. Specimens at Rochester make an average growth of about eight inches per year and the largest specimens in the pineta of the Bureau of Parks is now sixteen feet in height after fourteen years. In the wild state it is said to attain a height of more than one hundred feet and while I know of no trees of such size in this country it is not unbelievable that we may have some specimens of good size.

Cultivated trees of this species appear to be of broad pyramidal habit while young, gradually assuming a more irregular appearance with age. The bark, except towards the base of the trunk, is thin and orange red. The branching is horizontal and the branchlets orange yellow covered with a bloom, a character which immediately identifies it from the Scots pine. The leaves are in sets of two's, bright green, slender and measure from two to more than four inches in length.

While not the most important of our cultivated pines, it is sufficiently useful to warrant some comment. It is well adapted to specimen planting especially where a tree similar to the Scot's pine is desired but whose char-

acteristics are of sufficient difference to separate it from that species.

We have but one hard pine from China, and that from the Northern and Western regions of that country. Although several names have been given to it, official nomenclature now accepts *Pinus tabulaeformis* as the correct nomen. In the past and by some authorities at the present time the synonyms (*P. sinensis*) and (*P. funebris*) are used. This species was first introduced into this country in 1862 but until the late Dr. Wilson made his famous plant collection trips into the horticulturally less known parts of China it was seldom seen and comparatively few cultivated plants were in existence.

Whether the material sent to this country before Wilson's time was collected from the more southern parts of China I do not know, but until quite recent years this species was considered generally to be a tender plant requiring care and not adapted to our more northern states. Material collected by Wilson appears quite satisfactory and makes excellent growth. While it is not difficult to establish, it will benefit greatly by some protection while young and if given good soil will make excellent progress. Among the many specimens which I have seen, most appear to be of irregular, sprawling habit, some spreading and others of more or less erect character. I am much inclined to the belief that this variation in habit is due not to any particular local condition, but to the fact that our present material represents collections of seed from different locations and perhaps, as the material becomes better developed, it will be found that there are various geographical forms. One is already recorded among Dr. Wilson's collections.



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*Pinus tabulaeformis*

Specific characters of this species make it not too difficult to identify. It ranges generally from a broad spreading to broad pyramidal tree with spreading horizontal branches. The branchlets are most similar to those of *Pinus densiflora* but are of lighter orange or more often a yellow color covered with a slight bloom while young. The leaves are arranged in two's, slender, light or glaucous green and four to six inches long. Although densely foliated, the needles appear in a feathery fashion, some drooping and others lying in horizontal planes.

The largest specimen I have closely examined is now eighteen years old from seed and measures nineteen feet tall. It presents an excellent appearance. Due to its small range of distribution, it will undoubtedly find its greatest use as a specimen tree for which purpose it is most excellently adapted.

Among the varieties of the Mountain Pine, *Pinus mugo*, which is generally treated as a shrub or dwarf and, consequently, to be considered with that material, we find two tree forms. Both the species and many of its varieties have been known in cultivation for about 150 years and are to be found principally in the mountainous regions of Central Europe. The form *Pinus mugo rostrata* is sometimes described as a dwarf in the publications, its size, however, is such that in my estimation, it is best considered as a tree form.

Apparently the American nurserymen have not taken to propagating this variety and most of the specimens seen today are in old gardens made up of material imported from Europe. It belongs to that group of trees which we discern as of bold character and

seldom reaches a height of more than twenty feet. Specimens in the pinetum at Highland Park in Rochester are eighteen feet tall after thirty-six years. They have a spread of about fourteen feet. As a small plant this form would be considered as belonging to the dwarf group but, as it attains age, it loses its shrubby aspect and takes on tree form.

There are usually one to three main stems. The branching is open, ascending or horizontal and, in the latter case, up-turned at the ends. The leaves are arranged in groups of two's, course, somewhat flattened in cross section and dark green. The cones which appear on the plants when they are quite young are asymmetrical in shape with the scales on one side much under-developed. Their arrangement on the branches is such that they are directed downward. The coarseness of the foliage and the character of the cones combine to make identification not a difficult process.

The second form, known as *Pinus mugo rotundata*, is quite on the border line between a tree and a shrub. Were it not for the fact that in the Alps it grows to thirty feet in height we would relegate it to the dwarf group. With all the characters of a shrub, its size is the only foundation upon which to base its consideration as a tree.

Starting from a common base, the generally flattish, round habit of this tree is formed by its many main branches which curve outward and upward, a feature which serves to distinguish it most plainly from the variety *rostrata*. The foliage is less coarse and of a brighter green than in that form. The cones of both varieties are similar, the greatest difference being that in this variety they spread outward from the branches as well as downward.



*Arthur D. Slavin*

*Pinus mugo rostrata*



Arthur D. Slavin

*Pinus mugo rotundata*

The value of both these forms to ornamental purposes is much the same. They both appear to do well in sandy soil and are entirely hardy. Their principal value lies in their use as small specimen trees although they are also well adapted for screen planting. They like the light and should not be placed in too shady a location. Which one to use depends entirely upon the effect desired. If graceful irregularity is to be the keynote of the design, the variety *rostrata* should be employed. Where formality and symmetry are the essence of the plan, *rotundata* will meet all requirements.

*Pinus nigra* is our next consideration but as it is known in cultivation

principally by its forms we will enter upon a discussion of the more prominent and valuable representatives. *Pinus nigra* in the type form is rare in cultivation due to the preponderance and greater value of its geographical forms. Seedlings of the type are to be found in the pineta of the Rochester Parks but observations prove it to be of little value ornamentally as compared with the varieties.

The Austrian pine, *Pinus nigra austriaca*, is the most common and has long been cultivated as an ornamental tree. It is a native of Austria and Hungary and is considered by some authorities to represent the type, a



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*Pinus nigra cebenensis*

statement of some question if the specimens which I have seen of the so-called type are true. It is characterized by its heavy appearance, stout horizontal branches and dense masses of coarse, dark green foliage. Its silvery buds similar to, but smaller

than, those of the Japanese Black pine are a most common means of identification.

In ornamental work it finds itself best suited to specimen planting because while thoroughly hardy and enduring on even the poorer soils, its



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*Pinus nigra monspeliensis*

expansive branching habit makes it undesirable for wind-breaks or group plantings except where large areas are available.

From the Pyrenees comes *Pinus nigra cebenensis*, another geographical form of merit, known also by various authors under the synonyms (*tenuifolia*) and (*pyrenaica*). With color as its principal means of identification,

it should perhaps be placed in that group. If its mention here is an exception to the rule it is because it has never held sway as a color form. It is somewhat smaller in size than the Austrian pine and less bold in countenance. The branching is horizontal with the branchlets a lustrous dark orange color. The foliage is quite slender and of greater length than in



Arthur D. Slavin *Pinus nigra monstrosa*

the variety *austriaca*. The leaves measure four to six and a half inches long and are a noticeable grayish green color. The uses of this variety are

the same as for the Austrian pine. It is often stated that this tree is adapted to poor soils, an allegation perhaps partially true but for good growth it



follows the rule of all vegetation and will do best when afforded a light loamy soil and good drainage.

A third form now growing in the pinetum at Durand Eastman Park is interesting, although at the present time, only small trees are available for observation. The original material was received under the name *Pinus nigra monspeliensis*, a nomen which is supposed to be synonymous with the variety *cebenensis*. Synonymy, however, cannot apply in this case as there are two distinct forms represented and, at this time, I have not as yet convinced myself as to what may be the true name of this variety. Until the opportunity presents itself to examine the original descriptions of the different forms of this species, especially the description of the material given under the name *monspeliensis*, its present designation, although it is a nomen dubium, will have to remain.

As a young tree the material in question presents a fine appearance and shows great promise. The habit is pyramidal with the branches horizontal near the base becoming ascending towards the upper half of the tree. The color of the branchlets is lustrous orange brown and much like those of *cebenensis*. The leaves are different being a beautiful dark green and measuring six to eight inches in length. Its present development indicates a future tree of more graceful habit than is to be found in the other related forms. Specimens growing in a well drained, sandy loam increase in height at a rate of more than fifteen inches per year.

To those whose interest lies mainly in the collecting of materials which are extraordinary or freakish, the mention of a form of grotesque habit is worthy of note. This variety was

discovered as a seedling in one of the local collections and was named *Pinus nigra monstrosa*. (Proceedings Conifer Conference: Royal Horticultural Society: London, 1932.) It is not to be confused with (*Pinus laricio monstrosa*) a dwarf form described by Beissner which I have never seen.

In some respects it might be considered a columnar form. It is an erect grower with a straight trunk from which project branches arranged in close whorls at irregular distances. The later character is best demonstrated by its procedure of growth. Practically all development is concentrated in the main terminal buds which consist of one primary terminal bud and four to five lateral buds. When growth commences the terminal bud produces a single vertical leader while the lateral buds develop short, horizontal branches. As there appears to be little development except at the top of the tree, an exceedingly long leader is produced each season and upon the length of this leader depends the separating distances of the whorls of branches. By comparison I might say that this tree resembles a telephone pole with cross pieces fastened to it about two to three feet apart. An additional trait which visibly affects its appearance is the odd habit of the branches to ascend acutely at the ends.

The type specimen is now thirty-four feet tall and has a maximum breadth of twelve feet. The foliage approximates that of the Austrian pine. It is not my intention to give directions for its use. That it can be employed in ornamental work is not to be doubted but with such material it is best to leave the job to the person who will want such a specimen and, hence, plan a suitable location for it.

(To be Continued)

# Report of the Lily Conference of 1933

Held in London Under the Auspices of the Royal Horticultural Society

BY HELEN M. FOX

After two years of expectation, at last I was to go to the Lily Conference. Never having been to a meeting of the Royal Horticultural Society, I imagined the whole affair would be conducted in a most formal and awe-inspiring manner. Quite the contrary was true, however, and although the proceedings were carried on according to a carefully arranged program, there was a pleasant air of informality about them. The leading group of English gardeners consists of highly expert amateurs and of the professionals who work in the various horticultural and scientific organizations. They meet constantly, at their fortnightly sessions, at conferences and shows, and a most friendly and cordial relationship prevails amongst them.

Only three Americans came to the Conference, Mr. William N. Craig, Mr. Marshall and I. It shows how little interest and understanding we in the United States have about the important happenings in the horticultural world; but let us hope that in time this will be changed and that more of us will avail ourselves of such enriching experiences as this.

On the morning of Tuesday, July eleventh, the show was opened to the judges and as I had been graciously asked to be one of them, I went to the exhibition hall. I was quite excited at the thought of seeing all the latest introductions and newest crosses and could hardly wait to go in, but when I did walk in, I literally held my breath because it was

so utterly beautiful, so far beyond my expectations. The air was filled with a heady fragrance and the lilies dominated each exhibit, rising above the associated plants on their graceful stems. The effect of the whole was of white, cream, yellow, orange, through to browns and the darkest plums of the martagons. Although there were a good many lilac-pink ones and brilliant red *chalcidonicums*, these merged into the whole. Instead of using blue delphiniums, and the violets and blues of the campanulas, as accompaniments, which one might have expected, the associated plants were pale yellow *Primula florindae*, hemerocallis in its newest shades, pale yellow callas, and many brown, gold and red-leaved dwarf Japanese maples, branches of *Prunus pissardi* and of purple beech. As ground covers and to tie the different elements together, there were green ferns, moss, heather, evergreen ground covers, a few rhododendrons, and bamboo (a new idea to me and most effective in the grace of its stems and slender leaves). The many martagons in their brown and wine tones emphasized the wood like colorings and the creamy *testaceums*, cream white martagons, white *Duchartrei*, of which there were quantities, the lighter shades. In the middle register were all shades of orange and yellow *elegans*, *croceum*, *Willmottiae*, *Davidii*, and their crosses, and many *pardalinum*, *superbum*, *Humboldtii*, *canadense* (a group the English like especially).

Down the center were the flowers and at one side pictures and at the other a scientific exhibit of which more anon.

Practically all of this immense collection of lilies flowered out of doors. It was an amazing achievement to assemble such a great quantity of species and to have them in such excellent condition and an indication of the remarkable skill of English gardeners, whose climate, the more I see of it, seems far from easy in spite of reports to the contrary.

At the front of the Hall, near the steps leading to a platform where people may sit and rest their weary feet and overlook the whole Show, was an exhibit by Constable of Southborough, Tunbridge Wells. In this commercial exhibit as well as in others, many of the lilies shown were brought in by amateurs in order to make particular exhibits especially fine. It is a charming and unselfish idea but the would-be purchaser of bulbs and plants cannot tell whether the exhibitor really owns such fine examples as he shows or not.

Constable's exhibit consisted of a little garden having a central circular bed, surrounded by four other beds. Here, as well as elsewhere, each variety of lily was planted in clumps, which was every effective. There were *testaceums*, very tall with 5-7 flowers to each stem, *Willmottiae* and *tenuifolium* in one bed with the brown, gold, and green foliage plants.

Another bed had clumps of *himalaicum* or *giganteum* lilies, the despair of most American gardens, tall stems rising from great, tropical looking leaves, bearing spikes of tubular white flowers having purplish markings at their throats. With these were the new cross *princeps*, *regale*, *willmottiae*, dwarf *elegans umbella-*

*tum Sapho*, a deep orange, tall clumps of *pardalinum*, and branches of copper beeches and spotted and striped ornamental grasses. In some of the beds were low, dainty *polyphyllums*, spotted red inside and green on the back of their white perianths, *Farrari* and *Wardii*, the last the color of faded roses, also the peach-colored *elegans* Alice Wilson, and throughout spikes of white martagons, each with fifteen or more blossoms. If only I could grow this charming lily like that! Other beds featured *philippinense*, *concolor*, *cernuum* (deep rose) *Hansoni*, and marvellous specimens of *chalconicum*s. It always sickens and dies with me but here it was in all the glory of its shining, brilliant red, reflexed blossoms, borne on tall stems.

There were ever so many more unusual lilies in this exhibit but perhaps it is best to talk about them all together.

After Constable's came three lines of other exhibits. One featured orange *croceums*, red-leaved barberries and *testaceums* with delicate-leaved ferns and *Asparagus Sprengeri* underneath them.

Another exhibit combined pale pink *japonicum*s with *regales* and peach-colored *testaceums*, and under the *japonicum*s was white heather. One grower used striped ornamental grasses and many took the leaves of a *longiflorum* which has the margins bordered in lighter green as a decoration and in one arrangement there were the leaves of the variegated *candidum*.

Perry's of Enfield was, as the English say, "too lovely." It consisted of a collection of hemerocallis with ferns under them and very dark scarlet leaved Japanese maples from which rose quite high spikes of

*Eremurus Bungei* (yellow and fuzzy). In this exhibit amongst these reds and yellows were *Hansoni* and *princeps* (which looks more like a *regale* x *brownii* cross than the *regale* x *sargentiae* which it is).

Off to one side was a display all of *Duchartrei* var. *Farreri*, a white speckled lily of the martagon type which was intermingled with *Asparagus Sprengeri*. The lilies being in green bowls and jars.

Wallace of Tunbridge Wells had a marvellous show dominating the end of the Hall. It was also a creamy, rose, deep red, and orange scheme. The front of it was semi-circular and the colors ranged from the *alstroemerias* in rosy yellow at the front, planted with dwarf Japanese maples and graduated through *regales*, *auratums* (the white *Virginalis* without spots but with a pale band of gold down through the centre of each segment), *giganteum* lilies and *Henryi citrinum* (a good pale yellow from Scheepers'). All this splendor was backed by small trees of *Prunus pissardi*, white birch, mountain ash, with its orange berries and tall bamboo. There was a little pool here too. At the margins were the pale yellow *Primula florindae* and behind it purple and white Japanese iris, and behind these orange *superbum* lilies. The Japanese iris go well with regal lilies too.

