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The National Horticultural Magazine

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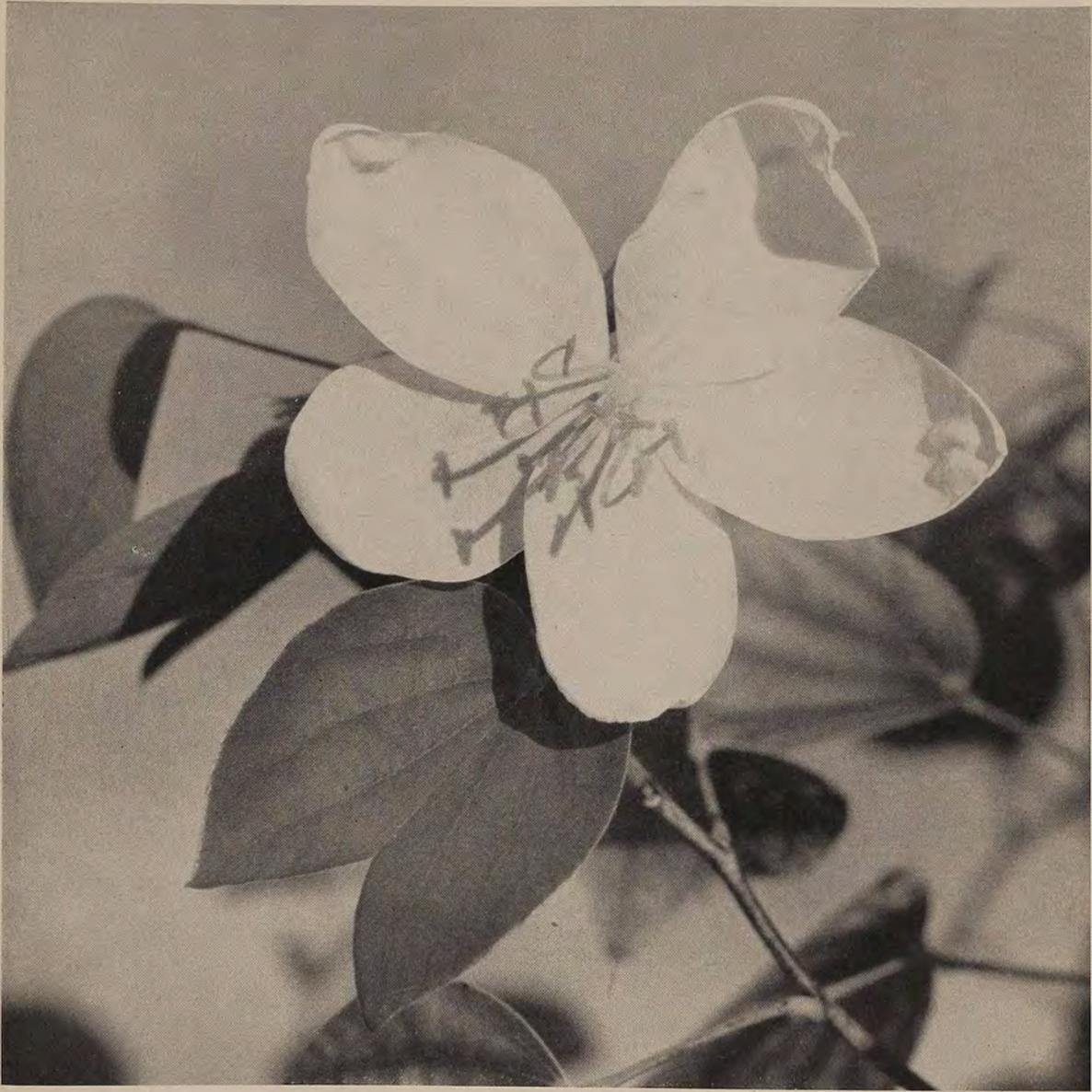
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Cam-

Bauhinia acuminata

BAUHINIA

The So-Called Orchid Trees

R. BRUCE LEDIN¹ & EDWIN A. MENNINGER²

Most popular of flowering tropical trees from southern California to Florida³ and in restricted warm areas of the Gulf Coast are the so-called "orchid trees," which are not orchids at all, but belong to the bean family. Many of them do have pretty flowers, remotely orchid-like in appearance, which are responsible for the common name. The correct name of the genus is *Bauhinia*, honoring botanists John and Caspar Bauhin who were not twins, as sometimes reported; John was born in 1541 and died in 1631, Caspar was born in 1560 (19 years younger) and died in 1624. The dual brother idea is carried out by the plants, for practically all of the 500 kinds⁴ of *Bauhinia* have two-lobed or twin leaves, shaped to suggest the imprint of the cloven hoof of cer-

tain animals, and this resemblance has given to the plants, in many countries, the common names of cow-hoof, bull-hoof, horse-hoof, goat-hoof, sheep-hoof, camel-foot, deer-hoof, mule-hoof, etc.

Actually, the leaf shapes of *Bauhinia* vary considerably and are of three distinct types: (a) Simple leaf which is notched, cleft, incised, or divided to some degree, thus making a bi-lobed leaf. This division may merely be a slight indentation at the apex (as in *B. retusa*) or it may be to the middle of the leaf or nearly to the base (*B. rufescens*). The common species in cultivation are of this type—but it is the "twin lobes" of the leaf not "twin leaves." (b) A few species (apparently none in cultivation) have entire

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² The Flowering Tree Man, Stuart, Florida.

³ *B. variegata* has been grown successfully as far north as Ocala. Also plants have been tried in Gainesville and Daytona Beach but a cold winter will usually kill them back to the ground. In Gainesville, one small tree flowered in January but it was killed later that year. The tree prefers warm areas, but it has succeeded as far north as New Orleans where it has survived temperatures down to twenty-six degrees Fahr-

enheit. *B. saigonensis* has been grown successfully under slat shade in Gainesville.

⁴ We are aware that most books say there are about 250 species of *Bauhinia*. But after checking through Kew Index and all the available floras of tropical countries, we have come to the conclusion that the number of species is probably close to 500. Of these, probably about fifty are in cultivation throughout the world, but only about ten species are well known. There are more than a hundred species native to Brazil.

leaves with an obtuse or pointed apex and resemble the common red-bud leaves. (c) Some species, especially those of Australia, have the leaf completely divided to the base to form two distinct leaflets, as in *B. hookeri*. Here, then, the leaves are "twins."

Not all the *Bauhinia* are trees; many are shrubs, vines or even gigantic lianas with stems curiously shaped, flattened or corrugated and twisted owing to a peculiar mode of growth in thickness.

Unfortunately, there is considerable confusion in the identity of many of the *Bauhinia* trees being cultivated in this country, which is only made worse by some of the available reference books. Part of the confusion arises from the fact that seedlings frequently do not produce flowers the same color as found on the parent tree. More trouble arises from the ignorance of writers who never tried growing anything but who become enthusiastic in print about flowering trees; one recent book with some claim to scientific endorsement ran a color plate of a *Bauhinia* flower with the wrong botanical name on it. Add to these difficulties the fact that seed often comes into the United States from a foreign country under the wrong name, sometimes the result of carelessness but often an honest mistake, and this mis-naming persists for years till the plant grows and flowers and can be re-identified by someone who knows his *Bauhinia*.

Under the circumstances, the only way to begin to understand the *Bauhinia* that are in cultivation is to describe and picture these plants in the field. The authors have all the species herein described growing in Florida. They have consulted with other growers and botanists with wide experience in Florida, California, Australia and elsewhere. The separation of species as herein set forth, therefore, accords with the appearance, growth habits and other characteristics of the actual plants, even though in some instances these do not agree with some scientific authorities.

The Big Three

Most widely known among these attractive trees available to the grower is an Indian tree, *B. variegata*, variously known in the United States as Florida orchid, Poor Man's orchid, or Mountain Ebony. It is a medium-sized tree with stocky trunk, stiff branches and thick foliage. The smooth, dark green leaves, four to six inches broad, are heart shaped, the lobes rounded at the bottom, but the species is difficult to identify by leaf shape, as will be explained later.

B. variegata might well be called the "winter-spring-blooming orchid tree" because it flowers from January to March, and this would help distinguish it from two other common trees (next described) which are very similar in foliage. Sometimes *B. variegata*, especially small trees, will bloom as early as December, and in central Florida the flowering often continues into April. The blooming proceeds while the leaves are falling from the trees or, in the event of a cold spell or prolonged drought, after the leaves have all fallen. This is when the plants are the showiest—no leaves on the tree and in full bloom. The conspicuous flowers at the branch tips are mostly a vivid purple with broad petals, but mixed with the purple are heavy streaks of red and white in the same flower. The color of the flower of *B. variegata* does not vary nearly so much as in *B. purpurea* (next described). The typical form comes out reddish purple, some trees with flowers more red (magenta) than purple, and the color gradually fades to a bluish-purple (mauve), giving rise to the name "Blue orchid trees" by some. There is some variation in the red color of the fresh flowers—it may be purple-red, pale purple, lavender, or almost a pale lavender-red resembling a peach flower from a distance. There are no all-red flowers in this species. One particularly beautiful form is pure white and this is correctly known as *B. variegata* var. *candida*.

Frequently confused with the foregoing, even by experts, is another Indian tree,

B. purpurea, taller, not so stiff, very bushy, with flowers appearing at least three months ahead of *B. variegata*. It might well be called the "fall-blooming orchid tree" for in some years the blossoms appear as early as September, though normally they flower from October to December. Unlike the foregoing tree, *B. purpurea* blooms when the leaves are still on the tree. The spidery flowers of *B. purpurea*, appearing in big clusters at the branch tips, are usually lavender, but the color and size of the flowers are extremely variable. There are no true white forms of this species that we have ever seen (*B. alba* refers to *B. variegata* var. *candida*). The color range is from an almost near white but tinged with pink, through shades of pink, rose-red, old rose, carmine, dark purple, lavender, violet, fuchsia. *Bauhinia purpurea* var. *violacea* (not *B. violacea*) suggests the reddish-violet color, variety *rosea* the rose form. 'Bonnie Red' is the one with deep carmine-colored petals. 'Simpson's Pink' is the best of all the *B. purpurea*; it makes a large, spreading, handsome shade tree and flowers in great profusion from early October to December. The flowers are larger than the other types and are a beautiful shade of rose pink. It comes true to type when grown from seed if not crossed up with any other type of *B. purpurea* growing near by. *B. triandra* is a synonym of *B. purpurea* and should not be used to refer to any variety.

The form of the flowers of *B. purpurea* is very strikingly different from that of *B. variegata*, and supply an easy method of distinguishing. The petals of *B. purpurea* do not overlap (as they do in *B. variegata*), and they are not so stiff, but tend to be narrow, straplike and floppy. *B. variegata* has five stamens; *B. purpurea* has three, or rarely four.

Because of the confusion existing in California and Texas, where plants of "*B. purpurea*" are offered in the trade and widely planted, it should be noted here that all those we have checked have turned out to be of *B. variegata*. We do

not know why *B. purpurea* does not grow in these areas, but all herbarium specimens we have seen and live plants grown from seed from these areas, and information from correspondence, show that even though the plants may be called *B. purpurea*, they turn out to be plants that flower during the winter months and have wide petals. Therefore, so far as we can determine, the common *Bauhinia* that is cultivated in southern California and southern Texas is *B. variegata*.⁵

The "pink orchid tree" usually seen in Florida is *B. monandra*, a small ornamental tree from Burma. Sometimes it is called Jerusalem date or Butterfly Flower. It is deciduous through the winter months. The tree produces great quantities of big flowers at the branch tips from May to November and is seldom without blossoms through that period. When the flower first opens, the top petal (standard) is a great splash of red on a bright yellow background. The other four petals are white or very pale pink, liberally splattered with red dots. After twenty-four hours, the red, yellow and white all change to a bold pink color. The seed pod is thick, about six inches long, and pops open when the seeds are ripe. Synonyms for *B. monandra* are *B. kappleri* Sagot, *B. krugii* Urban, and *Caspereopsis monandra* Britt. and Rose. In New Orleans a specimen of *B. monandra* was killed by twenty-six degrees.

We find that it is almost impossible to tell *B. variegata*, *B. purpurea* and *B. monandra* apart by their leaves alone. Consequently, we submit the main characters by which we separate these three common species:

⁵ Other species cultivated in protected areas in California besides *B. variegata* and its variety *candida*, are *B. candicans*, *B. tomentosa* (as *B. natalensis*), *B. galpinii*, *B. saigonensis*, *B. corymbosa*, *B. grandiflora* (?), *B. acuminata*, *B. carronii*. *B. variegata* is also grown in southern Texas, especially near Brownsville. *B. divaricata* (given as *B. mexicana* in Baileys' Manual) is apparently very hardy as it is cultivated in Austin, Texas, and takes temperatures of twenty-six degrees. *B. forficata* probably is quite hardy and may take cold weather.



J. C. Noonan

Bauhinia purpurea

(Note the different types of flowers; reading clockwise, they are: near white, dark red, lavender, pink, and pale pink.)

<i>Bauhinia purpurea</i>	<i>Bauhinia variegata</i>	<i>Bauhinia monandra</i>
1. Flowers in fall (Oct.-Dec.).	1. Flowers in winter and spring (Jan.-April).	1. Flowers in summer (April-Oct.).
2. Flowers while leaves are on the trees.	2. Flowers while leaves are falling or after they have fallen.	2. Flowers while leaves are on the tree.
3. Inflorescence many flowered, near ends of long whiplike branches.	3. Inflorescence few flowered, on short lateral branches.	3. Inflorescence few-flowered on short lateral erect branches.
4. Petals narrow, to $\frac{3}{4}$ inch wide.	4. Petals wider, to $1\frac{1}{4}$ inch wide.	4. Petals to one inch wide.
5. Petals oblanceolate.	5. Petals obovate.	5. Petals obovate.
6. Petals not overlapping.	6. Petals overlapping.	6. Petals not overlapping.
7. Calyx usually splitting into two sections.	7. Calyx split in one piece only.	7. Calyx split in one piece only.
8. Stamens three (rarely four).	8. Stamens five.	8. Stamen only one.
9. Hypanthium shorter than the calyx limb.	9. Hypanthium as long as or longer than the calyx limb.	9. Hypanthium as long as or longer than the calyx limb.

