

The NATIONAL
HORTICULTURAL
MAGAZINE



APRIL 1927

The American Horticultural Society

A Union of The National Horticultural Society and The American Horticultural Society, at Washington, D. C. Devoted to the popularizing of all phases of Horticulture: Ornamental Gardening, including Landscape Gardening and Amateur Flower Gardening; Professional Flower Gardening or Floriculture; Vegetable Gardening; Fruit Growing and all activities allied with Horticulture.

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Water Lilies

BY L. HELEN FOWLER

For many thousands of years the water lilies and their sister plants have been of more than ordinary interest to mankind and have left their poetic influence upon our literature in many lands. From researches of scholars covering a long period of time, we find poetic references to the water-lily in Chinese literature as far back as the eleventh century. Both the nelumbium and the nymphaea are memorialized in the prose poems of the Hindus, with graceful and appreciative references to these plants written in the ancient Sanskrit. Conrad says, "Nelumbo is unquestionably the sacred plant of the Buddhists, the flower upon which the Buddha sits, the *padma* of the Hindu prayer."

Not only has our literature been made richer by these lovely plants but our architecture shows their influence as well. In ancient Egypt we find the Blue Lotus of the Nile (*Nymphaea caerulea*) carved on monuments and tombs, and much conventionalized, forming the motif of the capital of the Egyptian column as well. There is also an oft recurring frieze design based on the same flower. In Japan, too, the old as well as the

present day artists have utilized the lotus leaf in its different interesting stages of unrolling as the subject for their bronzes, while many of their lovely prints show temples surrounded by moats filled with lotus leaves and blossoms.

It is only recently, within the last fifty years, that there has been a decided awakening of interest in the subject of water gardening, the culture of nymphaeas and nelumbiums having been stimulated, it would seem, by the introduction of *Victoria regia* into England in 1849.

Several years later this horticultural wonder was exhibited in America and from that time on interest in aquatics slowly widened. The discovery that the Indian lotus (*Nelumbium speciosum*) commonly, but erroneously, called the Egyptian lotus was entirely hardy added a new note of practical value to those interested in water gardening. This came about in 1871, and the introduction of the wonderful hardy varieties of nymphaeas originated by M. Latour-Marliac from 1885-1890 gave water gardening another impetus. Since that time there has been a steady if rather lagging interest in aquatics

and to-day we find that pools are being added to gardens everywhere, while unsightly bogs and stagnant ponds are being fitted for the culture of these lovely plants.

The truth about water-lilies is that there is no flower that is easier to raise and none that equals it in purity, attractive form, delicacy of perfume and range of color.

There are two distinct classes of water-lily plants, those that are hardy, living out all winter, and those that are tender, which must be started and wintered in a greenhouse.

We will turn first to the hardy lily. Among these are included flowers of the most lovely coloring, ranging from the purest white to the darkest garnet red, with all of the charming hues between these two extremes, and one of the most interesting parts of my work in the planting of pools for private estates comes in choosing plants for definite color schemes. It is here that one can indulge his fancy, using the different combinations that can be made with these lovely flowers, from purest white, flesh color, shell pink, rose pink, bright rose, coral pink, carmine and the darkest of garnet red, in addition to which we have all the yellow tones from straw color, sulphur yellow, canary yellow, rosy vermilion and orange red.

Tracing these wonderful colors back to their sources we find that our yellows all go back to *Nymphaea Mexicana* (syn. *Nymphaea flava*), native of Florida and Mexico. The pinks have as one of their parents *Nymphaea odorata rosea*, the Cape Cod lily, while the red varieties get their color from the Swedish water lily, *Nymphaea alba rubra*.

All of these plants are distinctive in their growth, the shape of their blossoms, the coloring of their leaves, the time of opening, and the size of their blooms, ranging from the tiny *pygmaea*, from China, the size of a quarter, to the glorious white *Virginalis*, measuring ten inches from tip to tip. These hardy lilies, natives of China,

England, Sweden and America, all open early in the day and close about noon if the day is warm.

Now as to tender lilies. These again are divided into two classes, the day-blooming and the night-blooming. The day-blooming lilies in the tender group are natives of Africa, Mexico, India and Egypt.

Among them we have *gracilis*, from Mexico, pure white and as graceful as its name would indicate; *caerulea*, called the Blue Lotus of the Nile, white tinged with blue; *zanzibarensis*, the deepest royal purple from Africa, called the King of Water Lilies and well deserving the name; *zanzibarensis azurea* a lighter shade of blue and *zanzibarensis rosea* with flowers of different shades of rose. From these we have hybrids ranging through all the tones from purple to the palest of pale blues.

From *Nymphaea caerulea* with its long pointed bud with dark brown spots that mark the sepals in an interesting way, have been developed a number of hybrids with star-shaped flowers of shades of lovely blue. The most interesting of these and a commercial favorite is "Pennsylvania," originated at the University of Pennsylvania. This carries to a marked degree the beautiful chocolate brown splotches on the sepals of the flower as well as on the reverse of the leaf.

These flowers are large and stately, standing well above the water on stems six to ten inches in length, and one may get some idea of the size of the plant when one is told that a single plant covers a space of twenty-four square feet. Their flowers open rather later than those of the hardy lilies, but remain open until four o'clock in the afternoon.

The night-blooming lily is a native of the tropics, a plant differing entirely from any of our native water-lilies. They differ also from the tender day-bloomers as the flowers and the leaves are much larger and the whole plant much stronger in growth. The flowers are more gorgeous in appearance, too,



Photograph by Varela

Hardy Water Lilies

none of them having the star-shape of the day-bloomers as the petals are broader and more rounded at the apex. The flowers measure from eight to twelve inches across and begin to open at dusk, remaining open during the night and until about ten o'clock the next morning. They range in color from pure white to delicate pink, bright rose, deep purplish red, and a glowing crimson.

The night-blooming lilies include the most remarkable and largest water lily in the world, *Victoria regia*, named for Queen Victoria.

A native of South America, this wonderful plant at its best has leaves seven feet across and of a most peculiar form. They resemble nothing so much as a gigantic pan, the edges being turned up all around it about three inches in height. The reverse side of the leaf, the stem of the leaf and the flower as well, are covered with thorns nearly an inch long, necessitating extreme care in handling when the blossom is to be gathered. These thorns are nature's way of protecting

the plants from the numerous enemies incident to the tropics.

There is another, *Victoria cruziana* (*Trickeri*), much easier of cultivation, as it does not require so high a water temperature. Its leaves are somewhat smaller with the turned-up edge correspondingly deeper.

A single plant of the *Victoria regia* will cover a thirty-foot square in Washington and would be much larger in its native clime. The blossoms open at night and have a wonderful pineapple odor which pervades the air all about the pond. The blossom is as large as the largest lotus blossom, about fifteen inches across, creamy white on opening, pale pink the second night and dark red the third night. The Victorias, of course, are grown only for show and have no commercial value as cut flowers for home decoration.

Another most important addition to the water garden is furnished by the stately lotus.

They are quite different from the water-lily as they bear their flowers



Photograph by Varela

Tender Night-Blooming Water Lilies

on stalks rising three to seven feet out of the water. They have peculiar rhizomes which run with astonishing rapidity if properly treated. One fact to be kept in mind is that the roots should never be set out until settled warm weather as nelumbiums are tender until established but perfectly hardy afterwards.

The blossoms of the Indian lotus

are like gigantic tulips, rose color shading to cream at the base of the petals and with a heart of pure gold stamens like yellow fringe.

The leaves of the lotus are particularly worthy of mention as they may be as much as thirty inches across and are most gracefully borne on their tall stalks. In color they are a sort of gray green in decided contrast to that

of the water-lily leaves and are covered with a light bloom like a peach, so that water dropped upon them does not wet them but rolls about like mercury. If you should come into the water garden early some morning you might see the first rays of the sun transform the dew drops on the lotus leaves into a million glistening diamonds.

In planting nelumbiums one should remember that they are voracious feeders and must have plenty of rich soil to produce their queenly flowers.

They may be grown in half-hogsheads with about six inches of water above the soil, or they may be set in boxes to prevent too great spreading, and submerged in a pool where there is not more than six to nine inches of water over the soil. Never plant nelumbiums until the weather is settled and warm and be careful not to break the growing points.

The question of windbreaks and margins for our pools and water-gardens is an important one but is of course subject to wide diversity of arrangement according to individual taste. Any pool or basin, however, should be protected from high winds coming from the north and west. If one is not naturally so protected, it may be necessary to plant evergreens or shrubs to secure the needed shelter. Any of the close-growing evergreens, suitable for the locality in question, would serve as a good windbreak as well as making a "thing of beauty." If this is perhaps not feasible, a wall could be built to answer the purpose. Covered with graceful climbing things, it might furnish a splendid background for the garden.

Now as for margins, there are a number of sub-aquatics that will add height and grace to the lily pool. *Iris pseudacorus*, yellow, and *Iris versicolor*, blue, both grow with their feet directly in the water; the arrow-head, *Sagittaria sagittifolia*, with its white blossoms, and the pickerel weed, *Pontederia cordata*, with spikes of blue, are beautiful native plants. Besides

these, there are the well known forget-me-not, *Myosotis palustris*, and the graceful wild rice, *Zizania aquatica*. There are numberless others, particularly mallows and lobelias, but those mentioned are all hardy and do well both for natural and artificial pools, remembering always that they do well only in shallow water, in fact only with the roots submerged.

