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The American Horticultural Society

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CONTENTS

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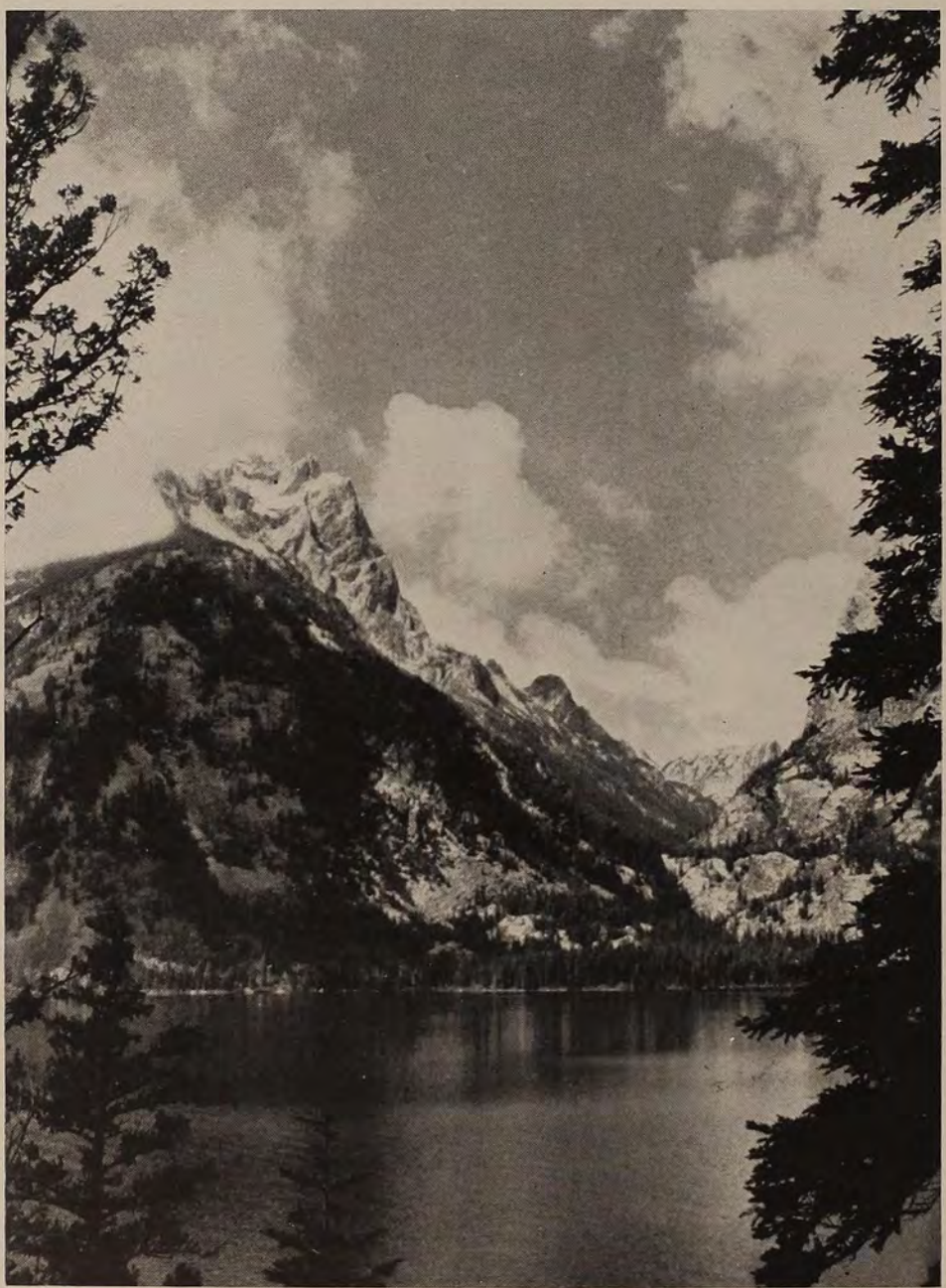


Lester Rowntree

(See page 132)

The Tetons

Jefferson and Plant Introduction

Powell Glass

"The greatest service which can be rendered any country is to add an useful plant to its culture; especially, a bread grain; next in value to bread is oil."

When Jefferson wrote the above in 1821, it was not with enthusiasm of youth that he wrote but as a result of long years of agricultural and horticultural experience and of careful consideration of the matter both from the economic and social standpoints.

From 1784 to 1789 Jefferson was in France, first under an appointment to aid Benjamin Franklin and John Adams in the negotiation of certain treaties of commerce and then as Franklin's successor as minister to France (1785-89). During his stay in that country Jefferson noticed that rice was a staple article of diet, particularly in Paris. Upon inquiry he ascertained that about half of the supply came from the United States by way of Great Britain and the other half from the Italian Piedmont. In this latter place upland rice was grown and, Jefferson thought, not only would the United States be able to compete in the market for both varieties of rice but, that the gradual substitution of upland rice for that variety which required that the fields be flooded would go a long way toward the elimination of the human diseases attendant upon the growing of rice in swampland. Accordingly, Jefferson corresponded with the officers of the South Carolina Society for Promoting and Improving Agriculture, of which William Drayton was then the president and of which Jefferson was later elected an honorary member. He succeeded in getting the society interested and managed to smuggle out of the Piedmont area a quantitiy of seed rice which he sent to the Society. Jefferson also secured some seed rice from Egypt and received the promise of a prince of Cochin, China, whom he met in Paris, to send him some of the seed of the rice of that country when the prince should have returned home.

The growing of upland rice met with some success in both Carolina and Georgia, but it, along with the swampland rice, largely disappeared as a commercial crop after the War Between the States. It would perhaps please Jefferson to know that rice is now grown commercially in portions of that great territory which, as President, he succeeded in getting the United States to purchase from Napoleon, principally in Louisiana and Arkansas.

Another crop which Jefferson believed would prove successful in South Carolina and Georgia was olives. During a trip through southern France, he came to the belief that the climate of that country was so very similar to that of the southern United States that crops which flourished in one might well be attempted in the other. Again he arranged with the South Carolina Society for Promoting and Improving Agriculture to undertake the experiment. Urging, first, that "there is such an infinitude of vegetables, which it (olive oil) renders a proper and comfortable nourishment," and, second, that he had noticed that a whole village could obtain a living from an olive grove planted on a small plot of ground which, planted to corn, would not support a single family.

Jefferson arranged that the South Carolina Society for Promoting and Improving Agriculture employ a

Frenchman to grow young olive trees to be used as understocks for grafting and to attend to their shipment. He also arranged for the shipment of the necessary scions to South Carolina. This venture did not prove successful, but Jefferson was not daunted, as he held one hundred failures not too large a price to pay for one success.

A third plant which Jefferson introduced into the south was the cork oak (*Quercus suber* Linn), a large evergreen oak that grows in the central and western parts of the Mediterranean area. A number of these trees are still growing in the United States from Virginia to Texas. The present war, because of its interference with shipping, has given some impetus to the idea of growing the cork tree commercially in the United States where it is thought that it might be successfully grown in areas having much sunshine as this oak is quite drought resistant. The Department of Agriculture, however, does not appear to be extremely enthusiastic about the matter because of the high price of land and labor in the United States.

As showing that Jefferson constantly kept the social phase of agriculture in mind he urged an increased use of the fig and mulberry, especially in sections where there was slave labor. In such sections, he pointed out, "the women and children are often employed in labors disproportioned to their sex and age." The culture of the fig and mulberry was done largely by women and children and, consequently, Jefferson thought, would tend to make their lot in life "much softened."

The fact that Jefferson showed such great interest in the South was not because he was sectional minded, it was merely the result of the fact that he was in France and thought the climate of the southern United States very similar to that of southern France. Jefferson was quite as interested in other sections of the country, nor did his limited success with upland rice, olives and the cork oak serve to dampen his enthusiasm for the importation of exotic plants. On June 8, 1795, he wrote to John Taylor the following letter:

"I enclose you a few seed of the Rutabaga, or Swedish winter turnep. this is the plant which the English Government thought of value enough to be procured at public expense from Sweden, cultivated and dispersed. a mr. Strickland, an English gentleman from Yorkshire, lately here, left a few seeds with me, of which I impart to you. he tells me it has such advantage over the common turnep that it is spreading rapidly over England & will become their chief turnep. it's principal excellence is it's remaining in the field unhurt even by the severities of the Swedish winter. he suspects that in the seed he gave me, there is an accidental mixture of the common turnep. it may be easily distinguished when it comes up, as the leaf of the Ruta-bage resembles that of rape or cabbage & not at all that of the turnep."

Another agricultural experiment in which Jefferson was greatly interested was the attempt to grow the sugar maple (*Acer saccharum*) in Virginia. In this, too, he had a social need in mind. Jefferson had had ample opportunity to observe the ill effects of war, not only upon the nations engaged as principals but, also upon neutral nations, neutral rights upon the seas being then but little respected. In a time when practically all freight was water borne, a war in which a nation was not a principal might cut off some food crop which was sorely needed, even though there might be an abundance of that crop in some other section of the nation. Therefore, it seemed to Jefferson, if the sugar maple could be

successfully grown in the Piedmont section of Virginia that tree might furnish a sugar supply that could not be cut off in the event of war. The sugar maple, however, does well in Virginia only in the high altitudes of her western counties and was not successful at Monticello.

Despite the fact that Jefferson's best known importations were in efforts to create new farm crops, his principal enthusiasm was for the garden, both vegetable and flower garden. In a letter written from his Bedford County, Virginia home, Poplar Forest, to Charles W. Peale on August 20, 1811, Jefferson said, "no occupation is so delightful to me as the culture of the earth, and no culture comparable to that of the garden."

At Monticello, Jefferson gave as much of his time and attention to the garden as his public duties would permit, and it was his custom to experiment at Monticello with seeds and plants received from friends in foreign lands and from other parts of the United States.

In 1939 The Garden Club of Virginia undertook the restoration of the gardens of Monticello. The committee in charge, under the chairmanship of Mrs. Allan Perkins of Charlottesville, was fortunate in this work to have the assistance of Dr. Edwin M. Betts of the Miller School of Biology of the University of Virginia, who was selected by the American Philosophic Society, of which Jefferson was a member, to edit the forthcoming edition of Jefferson's Garden Book.

Fortunately, Jefferson left plans of his garden as well as lists of the plants he employed so that The Garden Club of Virginia was enabled to restore the gardens practically as they had been when Jefferson lived at Monticello, not only as to location and exact size of beds but also as to the exact plants used.

A list compiled from Jefferson's Garden Book, Weather Book, letters and various memoranda shows that he had planted at Monticello something more than three hundred different kinds of trees, shrubs, roses and perennials and that at least a third of them were native to some foreign land, while many others were not native to Virginia but brought in from some other part of the United States.

Such a proportion of exotic plant material might not be unusual in a large modern garden owing to the importation and propagation of such plant material by our commercial nurseries since the time of Jefferson, but, in Jefferson's day the difficulties experienced in obtaining plants from abroad, or even from other parts of the United States, was so great that the proportion of exotic plants which Jefferson possessed at Monticello was truly remarkable. Any plant brought from abroad had to come, of course, by ocean vessel, and even when Jefferson ordered plants from Philadelphia or New York, the plants had to be shipped by vessel down through the Virginia Capes and up to Richmond. There they were received by Jefferson's agent and transferred to a river barge which carried them up the James and Rivanna Rivers to a small wharf on the Rivanna near Monticello. The great difficulties attendant upon such shipments and the danger that plants might not survive such a trip made it quite unusual for anyone to possess so large a number of exotic plants as did Jefferson. Only a man extremely interested in horticulture would have gone to so much trouble and expense to possess them.

Among the plants found at Monticello was the Scotch broom (*Cytisus scoparius*) which Jefferson is commonly credited with having introduced into

this country. This plant is valuable not alone for preventing soil erosion but, in masses, is a beautiful sight each spring. The Virginia State Highway Department is now employing it on many of the cuts and fills along the highways where it serves the dual utilitarian-beautification purpose.

Jefferson carried on a correspondence with persons in various parts of the United States and abroad that would be unusual even in this day of dictating to a stenographer, and that was truly remarkable when it is considered that each letter had to be written with his own hand.

In this country his correspondence included men well known in the field of horticulture, such as John Bartram of Philadelphia and Bernard McMahon, the seedsman. He did not confine his correspondence to men of note in the agricultural and horticultural world, but it included anyone with whom he could exchange ideas, seeds or plants.

During the time he was United States Minister to France he made the acquaintance of M. Thouin, Superintendent of the Jardin des Plantes at Paris and after his return to this country kept in touch with him through correspondence, exchanging ideas as well as seeds and plants. Another of his French friends was Countess de Tesse and he mentions in a letter dated March 27, 1811, having received from her certain seeds, among them seed of the "Paullinia," one of which he stated was then growing. At the same time he expresses regret that a package sent earlier had fallen into the hands of an "English pirate," because among the seeds were seed of "Marrons d'Inde" which at that time had not been introduced into America.

In other letters to Countess de Tesse, Jefferson lists the seeds he had sent her which included three variations of our native Magnolias—*M. grandiflora*, *M. glauca* and *M. tripetala*.

Jefferson also had the services abroad, in procuring plant material for him, of Philip Mazzei, an Italian physician, who came to Virginia in 1773 to engage in viniculture. Mazzei brought with him a number of laborers of his own country, bound to serve for four or five years. When their time was up they left him and he could not procure others because of the interruption of navigation due to war. Mazzei's vineyard was on a piece of ground adjoining Jefferson's and they became friends. When it was not possible to carry on the vineyards further Mazzei rented his place to General Riedesel and returned to Europe. Thereafter he and Jefferson corresponded on matters of horticultural interest to both.

Jefferson became President on March 4, 1801, and on January 18, 1803, sent a secret message to Congress asking an appropriation to enable him to send an expedition to explore the Northwest Territory. Secrecy was necessary because the treaty for the purchase of the Louisiana Territory had not yet been signed. The appropriation granted, Jefferson chose as leaders of the expedition Meriwether Lewis, who for a time had been his private secretary, and William Clark, stating that he had selected them because they were men who realized the importance of the expedition and could be counted upon to pack carefully and bring back seeds and specimens of any new genera or species of plants that might be discovered.

When this expedition returned on September 23, 1806, with its valuable scientific collections and observations, these included several new genera of plants, two of which were named for the leaders of the expedition, the Lewisia and the Clarkia. Jefferson caused the seed brought back to be

given, for the most part, into the keeping of expert horticulturists, among them Mr. William Hamilton for planting in his botanical garden, "The Woodlands," and in part to Mr Bernard McMahon of Philadelphia. Anparently, Jefferson retained a few of the seeds for planting at Monticello, or to give to his neighbors in Albemarle County, since in a letter written on July 6, 1808 to Mr. McMahon, he states, "I reserved very few of Govr. Lewis's articles, and having growing only his salsafia, Mandane corn, and a pea remarkable for its beautiful blossom & leaf. his forward bean is growing in my neighborhood."

No true measure of Jefferson's contribution to the science of plant introduction is to be found in the number of plants introduced by him, or with the introduction of which he was directly concerned. These are probably not so large as is commonly supposed, because Jefferson is popularly credited with the introduction of a number of plants for which there is no supporting data. The true measure of his contribution to the science is to be found in the added prestige which accrues to any human undertaking which enjoys the sincere interest and endorsement of a statesman of Jefferson's stature. The fact that Jefferson gave so largely to his valuable time and of his means to encourage the introduction of "handsome" or "fragrant" plant material had great influence in promoting popular interest in the science and made easier the work of men who came later into this field.

The Long Look

Lester Rowntree

Soon after England was forced to take up arms and English gardeners had to turn their minds and their leisure along paths of self preservation, a change came over British horticultural magazines. Gardeners forced now to grow Brussels sprouts where primulas once had been, wrote of the fine polyanthus and auriculas they had raised, experts in the handling of hothouses now given over to tomatoes, sung the perfection of prewar calceolarias and gloxinias and those addicted to rock-gardening dwelt wistfully on collecting trips they had taken in the mountains of Europe and Asia, describing newly discovered plant treasures and flowery passes at present trampled by men in khaki. A distinct note of nostalgia mingled with the up-to-date gush of vegetable enthusiasm.

As the effect of war staged at a distance registers more slowly, American horticultural magazines took a little longer to leave the well trodden paths. Finally the accumulated manuscripts were used up and articles on Victory gardening began to have their day. Occasionally though comes a rebound into peaceful times and narratives of joyous journeyings with full gas tanks and on tires of yesterday's rubber appear; this is such a retrogression.