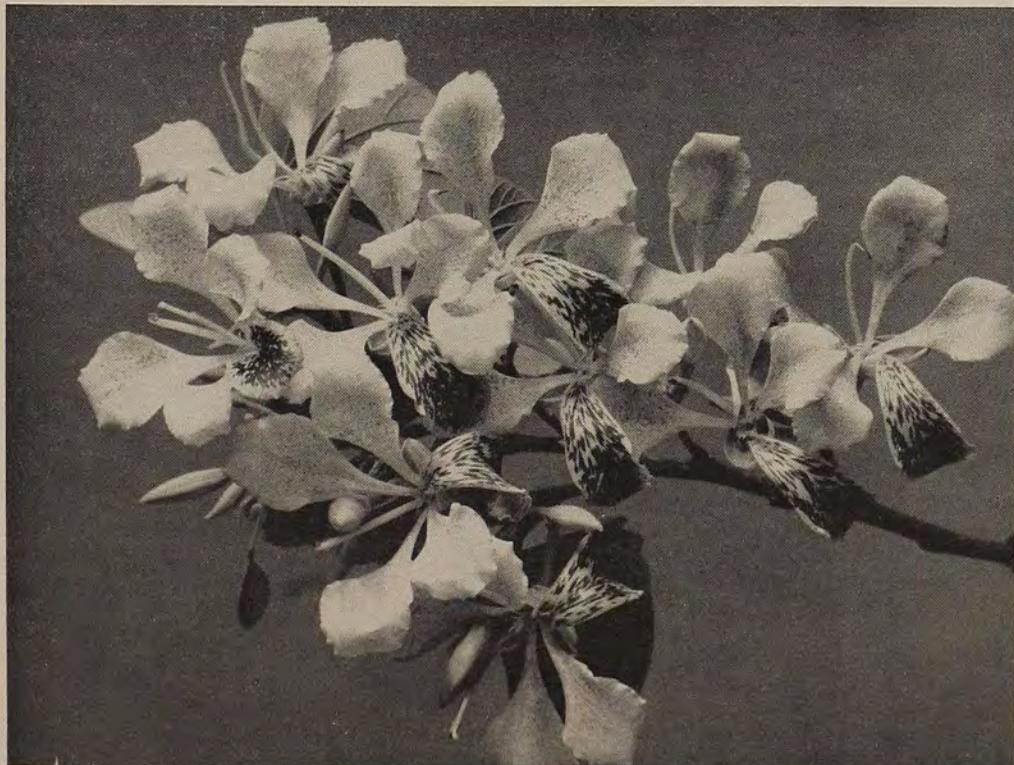


Nixon Smiley

Bauhinia variegata

Bauhinia monandra

Nixon Smiley



The Hong Kong Bauhinia

Unquestionably the most spectacular and most exciting "orchid tree" of them all is the evergreen Hong Kong species, *B. blakeana* Dunn. It first flowered in Florida in 1953 from a layer obtained in Hong Kong and brought into the United States by the Sub-Tropical Experiment Station. Since then it has been propagated vegetatively by grafting and air layering so that it is commercially available now. The fragrant flowers are "orchid-like," five and a half to six inches across; the color is a rich reddish or rose purple, almost a crimson, and the color does not fade. Flowers are produced from October to March, each blossom lasting three to four days. For a more complete description of *B. blakeana*, see the *National Horticultural Magazine*, July 1954. G. A. C. Herklots, in the April 1948 issue of *Food and Flowers*, a bulletin issued by the Gardens Department of the Hong Kong government, wrote:

"Hong Kong possesses its own *Bauhinia* which is probably the most beautiful tree of this genus in the world. Its origin is unknown and as it never produces seed it is possibly a sterile hybrid. The tree was originally described by Mr. S. T. Dunn in the *Journal of Botany* for 1908, page 325. Accompanying the description were these comments:

"The trivial name of this species commemorates the kindly interest taken in the Hong Kong Botanical Gardens by Sir Henry and Lady Blake during the governorship of the former, which ended in 1903. The tree is at present a very rare one in cultivation and is likely for some time to remain so, as it can only be propagated by cuttings. This is the more to be regretted because out of the numerous cultivated species of this charming family there is probably none that equals it either in the beauty or the profusion of its flowers. For more than four months the trees remain covered with their large, reddish-purple blooms which develop successively on the long racemes.

"The only trees known to exist at the present time are those in the Hong Kong Botanical Gardens, a few near the sanatorium of the Mission Etrangeres at Pokfulen, on the other side of the island, and a few more at the Roman Cathedral at Canton. It is indeed to the fathers of the above Mission that we owe the preservation of this *Bauhinia*. It was discovered by them near the ruins of a house on the seashore, and cuttings were planted in their garden; from the trees thus produced the Botanic Gardens were supplied. Specimens have been compared in the Kew and other herbaria, but without the discovery of any similar plant from elsewhere. Its native country must remain for the present obscure."

Shrubs and Small-Leaved Trees

Two summer-blooming shrubs of the genus *Bauhinia* are cultivated in South Florida. One is the white-flowered Indian plant, *B. acuminata*, and the South African scandent shrub, *B. galpinii*, with its spectacular brick-red flowers suggesting oversize nasturtiums. Both bloom prolifically from May to October and are bare of leaves or nearly so in winter. *B. galpinii* sustains several degrees of frost, is much cultivated in southern California, and will climb trees or lend itself to espaliering. Plants at Homestead and Miami often set a few seed pods from late fall flowers and the seeds are ready by February; elsewhere through Florida the plants rarely set seed. *B. galpinii* occasionally looks ratty if the leaf-cutting wasps go to work on the leaves; they seem to have a special preference for this species of *Bauhinia*. *B. acuminata* sets quantities of seed, and it flowers profusely all summer. It sometimes needs a nutritional spray to keep the foliage healthy, and, if taken care of, it is a very ornamental shrub.

Three Queensland, Australia, species are in cultivation in Florida but, so far as we know, they have not flowered here. They are *B. hookeri*, *B. cunninghamii* and *B. carronii*. All three are very similar in appearance, with leaves that are small and cut completely to the base to form two

leaflets. *B. carronii* has gray-green, drooping foliage with growth habit suggestive of the Chinese *Ginkgo*. Eventually twenty feet, the tree has scarlet flowers and will stand twelve degrees of frost. Sometimes this tree is called Queensland Ebony. *B. hookeri* reaches forty feet, with clustered white flowers edged crimson. *B. cunninghamii* grows to fifteen feet and has rosy-red flowers massed along the branches when bare of leaves; var. *rosea* is a southern Queensland dwarf form with white flowers faintly tinged rose.

The Yellow Mix-Up

Now begins an exposition of one of several most confusing problems attendant upon the genus *Bauhinia*. *B. tomentosa* is native to India, southern China, Ceylon, and tropical Africa and has become naturalized in Jamaica, Puerto Rico, and other West Indian islands. In Hawaii it is called St. Thomas tree. Because of its wide range, it apparently exists in several different forms and there is great confusion in botanical gardens, herbaria, floras, nursery catalogues, etc., in naming this species. The typical form seems to be that which produces flowers that are bright yellow in color. This type is usually a small tree or large shrub to twelve feet often trimmed low as a hedge; the flowers may be produced only in the fall on some plants, others flower off and on through the summer and fall. Quite unlike the "orchid" flowers of other *Bauhinia* under discussion, the petals of *B. tomentosa* are half-wrapped to form a tube about two inches long. This rarely opens more than an inch wide at the mouth. Down in the throat is frequently a pencil-size jet-black or chocolate dot, but this may be red or missing entirely.

Also cultivated in Florida is a form of this tree with light yellow, almost whitish flowers, that is being called *B. picta*. The true *B. picta*, however, is an entirely different species. It is native to Colombia, its leaves are entire; it has terminal racemes with white petals spotted with red. So far as we know, it has never been brought into cultivation.

The so-called *B. picta* grown and sold in South Florida was brought into this country by the U. S. Department of Agriculture (P.I. 141550) in 1941, and by the Sub-Tropical Experiment Station, (SES 2029) in 1940, both as seeds from the Atkins Garden in Cuba. The Director of that Garden reported that this plant came to them from the Botanic Garden in Saigon, Indo-China, in 1935, as a seed. We have written to this Garden but have never received a reply. Apparently the name *B. picta* was applied by the Saigon Botanical Garden to the species in question. But we think it is time that the name "picta" be dropped from this form of *B. tomentosa*.

Another form of *B. tomentosa*, this time not differing in color of the flower, but in the habit of growth and the size of the leaves, has been masquerading under the name of *B. natalensis* (or sometimes spelled *B. "taitensis"*). We have grown this from seed from California, South Africa, and Kenya, East Africa, and all the plants have proved to be *B. tomentosa*. We suspect that this form with small leaves and peculiar habit of branching might be the South African form of *B. tomentosa*. The true *B. natalensis* Oliver does not seem to be in cultivation. Herbarium specimens and descriptions in the literature refer to the true *B. natalensis* as a small shrub, with the leaf *completely* divided to the base to form two distinct leaflets, petals spreading, white with some of them reddish in color along the veins, the pods small and flat. Certainly the true *B. natalensis* is not what we are cultivating in Florida. In our opinion all of this material should be referred to variations of *B. tomentosa*.

One of the interesting facts about all these forms of *B. tomentosa* is that the flowers fade from the various depths of yellow to dull shades of purple and brown and red.

Orchid Trees With Thorns

The thorny species of *Bauhinia*—and there are a good many—are in extreme

confusion. *B. mollicella*, *B. pauletia* and *B. aculeata* present no problem, but *B. forficata*, *B. candicans*, *B. corniculata*, and *B. grandiflora* need some clarification. We are convinced that the plants in cultivation are all *B. forficata* and that *B. candicans* is the same and should be put under synonymy or else we do not have it in cultivation. We have not been able to satisfy ourselves yet on *B. corniculata*⁶ or *B. grandiflora*, as specimens have not been available, hence we cannot determine whether they are valid species. The descriptions in the literature are not helpful.

The following is a detailed description of *B. forficata* which, in our opinion, fits many of the large-flowering, spiny *Bauhinia*:

Bauhinia forficata Link, Enum. Hort. Berol. 1:404. 1891

(*B. aculeata* Vell., *B. candicans* Benth. or Hort.?, *B. corniculata* Benth or Hort.?, *B. furfuracea* Hort., *B. grandiflora* Juss. or Hort.?, *B. longiflora* D. Diev.)

Small thorny tree or large shrub, to 15-20 feet, with upright or spreading branches, the latter often zig-zag. Young green branches only slightly hairy or clothed with fuzzy hairs. Leaves petioled to 1 in.; blades variable in size and shape to 4 in. long and 3½ in. wide, longer than broad, cleft ½, the lobes relatively long and narrow and pointing upward and acute or obtuse, base round or cordate, sinus usually rounded, dark green; blades somewhat stiff and thickened, pale glau-

⁶*B. corniculata* of California appears to be identical to what we have been calling *B. forficata*. *B. candicans*, *B. corniculata* and *B. grandiflora* we think, at least as these plants exist in cultivation, are *B. forficata*. These may be good species in the wild, but the plants so called in cultivation seem to all be *B. forficata*. Examination of herbarium specimens and notes taken from various floras shows that in *B. corniculata* the stamens and styles are red in color, the petals greenish-white. The inflorescence is a raceme to 8 inches long, usually with thorns as well as leaves on the rachis. The flower buds become 1½ inches long; the flowers are 2½-3 inches long and 3 inches in diameter; petals 1 inch across. The leaves have only a very shallow cleft, less than one third the distance.

cous and usually pubescent below, especially on the veins, or glabrous, veins 9-11 with characteristic reticulate veins below. Stipules to ¼ in., awl-like. Thorns 2 at each node, sharp, strong, usually one pointing downward or both pointing downward, dark tipped, to ¼ in. long; sometimes only one thorn developed or individual trees may be entirely thornless.

Inflorescence opposite leaves, of 2-4 flowers, but usually in pairs, produced on new branches in spring, peduncle practically absent. Flowers large and showy, white, cup-like, 3-5 in. in diameter, slightly fragrant, pedicelled to ¼ in.; buds long and narrow to 2¾ in., pointed, hairy. Calyx splitting down one side and falling back, boat shaped, pale whitish green; petals 5, white, usually fading to a cream color, long and narrow, 2½ to 4 in. long, ¼ to ½ in. wide, with a very prominent midrib, spreading out, all more or less alike in size and shape, crinkly margin, oblanceolate, irregularly cut or indented, very short clawed. Stamens 10, filaments white, long and prominent, curved to one side of flower, of different length, white hairy at base, attached by a short membrane to each other at base, anthers ¾ in. long. Hypanthium to ¾ in., cylindric, white hairy, ovary stipate, style long and curved, stigma two parted. Pods to 6-8 in. long and ¾ in. wide, flat, brown, woody, stalked, narrow at base and widest above the middle, peaked; seeds to ¾ in., brown.

B. forficata is an unusual species—the flowers are large and showy, opening at night and fading by the end of the next day. The thorns are quite prominent, and sharp. It is deciduous in winter, and flowers appear in April and May and continue off and on throughout the summer to September. It is native to Peru, Brazil, Argentina, Paraguay, and Uruguay. It was cultivated in England as early as 1837, and has been in this country for many years. C. T. Simpson mentions (as *B. furfuracea*) growing it in 1912 in Miami. Several introductions and distributions have been made by the U. S. Department of Agriculture.



Cam-Art

Bauhinia blakeana

It is sometimes sold under the name of *B. candicans* (not to be confused with *B. variegata* var. *candida*) or as *B. grandiflora*, although this latter name has been used for a variety of *B. purpurea*. There are slight variations in the shape of the leaf, depth of its cleft, amount of pubescence, size of the flowers, and this prob-

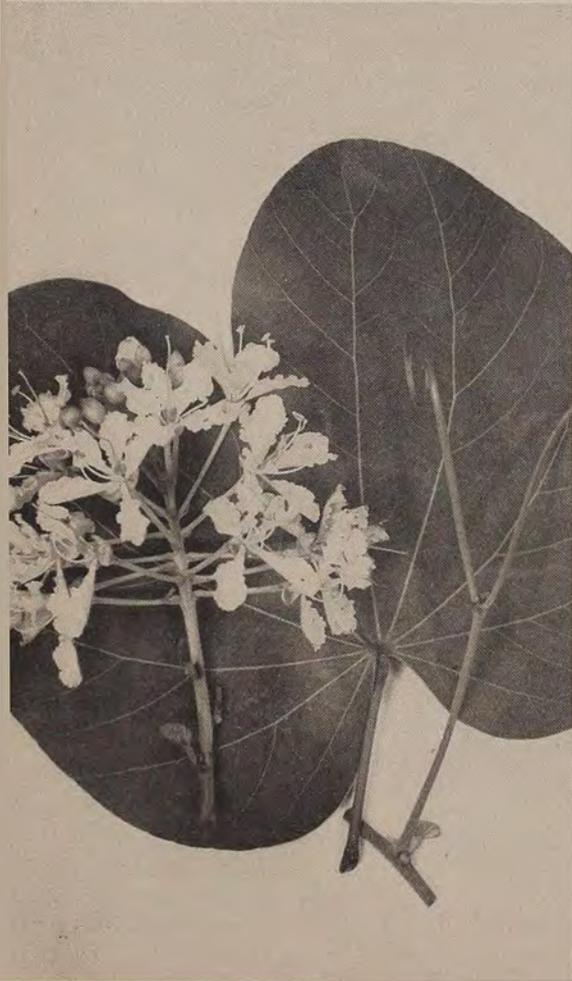
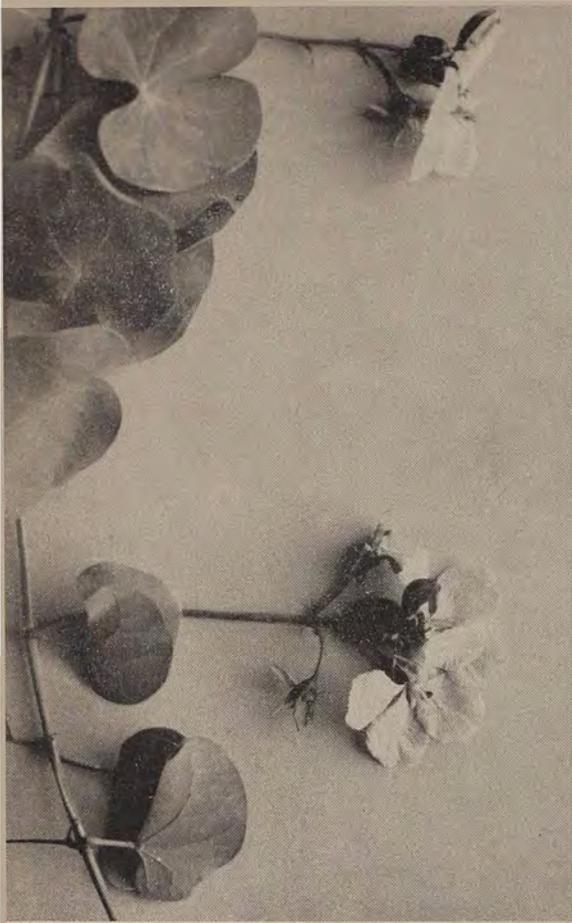
ably has given rise to the numerous synonyms. In California, it is called *B. corniculata*.

