

*The* NATIONAL  
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MAGAZINE



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JULY, 1951

# The American Horticultural Society

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## CONTENTS

Concerning Daturas. LESTER ROWNTREE .....	127
Black-Spot of Roses Must Be Avoided. STEPHEN F. HAMBLIN .....	130
New Magnolia Hybrids. OLIVER M. FREEMAN .....	132
Three Plants of the Chaparral. EDWARD K. BALLS .....	136
Korean and Chinese Flowering Dogwoods. WILLIAM H. STRONG .....	143
Hemerocallis Comes of Age. PHILIP G. CORLISS, M.D. ....	146
Rex Begonia Seed on Sphagnum Moss. B. Y. MORRISON .....	153
Rhododendron Notes:	
<i>Rhododendron occidentale</i> . E. J. KRAUS .....	157
A Book or Two .....	158
The Gardener's Pocketbook:	
Notes on the Palms: <i>Acrocomia armentalis</i> . ALEX D. HAWKES .....	160
Iris reticulata relatives .....	162
Cascade Chrysanthemums as Hardy Plants. ALFRED BATE .....	169
Rex Begonias .....	170

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Lester Rowntree

*Datura arborea* in a California garden



# Concerning Daturas

LESTER ROWNTREE

When I first began to do field work, decades ago, I was eager for less common prey and passed the thorn apples by with an impatient snort. Now I have come to respect the daturas for I know them to be an integral part of the California landscape. I rejoice in their faithful year round bloom and when I see them I put up a little prayer that some may always be spared by bulldozer and tractor to delight the newcomer and remind old timers of roadside beauty that was.

Any month of the year some of the huge flower trumpets can be seen at the edges of the deserts. In newly plowed fields of the big valley that stretches down the center of the state for five sevenths of its length seedlings of *Datura meteloides*, the most abundant species, appear in fall though nary a drop of rain may have fallen since last February. Perhaps datura is the only visible vegetation to be seen on the dry lumpy brown earth though it is likely to be accompanied by equally insistent tumble weed, *Amaranthus graecizans*. But it is weeks before the sown winter rye shows up. With the first rains the daturas in the unbothered spaces between barbed wire fence and place of traffic launch into the period of their greatest glory. Flower after flower unfolds and with dogged persistence the plants keep on blooming. They are in blossom when the lupines come and when the rice fields are sown. In the rye field the reaping machine decapitates the thorn apples there but soon the handsome persevering leaves of soft blue gray reappear among the honey colored stubble. By this time the cotton field across the road is in bloom and aromatic turpentine weed, *Tricho-*

*stemon laxum* and turkey mulleins have joined the roadside daturas. There being no wild turkeys at hand the low downy dunes of silvery *Eremocarpus setigerus* are visited by doves and the doves pass the daturas by with averted gaze and jerks of the tail.

In August the sorghum stands in the big valley mature and brown and the dull green of cotton fields is dappled with white puffs. Millions of grass-like rice heads, limp and all gracefully bending one way, crowd the yellow green paddies, moist with constant irrigation, and this smooth surface of curves is caught by the slanting sunset light. Turpentine weed is now blue with bloom and strongly scented; there are massive plants of wild gourd with rough leaves a shade lighter than those of datura. Small California sunflowers are blooming among datura plants six feet across and one soon learns to distinguish the tousled kleenex thrown by the slovenly from windows of passing cars from the white of royal flower trumpets.

When a thorn apple bud becomes a flower the wavy-edged sheath which encloses it is split into five and the glorious eight-inch flower unfolds to five inches across at the opening. There is more or less lavender-purple on the reverses and the scent faintly resembles that of the eastern lilac. (The foliage, though, has a rank smell). If the weather is cool and the sky overcast the flower may remain intact for more than one day, closing at night into exactly the same folds it used before. When done blooming the sheath droops carrying with it the limp and fading flower and drops to the ground. Bees and other insects had visited the blossom



when it was at its widest, often having had a hard time climbing back out of the green dell at the base, and now a small gray-green seed pod inhabits the little cup, left by the calyx sheath, which looks like the neat receptacle that holds a young persimmon. The cup is fastened to the stalk by a short curved stem and the seedpod inside is covered with prickles as soft as those on a newborn porcupine. When these pods are at the sage green stage they are very lovely but at all stages they have decorative value even when brown and stiffly prickly and developed enough to split their casings to reveal the seed inside.

When the tule fog of winter leaves the big valley and clear days come one can look up into the mounting foothills to the east, dappled with blue oak and digger pine and, at a greater distance from the mountains, see the high jagged profile of the snowy Sierra glistening against a blue sky. *Datura* mounts into the foothills and blooms among the yellowing grasses and introduced grazing weeds—the thorn apple's foliage is just the color of the blue oak's leaves. Here *datura* comes up in the fills where new roads have been cut and climbs to 4500 feet where *Ceanothus cordulatus*, a white flowered mountain wild lilac, and *Arctostaphylos patula*, a shiny green-leaved manzanita, mingle and fill the openings between yellow pines and incense cedars. Sometimes *datura* nestles at the base of a huge granite boulder enjoying all the heat from its southern exposure and it is glorious when it grows on hot banks which, from May into September, are gay with the bloom of penstemon and *eriogonum*.

*Datura meteloides* is not particular as to soil. It flourishes alike in almost pure sand and in adobe. In its native states it is seldom used as a garden

plant but English plantsmen grow it as a tub or pot plant in the greenhouse usually treating it as an annual and pruning it so that instead of being a coarse mound it is a presentable object showing all of its good points and few of its bad ones. It comes easily from seed and is not hard to transplant. *Datura discolor*, a smaller species from the deserts of the southwest would probably make a tidier pet to be housed in a container.

*Daturas* are poisonous members of the potato family and have strong narcotic properties. The roots and stems have for long been eaten by Indians (who call the plants Tolguacha). The dried leaves are given as a remedy for asthmatic spasms and applied as poultices on bruises. Tolguacha is sometimes taken as a stimulant and, in stronger doses, to produce hallucinations and visions of brilliant colors. In ancient Mexico the seeds were used in religious rites.

Because of the cold winters which have occasionally visited California over the last twenty years I have stopped growing exotic *daturas* for even though they may sprout again from the root it isn't much fun to find one's *Datura arborea*, a small tree from Peru, suddenly smitten, its enormous white funnels limp and tanned, its large leaves browned. And *Datura sanguinea*, also a Peruvian, is still more tender but it is a temptation to gardeners in temperate climates because its yellow flowers, seven inches long, are veined and flushed with orange-red. *Datura arborea* is the Angel's Trumpet of California and Mexican gardens. In Mexico where both these tree *daturas* are completely happy there is also a double-flowered form of *D. arborea*, much in demand by gardeners, and *D. suaveolens* from Brazil is often seen. Along Mexican byways you can often





Lester Rowntree

*Datura arborea*, flowering branch (upper)

*Datura meteloides* at edge of San Joaquin Valley (lower)



find stray specimens of these tree daturas contentedly growing among the native salvias, Botiline (*Stenolobium stans*) or a chance banana.

In the California garden *Datura arborea* gives five crops of bloom a year, taking short and untidy rests between. In this state it is wise to plant the little tree in spring so that the roots can get strong enough to sprout again in case frost strikes the first winter. The tree responds nicely to pruning, it can be headed high or the lower

boughs may sweep the ground and it is quite effective when espaliered, for the bark, which is slick, with the texture and color of very light tan leather, is attractive. The neat gardener will find it necessary to house-clean frequently beneath his tree datura because the spent blossoms and usually some of the leaves constantly litter the ground but he will be thankful that the flowers have the scent of gardenias and that the tree is without the strong smell which characterizes the native thorn apples.

## Black-Spot of Roses Must Be Avoided!

STEPHEN F. HAMBLIN

Once a Roman senator repeated again and again that Carthage must be destroyed. After much planning and concerted action Carthage was destroyed. I look at my beds of modern roses after the peak of the June bloom has passed and I see leafless stems of some plants, with good foliage on only the newest shoots, or other varieties with leaves splattered with black spots and apparently each leaflet about ready to give up as a starch maker. This black-spot disease is the truly worst pest of modern hybrid tea roses. Were it wholly done away with, how much easier would rose growing be and how much greater the crop of flowers and the satisfaction in beholding them! Without spraying, the average loss may be 50% of summer foliage, much worse on some plants, with little defoliation on others. The severity of the attack varies with the seasons and locally and by regions. Like any epidemic its appearance may be sudden and very unevenly distributed. But some plants are rarely attacked. This is my first hopeful observation.

Do I spray or dust with the proper chemicals? Do I pick off all diseased leaves and gather those fallen on the

soil—to burn them? At times I get a spasm of virtue, and then I become discouraged when I think of King Canute who had little effect on the ocean waves by use of his broom. Liquid sprays are more economical than dusts, and on large-scale jobs are quicker; but the liquid is water and water is the cultural medium for the spores. Dusting must be done when there is little wind, and you must wear your *garden* clothing. You should have a gas mask and coveralls. Dusting is effective, but it is messy if you are fastidious.