The artificial pool best suited for all conditions is one with water two feet deep, with sides slanting slightly outward at the top so that the formation of ice will not crack the concrete, using a depression in the bottom of the pool for boxes only in case one is planting *Victoria regia*.

Boxes for hardy lilies should have at least nine inches of water over the crown of the plant, and tender lilies should be somewhat deeper. The rhizome should be placed so that the crown of the plant just emerges from the soil.

Hardy lilies need to be reset not oftener than once in two years, while the tender ones must of course be reset each year.

The soil problem for nymphaeas and nelumbiums is identical, and in either case the number and quality of the flowers is in direct ratio to the quantity and richness of the soil provided for them. A mixture of good turfy loam well incorporated with an equal amount of well-rotted cow manure is by all means the best soil for water-lilies and lotus, but if cow manure is not available, sheep manure can be used, but more sparingly as it is much stronger. If muck from the bottom of a pond is available, it makes an excellent soil, especially if enriched with cow manure.

Among the enemies of the water lilies, the most frequent one will be found in the "Leaf Miner," a tiny worm, the larva of a small fly, *Chironomus modestus*, that eats unsightly channels between the two surfaces of the leaves, causing considerable damage if not checked. The best control method is the use of kerosene



Photograph by Buckingham

White Lotus

emulsion applied in a very fine spray in late afternoon, every day, until the damage is checked.

One has to contend sometimes with a fungous disease which attacks the leaves of the nymphaeas, particularly the tender varieties. In a small pool the best way to eradicate this is by plucking off all affected leaves and burning them. If the pool is too large for this method, a spray of a weak solution of Bordeaux Mixture, applied every other day as needed, will be found effective.

The last and worst enemy is the muskrat, which of course is common only in natural pools, where he makes short work of nelumbiums, being very fond of their roots, and always picking the most expensive nymphaeas among the water-lilies for his meal. He must be trapped or shot as he not only eats roots, but ruins the banks of natural ponds by making runways through them.

Now a word as to the method of planting aquatics.

Waterlilies are the easiest plants in the world to grow. If by any chance you have a natural pool, all that is needed in the case of a hardy lily is that the root or rhizome should be firmly pressed into the soil at the bottom, using stones if necessary to keep the plant in place until it is rooted.

In cement pools, the roots should be planted in boxes or tubs, and lowered into the pool, not forgetting to use rich soil and always adding about an inch of clean sand or gravel upon the top of the soil to prevent the discoloration of the water.

Some kind of fish are necessary to the welfare of the lily pool, be it large or small, else your neighbors may accuse you of raising mosquitoes for their benefit. Gold fish are the most useful kind, being quite ornamental as well as useful. The feeding of the goldfish is a daily ritual in Japan and may be made so here. However, the common minnow serves as well the purpose of destroying larvae of the mosquito, if goldfish are not desired.

The early spring, when the peach trees are in bloom, is the best time to set out the hardy water lilies, and the plants set in the spring will give very satisfactory bloom the first season. Hardy lilies will bloom in six weeks after planting. It is quite feasible, however, to plant as late as the middle of August if you are willing to wait till the following year for results.

The tropical or tender lilies should not be planted until it would be safe to plant out such tender plants as coleus.

After planting, the plants need a minimum of care, requiring only a good supply of water and direct sunshine. Then all one needs to do is to pick the dead leaves from the plants, control any insect pests, and admire the blooms as they come.

Now just a few don'ts: Don't overplant your pool. Most people want the pool full to overflowing from the start, not allowing for the natural increase in the size of their plants. Besides this, it is just as much a mistake to crowd a pool too closely as to crowd a vase of flowers. Always allow the water to show between your plants. Don't plant in the shade. The plants will not blossom, as they must have at least partial sunshine and full sunshine is better still. Don't try to grow them in cold water. A charming fountain introducing ice cold water into a pool has killed more lilies than any one other thing. Again, if you are an amateur, don't start with tropical effects; try the hardy plants first. Don't buy the cheaper varieties; get the best and you will find that you have made no mistake.

The following list of varieties best

sued for all purposes may not be out of place:

HARDY NYMPHEAS.

Albida (white)
Attraction (red)
Chromatella (yellow)
Escarboucle (vermilion red)
Eugenia de Land (rose pink)
Gladstone (white)
Gloriosa (red)
Helen Fowler (bright rose)
Lucida (orange)
Marliacea rosea (pink)
Mrs. Richmond (violet rose)
Paul Hariot (apricot)
Richardsoni (very double white)
Robinsoni (orange red)
Rose Arey (coral pink)
W. B. Shaw (rose pink)
Wm. Doogue (shell pink)
Wm. Falconer (garnet red)

TENDER NYMPHEAS:

Day Bloomers:

August Koch (lavender blue)
Mrs. C. W. Ward (lavender pink)
Mrs. Pring (white)
Panama-Pacific (reddish purple)
Pennsylvania (bright blue)
Zanzibarensis azurea (light blue)

Night Bloomers:

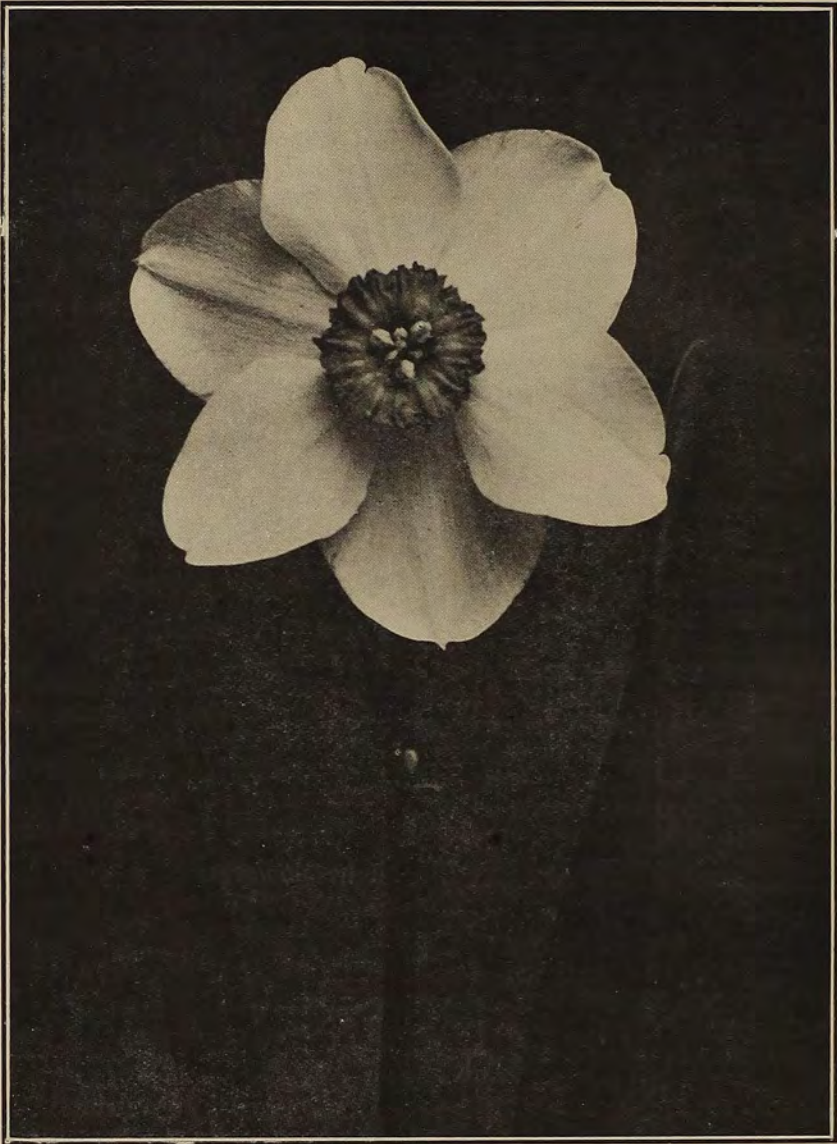
Bisseti (deep pink)
Dentata magnifica (white)
Devoniensis (rosy red)
Frank Trelease (dark red)
Kewensis (light pink)
Rubra rosea (carmine)

NELUMBIUMS:

Album grandiflorum (white)
Pekinensis rubrum (rosy carmine)
Speciosum (rose)
Striatum (cream touched with red)

If a large, rapid growing bush of unusual beauty and character is desired *Lonicera Maacki podocarpa* will prove a glad surprise. It has two seasons of beauty, spring with its white flowers lining the spreading branches

and in the fall when it is covered with scarlet berries. The foliage is persistent and attractive until late fall. It will need plenty of room as it speedily attains both height and spread. It is not particular as to soil.