Time after time my mind, in turning back to the days of wide-range freedom, settles on an open flowery mountain meadow atop the Beartooth range in Montana. There was nearby snow and it was cold and windy but the place was smothered in flowers and high enough to give that top-of-the-world-I-want-to-crow feeling. There was no one to say "now don't get lost" and in spite of daily showers the sky always cleared for a magnificent sunset. The only sad moments were when each evening I spread the sleeping bag over hundreds of flowers but I soon stopped worrying about that when I found that after the bedroll moved to a boulder or shrub for its daily sunning, every flower stalk strengthened.

The season that year was early and I was too late for many of the plants I meant to stalk. Nevada was uncommonly hot and dry and so were the eastern parts of Washington and Oregon, but in Utah and Wyoming in July, the watermelon-pink, sometimes pure white, bush mallow, *Sphaeralcea rivularis* was gorgeous and at the edges of coniferous forests, monotonous in their unbroken green, were blue cynoglossums, yellow golden-rods and white, pink-veined, *Geranium Richardsonii*. Escaped hollyhocks joined maturalized chicory whose flowers just matched the sky and these two sauntered off together up into the canyons. There was a lovely pale yellow little sunflower, tall and straight and not too bombastic, filling places among the bare silver trunks of aspen and I wondered why this plant of a soft yellow so needed in our gardens, as well as the delightful sphaeralcea, were not in cultivation.

The much photographed Tetons in northwestern Wyoming were as imposing as ever, dominating with their three summits that country just as the San Francisco Peaks landmark their surroundings down Arizona way. Even in Scotland, where it is the blue-bell of Scotland, nor in England, where it is the hair-bell of England, have I seen such a profusion of *Campanula rotundi-*

Lester Rowntree

Sphaeralcea rivularis

folia. In the Tetons it is not quite so dainty as it is in northern New York or in New England, nor is it quite so variable as it is in gardens where it becomes a weed, but there were thick and chunky plants in the sun, slender and lithe ones in part shade, many forms of the bell flowers and quite a dozen shades of campanula blue.

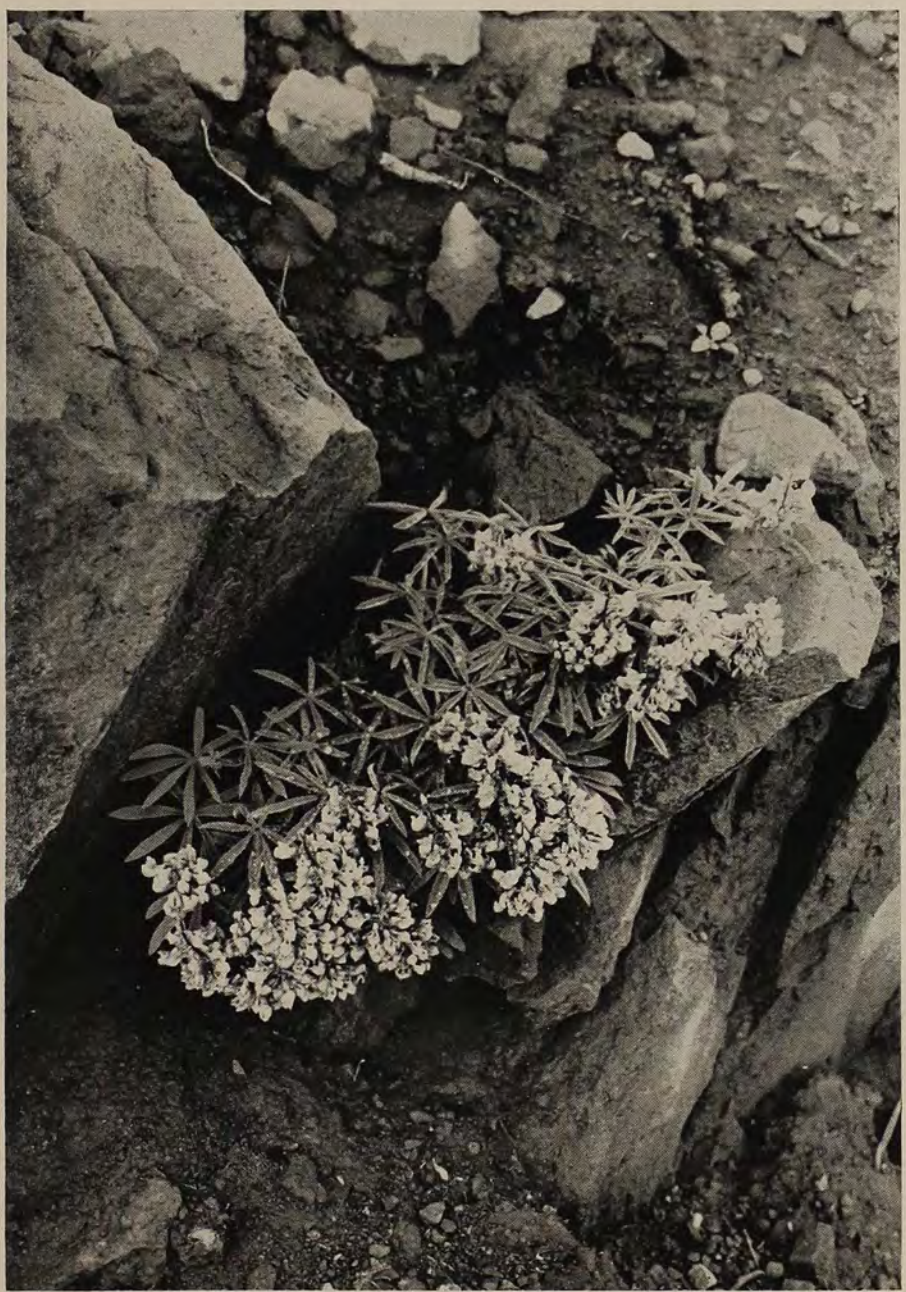
Around String Lake a white form of *Spirea densiflora* grew with the rose colored type and white *Spirea lucida,* and in more open places *Sedum stenopetalum* laid soft gray-green coverlets over moist rocks. On higher ground, among large boulders, marmots came from their holes to sit and bleat at me, curious to know what I, on my stone, was putting down on paper.

In Wyoming the wild roses were the largest and the penstemons the bluest I have ever seen and two of my happiest nights were spent in a meadow of tall flowers. There were flaxes, delphiniums, lupins, geraniums and asters. There was the beautiful soft salmon-pink form of *Gilia aggregata* as well as the usual scarlet tone, potentillas ranged from cream to buttercup yellow, *Eriogonum subalpinum* was foamy with flowers in cream and *Galium boreale* had its usual delicious fragrance.

If you know the lobelia-like purple native Californian *Downingias,* or the sky blue ones with yellow and white markings, you can easily visualize the related *Laurentias* of Wyoming and Montana. They grow in the same sorts of places that *Downingias* do—in moist clayie soil in the sun where wetness accompanies the growing plant and the mature and seeding one is held tightly in soil so dry and caked that it cracks. The laurentias come with the same glad surprise with which downingias spring upon one. Turning a bend in the road early one morning I looked down upon what looked like a patch of dropped sky covering what in California we would call a "hogwallow" the adobe brown soil already going light and cracking around the edges, and surrounding millions of dainty annuals happily at home in the drying mud.

Montana is one of my favorite states. It has mountains and prairies and plains, limestone cliffs and places where peat lies thickly, there are grassy banks where rocks poke out from rich dark earth smothered in spots by low gray-green *Juniperus sibirica.* There are glorious hemlock woods where dainty white violets grow with ferny *Coptis trifoliata,* clintonias and pyrolas, all making a close groundcover. Little streams are half hidden in currants and hawthorns,—birdie places from which in day time come the querulous complaints of young flickers and at night the owl's solemn announcement. And beyond are the larches, mountain ash and shad bushes. Open grassy places are gay with gaillardias and *Calochortus gunnisonii* and the loco weeds, astragalus, come in intense shades of bright cerise. I revelled in Montana's many species of clematis and anemones,—there seemed to be one for almost every altitude and exposure. I threaded moist woodsy valleys where the tree stumps in lodgepole forests were covered with that little world traveling manzanita, *Arctostaphylos uva-ursi,* where *Linnaea borealis* made curtains of shiny green and pale pink and dwarf billberry and *Berberis repens* came up from among ferns, wild roses and saxifrages.

I came at the Beartooth range from the east side, leaving behind me open hillsides soft with trailing juniper, slopes where the feather-like seeds of *Clematis douglasii* and *C. occidentalis* rose and floated off to establish themselves further from the parent plant. The alpine meadows are above 10,000



Lester Rowntree

Dwarf lupin, Beartooth Mountains, Montana, 10,000 feet altitude

Lester Rowntree

Erigeron speciosus

feet and surrounded by mountain tops continually swept by storm clouds. These meadows contain a much larger assortment of wild flowers than those of the Californian Sierra and Trinity mountains for, though the genera are much the same in each, there are many more species in the Beartooth. More phlox, mertensia, polemonium,—and I had never seen so many townsendias in bloom in one place as were looking straight, from atop their three-inch stalks, into that Montana sky. *Townsendia Parryii*, the prevailing species, looks like a rigid and over-stuffed erigeron in light lilac or lavender pink. Groups of it absorbed little depressions, it colonized thickly at the base of rocky outcroppings and mingled freely with the other alpines in the wide and windswept lawns of dwarfed flowers.

There were, of course, the regulars, —dodecatheons, arabis, draba, arte-

misias, lupins, potentillas, dwarf willows, arenarias, violets, pedicularis, saxifrages. *Myosotis alpestris* was a divine blue making, with *Mertensia subglabra,* one of the loveliest wildflower pictures imaginable. Cobalt blue mertensias are particularly charming when they peep from the shelter of low wide limber pine boughs whose green tips are densely circled with crimson buds. There was a lovely old-rose orthocarpus but it seemed to me that the polemoniums were not so blue as those of *P. confertum* var. *eximium,* though that may be because *P. pulcherrimum,* a lovely species, was about over.

Large flowered arnicas huddled beneath flat skirts of pine, delphiniums, dwarf goldendrods, erigerons and *Penstemon procerus,* just three inches tall, were all jumbled together and the stems of *Sieversia turbinata* beneath the prettily nodding flowers broke the prevailing blues, purples and yellows with soft strawberry pink. The few eriogonums were not as spectacular as the alpine buckwheats of the Californian mountains though all high mountain eriogonums have a pleasant habit of growth. The low, rounded, green pincushion mats of *Silene acaulis* which, at lower altitudes, were dotted with blobbie seed pods, looking like large pinheads, were, on the mountain crests, still in rosy-pink flower and these with the pads of pale lavender-blue *Phlox caespitosa* seemed to be enjoying what appeared to me to be an exceedingly heavy mulch of gravel which yesterday's storm had deposited on their smooth heads. In the shelter of canyons, *Aquilegia flavescens,* yellow, touched with red-brown, grew with tall *Mertensia ciliata* and coryadalis, while the silver pads of *Artemisia frigida* adorned drier, rocky places in the open. Near the snow banks the compact little plants of *Synthyris Paysonii* had almost finished blooming, the four inch flower racemes rising above the bunches of pretty ferny leaves.

In my own state, on the way home, I stopped to see what was happening on Mt. Lassen's snow banks and came down familiar byways where *Erythronium purpurascens* lined the upper, woodsy side of the road while the squidgy marshy land which bordered the lower side was nodding with *Cassiope mertensiana* bells and rosy with the dwarf saucers of *Kalmia polifolia* var. *microphylla,* its stream was lined with the rich beauty of *Caltha biflora's* leaves and its exquisite white flowers, while *Phyllodoce Breweri* swarmed across the drier parts above,—a flower community firmly imprinted upon the inner eye of those who know the mountains.

All these mountain plants are well known to wild flower enthusiasts who haunt higher altitudes. I have mentioned nothing to excite the collector of rarities. My only excuse for writing about them at all is that it is war time and the remembrance of what is still going on in our mountains and will continue to go on, may not come amiss.

Disease-Resistant and Hardy Varieties of Vegetables

(Continued)

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In the preceding issue of this magazine, under this same title, a few remarks were made concerning the history of varietal improvement in vegetable plants. Then was begun a brief account of some of the better known varieties having outstanding hardiness, or resistance to disease, or both. Only beans were considered in any detail in that portion of the article. This second part of the article deals with varieties of cabbage and closely related plants, of celery, and of sweet corn.

Cabbage

As stated earlier, the word "hardiness" is a relative term; it is used rather loosely in referring to any characteristics that enable some plants to thrive under conditions that would be very harmful to other similar plants. Cabbage as a crop is considered "hardy" because it tolerates much lower temperatures than many other garden vegetables, but it is not hardy to very hot weather. Furthermore, although all varieties of cabbage will stand more or less freezing without damage while small, there are quite marked differences among varieties in the degree of cold that they can tolerate. For example, there are only two otherwise suitable varieties that are hardy enough to winter over safely in the garden or field in the Middle Atnlatic States for spring growth and harvest. They are Early Jersey Wakefield and Charleston Wakefield. When grown in this manner along the upper part of Chesapeake Bay, seed is sown in September in open plant beds, the plants are transplanted to the south sides of ridges in the field about Thanksgiving Day, and they grow but little if any before spring. Temperatures may go down gradually almost to zero with comparatively little damage to well-grown, well-set plants. Spring varieties like Golden Acre and Copenhagen Market suffer severely under such conditions, almost all of them being killed.

Relative hardiness to cold is of major importance in connection with the production of cabbage seed. Most cabbage seed produced in this country is grown by wintering over the plants in the field in an immature or rosette stage. Some varieties, as Danish Ballhead, are so much more susceptible to cold injury than others in certain of the main seed-growing districts that seed yields are very uncertain and costs of production are relatively high. Varieties of the Savoy type, however, appear to be the most cold-resistant of all, at the half-grown, rosette stage of development. Kale and collards, two forms of "headless" cabbage, are very hardy to cold—hardier than cabbage—but here again varietel differences are evident. The Siberian type of kale, sometimes called "blue kale," is hardier than the Scotch varieties.

Since cabbage is native to high northern latitudes, and resistant to cold, it is not surprising that it is easily damaged by heat. Although no variety does its best during the warmest part of the year in the middle part of the country, and all fail outright in the South at low altitudes in summer, some

are *relatively* more resistant, or less susceptible) to heat than others. Such varieties as All Seasons, All Head Early, and Early Flat Dutch can stand the warm climate of late spring in the South or of summer in some other regions far better than Early Jersey Wakefield, Charleston Wakefield, Golden Acre, or Copenhagen Market. Danish Ballhead and other "late" varieties definitely are *not* resistant to heat and should be grown only in the Northern States.

Early Winningstadt is an interesting old variety although it is little grown in American today. It is hardy to cold and has the ability to stand longer after heading, without bursting, than any other commonly grown sort. It is slow-growing, produces a huge plant with a rather small, pointed, very hard head. The designation "Early" is misleading since the variety is so slow-growing, but it is so called because it is grown in the late fall and winter for harvest very early in the spring in regions where the winters are mild.

The terms "hardiness" and "resistance" are often used in referring to some special climatic adaptability of a variety or tolerance to an unfavorable soil condition. For example, in cabbage, the tendency to form flower stalks ("bolt") after the plants have been exposed to cold weather differs greatly among varieties. In those regions or areas where cabbage plants are normally exposed in the open in the autumn or winter, the ease with which a variety starts to bolt is a most important characteristic. One reason why only the Wakefield varieties are wintered-over in the Middle Atlantic States is that other spring sorts like Copenhagen Market and Golden Acre "bolt" instead of forming heads, to a much greater extent than the Wakefields do. Thus we say that Early Jersey Wakefield and Charleston Wakefield are "resistant to bolting." The Southeastern Vegetable Breeding Laboratory of the U. S. Department of Agriculture has been working for a number of years to develop early, cold-hardy, round-head cabbages somewhat like Copenhagen Market that can be wintered over without bolting in the spring. Two new varieties with these characteristics have been released recently for trial and commercial increase of the seed but they are not yet available for general sale. The names of these are Madison and Huguenot.

Most of the varieties of cabbage mentioned in the preceding paragraphs are old commercial sorts—some of them very old. Although they show some very marked differences in hardiness to cold and moderate differences in hardiness to heat, they all have one weakness in common—all are susceptible to the soil-borne disease known as cabbage yellows, or fusarium wilt. In the first part of this article appearing in the April issue of this magazine reference was made to the early development of resistance to this disease in cabbage. The Bugner variety developed about 1890, before yellows became a problem, happens to be somewhat resistant to yellows but it does not represent a high degree of resistance developed as a result of purposeful breeding to combat a specific parasite. This latter objective was first attained in cabbage with the introduction of the Wisconsin Hollander variety in 1916. This variety was a rather rough and variable counterpart of its parent variety Hollander (Danish Ballhead).