It is said to be one of the hardiest of the *Bauhinia* species and probably can be grown in North Florida as well as in southern Georgia.

Key to the Cultivated Species of Bauhinia

- A. Vines climbing with the aid of tendrils.
- B. Leaves cleft to the base, thus forming two separate leaflets.
- C. Petals white, stamens sometimes red..... 1. *B. binata*
- C. Petals pink, some of them with red stripes..... 7. *B. saigonensis*
- B. Leaves not cleft to the base, merely two-lobed.
- C. Petals bright yellow..... 4. *B. fassoglensis*
- C. Petals not bright yellow.
- D. Leaves glabrous; stamens 10; petals white, one concave and spotted with red..... 3. *B. cumanensis*
- D. Leaves pubescent; stamens less than 10.
- E. Stamens 7 or 8; petals yellowish-green..... 6. *B. macrostachys*
- E. Stamens 3; petals white to cream or pinkish.
- F. Leaves to one foot long and wide; pubescence white or rust colored..... 8. *B. vahlii*
- F. Leaves smaller; pubescence red silky.
- G. Leaves to one inch long and wide, cleft to below the middle..... 2. *B. corymbosa*
- G. Leaves to 3½ inches long and wide, cleft to only one third..... 5. *B. hupehana*
- A. Shrubs or trees, or if climbing, tendrils absent.
- B. Stems with spines at base of leaves but above the stipules.
- C. Flowers yellow-green, not showy.
- D. Petals to 3 inches long, hair-like, coiled back..... 12. *B. pauletia*
- D. Petals to ¾ inch long, ¼ inch broad, not hair-like nor coiled back..... 26. *B. polycarpa*
- C. Flowers white and showy.
- D. Flowers 2 to 2½ inches in diameter..... 9. *B. aculeata*
- D. Flowers 3 to 5 inches in diameter.
- E. Leaves conspicuously soft velvety pubescent above and below; inflorescence a short corymb of 4 or more flowers; petals to 2½ inches long..... 11. *B. mollicella*
- E. Leaves glabrous or if pubescent mostly on veins below; inflorescence of 2 or 3 flowers; petals 3 inches or more long..... 10. *B. forficata*
- B. Stems without spines.
- C. Leaves cleft to the base, thus forming two separate leaflets.
- D. Petals nearly all equal in size and shape; inflorescence of more than 2 or 3 flowers.
- E. Vine-like shrub; petals obovate, one inch long, white; stamens and style usually red; inflorescence a dense axillary corymb..... 1. *B. binata*
- E. Tree; petals ovate, white with crimson markings; stamens and style white; inflorescence a short terminal raceme..... 22. *B. hookeri*
- D. Petals of different size, 2 longer, 2 shorter, and one as long as the calyx lobes; inflorescence of 2 or 3 flowers opposite the leaves.
- E. Calyx lobes ⅝ inch long; calyx tube short and broad; petals ovate..... 21. *B. cunninghamii*
- E. Calyx lobes ⅜ inch long; calyx tube long and narrow; petals obovate..... 20. *B. carronii*
- C. Leaves not cleft to the base, merely two-lobed or entire.
- D. Leaves entire, obtuse or with a small notch at the apex; petals pale cream or yellow, 3 with irregular dark spots..... 29. *B. retusa*
- D. Leaves cleft from ¼ to ¾, producing two lobes.
- E. Petals brick-red in color; sprawling shrub sometimes climbing..... 16. *B. galpinii*
- E. Petals not brick-red; erect shrubs or trees.

- F. Petals yellow or cream-colored, with a dark spot at base of one petal inside; flowers bell-shaped, pendant, to 2½ inches long 18. *B. tomentosa*
- F. Petals and flowers not as described above.
 - G. Petals narrow, linear or hair-like, to 3 or 4 inches long; stamens 10, as long or longer than the petals.
 - H. Calyx and calyx tube conspicuously brown or reddish brown tomentose 24. *B. megalandra*
 - H. Calyx tube not brown tomentose 12. *B. pauletia*
 - G. Flowers not as described above.
 - H. Flowers relatively small, less than 2 inches in diameter.
 - I. Fertile stamen only one, long protruding; petals white, usually turning to pale or deep pink with age 14. *B. divaricata*
 - I. Fertile stamens 10.
 - J. Leaves very small, less than ½ inch long, cleft ¾; branches short, produced in a flat plane 30. *B. rufescens*
 - J. Leaves larger, cleft ¼ to ½; branches not in a flat plane.
 - K. Leaves conspicuously reticulate below; inflorescence a hanging raceme; petals not spreading, to ¾ inch long 23. *B. malubarica*
 - K. Leaves relatively thin; inflorescence erect.
 - L. Flowers to ¾ inch in diameter, white; petals all alike and spreading, short clawed 15. *B. faberi*
 - L. Flowers ½ inch or less in diameter, not showy; petals not clawed.
 - M. Petals oval, erect, not spreading, forming a cup-like flower; petiole conspicuously grooved 26. *B. polycarpa*
 - M. Petals linear, recurved and re-coiled; petiole not grooved 28. *B. racemosa*
 - H. Flowers large and showy, 2 to 6 inches in diameter.
 - I. Fertile stamen one; plants flowering during the summer months 25. *B. monandra*
 - I. Fertile stamens more than one.
 - J. Fertile stamens 3 (or 4); plants flowering in the fall months 27. *B. purpurea*
 - J. Fertile stamens more than 3.
 - K. Fertile stamens 5 (or 6); trees.
 - L. Flowers purple or reddish-purple.
 - M. Flowers to 4 inches in diameter, produced in winter and spring, in short clusters of 3 to 7; petals overlapping 31. *B. variegata*
 - M. Flowers to 5½ and 6 inches in diameter, produced from October to March in elongating racemes; petals not overlapping 19. *B. blakeana*
 - L. Flowers white 32. *B. variegata* var. *candida*
 - K. Fertile stamens 10 (rarely 8); shrubs flowering in the summer 13. *B. acuminata*



Below are short descriptions of most of the *Bauhinia* species in cultivation. Those best adapted to Peninsular Florida and considered the most attractive species are marked with an asterisk.

Vines

*1. *B. binata* Blanco (*B. blancoi* Baker, *B. pinnata* Walp.). Native to southeastern Asia. Introduced by Dr. David Fairchild in 1940 from Nanipo Island, Moluccas, and distributed by the USDA (P. I. 139345). Vinelike shrub, resembling *B. galpinii* but the new growth possesses coiled tendrils. Leaves completely divided into two separate small, oval leaflets. Flowers white, starlike, to 2 inches across, produced in dense axillary and terminal corymbs from April to June. Stamens 10, white, in age usually becoming red.

2. *B. corymbosa* Roxb. (*B. scandens* Burm.) "Phanera." Native to South China. Said to be one of the most attractive species of *Bauhinia* vines; it has been grown in many countries including Hawaii and has been tried in southern California but in South Florida it has not been very successful. Leaves small, cleft to below the middle. Flowers to 1 inch across, pale pinkish or rose colored, or white with pink venation, the petals spreading and nearly all alike, produced in elongating racemes throughout the summer months. Stamens 3.

*3. *B. cumanensis* HBK (*B. heterophylla* Kunth.). "Turtle vine." Native to western Cuba, Trinidad, and northern South America. Introduced into Florida from Cuba by C. T. Simpson nearly 50 years ago. In 1940 it was distributed by the USDA (P. I. 110893). Older stems become woody, flat and twisted and with turtle-shaped swellings. Leaves of two types, those cleft to the middle and those on young shoots that are cut nearly to the base. Flowers white, fragrant, to 1½ inches across, produced in short axillary and terminal elongating racemes from June to October. Stamens 10. Rarely fruits in Florida.

4. *B. fassoglensis* Kotschy ex. Schweinf. Native from Central Sudan to Transvaal, South Africa. Introduced by the USDA (P. I. 133442 and 113837) in the late 1930's. The few specimens in South Florida have grown well and they flower profusely but fail to set fruit. It is a scandent shrub, the leaves nearly round in outline and notched only a short distance. Flowers are bright yellow, to 3 inches across, produced in long racemes off and on throughout the year. Stamens only 2.

5. *B. hupehana* Carib. Native to Central China. Introduced in 1926 and again in 1936 (P. I. 114718). In both cases the USDA distributed plants for trial in Florida. It has been grown as far north as Gainesville, Fla., under

slat shade. Leaves cleft less than 1/3. Flowers 1½ inches across, fragrant, white, usually tinged with pink, produced in elongating corymblike racemes from March to June. Stamens 3.

6. *B. macrostachys* Wall. (*B. scandens* Roxb.). Native to India and cultivated in the Orient and at the Atkins Botanical Garden in Cuba. Recently introduced to Florida by the Sub-Tropical Experiment Station. Leaves cleft ¼. Flowers yellowish-green, to 1½ inches across, appearing in late summer and fall. Stamens 7 or 8.

*7. *B. saigonensis* Picere ex Gagnepain. "Saigon Bauhinia." This species was discovered in 1912 in the State of Cochinchina, French Indo-China, was introduced to the United States by the USDA in 1937 (P. I. 129188) and distributed for trial in 1939 and 1940. It has been grown successfully in northern Florida and also in southern California. A delicate but hardy attractive vine with leaves completely divided into two leaflets. Flowers pink-lavender with red veins, to 1½ inches across, produced in elongating racemes from April to November. Stamens 3.

8. *B. vahlii* Wight and Arnott (not *B. racemosa* Vahl.). "Malu or Maloo creeper." Native to northern India. It has been in Florida for many years and was offered by the Royal Palm Nursery at Oneco, Florida, before 1900. A recent introduction that accounts for the plants in South Florida at the present time was made by the USDA in 1932 (P. I. 98803). This is one of the most spectacular of the *Bauhinia* species—a gigantic climber to 100 feet, hardly suitable for the average garden, but sometimes found in special collections. The trunk may become 4 inches in diameter and is often deeply fluted. The leaves are very large, to 12 inches long and wide, cleft ¼. The flowers are cream-colored, 2 to 2½ inches across, produced in elongating terminal corymblike racemes from April to October. Stamens 3.

Species with Thorns—Shrubs or Small Trees

9. *B. aculeata* L. (*B. albiflora* Britt. and Rose, *B. emarginata* Mill., *B. ungula* Jacq.). Native to the Lesser Antilles and northern South America. Introduced in 1932 by Dr. Fairchild from seeds collected on Cannouan Island near Trinidad (P. I. 97864). Shrub to 12 feet with conspicuous, sharp, curved thorns, 2 at a node. Leaves cleft ¼. Flowers resembling *B. acuminata*, white, 2½ inches across, produced in clusters of 1 to 3 opposite a leaf and appearing in May and June. Stamens 10.

10. *B. forficata* Link (see page 190).

*11. *B. mollicella* Blake. Native to Venezuela and Colombia. Introduced by the USDA in 1935 (P. I. 110895) and distributed for trial in Florida in 1941. The best of the white-flowering thorny species and much preferred to *B. forficata*. Large spreading shrub or tree to 20 feet, thorns 2 at a node. Leaves soft velvety pubescent, cleft ¼. Flowers large and showy, 3 to 4 inches across, white fading to a cream color, produced 1 to 5 together, appearing from April to October. Stamens 10.

Bauhinia

fassoglensis | *cumanensis*
vahlii | *saigonensis*

All photos of J. C. Noonan



Bauhinia forficata photographed by Nixon Smiley; others by J. C. Noonan.



- Bauhinia*
aculeata
forficata *mollicella*
pauletia

12. *B. pauletia* Persoon (*B. aculeata* Cav.). "Railway Fence Bauhinia." Native to Central America from western Mexico to Panama, also Venezuela and Trinidad and escaped in Puerto Rico. In certain countries it is often found growing along roadsides and railroad rights-of-way, hence the common name. Introduced by the USDA in 1941 (P. I. 141549) for trial in South Florida. Shrub or small tree to 16 feet. Spines stout and sharp, two at each node. Leaves notched $\frac{1}{4}$ or less. Flowers unusual, large but relatively inconspicuous because of the narrow, yellowish-green hairlike petals that are 3 inches long; flowers produced in a raceme from October to January. Stamens 5. Grown as an oddity.

Shrubs—Not Thorny

*13. *B. acuminata* L. (not *B. petiolata* as listed in USDA Circular No. 34, *Some Ornamental Shrubs for the Tropics*, 1951), "Dwarf white Bauhinia." Native to southeastern Asia and has been in cultivation in this country since before 1900. Shrub to 10 feet. Leaves cleft $\frac{1}{3}$. Flowers showy, pure white, to 4 inches across, produced in elongating racemes from May to October. Stamens 10.

*14. *B. divaricata* L. (*B. aurita* Griseb., *B. mexicana* Vogel., *B. porrecta* SW., *B. unguata* L.) "Pata de Vaca." Variable species native to the Greater Antilles and Central America from Mexico to Guatemala. Has been cultivated in Texas as far north as Austin and subjected to temperatures as low as 10°F. Introduced to Florida in 1951 as seed from Texas, Cuba, and Jamaica. Shrub or small tree to 16 feet. Leaves variable in size and shape, usually cleft about $\frac{1}{3}$. Flowers unusual, white, usually turning pink with age, $1\frac{1}{2}$ inches across, produced in short elongating racemes off and on throughout the year. Stamen only 1.

15. *B. faberi* Oliver (*B. godefroyi* Gag.). Native to Indo-China and first introduced in 1914 (P. I. 40708) and again in 1937 (P. I. 129190) by the USDA and distributed in 1939-40. Spreading shrub to 12 feet with graceful arching branches. Leaves cleft to the middle. Flowers white, small, to $\frac{3}{4}$ inch in diameter, produced on short axillary racemes from May to September. Stamens 10.

*16. *B. galpinii* N. E. Br. (*B. punctata* Bolle). "Red or Nasturtium Bauhinia." Native to South Africa; discovered in 1890, cultivated in England in 1895 and within a few years it had appeared in various countries throughout the world. First cultivated in Florida in 1903 near Jacksonville. Low, spreading shrub with long branches that if given support will climb without the aid of tendrils. Leaves cleft to less than $\frac{1}{2}$. Flowers large and showy, brick red in color, $2\frac{1}{2}$ inches across, petals more or less erect and little spreading. Stamens 3. Flowers appear from May to October on new growth as it elongates. The axillary inflorescences of 2 to 10 flowers each are produced at every third node.

17. *B. petersiana* Bolle. Native of tropical Africa and reported in cultivation in Trinidad and Calcutta. It is a climbing shrub with leaves cleft to the middle, the flowers large, white or pale yellow, the petals narrow and

with colored markings. Several recent introductions have been made in Florida but to date none has flowered and therefore we are uncertain of the true identity of this species at the present time.

*18. *B. tomentosa* L. (not *B. natalensis* Oliver, not *B. picta* DC., not *B. taitensis* Hort.). "Yellow or Bell Bauhinia." Native to India, South China, Ceylon, and tropical South Africa and cultivated in many tropical countries. It was grown in Florida before 1900. Shrub or small tree to 15 feet, variable in growth habit. Flowers bell shaped, drooping, the petals overlapping, bright sulphur yellow or cream colored, fading to brownish red. Stamens 10.

Trees

*19. *B. blakeana* Dunn. "Hong Kong Bauhinia." (See page 188)

20. *B. carronii* F. Muell. "Queensland Ebony." Native to Queensland, Australia. Grown to a limited extent in southern California and recently introduced to South Florida where it has not flowered yet. Small tree to 20 feet with drooping branches. Leaves divided into 2 small leaflets. Flowers white, the petals spreading, edged with purple, produced 2 or 3 together. Stamens 10.