Courtesy, The Midland Daffodil Society

Narcissus, Grand Opera

On Breeding Daffodils

BY F. HERBERT CHAPMAN

It was nearly a quarter of a century ago that I made a start to cross-breed the daffodils and of course, like a good many others, I began in an amateurish

way, just crossing anything that I could lay my hands upon, and picking up experience as I went along. My work has not been confined to any

particular section. I have raised a fair number of seedlings among them all, but I confess to a special love for the poeticus and small cups, and I may claim, I think, to have made a marked advance with these. This would have been realized if you might have seen the flower I called "Grand Opera," with which I gained first prize in the Single Bloom Poeticus Class at the Birmingham Daffodil Show in 1923. It marked a great step forward and was considered by most people to be the finest "poet" to be exhibited up to then. The little stock of it has since then passed out of my hands, but I have others coming along of the same and similar breeds.

Though the noble and elegant modern race of trumpet daffodils, of which King Alfred was the forerunner, will never lack its host of admirers, I still consider the Parvi-coronati Group to be of more use as vase-flowers and for general decorative work, for which the trumpets are rather too bold and imposing. I like to see a big vase of the fine trumpets placed at a corner of a majestic staircase or in the hall of a large house, but for my own little table or mantelpiece I enjoy more the beauty of the Barriis and "poets," with their graceful, dainty form and warm coloring, which I never tire of enjoying and "gloating over" as a friend put it.

Apropos of coloring, each year seems to show something fresh. Careful examination of the novelties at the shows reveals this and I frequently hear critics saying "There, I don't think I've ever seen a bit of color quite like that before." Some of these new colors are a little difficult to describe accurately, and I do not know a better authority on the subject than my old friend, Mr. Guy Wilson, of Broughshane, Ireland, who thus described an unnamed seedling which I exhibited, among others, at last year's London Daffodil Show: "Perianth white, the cup cream, with

a band of coral surmounted by a distinct frill of cream, this again faintly tipped with coral." There is surely something delectable about this description which should whet the appetite of any seeker after daffodil novelties.

At the same Birmingham Show at which "Grand Opera" figures, I also showed "Dinkie," of my own raising. This is a Barrii, and the coloring was said to be unlike any flower previously exhibited, the whole flower being a uniform greenish-yellow, with just a very narrow, clear cut red rim to the cup. It attracted a lot of attention and was adjudged an easy first in the Single Bloom Yellow Perianth Barrii Class. The entire stock of Dinkie, like Grand Opera, has gone into the possession of others, such being the exigencies of making a living!

It is a very pleasant sign to me to find that Americans are beginning to take a keen interest in daffodils and their development, and the progress of seedling raising in America will be watched with the keenest interest in this country, not for a moment from any spirit of jealousy but from pure interest and with a view to the possible friendly rivalry it may promote in the future. I hope that a number of our trans-Atlantic friends will take up the absorbing pastime of daffodil breeding. Let it be remembered with regard to this work, there is no end in sight. With sweet peas and certain other subjects, a time may come when the raiser can see no prospect of getting much further advance, but with daffodils it is different. The sections, varying as they do, in shape, size, color, and habit, and their many combinations show possibilities in interbreeding which are almost infinite in their extent and fascination.

*Rotherside Gardens, Rye, England,
January, 1927.*

The Botanic Garden of Harvard University

BY STEPHEN F. HAMBLIN

The oldest botanic garden now existing in this country is that of Harvard University. It was begun in 1805 by public subscription; the land was purchased in 1807 and the first planting was done in 1810. The purpose of this new department is thus stated in the old records:

"To found a Botanic Garden on the grounds that shall be provided for that purpose, which shall contain all the plants that may be procured, and may be capable of preservation therein, including all the indigenous plants of the country, foreign plants which have been or may be naturalized here, and all other exotics whatever, useful for the purposes of this institution. And the Professor shall superintend the Botanic Garden and the preservation and growth of the plants therein, subject to such rules and regulations as may, from time to time, be prescribed by the Visitors."

At first a fee was charged for visitors, except members of the University and ministers, but no fee was required after the coming of Asa Gray. The grounds are open every day of the year to visitors and the working staff tries to answer all questions. For many years plants were sold to increase the income, but this stopped about 1850.

Many eminent scientists were in charge of this garden in its early years.

1807-1822, William Danridge Peck (botanist).

1825-1833, Thomas Nuttall (botanist and ornithologist).

1834-1842, Thaddeus W. Harris (entomologist).

1842-1872, Asa Gray (botanist).

Much of their work and writing is associated with their years at the Garden. A century ago this place was the focus of the study of the biological sciences, the center of the new labora-

tory method of teaching science, and later the field of the class study of life in the summer months, from which grew directly the idea of Summer School.

About the time of the death of Asa Gray the functions of the Garden began to be separated into other departments, as the Gray Herbarium and the two museums of botany. The culture of hardy woody plants was transferred to the Arnold Arboretum, and the teaching and research in turn became physically distinct. Thus little work was left for the Garden, and since about 1880 the interest in this department has slowly declined, in spite of the labors of its friends and the directors. At length the area became in effect a small public park of unusual plants, and its service to the University was mostly in producing the materials needed for the laboratory in the courses in botany.

With the sudden rise in the cost of materials and labor, the normal income, which even in the days of Asa Gray was too small to carry on the work, was now wholly insufficient to keep the Garden in condition for public inspection. At length a new committee was appointed to consider the future of the Garden. There was no question but that the Garden must be continued, the problem was to raise funds to make it presentable to the public and useful to the University and the world of science. Without changing any existing activity it was proposed to attempt to grow all the herbaceous plants of possible hardiness in this soil and climate, thus supplementing the large collection of hardy woody plants of the Arnold Arboretum. Then there will be in the care of the University a plant of every known species that can be grown in this climate, with such tender plants as can

be placed in the greenhouses of the Garden.

The area of the Garden is about 7 acres, and much of this surface is taken by buildings, walks, lawns and other uses not suited to planting. There is room, however, to grow a surprising number of plants. The greenhouses are divided into 14 sections, from stove and tropical house to unheated pit for alpine. Over 3,000 species are already labelled, and the probable limit of space is 5,000 species. This will include all the tender species in the American trade and most of those native to this continent. None of the usual florists' stock is grown, but only species of interest in botany or horticulture.

In the beds outdoors there are about 10,000 hardy species of herbs, including all the species in common cultivation, and many which are unknown in the trade. This is already the largest collection of hardy herbs in this country, and increasing as fast as the equipment allows. Preference is given to American species, and the gathering of these will take the collaboration of friends and collectors from all States for many years. Species from the northern part of the Orient are greatly desired, as these are hardy and useful, while the plants of Europe are obtainable as exchange with the botanic gardens abroad.

Though arranged in botanic sequence (Engler & Prantl), each group is staged for the best pictorial effect possible, with the species most alike nearest together. Though space is left for the extension of each genus the time is soon coming when the beds will be entirely filled. Such enormous groups as Iris, Primula, Pentstemon, Saxifraga, Potentilla, Campanula, Aster, Solidago, Delphinium, Dianthus, Veronica and Viola, of varying cultural requirements, will tax the present equipment to display them properly. The plants outdoors have not been labelled, but the work is begun of putting a stamped aluminum label before each species and variety, giving scien-

tific and common name and habitat. Besides the "order" of the families there are several special areas of great interest—a rock garden, bog garden, rose garden, garden of annuals, hardy border, and the separate beds for Ferns, Violets, Primroses, Lilies and other special groups, all of the areas small, but containing many unusual forms.

A careful office record is kept of each accession, in card index, plan of each bed, and check list of the species. These records will be of great value whenever publication of information becomes possible. No field data has yet been taken of the plants here, nor photographs, as there has been no office force developed. Seed of unusual plants is gathered and a present service is exchange of seed with other gardens abroad and in this country. The demand in Europe for seeds of American species is very great, and the sources for this seed are few.

It is hoped that work can be done in breeding and improving some of the groups of garden plants. A start has been made with Papaver, Campanula, Hemerocallis and Rose, but the time and equipment are as yet too limited to accomplish much of value. The large groups of named varieties, as in Phlox, Narcissus, Tulip, Astilbe, Dianthus and Viola, which are not under the care of a special society, and other groups in which named sorts are just appearing, should be grown in full measure and the duplicates and poor varieties indicated. At present nothing is being done toward this great need of American horticulture. The special societies, as Iris, Rose and Chrysanthemum, are already cooperating, and display gardens are being arranged for the taking of definite data; while Gladiolus, Peony and others are on the waiting list, for, alas, there is neither room, equipment nor funds as yet to meet the needs of these additions.

Finally, this Garden is a northern unit of what one day will be a series of testing areas and breeding centers covering all the sections of our country, cooperating, collaborating, probably

with a central station in the District of Columbia, and if possible under Federal jurisdiction, but with the impulse of the organizations of American horticulture directing it. Then indeed will this craft in America begin to come into its sphere of service.

As a part of the obligation of service in horticulture, for what it has accomplished in the generations passed, and

what may be done in the near future, the Botanic Garden of Harvard University asks the support of every member of garden organizations in the work it has set before it, in the financial support of this, if possible, but also in the gathering and exchange of seeds and plants first from our own country, and then from all parts of the earth.

Irises and Their Use

BY GRACE STURTEVANT

In comparing the gardens of to-day with those of fifty years ago my impression is one of wide changes in garden fashions rather than in changes of garden material. To be sure, Reginald Farrer, E. H. Wilson and other collectors have added plants from the far corners of the world, but probably no more in number than we owe to their brethren of the early nineteenth century. Then too there is an astounding increase in the numbers of horticultural varieties the result of the discovery of new species which, in the hands of the hybridists, have given new and unexpected results due to the suppression or emergence of old characters in endless combinations. Our present lists of gladiolus, irises, or peonies, however, but take the place of the hundreds of dahlias, breeders' tulips, or Scotch roses that were of interest to our forefathers.