Other lilies shown here and elsewhere were *Bakerianum*, whitish green spotted magenta; *columbianum*, tiny and butter yellow, *Duchartei*, mauvish pink, *cernuum*, also pinkish, *pardiboldtii*, much spotted brown on yellow with the leaves of *Humboldtii*. *Henryi* had been forced to be present by some but was mostly on tremendously tall stalks and in bud. There were other *auratums*, *longiflorums* (which

are hardy here); the tall *Brownii* with narrow leaves and quite white inside the flower and having the outside as if brushed with brownish green pastels. Also the dwarf *Brownii* with broader leaves which I think has more character, as its inside is cream against a chocolate outside and the flower is thick and waxy. There was the *martagon* var. *dalmaticum* with as many as 29 wine red blossoms to a stalk and the *martagon* var. *catantaniae* with larger flowers of a deeper tone. Besides these most of the North American lilies were amongst those present including *Washingtonianum*, and *Kellogii* which are not easy. One new cross was *croceum* Coolhurst and it is a beauty, larger and of a brighter color than the true *croceum*, which is very fine itself. "Mystic" a hybrid between *Sargentiae* and *centifolium* was at this marvellous show; it is tall with white flowers marked green, and has deep orange colored pollen. *Maxwell*, like a stronger *Willmottiae*, *Davemottiae*, tallest of the group, being 6' high and having 35 blossoms to a stem. *Willmottiae* x *elegans* was good too. These last are all Miss Preston's crosses and she stands out as the greatest hybridizer of lilies in the World. I noticed two kinds of *Parryi*, so difficult for eastern gardeners. One had reflexed segments and one tubular bell shaped perianth. Both were pale yellow.

To the left along one wall of the Show were colored pictures of lilies. One set being from the new volume by Mr. Grove, to supplement the Elwes Monograph, the other, and these were quite beautiful, were water colors by Mr. Frank Galsworthy.

There were also photographs sent by the Arnold Arboretum, Country Life, Miss Preston, and Mrs. Fox.

On the wall to the right, was the

scientific exhibit. A long table was run along the wall and on it were boxes stuffed with cotton in which was the seed pod and seeds of a certain species, then a jar in which the bulb of that species had been placed, and behind this on the wall was a photograph of the growing lily. There was also a very complete exhibit of the effects of mosaic and another sent by Laurence Ogilvie who cleaned up mosaic in Bermuda. There was a table upon which were jars containing soils where different lilies are growing in various localities. Then Wallace had a large table upon which was a collection of bulbs from 1-2 years old grown from seed and scales. This last was wonderfully helpful for a beginner, as each little bulb bore a label telling its age and how it was propagated. Under the picture of botrytis was the caption "Botrytis is cured by spraying with bordeaux and removing the flowers of infected plants." The lilies exhibited as grown from seed, which I had never grown, were, *Hansoni*, *Martagon dalmaticum*, Backhouse hybrids, *monadelphum szovitzianum*, *Rozeleii*, *martagon*, *martagon album*, *parvum*, and *giganteum*.

As I said above, a goodly portion of the lilies shown were grown by amateurs and if it were not for their indefatigable searching after the rare, the choice and the new in flowers, such displays would be quite impossible. At present most English gardeners are collectors. It is perhaps the scientific spirit of our age, expressed in terms of gardening. The result is a vastly increased variety in their flora and a greater richness of effects and longer and more continuous bloom.

There is so much interest in flowers that a show is held every fortnight

and sometimes more frequently and they told me that often there are many more exhibits than they can possibly handle so that they have to open their Old Hall as well as fill the new one.

The afternoon of the opening of the show was the first series of lectures, all of which are to be published in a lily year book which I advise every lily grower to buy.

But for the impatient I will say that the English have held that soil was the important factor in the satisfactory growing of lilies. We in the United States have long known this was not so, but they had to find out for themselves and now they know positively that soil is a negligible factor. But they now think that drainage is all important. At Wisley they had some fine *tigrinum*s growing in poorly drained pots with the little brown spots at the tips of the leaves, which showed that these imperfections may possibly be due to lack of sharp drainage.

The question of mosaic was carefully gone into, as was the raising of seeds and other means of propagating the lilies. Papers were read from Doctor Stout on sterilities and from Miss Preston on hybridizing. Neither of them could be present. As the readings went on when they approved or doubted the audience would say, "Hear hear" or "Query." Duchesses and Baronets, Viscountesses, *et al* sat side by side with their gardeners and all took notes and attended every session of long, scientific papers. The Hall was packed each time! Lilies are very fashionable in England now and even the Prince of Wales has taken them up and went down to see them growing in Major Stern's deservedly famous garden. Major Stern was the chairman of the whole Lily Show and

certainly did a fine job. And here I must say what may seem like a betrayal of my sex but I do think we women must admit that in practically every field men have produced finer results than we have. And no doubt it is especially true of gardening and until we have more men keenly interested in gardening in the United States, I am afraid we will stay at the pottering stage. We need their pep, push, and vitality. Women are too much interested in the small details. In England, Mr. MacLaren,

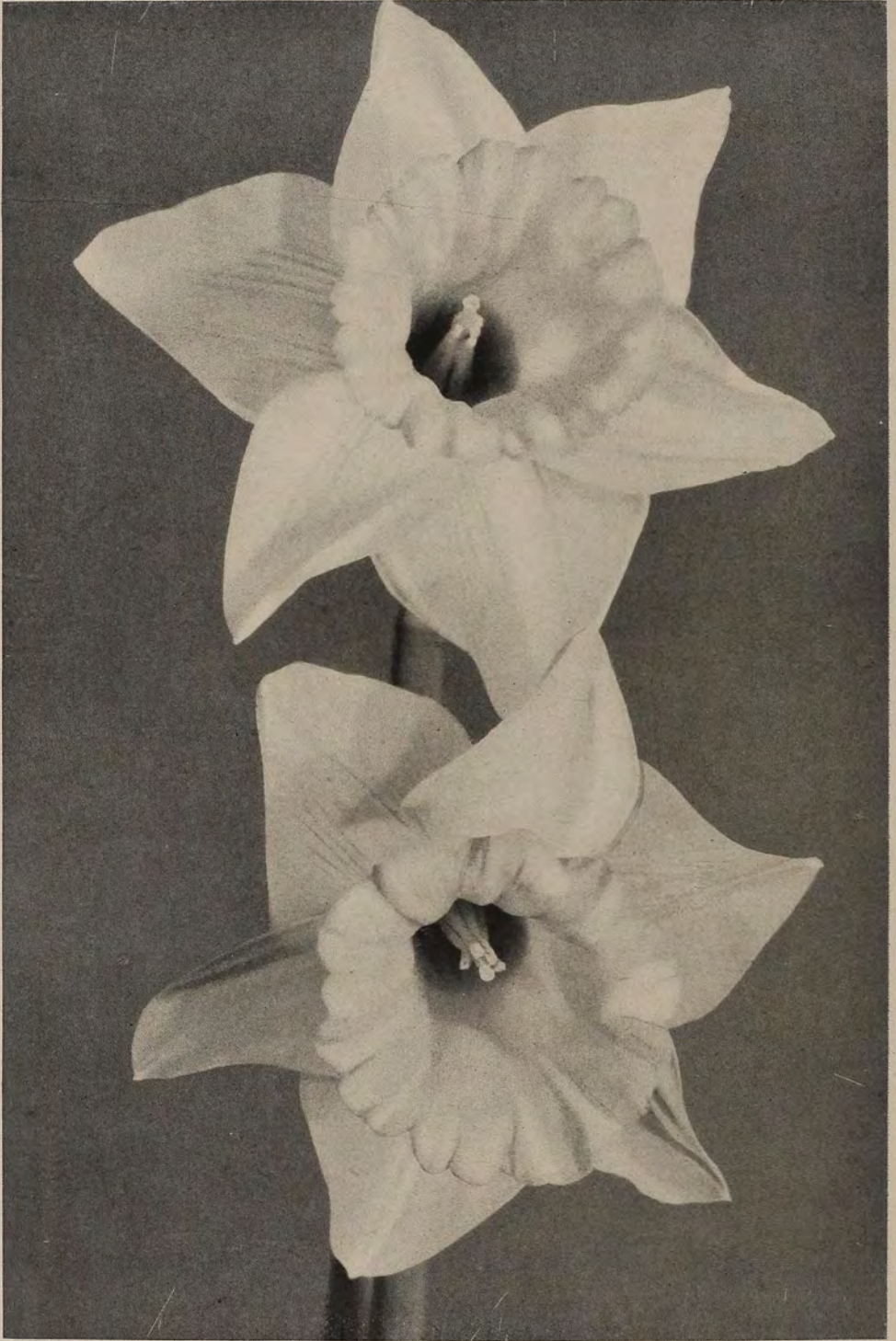
a great business man, Major Stern, a prominent banker, Lionel de Rothschild, and hundreds of others spend hours and hours in their gardens.

There was a dinner one of the evenings of the show, which was very jolly and informal, and the guests were taken to Kew, Wisley, and to any gardens they asked to see. Altogether it was a wonderful experience and most enlightening and I am happy indeed to have been able to gather enough pennies together to go.

Peekskill, N. Y.



*Lilium Brownii*



*Lilian A. Guernsey*

New Daffodils, *Sylvanite* (upper), *Maryland* (lower)



*Lilian A. Guernsey*

New Daffodils, *Alasnam* (upper), *Aerolite* (lower)





*Lilian A. Guernsey*

*Hart Nibrig and E. B. Garnier*

# Notes on Bulbous Iris

By CHARLES E. F. GERSDORFF

My first acquaintance with the bulbous iris was some years ago when I planted a collection of the old Spanish type, following the meagre directions which were given. Needless to say I never had the pleasure of seeing them bloom. Since that time until last fall, my acquaintance with them has been as cut flowers, either obtained from some florist or as a show flower in some horticultural exhibition. Last June, 1932, it was shortly after viewing the Massachusetts Horticultural Society's Iris show, that a surprise letter awaited me on my return, offering me the opportunity of trying these iris in my garden to determine their actual hardiness under the peculiar cultural conditions prevailing therein. I had but one situation to give up to them, that along a warm brick wall, southern exposure, a situation never too wet, often very hot, actually against the brick wall, fronted by tall bearded iris. The driest corner was given up to little *reticulata*, and nearby with a few in a more open situation were the *Tingitana* hybrids "The First" and "Wedgewood." Elsewhere in this "hot stretch" the various De Graaff Dutch hybrids and their two Spanish hybrids named Golden Wonder and Golden Lion found in the main a situation in which they were very happily at home. It is my observation, however, since the Spanish are late in flowering, that they would do much better in a less hot, scorching situation. They have since been moved to similar protected locations but somewhat shaded from direct

sun or that reflected by the hot brick wall. More exposed were the *Filifolia* Emperor, and less hot in situation, with one of the English type known to me as "Blue Hesperus" directly in the open subject to sweeping north and western winds.

The soil in the main consisted in quite light loam, with a clay subsoil. The bulbs were planted in groups of six to twelve, two to four inches apart and about four inches deep. The surface soil was mixed with a prepared commercial fertilizer, a good handful to each clump.

Though I was warned that the *Tingitana* hybrids were not of reliably known hardiness, I was asked to try them in the garden, affording some protection as with a covering of peat moss. Such was my intention, but press of other matters at planting time resulted in no protection being given these supposedly tender varieties.

I would characterize the winter here in Washington, D. C., in 1932-33 as a rather severe one, and certainly a trying one on plants usually termed hardy, for there was considerable heavy freezing, followed by thaws and quite warm spells, and then a freeze again. Sap would undoubtedly flow in some of these warm stretches, growth would advance, yet the only apparent injury to these plants was a browning of the tips, which I ascribe as much to the reflected heat from the brick wall as the actual cold temperatures which followed.

Inasmuch as I had no first hand information on the behavior after planting of bulbous iris, I watched

their fall growth of foliage with some trepidation. Later I learned that this was their habit. The foliage of *reticulata* was last to show, coming up in January, following planting of all the bulbs in late October. One month later *reticulata* was in bloom, and thereafter there was a constant procession of loveliness as the *tingitanas*, Dutch, Spanish, *Filifolia* and English iris came into bloom, in the order named, the last flower showing about June 3.

I am indebted for the privilege of obtaining this information to the kind donation of stock by The Oregon Bulb Farms, Inc., Boring, Ore.

*Reticulata*. S. haematoxylin violet, long, narrow, twisted, styles slightly bluer, falls inverted V-shape (haft and blade), haft narrow, madder violet with underside green, blade velvety anthracene violet with the center a raised crest of chrome yellow surrounded by irregular portions of white. The crests of styles and blades of falls joined to resemble greatly the form of our "Johnny-Jump-Ups" but much larger. Planted in clump of twelve, bloom started February 20 and ended March 15, 23 days of bloom. This is violet-scented, lasts well when cut and indoors the scent pervades the home. Two blooms per bulb.

*Tingitana* "The First." S. medium pleroma violet to lighter edge, styles lavender violet to paler crests ruffled and frilled, F. light lavender violet to deeper hafts with center feather of deep lemon chrome, two blooms per stalk,  $3\frac{3}{4}$  inches, 28 inches tall. Twelve bulbs started blooming April 7 and continued to April 27, 20 days.

*Tingitana* "Wedgewood." S. light bluish violet, styles same to lighter crests which are frilled and ruffled,

F. dull cream to edges of pallid bluish violet with heavy center feather of lemon chrome to cadmium yellow. Two blooms per stalk,  $5\frac{1}{4}$  inches, 28 inches tall. Twelve bulbs started blooming April 8 and continued to April 27, 19 days.

#### DUTCH IRIS

A. Bloemaard. S. soft bluish violet, styles soft blue violet to lighter edges and crests of wistaria blue, F. pale wistaria blue with lemon chrome center line, two blooms per stalk,  $4\frac{1}{4}$  inches, 26 inches tall. Nine bulbs started blooming April 14 and continued to April 30, 16 days.

Adrian Backer. S. light hortense violet to grayer and lighter edges, styles light hortense violet to edges of pale hortense violet to crest of light mauve, F. pallid mauve with center line of deep lemon chrome. Two blooms per stalk,  $4\frac{1}{2}$  inches, 20 inches tall. Nine bulbs started blooming April 16 and continued to April 30, 14 days. In a more open situation this variety started blooming several weeks later. This would indicate that most of the varieties tried by me would show later bloom in more open situations.

Yellow Queen. This partakes more of the form of the later Spanish type than that of the Dutch hybrids. S. frilled pale lemon yellow, styles lemon chrome, falls lemon chrome shaded apricot yellow to center of light cadmium, heavy substance which is true of all the new Dutch hybrids and Spanish ones, the crests are toothed, waxy flowers, two blooms per stalk,  $3\frac{1}{2}$  inches, 30 inches tall. Twelve bulbs started blooming April 26 and bloomed for 17 days. This has a slight beeswax scent.

S. Van Ruysdael. S. argyle purple and lighter, styles laelia pink



*Lilian A. Guernsey*

*Imperator and Rembrandt*

shaded purplish lilac, crests lilac, frilled, F. lilac with cadmium orange center line, open flowers, two blooms per stalk,  $3\frac{3}{4}$  inches, 12 inches tall. Nine bulbs started blooming April 27 and bloomed for 13 days.

Gerrit Van Hees. S. pale mauve to midribs and bases of mauve, erect, styles Chinese violet with a scallop-shell-like crest of mauvette, F. mauvette with broad center line of deep lemon chrome. Two blooms per stalk, long flowers, 3 inches, 20 inches tall. Nine bulbs started blooming April 27 and continued for 13 days.

W. Zuidervelt. S. semi-erect, fluted, lavender violet to pale lavender violet tips and edges, bases pleroma violet, styles light mauve to crests of light lavender violet, F. pale lavender violet shaded wistaria violet with center line of light cadmium. Two blooms per stalk,  $3\frac{1}{2}$  inches, 24 inches tall. Six bulbs started blooming April 27 and continued for 10 days.

White Excelsior. Waxy ivory white, falls with light cadmium center line. Two buds per stalk, 4 inches, 24 inches tall. Nine bulbs started blooming April 29 and continued for 11 days. The shorter period here undoubtedly due to setting of seed. This may be the cause for the shorter periods for several others as well.

Abraham Storck. S. pleroma violet, styles mauve to lighter edge and crest of pale violet, fringed, F. pale violet finely striped light violet with cadmium yellow, wide, center line. Two blooms per stalk, 4 inches, 20 inches tall. Seven bulbs started blooming April 30 and continued for 13 days.

Jacob Adrien Matham. S. Brad-

ley's violet to grayish edge, styles pale wistaria violet with crest of light wistaria blue, F. pallid soft blue violet with short broad center dash of lemon yellow shaded lemon chrome. Two blooms per stalk,  $3\frac{3}{4}$  inches, 24 inches tall. Nine bulbs started blooming May 1 and continued 12 days.