21. *B. cunninghamii* Benth. Native to Queensland, Australia, and introduced for trial in Florida by USDA (P. I. 194496 and 194497) in 1951, but no specimens have flowered yet. Tree to 15 feet with long arching branches. Leaves divided into 2 separate leaflets. Flowers rosy-red, or in variety *rosea* white or dull yellow with red markings, produced 2 or 3 together. Stamens 10.

22. *B. hookeri* F. Muell. Native to Queensland, Australia. Introduced to Florida a number of times but none of the plants have flowered yet. Large spreading tree to 40 feet. Leaves cleft to the base to form two separate leaflets. Flowers showy, 2 to 3 inches across, in large clusters, petals white bordered with crimson. Stamens 10.

23. *B. malabarica* Roxb. (not *B. reticulata* DC. of Africa). "Malabar Bauhinia." Native to India, Burma, Siam, and Java. It was listed by the Royal Palm Nursery in Oneco, Fla., as early as 1887, but the few trees in cultivation in Florida today are from introductions by the USDA in the late 1920's and early 1930's (P. I. 94181). Large spreading tree to 40 feet. Leaves cleft $\frac{1}{4}$. Flowers to $\frac{3}{4}$ inches long and wide, tubular, greenish white, in pendent racemes, appearing from late October through February. Stamens 10.

24. *B. megalandra* Griseb. Native to the Lesser Antilles from St. Kitts to Trinidad, and also in Venezuela. First introduced by Dr. Fairchild in 1932 (P. I. 99521). Small tree to 15 feet. Leaves cleft $\frac{1}{3}$. Flowers similar to *B. pauletia*, long and narrow, to 5 inches long, the petals straplike, only $\frac{1}{4}$ to $\frac{3}{8}$ inch wide, white, appearing in winter months, and produced singly opposite the leaves. Stamens 10.



Nixon Smiley

Nixon Smiley

Bauhinia

faberi | *divaricata*
galpinii | *tomentosa*

*25. *B. monandra* Kurz. (*B. kappleri* Sagot, *B. krugii* Urban). Native to Burma and long in cultivation in tropical countries but it seems to have been in Florida only in the past 30 years. Small tree to 20 feet. Leaves cleft $\frac{1}{3}$ to $\frac{1}{2}$. Flowers large and showy, to 4 inches across, pink, produced in clusters of 5 to 9 in an axillary raceme from April to November. Stamens only 1.

26. *B. polycarpa* Wall. Native to Indo-China, Burma, and India. Introduced by the USDA in 1930 and distributed the following year (P. I. 86701). Small tree to 12 feet. Leaves cleft $\frac{1}{3}$ to $\frac{1}{2}$. Flowers small and inconspicuous, yellow-green, $\frac{1}{4}$ inch long, produced in short racemes, appearing from October to December. Stamens 10.

*27. *B. purpurea* L. (*B. alba* Hort., *B. grandiceps* Hort., *B. grandiflora* Hort., *B. rosea* Hort., *B. violacea* Hort., *B. triandra* Roxb.). Native to India, South China, Burma, Ceylon, Siam, and cultivated in many tropical countries. It arrived in Florida before 1900. Tree 20 to 40 feet tall. Leaves cleft $\frac{1}{3}$ to $\frac{1}{2}$. Flowers large and showy, 3 to 5 inches across, varying in color (see page 185), produced in elongating racemes near the ends of the branches, from October to December. Stamens 3.

28. *B. racemosa* L. Native to India, Ceylon, and Malaya. Introduced by the USDA in 1934 (P. I. 105728). Small tree to 20 feet. Leaves cleft $\frac{1}{4}$. Flowers white or pale yellow, and like *B. polycarpa*, small and inconspicuous, produced in short erect racemes from May to September. Stamens 10.

29. *B. retusa* Roxb. (*B. emarginata* Wall.). Native to northern India and introduced by the USDA in 1934 (P. I. 105870 and 105871). Tree to 20 feet. Leaves nearly entire, with only a small notch at the apex. Flowers 1 inch across, pale yellow or cream with dark purple-red spots, produced in a many-branched, elongating panicle from September to January. Stamens 3.

30. *B. rufescens* Lam. (*B. parviflora* Hochst., *B. rubescens* Bong.). Native to Central Africa and introduced into Florida by Menninger in the early 1940's. Small tree to 15 feet with odd manner of branching, producing flat-spreading branches in one plane. Leaves very small, less than $\frac{1}{2}$ inch long, cleft $\frac{3}{4}$. Flowers white, $\frac{3}{4}$ inch long, not showy, produced in small racemes off and on throughout the year. Stamens 10. Pods black, and much coiled.

*31. *B. variegata* L. Native to southeastern Asia from South China to Dutch East Indies and in cultivation for many years in tropical countries; reported to be in the West Indies before 1700 and in Florida before 1900. It is also grown in California, Texas, and in protected areas in some of the Gulf States. Tree 20 to 40 feet tall. Leaves cleft $\frac{1}{4}$ to $\frac{1}{3}$. Flowers large and showy, 4 to 5 inches across (see page 184 for color), produced in few-flowered, short, axillary inflorescences from February to March. Stamens 5.

*32. *B. variegata* L. var. *candida* Robx. (*B. alba* Buch.-Ham.). Similar to the preceding but the flowers lack all red, purple, and blue pigments and are pure white with the standard possessing greenish veins.

Other Species

B. anguina Roxb. "Snake Climber," is a vine with curious flattened stems and small white flowers; it is native to India and cultivated there. *B. champonii* Benth. of Hong Kong is a vine recently introduced into Florida, but it has not flowered yet. *B. flammifera* Ridley, a vine native to the Malay Peninsula and cultivated there, has not as yet been grown successfully in Florida; it has yellow flowers that turn red with age. *B. diphylla* Hamilt. is a vine with tendrils and leaves divided to the base to form two distinct leaflets; the flowers are large, creamy white and with ten stamens; it is native to southeastern Asia and is cultivated in India. *B. glauca* Wall. of Burma, Malaya, and South China, is a woody climber with small white flowers in dense corymbs. Introduced by the USDA (P. I. 123844) in 1937. *B. involuclata* Kurz. is native to India and cultivated there; it is a climbing shrub without tendrils; has cleft leaves $\frac{1}{2}$; petals pale rose, to $1\frac{1}{2}$ inches long, the bracteoles on the pedicel enlarged to $\frac{1}{3}$ inch to form a two leaved involucl to each flower. *B. phoenicea* Heyne is a scandent shrub native to and cultivated in India. *B. obtusata* Vog. of Brazil was introduced by the USDA in 1943 (P. I. 147597) and is represented at the U. S. Plant Introduction Garden in Coconut Grove; the flowers are similar to *B. megalandra*.

B. esculenta Berchill. "Tamani Berry" or "Gemsbok Bean," is a native of southwestern Africa. It is said to be a tree to 40 feet, but usually seen as a prostrate, trailing plant which can even be used as a ground cover. Seedlings grown at the Sub-Tropical Experiment station behave as vines and produce tendrils. The flowers are fragrant, a bright yellow color, with broad petals, produced on erect 4-inch stems in October and November. The roots are thick and of reddish color and, when dried, are boiled and eaten by the natives of Africa. The seeds are $\frac{1}{2}$ inch in diameter and are an important source of food for the African Bushmen and also feed for cattle. The seeds are rich in protein and oils, the latter 42 per cent and of a pleasant taste. The oil is similar to cottonseed oil and commercially is called "gemsbok oil."

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Bauhinia malabarica

(Photo by J. C. Noonan)

Bauhinia hookeri

(Photo by J. R. Bailey, Brisbane, Australia)



Four Native American Mints

HELEN M. FOX

Until recently most herbs in our gardens have come either from Europe or from the Near or Far East. Only a few native to this hemisphere or this continent were grown. Among American plants with fragrant foliage, Lemon verbena, *Lippia citriodora* from Argentina and Chile, has been the exception for its popularity as a tea and flavor. Other American plants that belong in the herb gardens are pineapple sage, *Salvia elegans*; chia, *Salvia columbariae*; the monardas; yerba buena, *Micromeria chamissonis*; fragrant goldenrod, *Solidago odora*; as well as shrubs such as spice bush, the bayberries and sweet ferns not to omit southern hollies used for the brewing of drinks similar to mate. There are quantities of "herbs" used by Indians and early settlers which might be lifted from oblivion and given notoriety by planting them in our gardens where they not only bring novelty and variety to the plant material but also an indigenous, strongly American atmosphere.

For the past years I have been searching for such plants, growing as many as I could collect and trying them out for food, flavor and pot-pourri. Unfortunately, I have not the facilities for trying those which were medicine in more primitive days, and as yet have not been able to persuade any chemists to experiment with them as medicine or perfume. One source of material for these plants are the reports of ethno-botanists about Indians, and other articles generally to be found in publications of the Smithsonian Institute. There are also the articles of Dr. V. Havard in the Bulletins of the

Torrey Botanical Society, of H. H. Rusk in Country Life and many others in the bulletins of the New York Botanical Garden. The pamphlet by Elias Janofsky, Food Plants of North American Indians, U.S.D.A. Misc. Publication 237, is invaluable, as is the United States Dispensatory of which a new edition has just appeared. In addition to these written records, there is information to be gleaned from collectors of seeds and plants as well as the traditions in each locality. The field is fascinating and slowly being exploited.

Of the plants grown by me lately, four members of the mint family seemed worthy of description. The best looking of these is *Agastache Barberi*, an attractive perennial with straight, leafy stems topped by spikes of rose or pale pink flowers that keep opening all summer. Closely related, but not as handsome as the foregoing, is anise hyssop, *Agastache anethiodora*, suitable in the herb garden with its spires of grey-lavender blossoms and foliage, fragrant of anise. Abounding in fields and thickets is narrow-leaved mountain mint, *Pycnanthemum flexuosum*, with its numerous leafy stems and inconspicuous flower heads, perhaps too bushy for the border, but attractive as a foreground to shrubs, or a background to more colorful plantings. The fourth plant is the dainty *Satureia glabella* var. *angustifolia*, that fills a niche in a rock wall, or rock garden, provided its tiny mats of green basal leaves are protected from weeds so they can develop and send forth slender stalks carrying violet blossoms.



Gottscho-Schleisner

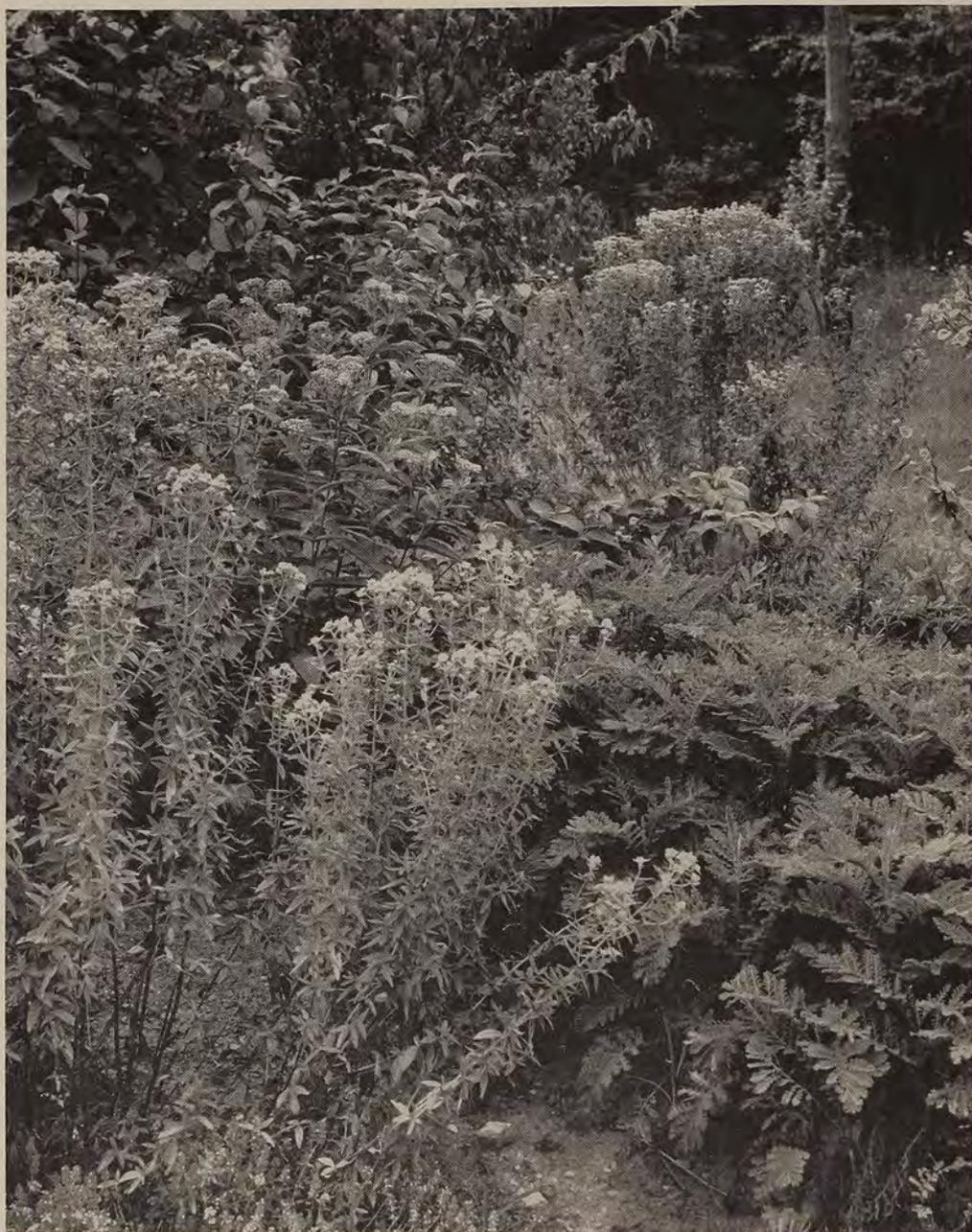
Agastache anethiodora

In the border of my herb garden, where the population changes somewhat every year because of the introduction of novelties and the elimination of less beautiful or less spreading plants, not to mention catastrophes of one kind or another, these past two summers, the roseate flowering spikes of *Agastache Barberi* were very handsome alongside white-flowered *Allium tuberosum*, spires of dwarf lavender, and maroon tufts of purple basil. Seeds of this plant came to me labelled *Agastache rugosa*. Before describing it for publication I sent the plant to Dr. Bailey to be identified and he sent it on to Dr. Carl Epling of the University of California who is working on Labiatae for North American Flora. Dr. Epling wrote "Your plant is not typical of other wild plants but can scarcely be related to any other species. Hence its identification is not positive." The plant had been named "Brittonastrum Barberi" by Barber and Robinson who collected it at Colonia Garcia in Chihuahua at an altitude of 2290 meters in 1899. In 1890 it was collected by Dr. Palmer in Los Minitos, Sonora, Mexico, at an altitude of 2000 meters and in South Western Chihuahua. Dr. Epling says the plant ranges from Santa Cruz in Arizona to Durango and Sonora, Mexico. It has lived through an unusually dry winter outdoors in my garden in southern New York. Evidently cold does not harm it, but wet does.

The plant resembles rose-colored beebalm, except for the elongated inflorescence, far daintier leaves, and much-branched stems. The fragrance of leaves and flowers is similar to that of beebalm but sweeter and more delicate, almost of lavender, mingled with mint, lemon and resin. It is pervasive and penetrating in the garden. In the room where flower-heads are being dried for their seeds the odor is very noticeable and it lasts a long time on the hands after handling the plants. The roots creep underground and send up numerous upright stems so that a single seedling planted in spring will grow into a sizable clump before the summer is over. My seeds were planted in a greenhouse in November and produced

flowering stalks by April when they were moved outdoors to a sunny, well drained position where the soil had been enriched with compost and the plants bloomed all summer, on through several frosts until November. The flowers do not last indoors after being cut, but are delightful in pot-pourri.