Although irises from seed are mentioned by Carolus Clusius in 1601 and though the first records were published in 1833 by E. von Berg, it was the gradual dissemination of the new species collected by Sir Michael Foster in the eighties and nineties that gave rise to the ever-increasing flow of our present-day irises. This interest is waxing higher as evinced by the hundreds of registrations recorded by The American Iris Society and by the number of growers who specialize. Naturally the iris is becoming more of a factor in gardens and plantings of all sorts and you can now find species or

varieties not only for the perennial border but for lawn and foundation plantings, for spring gardens, for wild gardens and even for the rock-gardens and moraines. Seen in their proper setting all are interesting and almost all are beautiful.

Leaving the subject of named varieties to the specialist and collector, let us consider some of the points that fit various species for specific, and often most delightful, use for the amateur gardener.

All irises like sunshine and good drainage; the bearded irises like lime and are not particular as to soil; the Japanese irises do NOT like lime and need to be well fed from the time that growth begins until the flowering season is over. In any case, good preparation of the beds means success, for you will probably not remake them for years.

For Lawn Planting: The quality of the individual plant or flower is unimportant but the size of the mass and its even, light color is all important. A mixture or a block of dark tone is distinctly ineffective.

For Foundation Planting: Although I much prefer low masses of evergreens mingled with berried shrubs against the house walls, irises can be used on the small place on any side of the house that has sun for a part of the day. They endure the drip from the eaves or the lack of rain due to overhanging eaves better than most perennials and their season can be stretched by a

careful choice of varieties. Set them a foot and a half or two feet from the wall and consider both the color of the house and the foliage value of the clump after flowering in making your selections.

For the red house, whether painted or of brick, I prefer whites and the lightest of yellows; perhaps Florentina, Ingeborg, and Golden Fleece or Soledad for the intermediates, to be followed by the white of White Knight or Fennella, the cream of Flavescens or Shekinah, or just possibly the palest blue of Corrida or the still new Souvenir de Loetitia Michaud. Strong yellows are apt to be a bit striking, and unless the red has some blue in it even the glorious lavender of pallida Dalmatica is a bit out. For the yellow house lavenders and purples and whites are of course most suitable and the choice is without end. Prince Victor, Germanica, Bluet, Juniata, Joya, Dalmatica, and the new Autumn King would give variety of both height and season. Almost any simple combination of varieties looks well against white, but as almost all foundation plantings are seen across a bit of lawn I should not introduce too great a medley of colors.

Occasionally there are opportunities for a special iris garden or picture, and in that period of time between the flowering of the late cottage tulips and the peonies there is nothing that will give such a mass of purple or yellow as the irises. There you may find many shades of every color except scarlet and also many soft atmospheric tints that harmonize,—though the ancient Greeks had reason for naming the messenger of the gods after the rainbow, here in New England the clouds at sunrise and sunset match the iris colors even more perfectly. In height you may choose from the tiny pumila varieties for the front of the border to a five-foot giant for the back. Then there are the Siberian irises whose small butterfly-like blossoms top tall slender stems that rise from a thick fountain-like mass of narrow yellow-green

leaves. We used to have only purple and white forms, but several of the new Asiatic species have yellow flowers and among the hybrids are some very blue, rose-pink, or dark velvety purple examples. The garden value of the foliage of these "Siberian" irises should not be overlooked, as both in color and habit of growth it is most distinct from that of the pogoniris. Then, too, there are the food-requiring Japanese irises and the stiff leaved spurias for later bloom and, if you are fortunate in your location, the bulbous irises, the Spanish, English, and particularly the Dutch irises.

Of these last I can recommend none from personal experience, but among the beardless be sure to include Perry's Blue, Emperor, Red Emperor, Snow Queen, Dorothea K. Williamson and at least one of the newer hybrids, Caesar, Sunnybrook, Skylark, or Mrs. Perry.

These, by the way, lend themselves to naturalizing almost as well as our native flags or the English *I. Pseudacorus*, which makes great strong clumps of five-foot dark green leaves.

For the rock-garden there are many difficult iris subjects and fortunately a few easy and delightful miniatures. *I. cristata* likes afternoon shade and spreads over a gravelly slope along a wooded path into a sheet of lavender blue that is just the color of a variety of phlox divaricata. I sometimes think that the visitors to the Glen Road Iris Gardens get more of a thrill from this than they begin to do from my choicest seedlings. The white variety of *I. cristata* is quite a rarity but I like the colored ones best myself. *I. graminea* is another easy treasure and deliciously fragrant. Wee *I. verna*, of clearest blue with just a touch of orange, is not quite so easy, while *I. gracilipes*, the tiniest, daintiest iris of all, every one should grow. The lilac tinted blossoms are flat with very short standards, the leaves grassy, and as a pot plant or in clumps or drifts in the rock-garden it is equally lovely.

Problems of the Amateur Dahlia Grower

By EDNA M. REINOHLE

The dahlia has taken first place among the flowers in our gardens today, and rightly so. It gives us the greatest variety of blooms, sending forth its gorgeous flowers from early summer until killing frost. Failure of the amateur, in most instances, can be traced to his ignorance of practices and rules of the successful grower, and it is to him, and to the beginner, that the writer will direct her efforts, hoping to solve some of the problems that confront them.

INSPECTION OF ROOTS

Inspection from time to time of the dahlia roots that are being carried over the winter is strongly recommended. Decay from any cause, such as dampness, injuries at digging time, rotting foliage left on the clump when packed away, destroy the roots. If decay spots or rotten tubers are found, cut away all spoiled portions, sprinkle cut surfaces with lime or sulphur and re-pack.

In looking over the dahlia roots the grower will probably find numerous shoots. Cut these off to within a quarter of an inch of the stalk. This will result in a more vigorous second growth.

DIVISION OF ROOTS

There is probably nothing so difficult for the amateur to learn as dividing the roots, which should be done just prior to planting time. In separating the clump it is to be remembered that the eye in the crown end of the tuber's neck be not only uninjured but that a small piece of the main stalk be cut off with it. One root to an eye is all that is needed, but when two roots are joined with only one eye, both roots can be preserved and planted as one. In dividing the roots first tap the hard woody stem and get off as much dried earth as possible.

The tools that will be most helpful for separating roots are a strong pen knife, hatchet, mallet, butcher's fine-tooth saw, and chisel. A block of wood about 6" square is indispensable. The actual division can be made on the block. A support for an edge of the clump is afforded by the angles of the block and prevents smashing of roots and breaking of necks, which usually result if the clump is laid on a flat surface and receives the force of the cutting tool. The stem is laid on the block and chopped off with one blow of a hatchet as close to the tubers as seems safe. Cut off the dried top but leave all of the green stem. If the stems are very heavy the saw will prove helpful. Sometimes the chisel can be used to split vertically downwards, supporting the clump on some part of the block, thus preventing damage to the individual tuber. In this way a V-shaped portion of the stem can be removed with the tubers, allowing a generous portion of the stem with each crown neck-end, insuring an undamaged eye from which a fine sprout can start. The crown must always have some surrounding tissue detached with it. The underground buds of the dahlia are located upon the crown of the roots. The crowns are small enlargements of the neck of the tuber where the neck or stem is joined to the main stalk of the plant. When clumps are divided a portion of the central stem of the clump must be left attached to the neck end. If no shoots have appeared by the time the roots are ready for separation, sprinkle the roots with water, or put them in moist earth, moss or sand. Sprouts will soon appear and prove very helpful to determine where the division cuts should be made. However, all sprouts are cut off to within a half inch of the stalk and can be reserved for propagation purposes. (See paragraph under Propagation.)

PLANTING OF ROOTS

Plow or spade the soil to a depth of seven inches at least in preparation for planting. In laying the roots only one root is set to a place. The tuber is planted on its side, flat, sprout uppermost, six inches deep in deeply plowed or spaded soil not too rich. A good method is to set the tuber, cover with about two inches of soil, add a handful of bone meal or compost and cover further to a depth of two inches. As the plant grows, fill in until the root is protected with at least six inches of soil. In the vicinity of Washington planting time is from the middle of May until the middle of June. If the soil is sufficiently rich do not add the fertilizer at first, as an excessive amount of fertilizer tends to produce a too luxurious growth of foliage. Bone meal is by far the safest and best fertilizer, insuring success, and is not harmful in any way. An application of lime will not only be helpful but necessary to the average soil, applied every three years. Dahlia results depend a great deal upon the soil. A clay soil requires coarser manure and more lime. Some growers lighten the clay soil by the use of coal ashes and with apparent success. As the dahlia will not thrive with wet feet, the ideal growing condition would be a deep loamy, friable soil that retains generous portions of the rains but with good drainage. Every grower should have a compost heap, which is unexcelled for all flowers. Before planting the roots set a strong stake in the hole and place the root about two inches from this with the sprout end towards the stake. On the top of the stake can be attached a strong wooden tag showing the name of the dahlia. An ideal location for dahlias is open ground where sun and air can penetrate to the plant, which should be planted not less than three feet each way.