After the practicability of producing yellows-resistant cabbage varieties was demonstrated by the Wisconsin Hollander, the Wisconsin Agricultural Experiment Station and the U. S. Department of Agriculture proceeded to introduce, during the next 20 years, yellows-resistant counterparts of every

important commercial variety. Wisconsin Brunswick, introduced in 1917 has been superseded by better sorts. Jersey Queen, a resistant Early Jersey Wakefield, has never become very important because yellows causes less serious damage in the districts and seasons of the year in which Early Jersey Wakefield is extensively grown. Marion Market is the most extensively grown of the resistant kinds, and replaces Copenhagen Market where yellows necessitates it. Globe, Wisconsin All Seasons, and All Head Select are three resistant counterparts of Glory of Enkhuizen, All Seasons, and All Head, respectively, all well known midseason varieties. Wisconsin Ballhead is a highly resistant form of Danish Ballhead that is more uniform than the old Wisconsin Hollander and is replacing it. Even a wilt-resistant red cabbage, Resistant Red Hollander, has been produced. The latest addition to the imposing list of resistant kinds is known as Detroit; except for its resistance it is similar to Golden Acre.

It is noteworthy that among a substantial list of crop plants there has been outstanding success in the breeding and selection of new varieties having resistance to the fungus *Fusarium*. It appears relatively easy to find and to incorporate into new crop varieties resistance to the several species or "varieties" of this fungus that are so highly specific in their attacks upon crop plants. Generally, developing resistance to other diseases in new varieties of a crop, or finding it among old ones, is much more difficult. Several troubles besides yellows (wilt) are serious on cabbage and research agencies are trying to develop varieties resistant to such diseases as mosaic and clubroot. Progress is slow, but some day doubtless success will be attained.

Kale, kohl-rabi, collards, broccoli, and cabbage all belong to the same species (*Brassica oleracea* L.), despite the distinct differences in growth habit. They inter-cross readily and are subject to much the same diseases. There appears to be no insurmountable obstacle to developing yellows-resistant varieties of all these crops if and when the need becomes pressing enough.

Celery

Celery is of less general interest to gardeners than is cabbage because its cultural and climatic requirements are much more exacting than those of cabbage. It is susceptible to many diseases and requires a relatively cool, frost-free season for proper development. No variety is resistant to leaf diseases although there are marked differences among varieties in their resistance to celery yellows (fusarium wilt).

In general the green varieties tend to be more resistant to yellows than the yellow kinds; most green varieties are resistant or moderately resistant, while most yellow varieties are only moderately resistant or very susceptible. Some highly resistant green sorts are: Curly Leaf Easy Blanching introduced about 20 years ago by the Michigan State College; and Winter Queen and Giant Pascal, old well-known sorts. The Fordhook and Utah varieties, also green, are only moderately resistant.

Until the Michigan State College produced the new variety Michigan Golden, about 10 years ago there was no highly resistant yellow celery. Florida Golden is a more recent highly resistant yellow sort, produced by one of the leading seed firms. Another new resistant strain is Cornell No. 19, developed at Cornell University. Certain strains of Golden Plume (Wonderful) and certain dwarf strains of Paris Golden (Golden Self Blanching) are moderately resistant, but most strains of these varieties are very susceptible.

Sweet Corn

Sweet corn—especially, on the cob—is doubtless the most thoroughly and distinctly American vegetable in the world. Although the Americas have contributed several other important vegetable plants to the world's food supply, those vegetables have become so generally accepted and extensively grown in other lands that many persons overlook or are unaware of the American origin of tomatoes, potatoes, our "common" beans, garden peppers, squash, and sweetpotatoes. The peoples of other lands, however, have not learned to use corn as human food to any such extent as they have adopted most other American vegetables, or as Americans use corn. Many Europeans, for example, who know anything at all about corn, consider it fit only for stock feed.

For generations American seedsmen, farmers, and research agencies have been striving to improve the earliness of sweet corn to adapt it to regions of shorter season and lower temperature. Although it does not seem reasonable that varieties that will resist freezing can be obtained, marked progress has been made in obtaining high quality kinds that can escape frost through quick maturity. Corn is generally considered as a warm weather crop but unfortunately most sweet corns are not adapted to the warmer parts of our own South.

Pickaninny is a very small-eared, black-kerneled, very early sweet corn produced about 25 years ago at the Central Experimental Farm at Ottawa, Canada. It is probably the earliest variety grown and has been grown as far north as Fort Vermilion in Canada. Nuetta is an extremely early, small white variety adapted to short cool seasons. The plants rarely grow more than 3 feet tall. This variety was introduced into commercial channels through seed obtained from an Indian about 30 years ago. The quality of these two varieties is only fair, but they can be grown where the season is too short and cool for others.

Banting and Golden Gem are two very early yellow-kerneled varieties developed by the Department of Agriculture of Canada and by the North Dakota Agricultural Experiment Station, respectively. These also are very small-eared (4 to 6 inches) and the ears grow close to the ground on stalks only about 3½ feet tall. The quality of these is high, distinctly better than that of Pickaninny and Nuetta, but they should be grown only in the coolest regions or the shortest season where corn can be grown.

There are literally scores of varieties —and hybrids—of sweet corn that are adapted to the various sections of most of the northern two-thirds of the United States where the crop is grown. Some early sorts are of value not only in areas of short season, but also farther south where it is desired to have a succession of varieties to afford a supply over a long period, or even to obtain a crop before adverse hot weather occurs with its accompanying dry spells and insect attacks (see later paragraphs on bacterial wilt for variety names). Sweet corn breeders in the Middle West have developed hybrids that are less susceptible to hot, dry, weather. Among thees are Purgold, developed by the Indiana Agricultural Experiment Station and the U. S. Department of Agriculture; and Ioana, developed by the Iowa Agricultural Experiment Station. To meet extreme conditions the Federal Experiment Station at Mayaguez, Puerto Rico, has developed a tropical variety of sweet corn named U.S.D.A. 34. It is very late, grows to enormous size and is not adapted to culture in the continental United States.

In recent years there have been numerous efforts to extend the southern range of successful sweet corn production by breeding new varieties more resistant to heat and to the ravages of the corn ear worm. In the South it is the corn ear worm more than the direct effect of high temperature that limits sweet corn culture. As might be expected, the general characteristics of the new types developed for the South are in marked contrast with the cool-hardy, far northern varieties mentioned above. The Texas Agricultural Experiment Station, about 10 years ago, introduced Surcropper Sugar and Honey June, two very large, very late varieties adapted only to the South. In contrast to the northern varieties mentioned above the plants of these two grow 8 to 9 feet high and require 105 to 110 days to reach the edible stage when grown in the middle or northeastern States. In the South, they reach harvest stage in 80 to 100 days. The Florida Agricultural Experiment Station has developed Florida 191 and Suwannee Sugar; and the Georgia Experiment Station two varieties known as Georgia 439 and Georgia 428 similar to Honey June in type and earworm resistance, but for adaptation to the Southeast. U.S.D.A. 34 mentioned above is resistant to corn stripe, a tropical disease. The Southeastern Regional Vegetable Breeding Laboratory of the U.S.D.A. is also devoting much attention to the development of new sweet corn that will be especially suited to the southeastern States. A number of strains have been recently released for commercial increase, but are not yet available on the market. They are: Kiawah, Wappoo, Edisto, and Carowa.

In addition to the problem of adjusting varieties of sweet corn to the rigors of northern and southern climates, directly, the grower must contend with certain serious diseases. One of the worst of these is bacterial wilt or Stewart's disease. This disease occurs in virtually all districts where sweet corn is grown in the eastern half of the United States except the very northernmost, and is most severe in a belt extending from Iowa and Missouri eastward to the Atlantic. In general, sweet corn is much more susceptible than field corn and early varieties much more susceptible than late ones. Extra Early Golden Bantam, Golden Bantam, Golden Early Market, Golden Gem, Golden Sunshine, Gill Early Market and similar early sorts of major interest to home and market gardeners are highly susceptible. Late kinds like Country Gentlemen, Stowell Evergreen, Howling Mob, and Long Island Beauty are rather highly resistant. Whipple Yellow and Spanish Gold are intermediate in resistance.

In the past dozen years Bacterial-wilt-resistant early hybrids have largely replaced the old susceptible open-pollinated varieties. Not all early hybrids are resistant however; hybridity in itself is no indication of superiority in resistance to disease, in quality, yield, or any other character. Growers must take care to choose only hybrids of known performance and value. Of these proven hybrids Golden Cross Bantam is doubtless the best known, most widely adapted, and most extensively grown. It is a mid-season, large, yellow-kerneled, high-quality hybrid developed by the U. S. Department of Agriculture and the Indiana Agricultural Experiment Station. Marcross, Spancross, Whipcross, Tendergold, and Top Cross Maine Bantam are medium early to midseason resistant yellow hybrids, but no very early resistant yellow hybrid or variety has yet been obtained. Indigold, Purgold, and Ioana are wilt-resistant hybrids that are es-

pecially adapted to the Middle West. There are also many late hybrids, both white and yellow, that are resistant, among them Country Gentleman Hybrid 8x6, Country Gentleman Hybrid 5x10, Hybrid Evergreen, Ioana, and Bantam Evergreen Hybrid.

The varieties and hybrids mentioned here by no means exhaust the list of desirable sweet corns that are available to the discriminating grower. Public research agencies and also several large seed firms conduct extensive sweet corn breeding operations and have developed many other varieties and hybrids having resistance to bacterial wilt or special adaptabilities to one region of the country or another. Because of the marked differences in character and adaptability among varieties and hybrids choice of what to plant should be based on sound information about the varieties and about the conditions where they are to be grown. The recommendations of the respective State experiment stations should be followed.

Have You Seen.....?

Mary Frakes Tharp

Thinning tires, gas and travel restrictions do not dampen the ardor of enthusiastic iris lovers who play this game; as long as trains, busses or community cars are available to cover the some 60-odd miles in this section of Idaho — "have you seen—?" will be continued to be played with much zest.

To the uninitiated let us explain that "have you seen?" is just dashing madly from one iris garden to another (when one should be caring for one's own garden), seeing and enjoying all the new creations and asking the foregoing question. All of which seems very foolish to some, but a perfectly ntaural proceeding to an iris lover. If one wants to get in this game, now is a good time to plan and plant for next season, and as material is so wide and varied, if one is not familiar with it, it is apt to be confusing to a beginner.

Taking for granted that the average persons who are interested in growing iris and do so mostly for garden highlights, for borders perhaps or for cut flower arrangement. These uses call for certain types that are well within the reach of most gardeners. For the hybridizer and those who grow for show purpose only, one will find another class of iris, the price range being almost prohibitive. (Incidentally, the new things are coming so fast, that unless one possesses a pair of seven league boots and an unlimited income, there is no use trying to keep up with them.)

To get back to our game—have you seen a mass of the lovely rich true purple Indian Hills, with the colorful buttercup yellow of Golden Hind in the foreground? For added accent add a few clumps of Langport Scarlet pyrethrum. Enough said. Make a note of it, and don't forget Robinson's Hybrid strain with clear lovely colors and fine stiff stems. If pastels are your dish, try this group in one corner. Great Lakes, the lovely light blue Dykes medal winner of 1942, and which has proved so satisfactory in every section, the exquisite creamy yellow of Golden Treasure and the lovely tall lilac-pink Miss California. (If the cor-

ner is partly in the shade use China Maid instead, a very lovely person, but cannot take our hot sun.)

As no planting is complete without the whites and creams, one should use plenty of these as well as blues. As there are now so many good ones on the market, selections are made with the consideration that any garden can afford to grow them. First and foremost in this group, regardless of price, is the lovely chaste Purissima. In spite of its age (its borning was 1927), it still tops the white class and is well worth the trouble of a little winter protection in any man's land. If Snow Flurry ever drops to the $1.00 class, it might supersede Purissima, but we doubt it. Mount Washington would be our next selection in whites; our third would be the dainty ruffled Patricia. If one wished still another white, we offer the selection of Gudrun. Hardy and huge, and while often scored low for the rather coarse texture and short bloom stalk, it seldom fails to put on a show at iris time and it is greatly admired by all garden visitors. Speaking of white iris, have you seen the delightful Snow Maiden? Listed as dwarf, it grows 16 in. tall. We keep a group of Snow Maiden and pure white tulips growing together with white arabis. Looks just as it sounds—good enough to eat.

In creams, try Sweet Alibi and Snoqualmie; there may be newer creams, but certainly no better. When you see Brown Boy, Snoqualmie and the ruffled so pink No-we-ta grouped together, we are sure you will agree.

There are a number of good medium and light blues in the offing, but none more beautiful than Great Lakes which we mentioned above. This never disappoints. For those who can grow it, the early light blue Blue Diamond as well as the later Gloriole of the same shade and texture are blues of pleasing tone. Neither do well for us here in Idaho, but are well worth while trying. Shining Waters is another good blue of medium tone, satin texture and good substance. One should try all of them as well as reserving a spot in the background for good old tall dependable Sierra Blue. It grows over 5 ft., and is ideal for background plantings. It is much deeper in tone than the others listed. Icy Blue and Ice Maiden, both in the clear light blue class, are well worth a trial, both being of excellent substance and good form, blossoms on Ice Maiden lasting four and five days. A blue, that has been relegated to the morgue by iris fanciers, only to be resurrected for comparison occasionally, is Sensation. This iris is late and one begins to think it will never bloom; then one morning you walk out in the garden and the large planting of Sensation under the apricot tree is in full bloom. A wonderful sight—a before-breakfast lift! (The iris plutocrats are *not* going to like my list.)

Yellows, we must have. In the deeper tones we have Golden Majesty, Ming Yellow, Golden Hind and Sunhawk, all good. In a lighter color class our selection would be Chosen and Treasure Island. This list is for Mr. and Mrs. Average Gardener or we would add here the lovely Elsa Sass and Golden Fleece. (Well, a cat can look at a king—or can they?) In selecting your yellow tones, one must not forget Naranja with its orange make-up, of satin-like texture and lovely form, adds a clever note to your garden's ensemble.

Don't ask why, but we never cared for a dark iris until we met Sable. That dusky boy "sure knocked us for a loop." Wonder if it was because it was growing with Barr's huge white Oriental poppy?

Good dark velvety iris in the low price bracket are Mrs. J. L. Gibson,

Mary Jane Sisney and Smolder. The nod goes to Mary Jane Sisney. Brunhilde would be a good choice in the non-velvety types. Have you seen Stained Glass, in the bronze class? Grouped with Radiant, Orloff and early blooming Hemerocallis, it will stop traffic. Large clumps of early Hemerocallis are very good with the rose-violet toned Violet Crown. We like this as it carries a color tone found in no other iris. To this group add Moonglo, that hard-to-describe blend, and what is lovelier? The answer is, nothing.

Did you ask about RED iris? Definitely there are no red iris as we think of red as a color tone, although hybridizers are frantically working to that end. But have you seen Garden Magic? That is what we should call a 5-star iris. Truly a grand thing in its magic robe of velvety red. This is a late bloomer of good substance and good form. It will denote good taste to include this iris. Other good ones in the red class are Mauna Loa and Christobel. For a real spot of red in front of the border, use Wild Fire, with its glowing red falls and perky standards. Something to think about.

Now for the pick ups. By this we means the many types of iris that give one such a lift. These are also selected from moderately priced iris. You will get a big lift out of May Day, the stunning coppery apricot beauty from David Hall. Plant captivating pansy-colored velvety Amigo in front of it. Amigo is a low-growing rare color gem.

Have you seen Marquita, the iris with the 'spot-light" standards, an iris the men go for in a big way, and after all, why shouldn't they, for it has everything. Cool cream crisp standards, falls flushed and striped rose color. It needs no companions, it likes to "be alone."

Wabash, the gracious amoena, is a color gem, with milk white standards and velvety purple falls. Lovely as it is, it is inclined to give one the brush-off and not bloom every season. We grow it, however, because it is so well worth while. Speaking of amoenas, have you seen the little Merry Lass (Gersdorff)? A dainty little floriferous iris for that corner of your garden where you practice resting. Milk white standards and flaring, rounded, rose-colored falls. It does something to you.