The stems feel rough and are square with 4 grooves between 4 corners. They are tinted slightly brown near the base and have glossy hairs so tiny they are visible only under a microscope. Including the inflorescence which is about 9 inches long, the stems rise to about 3 feet. The lower foot or less is bare before the stems branch out but the central stem carries through in a perpendicular line. The leaves subtending the branches are much larger than those on the stems. All leaves are opposite and in pairs and on the stem the leaves have tinier pairs growing out of the axils. Stem leaves are ovate, roundly toothed, slightly glossy and light green on the upper surface where the hairs are tiny, and dull on the under surface where the hairs are scattered and longer. They measure $1\frac{3}{4}$ " long and $\frac{3}{4}$ " across. The whorls of flowers are about $\frac{7}{8}$ " apart at the base of the inflorescence and $\frac{1}{2}$ " at the top. Four to 6 narrowly campanulate, rose-colored flowers grow on short opposite stems which rise at an acute angle to the main stem and are subtended by narrow pointed leaflets. The calyx is $\frac{1}{4}$ " long and the corolla $\frac{3}{4}$ " long and $\frac{3}{8}$ " across at the mouth. Corolla lobes terminate in fine sharp points. The corolla is 2 lipped, the upper 2 divided, while the lower lip bends outward and is 3 divided, the central being widest. Four stamens and a 2-forked pistil extend slightly beyond the corolla. The stamens are the same color as the petals while the pistil is a shade darker. The colors of the corolla glow and are a mingling of Ridgway's Rosolane Purple, Tyrian Pink and Tyrian Rose, while the calyx has a green base tinted over with dusty rose purple (the last color names are mine). In late fall the flowers take on deeper shades.



Gottscho-Schleisner

Pycnanthemum flexuosum

A hardy plant growing from Quebec into New York and from Alberta to Minnesota and south to Illinois and Missouri is Anise Hyssop, *Agastache anethiodora*, unusual because the foliage has the scent of anise or licorice, usually associated with members of the parsley family and not with the mints. Here the licorice is tempered with a slight element of camphor. The plant was first described by Thomas Nuttall who found it "on the plains of Missouri near Fort Mandan, on the borders of thickets." Evidently it grows in dry soil sometimes in openings of woods or in prairies. Claude Barr, western plant collector, recommends rich soil with moderate moisture and some shade. I have followed his instructions with success. Yanofsky says the Indians of the Rocky Mountain States drank an infusion of the leaves. This agastache is somewhat weedy looking with numerous 3 feet high stems topped by crowded lavender-gray whorls of flowers forming a clublike spike, yet they are handsome and provide a feathery gray background to gray plants such as artemisias and lavenders. They flower from mid-June through to September and after the blooms are over the flowering spike with its purple-green calyces is decorative.

The roots creep and from them rise clusters of square, smooth, slightly glossy stems with shallow hollows between the corners. Opposite pairs of leaves grow all along the stems and from their axils other stems branch out clothed with small leaves and tipped by flowering spikes. The leaves are ovate-lanceolate, broad at the base and terminate in a point and are toothed along the margins. A medium-sized leaf measures $2\frac{1}{2}$ " in length by $1\frac{3}{8}$ " across and has a stalk $\frac{1}{4}$ " long. The upper surface is much darker than the under and is smooth and almost glossy, while the under surface has microscopic hairs. The crowded whorls of flowers at the termination of the stem form a spike that measures from 2-5". The flowers are labiate, very narrow, tubular, $\frac{3}{8}$ " long and are slightly 2 lipped with 4 stamens and a 2-forked pistil

extending beyond them. The corolla is one-third longer than the calyx, of bluish lavender and with glistening hairs both inside and out.

There are twenty-one pycnanthemums, formerly known as Koellia, all but two of them growing in Eastern United States. The one to be described is called narrow-leaved mint, *Pycnanthemum flexuosum*, and is a perennial, distributed from Georgia through Maine to the Mississippi basin, in dry soil along borders of woods and waysides and sometimes in fields and thickets. The plant is leafy and feathery because of the profuse foliage which is pleasantly fragrant of pennyroyal. The leaves are similar to those of tarragon while the compact corymbs of flowers are very like those of pot marjoram. The roots creep underground and in addition to producing brown, underground, branching stems send out pale shoots to develop into smooth, square, stiff, much branched stems. These stems are woody and brown at the base and marked with tiny, fine, perpendicular lines; higher up 4 angles develop without hollows between them. The leaves are in opposite pairs, $\frac{1}{2}$ " apart on the stem, 1" long and $\frac{1}{8}$ " broad, sessile, entire, and with the central rib hairy. The blade is dark green above and yellow green on the under surface, where there are fine glands. The short heads of sessile flowers are subtended by hairy bracts pointed at the tips. The tiny flowers are $\frac{3}{16}$ " across, labiate, and are white with round, blue-purple dots. A few open at a time and the heads have some bloom on them all summer. The corolla is 2 lipped, the upper 2 divided and the lower 3 parted. There are hairs in the throat and on inner sides of the petals. Stamens and pistil do not extend beyond the corolla.

When ordering seeds of a specimen new to the garden there is always some doubt as to how it will look, for the living plant is always different from black and white descriptions. It was a delight to find I had a dainty perennial plant smelling sweetly and of pennyroyal, namely *Satureia glabella* var. *angustifolia*, a long

name for the little plant. At first there were square, much branched stems 4" to 9" high bearing 2-lipped flowers and later beneath them grew a mat of green leaves something like the mat of *Mentha Requieni*, with actually creeping stolons of purple maroon, rooting as they advanced. The leaves on these stolons are shaped differently from those on the stems. They are rounded at the tip, oval with the base of the central vein depressed $5/16$ " long and $3/16$ " across and purple-maroon on the under side. The stem leaves in opposite pairs are linear, $1/2$ " long, rounded at the tip, obovate with hairiness along the central veins, marked with glands and glistening on both surfaces. The stems are stiff, upright and glistening. Near the top of the stem the flowering whorls are right above the leaves or almost level with them. They are bluish-violet, $1/2$ " long, 2-lipped, the lower 3 divided. Of the 4 stamens, two are longer than the others.

The little *Satureia* is found from Western New York to Minnesota and south to Missouri and Texas, chiefly in rocky

situations and in the South in the mountains. The plant has borne many names, the first being *Cunila*; later in turn it became *Micromeria glabella*, *Hedeoma arkansana*, *Calamintha Nuttallii* and wore other names of near relatives. The type is large flowered and robust and was found by André Michaux on the banks of the Cumberland River near Nashville in 1803. John Torrey found the variety *angustifolia* at Niagara Falls and wrote of it in 1818 in his "The Genera" as follows: "*Cunila glabella* of Michaux occurs in Tennessee in rocks, and differs from the Niagara plant in being much larger; the leaves are ovate or obovate and toothed. I should have described the latter as a distinct species had I not received some Ohio specimens collected by Mr. Sullivant which connect the two forms." In his *Botany*, Asa Gray calls it *Calamintha Nuttallii* and writes: "— it is from 5-9" high with narrower mostly entire leaves and fewer flowered clusters (than the type) while sterile runners from the base near ovate, thickish leaves only 2-5" long."

Your Hibiscus and How To Grow Them

CLARENCE A. BASS*

Nowhere is the improvised saying, "The world is my garden," more true than here in South Florida, for most of the useful and ornamental plants that we see every day come from other lands. The hibiscus is one of the most colorful and most beautiful of these. Hibiscus have become so popular in Florida that there is scarcely a garden without them. It seems that everyone with room for a plant wants a hibiscus. Today, literally tens of thousands of these plants add colorful zest to the landscape in all parts of South Florida. Much of this popularity is due to the versatility of the species which offers a type of flower to satisfy any individual taste. The plant itself is a lush evergreen and, even without its flowers, is a desirable addition to the garden. Some varieties, notably 'Matensis Variegated,' have brightly colored leaves, making them particularly attractive regardless of flowers.

Just how many years ago *Hibiscus rosasinensis* was first brought into the United States is not known, but it was probably before the time of the Civil War. It is supposed to have originated in China and from there to have spread to other parts of the tropical world. Of this, we have little proof. The early varieties that were imported into this country came either from Jamaica or Hawaii.

So far as can be determined, the late E. N. Reasoner, one of the original Reasoner brothers who founded the Royal Palm Nurseries at Oneco, Florida, was the first to import and propagate hibiscus in the United States. As early as 1883, he listed about fifteen varieties, but most of these have been discarded for newer

and better ones. However, 'Scarlet Red' and 'Versicolor' are still popular today and are often used for hedges because they are hardy and will stand a lot of abuse.

Mr. Reasoner imported a quantity of hibiscus seed from Hawaii in 1908. From these he grew about two hundred seedlings which he lined out in the field for observation. After about two years, he selected sixteen of these for propagating. These sixteen varieties were named after the goddesses in Greek mythology and were the first named varieties of so-called fancy hibiscus disseminated in America. They were first listed in the 1913 catalogue of the Royal Palm Nurseries. Most of them gradually disappeared, but 'Minerva,' 'Psyche,' 'Venus,' and 'Euterpe' are well-known varieties even today. Norman Reasoner has carried on the work of his father. To him goes credit for importing and creating many new varieties.

There are many other hybridizers who have done much to improve the quality of our hibiscus and to give us new varieties: The late James E. Hendry of Fort Myers produced many fine single- and double-flowering varieties, but perhaps his greatest single contribution was the introduction of purple and lavender tints by crossing with altheas (*H. syriacus*). Mrs. Dora McGee, Miami, has made the culture and hybridizing of hibiscus both her hobby and her business for over thirty years. Bruce Parnell, Miami, has been very successful in producing very large and strikingly colored flowers. One of his selections, 'Latin Rhythm,' has flowers up to ten inches in diameter. The late Charles James, Miami, introduced many good varieties. 'Charles James, Jr.,' his introduction about twenty years ago—and still a favorite—has a large, full-

*In 1946, Mr. Bass retired from the State Plant Board of Florida after thirty years as an assistant nursery inspector. He has commercially specialized in growing fancy hybrid hibiscus in Miami since then.



*Single-flowering Hibiscus
'Pauline Messengill'*

Cam-Art

Semi-double Hibiscus 'Pat'

Cam-Art



Cam-Art



Double-flowering Hibiscus 'Prom Girl'

double flower of Indian yellow shading into shrimp red.

Still others, whose names are readily recognized as workers in the field of hybridizing, and developers of new varieties of hibiscus, include: Ross H. Gast of Los Angeles, Atwood Teagle of Daytona Beach, Anton Kuhn, Miami; the late George Anderson, a pioneer from Fort Lauderdale; L. K. Thompson, Bartow, originator of 'Norman Reasoner' and 'General A. H. Blanding'; Alex Barthle, Miami; T. C. Hudson, Daytona Beach; Lynn M. Dewey, Merritt Island; and Daisy Entwistle of Coconut Grove. The U. S. Department of Agriculture has distributed many hybrids produced by the Plant Introduction Garden at Coconut Grove and the Mayaguez, Puerto Rico, Experiment Station.

Kenneth and Mildred Palmer of Saint Petersburg, published *Hibiscus Unlimited and How to Know Them*, in 1954. This is a book well worth including in the library of anyone interested in the horticulture of Florida, or other subtropical parts of the world. It gives much of the history and culture of hibiscus and describes many varieties in great detail.

The genus *Hibiscus* belongs to the Malvaceae Family. A single flower usually lasts only one day, but sometimes in cool weather it will remain open for a second day. To offset this apparent shortcoming, a plant may flower all year; at least here in Florida and in similar climates, there is seldom a day when a person with a hibiscus garden is without flowers for decorations in the home. The flowers do not require water and, consequently, can be arranged in many ways not possible with other cut flowers.

The hybrid subtropical hibiscus will thrive without cold protection anywhere south of the twenty-ninth parallel—that is, from about Daytona Beach south, in Florida, and from Galveston south, in Texas. They will grow all the way from Florida to southern California where the climate is mild, in Hawaii, in Central America, and the parts of South America

where it is warm all year. Attempts to grow the subtropical varieties where the temperature drops below twenty-six degrees Fahrenheit should not be made unless provisions are made to place them in a hothouse during the winter months. They can possibly be grown for some distance farther north if the plants are banked with soil, to a height of fifteen to eighteen inches, when cold weather sets in. This soil should be removed in the spring and the plants cut back to live wood. They should be given a 4% nitrogen, 7% phosphoric acid, 5% potash, or a 5-10-5, fertilizer then.

The hibiscus flower is to be found in every color and shade thereof imaginable; in sizes from the two- to three-inch 'Carnation' and 'San Toy,' to the giant 'Latin Rhythm,' 'Pauline Massengill,' and 'Helen Champion'; and in three types of blossoms—single, semi-double and double. Some "outstanding" varieties, from nearly a thousand available today, might include:

Single Flowers

'Helen Champion.' Originated by Parnell. Nine-inch flower, heavily ruffled and tufted, nasturtium orange, small white throat. Very vigorous, upright bush, with large, round, dark green leaves.

'Desert Sun.' Originated by McGee. Seven-inch flower, crêpey, overlapping petals, orange red, darker throat. Large, upright, fast-growing bush, medium green leaves.

'Julia Agnes Bramble.' Originated by Parnell. Seven-inch flower, ruffled and tufted, completely overlapping petals, purple pink, deeply edged with Chinese yellow. Open-spreading, slow-growing bush, with large, dark green leaves.

'Norman Reasoner.' Originated by L. K. Thompson. Nine-inch flower, soft primrose yellow, shading to radiant white center that extends and veins out into petals, heavily ruffled and tufted, perfectly flat and overlapped. Extremely vigorous and lush grower.

'Ross Estey.' Originated by Gast. Seven-inch flower, orange edges, shading to glowing rose center, ruffled and tufted.

Extremely vigorous and lush grower. Must be pinched severely to make bushy. Leaves, glossy, polished appearance.

Semi-Double Flowers

'Ruth Stuart Allen.' Originated by McKenzie. Seven-inch flower, bright rose to coral-pink tipped petals, pearl-white throat, and orange stigma pods. Upright grower.

'Pink Satin.' Originated by T. C. Hudson. Six- to seven-inch flower, overlapping, ruffled and tufted petals of glossy satin pink. Upright grower, free bloomer.

'Princess Margaret.' Originated by McKenzie and Coffee. Flowers seven to eight inches, golden yellow, with faint pink zone, and pearl-white throat. Upright grower, likes sun.

'Dr. Du Puis.' Originated by James. Semi-double cup and saucer type, six- to eight-inch flowers, orange with red veins, brilliant large red throats, slightly ruffled. Medium grower.

'John Paul Jones.' Originated by McGee. Eight-inch flower, petals very dark maroon red with purple overcast, very showy, free bloomer. Upright grower, with large, dark green leaves.

Double Flowers

'Prom Girl.' Originated by T. C. Hudson. Six- to seven-inch flower, bright rich pink, swirled, crêpey and ruffled petals, excellent bloomer. Sprawling, leggy bush.

'Double Burgundy.' A variety from Hawaii, also known as 'King Kalakaua' and 'Monarch.' Six-inch flower, very dark cardinal red throughout, occasional cream petaloids, free bloomer. Prostrate grower; rather weak, small cupped leaves.

'Charles James, Jr.' Originated by James. Six-inch flower, full double, Indian yellow, blending into shrimp red, back of petals gold. Slow, upright grower; small, pale green leaves.