CULTIVATION OF THE DAHLIA

Cultivation is the secret of successful dahlia growing and is comparatively

simple. It is to be borne in mind that the surface of the soil must be kept free from weeds and by a four-inch deep stirring with a hoe or cultivator drying out is prevented until blooming time, when cultivation should never exceed two inches, because the feeding roots are now near the surface. After buds begin to appear a weekly top dressing of a good fertilizer, preferably bone meal, can be applied to insure larger blooms. It usually takes about 21 days from the time the root is planted until the first shoots appear. Keep the soil surface stirred with a rake, killing the weed seedlings. Never let a weed get a start and keep the surface finely pulverized. In case of a drought give the plants a soaking to a depth of one foot once a week. Shallow watering of the garden will do more harm than good. Disbudding and pinching back are parts of cultivation. To insure larger and better blooms this must be done. When two or three sets of leaves have formed, pinch out the terminal leaf bud. If one would wish each plant to be the best, allow but one plant or stalk to a place. Usually flower buds are produced in groups of three and almost always the central bud is the best. Wait until the buds are the size of a pea before disbudding. Shoots that start from the branches in the axils of the leaves should be pinched out.

DIGGING AND STORAGE OF ROOTS

Some amateurs are in doubt as to the best time to dig the dahlia clumps. Like most root crops dahlias should not be dug until they have fully matured. This curing process takes about seven days after the frost has killed the foliage. In some localities a killing frost might be delayed until the end of November and be so severe that unless a root has been planted deep enough the crown is injured. This is the reason for a 6" planting.

In digging the clumps choose a fair day and if there has been a rain wait two days before starting your work. Experience has taught many growers

it is better to dig the clumps before cutting off the stock, as it gives one a better purchase on the bush when lifting it out of the ground. Probably a spading fork is the best tool to use for this purpose and the greatest care must be exercised at this time as necks are very easily broken. A broken neck is valueless and should be discarded. With pruning shears cut down the plants, after they have been lifted, allowing only about three or four inches of the stalk to remain and invert the clump, stalk end downward, so that any moisture in the stalk will drain. In lifting the clumps have enough earth between the tubers to prevent neck breaking. It is not necessary to remove much of the soil before storing in the cellar; a slight jar will remove all the dirt necessary.

Many varieties of dahlias are difficult to carry through the winter though every precaution is taken to insure a plump, healthy tuber at planting time. This fall when digging the more delicate roots allow most of the earth to remain around them and it is more than likely that the shriveling will not take place.

Before storing the roots every care should be taken to identify the varieties. Some growers use an indelible pencil and write on each root its name, thus insuring identity of all the roots. It is not always satisfactory to put the name on a tag and attach it to the stalk, as very often the roots will separate from the main stalk. Where there are many roots of one variety it would be better to store each variety in a container and label the outside of the box.

If roots are packed, stalk end downwards, in boxes or barrels lined with several thicknesses of newspapers with newspapers and old pieces of carpet or burlap sacks thrown over the tops, the dahlia roots will keep perfectly. But it should be remembered that when digging and trimming the bushes preparatory to storing all soft shoots and foliage should be removed, as rot sometimes starts from this cause. Never

store dahlia roots in tin cans with tin tops, as this tends to condense the evaporation on the inside of the metal walls and mould and decay is sure to result. Generally speaking, packing roots in sand, sawdust, shavings, ashes or cork results in loss. Roots keep better in a temperature of from 40° to 45°F.

PROPAGATION OF THE DAHLIA

The sprouts that have been cut off the roots just prior to planting can be the means of multiplying varieties. Start these shoots in moist sand in shallow boxes and shade them from direct sunlight. When the cuttings have produced three sets of leaves they can be carefully transplanted into deeper boxes and about June should be ready for planting in the open ground, remembering that these young plants must be kept moist and protected from the sun's rays until they show no signs of wilting. These plants will produce just as fine flowers as the parent and by fall would have formed their own root system.

Every amateur will want to try dahlias from seeds. It is by this form of propagation that new and beautiful varieties are started. Discard, however, the mediocre plants. Seeds can be procured from reliable growers at nominal prices. Aside from buying seeds any dahlia grower can grow seed from his choicest varieties. Select the finest flowers, cultivate the soil around these plants constantly but do not use the first flowers as they are valueless. Most dahlias that have seeds will show a center just before fading. As the petals die take a few off at a time, when the seed shows that it is growing. Go over the flowers every other day until all the petals are pulled out. The pod or seed case will then be about closed. In four or five weeks it will be in a condition to cut, but leave on the plant until frost seems due, at which time cut the seed pod with a long stem and place in water in a dry, airy, warm place. Change the water and clip half

an inch off the stem twice a week. After ten days hang up, head downwards, to dry. The pod will then start to open. Do not disturb until completely dry, at which time the seed is in an excellent condition. Sow the seeds in April in good, well-pulverized soil, one third sand, in shallow boxes, one inch apart and cover with one-half inch of soil. Water thoroughly when sown, using a fine spray to prevent uncovering the seeds. Keep in a cool, shaded place, and unless they show signs of becoming too dry do not water for one week. When two or three sets of leaves appear bring to the light. An ideal temperature for this propagation work is between 60° and 65° Fahrenheit. The culture of these seedlings is exactly the same as that used for the propagation by sprouts.

In conclusion I would like to advise the amateur and beginner to plant in their gardens only those dahlias that yield the greatest number of blooms and at the same time have all the char-

acteristics of the very best flowers. Each fall before the frost has killed the blooms, select those plants which have proven unsatisfactory and heartlessly pull them up and throw away. This is the only way a grower can expect to eradicate useless stock from his garden.

To prolong the life of a cut flower a successful way is to place the stems in boiling water for a minute or two and then put in cold water. A fading flower can be freshened by cutting the stem and using the boiling water.

The beginner who wishes a few well selected and moderately priced varieties will find the following list contains some of the very best dahlias known to dahlia growers. They are: Snow-drift, Guardian, Jersey's Beauty, Champagne, Mrs. I. DeVer Warner, Insulinde, Kitty Dunlap, Cigarette, Mariposa, Lotus, Ambassador, Daddy Butler, F. W. Fellows, Gladys Bates, Grizzly, Patrick O'Mara and D. N. Moore.

THE GARDEN OF SANTA CHIARA, NAPLES

Among the beautiful cloistered gardens of Italy those of the church of Santa Chiara in Naples have a dreamy, old-world charm. Their ceiling is a trellis of grapevines beneath which orange trees are growing in a tangle of green, but its most characteristic features are its large square columns covered with yellow tiles of majolica on which grapevines are shown with large bunches of purple grapes hanging among the green leaves which have been there since the seventeenth century. Between the columns are benches also covered with the yellow tiles. Some show pictures of boats, others of people taking part in an old Italian dance, or of birds drawing a chariot in which a parrot is the driver. These columns may not have the classic beauty of the twisted marble ones in the church, but there is a charm and fascination about the gardens of

these old churches which one feels in the beautiful Monreale, in San Giovanni degli Eremiti, with its red Moorish domes, and in some of the cloistered gardens of Rome. One's thoughts are not bound by strict beauty but drift away into thoughts of other days.

M. R. CASE,
Amalfi, February 1, 1927.

The Chinese forget-me-not, *Cynoglossum amabile*, and its improved forms offered in a few lists this year, comes as a welcome addition to the brilliant blue annuals of midsummer. It is in general effect a small edition of the Dropmore anchusa. The same sprays and rich blue and even the leaves are similar. It is one of the easiest of annuals to grow from seed. It is sometimes listed as a biennial but it is excellent treated as an annual and performs as such

Evansia or Crested Iris

By SAM. BURCHFIELD

These irises are distinguished by the more or less conspicuous fimbriated fin, or crest, on the lower petals. This crest, or fin, occupies the same position as the beard of the bearded iris. The foliage has the same characteristic growth in all the species, a fan at the extremity of the root extension.

Two of the most decorative, desirable, and satisfactory are the two native species, *cristata*, and *lacustris*. *Cristata*, which finds its native heath along the eastern end of the Mason and Dixon line, north and south for many miles, is a little beauty three or four inches low. This iris will give you little concern as to its cultivation, a few inches of leaf soil in thin shade where the location can be kept reasonably cool and moist. I do not mean by this that it should be either cold or wet.

The general tone of this iris is a pale lilac with a characteristic color emblem on the lower petals. There is much variation in the strength of the tone in different blooms. Occasionally there is found an albino form, of which the white is unusually pure as there is no pigment to soil it. But the constitution of these albinos is very weak and they pass away in a season or two. They are hardly worth considering as garden subjects.

The other, *lacustris*, is a strictly local form, found growing abundantly near the shores of Lakes Huron and Superior in Michigan, and, I believe, on the Canadian side also. I believe this to be the original of *cristata*.

There is no good reason for growing more than one of these unless you are a collector. In that event I would advise you to do your own collecting in order to be sure that you are getting the right plant.

The same treatment is recommended for all of this species of *Evansia*. When you receive from your dealer your mat

of *cristata* (a mat consists of three or four fans and a tangled mass of roots about twenty-four square inches in size), loosen the soil, moisten it, and then press the mat down firmly. The plants will soon take hold. Single plants, or fans, are difficult to handle.