To dust or spray before and after every rain, dew or fog is too much for any mortal, although "doctors" Massey, Westcott, et al., insist that this be done to have perfect rose foliage. Nor are the chemicals to be put on the plants, in spray or dust, my favorite powders and perfumes. Sulfur dusts give a jaundiced tint to leaves, and on hot days may harm the foliage more than the damage from the black-spot. So red oxide of copper can be used. Fermate I will not use, though it is effective, for a sooty blackness covers all, including myself. A rose lover should not look like a coal miner on his portal-to-portal hours. The black color



may be toned down by use of colored dusts, as sulfur, flour or green pigments. But still the leaves need a bath, and water they must not have. Mixtures for complete spraying or dusting (for both insects and diseases) can be bought, as Triogen, Protexall, Massey Dust, etc., and they are very effective. But they do cost more than plain sulfur or fermate. None of these chemicals do I want to put on my salads—nor on my roses. But they are our only help at present.

Some dogs always have fleas; some roses always have black-spot. But some individual dogs require less frequent dusting than others of that same breed. Some people are immune to poison ivy. Some children never have measles. Some roses never have black-spot. Others, like old *Rosa gallica*, Persian Yellow or Moss Roses, break out with it very badly by midsummer. Some facts are known as to original susceptibility. Modern hybrid tea roses are from a mixed lot of parents, both immune and susceptible. The original wild tea rose may have been quite free from leaf-spot in its native home, but its hybrid children from parentage of Rugosa, Austrian Copper or Hybrid Perpetual may black-spot badly at times. Spraying and dusting are partly preventive, never a cure. A part of the story is the biology of the parents and the ever-shifting characters in new seedlings. In other plants we have progress in disease immunity, why not in roses?

*Rosa multiflora* in some ramblers gets black-spot badly, and others, as large-flowered Tausendschön, may be fairly free. The Polyanthas and Floribundas have usually spot-free foliage, yet they are not hybrid teas in size, form or fragrance of the flowers. But this points the way to a study of better hybrid teas. We do know that some

hybrid teas are nearly spot-free in certain areas, or even nearly everywhere. No dealer wants to claim that a rose is spot-free unless he is certain that this is generally true; nor does he want to blacken the reputation of his new introduction—"AMANDA black-spots badly in the northern Atlantic states, but is quite free in the south," or the reverse. We suppose that black-spot, like the poor, will be always with us, and we have to put up with it.

Certain facts we know. The Pernetiana hybrids have glorious colors and holly-like foliage, usually very subject to black-spot and other fungi. New sorts may not be as resistant as very old kinds. Some plants that are spot-free may suddenly develop a severe case. Very little research has been done on all this, and the study goes back to grandparents at least. Some wild species are very resistant to black-spot. One of these is the Japanese creeper, *Rosa wichuraiana*. Few of its climbers have black-spot (there are exceptions), but Dr. W. Van Fleet and its sport New Dawn have durable foliage; so have some of their bush seedlings.

Perhaps the best is that everblooming "shrub" rose, Hon. Lady Lindsay, which is a bush hybrid tea of New Dawn parentage, hardy, disease-free and everblooming, a true hybrid tea without the usual faults of the group in northern gardens. Its only odd feature is the huge horizontal bulk of an old plant. So also, Mabelle Stearns, a bush *setigera-wichuraiana* hybrid, is another leaf-perfect plant, hardy, everblooming and very robust. But the usual *setigera* climber, Doubloons, has foliage troubles in summer, after its bloom. So *setigera* hybrid seedlings may not be too quick a road to freedom from black-spot. But the *setigera-wichuraiana*—hybrid tea climber, Mrs. F. F. Prentiss, does give seedling hybrid tea plants



with no leaf-spot. I suspect that the *wichuraiana* is the good parent in this.

To date, the furthest research in this direction is that of the Brownells of Little Compton, Rhode Island. Their *wichuraiana*-hybrid tea bush hybrids have some seedlings with *wichuraiana* immunity. The first was Pink Princess.

These Brownell sub-zero hybrid teas are apparently free from black-spot by their nature: Pink Princess—deep pink, very double; Red Duchess—deep red, double, fragrant; Dolly Darling—pink and rose with yellow, semidouble, clustered; Treasure Gold—clear yellow.

Nearly as free from black-spot, far less susceptible than the usual hybrid teas are: Anne Vanderbilt—coppery orange, semidouble; Curly Pink—clear pink, much recurved; Early Morn—

light pink, double; Queen o' the Lakes—crimson, double; Tip Toes—red, orange and pink; Yellow Curls—pure yellow, very double.

If you are interested to begin this study of leaf-spot immunity on hybrid tea plants, get Hon. Lady Lindsay (pink) and Mabelle Stearns (rose); try the Brownell roses as Pink Princess (deep pink) and her kin, as listed above. Try also some of the usual hybrid teas, as Peace or Crimson Glory, and see what they will do for you. Give them neither spray nor dust, but plant them among the usual hybrid tea sorts that lose their foliage readily from leaf-spot. If they are immune by nature they will not be affected nor infected by their sick neighbors. The millennium of rose enjoyment is a bit nearer.

## New Magnolia Hybrids

OLIVER M. FREEMAN\*

Among the native deciduous magnolias are two related species, *Magnolia cordata* Michx. and *M. acuminata* L. that make handsome specimens when so planted with ample room for development. *Magnolia cordata* is a shrub or round-headed small tree attaining a height of 35 feet. It ranges from North Carolina to Georgia and Alabama and is said to be hardy in southern New York and Massachusetts. *Magnolia acuminata* is a pyramidal tree to 100 feet ranging from Ontario to Arkansas and southern Georgia.

Unlike many of the more commonly planted oriental magnolias, these trees flower after the leaves are produced. The rather small flowers of *M. cordata*

are canary yellow and those of *M. acuminata* are normally green shaded to yellowish green at the base but are much larger. The fruits of both species are cylindrical and become a vivid red when exposed to full sunshine. Both the red fruits and the yellowish fruits developed in the shade of leaves open the valve-like slits and extrude the red-coated seeds that hang for a time by means of a cord-like attachment. The foliage remains green until early frosts turn it brown after which the leaves soon fall.

Some botanists consider *M. cordata*

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Upper:

*cordata* × *acuminata*

Lower:

*acuminata* × *cordata*

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*Robert L. Taylor*

*Magnolia "4401 A"*  
*cordata* × *acuminata*  
(natural size)



as no more than a variety of *M. acuminata* but the writer prefers to treat them as distinct species since they appear entirely different as grown in the National Arboretum. *Magnolia cordata* is conspicuously pubescent while *M. acuminata* is glabrous or only slightly hairy on the new growth. The flowers of *M. cordata* are smaller and much more yellow than in the normal *M. acuminata*.

Reciprocal crosses were made in early May, 1943. The stigmas of the flowers were receptive when the bud lacked one or two days of opening. The anthers of the stamens did not begin to release pollen until after the flowers were fully open. The upper part of the corolla was cut away on the blooms used and the stamens removed before there was any chance of self-pollination. Pollen taken from freshly opened flowers of the reciprocal species was applied to the receptive stigmas and the whole quickly covered with a paper bag. This was removed after 7 days at which time the stigmas were hard and dark and showed no signs of the typical receptive condition. The most satisfactory method of collecting pollen was to place the stamens from freshly opened flowers on a sheet of smooth white paper. The anthers opened in a few hours and dropped the pollen on the paper. The stamens were then pushed aside and the pollen scraped into gelatin capsules. Pollen taken from

the capsules can be used immediately or stored, at a temperature of 40° to 50° F. in a refrigerator for three weeks and probably longer.

The fruits resulting from the pollinations were picked during August in the case of *M. cordata* and after the middle of September for *M. acuminata*. The seeds were cleaned by removing the outer red covering and washing. These were stored in moist sphagnum moss in a refrigerator at 40°F. until the first of March, 1944, when they were sown and placed in an unheated greenhouse.

In the spring of 1946 the seedlings were set out in a nursery for testing. There were a few flowers in 1947 at which time the best plants were about 3 feet high. There were more flowers each succeeding year until 1950 when most of the plants had several to many blooms and many of the best trees were 10 feet tall. The plants resulting from the pollinations on *M. cordata* are more desirable as they are more compact in habit. Both groups of seedlings have carried over to a greater or lesser extent the yellow corolla of *M. cordata*. A few individuals in each group have the flowers sufficiently yellow to make interesting ornamentals since the color is strong enough to be seen from a distance of 200 feet or more. The best of the hybrids are fast growing and the flowers are as large as those of *M. acuminata* and retain most of the desirable yellow color of *M. cordata*.



# Three Plants of the Chaparral

EDWARD K. BALLS

Those who do not really know the Chaparral of California's coastal hills may well wonder that Californians become so intensely enthusiastic over an almost impenetrable thicket of hard and spiny shrubs. But, one need not be California born to be brought under the thrall of the Chaparral if the natural affection for plants, and the hills, is in you. Willis Linn Jepson, in his Manual of the Flowering Plants of California (Glossary, page 1174) gives the following barren description: "Collective term referring to the colonies of thorny or rigid shrubs growing on mountain slopes. It is a xerophitic formation composed of such species as *Ceanothus cuneatus*, *sorediatus*, *spinosus* and *divaricatus*, *Pickeringia montana*, *Arctostaphylos viscida* and *glauca* and *Quercus dumosa*." For a more ample and heartfelt description of the California Chaparral you should go to Lester Rowntree's Flowering Shrubs of California (pages 15 to 22). There you will get an artist's picture which is both genuine and fascinating, written by one to whom the Chaparral means so very much more than just the entrancing congregation of the shrubs which comprise it.

Some of the *Ceanothus* species which occur in this company have found their way into gardens to stay, also some of the *Arctostaphylos*, and other shrubs such as *Garrya elliptica*, but the majority of the Chaparral components are still outside the garden railings. It is, of course, not possible, nor particularly desirable, to reproduce the Chaparral in a garden, but many more of the shrubs which are found therein could well be used, remembering that their home is mostly on the hot, dry hills of the southern half of the State and that

their most important natural function is to prevent the erosion of those same hillsides.