'General A. H. Blanding.' Originated by L. K. Thompson. Five-inch flower, cerise red to scarlet, light red rosettes within bloom, guard petals yellow on reverse, loose arrangement, feathery high-crested center, flowers always erect on heavy stiff stems above foliage. Vigorous, compact grower, strongly erect, with

heavy, fleshy, dark green, glossy foliage.

'Mrs. James Hendry.' Originated by James Hendry. Six- to seven-inch flower, heavy texture, fragrant, chrome yellow, shading to white throat and zone. Vigorous, upright-growing bush, heavy-textured and glossy leaves.

Hibiscus lovers eagerly await each new variety that is produced by the hybridizers, and each new one appears to be more desirable than all the others. In creating the new hybrids, one should be very careful to choose desirable parent plants. Each of these should be selected because of qualities, such as growth, foliage, flowering type, color, etc., that are desired in the new plant. Careful thought should be given to color combinations. The professional hybridizer has definite goals in view when he crosses two plants, but often we amateurs make a cross just to see what will result. After these two plants have been selected, there should be a good flower on each on the same day. If this is not possible, the stigmal column of the plant that is to supply the pollen can be cut and stored in the refrigerator for a very few days while waiting for the other plant to flower. The pollen from this flower must be dusted on the stigma pads of the flower that has been selected to bear the seed pod. The best hours to do this are between 10 a.m., and before 1 p.m. If the cross is successful, it will take from six to ten weeks to mature after the seed pods begin to turn yellow. The twig should be carefully marked with the names of the parent plants so that a record can be kept of just how each new plant is produced. The seed pod should be covered with a cheesecloth bag before the seeds mature to prevent them from being lost when the pod bursts open. When fully mature, the seed will be dark in color and about the size of okra seed.

A larger percentage of seed will germinate if they are planted within a short time after they have matured. Plant about an eighth of an inch deep, in good soil, or in grated sphagnum moss, and place in about half shade, so that the little plants will not burn when they come up. Seed

germination will take from ten days to three months, so be patient with them. As the seedlings grow, it is well to pinch the tips back so as to make sturdier plants. It will take from eight months to two years for the seedlings to flower. It is exciting to watch for each new seedling to flower to see just what it will be. If the flowers are not outstanding enough to compete with other similar ones already on the market, it is well to discard them and start again. To the hibiscus fan there is nothing to compare with the thrill that comes from producing a really outstanding bloom from one's own seedling.

Hybrid plants, in general, will not come true from seeds. After a really good seedling has been produced, it must be propagated by vegetative means—cuttings, mossing, grafting, etc. Some hibiscus can be grown on their own roots and may be propagated by cuttings. Cuttings should be six or seven inches in length and cut from small branches. A sharp knife or shears should always be used so as not to bruise the cuttings. They should be planted with about four eyes above the ground in a well-drained propagation box filled with two parts coarse, sharp sand, one part ground baby-chick grit, and one part vermiculite. If cuttings are spaced about two inches apart, mortality will be less. Keep damp at all times, but, at the same time, do not keep too wet.

Mossing is done by girdling the limb for a distance of about an inch and sprinkling this area with hormone powder. A ball of sphagnum moss is placed around this cut and covered with either aluminum foil or plastic which is secured at each end with twine or rubber bands. Wet the moss before molding it around the limb. When a good ball of roots has been formed, the limb can be cut off below the moss and potted. Mossing should be done in spring or summer when the plants are growing.

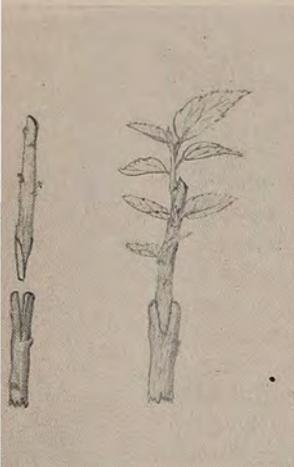
Grafting can be done by four types of grafts—side, whip, wedge, or saddle. I prefer the side graft as I get a larger percentage to live by this method, and also they can be grafted a second time.

If the second graft doesn't take, the stock plant can still be used for landscape material such as hedges.

For really fine varieties, I like the chip-bud better than any other method. Where the amount of graft wood is limited, as is often the case with new varieties, I can get a new plant from each eye by using the chip-bud method. When the buds are about four inches in height, it is well to pinch them back so that the plant will throw nice branches. By the end of the fifth month, the chip-buds have caught up with the grafts and they make really good plants.

Of all the varieties of hibiscus, the 'Scarlet Red' and 'Painted Lady' make the best understock for grafting or budding. They are hardy and stand a lot of abuse and are more resistant to root knot than others. It is well to graft while the root-stock is still in quart cans and, after the new plant is well started, to transplant them into gallon cans. It takes nine to ten months to grow a hibiscus from cutting to grafted plant twelve to eighteen inches in height. It is then ready to be planted in the ground. When planting, it is well to leave the graft just above the ground. Dig a large hole and fill with good soil so that the roots will have room to spread. A good way to remove the plants from the cans is to soak well with water and let stand for a few minutes. Then turn the can upside down and tap lightly. In this way the plant will come out without the ball of earth being broken.

Beginning with the new year, the following is a good schedule for the fertilizing and spraying of hibiscus plants. About March 1st, May 1st, and July 1st, use a good growing fertilizer such as 4-7-5 or 5-10-5. If plants show scale, thrips or aphids, they should be sprayed with a good oil emulsion prepared and used according to the manufacturer's directions. On or about April 1st, and June 1st, use a good nutritional spray. It is well to give hibiscus a high copper spray about July 15th. About the mid-



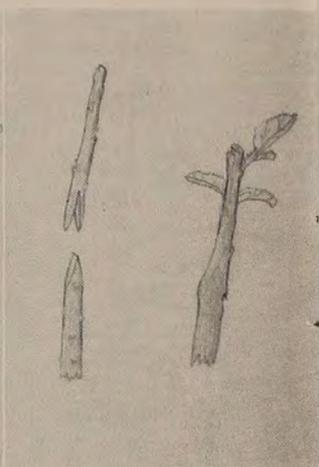
Wedge graft
2½ months later



Whip graft
2½ months later



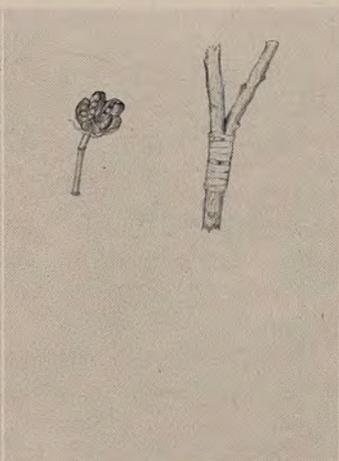
Side graft
2½ months later



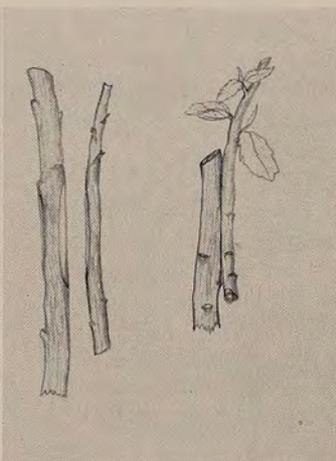
Saddle graft
2½ months later



Chip bud
2½ months later



Mature seed pod
Wrapping graft



Inarching



Mossing Off
Plastic bag holding moss

Pencil sketches by Donald Houston of propagation techniques

dle of August, they should be given an application of 4-8-8 as from then until winter it is well to increase the potash in the fertilizer formula. During the latter part of September, use a nutritional spray that is high in copper. About the last of November, give them an application of 2-8-10 fertilizer to harden them off and get them in condition for winter. From this time, they should not be fertilized again until the next March. In spraying and fertilizing, always use a little judgment for, if hibiscus are green and healthy, they do not need fertilizer and, if they show no signs of disease or insects, they do not need a spray.

The insects which most commonly attack hibiscus are snow scale, hemispherical scale, thrips and aphids. There are many good insecticides on the market for controlling these. The warning, "Be sure to follow directions of manufacturer," will bear repeating.

Only a few diseases attack the hibiscus plant, and the most damaging of these is the "Black Splash." So far, it is not known just what causes this condition. Some pathologists seem to think that it may be a nutritional trouble, but, up to the present time, this has not been proved. If plants develop this trouble, it is best to cut them back, below the point where the disease appears, and to keep them sprayed with a nutritional spray that is high in copper. Follow directions and spray every six weeks until the condition disappears.

When hibiscus flowers are desired for an evening occasion, they can be preserved by picking the buds in the early morning before they open and putting them in the refrigerator. If they are taken out about two hours before they are to be used, they will open and remain open all evening. When planning for a special occasion, such as a flower show, you should start preparations about three weeks in advance. At this time, the plants should be given a liberal application of 4-8-8 fertilizer. Two weeks before the show, all the flowers and buds should be picked and the plants well sprayed with a good insecticide. This is to destroy all

the thrips and aphids which would otherwise mar the blooms. About one week before the show, a good nutritional spray will help the blooms to improve in size and quality.

Many varieties of hibiscus are popular for a time and are then discontinued for better ones that are similar to them. Some, however, will always be desired. One of these is the 'Bride,' a single white that is faintly tinged with pink. It is almost impossible to keep up with the demand for this particular variety.

A group of enthusiastic hibiscus growers and other personalities met in the Hotel Biltmore, Palm Beach, on Sunday, May 21, 1950, following a successful hibiscus flower show, to organize the Florida Hibiscus Society. At this first meeting, the officers and directors were elected and the name of the society was established as the *American Hibiscus Society*. The purposes of the Society are to: 1. Encourage and promote the development and improvement of hibiscus. 2. Collect and record data concerning hibiscus generally, and new varieties in particular, and to make this information available to members. 3. Screen the hundreds of varieties (by the Nomenclature Committee), thus establishing rightful names and protecting, as nearly as possible, the true originators. 4. Serve as a clearing house for ideas in naming new varieties to prevent duplication of names, and to assist in the production and dissemination of new and better varieties of hibiscus. 5. Provide a registry for established and new varieties.

The Constitution and By-Laws were adopted October 14, 1950. The Society now has nine local chapters. Further information on its membership of Commercial (\$12), Contributing (\$25), Amateur (\$3 single, \$5 husband & wife), and Patron (\$250) classes of members may be obtained from the present Executive Secretary, Mrs. C. H. Calais, Goldenrod, Florida.

The Official Nomenclature List of the American Hibiscus Society, 1955, is reviewed in this issue of The National Horticultural Magazine. Ed.



Jean Robin—1550-1629

(Frontispiece in Pierre Vallet's Le Jardin du roy Henry IV, Paris, 1608)
Library of Congress, Washington, D. C.

Jean and Vespasien Robin,
"Royal Botanists,"
and North American Plants, 1601-1635

MARJORIE F. WARNER

Plants of the North American colonies, from the earliest days of the settlements, were eagerly welcomed in the Old World, and many beautiful and valuable species from South America and the West Indies were grown by collectors and found places in European botanical gardens alongside the bulbs and other rarities from the Orient and the Levant; while less conspicuous flowers from temperate North America probably came unnoticed. In England, 1629 is given as the date of introduction of many species, meaning that they were grown there prior to the publication of Parkinson's *Paradisi in sole Paradisus terrestris* (London, 1629), but some of them had come much earlier. Tradescant is said to have obtained many plants from "Virginia" about 1617, but nobody has cited any documents for these introductions. English gardens were greatly enriched by Tradescant's personal connections and his zealous search for plant novelties, many of which are credited to him by Parkinson, while others can be provisionally identified in his *Catalogus* of 1634, printed in Gunther's *Early British Botanists and Their Gardens* (Oxford, 1922, pp. 334-342), together with other seventeenth century plant lists.

Until very lately indeed, many garden lovers have been so excessively aware of the variety and interest of these English introductions that they have ignored the large number of American plants found in Continental Europe about the same time or a little earlier. Many of them are so widely distributed that they could, and some of them did, come from the English settlements to the southward, but the majority of them are Canadian in that they grew in and were brought from New France during the period of exploration and settlement under Samuel Champlain, from 1604 to 1629.

There is nothing similar to Parkinson's *Paradisus* (1629) as a record of garden flowers in France; and the French botany of the seventeenth century is very meager, consisting chiefly of a few lists of plant names, supplemented by some illustrations and stray allusions. The only well-known book dealing with plants introduced from America is the *Canadensium plantarum, aliarumque nondum editarum historia* (Parisiis, 1635) of Jacques-Philippe Cornut, which describes and figures many plants brought in during the Champlain expeditions but does not cover all that were known, and does include some "Virginian" species, not always distinguished as such. But although Cornut does not give the source of many of his plants, and certainly had some from other sources, it is clear that he found his American species in the garden of Jean and Vespasien Robin, the "King's botanists," which was the precursor of the *Jardin des Plantes*.

Much has been written about the Robins and the "King's garden," but many details are vague and their inconsistencies make them suspect. Jean Robin (1550-1629), a Paris apothecary, had a private garden at the western end of the Ile Notre-Dame which had become famous before he was appointed as King's arborist or botanist by Henry III, about 1586, and was put in charge of the garden of the Louvre, a post he kept under Henry IV and Louis XIII. By a decree of October 30, 1597, he was directed to lay out a small plot for the growing of simples, for the use of the Faculty of Medicine. This is sometimes considered the beginning of the Jardin des Plantes, but was merely a personal subsidy to Jean Robin. Shortly thereafter he issued his *Catalogus stirpium* (Paris, 1601), containing rare plants from the Orient and Africa, with a few from South America and the West Indies.

His *Catalogus* (1601) has little interest here, except for two species that must have come from the Cartier voyages in 1534-1542. *Thuja occidentalis* or "Arbor vitæ" had long since been recognized as a Canadian tree and was found in many European botanical gardens before 1600, but *Actæa spicata* was not so early or widely known. B. Daydon Jackson recognized it as the "Christophoriana" of Gerard's *Herball* (London, 1597, p. 829), and Gerard said he had received it from Jean Robin of Paris. In the latter's *Catalogus* (1601) it is called "Aconitum racemosum sive Christophoriana," and it was later described by Cornut as "Aconitum racemosum baccis niveis." It was known to many of the North American aborigines as a "snakeroot," and as such would have attracted the notice of the French explorers, but it could have been preserved in herb gardens for some years before it got into literature. It is significant, however, that both these exotics were in Jean Robin's collection, which must have been pretty complete for his day.

His son, Vespasien Robin (1579-1662), became a collector, and added largely to

the garden. He got a great deal of material from Spain, Italy, and the Pyrenees, and in 1603 journeyed as far as the Guinea coast, whence he published a list of *Exotica quædam plantæ a Johanne Robino juniore ex Guinea et Hispania delata, anno 1603*. The locution, "Johannes Robinus junior," has sometimes caused this to be attributed to his father; and the two-page leaflet is often found in the *Jardin du roi très chrestien Henry IV* (Paris, 1608), a volume of plates by Pierre Vallet, illustrating plants in the garden of Jean Robin, whose portrait and that of the artist appear as frontispieces.

Another work credited to Vespasien Robin is the *Histoire des plantes nouvellement trouvées dans l'isle Virgine et autres lieux lesquelles ont été prises et cultivées au Jardin du Mr. Robin, arboriste du Roy*, which is appended to Linocier's *Histoire des plantes* (Paris, 1620). "L'isle Virgine" did not mean the Virgin Islands, but Virginia, and this title may account for the erroneous idea in later botanical works, that Virginia was an island. This booklet, however, does not contain a single Virginian species. It is a wretched little affair of sixteen pages of figures, poorly drawn and cut down to fit the tiny pages; it does no credit to the younger Robin, and I am inclined to adopt a theory that it was a printer's botched job, with which neither of the Robins had anything to do.