In the plicata, the sanded or stitched iris we have the newer Florentine of silvery background, dotted and flaked in blue. This iris has a nice straight bloom stalk, the flower having good substance. It wears well. Tiffany is another of our favorites, but falls in the class of yellow plicatas. This beauty has rosy orchid stipplings on a yellow ground. One other pick up we would add and that is The City of Lincoln, with its crisp yellow standards and bright velvety red falls. A king in its own right.

Out of thousands of named varieties of iris, these seem a pitifully small number, but they are varieties that have been tried and tested and not found wanting (but wanted). After all it depends on whether one wants a garden with iris plantings or an iris display, as to the varieties one would choose.

Have you seen Blue Shimmer, the lovely new plicata, Azure Skies or Gayoso? No? Neither have we, but are looking forward to it, in our next Spring session of "Have You Seen—?" Won't you join us?

Don't forget to plant gobs of dark blue table iris Tom-Tit where the garden path turns. Combine it with the dark yellow and brown hemerocallis Sovereign and oddles of *Heuchera sanguinea*. You'll get an A grade on this.

Payette, Idaho

A Seven Year Study of Oriental Poppies

KARL K. LORENZ

A number of years ago it occurred to me that a great deal of valuable information might be developed about oriental poppies if each day during the blooming season a record were made of the varieties in bloom on that day and the number of blossoms on each plant.

In the fall of 1935 I started a new garden. It seemed this was a good beginning point for such a study. In the fall of 1937 this new garden was moved to a new location. Except that the plants were older, the situation was the same as in the fall of 1935.

How long does the average oriental poppy plant live? How much bloom does it have in any one year? Is the variety early, medium or late in its blooming habits? Does the number of blossoms per year increase as the plant is older? When does it reach its maximum and how rapidly does it decrease from this maximum? How long does a blossom last? Do different varieties vary considerably in the abundance of bloom they furnish?

From a study of this sort, these and some other questions can be answered. The data given in this article are based on a seven-year period, beginning with the blooming season of 1936 and ending with the blooming season of 1942.

Before giving the results of this study, at least one definition is required, namely, the use of the word "blossom days." If an individual blossom lasts but one day it is counted only on that one day. If, however, it lasts two days it is counted both days. Should it last three days, it is counted three times and, of course, if it should last more than three days it is counted more than three times. Each time it is counted is called a "blossom day." Apparently, the normal length of an oriental poppy blossom is about three days. Should the weather be extremely hot and dry, the length of life of a blossom is materially shortened. In the other hand, if it is cloudy and cool, the blossom may last into the fourth day. Whether it is due to the increasing heat as the season reaches the end, the blossoms of the late varieties last a shorter time. It seems that these late varieties realize that the crowd has gone on before and they need to hurry to catch up.

In 1936 there were 19 varieties that bloomed. Each year the number of varieties in my garden increased until in 1941 there were 58 varieties blooming. It must be understood that this garden is connected with a city residence; there are trees and shrubs and all kinds of perennials. Not all of the oriental poppy varieties have an equally favorable position. As a rule, I have but one plant of each variety.

Certain general observations with reference to the poppy season as a whole are of interest. The average total of blossom days per year for the seven years was 1,680. The smallest number of blossom days (258) of course was in 1936. The plants were young, the garden was new. The maximum number of blossom days for the season was 1,939, with a total of 2,270 blossom days. The average number of blossom days per variety per year, for the seven years, was 36.5, the lowest being 15 in 1936 and the highest 45.4 in 1939. Of course, there was a certain day in each season when there were the most blossoms. That maximum day of bloom came on the average 18.4 days after the first blossom appeared. That maximum day arrived

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Helen Elizabeth

soonest after the first blossom in 1936, being the 15th day after the start of the season. But in 1938 it was 24 days after the first blossom appeared before the maximum day arrived. The number of blossoms on that maximum day averaged 187, being 23 in 1936, 270 in 1939.

Adding together the total number of days each variety was in bloom for a season, the number of days in bloom per year for all varieties averaged 448,

the smallest being 144 in 1936 and the largest 622 in 1941. On the average, a variety of oriental poppies will remain in bloom for 10.1 days. This average varies, of course, with each year. It was 8.5 days in 1936 and 13.4 days in 1938.

One very interesting fact is the length of the oriental poppy season. The number of days in the season varies from year to year, depending on the weather. The average is 32 days. The shortest season among the seven years was 1940, 28 days, and the longest season was 1938 with 40 days. The kind of spring we have determines the first day of the season. On the average in my garden in southwestern Ohio, the first day of the season is May 14. In 1938 the first blossom appeared on April 30, while in 1940 the first blossom delayed opening until May 24. Of course, the last day of the oriental poppy season is dependent on the first day. The average for the seven years was June 16. The season came to an end the earliest in 1938, on June 8. The latest the season ended was in 1940 on June 20.

The very earliest poppy to appear in the spring is Olympia; two days later May Queen, a very similar variety, appears. Five days intervene before the third poppy comes into bloom. On the 7th day from the beginning of the season, Field Marshal von der Flotz appears, followed immediately by Henri Cayeux. On the 8th day King George and Salmon Glow. On the 9th day Toreador, Purity and Schinzianum. On the 10th day Mary Jane Miller, Little Shrimp, Prince of Orange and Mary Ellen. These 13 varieties named above may well be classed the early varieties of my garden.

The great mass of oriental poppies come in from the 11th day through the 16th day of the season. The late varieties then may be classed as those which on the average begin to bloom on the 17th day of the season or after. On the 17th come Colonel Bowles and Wunderkind. On the 18th Madam Pavlova, Excelsior and Snowflame. On the 19th come Gold of Ophir, Lachs Koenigen and Sass Pink. On the 20th Perfection and Pink Delight. Thus my garden has ten varieties that may be classed as late.

Now we come to the matter of blossom days per variety. Before giving a table showing the average blooming habit of each variety in my garden, it may be wise to speak of those varieties which stood at the top in abundance of bloom.

Betty Ann, a comparatively new variety of Siebenthaler origin, stands a very good first with an average over a period of six years of 85 blossom days per year. In its second year, 1938, it had 168 blossom days. In its fourth year, 116 blossom days. It is a lovely light pink, a rather small flower, produces its tallest blossoms early in the season and a multitude of secondary blossoms, not so tall, later in the season.

May Queen ranks second. This is one of the very early varieties. It spreads by stolons and is very difficult to keep under control. Plant one plant, and in five years you will have a bed and you will begin asking yourself the question, "Will this flower usurp my whole garden?" It blooms for a week before the regular oriental poppies begin, is double and a very charming blossom. Its average over a period of five years is 78 blossom days. The fifth year showed the largest amount—136 blossom days.

The third place is held by another stolon-spreading variety, Apricot Queen Improved. This was developed by Roy Ashley, of Battle Creek, Michigan. Perhaps he had never actually introduced it to the public.

Mary Ellen, a Siebenthaler variety

of comparatively recent introduction, stands fourth, with an average over a five-year period of 68 blossom days a year. Its performance is rather steady, with a fairly even number of blossom days each year.

Mrs. Perry, the old original light pink, introduced by Amos Perry in England, stands fifth, with an average of 67 blossom days per year over a five-year period.

The twin sister of No. 2 holds sixth place in Olympia. It blooms two days earlier than May Queen, has a few less petals to the blossom, but otherwise is identical. It has the same weedy capacity to take over the ground with its spreading stolons.

Number 7 is Madam Pavlova, with 58 blossom days average for a five-year period. This is a comparatively recent variety of the very light pink type, with moderate sized bloom, introduced by Mr. Curtis of Cincinnati.

Henri Cayeux, a very early variety of the wine-colored type, has an average of 56 blossom days a year over a six-year period. This variety was produced by a famous French hybridizer and was introduced into the United States by John Siebenthaler. Plant this in light shade as the blossoms fade badly. A very good variety for use as a cut flower.

Our next variety, Helen Elizabeth, probably should, under more favorable circumstances, have made a better record. It was planted near a strong growing day lily which eventually smothered it after the sixth year, so that it had only three blossoms the seventh year. This is a comparatively recent Siebenthaler variety, a sister of Betty Ann. In its second year in 1937 it had 153 blossom days. It is a quite large, very light pink blossom, very lovely indeed.

If you are acquainted with the idiosyncrasies of white oriental poppies, you will be surprised when I say that Barr's White ranks tenth, with an average over a five-year period of 54 blossom days. Its record per year is pretty even—a maximum of 76 in 1941 and minimum of 45 its first year in 1938.

I have had an interesting experience with another Siebenthaler variety named Big Jim. In 1935 it was planted in very heavy clay. It showed 61 blossom days its first season, in 1936; 148 blossom days in 1937. It must have been on the morning of June 2, 1937, when there were 34 big red blossoms on this plant, standing tall and straight, a picture that will always live in my memory. The plant died that summer and the new plant of the same variety put in my new garden that fall has been a very ordinary producer of blossoms, showing a maximum of 41 in the spring of 1939. My present garden was made with 50 per cent clay, 25 per cent sand and 25 per cent humus. Evidently Big Jim doesn't care so much for the lighter soil.

The record of all 64 varieties shows an average of 36.5 blossom days. Thirty-two varieties of the list are better than average; other things being equal in making a limited choice, one would naturally choose from among the 32 varieties which give a better than average number of blossom days.

Here is the list of 64 varieties in my garden, arranged in the order of the amount of bloom they furnish: (In parenthesis after the name is given the number of years the variety is included in the study. The stolon-spreading varieties are indicated; also the dwarf varieties.)

1.	Betty Ann (6)	85
2.	May Queen (Stolon) (5)	78
3.	Apricot Queen Improved (Stolon) (4)	78
4.	Mary Ellen (5)	68
5.	Mrs. Perry (5)	67
6.	Olympia (Stolon) (7)	61

7.	Mme. Pavlova (5)	58
8.	Henri Cayeux (6)	56
9.	Helen Elizabeth (7)	55
10.	Barr's White (5)	54
11.	Joyce (6)	51
12.	John III (5)	51
13.	Mary Jane Miller (6)	50
14.	Big Jim (7)	59
15.	Cavalier (6)	48
16.	Mahony (6)	47
17.	Little Shrimp (dwarf) (7)	46
18.	King George (4)	45
19.	June Delight (5)	43
20.	Salmon Glow (Stolon) (2)	43
21.	Perfection (5)	41
22.	Pearl Queen (3)	41
23.	Prince of Orange (6)	40
24.	Mandarin (7)	39
25.	Australia (5)	39
26.	Cerise Beauty (2)	39
27.	Lord Lambourne (7)	38
28.	Purity (5)	38
29.	Perry's White (2)	38
30.	Wurtembergia (7)	37
31.	Beauty of Livermere (4)	37
32.	Curtis White (4)	37
33.	Echo (5)	35
34.	E. L. Ferguson (6)	35
35.	E. A. Bowles (2)	34
36.	Lachs Koenigen (6)	33
37.	Julia Buck (6)	32
38.	Enfield Beauty (3)	31
39.	Field Marshal von der Glotz (1)	31
40.	Mrs. Heenk (6)	28
41.	Manchu's Fan (4)	28
42.	Burke's Laciniated (2)	27
43.	Wunderkind (7)	26
44.	May Sadler (3)	26
45.	Col. Bowles (7)	25
46.	Enchantresse (6)	25
47.	Dainty Lady (6)	25
48.	Trilby (7)	24
49.	Excelsior (4)	24
50.	Gold of Ophir (6)	23
51.	Toreador (7)	21
52.	Proserpine (7)	21
53.	Ridgefield Beauty (3)	21
54.	Hercule (6)	20
55.	Loreley (3)	20
56.	Harmony (6)	19
57.	New Perfection (2)	19
58.	Glowing Embers (2)	18
59.	Snowflame (1)	18
60.	Gaiety (6)	17
61.	Thora Perry (dwarf) (4)	14
62.	Sass Pink (4)	12
63.	Schinzianum Hybrid (1)	4
64.	Pink Delight (3)	3

Remarks about a few of the varieties showing a poor blooming record are in order.

Echo. The unique color justifies serious consideration of this variety. Its location in my garden was not the best.

Burke's Laciniated. This variety has not yet been introduced. It is the best color in a laciniated variety I have seen. Its second year it showed 43 blossom days.

Wunderkind. Among the sophisticated, this is considered tops. Its location in my garden is not the best.

May Sadler. Notable for the size of the blossom as well as the color. In my garden it has been quite short-lived as a plant. Its quality is worth frequent replacement.

Colonel Bowles. Not many blossoms but a distinctive plant in the sturdiness of the stem, size of the blossom and rich red color.

Gold of Ophir. In a good location this should have made a much better record. I have now moved it from the worst place in my garden to one of the best.

Sass Pink. A very beautiful flower, not large, but the plant, in my garden at least, is short-lived. Died after four years.

While the longevity of a plant dare not be finally determined by a record of one plant, I report, for what it is worth, the following experiences:

Cavalier. Crown rotted in its seventh year. Send up a new top which has

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taken a year or two to reach the blooming size.

Mary Jane Miller. Same as Cavalier.

Perry's White. Notoriously short-lived. Bloomed but two years in my garden.

Ridgefield Beauty. Died in middle of its third blooming season, a very wet month.

Pink Delight. Died in its third blooming season.

Pearl Queen. Died in its third

blooming season. No explanation.

Field Marshal von der Glotz. After a number of unsuccessful efforts to establish this variety, a plant finally won through and bloomed but died after the first year of bloom.

Salmon Glow. The main crown died after the third season. There remain four or five young plants growing from stolons.

Cerise Beauty. A great favorite of mine and ordinarily quite floriferous. A number of nurseries seem to have wrong stock. A true plant died after its second blooming season.

Glowing Embers. Planted too close to a vigorous Siberian Iris. Died after second season.

Snow Flame. Apparently planted in an excellent position, it died after the second blooming season.

How many days in a season does a particular variety remain in bloom? This should be a matter of interest. Consequently, I am tabulating the record for the 64 varieties in my garden during the seven-year period of this study. The figure in parenthesis after the name indicates the number of years the plant has bloomed. The final figure, not in parenthesis, shows the average number of days per year the plant remained in bloom:

1.	Betty Ann (6)	18
2a.	Olympia (7)	15
2b.	John III (5)	15
2c.	Field Marshal von der Glotz (1)	15
5.	Purity (5)	14
6a.	Proserpine (7)	13
6b.	Mary Ellen (5)	13
6c.	June Delight (5)	13
9a.	Little Shrimp (7)	12
9b.	Helen Elizabeth (7)	12
9c.	Julia Buck (6)	12
9d.	Henri Cayeux (6)	12
9e.	May Queen (5)	12
9f.	Mrs. Perry (5)	12
9g.	Barr's White (5)	12
9h.	Mme. Pavlova (5)	12
9i.	Apricot Queen Improved (4)	12
9j.	Pearl Queen (3)	12
9k.	Salmon Glow (2)	12
20a.	Echo (5)	11
20b.	Col. Bowles (7)	11
20c.	Prince of Orange (6)	11
20d.	King George (4)	11
20e.	May Sadler (3)	11
20f.	Perry's White (2)	11
20g.	Enfield Beauty (3)	11
27a.	Mary Jane Miller (6)	10
27b.	Toreador (7)	10
27c.	Trilby (7)	10
27d.	Wunderkind (7)	10
27e.	Hercule (6)	10
27f.	Dainty Lady (6)	10
27g.	Excelsior (4)	10
27h.	Curtis White (4)	10
27i.	Manchu's Fan (4)	10
27j.	New Perfection (2)	10
27k.	Burke's Laciniated (2)	10
38a.	Cavalier (6)	9
38b.	Big Jim (7)	9
38c.	Lord Lambourne (7)	9
38d.	Joyce (6)	9
38e.	Enchantresse (6)	9
38f.	Gaiety (6)	9
38g.	Loreley (3)	9
38h.	Mrs. Heenk (6)	9
38i.	E. L. Ferguson (6)	9
38j.	Harmony (6)	9
38k.	E. A. Bowles (4)	9
38l.	Glowing Embers (2)	9
50a.	Wurtembergia (7)	8
50b.	Mandarin (7)	8
50c.	Beauty of Livermere (7)	8
50d.	Gold of Ophir (7)	8
50e.	Mahony (6)	8
50f.	Lachs Koenigen (6)	8
50g.	Australia (5)	8
50h.	Cerise Beauty (2)	8
50i.	Snowflame (1)	8
59a.	Perfection (5)	7
59b.	Thora Perry (4)	7
59c.	Ridgefield Beauty (3)	7
62.	Sass Pink (4)	6
63.	Schinzianum Hybrid (1)	3
64.	Pink Delight (3)	2

Lilies in the Upper Middle South

ELIZABETH B. TRUNDLE

The year 1936, I planted my first lily bulbs (except *tigrinum* in 1933). My garden consists of ten squares with ten foot walks of grass between. It slopes to the East with a fall of about two feet in a hundred, although from the house which is West there is a greater fall. The two squares selected for lilies; the upper is shaded by tall trees and later the house—the lower square gets less shade, but later is shaded the same way. The upper square has some southern shade. There is some shade from shrubbery at each corner of squares. The upper square had been an asparagus bed and with the addition of some wood ashes and bone meal, in 1936, I planted the following lily bulbs:

umbellatum, tenuifolium, willmottiae, sulphureum, concolor, regale, formosanum (Price's)

and in 1937, the following:

superbum, amabile, speciosum rubrum, Henryi, Davidi, Sunset, *testaceum.*

One *Henryi* that has done better was planted in another situation with iris at base and shade in afternoon. Planted 10" deep.