This dense blanket of shrubs, which may be no more than six inches to a foot tall, or may be a four to eight foot jungle, is almost impossible to get through except with the aid of machinery. But, to have seen the hillsides white with the snow of *Ceanothus cuneatus* or dappled with the tender haze, in blues and blue-grays, of *Ceanothus spinosus* or *C. leucodermis*, or to have gone through the hills enjoying the softly varying colors of the simmering Summer or the more sombre variations of Fall or Winter, will be joy enough without the need to plunge into the midst of the thicket.

Whilst the true Chaparral is perhaps more strictly confined to the coastal hills of southern California there are similar, more or less dense communities of shrubs all over the State. In the north they are broken by forest trees and in the east, particularly on the eastern slopes of the Sierras, going into the grays of the desert Sage Brush which is a rather less dense, but almost equally effective, coat to the hillsides.

The two most widely represented and varied genera of the Chaparral are *Ceanothus* and *Arctostaphylos*. Either could provide sufficient material for a whole volume of description and comment. The most widely distributed individual species, outside of those two genera, is *Adenostoma fasciculatum* Hook. & Arn. (1832). It is also, perhaps, the most abundant shrub of the California Chaparral, found from Lake County in the north to the northern parts of Lower California (Mexico). Known sometimes as Greasewood it is far more generally called Chamise. Spanish Californians have a special





*M. & M. Carothers*

*Adenostoma fasciculatum*



name for a thicket of Chamise, "Chamisa" (See Leroy Abrams in his *Flora of the Pacific States*.)

The range of *Adenostoma fasciculatum* is "cismontane," from 500 to 5000 ft. In its type locality, Monterey, it descends to the edges of groves of *Pinus radiata* at about 300 feet above the sea. In its own, undisputed territory the Chamise will occupy miles of hillsides to the exclusion of all other shrubs, though it is not always so possessive. Near the coast it may be a dense, matted growth a foot tall, or less, where the winds and the elements have dwarfed it. In more congenial conditions it will be four to eight feet tall. Allowed to grow apart and not crowded in dense colonies it will make a beautiful, spreading shrub, up to ten feet tall and as much through. Its habit is rather slender and graceful, having a light feathery effect. The stems are often gnarled and twisted, of a deep rich, red-brown color with gray, shredding bark. The flowers are tiny, reminding one of *Spiraea*, and are produced in small panicles in immense profusion, at the tips of the branches and twigs. The leaves are short and heath-like in little tufts all along the stems and intruding into the flower heads. From a distance a whole hillside covered with the *Adenostoma* in full flower is hardly white, or cream even, but a very, very pale cream green, due to mixing of the bright green young leaves among the flowers. Personally I have an equal affection for it when the flowers have faded and dried to seeding when the dead blossoms turn to a ripe, rust color and the foliage has darkened to a sombre, mature green.

*Adenostoma fasciculatum* appears to be one of the toughest of the California natives in that it withstands considerable variations in temperature and grows under an amazing variety of con-

ditions. It appears to be almost indestructible by drought or fire as after repeated burnings it still springs vigorously again from the blackened root crowns. It will put up with almost indefinite chopping or cutting down, coming back again refreshed after each attack. The Chamise is invaluable as a combatant against erosion on the hot dry hills of its native home. It should make a good hedge, though under such conditions would probably be unable to flower well, if one could be so barbaric as to confine its graceful shape to that hard-trimmed form.

I doubt if *Adenostoma fasciculatum* has ever been largely used in cultivation, but in hot, dry areas it should be well worth while. Propagation would have to be from seed (unless young green shoots could be made to strike) which is very small and quite unconvincing when one starts looking for it in a dusty handful of the crushed flower spikes culled from a shrub all browned over with the harvest. To quote Lester Rowntree from "Flowering Shrubs of California": "Cultural suggestions for Chamise seem a little redundant. If you live in very cold climates you probably can't grow it any way. If you don't you can hardly fail unless you have only a bog garden."

In botanical treatises there is one variety recognized, *A. f.* var. *obtusifolium* (the *A. brevifolium* of Nuttall) which grows about San Diego. Its differences from the type are of a truly botanical nature which would be of little consequence to the gardener as in general appearance the shrubs are sufficiently alike to be indistinguishable except on close examination. In view of the extensive range and the abundance of the species it is somewhat surprising that it does not show greater variations.

*Ceanothus verrucosus* Nutt. appears





*M. & M. Carothers*

*Ceanothus verrucosus*



to have no local, or common name. The name *verrucosus* refers to the corky, wart-like stipules along the stems. It is thus sometimes called Wartystem Ceanothus but the name has really received no general acceptance. It is not so widely distributed as many of the genus, being confined to a rather narrow strip along the coast of San Diego County and northern Lower California. In its chosen home it often clings to the ocean bluffs as well as forming the real Chaparral of much of that region. It is a neat growing shrub which withstands well the terrific winds from the ocean and also takes, with equanimity, the Summer fogs which are frequent and chill. It is in cultivation along the coast of southern California and as far north as the San Francisco Bay region and is very amenable under quite a variety of conditions. The plant introduced into cultivation in England under this name is certainly not the true *C. verrucosus*.

Here, in the Rancho Santa Ana Botanic Garden it is one of the most satisfactory shrubs we grow for its general good temper, growing well in the cruel adobe soil which we possess, taking the heats and droughts of the Summer and seemingly undisturbed if it comes in for a good deal of extra watering in the course of cossetting other plants grown near by it. Its flowering period is February-March but that is effected by the season and may be well into April. With the large number of plants which there are in the garden here there is usually bloom to be found over a period of two months or rather more.

It is one of the most satisfactory of the white-flowered species of Ceanothus, with its fragrant, dark-eyed little flowers in close clusters often almost completely enveloping the slender branches and twigs. The small, hard, dark-green leaves, shiny above and

whitish below, are evergreen, keeping the shrub almost as attractive when out of bloom as it is when weighted down with snowy flowers. Neat seems to be a really apt adjective to apply to the rather rounded form it naturally takes. It will grow to six or eight feet tall, though in exposed positions it is more usually four or five. If not overwatered it will make a fairly dense growth without unseemly long whips, though in the main the growth is formed of numerous upright-arching stems. If really overwatered it will almost certainly die.

As a completely informal hedge or shrubbery lining a driveway it is most attractive, and can be pruned moderately if need be. Anywhere where the water supply is likely to be much more generous than in its native place *C. verrucosus* will require really good drainage. It is probably not a hardy species, though it will survive the light frosts which we get at times in this area. It is not difficult to raise from seed and as the plant (contrary to the habits of so many other species of Ceanothus) shows little natural tendency to hybridize, one stands an excellent chance of raising the true species even from garden collected seed. Various methods for assisting germination are recommended, such as treating with hot water or burning over the pan or flat in which they are planted. Where established in gardens, especially if the area is subject to good, hot Summers, volunteer seedlings are likely to appear in considerable numbers. In reasonable conditions *C. verrucosus* will make a shrub to four feet tall in three to four years. The average life span is said to be about ten years, but that will likely depend on the conditions under which it is grown.

*Arctostaphylos glauca* Lindley (1835). Of the Californian Manzanitas *A. glauca* is one of the tallest





*M. & M. Carothers*

*Arctostaphylos glauca*



growing species. Its natural range is through "cismontane" southern California, to about 3,000 feet as far north as Monterey County and Mount Diablo in Contra Costa Co. In the Chaparral it is a dense-growing shrub up to eight feet tall. Grown as an individual it may reach fifteen feet high and as much through with a trunk up to eighteen inches in diameter at its base. Often it is a great, domed shrub with branches touching the ground all around. If some of the lower branches and brush can be removed the smooth, deep mahogany-red stems and larger branches are well worth uncovering. It is a plant of the hot, dry hillsides and is not generally considered hardy. But, it will certainly go through light frosts without ill effects. (It seems to be uncertain just how much frost, or is it also Winter damp? a plant must be able to stand to merit the classification "hardy." Probably every area must have its own yardstick in this matter.)

The leaves of *Arctostaphylos glauca* are a grayish green with really a blue cast when fully mature, and the flowers, larger than in most Manzanitas, are pure white or tinged with pink, often appearing as early as December. The berries, carried in heavy, drooping clusters, are about the largest of any of the Manzanita fruits, to three-quarters of an inch across, very sticky and of a dull rather rich red-brown color when ripe. They contain a single solid nut where most of the other species have seeds divided into several, to numerous, segments. Generally *Arctostaphylos* seed is very slow to germinate, needing a period of some months' "stratification" (stratification as practiced in the Nursery trade consists of placing seeds between layers of soil, sand or peat, or sometimes sowing directly in a planting medium. The container is then stored and the medium

kept damp until the moisture has penetrated the seed coat. Van Rensselaer and McMinn in "*Ceanothus*"). Burning over will sometimes encourage germination, but a really certain and speedy way to germinate *Arctostaphylos* seed has yet to be discovered. The seed of *A. glauca* is supposed to be more easily germinated than most but all the Manzanitas need great care in their early seedling stages as they are readily subject to damping off. Nature seems to provide for the germination, first a long period of lying in the ground and then a fire (all too often supplied through man's carelessness). It is usually only after a forest fire that one can find seedlings of these shrubs in any numbers. But, until after such a fire the hills are already so densely matted with shrubby growth that there is little room for the growing of the myriads of seed which must fall annually, even after the insects, mice, birds and bears have all taken their toll of food from the supply.