Vespasien Robin is usually considered to have been chiefly responsible for the new catalog of the Paris garden in 1623. Jean Robin held the title of royal botanist until his death in 1629, but his son must have been virtual head of the garden for some years, as there was greatly increased activity in the exchange and distribution of plants from about 1621. Bauhin, in his *Pinax theatri botanici* (1623, pp. 521-522), acknowledges new species sent from the garden of the Robins in 1622, and in his preface refers to Vespasien as a zealous botanist, from whom he had received much and was hoping for more in future. Because of an error in the biographies of the Robins in Michaud, *Biographie universelle, ancienne et moderne* (1824, 38: 260-262), it has been supposed there was

a new catalog in 1621, hardly differing from that of 1601, but this is completely unfounded, although 1621 was presumably the date of Vespasien's appointment as royal botanist, and he may have issued the new catalog as an acknowledgment of that honor.

This catalog, the *Enchiridion isagogicum ad facilem notitiam stirpium tam indigenarum, quam exoticarum, quæ coluntur in horto D. D. Joannis et Vespasiani Robin, botanicorum regiorum* (Parisiis, 1623; also same, 1624), lists some 1700 plants, including a majority of those found in the *Catalogus stirpium* (1601), with many new ones, including exotics from the New World, particularly from Canada. Some of their Prelinnean names defy interpretation, but many can be identified through citation by later botanists, by traditional usage, and by special associations. Others can be nearly guessed, but there is dire uncertainty about individuals of the parsley, aster, and other families with a bewildering array of ancient names. I do not know what method of nomenclature was used by the Robins; they may have followed L'Obel to some extent, but I suspect their naming was very casual. The North American plants were new and, in default of any genuine system of botanical relationships, there was a tendency to assume resemblances to others that were familiar; hence the use of ancient and classical names for totally unrelated species from the New World, giving rise to endless confusion.

Adding to the number of plants definitely known, those whose identity can be rather closely guessed, and others called "American," I at one time reckoned that the *Enchiridion* had not less than fifty North American species.

The following plants in the *Enchiridion* can be pretty definitely recognized: *Actæa spicata* (*Aconitum racemosum bacciferum*), *Amelanchier canadensis* (*Chamæmepilus altera pyrifolia Canadensis*), *Anaphalis margaritacea* (*Gnaphalium Americanum*), *Apios tuberosa* (*Apios Americana foliis phaseoli floribus obsoletis*),

Asarum canadense (*A. Americanum majus*), *Asclepias incarnata* (*Apocynum rectum*), *Asclepias syriaca* (*Apocynum Syriacum*), *Aster cordifolius* (*A. latifolius*), *Campsis radicans* (*Clematis Virginiana*, seu *Jasminum Americanum*), *Eupatorium purpureum* (*Valeriana peregrina flore rubro*), *E. urticæfolium* (*Valeriana peregrina flore niveo*), *Helianthus decapetalus* (*Chrysanthemum Americanum cum volatoria caule*, seu *Vosacam*), *H. tuberosus* (*Chrysanthemum tuberosum*), *Lilium canadense* (*Martagon*, seu *Lilium sylvestre Americanum flore luteo punctato*; also *Martagon* . . . flore phceniceo punctato, which may have been the "red" or orange form of *L. canadense*, though possibly another species), *Lobelia cardinalis* (*Trachelium Americanum flore rubro*, seu *Cardinalis planta*), *Morus rubra* (*M. rubra Virginiana*), *Oenothera biennis* (*Lysimachia Americana flore luteo*), *Prunus serotina* (*Cerasus Americana latifolia*), *Psedera quinquefolia* (*Hedera major Americana*, seu *Vitis Virginiana*), *Rhus radicans* (*Vitis trifolia Americana*), *Rhus typhina* (*Rhus Virginiana*), *Rosa nitida* (*Rosa sempervirens Americana flore carneo simplici*), *Rudbeckia laciniata* (*Aconitum Americanum luteum*), *Smilacina racemosa* (*Polygonatum Americanum racemosum*), *Solidago cæsia* (*Doria minor Americana*), *Tradescantia virginiana* (*Phalangium Americanum flore violaceo Tradescampi [sic]*), *Uvularia grandiflora* (*Polygonatum Americanum perfoliatum flore luteo amplo*), *Zephyranthes Atamasco* (*Narcissus Virginianus lili-florus flore purpurascente*).

There are some supporting data on plants of the royal garden, the most important being contemporary illustrations. The flowering of new exotics was an event, and the first blooming of the passion flower in Robin's garden in August, 1612, was commemorated by four or five plates known to me, possibly many others. Pierre Vallet, "Brodeur du Roy," drew Robin's flowers for a volume of plates entitled *Le Jardin du roy Henry IV*, issued in 1608; and a new edition with twenty additional plates called *Le Jardin du roy Louis XIII*, undated but issued

in 1624, probably as a companion to the *Enchiridion*. The new figures comprise *Lilium canadense*, *Lobelia cardinalis*, *Passiflora incarnata*, *Tradescantia virginiana*, and an anonymous lady's slipper that is clearly *Cypripedium reginae*, although I cannot be certain how or whether it is given in the *Enchiridion*.

Even more interesting is the supplement to the *Florilegium novum* (1612) of Johann Theodor de Bry, entitled *Augmentatio uberior Florilegii . . . Anno 1614*, representing flowers that bloomed or were first noted by or before that year, although some of the plates may not have come out before 1616. It contains figures that in my judgment may have been preliminary sketches of flowers in the royal garden, among them one of *Lilium canadense* that is practically identical with the plate published much later in Vallet's *Jardin du roy Louis XIII* (1624), and a spray of "Gnaphalium Americanum" (*Anaphalis margaritacea*), both of which are listed in the *Enchiridion*. There are also some "Pirolas" that may well have come from North America, although they are not noted in other works of the period; and a fairly good figure of *Cypripedium reginae*. Thus the latter had presumably blossomed in the royal garden as early as 1614; it was again figured by Cornut in 1635, and is among the plants of la Brosse's *Catalogue* in 1636; so it appears to have had an early and continuous history in the royal garden.

Daniel Rabel, another floral painter of the day, got many subjects from the same place, and some of his plates may have been drawn as early as 1615. His *Theatrum Floræ*, published anonymously in 1622, and several times reissued, is mentioned by Parkinson in his *Paradisus* (1629) as "Master Robinus his *Theatrum Floræ*," as if he considered it a publication of the royal garden. It includes *Asclepias syriaca*, *Passiflora incarnata* and *Lilium canadense*, the two last represented in a style very different from that of Vallet, and probably rather over-ornamented by the art of the engraver. These three collections of plates all belonged to

the heyday of the royal garden under the Robins; and there are probably many other plates that came from the same source, some of which may be identified later as we learn more about the plants themselves.

In 1622 Kaspar Bauhin in Basel received plants from Vespasien Robin through Georg Sperling, and in his *Pinax theatri botanici* (1623, pp. 521-522), named or briefly described several species, among which we can recognize *Tradescantia*, *Psedera quinquefolia*, *Rhus Toxicodendron*, *Rudbeckia laciniata* (*Doronicum Americanum*) and *Solidago cæsia* (*Virga aurea mexicana*). The role of the Robins in distributing American plants was considerable. It is likely that a number of species were sent by them to Italian gardens, notably those of Cardinal Farnese and Cardinal Barberini in Rome, some time before 1623. Although the Robins are not mentioned, plants from "Parigi" (Paris) were likely to have come from their garden.

Some plants listed in the *Enchiridion* (1623) are only known through Cornut's *Canadensium plantarum historia* (Parisii, 1635); hence it is often supposed they entered Europe about 1635. Cornut, however, knew the Robins' garden from his days as a medical student until it was merged into the Jardin Royal des Plantes Médicinales; and he gives a few plants that must have been there before 1623, which are not listed in the *Enchiridion* unless concealed under cryptic names. He also gives many new plants received after 1623, though none of them could have come as late as 1635, as supposed by some writers. His descriptions are inadequate, but are supplemented by illustrations that are generally poorly drawn, yet frequently suggest distinctive features of the plant. He is largely cited by Linné and other later botanists, so that most of his species can be identified, but, as many of his plant names are peculiar to himself and he never gives synonyms, it is rather difficult to check his species with those of the *Enchiridion*.

The Paris garden is specially important as the repository of plants brought into France by the earliest exploration and settlement of Canada, including species with such wide geographical range that many of Cornut's species also belong to prairie Iowa, and others are found far south in the Appalachians. Not only does the specific name *canadensis* occur out of bounds, but the Robins distributed so many Canadian plants that others sent out by them were erroneously credited to that region, as the "Hyjucca Canedana" (*Yucca gloriosa*) of the Farnese garden, and the trumpet creeper, *Campsis radicans*, which is called the "Indian or Canadian jasmine" in Ferrari's *De florum cultura* (Romae, 1633). These were undoubtedly sent to Rome by the Robins, as also *Rhus typhina* and the Atamasco lily or "Virginian daffodill" (*Zephyranthes*), all being among Virginian species listed in the *Enchiridion*, most of which had been received from England through Tradescant, whose 1634 catalog has many Canadian plants that pretty surely came from the Robins in Paris.

There were friendly relations between the elder Robin and English botanists. He visited Gerard, who in his *Herball* (1597) acknowledges plants received from his friend "John Robin," and there are many allusions to "Robinus" in Parkinson's *Paradisus* (1629). The documents printed by Gunther in his *Early British Botanists and Their Gardens* (1922) indicate a long association between him and the elder John Tradescant. After the death of Jean Robin in 1629, the Paris garden seems to have received few Virginian plants; it is doubtful whether they ever directly imported any, but they had a goodly number from England, and I believe principally from Tradescant. A few such as *Oenothera biennis* were so rapidly disseminated in Europe that they might have reached Paris from various sources.

A very few Virginian species not in the *Enchiridion* in 1623 are found in Cornut's *Canadensium plantarum historia* (1635), and were evidently later acquisitions of

the garden. Among them is "Acacia Americana Robini" (l.c., pp. 171-173), later named by Linné *Robinia Pseudacacia*, in honor of the Robins. The fact that Cornut described no other tree is irrelevant as the area of the garden was too limited to give space to many large trees; but it is significant that this one was planted there, and also that Cornut attached to it the name "Robini," as he gives no personal associations for other plants. This specimen evidently had an individual interest, and was probably a special gift to the Robins.

Concerning its origin, Cornut only says it was from North America, and "being transplanted into our gardens it grew up not unhappily." His remark about the lifelike representation of its flowers, seeds and leaves is belied by the plate, which is so inaccurate that some have suspected it was based on material from another leguminous tree, while others believe it must have been purely fanciful; in fact, it is probably a combination of poor drawing and distortion by the engraver. But Cornut's description shows observation, and bears out his statement that the tree had "grown up" in the garden. He tells of its pealike flowers, similar to those of *Cytisus* (though he thought its clusters were not drooping but erect), followed by lenticular seeds. By the time Cornut's book was issued in 1635, the black locust had evidently been in the Paris garden some years, presumably having been set out as a sapling and come to maturity there.

The age of this tree, still standing at the Museum of Natural History in Paris, although battered by the ravages of time and bolstered by iron rods and cement, has been debated. Authors usually ignore Cornut's evidence that it had been planted some years before 1635. It was probably transplanted in the Jardin Royal des Plantes Médicinales in 1634 or 1635, as the first catalog of that garden, issued in 1636, lists the "Acatia Africana," which was the name by which Cornut's species was given in the contents of his

book, and in all probability that of the original label in the old Robin garden.

Some light is given by documents in Gunther's *Early British Botanists and Their Gardens* (1922). John Tradescant's *Catalogus plantarum*, which was printed but apparently never published, lists the "Locusta Virginiana arbor." This catalog is dated 1634, but, from the evidence of other lists of Tradescant, was probably compiled about 1629, when Parkinson's *Paradisus* (1629) came out, and Tradescant began listing the new plants he received after its issue. The locust is not among those annual accessions, so I infer that he had it as early as 1629. However, Parkinson does not mention it in his *Paradisus*, as he would have been apt to do if it had already bloomed or attained considerable size; but in 1640, in his *Theatrum botanicum*, he mentions it as a great tree. Although Parkinson could not have known every exotic brought into Britain, it seems likely that Tradescant's "Locusta Virginiana" had shown no remarkable development before 1629.

I believe that Robin's tree was coeval with that of Tradescant, who probably sent a seedling or sapling to his long-time friend, Jean Robin, before the latter's death in 1629. It is ironic that the Robins are regarded as introducers of the locust in Europe, as they did not directly import it; but it is gratifying to have them associated with a tree that has proved to be one of the most useful and adaptable species, soon naturalized in parts of France, and now flourishing in many otherwise treeless regions of Europe.

The garden of Jean and Vespasien Robin gave place to the Jardin Royal des Plantes Médicinales, which was the original phase of the Jardin des Plantes. It was authorized by royal decree in 1624

and established under Guy de la Brosse as "Intendant" or resident director. The site was acquired, the land laid out and prepared for planting, and by 1634 many of the Robins' plants were transferred to it. The Jardin Royal was opened to the public in 1635, and in the following year la Brosse published a *Description du Jardin royal des plantes médicinales . . . Contenant le Catalogue des plantes qui y sont de présent cultivées* (Paris, 1636). This list of 100 pages contains many new plants, but careful comparison with the *Enchiridion* (1623) and Cornut's work (1635) shows that nearly all the North American species of the old royal garden had been preserved and were now in the new one. It would take a very competent and erudite botanist to identify all these plants; but la Brosse fortunately followed the nomenclature of the Robins more closely than Cornut, with a few changes in obscure names, so that his *Catalogue* actually clarifies some names that are unrecognizable in the *Enchiridion*.

Vespasien Robin was made "sous-démonstrateur de plantes" or lecturer in botany in the Jardin Royal, with a tripled salary and living quarters in the garden, where he pursued an apparently uneventful course until his death in 1662, at the age of 83. It is questionable whether either of the Robins was a very good botanist, but their zeal and industry in the collection of rarities, and their skill in the care and cultivation of exotics from diverse soils and climates were undoubtedly responsible for the preservation of many of the North American plants introduced in Europe in the first part of the seventeenth century. Some of them died out in the Jardin Royal, but in the meantime many had been distributed to other botanists or gardens where they survived to the time of Linné.

Walpole, New Hampshire, May 1955.

Florists' Gloxinias—1817-1956

PEGGIE SCHULZ

Just as fashions in clothing change, so do "fashions" in ornamental plants. The products of today's hybridizers will hardly find favor with future generation gardeners. There was a time, not so long ago, when all florists' "gloxinias" had small downward-facing flowers. Within the last century, there have been many varieties available from the hybridists—the Diors of the plant-fashion world.

The plants most of us know as florists' "gloxinias" actually do not belong to the genus *Gloxinia*, but to a different part of the *Gesneria* Family, to the genus known as *Sinningia*.

The genus *Gloxinia* was founded by L'Heritier in 1785 to describe a plant which he named *Gloxinia maculata*. This species, now known as *G. perennis*, is still in cultivation, and it is listed by a few specialized dealers. This true *Gloxinia* bears little resemblance to florists' "gloxinias." *G. perennis* grows from a scaly, winding, underground rhizome; and it has shiny leaves, gray-green above, rosy-red beneath, with the upper surface showing short, bristly hairs. It has blue or orchid flowers, borne on a foot-long stalk, and are much like little Canterbury bells. It is an interesting plant but not spectacular enough to have gained real favor with the gardening public.