Poggenbeek. S. Bradley's violet to wistaria violet edge, styles wistaria violet to crest of light wistaria blue, fringed, F. light wistaria blue with center blotch of picric yellow and center line of cadmium yellow. Two blooms per stalk,  $3\frac{3}{4}$  inches, 24 inches tall. Nine bulbs started blooming May 1, continuing 13 days.

Leonardo da Vinci. S. ivory white, styles ivory yellow to crests of ivory white, fringed, F. primrose yellow shading to centers of citron yellow bearing broad center stripe of deep chrome. Two blooms per stalk, 4 inches, 24 inches tall. Nine bulbs started blooming May 1 and continued for 10 days.

Golden Glory. S. deep lemon yellow, styles deep lemon yellow to fringed crests of apricot yellow, F. deep lemon chrome shaded in centers with light cadmium. Two blooms per stalk,  $3\frac{3}{4}$  inches, 22 inches tall. Nine bulbs started blooming May 1 and continued for 13 days.

D. Haring. S. grayish white, styles and crests ivory white, F. ivory yellow with center blotch of deep chrome. Two blooms per stalk, 4 inches, 26 inches tall. Nine bulbs started blooming May 2 and continued for 20 days.

Jacob de Wit. S. light violet, pale violet edges, styles pale violet to crests of pale bluish violet, F. pale blue violet with large light yellow blotch overlaid orange chrome. Two

blooms per stalk, 5 inches, 24 inches tall. Nine bulbs started blooming May 3 and continued for 19 days.

Therese Schwartz. S. pallid mauve, styles pallid mauve to gray white crest, F. ivory white with center line of light cadmium. Two blooms per stalk,  $4\frac{1}{2}$  inches, 20 inches tall. Nine bulbs started blooming May 3 and continued for 10 days.

Golden Bronze. S. deep slate violet to edges of deep grayish olive, styles grayish olive to crests of olive ochre, F. light cadmium veined old gold with deep orange chrome blotch. Two blooms per stalk, 3 inches, 20 inches tall. Six bulbs started blooming May 3 and continued for 10 days.

E. B. Garnier. S. dull bluish violet to nearly chicory blue tips, styles and crests grayish blue violet, F. chicory or light chicory blue with orange chrome center. Two blooms per stalk,  $4\frac{1}{2}$  inches, 30 inches tall. Six bulbs started blooming May 4 and continued for 11 days.

W. Vershuur. S. managanes violet to edges of dark olive buff to tips of citrine drab over light cadmium, styles mouse grey to rib of honey yellow and crest of olive lake over wax yellow, F. light cadmium shaded olive lake with orange chrome center. Two blooms per stalk,  $3\frac{3}{4}$  inches, 26 inches tall. Nine bulbs started blooming May 4 and continued for 18 days.

Jan Weenix. S. pale violet, styles pale violet to crests of pallid bluish violet, F. pallid grayish blue with center line of orange chrome. Two

blooms per stalk, 4 inches, 24 inches tall. Nine bulbs started blooming May 6 and continued for 20 days.

Elias Voet. S. spectrum violet to light violet tips, styles royal purple to light violet crests, F. light bluish violet with broad center line of deep chrome. Two blooms per stalk, 4 inches, 24 inches tall. Nine bulbs started blooming May 6 and continued for 18 days.

#### SPANISH

Golden Lion. Deep pinard yellow, falls with deeper center line. Two blooms per stalk,  $3\frac{1}{2}$  inches, 24 inches tall. Nine bulbs started blooming May 13 and continued 12 days.

Golden Wonder. Light cadmium, falls with orange chrome center. Two blooms per stalk,  $3\frac{3}{4}$  inches, 30 inches tall. Nine bulbs started blooming May 13 and continued 12 days.

#### FILIFOLIA

Imperator. S. spectrum violet, styles deep lavender violet to crests of light blue violet, F. pale violet blue blotched orange chrome. Two blooms per stalk, 4 inches, 28 inches tall. Nine bulbs started blooming May 16 and continued for 16 days.

#### ENGLISH

Blue Hesperus. Deep soft blue violet, quite blue in effect with white patch in center of fall. Two blooms per stalk,  $3\frac{1}{2}$  inches, 20 inches tall. Six bulbs started blooming May 20 and continued for 14 days.

NOTE—All color names are from Ridgway

## The Idealist in the Garden

Sooner or later one who regards gardening from an idealistic standpoint as against the prize-winning point of view is bound to give vent to some sarcastic comment upon the current fad for artificial monstrosities in the garden. It was bad enough a few years ago when gaily painted silhouettes of birds on tall stakes were foisted upon a gullible public—or did the “cunning” German gnomes “in natural colors,” “large as life and twice as natural,” come first? One cannot but pause over that catalog description to wonder just what the “natural color” of a German gnome really would be. Whichever way it was, they, the gnomes and the birds, are still with us and dogs, rabbits, geese, and cats have been added until one would not be surprised to see a whole Noah’s Ark procession trailing across the lawn and over the rock garden into some hidden—or very evident—houseboat with the implied promise of a forty-day deluge. The amazing part of this craze is that many people of taste and discrimination have taken it up. I would pass it by with silent contempt but for the fact that many of those who have fallen under its “charm” vehemently argue that these jim-cracks add color to the garden—and yet scornfully decry the use of variegated or colored-leaved plants.

The contention that these silly toys add color should be dismissed at once; no garden worthy of the name should need paint added to it, or gardenish bric-a-brac.

The scorn of colored foliage is more worthy of consideration. It is a hang-over from the time when

popular taste, rebelling against the vogue of coleus and its ilk, swung round to the other extreme and worshipped solid green. It has been fashionable to show a cultivated taste for “nature’s livery” till it has become a complex with us.

My own childhood was spent with those who had known the swing of that pendulum and a loathing for all piebald, marbled, streaked, variegated, flecked, flamed, striped, and blotched leaves as well as all red, gold, purple, blue, and silver foliage was thoroughly ingrained into my gardening consciousness. So deeply was the error planted that in spite of an innate love of color, I carefully closed my eyes to anything but green. And one can only imagine the shock of horror that came over me when I first read this opening sentence to a chapter in E. A. Bowles’ delightful book entitled “My Garden in Spring”: “I have never felt the disgust for variegated foliage evinced by so many good gardeners, and in many cases I warmly admire it.”

Before I came to that sentence, I had read enough of Bowles to know that here was a real gardener and plant lover of the first quality and so firmly was my faith in him engendered that even the shock of those words could not displace it. But it bothered me terribly and I reread the whole chapter again and again; for I had a rather guilty feeling of not having lived up to my own ideal in that I had grown to like several plantings where I had used colored foliage. Gradually the truth dawned upon me.

We consider the autumnal change

of foliage a lovely and a natural fitness in the garden picture and look upon the rich warm tints of the budding leafage of spring with joy. Then why should he look askance upon colored foliage in summer? The silvery reflex of the grape, the purple of *Prunus Pissardin*, the coppery red of the Copper Beech, the blue of *Picea pungens* var. *glauca*, these are all nature's products, not man's, and because a species or a variety has decided to become individual enough to alter its color is no reason for us to frown upon it because of a misconceived sense of fitness. So I began to appreciate the grey-leaved plants such as the artemisias, the mulleins, santolina and the bluish metallic sheen of eryngium, *Festuca glauca*, even the blue spruce, a thing at which I had heretofore looked sidewise; and gradually I woke up to the beauty of the purple-leaved plants.

As I look backward I realize that this awakening was the more easy because of a chance placing of a plant which came to me because of a mistake of mine in ordering. I had included the green-leaved, palmate form of the Japanese maple but had written it so badly, my copy of the order showed me, that it had been taken for the yellow form. When it reached me, I did not know what to do with it; the foliage was just opening out and was so golden and delightful—and yellow has always been my favorite color—that I hated to throw it away; this was all before the curse of the embargo had fallen on us and Japanese maples, small ones at least, were quite cheap—so I put it in a temporary location near a *Juniperus sabina* var. *tamariscifolia* and in front of *Berberis aquifolium*. To tell the truth in this matter, I

was perfectly delighted with its golden little leaves but did not have the courage to back down from my stand before the family. The effect of the yellow leaves against the grey and the metallic blue of the other plants was quite charming and, when later scillas and forget-me-nots were added, it was generally decided to retain the grouping. This was all before I had read Bowles, so perhaps I was the more willing, because of it, to consider what he had to say of foliage which has lost its virtue of greenness.

Compared with variegated foliage, it was quite easy to develop an appreciation and even a love for solid-colored leaves. My deep seated aversion of mottled foliage came from a fear that the plant is diseased, and in a way so it is when the green gives way to other colors, and also because I so thoroughly and continuously abhor the atrocious coleus and the leprously spotted begonia. How often we dislike things which we have never seen because of association. Here was I avoiding all variegated leaves because of a distaste for two. The awakening came one winter day when I was searching through the garden for something to combine with a few first snowdrops; as I walked down a path, my eye was suddenly arrested by some lively bits of glowing red which proved, when I got to them, to be the central leaves of each exposed stem of the silver variegated thyme. It, in itself, was a delightful bouquet; the cold had changed most of the white of the tiny foliage to red and the blending of the three colors is worth going out to see on any winter day. Sad to relate, this red coloration fades away after twenty-four hours in a heated room.



All the white-variegated leaves that I can recall have this tendency to turn to some red shade in cold weather. It is especially noticeable in two ivies which are in the garden. One, a large-leaved green, grey, and white, becomes quite brilliant during the winter, so much so that people will often take it for a clump of flowers when they first see it from a little distance. Under it are planted *Scilla nutans* and narcissus "Home-spun" with a scattering of Heavenly Blue grape hyacinths which have seeded themselves there. When the grape hyacinths begin to flower, the ivy has still some of the red left on its leaves but as the daffodils and the scillas come on the red has almost faded; but even then the waxy cream in the ivy leaves is good to look at as it lies below the flowers. Nothing blooms there in summer but the place is always attractive because of this variegated ivy. The other ivy is a tiny-leaved fellow who wanders along the base of a low stone wall in full sunshine and so does not grow very luxuriously in so sun-baked a place. It has to contend with *Veronica saxatilis* and *Achillea tomentosa* above ground and *Hyacinthus azureus*, *Muscari racemosum* and *Crocus aureus* below the soil, so it does not find life altogether a bed of roses; but it is so beautiful among these flowers and its little leaves of green and white are especially lovely amid the blossoms of the bulbs. Even in the depth of winter that spot is always gay and cheerful with the green, white, and ruby tinted foliage of the ivy.

One should always remember that, to keep these variegated plants in good health and have them retain their color, the soil in which they grow should always be poor and well

drained. A rich diet seems to tend to increase the green of the leaves and spoil the variegation and in the colored ivies the addition of humus or leaf-soil does the same harm, whereas the addition of lime—old plaster is excellent—gives a better variegation and a healthier growth.

From my present viewpoint, of a more mature knowledge in garden taste, I would urge gardeners to a larger use of colored and variegated forms of plant life. The use of such plants brightens the summer borders when flowering shrubs have ended their blooming and forms interesting and beautiful groups in the rock garden and the herbaceous border. To back up my plea, I can not do better than to quote from another old English gardener who, in his day, was regarded as one of the best. Writing of his garden in December, Canon Ellacombe, in 1895, has this to say in favor of them:

"But there are two classes of especial value for the winter decorations of gardens—the variegated shrubs which do not shed their leaves and hardy, evergreen ferns. It is the fashion, especially among botanists, to despise variegated plants; they are said to be diseased, and to show their disease by their sickly appearance. This may be true, if the partial absence of chlorophyll is to be counted a disease, but it does not prevent their being very beautiful and very useful, and if vigor in growth is a sign of health, there are many instances in which the variegated specimens are hardier and more vigorous than the typical green forms. But I here claim for them a special value in the winter decoration of our gardens, and will name a few which I find most useful for this purpose. I have seen some of

the variegated ivies covering a large extent of wall, and at a very small distance the wall seemed to be clothed with a rich creeper, bearing an abundance of yellow or white flowers. All the variegated hollies are as useful; they brighten up a lawn in a wonderful way, and there are many to choose from, but I find that the variety with the large white blotches on the leaves produces the best effect. It is called, I believe, the milkmaid holly, but it has other names; and one peculiarity of it is its habit of bearing branches in which every leaf is of a pure ivory white; this too, at a little distance looks like a bunch of white flowers, and if cut will keep its beauty in water all through the winter. I have also on a rock-work a large mass of the dwarf Japanese euonymus (*E. radicans variegata*), which I much prize. Not only does it lighten up the rock-work at all times, and especially in the winter, but it gives abundance of pretty sprays which are most useful both in the house and the church."

Of hollies, we, alas, have only too few. Perhaps the nurserymen are right when they say that the hollies burn too badly during the winter to prove hardy; but I have an idea that by clever planting they would prove hardy in our gardens and so add a year-round beauty to the scene. By clever planting, I mean the placing of them in such places as to avoid the mid-day sun and also where they could be sheltered from hard winds. Such places could easily be provided by planting the holly to the sheltered side of conifers or buildings and where the sun would not shine upon them for many hours at a time during the winter.

Very few ferns can boast of much

bright color besides the various shades of their natural green. But one of them, *Athyrium Goringianum* var. *pictum*, breaks into the spring pageant with a veritable flame of color and lights up the shady nook in which it grows as few other plants can. This little fern comes from Japan and does not like the winter cold but in rock gardens which are covered in winter, I have known it to thrive as far north as the central part of New York state. It has been known as *Asplenium Goringianum* var. *pictum* and whichever way it is listed, the "e" in the specific name is usually omitted; whichever way the name is spelled, it is a little beauty, whether one likes variegated foliage or not. It starts growth in spring in a livery of blended green, grey, and bright claret, but as the season advances the red rather fades unless it has a cool, damp dwelling place. The stalks are purplish claret and this color not only continues on the veins but for a narrow margin beyond and fades into a grey which in turn gradually merges into green; later the strip of claret fades, or rather narrows so that the grey area is larger, leaving the veins pronouncedly purplish through the rest of the season. Even in southern New Jersey, this fern loses its foliage in winter, which to me is its only bad feature. Repeated attempts to establish *Crocus iridiflorus*, or should we call this species *C. byzantinus*, which is its older but far less descriptive name,—I find that upon consulting Bowles, he uses the latter name only as a synonym but calls attention to the fact that it is the older of the two, so it shall be *C. iridiflorus* with me although it is not within my garden—have failed, probably because we get the corms so late

here and it should be in the ground and starting its root growth by August. What the above words meant to convey was that I had tried to add the crocus to the precincts of the fern and had failed. So that now its only companions are *Narcissus triandrus* var. *albus*, the dainty Angels' Tears, and *Iris minuta* and very pretty these two are in each of their periods of bloom with the richly colored foliage of the fern.

Near enough to the ferns to be of good effect when seen at an angle is a small planting of *Erythronium citrinum* and I am hoping that both plants will increase and eventually mingle, for the solid outline of the erythronium's leaves will form a splendid foil to the lacy foliage of the fern and the coloring of both will blend nicely, not to mention the loveliness of the creamy yellow blossoms amid the richly blended verdure.

Nearby *Polypodium vulgare* is the center of another grouping which from a short distance ties in splendidly with the former group. The thick, leathery, deep green leaves of the polypody are always fresh and attractive the year around and should be grown where snowdrops could use them as a background. In my garden this thought had not occurred to me when the grouping was made and when it did there was no room left to tuck any snowdrops in. In all the books I have read, this fern is said to grow about a foot high, but none that I have ever seen have been higher than half that height, so I am sure that mine is not a special form and I am thankful for this shortness and hope that mine will continue to be the little fellows they now are. Here in early spring grow *Anemone blanda* and very charming are the soft blue blossoms against the deep green of

the polypody; later come *alochortus amabilis*, *Narcissus bulbocodium* var. *citrinus* and *Erythronium Hendersonii* to form beautiful combinations with the fern before *Iris gracilipes* begins to add its delicate charm. Once, for a couple of years, the pipsissewa, *Chimaphila maculata*, lived here too; but for some reason found the place not to its liking and departed; but it stayed long enough to show how lovely its green and white foliage would be in that select neighborhood, so that now I only mourn its loss.