Where planted in garden conditions it is likely to get a larger supply of water than in nature and will therefore require a very well-drained situation, though it will normally take a good deal more Summer water than many plants from the same region. Considerable pruning will agree with it, which means that it is possible to shape it into something of the picture best suited to its position in your landscape. As the shrub grows older and its stems more stout and tree-like they will provide a very satisfying picture both in form and color.

I wish to express my appreciation for the excellent photographs accompanying this paper to M. & M. Carothers of La Jolla, California.

*Rancho Santa Ana Botanic Garden  
Anaheim, California*



# Korean and Chinese Flowering Dogwoods

WILLIAM H. STRONG

The Korean Flowering Dogwood (*Cornus Kousa*)\* and its Chinese relative (*C. K. chinensis*)\* are bushy small trees or large shrubs of outstanding floral beauty. Flowering in late June or early July, usually finishing by July 4th, these somewhat neglected Asiatics, when properly situated, are as fully floriferous as the earlier native Flowering Dogwood.

The Korean species is described botanically as having bracts (white petals) 1 to 2" long, and the Chinese form as having bracts 2 to 2 $\frac{1}{3}$ " long. The interesting difference in flower is that the petals of the Korean form have a slight space between petals, while in the Chinese form this separation of petals is greatly reduced and the petals of most of the flowers close the space or overlap slightly. The spacing of the petals in the Korean species is so distinctive that identification can be noted at a distance. The pattern of lines between petals is striking, so much so that the plants in flower have an irregular stratification when in flower.

The plants\* are hardy in northeastern Ohio, in Rehder's Zone V. The particular specimens here illustrated were planted in 1926, and have undergone the tests of extremes of temperature and rainfall of this area. E. H. Wilson, in one of his accounts, mentions that these Asiatic Dogwoods are not shade-enduring, but seek the sun. When shaded the plant will endure, but does not flower.

As for experience with a limited number of plants, about 20, spring planting is successful, fall planting of the Chinese form is fatal, and very doubtful with the Korean species. The plants in usable sizes of  $\frac{3}{4}$ ' and larger should be moved with a ball at all times.

The fruit of the Korean form is red ball with  $\frac{3}{4}$ " diameter, only lightly or moderately produced in some years. The fruit of the Chinese plant has not been noted and may be produced in favorable years. In warmer areas they may be more fruitful.

The plants are wide-spreading, twice as wide as tall, dense in growth, with foliage held to the ground, and up to 25 years of age show no indication of becoming trees as the American form often does in an equal time.

For large lawns, parks, cemeteries, and free landscape treatment where there is space, these Asiatic Flowering Dogwoods afford a brilliant spectacle in early summer when flowering shrubs and trees have completed their bloom sometime previously.

Fortunately, the time interval in flower between the American and Asiatic Flowering Dogwoods is so great that they do not overlap and are thus not directly comparable or competitive. Invidious comparisons are not necessary.

Cleveland, Ohio

\*According to Standardized Plant Names, the common names are Kousa and Chinese Kousa Dogwoods, respectively.





*Korean Flowering Dogwood*





*Chinese Flowering Dogwood*





*Philip G. Corliss*

*At the Missouri Botanical Garden, St. Louis*

## Hemerocallis Comes of Age

PHILIP G. CORLISS, M.D.

A newcomer has taken its place on the list of the most popular perennials and now threatens the rose for top spot. It is the daylily, only recently bursting into the contemporary garden scene in its many new hybrid forms.

Hardiness, ease of culture, and variety of color, form, and blooming habits combine to assure its widespread acceptance. The daylily is one of the few perennials that not only can be grown, but actually thrives in every state. Although there is a marked variation in regional performance, it may be safely said that no other flower does as well in as many climates.

It is probable that the colchicine content of the plant is responsible for its immunity to insect pests. We may expect some future increase of fungus and bacterial infections but to date these have not proved serious.

The hemerocallis is one of five members of the lemon-lily tribe of the lily family. Its fellow-members are the funkia, phormium, blandfordia, and kniphofia. None of the tribe is native to the western hemisphere. It is interesting to note that the flowers and foliage of its relatives are often chosen by flower arrangers who work with hemerocallis.





*Philip G. Corliss*

*Daylily "Winsome"*  
*Pyracantha berries, Hosta, Variegated Oleander,*  
*Red Canna Leaves*



Increase is by division of the fleshy roots; seeds of the hybrids do not come true. The rate of increase varies tremendously. Some kinds send out stolons; this habit may be very troublesome in some plantings, as the stolons often extend underground for several feet. Others develop proliferations on the bloom stalks which may be easily grown.

One of the most important factors in regional performance is the amount of evergreen or deciduous blood in the hybrid. Completely evergreen types may be successfully grown in the most severe climates if they are given some protection until well established. Some of the deciduous varieties, however, will not survive in mild climates where they are denied their period of dormancy.

The flowers are borne on scapes which rise above graceful mounds of foliage. Most varieties open one flower daily on each scape and the flower remains open, for diurnal varieties, only until sundown. The flower scape may have from fifteen to sixty buds, and as they do not always open a flower every day, especially in cool weather, the actual period of bloom may be longer than the number of buds. Varieties are called "extended bloomers" if their flowers remain open until late in the evening—I have set 10:00 P.M. as the hour to check this feature. "Evening bloomers," opening at sundown or after, usually remain open for 24 hours. Hybrids containing blood from the multiflora species have several flowers open at once on well-branched stalks.

Many daylilies repeat their period of bloom later in the season. Some types are almost constant bloomers. It is to be hoped that hybridizers will utilize these constant bloomers so that future introductions will be in bloom during the entire garden season. Among the

most satisfactory constant bloomers now available are:

- BLANCHE HOOKER (Stout)  
Red, evergreen
- AMUR VALLEY (Marshall)  
Orange, evergreen
- CONSTANCE (Hill) Red, deciduous
- ONEITA (Davis) Rose, semi-evergreen

All of the species are native to Asia and its adjacent islands. The presence of daylilies in European gardens is recorded as early as the sixteenth century, but hybridizing was not begun until the last of the nineteenth century. The first named hybrid was APRICOT, introduced by Mr. George Yeld of England in 1892. He and Mr. Amos Perry were the leading English hybridizers. On the continent, important work was done by Karl Sprenger and his nephew, Willy Muller, at their nursery in Naples.

In America, daylilies received the attention of Luther Burbank, whose best introduction was the night-blooming CALYPSO. Mr. Carl Betscher of Ohio developed many excellent yellow and orange hybrids.

It remained for Dr. Arlow B. Stout, working at the New York Botanical Garden, to carry out a program of extensive breeding which resulted in the development of today's fine hybrids, which are vastly different in color, pattern, and form from the species which sired them. Selective breeding resulted in the first dark red daylily which Dr. Stout named THERON. The acquisition of a pink strain of *Hemerocallis fulva* known as *H. fulva rosea* added great impetus to the enlargement of the color range of daylilies.

The first published registry of named daylily clones, which included those registered to the year 1948, contained some three thousand varieties. Al-





*Philip G. Corliss*

*Upper: Pink Radiance (Geddes Douglas)*

*Lower: Seedling (Joseph House)*



though most of these were developed by botanists, the ease of hybridizing and growing seedlings has provided an exciting hobby for hundreds of amateur gardeners in all sections, and some of today's finest flowers are coming from the gardens of these people. In 1950, for instance, it was estimated that amateur gardeners in the city of Valdosta, Georgia, were growing a total of twenty thousand seedlings! The Hemerocallis Society has one thousand members, and it is probable that most of them are hybridizing.

The daylily flower contains three outer segments or sepals and three inner segments or true petals. There are six stamens and a pistil. The two lobes of the petals are joined by a rib which may be prominent and of a light color. The inner part of the segments is always yellow although it may vary from pale primrose to deep orange and may be quite greenish. The throat may be small or may extend well into the segments. At the outer end of the throat there is frequently a pigmented area known as the "eye" zone on the petals only or on both petals and sepals. The petals may have a thickened edge, often ruffled and of light color. Further variation may be occasioned by prominent dark veins. The petals and sepals may be the same or contrasting colors. Most bicolors have darker petals but there are some "reverse" bicolors with deeper sepals. The ground color of the flower may be overlaid with pigment causing a flush—gold, or various shades of red.

There are no white, blue, green, or black daylilies. The closest approach to white is in the pale yellows, such as CARVED IVORY, WHITE LADY, and SNOWY EGRET. It is believed that blue daylilies can be achieved. The closest approach I have seen is in CANYON PURPLE. Green color ap-

pears in the throat or central portion of many flowers, but it is doubtful if green daylilies will be produced, although some of the yellow varieties approach chartreuse. Some dark red daylilies closely approach black.

The form of the daylily flower is subject to great variation. There are trumpets, full cups, flaring stars, and flowers with recurving petals. Narrow petals produce spidery forms, while some petals are so wide that they overlap and hide the sepals. There are several billion possible distinct variations.

The size of the flower varies from less than two inches to well over eight inches. The height of the bloom scape varies from a few inches to over six feet but the majority of named hybrids are from two and one-half to four feet in stature. The dwarf species have but one or two flowers per stalk and the hybrids derived from them are subsequently not floriferous.