The next we have to cherish is the dainty Japanese iris called *gracilipes*. It is, if anything, a little smaller than *cristata*, but has its own particular charm, and is perfectly hardy. The general tone is a pale pinkish lilac, with the wavy crest creamy and orange.

Japonica is by no means a garden plant, in this latitude at least. It is typical in every way with the group except that it is not hardy.

Milesi is very closely allied with *japonica*. It can be treated as a garden plant by wintering it in large pots in the house, and when danger of frost is past sunk in the garden and freely watered, it will give abundant bloom in June. The general tone of the bloom is a pale purplish lilac with darker spots and blotches, making it look as though it had a case of measles. The crest is very ragged, or deeply serrated, orange spotted with purple. A peculiarity is the apple green color of the rhizome.

Tectorum is, I think, one of great value as a garden subject. Cultivation in the same manner as for *cristata* is recommended. It is a flat flower of a dull blue color, with a much fimbriated white crest. I have found it very hardy, and soon forming dense growth, with many flowering stems. There is a white form that I do not believe to be an albino, as it appears to be as hardy as the type and behaves fully as well. I have a lilac form that is a decided acquisition. Other than the pinkish lilac tone, it is just like the type. This species is easily and quickly increased by seed.

Rhododendrons and Azaleas

The following list was compiled by Alice C. Atwood, Bibliographical Assistant in the Office of Economic and Systematic Botany, from the Botany Catalogue of the Bureau of Plant Industry Library, U. S. Department of Agriculture. Only titles of horticultural interest are included and there has been no attempt to make the list exhaustive. It is divided into two main groups, works dealing with evergreen plants which include rhododendron and azalea, and those which deal with them specifically. Under each group the books on the subject are given first, followed by titles of articles in journals.

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The stabilization of the salmon rose zinnia is a matter of congratulation as it is a unique color among annuals and this shade in the medium flowered zinnia is always hailed with delight. Unfortunately for the last few season seedlings were so variable that it spoiled the effects of beds,

colors ranging from scarlet to dirty pinks. Last year the process of selecting and breeding the strain true seemed to have reached an effective point and the plants came very true to color and the variations were not pronounced enough to spoil effects. It is a very handsome zinnia.

THE NATIONAL HORTICULTURAL MAGAZINE

Issued quarterly by The American Horticultural Society, a Union of The National Horticultural Society and The American Horticultural Society, at Washington, D. C. Editorial Committee, B. Y. Morrison, Chairman; Sherman R. Duffy, V. E. Grotlisch, P. L. Ricker, J. Marion Shull, John P. Schumacher, Hamilton Traub.

All members are cordially urged to send in papers and notes for publication to the chairman, at 116 Chestnut St., Takoma Park, D. C.

The magazine grows apace. This issue comes from the printer filled with copy and with an ample supply of equally interesting data on file for the July and October issues. As compared with our slender issue of last December, the present issue represents the work of our members and others rather than the efforts of the committee. New members are coming in more rapidly than can be imagined and our efforts have received the favorable comments of The American Iris Society and of several of the commercial florists' papers.

A BOOK OR TWO

In reading the latest edition of the "Book of Landscape Gardening," by Professor Waugh,* it is essential for the initiated reader to keep in mind the statement given in the preface to the third edition. If this is not done, the reader will be distinctly regretful that much of the material is so briefly considered. The book, however, carries the imprint of a strong personality, which accounts, doubtless, for the approach chosen, an approach which apparently indicates the writer's preference for naturalistic treatments, for human interest and activities, particularly recreational activities within the developed areas and a certain flavor of the immediate past.

*Waugh, Frank A., *Book of Landscape Gardening*. Orange Judd Publishing Co., New York, 1926.

To the layman, the book will probably be both stimulating and helpful. From its slight size, it will be inevitably inadequate in many parts, particularly so in the six small chapters devoted to plant materials. The reader, however, will come to a better understanding of the realm in which landscape gardeners operate and to a better vision and appreciation of their materials and activities.

Practically all the illustrations are new, and these with the better paper add greatly to the general appearance of the book.

"*Rhododendrons for Everyone*,"* by Capt. F. Kingdon Ward, is a delightful small handbook written for the amateur gardener with the particular purpose of interesting the small grower in the family as a family and not as a group of garden hybrids. The plants known as azaleas are arbitrarily left out of the discussion and the text is confined to the particular species which are most likely to succeed in the garden of the small grower and which would be available to him at reasonable cost. As the book is written for Great Britain, the list of species desirable is not necessarily certain to suit our conditions and the prices are certainly less than prices here for those species that are available. The American reader, however should consider the species recommended and watch for their appearance in our trade lists.

*Ward, F. Kingdon, *Rhododendrons For Everyone*. The Gardener's Chronicle, Ltd., London, 1926.

PRESIDENT'S REPORT

It is with pleasure that I can report real progress during the past year.

The first thing of which I wish to speak is the merger of the National Horticultural Society and the American Horticultural Society, resulting in our present organization. This consummation on July 1 of three and a half years of effort has brought six hundred of us together in one organization to work for the betterment of American horticulture. By continued and united effort we should be able to accomplish much that will be helpful to all interested in our chosen field.

The second thing is the progress that has been made in publications during the year. In June before the merger was consummated Vol. IV of the National Horticultural Magazine was issued by the National Horticultural Society. Two bulletins were issued by the former American Horticultural Society before the merger, No. 3 "Insect Pests of our Garden Plants and Their Control," by Dr. C. A. Weigel, and No. 4, "Soil Reaction in Relation to Horticulture," by Dr. Edgar T. Wherry. Since the merger, Vol. V of the National Horticultural Magazine has been issued, covering the period from the merger till the end of 1926.

Another important event was a flower show held in the Hall of the Nations of the Hotel Washington on June 8th and 9th. The hall was well filled with peonies, roses, orchids and other flowers that elicited much favorable comment. A special showing preceding the regular opening was viewed by Mrs. Coolidge, Mrs. Dawes, Mrs. Longworth, Mr. W. M. Jardine, Secretary of Agriculture, Dr. W. A. Taylor, Chief of Bureau of Plant Industry, and others. The exhibit was a step in advance of those held in 1923 and 1924.

Work has already begun on the Fourth Annual Flower Exhibition to be held in the Hotel Washington June 1 and 2. It is believed that by united effort we can do even better than in the

successful show of last year. This will take work by many but should help create a wider interest in our society.

You will see there has been progress the past year and the field opens invitingly before us. Many opportunities are calling for immediate attention but we need first to care for the things we have under way before diverting our efforts to other undertakings. The help of each member is needed to make the organization a success. That its influence may be more widely spread, contributions for the magazine and new members are both needed. Let each member constitute himself or herself a committee of one to bring the value of membership in the society to the attention of others and secure their membership. By such cooperation 1927 can show greater progress than 1926.

The year's accomplishments are due to team work of the Board of Directors, members of committees, officers and members-at-large. In the name of the society I thank all for their support and ask its continuance for the coming year, that there may be a nearer approach to our ideals as the months pass.

F. L. MULFORD, *President.*

The Galesburg Horticulture and Improvement Society, Mr. C. Z. Nelson, Secretary, reports that the society is growing rapidly and is helping other communities in the organization of local work. Correspondence has been had with garden lovers in Macomb, Kewanee and Peoria which will probably lead to the formation of garden clubs. With the assistance of Mr. Nelson and Mr. Bursk, the Warren County Horticultural Society was organized in January. Mr. Nelson also sends in the yearly program for his society and copies of the show schedule for last summer's flower show.

American Horticultural Society

FINANCIAL STATEMENT FOR THE FISCAL YEAR 1926

Receipts

Balance on hand January 1, 1926.....	\$291.59
Dues from 64 members for 1925.....	\$192.00
Dues " 187 " " 1926.....	561.00
Dues " 12 " " 1927.....	36.00
Dues " 1 member " 1928-29-30.....	9.00
Received from Bulletins.....	10.60
Balance from National Hort. Society.....	16.26
Total.....	824.86
Balance from the June Flower Show.....	67.15
Total receipts.....	\$1,183.60

Disbursements

For publications.....	\$427.97
For meetings.....	102.39
Administrative work.....	57.21
Secretary.....	41.67
Membership.....	40.50
Total.....	\$669.74
Deposit for Life Membership Fund.....	500.00
Total disbursements.....	1,169.74
Balance on hand January 1, 1927.....	13.86

OTTO BAUER, *Treasurer.*
D. VICTOR LUMSDEN, *Secretary.*

NOTE

In addition to the friendly message that comes in this issue from Mr. Chapman, one of the leading British narcissus specialists, we have the cooperation of the Midland Daffodil Society in the use of their plate of Mr. Chapman's seedling, Grand Opera.

This year sees also the introduction of the iris, Grace Sturtevant, named by Mr. Bliss in honor of Miss Sturtevant, one of our foremost iris breeders. It is a member of his famous Dominion race and is said to be "the darkest crimson-maroon, so velvety that the

shadows are black. The yellow hafts, yellow style branches and orange beard make it very rich." So the interchange of garden information and interests continues as it has to the mutual benefit of our countries.

The newer Philadelphus varieties such as Virginal, Voie Lactee, and others self-sow about the parent bushes in many localities. As these plants are hybrids it is worth while to save some of these little seedlings. They may produce quite decided variations from the parent plant.