That is the sorrow of not being able to give all of one's time to one's garden but to have to attend to the thousand and one petty cares and interests of modern life. A plant leaves one and should be immediately replaced; but one is not there at just the right moment to replant it; or misses the time to mark where bulbs live beneath the soil and so fears to sink the trowel into the earth lest some treasure be ruined. And so the void remains.

For the past three winters a supposedly non-hardy fern has been living in the garden and has managed to pull through in spite of the fact that every garden book and every fern-wise person has said that it was not a garden plant. This is the little fern which always proves to be the longest lived of all the plants in the fern dish. Its hard textured leaves gave me the idea that it might prove to be hardier than it was supposed to be; and up to the present it has given the lie to the plant books and even managed to retain its leaves until late in the winter when snow and ice have gradually forced back the living green and left them brown and sere. *Polystichum Tsus-sinense* comes from China, I think from the neighborhood of Canton, which should mean that it

was tender; but planted in a snug little corner of the rocks and with a northerly aspect it has managed to survive.

Praise has been offered to *Woodsia ilvensis* in these pages before this, but it is well worthy of repeated honor. It is the one fern that I am acquainted with which will continue to live and be happy in full sun and in comparatively dry soil; so it lives with me at the base of a rock ledge where above it a flourishing colony of *Sempervivum tectorum* var. *atroviolaceum* dwells and will shortly join forces, unless human agency steps in, with *S. x Comollii*. At all times this trio is attractive; the winter coloring of the houseleeks, a deep rich dark purple in the first and a nearly blue metallic color in the second, is excellent with the rusty green of the fern. In both houseleeks the color is retained until quite late in the spring and so merges with the young leaves of the fern. In spring when the crosiers of the fern are covered with dense, silvery-white, furry scales, against the browns and dark greens of the mature fronds, a patch of *Phlox subulata* var. G. F. Wilson adds new beauty to the picture, and later on, in June, when *Campanula garganica* hangs its blue mantle over the rocks beyond, another period of loveliness is formed. Again in October when *Crocus zonatus* tosses up its lavender-pink blossoms, the picture is reformed; nor does it end here, for some chance seedlings of *Crocus Sieberi* and *Muscari neglectum* have lately chosen this place for their home and so add color in January and again in early March, making this bit of the garden an almost constant delight.

Another of the rarer native ferns, which is said to be a sun lover, is *Pellaea atropurpurea*, but with me it

has not flourished as well as the dusty woodsia, yet that might be because it is a newer planting. This fern is a lime lover and hates an acid soil. The dark purplish brown of the stem and the bluish-green of the foliage make it a particularly attractive species even though the foliage is not thick and abundant as the fronds of other ferns but scant and open, of a light and airy grace which needs well grown masses to be really effective for those who must have their color spread on thick. It has proven very attractive with *Sternbergia lutea* as an autumnal neighbor and again in spring when *Narcissus* "Glitter" is in flower. I am sorry that I did not plant it with *Iris reticulata*, for the two would be good company in regard to color, although I am not sure how well the iris would like its housekeeping interfered with by the roots of the fern. It so happens that the irises "Isis" and "Shushan," those delightful crosses between the *Oncocycclus* and the *Pogoniris* sections of the family, are planted where each, from different points along the path, are seen through the foliage of this fern and the effect at flowering time is pleasing enough to make one wish that the fern was behind and slightly above each of the irises. Perhaps no one but myself would like the combination of the fern foliage with the rich violet and somber glory of "Shushan," but I am sure every one would delight in it with the bronzy plum purple of "Isis."

Another little group of *Narcissus triandrus* var. *albus* leads up to a small colony of *Asplenium platyneuron*, which seems to be the preferred name for what is very often listed and nearly always known to the older gardeners as *A. ebeneum*. This is the Ebony Spleenwort, whose long,

slender stems of very dark brown have earned this fern its name; the rich green of its foliage lives through the winter, at least on the sterile fronds, and so is able to combine the lacy delicacy of their beauty with the early spring bulbs. It has a near relative, the Maidenhair Spleenwort, *A. Trichomanes*, which is so nearly like the younger stages of the former that, although I have them planted together, I must pause to decide which is which every time I look at them. As I do not pretend to know anything about ferns, I have placed my faith in the labels under which they came to me, and now the horrible thought comes to me that one of them may not be true. Be that as it may, whichever my plants may honestly be, they, or it, makes, or make, a most delightful companion, or companions, for *Nar-*

*cissus juncifolius* and I think that its delightful tiny blossoms never look lovelier than when seen amidst and over the feathery green foam of the spleenwort. Here, for several years *Viola pedata* was beautiful every spring until the time when it suddenly disappeared. In spite of the fact that we are told this is a shade loving plant, I have never seen it anywhere in southern New Jersey except in full sunshine; the most splendid display I know grows on the bank of a railway and makes a carpet of blue every year. Acid soil it must have and acid soil it had with my ferns; but *Azalea indica alba* of the catalogs, but of the botanies *Rhododendron mucronatum*, has evidently grown too well in that acid soil and cast too heavy a shade for the Bird's Foot Violet.

New Jersey.



U. S. D. A.

*Chayote fruits, whole and in vertical section*

## The Chayote

### A Little-known Guatemalan Vegetable

BY ROBERT A. YOUNG

There should be on the market this fall and early winter, in many cities of the country, a green pear-shaped vegetable "fruit" called the chayote (pronounced *chī-ō'tī*—*ch* as in *china*). To some readers of this magazine it already is well known but to many others it doubtless will be an entire stranger. A striking peculiarity of the vegetable is the presence of a single, large, close-fitting seed. The chayote is a cucurbit, which fact is easily recognized by any gardener when the growing vine or the flowers are seen but, to the uninitiated, the "fruit" by itself would

never by its appearance betray its kinship with the squash and its relatives.

The chayote is native to Guatemala—the land of the Mayas. For centuries, however, it has been known and valued in Tropical America generally, and its cultivation has been gradually spreading throughout the tropics and the warmest parts of the temperate zones of the whole world. It passes under a variety of names in different countries. Even in our southern states such names as "mirliton," "chouchou," "vegetable pear" and "mango squash" have been vari-

ously used. No explanation of the origin of the last mentioned name has been seen by the writer, but it seems possible that the size and shape of the single seed of the chayote suggested to some one already acquainted with the well-known tropical tree-fruit a superficial resemblance in this respect to the mango and so gave rise to the combination name. The name "chayote" is Mexican and is a corruption of the ancient Aztec name "chayotli," according to old writers. It and the French equivalent, "chayotte," will doubtless become generally current. In any event, the vegetable is now produced commercially in Florida and southern California and is being shipped in season—October to December—to a number of northern and eastern markets.

Although the outside of most varieties of chayotes is of some shade of green, and the flesh more or less greenish, there are varieties with ivory-colored skin and flesh. Scores of varieties and a number of very distinct form types are to be found in the American tropics. Thus far, the few varieties grown in this country are mostly of light green, pyriform type, probably because the vines of these varieties usually are found to be the most vigorous and hardy. There is no marked or consistent difference in quality between the fruits of different shades or colors, though differences in texture between varieties in any color do exist. Striking differences in size and shape of fruit and in character of surface also are found between varieties within the light or dark-green or ivory-colored groups. The shapes range from slender pyriform, somewhat flattened, to almost spherical; the weights from 3 or 4 ounces to 3

pounds; and the surface from perfectly even and smooth to deeply corrugated or very spiny or both. Varieties of the latter types are undesirable and are valueless for market.

Should one ask the grocery salesman, as one naturally would, how this strange vegetable is prepared, it is to be hoped he could reply that directions for cooking go with it but, in any event, he is likely to say that it is cooked "just like squash"—which is true, but it is not "the whole truth." Cooked like summer squash the chayote is, indeed, quite as excellent as that good old standby, but it is then little else than just a late squash. Its delicate flavor does resemble that of the squash, but because of its delightful and characteristic texture the vegetable is adapted to numerous modes of preparation that make it distinctive as well as pleasing.

Unless it is desired to cook chayotes whole or in halves, they are more easily pared after cutting, crosswise or lengthwise, into fairly thick slices. Fruits of the varieties now grown in this country usually weigh 10 to 16 ounces each. The seed is edible and nutritious when cooked and may be served with the rest of the vegetable unless it is to be used separately, as in a mixed salad. Cut into slices or diced, chayotes ordinarily need no more than 15 minutes' cooking. They remain firmer than squash when cooked and so require a little more water (salted) in boiling, but no more should be used than is necessary to cook. Either diced or simply sliced, the vegetable is excellent served with butter melted over it or, in the diced form, a dressing of prepared sauce may be used. Detailed recipes are in print elsewhere, and it will suffice



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*Ivory-colored Chayotes grown on bamboo trellis in central Florida*



here just to recite a few of the other tested methods of preparation.

The characteristic delicate texture of the cooked chayote has been mentioned. To preserve this quality mashing must be avoided, though some may wish occasionally to serve it so. It may be used sliced in fritters of various kinds, or fried—either raw or previously boiled. After par-boiling, the halves may be stuffed and baked; and the boiled and diced chayote used cold in salads. Most excellent sweet and dill pickles have been made, the latter from the young fruits.

The chayote plant is a tender, perennial-rooted, climbing vine, with leaves resembling those of the cucumber. Some kind of support for it should always be provided. The vine itself is injured or destroyed by the lightest frosts, though the root generally will survive unless the ground freezes to a depth of an inch or so. Mulching should be practiced during periods when frosts are likely to occur. The plant thrives in a rich, moderately moist but well-drained garden loam, preferably with some sand. It will endure excessive moisture for very short periods only. Planting in this country is usually done in the spring when danger of frost is past in more northern localities. In more northern localities, where only one or a few plants are to be grown, it is often well to start them indoors a little earlier, in a pot or small box. The entire fruit is planted with the broad, or blossom, end slanting downward and the stem end left partly exposed.

Cultivation of the crop for possible profit is limited by climatic factors in the United States to the lower South and the sections of California in which autumn frosts do

not occur until very late. In localities on the South Atlantic coast that are especially well protected from early frosts, successful culture may be possible in favorable years somewhat farther north but the frost hazard increases rapidly northward from middle Florida.

Flowering and fruiting of the chayote apparently are largely determined by the relative lengths of day and night, and the vines seldom bear during the summer. The earliest fruits usually set about September first and mature a month later. Fruiting usually continues until frost, which in some localities in southern Florida may occasionally be nearly all winter. In the latter case a spring crop may not be produced but, if fruiting is interrupted for a time and no frost occurs after February, new vines from the old roots may set fruit in April and continue bearing until late June. For home use chayotes often can be grown considerably farther north and, in some rare instances in which the first autumn frost has been delayed until late October or early November, small crops have been gathered near Washington, D. C.

During the latter part of the plant's first season of growth, a root-like, starchy, edible tuber begins to form in the ground under the crown, and in the second year this may reach a weight of several pounds. It is a common article of food in many parts of tropical America, where the plants grow freely, and is boiled and eaten like potatoes. In Guatemala the tuber is called "ichintal" and in Mexico, "chinchayote." The removal of the tuber from a bearing plant doubtless would result in injury to the crop.

As already stated, chayote vines in

this country seldom set fruit during the summer, without regard to the time of planting or age of the plant. Individual vines vary in the precise time at which they begin to flower and also in prolificness. Some bear heavily and long while some others bear very lightly. There is authentic record of a total production of more than two thousand fruits from the spring and fall crops of one year from the vines of a single plant in central Florida. The yield will range from that figure down to a hundred fruits or less.

The commercial production of chayotes in the South is at present largely centered at DeLand and Miami, Fla., with some in Holmes County, in northwestern Florida, and at a few other points. A total of about 1,000 crates of chayotes is reported to have been shipped from DeLand to northern markets last season. The production near Miami, estimated at nearly 200 crates, was consumed almost entirely in the city. No estimate of the extent of production in California has been obtained. Credit for the development of the beginning of an apparently permanent industry at DeLand is due in considerable measure to the steady determination of one grower who refused to be discouraged under very discouraging circumstances. Without the sympathetic cooperation of two large systems of retail stores in the North, however, the effort even then must largely have failed of its present achievement.

Anyone who has gardened, especially where the summers are long, will want to ask, what about insects and other pests? Well, the chayote has its full share of them. They include practically all that attack other cucurbits, and the control measures

must be much the same. In many situations the common root-knot disease is one of the most serious obstacles to success, especially in the lighter sandy soils. While the roots probably would live for a number of years in the absence of root-knot, they rarely, if ever, survive in the South longer than two or three years. The cause of death when investigated usually is found to be root-knot. A chayote plant growing close to a structure that shades the ground and keeps it moist and cool generally thrives better and lives longer than one in a more open situation.

Notwithstanding the numerous destructive natural enemies of the chayote, it is believed that increased production only awaits wider acquaintance with it among, and an increased demand from, discriminating consumers. The chayote usually comes onto the market at a season when the number of succulent vegetables is reduced; it has to its credit attractiveness of appearance in both the fresh and prepared states; it is of exceptionally pleasing texture and delicate flavor; and it is wholesome. From the reception thus far accorded the chayote there is reason to believe that its steady, if slow, growth in popularity will continue.

This newly developing industry has one great problem for the future. Mention has been made of the chayote's habit of not fruiting until autumn. We should have one or more varieties that will fruit during the longer days of at least the latter part of summer, so that a crop may be grown to maturity in more northern latitudes and nearer to some of the larger potential markets. Dr. D. N. Shoemaker, widely experienced vegetable specialist of the United

States Department of Agriculture, has suggested that if a large number of persons in the middle and upper South should take part in a continuous campaign to bring such a variety into being it might be accomplished in a surprisingly few years. Each person would grow as many plants as practicable each year in the hope

that one would flower and set fruit early enough to mature some of the fruits before the usual early frosts. If such were found, the progeny would be preserved for planting the next season, and so on until an early-fruited type became fixed. This suggestion is passed out for the consideration of any who may feel drawn toward such a problem.



U. S. D. A.

*Chayote arbor in central Florida in late October*

# The A B C's of Rock Gardening—IV

BY ALICE MINER

Eighteen years ago I started my first rock garden, and during the intervening period I have experimented with about a thousand varieties of Alpines. Despite that experience it is with great hesitation that I offer this list. The selection of plants for a specific rock garden depends on the climate, the location of the garden, and the effect to be produced. One enthusiast will prefer great splashes of color and another only the smallest and choicest of plants. In choosing varieties, I have tried to include some for all types of gardens and have divided them into groups for ease of selection.

I have listed first, those plants whose reputation for reliability is practically guaranteed in any carefully built rock garden; second, those that, difficult though they may be, deserve comment (for what fun is it to grow only the easiest varieties?); third, the natives of my own locality which are suitable material along with their pleasant accompaniment of small bulbs; fourth, a few shrubs small enough to be usable in an average size rock garden; fifth and last is a list of those absolutely indispensable dwarf evergreens. A possible sixth section might be added, that of annuals for summer bloom. Instead I refer you to Mrs. Wilder's charming book "Adventures in My Garden and Rock Garden," which has an excellent chapter on that subject. Inasmuch as I am away from my garden all summer, I have tried only a few annuals and my results aren't worth recording.

I feel that it does the garden no

harm to rest during the summer. It blooms so valiantly from April first to the last of June that a quiet time seems its due. There are many shades of green in the foliage of alpines, and these with the dwarf evergreens give a pleasing effect without flowers. One other factor may be considered.

The price of a plant may frequently be an indication of its ease of culture. Those spreading and increasing rapidly will, of course, be much cheaper than those hard to propagate and difficult to grow. The rapid spreaders then may be called cheap and on the whole good, but beware of any type if the catalogue admits it to be a fast grower, for there will be trouble ahead. In an unguarded moment I once bought three plants of *Sedum sarmentosum*, and it took six years to eradicate it; so be sure you know about the speedsters before you put them in the garden.

When purchasing plants, never buy less than three of a kind and preferably six, in which case you can try three in each of two different locations and be less likely to have a complete loss.

The first section I shall further divide into three groups so that you may more readily find the type desired.

## A. *Plants requiring a large area.*

These may be low spreading or large and bushy. The spreaders need to be ruthlessly cut back after flowering, otherwise they will not only try to take over the entire garden but

will soon become straggly and unkempt. This first group will thrive equally well in a dry wall or in the garden.