The principal cultural requirement for daylilies is adequate drainage. They are tolerant of a wide latitude in soil reaction, drought or flood, sun or shade. The proper planting depth is with the crown at the soil level. The fleshy roots should be fanned outward and downward, the crown being set on a cone in a hole of sufficient size to accommodate the roots. Trimming the roots and tops severely when resetting divisions stimulates the plant into accelerated growth. The ease with which tiny pieces may be grown in peat moss corroborates my information that in China hemerocallis is grown and bloomed indoors in winter in containers with rocks and water with or without soil as we grow many bulbs in our homes.

Colchicine has been used recently (see Traub, Hamilton P.: *Plant Life* 7: 83-116, 1951) to provide mutations by doubling the chromosome count





*Philip G. Corliss*

*Daylilies take over after iris and long before  
chrysanthemums begin to bloom*



from 22 to 44. These tetraploids are larger and more vigorous than the diploids. Since their breeding characteristics are similar to those of tetraploid iris we may expect a great increase in the use of these tetraploids by future hybridizers.

There are six natural geographical divisions of interest in hemerocallis breeding and culture in this country. It is not possible in this space to list all of the breeders of note, but the regions and some of the leading workers are as follows:

#### *The Corn Belt*

The hemerocallis was first most widely accepted in gardens of the corn belt. This region includes the great corn-growing states and extends into adjacent parts of Texas and other neighboring states. The leading hybridizers have been the Sass family of Omaha and Mr. H. M. Russell of Texas.

The late Hans Sass developed such excellent yellow varieties as HESPERUS and Mr. Henry Sass is continuing the family tradition with the introduction of flowers of high quality in all colors.

Mr. Russell has named more daylilies than any other breeder and has been the Nation's largest commercial grower. PAINTED LADY is his most popular introduction.

The corn belt was the cradle of The Hemerocallis Society, which was at first called The Midwest Hemerocallis Society.

#### *The Great Lakes Fringe*

A band approximately one hundred miles wide extending along the entire United States side of the Great Lakes constitutes a second area of daylily interest. Although daylilies have received attention from iris breeders in all sections of the country except the

frost-free part of the southeast (where bearded iris do not thrive) the names of daylily hybridizers in this region are especially familiar to iris enthusiasts. Mr. David Hall and Mr. Paul Cook, for example, have both made outstanding contributions.

#### *The Northeast*

Besides the pioneer work done by Dr. Stout, the northeast contains many daylily breeders, the most important of whom is Mrs. Thomas Nesmith of Lowell, Massachusetts. More than one half of the top hundred favorites in most popularity polls were originated by Dr. Stout and Mrs. Nesmith. Improvement of color and form have been Mrs. Nesmith's greatest achievements. She has also added to the small list of satisfactory evening bloomers. Her introductions have a "finish" often lacking in daylilies coming from other sources.

#### *The Southeast*

The southeast is properly divided into the area which has frost and that which is frost-free. Georgia and Tennessee are the principal regions of daylily activity in the former, with Mr. Geddes Douglas of Nashville and Mrs. Hugh Lester of Atlanta the principal hybridizers of note.

Florida and the gulf coast comprise the frost-free area and varieties developed here are distinguished principally by the preponderance of evergreen types. Dr. Hamilton P. Traub was one of the first breeders of note in Florida. Professor John V. Watkins, working at the University of Florida, has limited his breeding to flowers especially suited for Florida gardens, although many of them perform handsomely elsewhere. Mr. Wyndham Hayward and Mr. Ralph Wheeler, both of Winter Park, Florida, have many fine introductions. Mrs. Bright Taylor, of Oca-



la, Florida, has had remarkable success with a program of close line-breeding. Her original cross was *H. aurantiaca major* × *H. fulva rosea*, and from the descendants of the F<sub>1</sub> seedlings she has introduced, with only occasional out-breeding, a splendid list of evergreen and semi-evergreen varieties in a wide range of colors, among which are many fine pastels, the best-known of which is PRIMADONNA.

#### *The Pacific Coast*

Daylily breeding was slow in arousing the interest of west coast gardeners. This was because so many other flowers thrived exclusively here and also because conditions in the coastal area, possibly because of the cool nights, were not conducive to good performance of daylilies originated elsewhere. The last few years have seen a great awakening of interest in daylilies in the entire region. Mr. Carl Milliken's GARNET ROBE is considered by many to be the most beautiful red daylily and his HIGH NOON is certainly the most resistant to heat and sun of any yellow variety so far introduced.

#### *The Rocky Mountain States*

This region is divided into the areas of high altitude and cold winters and the arid desert regions of the southwest. Mr. Lemoine Bechtold of Denver is one of the Nation's top hybridizers and has produced many flowers in bold clear colors of large size.

Its ability to withstand heat and drought make the hemerocallis one of the best-suited flowers for the arid southwest. "Extended" and evening bloomers are especially valuable where the hot summers lead to the use of gardens with pools and barbecue pits principally after sundown. It is only in the last decade that people in this region have learned that they can have flowers in their gardens, and the surging rate at which Arizona is being filled with new residents who have fought life's battles elsewhere and moved to this region of mild winters where they will have time for gardening leads to the hope that others besides the author of this article will soon be working for daylilies especially suited to this climate.

Somerton, Ariz.

## Rex Begonia Seed on Sphagnum Moss

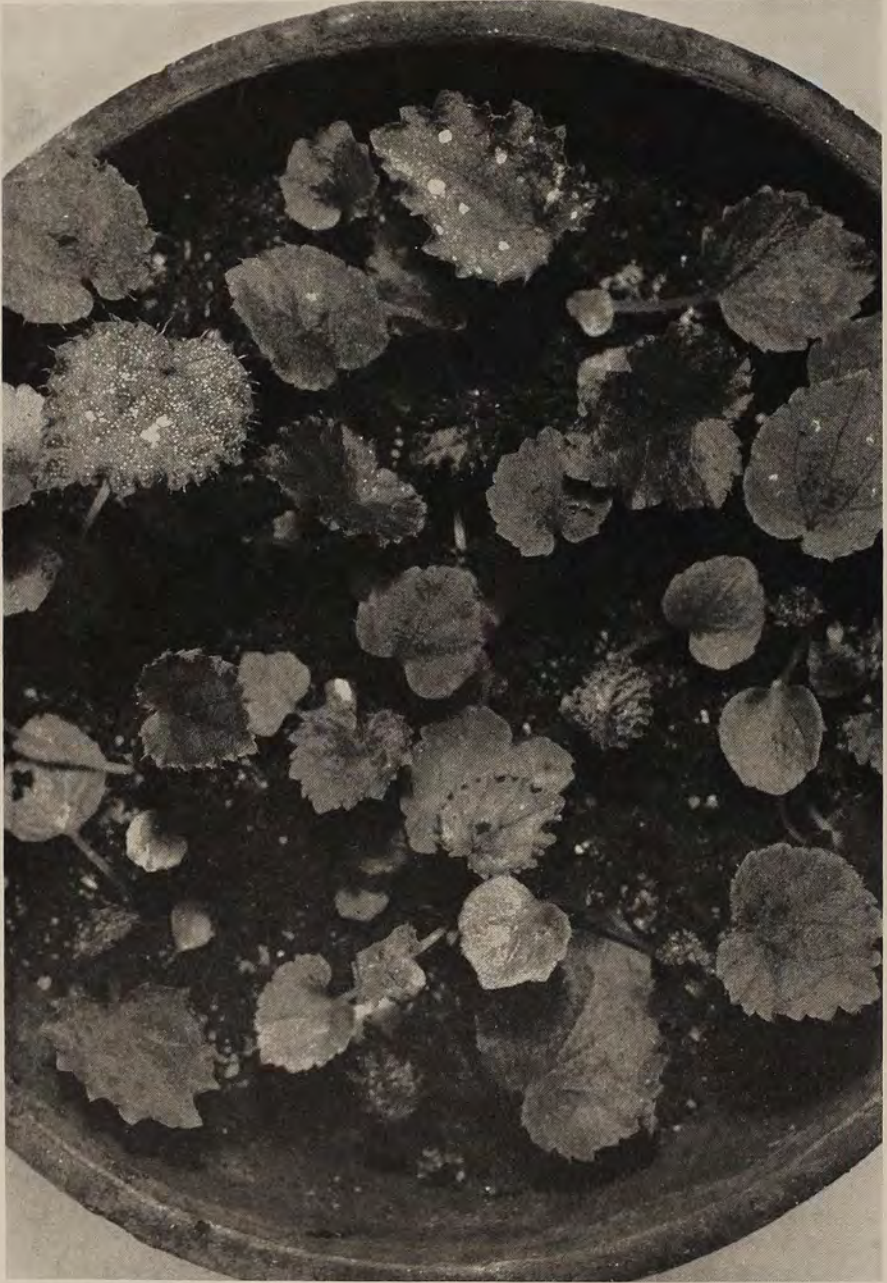
B. Y. MORRISON

On reading the account of how to sow Rex Begonia seed in a recent *Begonian*, it occurred to me that our standard method of sowing seed on sphagnum moss sounded as acceptable and infinitely more simple. Accordingly, two packets of Rex seed were ordered from each of two advertisers in the *Begonian*, and the seed were sown in early May in an unheated greenhouse. By that time of year here, the daily temperatures are uniformly high enough so that there would be no dan-

ger of chilling.