The above lilies have periwinkle for ground cover, but I understand it is not so good, and it mats a lot. For about three years these lilies have had bone meal, wood ashes, and wood's earth for the *superbum.* I have never used commercial fertilizer, or manure. They have never been watered or sprayed. They probably would have benefited from both and well-rotted manure.

In the lower square, which does not have beenfit of shade as early in afternoon, as above, I had raised chrysanthemums. The soil was dug up about 16 inches and some wood ashes and bone meal incorporated. When planted, all lily bulbs, (except last two years) were dusted with sulphur and surrounded with sand. They are planted 18 inches apart in beds with small paths between. No lime has been added to either square for 24 years. All the other lilies that I have given data on as to bloom, when bloomed and number of blooms, were planted in this square—the entire square is surrounded with twelve inch metal lath, extending 9 inches below ground and three inches above to keep out moles and mice which follow and eat bulbs. Wild columbine and petunias are used for ground cover and each spring I have added peat moss to top of beds to protect from sun before ground cover attains sufficient growth. No commercial fertilizer or manure has been used. No spraying or watering except the *Parryi* (which all died). Wood's earth, wood ashes and bone meal has been added from time to time. One lily I have read does not tolerate wood ashes and that is *Wardii,* and I did not apply to it, but it disappeared anyhow.

The *candidums* are planted 10 feet away from above across a grass walk and I believe are much too close, as they have botrytis. The *tigrinums* are four squares away in another part of the garden.

I have raised *regale, willmottiae, amabile, formosanum,* late variety, from seeds, and I have a lot that should bloom this fall, and others to be put into the garden in the fall. It requires a lot of patience, but as it is highly recommended, I believe one should try and do it in order to have plenty of

bloom of one lily. Not so expensive. I plant seeds in deep wooden boxes with all earth and sand baked in order that there will be no weeding, which is a help to me.

It is very tempting to dig around lilies in the spring and while I try to leave them alone, I am sure that I have decapitated some of them in that way.

This article is much too long, but as I have kept records I trust that it will be of interest to some of readers of the middle south.

Name	*Year Planted*	*Date & Yr. Bloomed*	*Height*	*Number Stalks*	*Number Blooms*	*Remarks*
tigrinum	1933	July 16, '34	3–8′	2–8	5–15	These lilies are in another part of garden from others and do well with only feeding and they reseed.
Henryi	1936	July 29, '37	3′	1	2	Does well with little feeding. Planted 10″ deep with some afternoon shade. Iris near base of lily. No. blooms represents blooms and buds when cut. Buds open in house.
			3′	1	4	
		July 29, '39	3½′	1	18	
		July 24, '40	4′	1	22	
		July 22, '41	5′	1	23	
		July 25, '42	5′	1	25	
		July 18, '43	6′	1	27	
Henryi	1937	July 19, '38	1′	1	2	
		July 26, '39	2′	2	2	
		July 23, '40	2½′	3	11	
		July 25, '41	2′	5	6	
		July '42	2′	6		Did not bloom. Might have been injured. Still comes up. Needs replanting.
umbellatum	1936	June 1, '37	1′	1	2	
		June 10, '38	1½′	2	5	This lily does well, but it also needs replanting.
		June 10, '39	2′	2	6	
		June 9, '39	2′	3	18	
		June '40	2′	4	14	Last fall dug up and had 5 big and 7 small bulbs and replanted.
		June '41	1½′	5	18	
		June '42	1¼′	5	8	
		June '43	1½′	6	7	
umbellatum Chief Chinook	1941	July '42	1′	1	3	Very lovely lily.
		July '43	14″	2	4	
sulphureum	1936	July '37				Did not come up.
		July 21, '38	2′	1	2	Lovely trumpet blooms. No winter protection and did not come again. Another planted at same time does not bloom, but bears bulbils.
		July '39				
testaceum	1936	June 20, '37	2′		7	Cut and brought in house. No protection and it disappeared. Might have cut too much.
speciosum rubrum-magnificum	1936	Sept. '37	3′	1	14	Cut down too much to exhibit. Dug up in 1940 and replanted 4 bulbs. Next Spring I noticed moles had been near, so presume mice got them.

Name	Year Planted	Date & Yr. Bloomed	Height	Number Stalks	Number Blooms	Remarks
speciosum rubrum	1937	Sept. '38	2′	1	4	
		Sept. '39	2½′	1	6	This lily does better for
		Sept. '40	2½′	2	7	others in this county.
		Sept. '41	2′	3	6	
		Sept. '42	2½′	3	8	Bulb from Julia Clark.
		Sept. '43	3′	4	9	
Willmottiae	1936	June '37	1½′	1	4	Disappeared. Might have
		June 18, '38	2′	1	8	been injured or cut too
		June 27, '39	5′	1	23	much.
Willmottiae	1937	June 24, '38	2′	1	4	
		June 25, '39	30″	3	2–3–4	Needs replanting.
		June 21, '40	20″–3′	4	3–4–5	
		June 23, '41	3′	5	Fair	
		June 21, '42	3½′	5	9	
		June 23, '43	1–3′	6	12	
concolor	1936	June 3, '37	5″	1	1	
		June 1, '38	6″	1	1	
		June 11, '39	7″	1	3	
		June '40	5″	1		No bloom.
		June '41				Completely disappeared.
		June '42				Came up 3″.
		June 10, '43	4″	1	1	Surprise.
tenuifolium	1936	June 5, '37	1′	1	4	
		June 1, '38	1½′	1	7	
		June 9, '39	1½′	1	3	
		June 11, '40	14″	1	5	In '41 it disappeared.
tenuifolium Medium	1937	June 13, '38	12½″	1	10	
				1	12	
		June 5, '39	1′	2	11	
		June 13, '40	15″	2	18	
		June '41	14″	2	14	
		June '42	12″	2	None	
		June '43				Disappeared.
Formosanum (Price's)	1936	July 1, '39	18″	8	1	Bloom 6″ long.
		July 12, '40	15″	9	1	
		July '41	15″	9	1	
		July '42	15″	10	1	
		July '43		10	2	Needs replanting.
Formosanum Late variety	1939					Planted seeds in March.
		Aug. 23, '41	1–4′	1–4	2–10	Blooms every year.
candidum	1936	June '37	2–4′	2–3	2–13	
		June 15, '37				Blooms every year. Some in county have had 15 blooms. Is affected with Botrytis.
regale	1936	June 17, '37	1′	1	5	
		June '38	1½′	1	6	
		June 18, '39	2′	2	20	10 buds on each stalk.
		June 20, '40	3′	2	11 & 10	
		June '41	5′	3	10–14	Needs replanting. They
		June '42	5′	3	7–12	have early afternoon
		June '43	5½′	3	4–10	shade — ground cover periwinkle.
superbum	1937	July 3, '38	2′	1	1	Added woods earth and
		July 4, '39	3′	1	2	bone meal and wood
		July 14, '40	6′7″	1	16	ashes.
		July 15, '41	3′ & 6′	2	10 & 5	blooms and buds.
		July 14, '42	4½′ & 6½′	2	20 & 7	blooms and buds.
		July 7, '43	3–4–6′	3	16–7–5	blooms and buds.

This lily is truly outstanding turk's cap yellow center with scarlet towards edge of petals. More Chinese red. (Periwinkle ground cover.)

Name	Year Planted	Date & Yr. Bloomed	Height	Number Stalks	Number Blooms	Remarks
Sunset-Pardalinum-Giganteum	1937	'38				Came up but no bloom.
		June 20, '39	2–3–4′	3	8	5 stalks in all. A lovely
		June 23, '40	2–4′	11 ea.	3–6	lily. Very much like
		June 22, '41	2–3′	12 ea.	4–8	*Superbum*.
		June 21, '42	2–3′	14 ea.	2–5	
		June 23, '43	2–3′	15	None	Dug up and replanted 5 big and 10 small bulbs.
amabile	1937	June 13, '38	13½″	1	10	
		June 12, '39	12″	1	None	
		June 12, '40	3′ & 2′	3–2–1	9	3 blooms on each stalk.
		June '41	2′	3	8	
		June '42	2′	3	5	Needs replanting.
		June '43	2′	3	4	
elegans		June 13, '38	5½″	1	1	Cut to exhibit.
Alice Wilson	1937	June 11, '39	5¼″	1	1	Cut to exhibit.
		June '40				Disappeared.
elegans		June 25, '38	7″	1	3	
(Aureum)	1937	June '39				Came up, but some animal broke down.
Davidii	1937	June 24, '38	1′	2	4	
		June 27, '39	1′	2	7 & 2	on side stalk.
		June 20, '40	1′	3	3	on each stalk.
		June '41	13″	4	2	on each stalk. ⎧ Leaves
		June '42	Up	4	1	on each stalk. ⎩ yellow.
		June '43	1′	5	2	
Batemanniae	1938	July 4, '39	1½′	1	4	In '43 did not bloom,
		July 14, '40	25″	2	5	but seems to have in-
		July 12, '41	24″	2	4	creased small bulbs.
		July 8, '42	14″	3	3	Needs replanting.
rubellum	1938	May 24, '39	5″	1	1	Beautiful for rock garden.
		May 31, '40	10″	1	2	
		May 25, '41	10″	1	2	Bloom 2⅜″ long.
		May 30, '42	10″	1	1	A mole burrowed near this lily and expect mice got it.
speciosum album	1939	Aug. 4, '40	25″	1	4	
			31″	1	2	
			20″	2	3	each stalk. Planted 4 bulbs. Cut for exhibit. Dug up in '41 and they had shrivelled up inside sand. Beautiful lily.
longiflorum	1939	July 8, '40	17″	1	4	Planted 4 bulbs. Each
			18½″	1	4	bloom 6½–7″ long.
			16″	1	3	
			14″	1	2	
		'41				Did not bloom. I had cut all for exhibit, but left plenty stem. Drouth I think cause. In April.
		July '42	15″	1	3	Side stalks.
				1	3	2 did not bloom.
		June 30, '43	16″	1	2	Probably needs replanting.

Name	*Year Planted*	*Date & Yr. Bloomed*	*Height*	*Number Stalks*	*Number Blooms*	*Remarks*
Maximowiczii	1939	July 8, '40	29″	1	2	4 bulbs planted.
			17″	1	1	
			27″	1	2	
			39″	1	4	
		'41				About the same bloom.
		'42	25″	1	5	2 did not bloom. Comes
		July	27″	1	6	up.
		July 11, '43	23″	1	4	2 did not bloom. Seems
			25″	1	5	to increase in bulbs.
centifolium (Horsford)	1940	July 8, '41	12″	1	1	Large white, very lovely.
		'42	8″	1	1	Side stalks.
		'43	18″	1	2	
X G. C. Creelman (Horsford)	1940	July '41	12″	1	2	Smaller white blooms.
		'42	11″	1	1	Lot side stalks.
		'43	12″	1	1	
Parryi	1940					Came up first year, but never again. Needs plenty of moisture.
Parryi	1940	Planted below pool in muck from creek and it bloomed every year. The others were in garden with tiles near for watering, but evidently did not get enough watering.				
thunbergianum-alutaceum	1940	Comes up but never blooms.				
Wardii	1940	Came up first year, but no bloom. Bulbs from England.				
rubescens	1941	Came up first year, but no bloom. Disappeared.				

Roezlii, carolinianum, never came up.

Washingtonianum came up every year since 1941, but no bloom.

Parvum luteum did not come up.

The Martagons do not come up, neither do the *philadelphicums.* Have planted *philadelphicum* twice, two different years. No luck.

Hansoni, canadense flavum and Shuksan are grown well in the county, but I have had no luck with them. My fault. Perhaps not in right situation.

Davidi-macranthum	1942	June 23, '43	2′	1	4	Have hopes for it.
auratum- Esperanza str.	1942	July 11, '43	1′	1	1	Very beautiful.

Fruit Varieties for the Home Garden

WILBUR H. YOUNGMAN

Choosing varieties of fruits for the home orchard, be it large or small, has been a difficult and largely an unguided task. The war-time interest in home food production, however, stimulated federal and State authorities to look into this problem. Heretofore, the would-be fruit gardener looked through a catalogue and then chose those varieties with the most superlatives in the descriptions.

There is more to the problem of selecting the right varieties for the home garden than counting the number of superlatives attached to the description. The Delicious apple has, for long, been one of the main varieties on the market. It is well known and generally liked. However, it is not as widely adaptable as to climate and soil as some believe. The Delicious seems to do best in the middle west and far west. The Jonathan is another popular variety that seems to thrive best in the middle west. The Stayman Winesap does very well in the middle Atlantic States. The aromatic, juicy McIntosh grows to perfection in the northern States or on the higher elevations, but is a miserable failure in the more southerly apple growing States.

Not only is it a question of regional adaptation, but soils and fertility are important. The Stayman Winesap apple is well known for its good performance on poor soils, while the old-fashioned Winesap is a failure unless planted on deep rich soils. The Yellow Newtown apple (Albemarle Pippin) grows best in the mountain coves of Virginia, the Hood River Valley of Oregon and in the San Benito River Valley near Watsonville, California.

The glowing descriptions of the everbearing strawberries intrigue every embryo gardener who wishes to enjoy this luscious fruit throughout the season. They thrive only in the northern States or on the higher elevations. Home grown figs attract many although they are not hardy north of the Mason-Dixon line (in some places far to the south of it). Sweet cherries are a much desired fruit which have limitations of adaptability as to soils. Similarly many other kinds of fruit, though desirable for home use, are limited as to soil, climate and hardiness. The beginner should recognize this and avoid disappointment.

Next to the problem of meeting soil and climatic adaptations, the question of quality should be emphasized. Commercial growers, who are the big buyers of trees and plants, demand and buy those varieties whose fruits ship well and have an attractive appearance on the market. That they may lack in flavor, texture and juiciness is of little concern. However, the home fruit grower should look for and demand quality in the fruit that he grows. High quality means good texture, a desirable flavor and sufficient juice. Frequently, the commercially important varieties lack in these important characteristics, usually because they are too tender to withstand commercial handling. A variety that is thin skinned, juicy or tender (soft-fleshed) bruises easily in handling and goes to pieces quickly, hence is difficult to market. For home use it is oftentimes the most desirable.

Susceptibility to disease and insect injury probably ranks third in the factors to be considered in choosing a variety. Most everyone prefers the Bart-

lett variety of pear for eating, but in the east and middle west it is usually injured if not destroyed by the "Fire-blight" disease. Just because it is the most desirable of the dessert type varieties does not justify planting where it cannot possibly live and thrive. The sweet cherries are very desirable, but in the east, even on suitable soils, it is exceedingly difficult to protect the fruit from the "Brown-rot." The Grimes Golden apple is an excellent early fall variety, but in some sections is seriously troubled by the "Collar-rot." Red raspberries are a choice home garden fruit, but in regions where the wild dewberries abound, it is difficult to keep them in production for the dewberries oftentimes carry a virus disease that is fatal to the raspberries.

Formerly, the size of the trees oftentimes prevented the home gardener from giving serious interest to the cultivation of fruit. Today it is possible to buy dwarf, semi-dwarf and half-standard sized trees of many varieties of both apples and pears. No doubt, in time dwarfing stocks will be found for other large growing kinds of tree fruits. With these small sizes of trees available it is now possible to enjoy home grown fruit in the smallest of back-yards providing they are sunny. Fruit trees do not thrive and produce acceptable quality fruit in shady situations. Blueberries, a bush fruit, thrives in partial shade.