#### *Aubrietia.*

The soft grey green foliage is a delightful foil to the mass of bloom which is in all shades of lavender and purple and comes in May. It remains in bloom nearly three weeks. Don't neglect to cut it back thoroughly, for this will help to obviate its tendency to winter kill. It comes easily from seed so it is not difficult to keep a supply of new plants.

#### *Alyssum.*

*A. saxatile*, "the cloth of gold," so well known, furnishes the ever necessary splash of yellow in the early garden. Start cutting it back in its early youth and keep it compact or it will resemble a series of feather dusters in a year or two. *A. saxatile* var. *citrinum* is a paler yellow but less hardy. It is much lovelier in color than *saxatile*.

#### *Arabis.*

*A. alpina* and *A. alpina rosea* have floppy grey green foliage and loose heads of white and pale pink flowers. They are not especially choice, but since they flower with aubretia and *Alyssum saxatile*, I always keep a few plants. *A. alpina flore plena*, a later bloomer, is the double form, and while it may be fairly large in a rock garden, it is such a fine white and stays in bloom so long that I always include it.

*A. mollis* is so called in catalogues but is not so listed in Farrer, so what it really is I don't know. It seems to answer more nearly Mr. Farrer's de-

scription of *procurrens* than anything else. It has flat shining dark green rosettes from which rise large heads of fleecy white on foot stems. It must have full sun and an extremely well drained situation.

#### *Campanulas.*

The only variety of large growing campanulas that may be admitted to the wall or garden is the well known *carpatica* with its large white and blue bells. Mr. Farrer in his own delightful fashion says of it "From a three penny pinch of seed it will fill the roughest desert with its jungles of gaping open cups of blue or white. This lovely wild plant, which certainly does not come from the Carpathians, is now almost wild in every garden where indeed it is of habit and freedom too lavish and robust for admission into choice places." It comes most readily from seed and will, seemingly by preference, come up right in the middle of your favorite treasures.

#### *Cerastium.*

*C. tomentosum*. The frosty greyish foliage contrasts beautifully with other greens in the garden. The flowers are white on three-inch stems in late May and early June. It is an indefatigable grower, so keep your eye on it. *C. Biebersteinii* is woolier and more silvery and not quite so rampageous. It is always to be preferred to *tomentosum*.

#### *Dianthus.*

*D. caesius* is commonly called the Cheddar pink. It is a strong grower with blue green foliage and fragrant single or double fringed pink flowers on six-inch stems in June. It is easily grown from seed.

*Dryas.*

*D. Sundermanii* has reddish woody stems and small shiny dark green leaves similar in shape to those of a white oak. The large golden eyed creamy white blooms rise on 4-inch stems in early June. The seed pod is a fluff of silver. It has a great range throughout the world and is of great antiquity, being found in fossils of unbelievable age. The plant itself grows from two to three inches high and gives almost the effect of a creeping vine.

*Gypsophila.*

*G. repens* is a trailer with finely cut foliage covered in late May with a shower of small white or delicate pink blossoms. It prefers full sun and a stony soil.

*Helianthemum.*

This plant, easily raised from seed, has a great color range. It shades from white through all tones of yellow, orange, and even red. It is a shrubby plant and should be never transplanted except when small. The plant, as its name indicates, is sun loving and the blossoms like tiny wild roses. There are double forms, but to my mind they have not the charm of the single. It has a slight tendency to kill back some in the winter and does much better if cut back very completely after flowering. It is most effective if planted in fairly large colonies.

*Iberis.*

*I. sempervirens* is much catalogued, but for me it is a shy bloomer and frequently winter kills, so I grow it no more. *I. saxatile* is a compact form with shiny yew-like foliage and dense heads of bloom. It grows especially well near the top of the wall

where it is well drained and has plenty of sun. Even this dwarf form needs pruning to keep it small.

*Mazus.*

*M. rugosa* should be called *pumilio*, for *M. rugosa* is an annual. It is one of the busiest rampers and should only be used in crevices of paths or steps where it is delightful. It is completely prostrate and has delicate lavender flowers resembling half of a snap dragon.

*Phlox.*

This large family with the exception of three species is native to North America. There are dozens of varieties. I have tried many, and they are among our most valuable plants. *P. subulata*, occurring in a wide range of colors, is commonly called moss pink. It furnishes us with masses of color in May. I find this type lends itself especially well to planting at the edges of paths where it flows over the stones and softens the more or less regular outline. The phloxes are all fast growers. *P. subulata* Vivid is the one variety I've found that increases slowly. It is a clear bright pink with a carmine eye and blooms about a week later than the balance of the *subulata* varieties. *P. amoena* grows about six inches tall. It has bright rose blooms, needs sun and well drained position. This and *Iris coerulea* are delightfully associated in my garden.

*P. stolonifera*, as its name suggests increases by stolons. It has clear rose pink blooms with an orange eye on six-inch stems. It has been a bit difficult for me to establish, but when satisfied is a very free grower. I suspect it of preferring plenty of peat, for it has responded marvelously to that treatment.

*P. divaricata*, the common Sweet William, likes a rich loam and partial shade. There its lavender blue blossoms will make the garden fragrant for days. It is a ruthless seeder, so it must be watched. When collecting it, you will find a considerable variation in size and color of bloom ranging from pure white to deep blue.

#### *Saponaria.*

*S. ocymoides* is a rapid grower in good soil and full sun. It is most charming when its long strands covered with small light pink flowers are trailing over a large rock. The color varies therefore, chose your plants when in bloom, if possible. Cut back to a small crown after flowering.

#### *Sedum.*

Of the small size but rapid growing sedums, Mr. Farrer says "*S. album* is the typical weed of the race—really valuable and yet perfectly pestiferous in its power of propagation, so that within a year of receiving two squashed springs in a letter, you will be casting it out of your garden by cartloads and yet never seeming to see any signs of clearance. Every fragment grows with fearful rapidity, forming matted masses of stems beset with innumerable minute sausage-like grey green leaves . . . It serves as the picture of many and is as hard to get rid of as love or lime."

Some of the varieties that fall under this vivid description are *acre*, *alpestre*, *anglicum*, *gracile*, *hirsutum*, *neglectum*, *sarmentosum tenellum*, and *virens* (more correctly *rupestre*).

#### *Thyme.*

*T. serpyllum* and *T. s. album* are perfect for joints in paths or steps. The foliage is fragrant and compact,

and the bloom respectively lavender and white. *T. s. lanuginosus* has wooly grey green leaves and is completely prostrate making it also valuable for paths. The flowers are insignificant. *T. s. citriodorus* makes large bushy clumps and has both a silver and golden leafed form. Its value lies in the color and fragrant odor of the foliage. It isn't always hardy for sometimes a bad winter will take it all.

#### *Veronica.*

Mr. Farrer's two large volumes "The English Rock Garden" are my ever present companions when I garden. He gives eighteen pages of veronicas. Many aren't hardy in our climate, many can't be obtained in this country, but those that I've tried are on the whole invaluable in the garden.

*V. incana* makes large clumps of silvery foliage having deep blue spikes of bloom in six to eight-inch stems in early summer. It likes full sun.

*V. pectinata* grows close to the ground, the shoots rooting as they travel. The leaflets are greyish and hoary. There are white, blue, and pink flowering forms.

*V. prostrata*, alias *teucrium*, alias *rupestris*. There is much confusion regarding these names. I have purchased many plants by all these titles and have no solution. These are my results, correct or not, I don't know. The plant called "*rupestris*" in my garden is compact, slow growing, and the earliest to bloom. The one called *prostrata* is a loose growing rampagous traveler blooming three weeks later (in June). One plant bought as *teucrium* has pale blue spikes of bloom and is a compact grower. Another "*teucrium*" grows about six inches tall instead of being prostrate.

The experimenting still goes on. At any rate they all have a place in the garden by whatever name they are called.

*V. repens* is absolutely prostrate and starred with pale blue forget-me-not-like blooms in late May. *V. saxatilis* is a fine green and a moderate spreader. The flowers, a gorgeous blue, are painfully short lived. I always keep a clump or two, though I do feel that the press agenting is overdone. *V. spicata* grows sixteen to twenty inches high and though lovely when in flower is too robust for any but large gardens. There is said to be a *V. spicata alpina* only four inches high that I am still seeking.

#### B. Plants requiring a medium area.

##### *Achillea.*

*Achillea tomentosa* (yellow) and *A. olavenae* (white) while not particularly choice find a home with me because of their June flowering. They must have a sharply drained situation and full sun.

##### *Aethionema.*

*A. Warley Hybrid* is to me the choicest of the many lovely varieties. They all have finely cut blue green foliage topped with heads of pink, pale or deep in tone. They require the hottest sun and gritty rather poor soil. Other good varieties are *armenium*, *grandiflora*, *iberideum*, and *pulchellum*.

##### *Alchemella.*

*A. alpina* is grown for its foliage beauty, the flowers are insignificant. The many lobed leaves are toothed and edged with silver, while the under side is silver down "soft as a kitten's ear." It has a reputation for

spreading rapidly, but I've had no trouble that way.

##### *Alyssum.*

*A. serpyllifolium* is from Spain and is a low shrubby plant with grey leaves and golden flowers. *A. montanum* is a twisted shrubby plant, densely grey with flat yellow flower heads. I prefer it to *serpyllifolium*. *A. spinosum* is again a greyish green with finely cut foliage and white flowers.

##### *Anthemis.*

*A. montana*, another grey-green plant but of a very different habit of growth from the foregoing. It forms small cushions from which rise golden hearted daisies to the height of six inches. It prefers sun but will tolerate some shade.

##### *Aquilegia.*

*A. flabellata nana* is a charming low growing columbine with blue green foliage and short spurred creamy white blooms.

*A. jucunda* has a large bloom of powder blue and grows from sixteen to twenty-four inches in height. They are lovely with *Trollius europaeus*, but should be massed for the best effect.

*A. pyrenaica* is the plant for tiny gardens. Its deep, deep blue flowers on eight-inch stems will charm the hardest heart.

##### *Arenaria.*

*A. montana* has finely cut narrow dark green foliage and is a partial trailer though never obnoxious. It is a very charming plant with many pure white cup shaped flowers in June. Mr. Farrer speaks of it as vast



and robust, but I have yet to come to the point of giving it away.

#### *Campanula.*

*C. garganica* with its blue stars and *muralis* with the showers of purple blue bells are indispensable in any garden. *Muralis* increases by root running and is always busy traveling. I greatly prefer it to *garganica*, which grows larger around a central root stalk. The blooms look mushy as they fade and not so attractive for that reason.

#### *Corydalis.*

*C. lutea* is a charmer with its delicate fern-like foliage and pale yellow blooms. It seeds freely but never objectionably. I have never yet had enough seedlings. It should be transplanted when very small and will grow in shade or sun.

*C. cheilanthifolia* is lovely with its greyish leaves, but it frequently grows too large and always seems to seed in the wrong spot.

#### *Dryas.*

*D. octopetala* is a small slow growing type much more refined than the robust *Sundermanii*. It is not always easy to please but worth the effort to do so. It also has golden stamened white flowers.

#### *Erodium.*

The Erodiums are divided into five botanical groups, and there are a great many varieties. They require full sun, a sheltered position, and deep gritty loam. I have only tried a few and found them wholly delightful. *E. trichomanefolium* has finely cut very downy grey foliage and delicate five petaled pink blossoms sometimes more than one inch across.

*E. macradenum* has smooth fern-like green leaves and pink flowers, but these, unlike *cheilanthifolia*, are delicately veined, and the two smaller upper petals have a dark blotch near the center. It is a fascinating bloom. *E. amanum* is very dwarf with lovely white blooms.

#### *Geranium.*

This group of plants closely allied to the Erodiums is equally desirable. Both varieties are best planted in groups of six to twelve as should the Erodiums and should be moved when small for any plant with long woody tap roots deeply resent disturbance.

*G. argenteum* is most lovely with its silvery leaves and dawn pink large blooms almost resting on the foliage. *G. Lancastriense*, with its dark green leaves and clear pink flowers veined in deeper rose, is of unrivaled beauty. I have saved that adjective particularly to describe my feelings in regard to it. *G. grandiflorum* is of the easiest culture desirable even though it hasn't the fairy grace of the smaller types. It makes a bushy plant a foot tall and has large purple blue blooms.

#### *Gypsophila.*

*G. cerastioides* is an amiable little plant with compact hairy tufted growth supposedly covered with white flowers veined purple. Everything agrees in my experience except the profusion of bloom. It has been a shy bloomer as yet, but perhaps it isn't in quite the right spot.

#### *Iris.*

This great and familiar genus furnishes us with some of the choicest jewels in the rock garden.

*I. arenaria* is, as I write, in full bloom. It has slender green typical

Iris foliage only three inches high and the cheeriest of golden yellow flowers, which are delightfully fragrant. It is so lovely that one regrets that each bloom lasts but a day. Fortunately they keep coming for some time. It is sand loving and requires sun and a well drained position.

*I. cristata* is slightly larger in growth and has lavender blooms. *I. cristata alba* is quite one of the most precious in my garden. The ample blooms on three-inch stems are of the purest white. Seek it and cherish it.

*I. lacustris* from the Northern lake shores is much like *cristata* as is also *verna* which comes from the South. The leaves of *lacustris* grow in fan shaped sprays, while those of *verna* are more reed-like. The blossoms are very similar, though *verna* prefers an acid soil.

*I. setosa* is a native of fairly wide distribution and a range of color tones, some a lovely deep lavender and many whose blooms are pale and washed out. It grows very well at the far edge of my moraine in full sun and very gritty soil. The blossoms on twelve-inch stems are bluish lavender heavily veined with dark purple blue.

*I. pumila* has many hybrids. The two I like best are *I. atrovioleacea* with its dark purple flower on three-inch stems which blooms most charmingly with *Ranunculus montanus*. *Iris coerulea* has clear soft blue flowers which are slightly larger than the purple and come ten days later.

*I. dichotoma* is a peculiar type. The foliage grows in fan-shaped clusters and the pale lavender small flowers come late in August in clusters on eighteen-inch stems. My plants were a gift from Mr. Lown as were also

some seeds which germinated readily.

There are many western species, only a few of which I have tried. *I. tenax* prefers a peaty soil and dislikes lime. It seems, however, to be well established though it hasn't yet bloomed. The flowers are a bright lilac with purple veins with a yellow and white spot on the broad falls.

*I. Forrestii* comes in early June and has slender leaves and yellow blooms on nine-inch stems.

#### *Linum.*

*L. perenne* is a glorious blue. If kept well toward the background, I think it may be used even in a small garden. *L. alpinum* is as lovely a blue but a much smaller grower. *L. flavum* is a robust grower, but I would have it anyway for the clear yellow flowers except for the fact that it won't stay with me, I know not why. *L. arboreum* is said to be an alpine form of *flavum* and to be small, compact, and hardy. I regret that I can't find it listed in this country.

#### *Myosotis.*

*M. palustris* is lovely but not to be tolerated in the garden. Only moist waste places can accommodate its wild desire to spread. *M. rupicola* makes tidy tufts covered with clear blue flowers. It frequently winter kills with me, but it is so easy to raise from seed that it is not difficult to keep a supply. *M. sylvatica* is the small pink, blue, or white forget-me-not that is common to all gardens. It is a pernicious seeder, so watch it lest it deluge your treasures.

#### *Primula.*

There is no place to begin or end, the number of garden grown primroses is so large. Mr. Farrer has

taken a hundred pages to have his say, and Cox and Taylor have a whole book called "Primulas." I refer you to them for details. The many hued Polyanthus, Auricula, Acaulis, and Cowslip types thrive here with pleasing ease. Practically all primulas require moisture in dry weather and dryness in winter, so give them a partially shaded and well drained position with good garden soil plus a generous amount of peat and plenty of water in spring and summer. As the plants become too large, they should be divided after flowering and reset. They will need an extra amount of water until they are well established.

#### *Ranunculus montanus.*

This is a variable species found in great abundance, most of the types not worth having. The strain I have was purchased as *montanus*, but I'm sure it is the variety *R. montanus filarsii*. It is one of the delights in the garden with its low compact growth, fine dark green foliage throughout the season and large golden yellow blooms beginning in early May and lasting many days. It easily divides into separate crowns and thrives anywhere in good soil. What more could one ask of a plant?