Although the method of preparing sphagnum for seed sowing has been published often enough, there are plenty of people who either have not heard of it or who do not believe in its worth. For this experiment, eight-inch azalea pots were used. No drainage is needed in the bottom. The pots were filled with sphagnum taken directly from the bale and torri by hand, so that it could be firmly packed to make a mass within





*Robert L. Taylor*

*Rex Begonia seedlings after first transplanting.  
Larger plants, showing first markings on leaves.*





*Robert L. Taylor*

*Same crop, but segregation of the smaller seedlings.  
Same age as those on opposite page.*



two inches from the level of the top of the pot. Then a layer of moss, scrubbed through one-quarter inch hardware cloth, was poured over the mass and the pots were stood in a pan of water overnight. By the next morning the moisture was uniform throughout the mass and the pots were stood on the floor to allow any excess moisture to run off. The seed was then sown on the top of the layer, a pane of glass put on the top of the pot, the pot set in a saucer for watering, and the pots (there were two of them) placed where the sun would fall on them.

In about three weeks it was obvious that germination was beginning and that the seed had not been well distributed over the surface for much of it seemed to have been the inevitable chaff and not seed at all. Having had endless experience with crowded seedlings on sphagnum, no fear was felt for these. They grew on apace and as soon as they could be conveniently handled were lifted from the sphagnum moss with no damage at all and planted as seen in the photograph in other azalea pots filled with a soil mixture rich in leaf soil and gritty sand. Glass was put over these pots for about a week. Growth was continuous. And now in about four months, the plants are ready for potting in individual pots. The original leaves, without any suggestion of Rex patterns, are beginning to be overshadowed by leaves with the first suggestions of patterns and markings as well as marginal distinctions, and greater hairiness in all parts.

As long as one remembers that he must use fresh (new) sphagnum moss for each sowing, there is absolutely no danger of any damping-off fungus. Experiments were tried with known strains of damping-off fungus at the U. S. Plant Introduction Garden, Glenn Dale, Maryland, on seedlings of

easily damped-off annuals sown on sphagnum and no plant died save those actually touched by the inoculating loop. The fungus apparently could not spread. Since sphagnum is cheap enough, light in weight so that it can be economically bought from long distances and since each bale weighs but ten pounds more or less, there is no excuse for giving oneself the complications of other procedures. Furthermore, a pot or flat of prepared sphagnum weighs about one-eleventh of what a similar amount of soil would weigh and one is saved no end of work if the pot or flat has to be moved. A pane of glass over the container in lieu of a casserole cover also reduces weight and apparently is just as effective, so why should one raid the kitchen or go to the expense of buying new casserole covers?

Germination in this case went on over a considerable period of time. Whether this is due to the method or is regular for Rex seed, I do not know. As it is never my practice to discard seed pots or flats of any seed unless I immediately get an excess germination, I kept these pots and found that seed from one dealer was uniformly slower than from the other and that the seedlings grew more slowly after pricking off. But there is nothing to suggest that they are weaklings. It will be interesting to discover what comes from each lot as they mature.

If one has better greenhouse facilities than I do, his report of progress would doubtless have been more satisfying in quicker growth, but this note is published to encourage those who do not have facilities on the professional level to go ahead and beat the professionals who still, in this modern day and age, sow Rex seed on sifted leaf soil spread over a brick in a pan of water all encased "en casserole" . . .



# Rhododendron Notes

CLEMENT G. BOWERS, *Editor*

## *Rhododendron occidentale*

Three species of *Rhododendron* are found commonly in the wild in the Pacific Northwest. The large pink-flowered *macrophyllum* (californicum) occurs along the coast and at mid-height elevations in the Cascade Mountains. The white-flowered *albiflorum* occurs at still higher elevations. In the lower foothills of southwestern Oregon and northwestern California *occidentale* is found in great abundance covering acres and acres of area, sometimes in nearly pure stands.

From my own observations and conversation with acquaintances, *macrophyllum* is not a strictly hardy ornamental inland from the coast, nor does *albiflorum* succeed well at lower elevations having a hot dry summer. On the contrary, *occidentale* may be readily transplanted and be expected to thrive in a wide variety of sites and soils. Throughout the Willamette Valley it is a beautiful and most satisfactory landscape subject. During the winter of 1949-50 the temperature dropped one night to 11 degrees below zero F. at Corvallis, Oregon. Practically every flower bud, and many of the leaf buds and branches as well, were killed on plants of *macrophyllum* growing in this vicinity, but I observed no cases of injury among hundreds of bushes of *occidentale*, except for two plants which are said to be hybrids of *macrophyllum* and *occidentale* — on these, all flower buds were destroyed and the branches showed some injury.

Under cultivation in the Willamette Valley *occidentale* seems to succeed

equally well on the flat clay bottom lands which may be excessively wet during most of the winter months and very dry during the summer, or at higher, well-drained elevations, even those having the native rock not more than 3½ feet below the surface. The average annual growth of the new branches is from four inches to one foot in length so that in a comparatively few years, shapely, compact shrubs from 6 to 15 feet in height are formed. The tip of each annual growth of vigorous plants usually has a cluster of 10 to 20 creamy white to distinctly pink flowers. They have a delightful, pungent scent noticeable for many feet from the plant. As noted there is considerable variation in color and to a lesser extent in size of the flowers. Some plants have the flowers creamy white except for a lemon-colored patch in the upper petal. Others have the back of the petals ranging from a tinge of pink to full rose color. These colors may often extend to the face of the petals as well, with the signal patch a bright gold-orange.

Spontaneous hybrids of *macrophyllum* and *occidentale* are said to occur where their ranges overlap. An acquaintance has such a plant, its foliage and bush habit closely resemble *occidentale* and it is also completely deciduous, the leaves assuming a rich, red-brown in autumn before falling. Its flowers are a striking deep pink, considerably larger than those of *occidentale*, the petal segments are wider and the gold signal patch larger and deeper in color. Altogether it is a magnificent



plant, like a splendid, vigorous "Irene Koster." I also have a hybrid plant. Its foliage is intermediate between the two parents and the bush form is more nearly that of *macrophyllum*. The leaves are somewhat leathery and most of them remain on the plant during the winter. I have not yet seen it bloom since all the flower buds were completely killed during the past winter.

*Occidentale* has been much used in hybridizing. Certainly it is well worthy of parenthood, at least for the Pacific region. I have been informed by one who has had much experience with azalea hybrids that neither the species nor its hybrid offspring are well adapted to sections of Maryland, Virginia and southward. This may be owing in fact, to the warmer more humid summers of the southeast. Last year it was noted that *occidentale* crosses readily with various *molle* hybrids, many of the *molle* hybrids—about a dozen were

available for trial, *macrantha*, *kaempferi* and several others, and also with several clones of true Rhododendron, especially *kewense* and *Loderi*. I found, however, that seeds of the latter crosses germinated slowly and that the seedlings have been much more difficult to establish than many others tried. Several individuals who are well acquainted with *occidentale* in its native habitat have told me that seedlings are difficult to find there, although hundreds of established plants occur on each acre of space.

Plants up to 5 feet tall are easily moved either from the wild or under culture, and respond well to the garden care usually accorded azaleas or rhododendrons. Many local observations indicate they thrive well with very little care, but certainly deserve and respond well to good culture practice.

E. J. KRAUS

Oregon

## A Book or Two

THE SMUT FUNGI. George William Fischer. The Ronald Press, New York, 1951. 387 pages, not illustrated. \$6.00.

While abstracting journals have made the current work in various fields more readily available, it remains for bibliographic reviews such as The Smut Fungi to make quickly available in one volume what has previously been accomplished in any one field.

This book is divided into two parts. In the first are included a list of 330 species of smut fungi, and the diseases they cause. Under each species are

subdivisions on synonymy, control, culture on artificial media, cytology, heterothallism, host range, hybridization, life history, physiologic specialization, spore germination, varietal resistance, etc.—in fact this list is intended to cover all published information. Under each heading are numbers referring to literature citations with the author's name and date of publication arranged chronologically.

The nomenclature and synonymy follow that of Zundel's monograph "The Ustilaginales of the World."

The second part of the book contains 3,353 literature citations referred



to in part one. With the information so well classified a worker in a related field can turn to whatever interests him concerning any particular smut fungus.

The book should be most helpful to teachers, plant pathologists, botanists or mycologists as intended by the author.

CHARLOTTE ELLIOTT

**FORESTS AND MEN.** William B. Greeley. Doubleday & Company, Inc. Garden City, N. Y., 1951. 255 pages, illustrated. \$3.00.

This is an exciting book, in subject matter and in the manner of telling. It has to do with an historical background that we all should know and know well; its import reaches far into the future, a future that we should insure as much as it is possible to insure any human thing or enterprise.

All good citizens should read it now, when the fate of Forest Lands sometimes hangs in the balance. They may seem far from you and your particular home site, from your human interests, but they are not, these acres of woodlands. It is not just a matter of soil conservation told again, not just the retelling of the beginnings of the Forest Service, not just personal tributes to men, both famous and unknown, it is the passionate story of one of the great features of life on this continent and within our national borders.

Whether you have any personal concern or not read it; put it down even to the lowest possible motive, if you wish to read a good story, read it, but read it please.

**HOW TO GROW AND KEEP A BETTER LAWN.** Joseph F. Flynn. Simon and Schuster, New York, 1951. 75 pages, illustrated. \$1.00.

This is a model of simplified writing. No one could ever profess to not having understood. This is for a large group of gardeners the most important thing they can find in any book, clarity, not only in writing style, but in plan and purpose.

When carried to as great an extreme as in this case, the resulting book is a little stark, in its printed look, but the text "reads well" and one catches a little of the fire that can be had from the "spoken word." If you will read page "ix" and turn over to the one that should be "x" and isn't, you will read all the rest.