With the exception of size, the federal and State authorities have pooled their experiences and recommended varieties of fruit for the home fruit garden for every section of the country.[1] Not only do they recognize the climate and soil, but for once they have given serious thought to the importance of quality. Of necessity they have limited the lists of varieties to a very few, omitting some because they were not generally available in commerce. For the most part they have listed the fruits in the order of dependability both as to climate and disease resistance. Thus hardiness and freedom from disease injury have been given the most consideration, with quality secondary. This probably explains why they list the Kieffer pear which is about the hardiest and most disease resistant variety known—and of the poorest dessert quality.

Some people will, no doubt, wonder why so many standard commercial varieties are listed. It was mentioned above that many of the most desirable so far as quality goes are not generally available in the nurseries. Also, it must be pointed out that a fully ripened Elberta peach, freshly picked from the tree, is a prize worth having. On the other hand, few will recognize the M. B. Waite pear, a recent release of the U. S. Department of Agriculture, it is the most disease resistant variety of the Bartlett type yet introduced to the fruit grower.

Notes on Apple Varieties: Of the dessert type of apple varieties the following are susceptible to Apple scab, but are resistant to spray injury—Delicious, Stayman Winesap and McIntosh. The Jonathan is resistant to scab but susceptible to spray injury. Golden Delicious is very susceptible to Bitter rot in the humid regions of the south. Jonathan and Golden Delicious are troubled by the Cedar rust in those areas where the red cedar is abundant.

Apple trees cannot be depended upon to produce good crops of fruit unless there are two or more varieties present, i.e., they are not good self-pollinizers.

[1]Leaflet 218—The Home Fruit Garden in the East Central and Middle Atlantic States; Leaflet 219—The Home Fruit Garden in the Southeastern and Central Southern States; Leaflet 221—The Home Fruit Garden in the Central Southwestern States; Leaflet 222—The Home Fruit Garden in the Northern Great Plains, Northern Mountain, and Intermountain States, and Leaflet 224—The Home Fruit Garden in the Pacific Coast States and Arizona, U. S. Department of Agriculture, Washington, D. C.

Delicious, Jonathan and Golden Delicious may be depended upon to furnish pollen for other varieties.

The Golden Delicious is rated as of "very good" dessert quality, but it should be noted that unless picked at the proper season this is not quite true. If picked too early the fruit is leathery and the flavor poor. If picking is delayed too long the flesh is mushy and the flavor poor.

Many of the so-called color strains—improved coloring of established varieties are of primary value commercially because of their meeting color specifications in grading. During seasons of cloudy weather when fruit does not color well, this characteristic is of importance to the producer who can market his fruit as meeting the color requirements for the top grades—even though the fuit is lacking in maturity. For the home fruit gardener such varieties have little if any advantage.

Apples, to be of first quality, must be sprayed and protected from diseases and insects. Since, normally, they are large growing trees, the cost of the necessary equipment and the work involved discouraged many home gardeners from growing them. However, by growing the dwarf trees this difficulty is largely overcome since the same equipment used for spraying or dusting roses and shrubs may be satisfactorily employed to protect dwarf apples and pears.

Notes on Pear Varieties: Pears, like apples, are one of our most desirable fruit crops, but unlike apples we do not have as many high qaulity varieties to choose from. The Bartlett is considered the best of the dessert type, but it is susceptible to "Fire blight," for which there is no cure. It is unwise to plant the Bartlett except in the far west. The Seckel, a small summer "sugar" pear, is resistant to the disease. The M. B. Waite, recently released for commercial progagation, is the most disease resistant of the Bartlett type for growing in the middle belt. The Gorham, introduced by the Geneva Experiment Station, is reported to be resistant to the "Fire blight" in the northeastern States, but has not proved so in the middle Atlantic States.

Pears are one of the few fruits practically immune from injury by the Japanese beetle. The pear physlla, the cause of the stony or gritty spots in the ripe fruit which which greatly reduces the quality is caused by a plant louse. It may be controlled by spraying during the winter with a strong dormant spray, or in the earlier spring with a milder spray.

Pears require cross-pollination for good crops. The Kieffer is one of the best for this purpose but its fruit is lacking in quality.

Notes on Plum Varieties: Plums are a choice summer fruit. In the hot humid regions of the country, however, it is difficult to overcome the "Brown rot," a destructive disease. The Damson, a good plum for jelly making, seems to be immune to this trouble. The eating types, however, are more difficult to grow. Some plum varieties require cross-pollinization. The trees need protection from the borer, the same as peaches. Plums are one of our hardiest fruits.

Notes on Peach Varieties: The quality in peach varieties seems to depend to a large extent upon the degree of maturity at time of picking. The usual commercial varieties when allowed to ripen fully on the tree are of excellent quality. Peaches need protection from the "Brown rot" in the more humid regions, as well as from the Peach Tree borer.

Peaches are not as hardy as the above mentioned kinds, but breeding work in recent years has increased hardiness and it is now possible to

produce this fruit farther north than was possible a few years ago. They still suffer from winter injury to the fruit buds, so the home gardener should select varieties based upon his location.

Notes on Strawberry Varieties: As previously mentioned the everbearing varieties are most satisfactory in the northern states or at the higher elevations. Varieties vary as to winter hardiness and adaptability to soils and climate and this should be carefully checked with local information. Home quality fruit is very different from commercial quality and a search is justified, if necessary, to locate suitable high quality varieties adapted to local conditions.

While in some seasons there is not much interval between the fruiting season of the early, mid-season and late varieties, the home fruit grower will usually find it desirable to have varieties maturing at different times so as to prolong the harvest season as much as possible.

Notes on Grape Varieties: Grapes formerly were considered to be one of the most easily grown and satisfactory fruits for the small garden. With the advent of the Japanese beetle this is becoming less true. However, they still are well adapted to the small yard since they can be employed to cover trellises or trained to a fence or wall, thus taking up relatively little space.

In the east and middle west and the south, improved varieties of our native grapes are commonly grown, while in the far west and the Old World, the vinifera grapes are most important. Grape varieties are not adapted to all soils and climatic conditions and care should be exercised in selecting those best adapted to local conditions. The Concord is probably the most outstanding exception to this and is one of the most widely grown native varieties. In recent years some hybrids between the American and European types have been put on the market. But like other varieties they are of limited adaptability.

Notes on the Other Fruits: Apricots are hardy enough to grow in the East but their fruit buds open so early that in most years they are killed by late frosts, thus are seldom fruitful. Nectarines are more hardy in this respect. Raspberries are not adapted to very hot or dry weather. Blackberries can endure hot weather but not hot drying winds. Red raspberries are susceptible to serious virus diseases and should not be planted near black raspberries which carry it but are themselves not affected. Dewberries are more tender than either the raspberries or blackberries. Blackberries spread by underground stolons are difficult to keep under control in the small garden. Loganberries and Boysenberries are tender and need special winter care in the middle and northern States.

Currants and gooseberries do best in a cool climate, but can stand fairly warm summers if they have plenty of water. They should not be grown in white pine growing areas as they are an intermediate host of the white pine blister rust.

These brief notes should indicate the importance of using care in the selection of fruits and their varieties for the home garden. To make certain of having the most satisfactory ones which by the way are not always those that grow around the old homestead, consult local fruit growers, the County Agricultural Agent or get the leaflets mentioned.

A Book or Two

The Green Earth. Harold William Rickett. Jaques Cattell Press, Lancaster, 1944. 353 pages, illustrated. $3.50.

The subtitle of the book is "An Invitation to Botany" and down at the very bottom of the jacket one reads "one of the Humanizing Science Books" but doubtless Dr. Rickett was not responsible for that, nor for the blurbs within the jacket.

There is a great bulk of interesting material, told with considerable freedom in not too technical language; but it remains the sort of book that one either likes or dislikes, or perhaps one should say, is ready for or no longer needs. It is easy to believe that many will find it a new field of enjoyment and then move on to more solid stuff which Dr. Rickett can also provide, so that the main purpose of the book will have been accomplished.

The drawings are very good and in many instances are more pleasurable than the text.

Pathology in Forest Practice. Dow V. Baxter. John Wiley & Sons, Inc., New York, N. Y., 1944. 618 pages, illustrated. $5.50.

This is essentially a reference book for a clearly defined and well developed field. It is organized and illustrated carefully and there is a long index, as well as lists of reference materials after each chapter.

It does not come close to the field of readers of this journal, but those who have trees on their places might well have it and consult it as they watch their possessions wax or wane.

Wild Violets of North America. Viola Brainerd Baird. University of California Press, Berkeley and Los Angeles. 1942. 225 pages, illustrated. $10.00.

Although Mrs. Baird does not profess to be a botanist or an expert on the genus Viola, she has been long and intimately acquainted with many members of the group through association with her father's technical studies, which are still generally authoritative on Viola.

In Ezra Brainerd's bulletin on the Violets of North America, published in 1921 by the Vermont Agricultural Experiment Station, there were included some 25 excellent colored plates of various violets by the artist F. Schuyler Mathews. To have a complete series of plates by the same artist had been his unfulfilled wish and is probably the main reason for the present book, which for its 80 colored plates alone is well worth its price. For those species familiar to the reviewer the color reproduction is very good. Citations as to the exact source of the illustrated material enhances their value in such a variable group as Viola.

To those who wish to learn something of the culture of our native violets the book will be disappointing in that little can be learned about the various species' requirements beyond what can be inferred from the brief remarks as to habitat. Likewise, the botanist wishing to obtain up-to-date knowledge of the genus or its species will find little that is new in description and inadequate distributional data.

The edition is limited to one thousand copies and undoubtedly will become a collector's item. All students and lovers of violets should have it.

C. O. E.

Rock Garden Notes

ROBERT MONCURE, *Editor*

WAVES

Not Feminine nor Nautical—but Floral

VIOLET NILES WALKER

"Sweet are the uses of perversity"—Stupid, isn't it, to open an article with a foolish paraphrase. In those far-gone days when in school, we, of an older generation, were taught rock-bottom grammar and rhetoric, with accent on Prose Composition, it was impressed on us that such procedure implied (and doubtless with much truth) a lack of originality or possibly of gray brain matter. And yet, even facing such tradition, and with deep apologies to the Bard of Avon, this article, which has to do primarily with problems of rock gardening through the summer months in the Upper Middle South, is based on just such foolishness. For sheer perversity alone has been responsible for assembling these notes over many years of experiment.

It all began when, thirty-three years ago, I came to live permanently in Piedmont Virginia. Almost my first thought was to raise flowers, for early years of mild gardening of sorts spread between Virginia (both Tidewater and Northern), Philadelphia, New York, Lake George, and "way stations," had developed a passion for gardening; and at my new home the remains of a century old garden which had suffered almost total annihilation in the sixties, and had only partially been resuscitated, seemed a heaven-sent answer to prayer.

So a small beginning was made, modelled on a Lake George, New York, garden, and the first spring all went well. Favorite perennials were bought and annual seeds planted, and in May and June, even the first year's efforts were crowned with overpowering success. But by the first week in July a blank garden faced me—almost everything had bloomed out, and there was little left to make any show until the late fall anemones and chrysanthemums. True, there were dwindling crops from purchased delphinium plants (and most of these died the following winter), snapdragons, and some heliopsis went on, bedraggled, spider-infested phlox bloomed, but left yellowed, dead foliage, and there were a limited number of petunias, ageratum, marigolds and zinnias which had been planted rather apologetically, as first year fillers (for they weren't considered stylish, and stylish I must be!), together with some nasturtiums. Fortunately these last, purchased as dwarf varieties, turned out to be climbers, so many gaps of bare ground were mercifully and unexpectedly covered, but the general aspect of the garden was such as to move one to tears. All ground left bare baked to a hard yellow crust in the long heat spells, and watering to preserve the flowers only made for greater work in ceaseless cultivating (under a blazing sun) to maintain a dust mulch. As I studied the sad wreck in perplexity I thought of the great five to six feet clumps of delphiniums, long established spider-free white phlox, stout tiger lilies, etc., etc., which were the backbone of midsummer bloom in our tiny mountainside garden at Lake George.

To my amazement, I received no

sympathy, nor any helpful suggestion for this tragedy—only "I told you so," and the universal attitude that nothing else could be done through July and August under the Virginia sun and breezes.

That just didn't make sense to me, and as I listened to friends and relatives I wondered—then got mad, and from that time became a horticultural Bolshevik. "We couldn't have all summer bloom?" Oh, yes we could, and I'd find it—or what?

In those early days, modern transportation was in its birth-struggle. Motor roads were yet to be developed, and communities still lived within the limits of a horse and buggy trip, so there were none of the quick contacts which later make possible the interchange with outsiders, of gardening experiences, and ultimately led to the rise of the garden clubs. Sounds like the Dark Ages, doesn't it?

That this same search for all-season bloom was going on elsewhere in neighborhoods then seemingly remote, but later brought together by motors, did me no good. As a newcomer I was long ignorant of their very existence, and soon realized that only through study of horticultural literature and the slow, hard way of trial with many-to-be expected failures, could I hope to reach my goal, though I was never without the conviction that it could be attained. But alas, the next stumbling block was that there were no dependable American horticultural publications than even so much as hinted at the cultural problems of this erratic Virginia thing dignified with the name of climate and so aid must be sought further afield. So I turned to English books and magazines, and, after some trials, finally settled down regularly with Gardening Illustrated, and, from its first appearance, the New Flora and Silva. Later, becoming a Fellow of the Royal Horticultural Society, I found the Journal a mine of suggestive wealth, while about that time the South African Gardening Magazine dawned on my horizon.

All of this yielded amazing results, and the further study of English seed catalogues brought to me a wide range of material not to be found at that time among our American seedsmen, and so, in a few years my expanded garden with its carefully planned "Waves of bloom" presented a fairly creditable appearance through the so-called desert months.

Then came the inevitable. Who could resist the Rock Garden urge after unending study of the British Alpine Society publication, Gardening Illustrated, etc., etc.? Not I, for one, so a-rock-gardening I would go, willy-nilly. That there were no surrounding conditions that by the wildest stretch of the imagination could be in the last way suitable for a rock-garden wasn't of the slightest importance. The flower garden is a long narrow strip, stolen from and bordering on the old ten-acre steeply terraced vegetable garden. It lies at the top of the hill which rises two hundred feet from the river to the one hundred and fifty-eight year old residence built by James Madison, Sr., for his son William and which occupies part of the limited level ground of the ridge top. A road leading to the farm buildings at the rear of the house separates the garden territory from the house lawn with its bluegrass sheltered by age-old white oaks, poplars, cedars, a huge black gum, and a box hedge inside the paling fence which bound the garden side of this road in a gentle elliptical curve. The hill is of heavy (though rich) red clay, sophisticated and tamed in appearance—not the slightest vestige of anything even approaching a weathered surface rock, or the conditions that would produce one. Moreover, there is no water on the hill. A well, sunk almost a mile

from the house, in the different soil formation of the valley stretching away towards the Blue Ridge mountains, supplies the strongly iron-impregnated water which is pumped unceasingly for the school, farm, and garden needs.

But again perversity saved the day. A great five hundred year old white oak had died, just inside the box hedge. A summer house had been built over the space it had occupied overlooking the vegetable garden, the river valley, and the hills opposite. Black walnuts, ancient cedars, and other trees furnished a background and wind-break from north winds, with slight protection from the last rays of the summer sun, and in a moment of landscaping I had planted two *Salix babylonica* (sent over thirty years ago by Dr. Fairchild) at either side of the summer house.

To make a long story short, I developed the two small spaces on either side of this summer house, formed between the brick walk (which runs straight across the entire top of the garden) and the curving line of the tall box hedge screening off the road—about eighteen feet at the widest part, and tapering to meet the ends of the one hundred and seventeen foot brick walk. To emphasize the total unsuitability of the spot, let's sum up the disadvantages, together with such advantages as might be discovered with a fine tooth comb.

Disadvantages. First: Wrong soil—heavy clay, strongly alkaline, with heavier sticky sub-soil needing severe treatment for proper under-drainage. Second: No vestige of any rocky condition, and rocks must be brought from a distance and would probably never look natural. Third: No natural moisture—water must be pumped. Fourth: Location over the roots of thirsty willows and walnuts, drinking up any moisture. Fifth: All day exposure to intense summer sun and unfailing southern breezes. Sixth: Limited space; too close proximity to flower garden, and both boundaries "sophisticated."

Advantages: First and last—none—just a perverse determination to grow rock plants, and, if possible, alpines.

But built it was, faithfully done from foundation up, "according to Hoyle"—drainage, soil mixture, root runs between sunken rocks, etc., etc. And the less said of the outer manifestations of a rock garden the better. After years of attempting to age the barren rocks artificially with manure water, milk and soot, etc., they have toned down sufficiently not to cause a shudder at every glance, but they are still rather uncompromisingly ugly and I have reason to believe have furnished many a legitimate criticism.