#### *Sedum.*

*S. Sieboldii* is the only *Sedum* of medium growth that I find interesting. *Nevii*, at least to me, is very inferior. The blue-gray, bronze-tipped foliage of *Sieboldii* is lovely all summer and in September. Each nodding branchlet is finished with a clear pink head of bloom. It may be divided or rooted easily by cuttings in sand.

#### *C. Plants Occupying a Small Space*

It is in this group that the choicest plants fall, or perhaps it seems so to

me because I find these absurdly tiny plants blooming so energetically, especially appealing. At any rate give them careful thought in planting and keep them away from the larger growing varieties lest they be completely submerged.

#### *Androsace.*

*A. sarmentosa* is typical of the androsaces in growth and bloom. It thrives in any sunny well drained spot. The tiny rosettes are a fuzzy grey green, and in late May from their centers spring heads of verbena-like blooms of rose pink on three-inch stems. Each rosette sends out a series of new ones like the spokes of a wheel. They are connected with the parent by the toughest of red thread-like stems which will elongate themselves until the new rosettes rest in the soil and there take root. *Sarmentosa* (some times erroneously sold as *primuloides* which is very rare) is a busy spreader but in a delicate fashion and seldom interferes with the growth of other plants. Any variety you can please is worth having. *Lanuginosa* and *sempervivoides* are both especially fine.

#### *Arabis.*

*A. Kelleri* makes a completely prostrate small mass of grayish leaves from which rise tiny white leaves of bloom on two-inch stems. Mine is growing apace in the moraine.

#### *Armeria.*

*A. caespitosa* is, I think, the best armeria. It has spiny leaflets like the tiniest seedling spruce, each tuft having sizeable heads of pink bloom. It seems to resent moving, so raise it from seed which is not difficult. They sometimes unaccountably turn brown and die; so I suggest that some be



*Androsace sarmentosa*



*Armeria caespitosa*

raised from seed yearly. They occupy so little space, one could never have too many.

#### *Campanula.*

*C. pusilla* is similar in growth to *muralis* except that it is smaller and has flowers of a soft blue. *Pusilla* should be correctly called *bellardi*, but by whatever name you buy it, be sure to have it. *C. pulla* likes a gritty loose soil. There it can root run to its heart's content. It has only one lavender blue bell-like flower to a stem and makes a fine companion to *bellardi* (as I am trying to learn to call it).

#### *Dianthus.*

*D. brevicaulis* makes a tight grey tuft profusely covered with small pink blooms on two-inch stems. It is of easy temper being satisfied with a sunny chink in the wall or garden. *D. Freynii* and *microlepis* are almost identical. They make compact small greyish cushions with the rose pink blossoms appearing generously on practically no stems. They thrive in the wall, garden, or moraine. There are twenty-five pages in Farrer devoted to the *Dianthus* so you see there are many more, most of which are worth growing.

#### *Draba.*

*D. aizoides* has spiny rosettes each very small but forming generous mats from which bright yellow beads of bloom appear in early May. *D. olympica* var. *brunifolia* has finely cut loose foliage and a profusion of clear yellow blooms on three-inch stems in early May. It has a three week's blooming period which makes it desirable. It is easily divided and prefers full sun. I hope to increase this small number of varieties next spring.

#### *Potentilla.*

*P. verna nana* and *cinerea* seem identical in my garden and are the only ones of this group I have cared to keep. They are both delightful with their creeping strawberry leaves and golden yellow glowers in late May.

#### *Papaver.*

*P. alpinus* is one of those plants that make life worth living. The small growth of fragile fern-like foliage and the large flowers in all shades from white through yellow and orange make the greyest day cheery. They are best raised from seed, as they with their long tap roots resent moving except when very small. They wish all the sun there is and a light soil.

#### *Saxifraga.*

This splendid family with over ten thousand varieties comprises a tantalizing group. I have a fine selection of those obtainable in this country, practically all of which grow readily. Many varieties have been so ably described in this magazine recently that I won't repeat. They are great lime lovers and do equally well in the wall or garden in full sun.

#### *Sedum.*

Mr. Farrer describes only about one hundred and seventy varieties, many of which are impossible in an average garden. Of the small growers obtainable in this country that I have tried I've kept the following varieties:

*S. brevifolium* has tiny compact heads of bright or purplish green with flowers varying from white to pink, depending upon the region from which they come.



*Saxifraga lingulata*

*S. dasyphyllum* is similar in growth to *S. acre* but is stouter and more compact. It is lovely blue green with pink flowers. *S. Oregonum* has shiny round leaves brilliantly green or with reddish undertones. It is native of the west and had great charm. The flowers are pink. It desires full sun. *S. pulchellum* has been the subject of much dispute, some calling it an annual and others a perennial. I suspect that there are two types. I have never been one of its warmest supporters. It is bright green with pink flowers. *S. pilosum* is a most delectable biennial making sempervivum-like woolly rosettes with soft pink flowers coming from the centers. I don't grow it now, not because it isn't charming but because I haven't time to spend on biennials. *S. rupestre* has twisted stalks with narrow bright green leaves. It grows fairly prostrate and has yellow flowers. *S. rupestre Forsterianum* is the same except that the stems and the beginning of the leaflets are reddish. It is quite stunning.

*Sempervivum.*

This fascinating race is in vast confusion. It has hybridized so often that everything is mixed. I am enthusiastic about all I have tried except *tectorum* which grows too large and *montanum* which grows too fast. All of the *arachnoid* (having a cobwebby center) hybrids are fine. Other good ones, *rubicundum* and *r. hybridum* have reddish tones; *calcareum* is blue green with red tips to the leaves; *gaudini* is a clear green with pointed hairy leaves; *triste* is a deep red. The flowers are quite uninteresting to me, and I grow these plants only for their foliage value. I find that they are more effective if grown together where the varying foliage shades may contrast with one another, so I have set aside a rocky promontory for them alone.

*Silene.*

*S. pennsylvanica* has slender leaves and bright rose pink flowers on six-inch stems. It does best for me in a partially shaded crevice in peaty soil.

*Violas.*

The small violas are one of the best fillers, from the common Johnny Jump Up and all its hybrids to the most distinguished alpine type. Some of the best are *bosniaca*, *biflora*, *calcarata*, *gracilis*, *lutea*, *bicolor*, *Mis-souriensis*, *pedata*, *pedata bicolor*, *Jer-sey Gem*, both purple and white, and the *cornuta* hybrids.

*D.* Some few that every enthusiastic alpine gardener should try to grow successfully—

*Geum.*

*G. reptans* and *montanum* are the only two I have of the dozen or more varieties suitable for a rock garden. They are alternatively a joy and a despair. They are supposed to be of easy culture in a sunny well drained position. They both have longish leaves with ruffled edges and large yellow flowers. *Montanum* is the choicer of the two. If my plants do not bloom in their present location, I shall next try them in the moraine.

*Hypericum.*

*H. coris*, *reptans*, *fragile*, and *poly-phyllum* are all lovely, slightly trailing plants with yellow flowers. I have tried them all repeatedly in various locations, but if they don't winter kill, they dwindle and die. I should so much like to succeed with them, but I confess I don't know what to do next.

*Iris.*

*I. gracilipes* is a graceful lovely thing with slender leaves and pale lavender flowers on ten-inch stalks. I have had great difficulty in fulfilling its desires, but at last have succeeded. It is in a sunny spot, though,

sheltered by a dwarf spruce from the hottest sun. It has been increasing steadily for three years.

*I. minuta* is a treasure which came to me from Mr. Lown. The slender leaves are almost grass-like, and the flowers a clear yellow. I have it planted near *gracilipes* and it seems happy.

*Dianthus.*

*D. alpinus* is that most vivid and for me the most difficult pink. It is supposed to like lime. I have bought plants with large balls of earth and carried them home; I have raised them from seed but all to no avail. Sooner or later but mostly sooner, they all die. I've tried them in every conceivable spot and in all types of soil. Who knows the answer?

*D. neglectus*, on the contrary, is said to prefer a peaty soil, and yet it grows for me with reasonable success. Both varieties have large pink blooms, *neglectus* being a paler pink.

*D. callizonus* and I are on very bad terms. The plants I buy bloom once in a completely ravishing manner and then depart from this life. Mr. Far-ner says it "is far beyond all competition, incomparably the loveliest of alpine pinks, running freely underground and forming cushions of rich glaucous foliage, etc." Well, maybe it does, but not for me.

*Douglasia.*

*D. vitaliana* is the one Douglasia that is not native to North America, but of those I've tried, I think it is by far the best. It has tiny prostrate foliage and pale yellow flowers completely hiding the green. It must be on a sunny slope and have a light stony soil with peat and leaf mold added for food.

*Phlox.*

The western native have been a complete failure with me. They live through one season, bloom sparingly, and pass away. *Hoodii*, *Douglasii*, and *adsurgens* are all charming, being dwarf and slow growing.

*Potentilla nitida* has soft grey foliage and glorious dawn pink flowers, so the book says. I am well acquainted with the foliage, but I have never seen even a suspicion of a flower. I felt sure the moraine would please it, but 'twas a vain hope. Has anyone in this country made it bloom?

*Ramondia and Haberlea.*

*Ramondia pyrenaica* and its sister plant, *Haberlea rhodopensis*, are both lovely but have a reputation for being difficult. I was lucky enough at one time to entertain Mr. Correvor, of Floaire, Switzerland, who is the greatest living authority on alpines. I was there in the throes of trying to please these plants and by following his suggestions regarding soil and location, I have been able to establish them. In the crevices of an abrupt wall facing north, without sun, planted in a peaty soil and given plenty of water, they have grown and increased. The rosy lavender flowers unfortunately facing downward, two or three on a three-

inch stem, slightly resemble a bird-foot violet in form. The plants are really delightful, both in and out of flower.

The *Haberlea* planted in a similar situation have increased more rapidly than the *Ramondia* and are freer bloomers. The flowers facing upward are pale lavender and tube shaped, with the throat dotted and edged in a darker shade. Both varieties flower in late May.

*Sedum spathulifolium* is another western that won't remain with me. The flat spoon shaped leaves are soft grey flushed red, a most effective combination. The flowers are pale yellow. Does anyone know what I should do to keep it? I can't find any cultural directions that give me any help.

*Silene Hookeri* is indeed a fitting thing with which to end this section. It is another one of those long fleshy tap rooted plants that dislikes being moved. It has the most exquisite shade of pink that I ever saw in a flower. I am now hoping to find someone who has collected it and propagated it so that the plants sent out are garden grown. The one time it bloomed for me was enough to send me questing for the secret to success.

(To be continued)



# Selecting and Grafting New Varieties of Nut Trees in Pennsylvania

BY DR. G. A. ZIMMERMAN

*President of the Pennsylvania Nut Growers Association*

The great majority of persons in Pennsylvania who own any considerable number of native seedling nut trees, undoubtedly know of certain trees which produce nuts greatly superior to the general average of the neighborhood. However, it rarely occurs to the average person that by a little skillfully directed effort upon his part, these same high grade nuts could be grown on other trees, regardless of how inferior the present product of the latter may be. He little dreams that he might successfully graft scions from such good trees on tops of other trees and soon have their new tops bearing nuts of the kind from which the scions were cut. The average person does well to think and act so far as to plant some of the nuts from his best trees with the reasonable chance that good seed will produce fair offspring and some may be really choice.

On most Pennsylvania farms where there are black walnut, butternut, hickory, or chestnut trees in abundance, there are a great many which for one reason or another do not produce nuts worth gathering. The nuts may be too small, or too difficult to crack, or the yields too light. There are always plenty of ways for nuts to be of no value. It is the purpose of this paper to explain how such trees can be transformed into kinds of much value.

Before going further in the discussion of propagation, it will perhaps be well to make clear that for best

results, there must be a fairly close relationship as to kind between the stock and scion. They must at least be of the same genus. Probably best results are to be expected only when the species is the same. It may sometime develop that the relationship should be even more close. Time and experience only can tell. We can and do graft Persian (English) walnuts on black walnuts; Japanese walnuts and butternuts on black walnuts; shagbark hickories on pecans and shellbark hickories on butternuts. The order in any of these cases may be reversed. Altogether, there are many combinations that it is possible to make but with increased experience, it is being found that in the long run distant relationships are best avoided. Attempts should never be made to graft a walnut on an oak, or a hickory on an elm, any more than an apple on a willow or a peach on a hackberry.

There are three distinct ways of establishing a home nut orchard in Pennsylvania. These are all thoroughly practical and within relatively easy reach. In order of amount of initial money required these are: first, planting good seed nuts; second, procuring scions of superior kinds and top-working existing seedling trees; and, third, planting well-grown nursery trees of standard varieties. These methods will be discussed in order.

*Planting Seed.* This method is not generally to be commended, although it is much better than none. It is only from seedlings that new varieties

are likely to originate. (Origin by other methods occurs too rarely to warrant discussion here.) There is always a possibility that some of the offspring of high grade nuts will be of value. However, few planters can afford to try to be breeders and the planting of seed for such purposes should be left mainly in the hands of specialists, since it takes too much time and the results are entirely too uncertain.

*Top-working Native Seedlings.* This method has the advantage of being the greatest time-saver of all. It is obvious, however, that suitable trees, suitably placed and in right numbers must be available. By taking this method, it is often possible to remove a seedling top, graft in a new kind and in five years to have a new top in full bearing. Trees from 15 to 25 feet in height are best for this purpose as they soon come into full bearing. Those of smaller sizes require too much more time in which to become adult and those which are larger are difficult to work satisfactorily. The cost involved by this method lies chiefly in labor as the scions and other nursery materials are relatively inexpensive.

*Planting Nursery-Grown Trees.* In the end, this method is far the most satisfactory. It means much greater uniformity from beginning to end. The trees will be of common size and age. They may be set in rows and cultivated, sprayed and otherwise cared for with far less difficulty than trees of various sizes and unevenly spaced. Pennsylvania has several nurseries devoted largely to the growing of such trees and outside the state there are a number of others within shipping distances.

In this part of the country, there are five species of hickory producing nuts

which can be eaten. The nuts of all but one of these are highly palatable, nutritious, and valuable. The exception lies in the bitternut, *Hicoria cordiformis*, the nut kernels of which are ordinarily too strongly impregnated with tannic acid to be edible. However sweet forms sometimes appear, although perhaps only when hybridized with other species. In order of importance, from the standpoint of character of nuts, the other hickories of this region rank about as follows: the shagbark, *H. ovata*; the shellbark, *H. laciniosa*; the pignut or false shagbark, *H. ovalis*; and the mockernut, *H. alba*.

As already indicated, the extent to which it is both possible and advisable to graft scions of one species upon stocks of another are matters open to debate. In my personal experience, I have found only a few varieties of hickory to make even apparently good unions with mockernut stocks. These are chiefly Barnes and Siers, although a few others have done so to some extent. These two are believed to be hybrids between shagbark and mockernut, or perhaps between mockernut and shagbark, as we have no way of knowing which parent was staminate and which pistillate. My experience indicates that the mockernut should be used as a stock only for pure mockernut varieties or for mockernut hybrids. If pure shagbark varieties are to be used, it is probable that the stocks should first be grafted with scions of some mockernut hybrid variety and after a new top has become established, to regraft it with the desired shagbark.

The shagbark grows happily when grafted upon stocks of its own species and sometimes, temporarily at least, upon stocks of pignut and bit-

ternut. Whether these other stocks will prove satisfactory in the end or not remains to be seen. They may prove altogether uncongenial as the trees grow older. Personally, I prefer the closest relationships possible to effect. I only use stocks of other species when I do not have those of the same species as the scion.

The bitternut grows rapidly as a young tree and is easy to graft upon as a stock but it may have no other qualifications for stock purposes. It would not be unreasonable to doubt its fitness for such shagbark  $\times$  bitternut hybrids as Fairbanks (of Iowa), Beaver (of Pennsylvania), or Laney (of New York), are all supposed to be, as those varieties are not without the bitter tang of bitternut in the kernels, on the theory that this undesirable feature would be accentuated. The late Mr. W. G. Bixby of Baldwin, Long Island, had two shagbark trees of the same variety and age but grafted on different stocks. One is on shagbark and the other on bitternut. The former is a perfectly normal tree, typical of its species in every way. It is erect, sturdy, strong, symmetrical and fine appearing. The other has good foliage, but is unsymmetrical, much inclined to droop, and its wood is noticeably weak. Mr. Clarence Woolbright of Elnora, Indiana, is understood to have similar trees behaving in much the same manner, but details are lacking. We shall probably hear of other such cases as time goes on.