The only thing the book doesn't tell, is when not even to try to make a lawn. Some times that is the answer the gardener is looking for and should find, but of course it wouldn't be here.

**A POCKET GUIDE TO THE WILDFLOWERS.** Samuel Gottscho. Pocket Books, Inc., New York, 1951. Illustrated—variously. \$.35.

This is a cheap edition of a more properly published volume, and takes its place bravely among the garish volumes on the news racks that more commonly purvey the stories of the baser passions of the human carcass or the earthy maunderings of the so-called psyche.

The preface, foreword et al, tell all that one should know about the reason for being, the scope and intent.

The whole program seems to have been well carried out. The text is pleasant, for the most part adequate with weakness only in the portions that relate to garden practice; the black and white illustrations are delightful, the color plates fare less well with some definitely erroneous in coloring as printed here. The line drawings are good, but less valuable than the other illustrative material.



There are some excellent pages on photographing wild flowers in the end of the volume that could be read with profit by many a commercial man, not just the amateur to whom the book is addressed.

OLD HERBACEOUS, A NOVEL. Reginald Arkell. Harcourt Brace and Company, New York, 1951. \$2.00.

It is not often that a novel falls within the reviews that should and must come into such a journal as this. This exception is made chiefly because it presents in a pleasant and gentle fash-

ion an argument in favor of gardening as a 'way of life.'

It is, of course, definitely a whimsy, a period piece and much more. Its reception elsewhere, usually has been warm, but one wonders a little if the reviewers in general have been *bona fide* gardeners or urban garden wishers; whether or not they have been old people with a nostalgic interest in the past or unsettled moderns.

No gardening lore is here for you, no schedule of operations, no rules, only a few gentle hints as to the vagaries of the human heart.

## The Gardener's Pocketbook

*Notes on the Palms:*

### 4. *Acrocomia armentalis* (Morales) L. H. Bailey

Of the seventy-six kinds of palms native to Cuba, few are as unusual in appearance or as interesting to the casual student as the several species of *corojos* which inhabit that fabulous isle. These *corojo* palms, all members of the genus *Acrocomia*, now number three in the island, with several additional species occasionally being found in cultivation.

The true *corojo* of the Cubans, *Acrocomia armentalis* (Morales) L. H. Bailey, is found only in Cuba, but is often common in the limey plains which extend throughout the center of the isle. There it frequently forms large stands, consisting of many dozens of specimens, all of characteristically peculiar appearance. The large (to 2.75 cm. in diameter) ball-shaped fruits, borne in profusion, are greatly savored by pigs, and are even eaten by cattle and goats. A rather potent liquor is occasionally decocted from them, af-

ter an initial lengthy soaking and mashing in water. The tougher portions of the leaves are used in the making of strong cords and twines, and the entire leaf occasionally in the plaiting of palm-mats for use within the native huts.

*Acrocomia armentalis* is a robust palm which reaches a height of 18 meters under optimum conditions, though it is generally somewhat less. When immature, its then cylindrical trunk is virtually covered by old, terribly spiny leaf-bases, the thorns of which may inflict serious festering wounds on the incautious handler. As the palm reaches maturity, these leaf-bases gradually fall, and the once cylinder-shaped trunk becomes prominently thickened, mostly toward the top of the bole. The formerly very numerous spines are now considerably reduced in number, and are borne in rings which extend all around the trunk, at regularly-spaced intervals from one another. These spines, brownish-black in color and very sharp, are brittle and break off





*Alex D. Hawkes*

*Acrocomia armentalis*



with annoying facility; if they are allowed to remain in a wound, they quickly fester and may cause a serious lesion.

The pinnate, glossy, deep-green leaves reach a length of almost 2 meters, though they frequently are half that length; they are spiny when young, but gradually the spines fall, so that the foliage is almost glabrous on maturity. The uppermost leaves are rather rigidly erect, the median ones arcuate, and the lowest ones almost pendulous, so that a singularly handsome roundish crown is formed. The pinnae are paired, very numerous, usually only about 2.5 cm. across, and bluish or grayish-green beneath, giving a pleasant contrast to the glossiness of the upper surface.

The spathe reaches a length of as much as 2 meters, and is sparsely spiny on the peduncle, but mostly tomentose elsewhere; it is a narrow, acuminate-pointed structure, and becomes pendulous with age, hanging over the large fruit-cluster. The pale yellow-white flowers are borne in great arching spadices to 2 meters or more long; they are constantly surrounded by bees and wasps, and give off a rather musky odor when old. These are followed by abundant globular fruits, greenish-brown in color, with a hard exterior and rather pulpy yellow inner area surrounding the large hard rough-surfaced seed.

The nomenclatorial history of this attractive palm is a confused one. As established by Bailey (GENT. HERB. 4: 462, ff. 1941.) it was originally described by Sebastian Alfredo Morales in 1866, as *Gastrococos armentalis* (REP. FIS.-NAT. IS. CUBA 1: 57. 1866.). For some time it was confused with *Cocos crispera* HBK (NOV. GEN. ET SPEC. 1: 242. 1815.), apparently a different palm; because of

this confusion, Baker (ex Becc. in POMONA COLL. JOUR. ECON. BOT. 2: 364. 1912.) gave it the name *Acrocomia crispa*, a *nomen* which is often applied to it to this day.

The *corojo* palm of Cuba is frequently planted around native habitations, for its edible fruits, the useful foliage, and its singular ornamental value. The peculiar "belly" trunks are often a characteristic part of the landscape of the island, where palms are so abundant and dominant a feature of the vegetation.

ALEX D. HAWKES

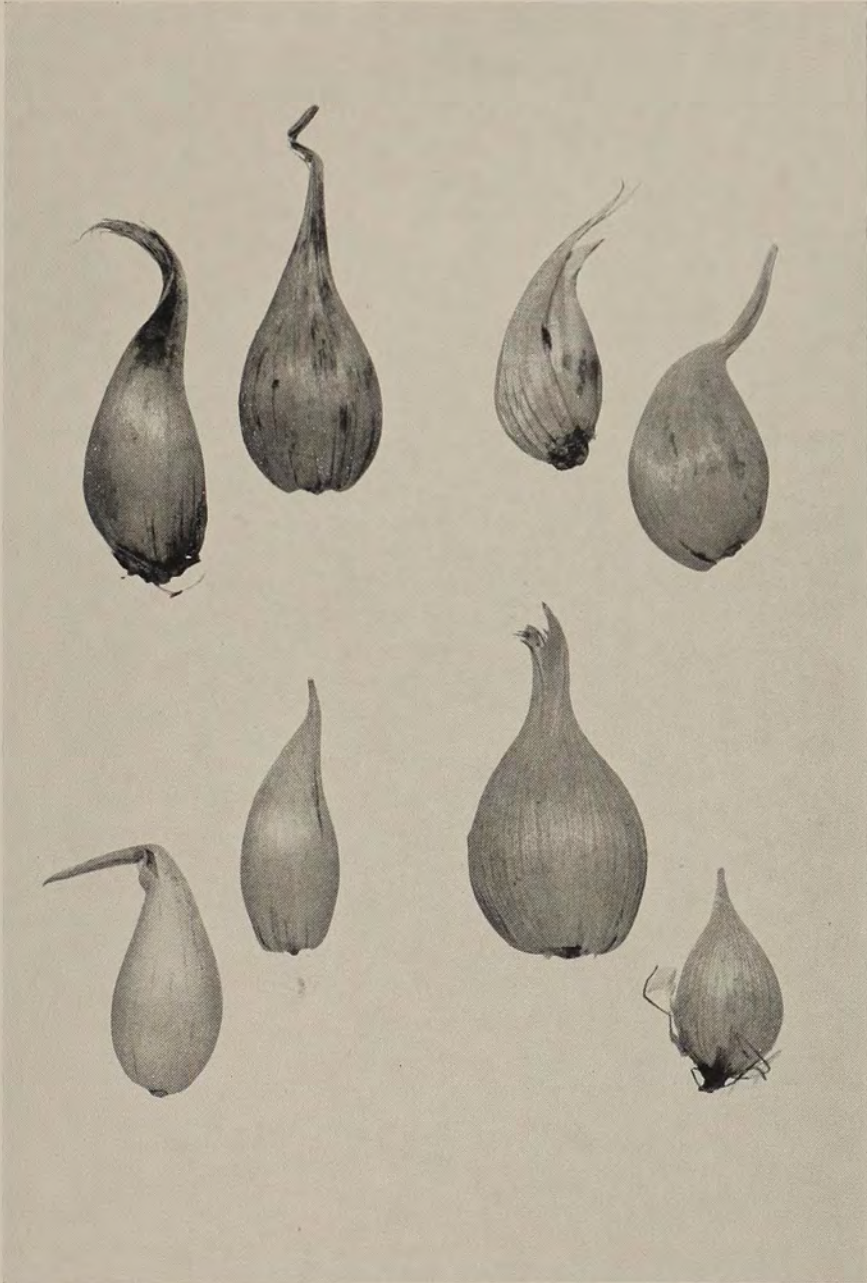
Department of Botany  
University of California  
Berkeley 4, California

*Iris reticulata relatives* (See page 163)

Although *Iris reticulata* and *I. histrioides* have long been resident in my garden, the only other member of the Section that I have had and that briefly, was *I. Bakeriana*, received among collected material under a very different name. As those few bulbs were planted in a location that was supposed to suit the iris as named, the real species died, as it did not care for the moister site. *Histrioides* has been kept in a cold frame and persisted well with moderate increase from small bulbs about the base of the old bulb. It is so planted, of course, since its habit of flowering in late January or early February with blooms that rise almost naked from the ground, is not such that would be suited to our inclement weather in that season. They, like some of the precocious crocus species, suffer from broken necks almost at once, unless so sheltered.