Then, for some years there was a planting orgy from seeds to mature nursery plants. English nurserymen supplied the seeds entirely until, in 1926, I unexpectedly found that the Pacific Coast seeds were passing in quantity by my very doors, en route to England, and then returning to me in small packets. West Coast plants were located with difficulty in small nursery firms and almost nothing was left untried and Eastern natives just didn't seem to be noticed by "The Trade." When, looking back, I think of the dollars and cents representing the unfortunates that are buried among the deep root-runs beneath my willows and walnuts, I wonder at my own tenacity of purpose, for still I held on.

To go into details as to the materials that were handled would necessitate the printing of almost a complete Alpine catalogue, for a high ambition demanded unswerving (and, I fear, blind) devotion to the highest ideals of Alpine beauty and rarity. But after some years of effort and July still found me facing a tired Rock Garden where bloomed-out spring flowers were resting and acid-loving plants were going on hunger strikes, even to committing

suicide, almost over night there came a reaction and light dawned. A long-delayed soil analysis disclosed a total lack of acidity within the garden boundaries, and even carefully prepared acid pockets (again according to Hoyle) would leach out while my back was turned. Why not?—everything, including water, was alkaline. So I asked myself, why continue reaching for the moon? Why not paint my picture with materials that would be happy under my hot, dry, alkaline conditions? Surely, all the beauty and adaptability in the world weren't confined to the acid-demanding inhabitants of the verdureless Alpine peaks. And just as surely somewhere could be found material that would furnish a dependable succession of bloom throughout our many months of open growing weather —actually, February to December.

And a succession of some sort I must have, since the little experimental patch is an integral part of my small garden, and could not be allowed to be a waste for the months following the main early spring display, in spite of often met assertions that nothing more than spring display was to be expected of the rock garden.

So again exploring expeditions went forth and again, slowly but surely, there have been accumulated enough subjects to carry on a creditable showing through the lull following the spring tide, even in my pocket-handkerchief space that must accommodate experiments, "sleeping beauties" and present a good face at one and the same time.

The habit formed early in gardening days, of taking a weekly inventory of blooming materials, under three headings: "Coming into Bloom," "Full Bloom," and "Going out of Bloom," has been of untold value in establishing dependable data for planning the summer aspect of the rock patch and may be an asset rather than a liability.

The Waves Themselves

The greatest lull in the season (and there are several lulls) occurs from the middle of June to early July. What do the notebooks show over the years for this and ensuing periods? A truly amazing mixture, and though the list is not overwhelming, practically all quarters of the globe have contributed.

Obviously the first necessary step is to use some foliage plants that will provide fresh-looking spots while the various waves are gathering force and the earlier perennials and bulbs are resting before starting new growth.

The three best I have found are *Selaginella braunii, Corydalis thalictrifolia* (both from China), and *Begonia Evansiana* from Java and Southern China. Radically differing from each other in every respect, these three rarely beautiful plants furnish season-long interest, the last doubly so since a little later the graceful pink flowers bloom in profusion till October.

Selaginella Braunii, a greenhouse subject further north, is reliably hardy here; its brilliant yellowish-green, fern-like foliage is invaluable. Further south it grows to three or four feet but among my rocks it is a true dwarf of fifteen inches.

Corydalis thalictrifolia comes nearest to being the ideal all-season "must have" of which I know. Its virtues are manifold, length of season, beauty of form and color, adaptability to any conditions, indifference to weather extremes and sun or shade, hardy, free-seeding, but easy to control, and even invaluable for cutting — what more could be asked for! Yet, as far as I can discover, unknown to the bulk of gardeners to whom it should be indispensible. In summer dress its color is a soft pale glaucous green with exquisite brittle foliage. The winter dress of mature plants is a lovely pinkish-red tone. The small straw-colored flowers are borne at the tips of twelve- to fif-

teen-inch stems in a long succession, though their presence or absence are of little importance for the "plant is the thing."

Begonia Evansiana appears the middle of June and up to its blooming period a month later is as decorative as might be expected from its typical family characteristics. With the beauty of its red-veined and red-backed foliage and its drooping pink flowers, added to a hardy constitution (for it doesn't even insist on moisture, as generally claimed for it), and amazing pliability of reproduction, this hardy begonia becomes a No. 1 asset. It can be moved at any time of its existence and the tiny bulbils will produce blooming plants the following year.

Among dwarf materials we find the greatest dearth of bloom of the entire season. Barely half a dozen are available, some of which are going, others just starting. Notable among these latter, however, are the species verbenas which will give fine color for two months.

Verbena aubletia, or Canadense, native down the coast to Georgia, in its lovely salmon shade, is "tops."

V. erinoides, from Chile, is equally desirable in white or lavender.

V. bipinnatidifolia, from Western North America, has a most beautiful soft lavender flower and makes the same spreading mats as its cousins. Seeds or cuttings increase these. Volunteer seedlings show up late, but can be depended on to appear.

The only "safe" *Oxalis* is the shamrock-leaved Salmon Queen, and even though it leans a bit to over-abundant growth it is a steady, long-season bloomer of fine color and form.

One of the hardiest and (to me) best dwarf perennial fillers for the entire summer months starts now—*Heliotropium anchusaefolium* (or, as it was given to me, *cochranea*), with its spreading mats and typical (though scentless) heliotrope flowers one-fourth of an inch across in three parted clusters. Native to South America from Brazil to Argentina, it is perfectly hardy here, due, doubtless, to its amazing tap roots. Although it seeds almost too abundantly and can quickly fill that definition of a weed—"a flower out of place," its quiet beauty and indifference to drought and sun outweigh any other disadvantages. It shows up late in spring but makes up for lost time.

Nierembergia hippomanica, in both blue and purple is fairly dependable, though a few replacements should be raised early from seeds each year.

The little yellow trailing "baby zinnia," *Sanvitalia procumbens,* if raised early from seeds, is developing nice mats in the bare spots left from early bulbs such as *Eranthis hyemalis, Iris reticulata, Triteleia,* etc.

In the middle heights, eighteen to twenty-four inches, come my two earliest alliums—*A. validum,* in its white variety with flower-heads 2½ inches across, composed of many half-inch starry florets on 2 foot stems, with grey-green foliage — the other (nameless) a lower form with large round heads of lavender bloom on 15-inch stems, starts the latter part of *validum's* bloom. Each of these lasts over two weeks. *Heuchera,* beginning late April, and flowering vigorously until August, forms a pivotal base for interesting combinations at all time of its bloom. *H. sanguinea's* dwarf form and more brilliant coloring isn't as long-lived for me as the paler shade, 15-inch *H. Rosamonde.*

What I think is *Galium verum* is a lovely mass of fine feathery yellow bloom and foliage for about two weeks and a good cover at all times. Stands cutting back like the *subulata* phloxes.

Meconopsis integrifolia, the lovely yellow Chinese biennial poppy and the only meconopsis that has ever suc-

ceeded for me, begins in late May, continuing 'til late August. *Hunnemannia fumariaefolia,* closely resembling it, has the same blooming period. Though perennial, this only lasts a few years for me, but since it blooms the first year from seed sown where it is to grow, its loss is negligible.

Ruella ciliosa's fine lavender-blue funnels, though unexciting, are fresh and charming, and carry on from early June through August. It is easily moved in full flower.

Ornithogalum thyrsoides, even with comparatively short season (about two weeks) and not over-hardy in constitution, is too beautiful to overlook and since it blooms the second year from seeds (sometimes even the first, if sown indoors very early) it gives no more trouble than any other perennial.

Mentha citrata (bergamot) flourishes in half shade and its two to three-foot stalks of fragrant blue flowers carry on for weeks.

Then come the taller, background plants. Several of these are well-known and need only be mentioned for their place on the calendar. First are *Monarda didyma coccinea* and its lovely pink variety, *Monarda d.* var. *salmonea.* Then the two stunning *Adenophoras, Potanini* and *lilifolia,* first cousins to the pestiferous *Campanula rapunculoides* but finer, more beautiful, more amenable in their root systems, making fine clumps and giving several waves of bloom.

Clematis Addisonii holds the center of the stage from Mid-April 'til frost—nothing daunts it. Even as a crop of bloom begins to seed, and the decorative characteristic seed pods develop their coppery whorls, fresh flowers appear and if all seeds are removed, the entire plant fairly bursts into bloom. A dwarf bush clematis, the flower has the bell shape of the Viorna group. Opening a soft blackish red-purple, it lightens in full bloom to a soft Tyrian Pink, with cream color inside spreading to the recurving petal tips. The character of the plant is choice, growing three or four feet with rounded clasping leaves (grass green outer side, asphodel green beneath) and with graceful tiny tendrils which show a thwarted ambition to climb. This valuable clematis came to me from the Allegheny Mountains and, contrary to Alice Lounsberry who locates it by moist stream sides, it fairly revels in my hot, dry situation.

Two familiar white natives, from woods and stream-sides, contribute their bit to the background for at least two weeks: *Cimicifuga racemosa,* with its tall fuzzy "Fairy Candles," and the tall feathery Meadow Rue, *Thalictrum polygamum.* These flourish well under my demanding conditions.

But the regal lilies are the redeeming feature of this period. Years ago, inspired by Ernest Wilson's descriptions of the native home of his great discovery, this lily seemed to me to be the solution to a tough problem. I argued that if *Lilium regale* was a rock plant in China, why not here? Time has proved the wisdom of this reasoning, for the first few seedling bulbs, tried cautiously, have established themselves happily and their grandchildren, coming up carelessly among the crevices in the rocks, are appropriate in size and placing.

Then come the two formerly-dreaded, so-called, "bad months"—early July to mid-September, when normally, nothing is expected. Strange as it sounds, some of the choicest inhabitants of widely differing areas all over the world, bulbs, perennials, and annuals, contribute to a long wave of good color. Moreover, let it be noticed that, except for the frequent watering my conditions demand, with occasional weeding and snipping off of seed pods, the care at this time is as surely effortless as is found at any time in any garden work.

Few annuals are used but they are

indispensable. Volunteer seedlings of several, such as *Torenia Bailloni* and *T. fournieri* appear in late June and are pricked out from between the bricks of the walks for bloom from July 20th to September. *Sanvitalia procumbens,* as before mentioned, and *Incarvillea variabilis* are raised in early cold frames.

Incidentally, this last is one of the choicest annuals used, and with its wide open trumpets, 1½ inches across, in pastel shades, and its finely cut foliage it is a superlative filler for bare spots from Mid-July to September.

Among tall subjects, the native *Phlox paniculata* is the most important. Opening the first week in July, the masses of varying shades of lavender flowers can be kept blooming 'til late August, by preventing seeding. Although this phlox was dug from our moist, rich river banks, the change of diet affects it not one whit, and as background for masses of *Anemone hupehensis* (the fine, half-dwarf silvery lavender-pink Chinese anemone) it has no equal for fresh cool effects. It never suffers from blight.

About now *Begonia Evansiana* starts its all season flowering, while several alliums make definite groups of white, lavender, blue, and pink.

Two things about alliums: 1st, they are decidedly of prime value. Easy to raise, hardy, with good bloom in definite masses over long periods, they should be much more used. 2nd, they are little known, little advertised, and like the sedums, the 300-odd varieties are only casually alluded to as "the 300." While I have enough varieties to keep a succession from June to September, only five names have been furnished for all, nor am I at all certain these fit! But even without names, I couldn't live without them. Here they are:

A. validum, the white variety, and the dwarfish blue, above mentioned, blooming mid-June.

A. cernuum, ten inches, white drooping umbels of tiny flowerets. June, well into July.

A. pulchellum, one of my choicest and hardy, though difficult to hold, since the close resemblance of the foliage to wild garlic invites destruction by zealous weeders. Color, a choice Tyrian pink; in form differing from the *montanum* type, for the pointed bud-sheath splits open down the side, spilling out a cascade of tiny florets. Early July. Not listed in Bailey—doubtless because not in trade. My plants came from seeds collected in the Blue Ridge many years ago.

A. tibeticum, dwarf 8-10 inches, with small rounded heads of lavender-blue bloom in July. Again not listed, but plants were purchased under this name.

A. montanum (or senescens), to 18 inches. Medium-sized rounded heads, lavender blue. Late July.

A. tanguticum, blooming in late August into September. Invaluable.

Any time after mid-July *Zephyranthes candida* puts on its unflagging show, especially after a rain, and until September this dwarf extraordinarily amenable white amaryllid blooms in masses. Hardy, of rapid increase from seeds and bulb division, it can be moved at any time without affecting its bloom.

Two of the Iridaceae provide variety in form and bloom. *Belamcanda,* or *Pardanthus chinensis,* the perennial Blackberry Lily from China, naturalized on our roadsides, with small red-spotted orange flowers, blooms early; while the often annual *Iris dichotoma,* belonging to the same section, and with similar leaf and flower form, but the color, lavender spotted purple, blooms in August.

Scutellaria baicalensis, a true Alpine from Eastern Asia, with its lovely velvety blue skull-caps on 10-inch stems, blooms from July 10th for weeks, and if seeds of the dwarf annual, *Diascia berberae* are planted near it in May,

the exquisite little pink-horned blossoms provide a choice color combination.

Talinum teretifolium, an Eastern American perennial succulent, 8 inches tall, has small, clear, bright purple cup-shaped flowers, which open during midday. Hardy, long-lived, it prefers rocky, dry situations, and grown near gray-foliaged sedums will conciliate even the "magenta-hater." The annual *Talinum paniculatum,* or Coral Flower, grows to twenty inches and though less conspicuous in its bloom, the coral-colored beads of the seed pods, and the rich glossy foliage, together with its free seeding habits, make it a dependable late season filler.

Early July brings a fine group of natives—the misty white mass of an 18 to 24-inch *Galium, Lilium superbum, Clethra alnifolia,* and *Silene stellata,* joined a little later by the white clouds of *Euphorbia corollata.*

Joining the wave in late August comes *Tricyrtis hirta,* the toad lily from Japan, growing about 20 inches, with its curious yet charming white flowers spotted purple, blooming up the stems at the axil of every leaf and facing straight out. With it *Sternbergia lutea* from the Mediterranean, the yellow "autumn crocus," blooms till about September 15th.

About September 2nd one of the least known yet showiest and most desirable amaryllids suddenly bursts into bloom: *Habranthus pratensis,* which, from a well-established group, will give continuous bloom for at least three weeks; the nearest shade of the clusters of drooping flowers on 10-inch stems lies between Ridgway's carmine and spectrum red. *Habranthus* blooms without the leaves which, coming up later, persist all winter.

September 10th brings the old favorite, *Lycoris radiata,* for three weeks, and there are few lovelier sights than great clumps of this choice hardy amaryllid with a background of white starry native asters, though these latter must be held firmly in check, due to their spreading habits. In a large rock garden where there is room, aster climax can be truly the last ripple of the ebbing wave.

Sedums form an important part of the summer waves, from the choice annual pink *Sedum pulchellum* in May and June through many varieties, dwarf and semi-dwarf, to *S. sieboldii,* which, with the late crocuses, closes the season. Those persisting longest for me are: *acre, rupestre, album, sexangulare, kamschaticum, maximowiczii,* and, of course, *spectabile,* while *sarmentosum* is permitted, where convenient, to spread its overpowering masses. But remember, if bloom is expected of these, most should be fed, contrary to usual advice. When starved they are apt to remain foliage plants with a few scattered flowers.

Other more or less desirable subjects that will add midsummer color have been successfully tried over the years, but this foundation list of over 60 varieties is practically fool-proof, and moreover, none of the material used belongs to the generally-accepted herbaceous border type, so that the rock patch still maintains its individuality.

The Gardener's Pocketbook

The Mountain Cranberry, Red Over Green

Luscious red cranberries peeped through their foil of glossy green leaves. The mats covered many square yards of the meadow-like, open areas above high tide on the Cap à l'Original, Quebec, shore. Having seen the Mountain Cranberry before only on the alpine summits of New England, I was surprised to find it at sea level. Since, I have learned that it also grows in eastern Asia and from Alaska to Greenland and south to coastal Massachusetts.

Do not let the scientific name of this ericaceous shrub, *Vaccinium Vitis-Idaea* var. *minus,* frighten you. It simply means that our plant is a dwarf variety of the European Cowberry, *V. Vitis-Idaea.* The Mountain or Rock Cranberry is much more attractive than its trans-ocean relative. The leathery, evergreen leaves are small, about three-quarters of an inch long, and shiny. In June or July the pink or sometimes reddish, bell-shaped flowers make a lovely but not showy display. The brilliant red berries which follow are startling! They are nearly as large as those of cultivated cranberries, but even more amazing, rest on emerald carpets only four inches, or less, high. These berries are rather acid and bitter when eaten raw but have a delicious, unique tang when cooked.