In selecting trees for top-working, one should consider only those which stand in good soil spots and which are thrifty to begin with. They should be so spaced with reference to other trees that they will have abundant room to develop. They should be well inside the line fence,

as it is most unwise to top-work trees which can not be fully protected from livestock or which will eventually drop a considerable portion of the crop beyond the owner's jurisdiction.

With the trees selected, the tops should be cut back in late winter or early spring nearly to the points where the grafts are to be inserted. This will accomplish much of the hardest work when time is less pressing and lessen the danger of injury to the bark in other parts of the tree. At the time when conditions are most favorable for top-grafting, the bark slipping easily, is subject to injury by falling branches or by the feet of workmen in climbing about the tree. At the time of grafting, the stock should be cut off about three inches below where the winter cut was made, in order to provide entirely new wood for the scion. The actual grafting should take place about the time the buds begin to push into leaf. At the latitude of Harrisburg, this is usually about the 25th of April. The scions should have been cut while thoroughly dormant and held in a well ventilated, cool room, preferably a dark basement where there is considerable humidity in the atmosphere.

With reference to method of grafting, in my experience, it makes no great difference as to which of several methods is used, so long as certain fundamentals are carefully observed. Three points which positively must be remembered are: First, the cambium layers, or inner bark, of the stock and scion must be matched; second, the scion must be bound securely in place; and third, the scion must not be allowed to dry out. All cut surfaces of both stock and scion must be covered in some

way. The cut parts should be coated with wax of some kind. Many propagators paint the entire scion with warm wax or paraffin. Others place a paper sack over the scion, tying it tightly about the stock below where the union has been made. In my work, I use ordinary paraffin. In order to protect small stocks and scions from the intense heat of the sun during the middle of the day, I tie a handful of leaves about the union. Mr. F. O. Harrington of Iowa ties a small quantity of clay soil about the grafted parts with cloth. In large trees, a shingle nailed on the southwest side of the stock in such way as to shade the union is often very satisfactory and all that is needed.

Buds on the scion should begin to push out in about three weeks. If they come out much sooner, they are likely to die. If later, they are apt to need attention lest they remain dormant indefinitely. If the scion dies, it is well to allow sprouts to come from below so as to save the stock and make it available for later use. If the buds are merely slow in starting they may be hastened by removing all new buds which start up from below and forcing the sap into the graft. In order to prevent the flow of sap from being so free at grafting time as to drown the scion, it is well to mulch the ground about the tree quite heavily, using straw, coarse grass, leaves, or even cornstalks. Hot days immediately following cool spells should be avoided, as it is then that sap is surest to flow most freely.

*Top-working Trees Six Inches in Diameter.* The greater part of my experience in learning how successfully to top-work trees fifteen to twenty-five feet in height and hav-

ing trunks at breast height of six inches in diameter or more has been in hopefully trying ideas I thought promising only to find them unworkable, or at least impracticable. For instance, I killed most of my best trees by undertaking to graft the lowest branches first, while the central and upper branches were left for later grafts. It is invariably the tallest branches that draw the sap away from those lower down, especially if the latter have been cut off for grafting.

The method which I have found most successful is to saw off and graft the central and upper branches first, leaving three or four of the lowest branches to draw off the surplus sap and to serve as safety valves until the new tops have become established. Later, I cut these branches off close to the main body of the tree and cover the wound with paraffin. In making the grafts, I give the lower end of the scion a long sloping cut on one side only, and push it under the bark of the stock. The sides of the scion are shaved off slightly so as to expose the cambium layer. This brings the two cambiums into close contact. Scions about six inches long and having at least two good buds each are placed about two inches apart all the way around the stock, which has been cut horizontally across. The entire end of the stock as well as the scion is coated with paraffin and shaded on the southwest side with a shingle.

Soon after growth begins, a strong lath should be nailed to the stock with its greater length extending parallel to and beyond the scions. Later the growing scion may be loosely tied to this as a support. In case of too rank growth, the ter-

minal buds should be pinched back during mid-summer. By nipping the leading buds back in this way, it is sometimes possible to get along without the extra support for the scion as the new shoot becomes more stocky and the union stronger. Some such precaution is quite imperative, unless the scion makes extremely slow growth, as shoots of as much as five or six feet the first year are not unusual. These are easily blown out by high winds, especially during rains. Eventually all growth but that of one scion should be removed, as one only is necessary or desirable.

Scions for use in grafting may be obtained in any one of several ways. They may be cut from choice trees on one's own land or they may be purchased from someone having trees of standard varieties. A common practice is to buy a few trees of desired kinds from a reputable nursery and, at planting time, to cut back the tops. This can usually be done with advantage both to the trees themselves as well as to the

owner, who needs authentic scions. They can be had in this way at no extra cost. As soon as cut the scions should be labeled as to variety, number or other designation, and stored away. Some experienced propagators immerse whole bundles of scions in warm wax or paraffin; others dip the cut ends in such material, and still others, probably the great majority, merely pack them in sphagnum moss, shingletoe, leaves, peat moss, or other medium which will prevent evaporation, and place them in a cool, dark basement. Burying in moist sand on cellar bottoms or under northern porches is also a common method of preserving scions.

The planting of nut trees of any kind inevitably calls for newer and finer varieties, the same as with other kinds of orchard trees. Likewise the discovery or obtaining of a new variety calls for a personal knowledge of how to graft. Together, these call for outdoor work and the development of an exhilarating and healthful hobby with good chances of financial gain.

Piketown, Penna.

## A Book or Two

*Songs of Horticulture.* By Si Tanhauser. George Flatow, Laurelton, Long Island. 55 pages. \$1.00.

Herein that sentient being, the garden lover, finds articulation. "Si" puts into words the universal January dream over a seed catalogue, justifies that purchase of plant food that may cost you a needed new hat, lifts flower shows to levels above premium lists and garden clubs above committees, eulogizes florists and nurserymen, verifies the miracles of plants, shrubs, and flowers. After putting down the book we may forget the rhymed ser-

mon on insecticides, but we remember delightful bits of verse such as *Barberries* and *Orchids*.

"Is it functional?" is the question nowadays asked by critics of objects once permitted house-room solely for decoration. Unquestionably *Songs of Horticulture* is functional. The lecturer searching for an appropriate poem, the garden club chairman or grower discouraged with human frailty, the common garden variety of gardener wrestling with weeds and pests can all turn to sympathetic "Si" for help and cheer.

F. L.

# The Gardener's Pocketbook

## *Tulips, Narcissus and Fuchsias.*

No matter how one tries, there is no absolute certainty about any amateur project, and so we come to the end of another year in the magazine and have not published the pictures and notes on fuchsias that Professor Essig and Mr. Matthews have had in our hands for the whole period. With each quarter there seems to be some excellent reason why they should be postponed for another but the end of the year brings an end to postponements and the fuchsias will appear in the issue for January, 1934.

Notes have come in from many of the members of the Narcissus and Tulip Committee and from some members who are not on the committee. For all we are most grateful. There is a dearth of illustrative material, however, that is most regrettable. The two illustrations on pages 322, 323 of this issue are of this season's taking from bulbs one year in the editor's garden, but raised originally in Oregon. Of the four, the only one that does not seem to be of first quality is Alasnam, which has far too wide a crown to be well-proportioned. It has the redeeming quality, however, of coming very early, in flower here just before King Alfred and there is no denying that in the garden a fine clump of this variety, makes a prodigious showing. Of the others, my personal preference is for Sylvanite, although Maryland is an excellent yellow trumpet, a little late in season and of a cool yellow that suggests Cleopatra. Sylvanite, on the other hand, is a pale bicolor of excellent smoothness, clear color and good lasting qualities.

Tulip species have flowered well for an initial season and records have been

made of color, flowering season and seeding but the photographs taken have not proven as good as could be hoped. It is possible that there will be enough material to have a series printed in time for comparative use in April when tulips will again be in flower.

So far there has been very little response from the membership to suggest whether or not there are many persons already growing these useful species tulips, that make the garden gay before the familiar Darwin tulips are even in full growth. It would be useful to the committee to know to what extent they are already in use and to have data as to their behavior from as many parts of the country as possible.

## *Buddleia alternifolia* Maxim.

(See page 362.)

Anyone who sees *Buddleia alternifolia* blooming in June, with its many little clusters of lavender colored flowers growing so thickly along the branches that scarcely a leaf is visible, can hardly fail to be impressed by its fresh looking loveliness.

This shrub, although introduced in 1914, is still rather a novelty in this country. Its ease of propagation, the rapidity with which it grows and its complete hardiness, even in exposed positions, with no protection, together with its beauty, should bring *B. alternifolia* rapidly to the fore among hardy ornamental shrubs. It has other good qualities, too, for it seems to grow as well in poor soil as it does in good loam; and no matter whether the situation is a dry or normal one, it seems perfectly happy.

I grew my shrubs from seed, which was sent to me by the Royal Botanic



J. deN. Henry

[See page 361]

*Buddleia alternifolia*

Garden, Edinburgh, in 1927. I was rather puzzled with the small seedlings at first, for instead of having alternate leaves as the name denoted, they produced all their leaves in pairs! If I remember correctly, it was not until their second summer that their leaves began to grow alternately. Young plants, that is young plants from layers, of *Daphne Genkwa* have this same trick and have fooled me more than once.

My bushes of this beautiful buddleia first flowered in 1930 but did not make much show until 1932, when they flowered profusely, and one measured 15 feet, 5 inches broad, height 12 feet, 1 inch. The others were almost as large.

As it covers itself with lovely lavender flowers so profusely in June, it

is not surprising that, after its full noon of promise has been fulfilled to the utmost for several joyous weeks, we must wait for another season to see its lovely blossoms again.

MRS. J. NORMAN HENRY.

Gladwyne, Pa.

*Kennedyia prostrata major* DC.

Attractive flowering climbers that are easily grown in a small mixed greenhouse are none too plentiful. *Kennedyia prostrata major* is such a one, and when it is in full bloom with its handsome, drooping, cardinal red flowers decorating it from top to bottom, it is a fair sight indeed. *K. prostrata* came from Australia in 1790 and *K. prostrata major*, a fine variety, came into cultivation in 1834.

I was interested last year when I inherited an old Flemish painting, dated 1814, to notice that *K. prostrata* was distinctly and beautifully depicted thereon among a vaseful of other charming, old-fashioned flowers.

The foliage of this fine old climber is trifoliate, slightly hairy, and of a splendid deep green, and although a rapid grower, it does not become too rampant, providing its root growth is controlled.

It is easily raised from seed, but germination is often slow. I find, however, that when the thick, hardy covering of the seed is pricked with a needle, growth usually starts promptly. A good loose, coarse loam with some peat and sand seems to suit it, and with no particular care it will flower the second year in a five inch pot. The third season it will require an eight inch pot, when it will make a fine climbing plant, about 8 or 10 feet tall.

Insects seem to trouble it very little, but occasionally, when scale or mealy bug appear, a prompt spraying with a miscible oil will effect a cure.

Wrapped copper wire such as electricians use is very satisfactory to give support to climbing plants, and lasts indefinitely. This wire can be secured covered with dark brown waxed cotton thread, and so closely does it resemble the plant stems, it is scarcely visible even at close range.

The wire is fastened to a brass hook at proper height, and a non-rustable weight holds it firm and taut at the lower end. This arrangement makes it possible to take down the plants very easily whenever it is desirable to trim or spray them.

Climbing plants are not used as frequently as they might be in greenhouses large or small. Sometimes, even when space is limited, we have

room to accommodate a plant that is satisfied to grow in a pot on the floor and from there climb on a wire up the wall, along the rafters, or anywhere it pleases our fancy to train it, and where it will produce its gorgeous blooms with almost untiring generosity.

MRS. J. NORMAN HENRY.  
Gladwyne, Pa.

#### *Ranunculus calandrinoides*

(See page 364.)

*Ranunculus* is an enormous genus, composed mostly of weeds, but it is this fact that heightens the beauty of those which are worth growing. No primula is worthless, so that new additions to that genus may pass without excitement, but a new buttercup which turns out to be a first rate plant must have its story told to the world.

*Ranunculus calandrinoides* has been grown at the Edinburgh Botanic Gardens for several years, but there it never set perfect seed and remained almost unpropagatable. In 1932, however, fresh seed was sent to England and germinated in a most gratifying manner. Only one plant flowered in 1933, producing two flowers at the beginning of February when all else was dormant. What more could have been desired than a plant with two-inch wide flowers, carried on short stems, surrounded by undulating leaves of a brilliant silver-green and flowering before the winter was past? All who saw it were charmed and begged for a plant.

The plant is a native of the Atlas Mountains in Northern Africa and is hardy in England and Scotland. It is a good plant for the cold alpine house or for the well drained moraine. It is non-weedy in growth, but appears





*Ranunculus calandrinoides*

to increase nicely into a tidy clump. The silvery leaves appear about Christmas time and before they are fully developed the buds appear. The petals are just about an inch long and are white; not the dead, cold white of many white buttercups; but the delicate, translucent white of a Paper White Narcissus. They open out quite flat and expose a bunch of golden stamens. Between the petals, the pink-flushed pale green sepals can be seen. In young plants the stem is but two or three inches long, but in older plants the stem grows up to nine inches and may carry three flowers. The whole plant dies down again in June and its position should be marked lest it be lost and hoed through. Seeds are freely produced in Southern England and should be sown as soon as possible after ripening, as ranunculus seeds quickly lose their viability.

H. S. BOOTHMAN.  
Maidenhead, England.

*Gentiana porphyrio* J. F. Gmel.

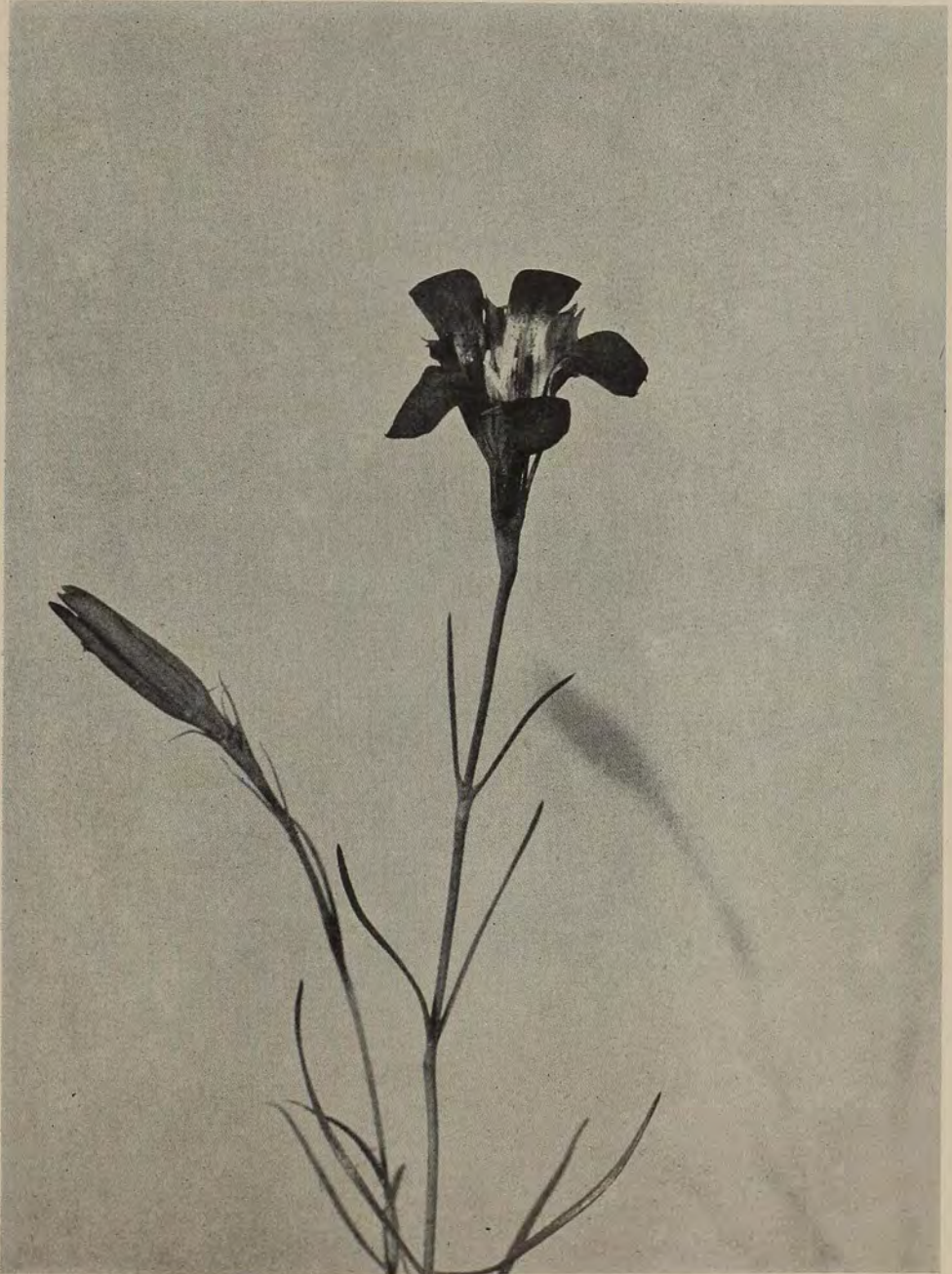
(See page 365.)