LECTURE NOTES

At the regular meeting of The American Horticultural Society on December 14, 1926, Dean Zimmerman of the University of Maryland addressed the society on "The Propagation of Trees and Shrubs," relating some of the experiments that he had carried on in cooperation with Dr. Crocker of the Boyce Thompson Institute, Yonkers, N. Y.

In his talk Dr. Zimmerman reported only certain experiments that related to the germination of seeds and to the making of cuttings, and did not touch upon the other practices in vegetative propagation.

Much of the knowledge that has accumulated during the years concerning the treatment of seeds of various plants has resulted from the experiments within the ordinary realm of gardening, so that the well-trained gardener knows what to expect from certain seeds if he gives them the best treatment that has been discovered in gardening practice. But these best results are not always satisfactory either in completeness or rapidity of germination. This is especially true for some of the harder seeds of woody plants. It has long been known that certain seeds were of relatively short viability, that others were viable for almost unbelievable lengths of time, and there has been a considerable mass of information recorded about seeds which were irregular or uncertain in their behavior for no apparent reason. The particular studies in this case have been directed toward finding out how germination might be hastened in these slow seeds.

When a seed fails to germinate there are several reasons which may be advanced. It may be a seed of short viability. This is easily determined. It may be destroyed by some insect injury or disease. Or its failure to germinate may be due to various unfavorable conditions, of moisture, temperature or structure. All seeds are not ready for germination immediately they are apparently ripe. Many must

pass through a period of after-ripening. The conditions which surround the seed during this period are of great importance.

In passing, Dean Zimmerman spoke of the maple seed which develops immediately after fertilization, falls and germinates if in a suitable place; of the ginkgo, which though seemingly mature fall before fertilization; of the holly, which matures its seeds slowly with a differentiation of the cells within the seed after apparent maturity; of the cocklebur with its paired seeds and successive germination; of short-lived seed like maple, willow, poplar and elm as contrasted with long-lived seed like corn, wheat, rose and apple; of seed whose coats do not permit the passage of water from the soil to stimulate germination; of those which admit water slowly; of those which do not admit the entrance of oxygen. He also showed the effect of temperatures on after ripening and the results in shortening the period before germination by the correct temperatures during this period, especially for roses, apples, and the flowering dogwood.

The experiments with cuttings had to do chiefly with the necessity for oxygen in the rooting medium, the age of the wood taken, the time of making the cuttings and the desirability of certain rooting media.

At the regular meeting on January 11th Dr. Frederick V. Coville of the Department of Agriculture addressed the society, giving an informal talk about his experiments with Ericaceous plants. The lecture was illustrated with lantern slides which showed most clearly the points that he made.

There was no general discussion of the cultural treatment of the plants of the order, as the speaker believed that that is generally understood by most gardeners. He reminded his hearers at first, however, that the entire family was made up of plants that would not thrive in neutral or alkaline soils, and showed the proof of this point by

pictures which showed plants of the same age and treatment, with the exception of the soil used. The one set were grown in a good soil, containing one part of sand, one part of loam and one part well rotted cow manure; the other one part of sand providing identical drainage facilities and two parts of upland peat. The plants grown in the second mixture were always healthy, vigorous specimens, and the other were sickly if not actually dying. Another experiment with a commercial humus in place of the upland peat gave entirely unsatisfactory results because it was a humus in which decay had gone so far that the reaction was no longer acid but alkaline. This brings out the fact that all leaf soils are not satisfactory for the growth of Ericaceous plants.

The ideal soil is one that is comparable to that in which the plants naturally occur. Dr. Coville described the soil that is seen in a laurel colony near Laurel, Maryland. Here there are alternate layers of oak and laurel leaves showing every degree of disintegration from the entire newly fallen leaves to the lower layers through which the roots of the plants were penetrating. The mass is fibrous and full of the remains of the stems and veins of the leaves. This lower layer is the soil which Dr. Coville prefers to use in his work, and is referred to by him as "upland peat" rather than as "leaf mould," since it gives a very specific meaning to this type of soil.

Dr. Coville made various experiments with plants that had received wrong soil treatment and were in failing condition. The response to acidity in the soil was startlingly immediate. This was true for old plants as well as young seedlings; and for both azaleas and rhododendrons as well as blueberries, the subjects of the experiments.

There are several commercial peats on the market which are acid in their reaction and so are suitable media for the growth of these plants. In most cases, however, they are deficient in food values and must be supplemented

by naturally acid soils. The problem of artificially supplying fertilizers which will be acceptable to the plant and not counteract the necessary acidity of the soil has yet to be studied. It seems probable that some nitrogenous matter is required. Ground soy bean and cotton seed meals have been very satisfactory, but chemicals like nitrate of soda should be avoided. Experiments with sour buttermilk and with skimmed sweet milk were remarkably successful for the period tried, but the experiments have not been continued long enough to determine if the lime content of the milk will eventually counteract the benefit of the acid media and its nitrogenous content. A full report of these experiments was published in *Science* for July 23, 1926.

The lecture closed with the showing of slides of various Ericaceous plants which are of value to the horticulturist for growing out-of-doors and for commercial greenhouse use. As every one knows, the members of this family have flowers of great beauty and in many cases also possess evergreen leaves of equal value to the landscape planter.

In the discussion that followed it was repeated that the use of various chemicals, particularly aluminum sulphate for establishing acidity in soils not naturally acid, should be considered of value as a safe treatment that must be repeated from time to time as the acidity established was lost by the movement of soil water from the adjacent land. The aluminum sulphate contains no food value of the plant but is used to make soluble the calcium salts in the soil. These can then be washed out of the soil, leached away, by copious watering.

Toussaint l'Ouverture is a very distinct lilac because of the long finger-like clusters, but not as attractive as some of the other dark varieties.

The Gardener's Miscellany



LILACS

The two lilacs shown in the illustrations are representatives of the *villosa x reflexa* cross described by Miss Preston in her note in *The Gardener's Miscellany* in the last issue (page 27) and show striking differences in character.

IRIS NOTES FROM A CITY GARDEN.

The portion of a fifty-foot city lot which can be put under cultivation and which I am pleased to call my garden has been developed more with appreciation for flowers and enthusiasm for a hobby than with any special knowledge as a floriculturist. As I am usually out of Washington in mid-summer, the garden is really a spring and autumn one, with a certain emphasis upon spring bulbs, iris, gladioli, and chrysanthemums. There are many other things, enough to show that most

of the basic principles of correct gardening have been violated, and indeed the plan of the garden is more according to what is liked than according to recognized practice.

I have been interested in iris since about 1910, although a part of that time have been so placed as to make gardening impossible, and have endeavored to get together a fair collection only since taking up my present residence. There is nothing new in the cultivation of iris which I can offer, but I may say that in my location I find the use of aluminum sulfate as recommended by Drs. Wherry and Coville in their conversations with me, particularly valuable with the Japanese iris, and that so far I have never failed to rescue a rhizome that has been attacked by root rot.

The collection of something more

than a hundred varieties which I began with some of Farr's seedlings has increased gradually, usually after seeing varieties in bloom, as the best of catalog descriptions can not take the place of the actual flower. I have had the advantage of visiting several of the larger growers and have been struck with the similarity between many named varieties and the fact that some of the newest and most expensive introductions differ from the established and much cheaper varieties generally in detail too minute to strike the casual observer or impress the layman. I have been surprised to find how some of the best known growers put several named varieties on the market with differences so slight as scarcely to justify the practice.

Of course I have become interested in the newer large-flowered tall-growing sorts and have been glad to be guided by the ratings of the American Iris Society in culling over the individuals in my garden and in choosing new ones to take their places. I have yet to see anything finer than Morning Splendor, though in other colors there are some striking individuals. The Dominion seedlings, of which I think Bruno is my favorite, are of course lovely, but on the whole it would seem that much could be gained if more breeders would strive for colors not now to be found among iris or for a clarity of color which is always rare than to continue the effort to grow taller stems and larger blooms. There is always a place for the flowers that are not borne on forty-inch stems and the small flower of a perfectly pure, clear color might be preferred in some circumstances to a much larger but more indistinctly colored bloom.

The ease with which iris can be grown in nearly any location has often been stressed and the plant is certainly valuable for this attribute. I have grown them in various sorts of soil, in full sun and in partial shade, in locations where subjected to severe winds, and have met with success just so long as good drainage and plenty of

lime have been provided. This is true except with the Japs, which for me have done best in an acid soil.

Not the least of the pleasures of growing iris is in the ability periodically to distribute surplus growth among other iris lovers and to take every opportunity to see what others may have, though their collections may to a large extent duplicate one's own.