Gardeners have begun to recognize the beauty and value of the Mountain Cranberry. In addition to its attractive summer foliage, flowers, and fruit, the leaves take on warm red tints in the Autumn. Small plants soon make solid mats because of their creeping, underground stems. In a lightly shaded place with a porous, acid soil high in humus few plants can surpass this dwarf cranberry as a groundcover.

WARREN C. WILSON.

The Green Spleenwort, Cliff Dweller

Sometimes high on the face of a shaded and mossy limestone cliff, sometimes within easy reach on a limy boulder, the delicate Green Spleenwort clings almost unnoticed. Its lovely pale green fronds droop gracefully in shady locations or stand more upright in less protected situations. They are soft in texture and have green stalks which are often brownish at the base. The fronds are rarely longer than six or seven inches.

Asplenium viride, the botanical name, readily translates into the common name, Green Spleenwort, *Viride* is the Latin for "green" and *Asplenium* the Greek for "without spleen." So we find the "Green" refers to the green stalks which, by the way, help distinglish it from many of its relatives and "Spleenwort" to its supposed medicinal properties in correcting troubles of the spleen.

Although I have seen this attractive little fern only in eastern Quebec on the Gaspé Peninsula, it is widely distributed. The Green Spleenwort is found in suitable habitats from Greenland and Newfoundland west to Alaska and south to Oregon, Colorado, and Vermont. It also grows in Europe and Asia. Many gardeners who have *Asplenium viride* consider it one of their choicer rock ferns. It usually grows

Warren C. Wilson

A mat of Vaccinium Vitis-Idaea in fruit, with white-flowered Potentilla tridentata and Empetrum nigrum, in fruit on right

well in a gritty, limy soil with a large proportion of leafmold. Of course, it requires light shade.

WARREN C. WILSON.

Cladrastis lutea (See page 175)

Although there is a very fair number of mature specimens of this tree in the public parks of Washington, it is not common, nor is it much used by amateurs in these parts. What lies behind this, cannot be guessed at the present time. And although these trees do flower more or less regularly, their years of maximum flowering are nearly always the occasion of exciting telephone calls "about that beautiful flowering tree in such and such a park."

The photograph that illustrates these notes was taken in 1939 but it might well have been taken in 1944, for this year the trees were just as laden with flowers. Since large trees with abundant blooming are not legion, particularly trees that flower conspicuously after the development of their foliage, such a tree as this is worthy of more attention than it gets.

It is a tree of interest to us in that it, like our tulip tree Liriodendron and our sassafras, has relatives in China, almost as isolated there as it is here.

There is a beautiful plate of *Cladrastic sinensis* in Curtis Botanical Magazine (t.9043) with a full sized inflorescence distinct in its pink flushed pea-shaped blossoms as compared to the white flowers of our own, but so arranged on that plate that one cannot tell whether or not they are somewhat drooping or if the panicle is somewhat erect. The writer knows of no specimens in this country and cannot

Warren C. Wilson [See page 171]

Asplenium viride, Green Spleenwort

guess if it would endure our extremes of cold and heat, but since it is reported from Western Hupeh and Szechuan, it might not be; to which the statement that "it was proved hardy in the South of England" lends some further doubt.

Other species of Cladrastis are mentioned in the cited text, but this note is chiefly to call attention to our own tree with its fine smooth, dull gray bark, its broad spreading crown when grown in the open, its clean pinnately compound leaves and its May-borne flowers.

Curiously enough, the writer does not recall having seen seed pods on the trees known to him, but such must certainly develop from the abundant flowering and the seeds might easily provide an easy and rapid method of increase.

Styrax japonica Sieb. & Zucc. (See page 177)

In July, 1933, the Magazine published Miss Guernsey's lovely photograph of *Styrax obassia* and spring after spring has gone by without securing a photograph of the much more commonly met subject of this note. The branches that were chosen are by no means the most robust nor the most heavily flowered that might have been cut.

There appear to be definite limits of cold hardiness for all the styrax species and Dr. Rehder lists Zone V as possible for this shrub, which seems perhaps a little optimistic and yet the original trees for the garden here, were bought on the advice of a Massachusetts friend who urged me as a Southerner to have this beautiful flowering tree.

The expression original trees was used because this is another plant, which once established will sow itself lavishly under its feet. The seedlings are easily killed, if one wishes, so this is not as troublesome as in some other cases.

Two things should be recalled by the gardener who is first trying this plant, one that it is very slow to leaf out in the spring and two, that it often winter-kills in part for a year or two before it settles down into its stride. This will pass, unless the site is really too far North or inland.

When the tree grows to maturity it forms a definite graceful trunk with broad rather flattish branches, not like but not unlike our flowering dogwood, which develop, branching on to finely twiggy branches. The foliage is abundant and varies somewhat in size, the largest leaves appearing on the long new annual growths.

As can be seen from the illustration, the flowers hang pendant from the branches, so a location in the garden where one can walk under the tree is to be recommended.

The flowers are shown natural size, but there is no way to suggest adequately the delightful perfume that floods the garden when the tree is in flower. Of the perfumes known to me, it most resembles that of the species *Rosa multiflora,* not that of its hybrids. It is, as suggested, a perfume that fills the air, here competing successfully with the unwelcome and invasive honeysuckle.

× *Philadelphus* "Bouquet Blanc" (See page 179)

Although it is quite possible that we shall never know with certainy the pedigree of the various beautiful Philadelphus varieties that have come from M. Lemoine, Mr. Rehder offers tentative positions in his Manual of Cultivated Trees and Shrubs and writes (p. 274). Also "Boquet blanc may be referred here, though the calyx is scarcely pubescent" and with this assigns it to the hybrid group of × *P. virginalis* Rehder.

Robert L. Taylor, USDA [*See page* 172]

Cladrastis lutea, Yellowwood

It is true that considering the gross characteristics of the plant do come closer to those of the Virginalis group, with the somewhat more vigorous growth and larger leaves, but in many ways it also suggests the varieties that Dr. Rehder groups as × *P. Lemonei* Lemoine, particularly in its tendency to form long heavily flowered branches, such as are indicated by the illustration, which shows a natural size portion of one such.

As to flowering, it comes to its peak here a little after *P. coronarius* L itself and yet before *P. grandiflorus* Willd. One hesitates to suggest a classification of its scent which is like that of *coronarius* though distinct.

Like all Philadelphus it is relatively tolerant of shade and is moderately tolerant of dryness. But like all mock-oranges, it is very responsive to good treatment, rewarding the grower with abundant flowering and demanding only occasional thinning of the old wood. It will make a shrub for the middle group, rather than either the foreground or background.

Washington, D. C.

From the Midwest Horticultural Society

Lonicera fragrantissima

This member of the honeysuckle group is not commonly grown here. It is a large shrub and may be used in shrub border or as foundation material against large flat walls. In general effect one is reminded of the tatarian honeysuckle but the branches are stouter and the leaves slightly larger and more rounded. While reputed to be evergreen, this species behaves here as a deciduous plant.

The flowers of this honeysuckle are about an inch in diameter, appear before the leaves and are fragrant. When they appear in early April they remind one of the smaller mock-oranges of the June season.

As a different shrub this can be used to replace the more common tatarian honeysuckle, or the large mock-oranges. Cultivation does not require any special considerations.

Salix caprea

Early spring always brings out the almost universal attraction of the pussywillow. In many cases these are gathered from wild and are catkins about two-thirds of an inch long. However, the ones that attract the most praise are the cultivated ones that may reach one and a half or two inches in catkin length. These chubby catkins may be either a clear white or may have a pink tinge underlying the outer white hairs.

These large cultivated pussywillows are forms of *Salix caprea*, the goat willow of Europe. In general appearance the plant is similar to our native pussywillow but somewhat larger throughout. The catkins are about fifty per cent larger, the leaves are about ten per cent larger and the stems and ultimate height about twenty per cent larger.

In places where the goat willow has been planted as a specimen it grows as an ascending treelet with a profusion of the catkins appearing at the tips of the branches. It is quite attractive and showy at that season of the year when all other shrubs are yet dormant.

Like most willows this species will grow in many situations but appreciates most a deep, moist soil and little or no shade. The white and the pinkish forms are available at nurseries.

Borders of ponds or streams naturally suggest willows and for early spring this is the best.

Physocarpus opulifolius nanus

The dwarf ninebark is one of the nice plants for low hedges in the mid-

Robert L. Taylor

[See page 174]

Styrax japonica, natural size

west. Lacking some of the better material of the eastern and southern regions the choice of small plants for hedging is rather limited. Many people are familiar with the common ninebark which is native to many places in this region. While it attains a height of ten feet with a spread of five or six its dwarf counterpart rarely reaches a height of three feet with a spread of about eighteen inches. The foliage of the ninebark is rather similar to that of the VanHoutte spiraea yet it has a heavier, glossier appearance. The flowers are in small flat-topped clusters and appear in late spring.

Although the ninebark is native to rich moist soil, and can stand partial shade, yet it will make satisfactory growth in most kinds of garden soil and in full exposure. As a trimmed hedge one or two feet in height it is excellent. As an untrimmed hedge it will attain two to three feet.

ELDRED E. GREEN.

Bamboos.

Although several members have written of their specific interest in this very interesting family of plants, it occurs to the editor that a note in the Magazine might bring to attention planting of the hardier species which would go far to completing our somewhat scattered reporting. In writing, notes are desired only for bamboos, and not for either "cane" referring to our native plants nor to the old Arundo donax, which is quite another matter and has its own claim to distinction. The data most desired are those which tell the range of hardiness.

Aralia spinosa.

This is the sort of tall shrub that one would scarcely think to order from a catalogue, and yet when the sultry last days of July settle down over the countryside this near-tree puts out its great inflorescences of creamy white flowers and takes on an almost exotic beauty. On closer inspection these may have only the structural perfection that is always the wonder of all flower forms, but who cares for such minutiae when the temperature is at 90° F.?

It has another time of beauty when its black, berrylike fruits cover the same inflorescences which have turned to crimson or reddish purple.

In planting the tere, one must recall that it makes bare, almost stark, single trunks covered with stout prickles, and also that it does sucker and send up its stems where one does not want them. One must remember also that it can well be planted in a mass of lower shrubs above which it rises majectically choosing, if one may, shrubs with a much finer foliage to give a contrast.

Purple foliage.

There was a time when colored foliage was not in style, but times have changed a little and one may now discreetly introduce colored foliage into a green mass and not be frowned upon.

There is a garden hereabouts, in which a common weed of old gardens, *Perilla frutescens,* has sown itself as a carpet under the earlier flowering shrubs. Its mass of dull red purple foliage, which appears as a chocolate purple in the shade, makes a striking variation, from the shadow colors that appear in the normal greenery.

Cornus Kousa var. *chinensis* (See page 181)

Although this particular form of flowering dogwood has had a rather good "press" as such things go, one does not come across it so often, perhaps because the splendor of the dogwood native to the eastern portions of our country has made it less of a need than elsewhere. The details of its introduction and its earlier notices will be left to a later issue. Its picture

Robert L. Taylor

[See page 174]

Philadelphus, Bouquet Blanc, natural size

appears here, chiefly to attract the attention of our readers.

It is planned to have shortly pictures of *Cornus florida* itself and if possible pictures of *Cornus Nuttallii* from the Pacific Coast, a plant that is more closely bound perhaps to the Japanese-Chinese species than to our Eastern form.

It will be appreciated if readers who grow *Cornus Kousa,* either in its typical form or in the Chinese form which is supposed to be the more beautiful, would send in a note for publication. Several appeals have been sent out for pictures and copy about *Cornus Nuttallii* but the Magazine will welcome notes.

For the moment, suffice it to say, that the Chinese tree is very much like our own Eastern dogwood, save that it flowers well after the leaves have developed, that the flowers stand well above the foliage, that they last long in bloom even longer than our own, and are followed by fruits of pinky white in which the seeds are buried. The tree in the garden here has not flowered enough as yet to show whether or not the fruit will be eaten with the eagerness that birds and squirrels show for our native sort, but one fears the worst, since everything a bird can eat seems to fall and flourish like the Biblical mustard seed. Perhaps, as happens with some of the magnolia fruits, its fruits will be eaten while still soft and succulent, so that a minimum germination will result. As yet, also, it has shown no special tendency either to color or not to color in the autumn.

Zinnias.

Among the several programs for 1945 is one of a general test of annuals. A candidate has already presented himself for a general study of petunias but the editor is looking for some one who would be willing to consider the general survey of all the zinnias listed in the chief catalogues and a faithful test of the material assembled.

With the exception of one or two species, the garden zinnia has been diversified by the creation of innumerable races and forms. It has not yet suffered the fate of the marigold, which is being evolved into forms that no longer resemble its original self, but the appearance of the Fantasy race, may only be the prelude to other innovations as remarkable in their way as the scabiosa-flowered form which is the other main variant.

The editor will be interested to hear from members who might be willing to help in this undertaking.

Nymphea, Midnight.

Among the tropical waterlilies which are having a first trial in the editor's garden is this very delightful hybrid from Mr. Pring, of the Missouri Botanical Garden. It will be recalled that in former issues of the Magazine a word has been said on the value of tropical waterlilies for the gardener who feels a slump from midsummer temperatures. Although the cost of the first root may seem large, the returns per plant are so generous that one reaps a large return on his investment, whether he keeps the root over winter and embarks on the somewhat more troublesome task of starting his plants the following spring.

It will be recalled also, that this is one of the hybrids from *Nymphaea colorata* an African species that had not figured in our garden forms before Mr. Pring's work.

Unlike its varieties of other lineage this plant is not so robust in its dimensions, so that one does not have to have so large a pool for growing it. Like them it is susceptible to heavy feeding and sends up a mass of beautiful leaves, which make the usual pattern on the surface of the water. Unlike them, it is more likely to have

Robert L. Taylor

[See page 178]

Cornus Kousa var. *chinensis*

more flowers in bloom at one time, so that there is a greater mass of color.

The flowers are not so large as those of well fed plants of the other sorts, but are not small.

This particular sort is a deep purple, a rich blue purple and appears to have all its stamens transformed into petaloids which are colored like the petals themselves. The only note of contrasting color comes from the surface of the ovary, and this is a clear bright yellow.

As in all the others there is a delightful scent, which pervades the garden in waves, and which seems to draw the particular attention of the Japanese beetles, which settle down in their ungainly fashion to the dull business of eating it to bits.

It is hoped that in some later issues we may have photographs and color notations of this and of the other newer sorts that are coming into their first flowering this season. Of these latter, as yet there have been good flowers only on Bagdad, Rio Rita, Persian Lilac and Isabel Pring.

Here again, notes would be welcomed from members, particularly those who have the advantage of longer growing season than we have here, where it is safe to plant tropicals only about June first.

Daffodils.

Since there seems to be no possibility for a new Daffodil Yearbook in the immediate future, it has been decided that we should start a section for the regular publication of notes on this flower which has had such excellent support from the Society. Your cooperation is urged as well as invited.

Koelreuteria paniculata.

Every year, specimens of this summer-flowering tree are brought in for identification, and yet the number of trees in the general neighborhood does not seem to increase materially. The only trees which grow near the garden are small although they have been there many years and it may be that this slow rate of growth is one of the features which is held against the tree.

Since flowering trees which are conspicuous in their flowering after the tree is clad in its full foliage, are not too numerous it would be interesting to know how far this particular species has been tried out in this country. Letters on this point will be welcomed.

It has the further advantage, over and above its huge panicels of strong yellow flowers, of producing fruits with papery bracts, forming a sort of three-sided lantern like body, and bearing within them the hard black seeds, which do germinate where they fall, as can be attested hereabout, since the seedlings, like all such, usually appear where they are least wanted and where they are particularly hard to get at for transplanting.

There are other species known here, but the only one of which I have seen specimens and these cut in seed, was *K. bipinnata.* The specimens gave no special indication of distinctions so that one need not regret its lack of cold hardiness. If however, in habit or in floriferousness it should excel, there would be one more reason to lament the long cold winter, with its variations that are more trying than a steady cold.

Liriodendron chinensis.

Notes would be particularly appreciated from any member who may be so fortunate as to have growing a plant of this Chinese cousin of the familiar tulip—or tulip-poplar tree of the eastern states. The few plants that have been seen have not survived the cold of the winters here, and as they are very hard to import, even at best, it may not be widely represented in this country.

The American Horticultural Society

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

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

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

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

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, 821 Washington Loan and Trust Building, Washington, D. C.