In my opinion, the most beautiful of our native gentians, not even excepting the fringed gentian, *G. crinita*, is *Gentiana porphyrio*. Its hardiness and easy manner of culture also commend it. Its petals are of the indescribable "gentian blue" color with markings of green and yellow in the throat that are most striking. It likes a sandy acid soil among pines, prefers some moisture, but grows in hard baked loam when once established. It propagates easily from seed and is a true perennial with large, fleshy roots.

ANNIE LEE R. CLEMENT.  
Asheville, N. C.

#### *My Mystery Plant.*

About ten years ago, while driving along a country road in Michigan on a hot July day, I spied a jewel-red flower growing alone on a dusty bank and, arrested by its clear, beauti-



*George Masa*

*Gentiana porphyrio*

[See page 364]

ful color, I made a mental note as to the location of the plant. It seemed so alone and away from any house or garden that I thought it must be some native wildling with which I was not familiar. Late that night, on our return, I was able to find the plant again, thanks to the light of the full moon. We dug it and carefully placed it in our own garden border at Harbor Beach, where it thrived and proved to be a biennial.

None of our friends had ever seen the plant so we still had to wonder about its identity. Meanwhile it grew taller under cultivation and multiplied generously from seedlings. Still it was the unknown!

It was with a real thrill that I came upon, in a famous Michigan garden, a large patch of my flowers under cultivation. "At last," I said, "We shall know its name!" But I spoke too soon, for, sad to relate, as so sadly may happen in a garden, my hostess knew neither its name nor whence it came! The gardener was away and the wooden label quite unreadable! The mystery still continued.

As our supply increased, we planted the tall elegant spikes in great drifts with a long cedar hedge for a background, where its gracefully swaying, four-foot stalks, clothed in elegant, fine feathery, delicate green foliage topped by gleaming, inch-long trumpets, have excited much admiration from visitors, none of whom, however, could furnish the name of my mystery plant, nor could remember having seen it before. Not being a botanist, I lacked the scientific training to trace it through to its genus and species.

Help finally came this summer, after my ten-year wait, in the person of a visiting friend who competently brought out her Gray's Botany and

identified the plant beyond a doubt as *Gilia coronopifolia*, or *Gilia rubra*.

Later in the summer I saw a group of little, first-year plants of it growing in an experimental garden at the Michigan State College. The infants were labeled *Gilia coronopifolia* and the man in charge told me that the plant was an old favorite in gardens of fifty years ago but is no longer in style. It is also called Standing Cypress.

Evidently my original mystery plant was a seedling strayed from some old lost garden and persisting down the years long enough to provide me with the greatest thrill of my garden career.

MARION L. HUGHES.

Detroit, Michigan.

*Rhododendron fragrantissimum* Hort.  
(See page 369.)

The large genus *Rhododendron*, now engaging the increasing attention of many of our more discriminating gardeners, includes many diverse Sections and Series, of various value as garden material. Usually hardiness is an essential prerequisite to any species or hybrid under consideration, but even some of the more tender items often possess some outstanding character, making them sufficiently desirable to warrant giving them greenhouse space or special care out of doors. Among these characters fragrance is only rarely thought of in connection with the genus *Rhododendron*, but just this is the essential and outstanding quality of the Series *Mad-deni*. As the other groups of the genus, this one also readily hybridizes, and one of the best of the resultant crosses is herewith presented in facsimile. *Rhododendron fragrantissimum* is indeed the most fragrant, as its



Michael Carron

[See page 368]

*Primula pulverulenta*

name implies. Its flowers are deliciously aromatic and spicy, reminiscent of nutmeg, etc. They average about 3 to 4 inches in diameter; their shape and substance is remarkably like that of a white lily. Contrary to most other Rhododendrons, this group is not in the least harmed by being cut or pruned, even quite severely, so that the flowering branches are available for decorative work in the house.

Cultural requirements are similar to others of the genus, except that the entire Series is tender, being native to the Himalayas, Burma, and Southwestern China. Ordinarily the subject here discussed is hardy in Central, Coastal, and Southern California. Partial shade is usually desirable; abundant moisture, acid soil, leaf mold and shelter from cutting winds are of course essential. Propagation from cuttings of half-ripe wood of the season is usually easy, June being as a rule the best time to accomplish this.

*R. fragrantissimum* is presumed to have originated from crossing *R. formosum* and *R. Edgeworthii*, both from the Himalayas.

ERIC WALTHER.

San Francisco, Calif.

*Primula pulverulenta* Duthie (See page 367.)

Since its introduction in 1905 from the mountains of Western China where it was found growing along streams at an altitude of from eight to ten thousand feet, nurserymen have done much to increase the color range of this primula. The original color, which was rosy-purple or violet, has been increased through seedling variation and selection until now we find colors from pale pink, through salmon and apricot pinks to deep

crimson reds listed in the trade. The flowers of the plant illustrated are deep salmon pink.

*Primula pulverulenta* resembles *japonica*, which is a near relative in general structure and habit except in height, in which it far surpasses it by attaining three feet in a good location, until it looks not unlike a giant *japonica*. Although it will grow, as is often recommended, in the perennial border, I find it does best and is happiest by the edge of a pond or in the bog garden if given a position above the water line.

The blooming period in the spring is usually two months long with flowers in whorls that develop in succession one above the other. As the flowers on one whorl fade those on the next begin to open. The old blooms drop off, leaving a neat flower stalk on which the lower whorls develop seed capsules.

It is now September and I noticed today that bloom stalks are again appearing, probably the result of our wet summer in this section. Its spot of color is appreciated by me quite as much in the autumn as in the spring, even though unusual.

IVAN N. ANDERSON.

Ballston, Va.

*Urceolina miniata* Benth, and Hooker.  
(See page 292.)

This South American amaryllid is an interesting plant with a bulb more or less like a moderate sized narcissus. I have no note as to how it grows in its native home, but like some other amaryllids, it grows well enough in a pot here, with results that vary somewhat according to the treatment. This caused some confusion with our specimens, for the notes say that this species flowers before its



*Eric Walther*

*Rhododendron fragrantissimum*

[See page 366]

leaves develop and ours flowered first with their leaves. A second summer, the rest period was continued until the flower shoots started to push and

these developed so rapidly that only the leaf tips showed.

If the plants flower in this fashion, they look best if several bulbs are in

each pot, as the naked scapes rise little more than a foot with flowers, as shown in the illustration, of a brilliant scarlet color. If cut, they last as well as do nerines.  
Washington, D. C.

*Abelia floribunda* Decaisne  
(See page 371.)

Of the over 1500 items added to the collections of Golden Gate Park, within the last 8 years, the finest is easily the subject of our appended photograph. It is to be regretted that this could not have been in natural colors, but an idea may be had of its character by comparison with Ridgway's color chart, where flowers of *Abelia floribunda* would be classed as "Aster Purple" to "Indian Lake."

If "*floribunda*" means abundantly flowering, this abelia is indeed well named, as each of its many 3-foot-long branches is literally loaded down to the ground with hundreds of blossoms, each averaging about  $1\frac{3}{4}$  inches in length, and literally covering the plant until not a leaf can be seen.

That such a choice ornamental should have remained unknown here for so long is a puzzle, since it has been grown in England and France for well over one hundred years. *Abelia floribunda* is indigenous to Mexico, the subalpine regions of Mount Orizaba being its particular habitat. It is apparently quite hardy in California, having safely withstood our last, exceptional, winter, when the thermometer on one occasion dropped down to 24 degrees Fahrenheit in San Francisco. In the Eastern United States of course this must remain a greenhouse subject, but might perhaps be planted in the open during the summer. With a little management it may be induced to

flower a second time, if the spent branches are pruned off and new growth stimulated by watering and feeding.

Propagation is extremely simple, all kinds of cuttings apparently rooting with equal facility.

In the drier parts of California, at least, a somewhat moister, and perhaps partly shaded, location should be chosen for this and some experiences seem to indicate that *Abelia floribunda* is impatient of alkaline soil or water.

ERIC WALTHER.

San Francisco, Calif.

*Iris Danfordiae* Foster  
(See page 373.)

It is perhaps both unfair and unreasonable to show a picture of an iris species that one has never seen, especially when one must so obviously fall back on books to elaborate any notes. The picture accompanying comes from Mr. Millards' garden at Felbridge, England, and the basis of the notes is Dykes' "Genus Iris." Any sops for conscience that may be needed lie in the fact that this is a species much to be desired, now that *reticulata* and *histrioides* have decided that the American scene is a suitable new home.

Except for a drawing of the capsule, the plant is not figured in Dykes. It belongs in the Reticulata Section and the capsule is drawn to show its comparative relationship to the capsule of *I. reticulata* itself.

Confused in the early literature with some other species, due to imperfect herbarium material, it was not until Sir Michael Foster worked on bulbous iris that its proper place was determined in the Reticulata Section.



*Eric Walther*

*Abelia floribunda*

[See page 370]

According to Dykes, it is valued for its brilliant color and early flowering.

The falls are a sort of olive green, dotted and blotched over the yellow-

ish ground color and set off by a brilliant "orange median ridge." The standards are very small, scarcely more than "minute, erect, yellow



spines," which again differentiate this iris from its fellows.  
Washington, D. C.

*The Perils of Hunting Hardy  
Perennials.*

When it was decided to make a spare-time study of the perennials possibly hardy in this part of the world no one could say how much of a task this would be. From approximate count there seem to be at least 20,000 species of hardy perennial herbs, and perhaps nearly as many garden varieties. The Kew Handlist gives some 10,000 species as having been tried in those gardens. Thus half of the species of hardy herbs known to botany have not been tried in gardens of Europe, and but one-fourth of my total are at all common in American gardens. The size of the undertaking makes the task a full-time labor.

There is no reference check-list of hardy perennials; I have had to compile one from many and varied untrustworthy sources. The names in the Index Kewensis give no indication as to the form of the plant even in its native home. There are few modern monographs on perennial genera; the older ones are revised by later botanists, and there is great contradiction among these experts. My first great peril of falling in error came from the indecisions (or too many decisions) of botany. Horticulture cannot do much until botany gets its house in order.

The botany manuals do not usually say whether a plant is annual or perennial in the wild. They often say when it is woody; but what is to be done with little evergreen shrubs as species of *Iberis*, *Pentstemon* or *Thyme*? Some genera are wholly annual; some wholly perennial; some

are always woody; but some genera, as *Hypericum* or *Euphorbia*, have everything. No mention is made of biennials; these have to be counted as perennials but eventually they each get a black mark on my list, for I will not bother to grow the transient biennial when there are more lasting species. To be sure that a name represents a perennial, is a great uncertainty.

There is little definite information on bloom, height or color of many native plants in the manuals. Even Bailey and Johnson leave these out frequently, or flatly contradict. The botanists are not interested beyond the distinguishing characters of this species from its geographic neighbor, and few keys to a genus through its world range have ever been made. The help of books in description is but fragmentary (and not wholly reliable). How am I to know what to do if my plant and its only available description do not agree?

It is difficult to get seeds beyond those of the common species. Seeds of native plants from native sources are just beginning to be offered. First catch your dealers, and then trust to their botanical knowledge and care in packing. There is no way of knowing that a lot of seed is true to name, except by growing it. There is often no way of checking the resulting plant to see if it is not true; but the name on the package does not make the plant grow into that one. It is best to suspect that it is not, until you can verify it by recognized botanical description. The choicest seed often evolves into a species already common in your beds.

In these untried species the germination is very poor; the seed is old or only dust may have been put in the packet; or it may have been picked altogether too green. Many genera,



Donald Merrett ©

[See page 371]

*Iris Danfordiae*

as aconitum, germinate but slowly or only under special conditions. To be a germination expert, even if the seed is potentially viable, requires the highest of ability as a gardener. The mortality the first weeks is very great,

even with careful watering and shading of seedlings. There is always carelessness in workmen, and over-carefulness in loving care; but we do not always know the particular conditions that some plants require. And

these seedlings are as full of contradictions as children. Some marsh plants damp off if you give them much water, while *Sedum* seedlings will grow very fast if you keep them quite wet.

The seedlings are big enough to go out into the beds. More and bitter disappointment! The best growers turn out to be annuals or weedy perennials. The first to bloom in a group of a genus are sure to be of little flower value. How I dislike to see another robust silene get ready to flower! The seedlings that promptly died after planting out were of rare and desirable dwarf campanulas, and *C. rapunculoides* never refuses to live. There is no way of knowing what soil conditions a new plant requires. It must live through dry summers and wet winters. Many die of natural causes soon after blooming. Just because you have captured a few seeds from some distant mountain with the help of a collector, have helped them to germinate and lovingly put them in a spot that suits your fancy (and hope is equally situable to them), all this does not insure that you will have a new perennial. Too often they turn up their toes (literally) at the conditions of a new continent, and vanish to return to their beloved native home. Well, try again. And when your new plant is verified by the best that botanists offer, then you have a new perennial to love, cherish and study.

There is great need of this growing, testing and comparing of hardy herbs. Many amateurs are working in groups of perennials, very much in the dark. How great a darkness is about Sem-

pervivum! Much material in nurseries, beyond the common species, is not true to name. The busy nurseryman has neither time nor skill to re-name his plants. There is no standardization at all of named varieties. The hemerocallis hybrids are going to be a horrible example. There should be complete collections for reference of all groups of named varieties, particularly those not under the care of a special plant society.

Special genera should be undertaken by willing amateurs. Notes and photographs can then be taken. There is too much copying of older books in modern garden writings. Botanical monographs are often too technical, with little observation on garden culture and values. The Praeger monograph on *Sedums* should be extended to all genera. This is a life-time job for at least a dozen devoted workers.

This work of testing perennials for garden values should be organized as a national movement, for results in one corner of our country are not the whole story. Then "Hardy Perennials, Inc." should ask help, receive assistance and cooperate with all plant societies with trial gardens in many states in all quarters of our land. The office records and findings should be in triplicate at least, and data as soon as of proved value should be published. In twenty years or so a real American Cyclopedia of hardy herbs could be compiled. What a boon and a milestone this to American gardening!

STEPHEN F. HAMBLIN.

The Lexington (Mass.) Botanic Garden.

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Mrs. Katherine H. Leigh, Missouri Botanic Garden, St. Louis, Mo.  
Sydney B. Mitchell, School of Librarianship, Berkeley, Calif.





## RHODODENDRON RACEMOSUM

F. P. I. 59717.

THE above illustrated form of this species has proven itself a very hardy and lovely dwarf rhododendron quite adaptable to our Rock Gardens in the Eastern United States.

Its bright, clear, rose flowers fit admirably into the color scheme of the dwarf daffodils, iris and other rock plants of its season while the small evergreen leaves dark and lustrous above, glaucous white below and the coral pink of its twigs and winter flower buds make it an attractive plant at all seasons.

Rhododendron racemosum F. P. I. 59717 is included with more than a hundred other rare forms and species of rhododendrons and azaleas in our current list.

## JOSEPH B. GABLE

STEWARTSTOWN, PA.



# The American Horticultural Society

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

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

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

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

The annual dues are three dollars the year, payable in advance; life membership is one hundred dollars; inquiry as to affiliation should be addressed to the Secretary, Mr. C. C. Thomas, 211 Spruce Street, Takoma Park, D. C.