A letter from an A.H.S. member who had grown *I. Danfordiae* for some years in her Santa Fe, N. M., garden stirred me to action, though the climate of New Mexico is much more





Robert L. Taylor

(See page 162)

*Iris histrioides major*; *I. Danfordiae*;  
*I. Vartani alba*; *I. Bakeriana*  
(all natural size)





Robert L. Taylor

*Iris Vartani alba*

(See page 162)





*Robert L. Taylor*

*Iris Danfordiae*

*(See page 162)*





Robert L. Taylor

*Iris histrioides major*

(See page 162)





*Robert L. Taylor*

*Iris Bakeriana*

*(See page 162)*



nearly like that of this iris species' home, than the climate here. A search through the 1950 catalogues showed that one could have all four of the species mentioned in one of our mimeo-letters of last year: *I. histrioides major*, *I. Bakeriana*, *I. Danfordiae* and *I. Vartani alba*.

As I wished to be sure that I could get photographs, the bulbs were planted in pots and the pots overwintered sunk to their rims in the soil bed on the floor of an unheated pit greenhouse. The winter of 1950-51 was cold enough so that there was some freezing even on the floor levels. The accompanying pictures speak for themselves. They are all taken natural size and they were posed in such a way that they simulate the appearance of my clumps of *Iris reticulata* that do in fact grow out of doors.

The white form of *I. Vartani* was the first to flower, as it should if it follows the descriptions given in Dyke's "The Genus Iris," sending up first of all the group, its two unequal leaves that are well developed before the flower comes. As it happened, only two of the six bulbs flowered and before the pot could be photographed, a visiting mouse doubtless enjoying the shelter of the house, ate one, so that the effect is meager. According to the books, this species should increase rapidly and flower abundantly when it is suited, so that in time it may be a better picture can be shown. The color is white, but neither pure nor shining as in the poet's narcissus. The fragrance is said to be that of 'almonds' but had no such distinction to this observer, though sweet enough, nor did it suggest the fruity scents that one gets so clearly from *I. graminea* nor even some of the derivatives of *I. trojana*. Again, as the books report, the leaves have continued to develop so that now, April, they are long

and grassy for all of their typical 4-ribbed character. Whether or not this plant will persist and multiply now that it is plunged out of doors, remains to be seen.

*Iris Danfordiae* was originally called *Xiphion Danfordiae* by Baker who identified it as a new species from "imperfect specimens, sent to Kew by Mrs. Danford, who gathered them in 1876 on the north side of Mt. Anascha, a continuation of the Ala Dagh in the Cilician Taurus (K)." Through its synonymy one learns of other materials sent home through the latter part of the 19th Century but it is sad to think that now, half way through the 20th Century, it is not a common bulb.

Its chief distinction in the garden is the bright yellow color of the flowers, that set it apart from its fellows, and to the botanists, the small "standards" that make no show at all. The few markings are of a dull yellow green that does not mar the brilliance of the yellow flowers, bright as a good *Crocus chrysanthus*. The 'crest' on the blade of the falls is spoken of by Dykes (l.c.) as a "conspicuous orange median ridge" which is doubtless safer than if one speaks of "crest" as for Evansias.

No good fortune has even brought me a chance for bulbs of *I. histrio* which one gathers is the most widely distributed of the species of the Reticulata Section, but *I. histrioides* in its delightful pale porcelain blue colors (a lavender blue of course as in all iris), has been easy enough. There was no chance to lift it for photographing so it can only be recorded here as being much taller at the moment of flowering than is the case for the darker-toned *I. histrioides major* shown herewith. This latter seemed almost the most substantial of the whole series if one may use so gross a word for so delicate a flower.



*Iris Bakeriana* which has been illustrated in the magazine before this from home grown flowers is the writer's favorite of them all, for the simple but personal reason that he enjoys the deep and brilliant color of the falls, with their almost pansy-like surfaces and hues. As compared to *I. histrioides* which is a blue lavender, this species is a pinkish lavender, though by no means a pink; the falls are mottled as one can see with deep glowing purple and the open area below the tip of the crest on the falls, is dappled with the same and flushed with yellow. One hopes that the new home of the new bulbs will be dry enough, and warm enough to bring permanence.

The photographs of the bulbs are given as an incomplete record of the species, since doubtless there would have been more coats had the bulbs been freshly dug and the older coats would have shown the reticulations that give character to the Section.

The usual instructions for growing the species of this Section are based on a remembrance of the climate of their home lands, with cold winters, sometimes well blanketed with snow, an early spring with fine sunshine and a long hot and usually rainless summer. The regions, though perhaps not characterized by them have many winter annuals and a fair number of xerophytic shrubs and trees. Lime is not lacking!

B. Y. M.

#### *Cascade Chrysanthemums as Hardy Plants*

Mr. John L. Creech's interesting article in the January, 1950, issue on Cascade Chrysanthemums stressed their use and beauty when grown in pots; I wish here to record my experiences with them as hardy and easily grown plants for the garden.

In 1931 Thompson & Morgan of Ipswich, England, listed seed of "Japanese Mountain Chrysanthemum, a small flowering spray chrysanthemum in a wide range of colors." Seed sown in a small seed flat came up so generously that I was able to supply plants to a dozen gardeners at least who lived in southern New Jersey and in the New York City area. The seedlings transplanted easily and grew lustily. Both in my own garden and in others some of the plants were pinched back several times before mid-July and some were not. Also some were planted on level ground and some at the tops of low stone walls and of rough banks. In all cases I knew of, no fertilizer was given. The group of gardeners in southern New Jersey continually compared notes as to how to handle the plants, for none of us knew exactly what to expect from them. By mid-August some of my friends felt compelled to stake their plants, especially those on level ground, as their plants were beginning to "flop" too much.

By the time buds were beginning to show color we had all reached several conclusions which we held consistently to even after we had seen the plants in flower and had grown them over a period of several years. If the plants are to be grown on level ground, they should be pinched back three or four times before early July; at which time stakes, or better still twiggy branches left fifteen or eighteen inches above soil level, should surround the plants to support the growing stems and allow them to hang down according to their nature. And that it was almost impossible to obtain a well rounded mound of growth as the nature of the plant was to form a wide one-sided growth. The second conclusion was that the right place for the plants was at the



top of a rough bank or low wall so the growth could hang down naturally, and that in such a position only one or two pinchings should be given. But the best way to grow them would be at the top of a wall or bank high enough to allow them to develop naturally (without any snipping back) yet not reach ground level.

The individual flowers were from a scant inch in diameter to over two inches and in clusters from every leaf axil along the stem down to the very base. From the time they began to flower the plants were a cascade of color which continued for a period of over two months as all buds in each cluster do not open at once and dead blossoms are hidden by new ones. There were some spidery flowered ones which could easily have been developed into spoon-shaped forms, which I dislike, so they were at once destroyed. The color range ran from white through all shades of yellow, of pink and of red to deep crimson.

As to hardiness; they lived over many winters in both localities mentioned above and seeded themselves every year as well. Some of the self-sown seedlings, not only in my own garden but in friends' were of better flower and color than their parents. And, of course, many of the seedlings were skimpy, washed out things; by weeding these out as soon as they began to flower the resultant seedlings after several years were all good.

When in 1940 the garden had to be given up some of the original plants were still flourishing and they had not been replanted although fertilizer had infrequently been given them and portions had been removed. In northern gardens they may not be hardy, but I doubt that, for they are mountain forms. Even though they should not prove hardy in New England they

could easily be treated as annuals—and I am certain they would self-sow.

ALFRED BATE

New Jersey

### *Rex Begonias.*

The Rex begonias that appear on page 153 of this issue are only the forerunners of others still to come. In the next issue, DV, there will be a picture of the plants from the pot on page 155 that were not potted individually but allowed to grow on in a tangled mass that makes a gorgeous effect when the sun shines through it on the western window ledge.

We have had Rex begonias before, with an early piece by the late Mr. Robinson, a later piece by our own Mr. Furniss, and there will be others to come. The editor is growing, not only the seedlings raised for this article, but a collection of varieties from The Barnes and another that is being assembled with the help of Mrs. Louise Schwerdtfeger. As soon as they are in condition for photographing, our Mr. Taylor will lend his art to getting the portraits. Meantime, those of you who think of them in the old colors of silver, greens, reds and dull browns, had best begin to prepare yourself for all the exciting adjectives that the rose and gladiolus people brandish about. If you haven't seen them you probably will be dubious. So was the editor, but not any more; and are some of the begonia people laughing!

Did you know for example that now there are many begonias, labeled Rex that no longer crawl along on their rhizomes, but rear their heads into the air? Some are old, but some of them are quite new and American in the bargain.

B. Y. W.



## The American Horticultural Society

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

For its members the society publishes **THE NATIONAL HORTICULTURAL MAGAZINE**, at the present time a quarterly of increasing importance among the horticultural publications of the day and destined to fill an even larger role as the society grows. It is published during the months of January, April, July and October and is written by and for members. Under the present organization of the society with special committees appointed for the furthering of special plant projects the members will receive advance material on narcissus, tulips, lilies, rock garden plants, conifers, nuts, and rhododendrons. Membership in the society, therefore, brings one the advantages of 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 five 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.