H. L. HOWE,
Washington, D. C.

A DESIRABLE OCTOBER BLOOMER

One of the best ornamental herbaceous perennials introduced by the Department of Agriculture in recent years is the Arkansas variety of the native so-called swamp sunflower, *Helianthus angustifolius*. This plant, in spite of the designation "swamp," does not require swamp conditions to make a sturdy growth, and in spite of being botanically a sunflower, is not a coarse, weedy thing suitable only for a wild corner. On the contrary, it is a most attractive addition to the perennial garden, not only at the flowering season but throughout its long period of summer growth before it becomes a mass of yellow sunshine in October. The graceful down-curving leaves fully justify the name *angustifolius* ("narrow-leaved"), for they are only about a quarter of an inch wide and 2 to 7 inches long. They clothe the stalks thickly from base to tip, and their glossy upper surface glistens in the sun. The growing season is so long that established plants (the second year from seed), even if pinched back once or twice during the summer, reach a height of 6 or 7 feet by blooming time. A two-year-old plant will send out from the basal rosette ten or a dozen stalks, and in October such a plant will exhibit 100 to 400 flower heads, each about the size of the Black-eyed Susan of the fields, with centers of dark brown and rays of a clear yellow, almost the "light cadmium" of Ridgway's Color Standards, a little

deeper than the yellow of the lemon lily. They are especially welcome in the garden at that time, because most of the summer flowers have gone and the hardy chrysanthemums are yet to come.

Helianthus angustifolius can be raised from seed—in fact, it self-sows freely, but the volunteer plants do not come up till late in the spring and so are likely to be killed by cultivation. Where the ground can be left undisturbed till they appear, one old plant may yield 50 or more volunteer seedlings. These can be transplanted and most of them will give some bloom the same year.

Although a swamp isn't necessary to grow this plant, it is no cactus and should be watered in a long dry spell. It will thrive in ordinary good garden soil—perhaps a little better in a soil that is slightly clayey and in a location that is sunny at least part of the day.

These remarks apply only to the Arkansas variety introduced as stated above. The descriptions of the ordinary native swamp sunflower given in botanical works say that it has "few flower heads." The plants are offered by only a few of the dealers and are apparently not yet as widely known as they deserve.

A curious error in nomenclature was perpetrated by the enterprising nurseryman who was one of the first to put this plant on the market. On the envelopes of seed sent out by the Department of Agriculture was written in pencil, not very distinctly, the name in two lines, "*Helianthus an-*" on one line and "*gustifolius*" on the other. This nurseryman evidently overlooked the "*an-*" and misread the rest of it, for his catalogue carried for several years the impossible name *Helianthus "questifolius."* This error has now been corrected.

BERNARD H. LANE,
Washington, D. C.

When spring cleaning in the garden, do not burn the trash. Use it for compost.



DAFFODILS IN THE WOODS

This photograph was taken last spring at the place of Mr. Harold Ickes in Hubbard's Woods, one of our North Shore suburbs. There he has naturalized narcissus and mertensia by the thousands, mostly *poeticus ornatus*, though there are some thirty varieties in various colonies, mostly old timers. It is a magnificent sight. He can't make the trumpets remain in good shape for more than a season or so. Possibly this is because the soil is acid. Another neighbor has bleeding heart and mertensia naturalized together, a combination I have not seen elsewhere and it is a knockout!

SHERMAN R. DUFFY,
Chicago, Illinois.

LILACS IN NORTH DAKOTA

So far as I have been able to learn most of the French lilacs are hardy here, though I have no list giving the names of tested varieties. One of our largest nurseries gives the following as the best: Congo, Ludwig Spaeth, Marie Legraye, Monument Carnot, Presi-

dent Grevy, William Robinson, Charles X, Alphonse Lavallee, Mme. Casimir Perrier, Emile Lemoine.

I have at least three in my own collection but have never had them blossom, as their buds form so early in the spring that they are caught by the late frosts. For this reason the Hungarian lilacs, *Josikaea* and *villosa* are much better for this territory. Mine have never failed to bloom since they reached blooming size. We also have the common purple and white, but they too are sometimes frosted; the Chinese tree lilac and the Persian purple. The former has not blossomed, but the latter is splendid and does not get frosted as often as the French sorts. *Velutina* is doing finely and tried to bloom last fall, but the weather was so dry that the buds failed to open. It seems entirely hardy and comes into bloom the quickest of any lilac I have tried.

FANNIE MAHOOD HEATH,
Grand Forks, N. D.

If any of our readers can supply information as to where seeds of the following plants can be obtained, will he please communicate with Mrs. Heath, whose address is given with her note in this column: *Palafoxia hookeriana*, *Trifolium reflexum*, *Cowania plicata*, *Calceolaria pisacomensis* and *Blumenbachia chuquitensis*.

TWO WESTERN SHRUBS FOR EASTERN GARDENS

Perhaps one might call the Rocky Mountains an Alpine collector's paradise. Certainly no spot in Switzerland or the Balkans can excel in beauty or brilliance of color some of the alpine meadows which I was fortunate enough to see in their blooming season last year. The Coast Range and Cascade Range are vaguely included in our Eastern minds as part of the "Rockies," but they differ materially in formation, soil composition and in plant life.

In Canada, lying between the two last-named ranges, is a section of mountainous desert called the "Dry Belt." The soil, what there is, is alkaline. The rock continually crumbling by action of great extremes of heat and cold (40°-60° below zero in winter, to 115°-120° F. in summer), keeps tumbling into the canyons, and is washed down the torrential rivers, becoming the objectionable "silt" of the Pacific harbors. Here and there a solitary tree bravely defies nature's cruelties, and from time to time small shrubs, not always sage brush, miraculously thrive where seemingly nothing should survive. There is a marvellous roadway traversing this section, along the great Frazer Canyon, which clings to the dizzy precipices for hundreds of miles until it reaches Vancouver. Next summer it will be open to motor traffic, wide enough and safely built so that any one may go, but it was my lot to gaze from the windows of the train and wonder if those brave green things were of such stuff as would endure our Eastern climate.

So when we reached Vancouver and learned that at the new university they had planted a garden of native things, I could hardly wait and see.

Sure enough, there was a garden, flanked by lawn and shrubs and trees, all wildings, groomed and tamed and manifestly happy in their new surroundings. There were Douglas firs, not hoary and a thousand years old, but youngsters only a hundred feet high! There were also what they called Red Cedars, but which are no more cedars than are our own arbovitae which we also misname. *Thuja plicata* and her gray-foliaged sister, *Thuja argentea*, are probably the most graceful trees in all of North America. Their poise and feathery foliage place them first both as specimen trees or for a massed background.

There were snowberry, bearberry, barberry, also many of our common garden favorites, gaillardia, doronicum, lupine, columbine and pentstemons. I can not stop to list

them all, for I am in haste to tell of that shrub, that bit of green from the desert so happily settled down to garden idleness. There it was, clipped, in dumpy mounds on the lawn, clipped as a fine box hedge, and clipped into peacocks, with all the pride of British topiary art. False box, they call it locally, and box it was for all the average man could see at the first glance. *Pachystima myrsinites* is a low evergreen shrub of dense growth, seldom making five feet, even on the Pacific Coast where everything grows tall. It has been found in the "Dry Belt" over 2½ feet high, but averages only a few inches. For four years they have grown specimens taken from the "Dry Belt" side by side with those gathered in fertile land and found no difference in their growth or habit after becoming established at the Experiment Farm.

The small leaves are just a bit more pointed than the round leaf box and less so than the tree variety. They are glistening dark green above and of paler hue beneath, remaining close to the stems during the worst below-zero weather. The plant spreads by root growth and is easily propagated thereby. It is not particular as to soil as I saw it in several different locations, but I rather think that unlike box, a sweet soil suits it better. Its growth is slow, though as a young plant it makes quicker headway than box, and in good soil does not seem to spread until it becomes a foot or two high. In the desert, however, it spreads sooner and becomes a low mat of green among the yellow rocks, absorbing what little moisture they might hold. No rain falls in this section of the country, and with all the dreadful cold there is comparatively little snow. After the spring thaw not a drop of water may be had, and the cruel summer sun soon draws away any bit that may have hidden between the stones.

This, then, is what my little shrub can endure, yet in happier surroundings it thrives and quickly adapts itself to garden use. But in no nurseryman's

catalogue,* East or West, can I find it listed, and nowhere else but in the garden of a well-known botanist did I see it growing! Bailey says that it is native from Alaska to California, yet I hunted everywhere I went and found it again only in northern Montana, a few miles from the Canadian border, at an altitude of 8,000 feet on the Great Divide.

It can be had in great quantities in British Columbia. Can not our splendid Bureau of Plant Industry bring it in for propagation and experiment and later permit our nurserymen to distribute it? As a hedge plant, hardier than box, more compact than privet and really evergreen, I feel it is certainly worth trying.

Another shrub, a species of *eleagnus*, which grows abundantly on the eastern slope of the Rocky Mountains, between Banff and Calgary, but nowhere else that I could find, should also be of rare value in an eastern garden. The brick red stems and silvery leaves are very beautiful and added to this is the fact that during the entire summer months they are fairly smothered with brilliant fruits; one variety bearing scarlet, the other vivid orange berries about the size of currants.

No one there knew its botanical name. In the Canadian parks there are no men to answer such questions. In the American parks, where every smallest camp has its uniformed "naturalist" in charge, eager to show and explain these things, the shrub seems to be quite unknown. The rigors of winter and the heat of summer on the eastern slopes of the Rockies, the varied locations in which this *eleagnus* seems to be quite happy, makes me think that it should adapt itself to our climate and add greatly to the list of hardy shrubs which would do well at least in New England.

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* (D. N. Andrews, Boulder, Col., lists it for 1927.—Ed.)

The American Horticultural Society

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