In 1817, Conrad Loddiges named a related plant *G. speciosa*. There is a handsome color plate of this plant, Number 28, in *Loddiges' Botanical Cabinet*. Anyone who has ever seen florists' "gloxinia" could not fail to discern the differences between the plant described by Loddiges and the one described by L'Heritier. Loddiges' plant is now the famous 'Blue Slipper' "gloxinia," forerunner of most of our present day florists' "gloxinias."

This plant grows from a round tuber, the leaves are velvety green and the slipper-type flowers are blue-purple. Loddiges' description mentions that their plant was introduced from South America and at that time (June, 1817) was in "fine flower."

Some of the plants of this species in my collection were grown from seed which came from Kew Gardens. They check in every detail with Loddiges' *G. speciosa*.

In 1825, Nees named another related plant *Sinningia helleri*. This plant, which now seems to be out of cultivation, had slipper-type white and red flowers. Because the flowers and other characters of this plant were so similar to those of Loddiges' *G. speciosa*, it led to botanical investigation. Since the final outcome was that Loddiges' *G. speciosa* was really another species of this same genus, according to the Codes published by the International Association for Plant Taxonomy, it became *S. speciosa*. But to gardeners all over the world, it remains as the 'Blue Slipper' "gloxinia."

There are perhaps twenty or more species of *Sinningia* hailing for the most part from South America. Many of these introduced in the early 1800's have become obscure. Today, even the most advanced collections will number but six or seven species and some of their variations. The last ten years have witnessed such a rise in "gloxinia" popularity, it might be well to review some of the characteristics of the species so interested gardeners can be on the lookout for rare ones. Who knows when some of these out-of-cultivation treasures will again come to light?

Flowers on the species of *Sinningia* are borne, one to a peduncle, from the leaf



Peggie Schulz

Variation of Sinningia speciosa with white slipper and blue throat

*Buell red and cream seedling
grown by the author*

Peggie Schulz



Peggie Schulz



"Average florist Gloxinia" var. Blanche de Meru

axils. Individual flowers are tubular and five lobed, with a downward-facing corolla and a protruding throat. These characters give rise to the term "slipper-like." Hybrid forms have as many as eight stamens and six to eight lobed flowers, with a corresponding number of parts to each calyx.

There appear to be four cited variations of *S. speciosa*. Of these, but one, var. *macrophylla*, commonly called the Brazilian gloxinia, is found in today's collections. The plant (B. M. 3943) large, silver-veined, olive-green leaves with magenta-colored undersides. Its flowers are dangling purple bells. It was pictured in full color in the January, 1956, issue of *Horticulture*, page 20.

White-flowered var. *albiflora*, red-flowered var. *rubra*, and thick-stemmed var. *caulescens*, appear to be out of cultivation. One hybrid of *S. speciosa*, commonly called 'Pink Slipper' "gloxinia," appears never to have come under the scrutiny of botanists for there is no record of its description. This plant has green leaves and pink slipper-like flowers.

I have raised some exquisite hybrid forms from a cross between var. *macrophylla* and the 'Pink Slipper' "gloxinia." These plants from the immediate cross all showed the exquisite foliage found on var. *macrophylla* but had blue or purple flowers as large as those found on 'Pink Slipper.' The F-1 hybrids showed a heavy percentage of the same lovely foliage but flowers ranged from white with red to deep red and all shades of purple.

S. regina (B. M. 8182) has once again captured the collector's fancy. This species, closely related to var. *macrophylla*, has olive-green, silver-veined, red-backed leaves and small purple flowers. Among those I have grown, *S. regina* seems of coarser growth than var. *macrophylla* with wider silver veining and much lighter underleaf coloring. Its flowers are shorter and more slender than those of var. *macrophylla*. Dr. Harold Moore, Bailey

Hortorium, has mentioned, however, that there is a possibility none of us have the true species in our collections.

Novice hybridizers are apt to be very pleased when they find some of the leaf characteristics of *S. speciosa* var. *macrophylla* or *S. regina* cropping out on their seedlings. Immediately, they think they have discovered something new. The commercial strain known as 'Grandiflora' has as one of its parents *S. regina*, and it is not at all unusual to find similarly marked hybrid forms among a large group of seedlings.

S. barbarata (B. M. 5623) has been described as having green leaves with reddish undersides, white flowers with red throats.

S. concinna (B. M. 5253 as *Stenogaster concinna*) would make a valuable addition to any collection. It is described as having red stems, leaf stalks, and veins to add to the beauty of the rather small, roundish, ovate, green leaves. The flowers, bright purple above, display yellowish throats.

S. hirsuta (B. M. 2690) has hairy green leaves with purple undersides, purple flowers and red calyx.

S. velutina (L. B. C. 1398) would be a choice item to obtain. Purplish veins set off the green leaves and light green flowers.

S. tubiflora (*Achimenes tubiflora*) is a tall-growing plant with green leaves and slender white flowers. It differs greatly from other accepted species of *Sinningia*.

A newer introduction is *S. eumorpha* (*S. maximiliana*). This species has shiny dark green leaves and white slipper-like flowers. It has become the parent of two named intergeneric hybrids, *Gloxinera rosea* (H. Moore and R. Wilson) and *Gloxinera* 'Rosebells' (P. Schulz), both having a loose cluster of two to eight, rose, rose and orchid, or orchid flowers from one common peduncle while "glox-

inias," unless freaks, have but one flower to a peduncle.

The newest discovery is *S. pusila*. I received four seeds of this plant and from these have grown one plant now nearly mature. This is a miniature among the species of *Sinningia*, having small green leaves and short stems. The tiny flowers are purple. At this time, I have no botanical reference to this species but it should prove valuable to hybridizers who are working to obtain smaller "gloxinias" for window gardens.

According to L. H. Bailey, one of the earliest recorded series of hybrids (1844) was with *S. guttata*. The Fyfiana Hybrid Group came into prominence in 1850. Here were upright flowers of pink, white, and shades of purple.

From this cross began the upward climb toward improved forms with which we are familiar. In the early 1940's, Albert Buell of Eastford, Connecticut, presented

his spectacular "gloxinia" originations. These hybrids in a wide variation of color have faces to five inches in width. On the West Coast, the Antonelli Brothers, Santa Cruz, California, were also working with "gloxinias" and many of their handsome hybrids have become very well known. In the South, hybridizer Jack Sweet, St. Petersburg, Florida, has produced and registered some excellent hybrids. Otto Panzer, Portland, Oregon, has given us 'Panzer's Beauty,' a florist's standby. Here in Minneapolis, we have the lovely origination, 'George Luxton,' hybridized by Richard Miller.

The hybrids and the species of Sinningia have a charm and individuality all their own, but the gardening public will probably continue to look to the hybridizers to produce still bigger and better "gloxinias"!

(Mrs. Schulz' book *Gloxinias—And How To Grow Them* was published by M. Barrows and Company in 1953. Ed.)



Peggie Schulz

White hybrid gloxinia—somewhat frillier than usual florist gloxinias

Scented-Leaved Geraniums

MARY ELLEN ROSS

From the time the first geraniums were introduced from South Africa into England early in the 17th century, it was the scented geraniums which were brought mostly to the British Isles. Those were the geraniums described by English writers, such as Andrews and Sweet. They were the first geraniums loved by English people and grown in their gardens. Many were also the parents of most of our later hybrid forms.

The scented geranium is so called not because of its fragrant flower but because of its fragrant leaves. There have been more than two hundred records made of different varieties with scented leaves bearing the scent of most any type of fruit, spice, or flower that can be imagined, such as orange, apple, nutmeg, peppermint, rose, etc.

Most of the scented geraniums have their flowering period from February to June. The rest of the year they are grown particularly for their scent and the beauty of their foliage. During this latter period they should be kept severely pinched to prevent them from growing out of bounds as most of them are fast growing.

In the house, their culture is simple and easy. They like a cool temperature—even down to a little above freezing, although forty degrees temperature is ideal when season permits. Since they are fast growing, they need feeding more frequently than other types of geraniums. When foliage starts to yellow it is time to give them some fertilizer. Frequent feedings with a weaker solution are better than less frequent use of a strong solution. They do not require a special type of soil but lend themselves to almost any soil mixture provided it is friable, drains easily and yet provides a firm root hold. Do not overpot! Grown in pots,

they can be kept within bounds by pinching and proper feeding. Planted out of doors, they should be given plenty of space as they quickly grow to a large size.

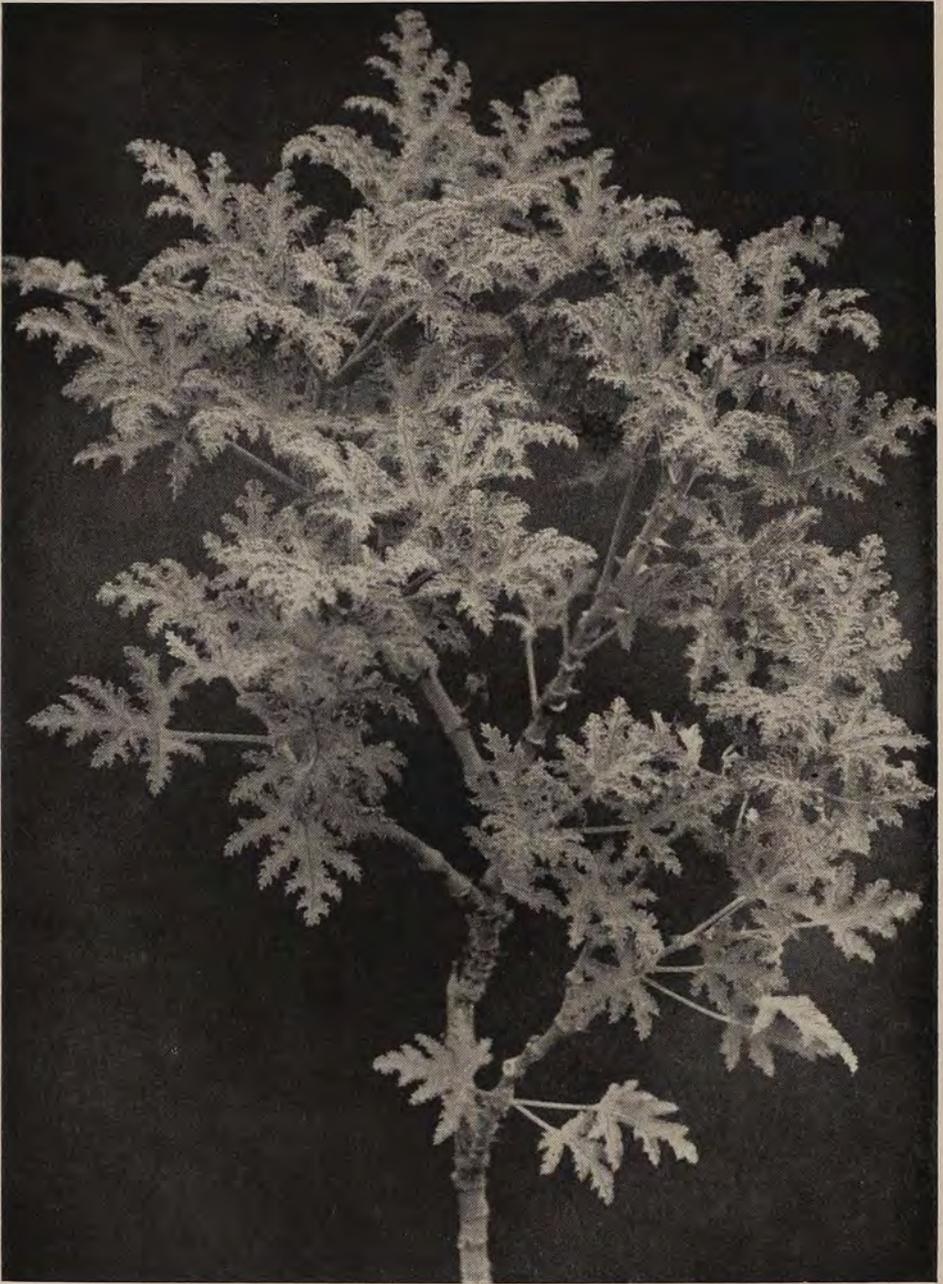
The scented geraniums are usually free from most diseases and pests. The green fly or aphids will attack them when present. Wash with strong yellow soap and water or spray with any recommended insecticide for green fly.

The nomenclature of the scented geranium is about as mixed up and confusing as any other large group of hybrid plants and is a headache to anyone attempting to straighten it out. Since the publication of Dr. Moore's studies on the scented geraniums in *Baileya* and the book, *Geraniums for Home and Garden*, by Helen K. Krauss, many a familiar name has been changed. Although this brought to light many corrections, it has also added to the confusion already existing.

Scented geraniums are listed in various ways. Some list them according to their scent; others according to their habit of growth, and others according to their botanical relationship. In this article, the writer has tried to combine a listing of the scent along with the botanical relationship.

Rose-Scented Group

First and most important is *Pelargonium graveolens*. This is the Old Fashioned Rose Geranium used so much in cookery, pot-pourri, sachet and for making perfume. Leaves are slightly tomentose, and deeply five lobed. It is of medium height. Blooms are lavender pink, in small clusters. A leaf of this put in apple jelly, on the bottom of a cake pan, or in a pat of butter adds a delicious flavor. Many of the other varieties of this group listed below may also be used in the same way.



John Robinson

Pheasants Foot

(Courtesy Sunset Magazine)

P. graveolens (Variegated, Mint-Scented Rose). This has more white than 'Grey Lady Plymouth' with the same pretty cut leaf; however, it lacks the rose fragrance. The scent is a strong mint odor, not as pleasing as other rose varieties. Its attraction lies in the beauty of foliage rather than in its scent.

'Camphor Rose.' Looks identical to *P. graveolens* but scent is of camphor rather than rose.

'Grey Lady Plymouth.' This is a lightly variegated green and white variety the same as *P. graveolens* with same fragrance.

'Lady Plymouth.' Also similar but leaves are quite small and deformed looking. It has more white, less green, than the 'Grey Lady Plymouth.'

'Little Gem.' Recently removed from the *P. quercifolium* hybrids under which it bore the name of *P. terebinthinaceum*. Now identified by Moore as a *P. graveolens*. Foliage is of the *P. graveolens* type, deeply lobed, slightly tomentose. It flowers freely in lavender pink in short umbels close to the foliage. Makes a very pretty flowering specimen. Scent is far from fragrant, more pungent, which makes one believe it does have *P. quercifolium* blood.

'Minor.' A small-leaved dwarf variety of *P. graveolens*, otherwise similar.

'Robers Lemon Rose.' Another fine variety which is perhaps the best one to use in cooking, jelly making, etc. Leaves are quite different from those of the type, more like a tomato plant leaf with three distinct lobes, dark green and tomentose. Flowers are of the regular rose type.

'Red-Flowered Rose.' It is questionable whether this variety belongs to *P. graveolens* as leaves are coarse in texture. Gray-green in color, deeply lobed but of a different shape than the regular *P. graveolens*. Ends of lobes are flat instead of round. Flowers are bright rose pink. Scent is more pungent than rose.

P. capitatum. Also rose scented and a few noteworthy hybrids of it retain the delightful rose scent. True *capitatum* is a sprawly plant with medium rounded, ruffled, soft, pubescent leaves. Small lavender blooms similar to those of *P. graveolens*.

'Attar of Roses.' Has same sprawling habits of growth as *P. capitatum*. Leaves more deeply lobed, soft, hairy. Strong rose scent.

'Round Leaf Rose.' Medium to large rounded leaves, soft, hairy, slightly lobed. Light green. Delightful rose fragrance.

'Snowflake.' Most distinguished of the *P. capitatum* hybrids which has same rounded, slightly lobed leaves as 'Round Leaf Rose.' Foliage is streaked with white. This was a chance seedling grown at Logee's North Street Greenhouses in Danielson, Connecticut.

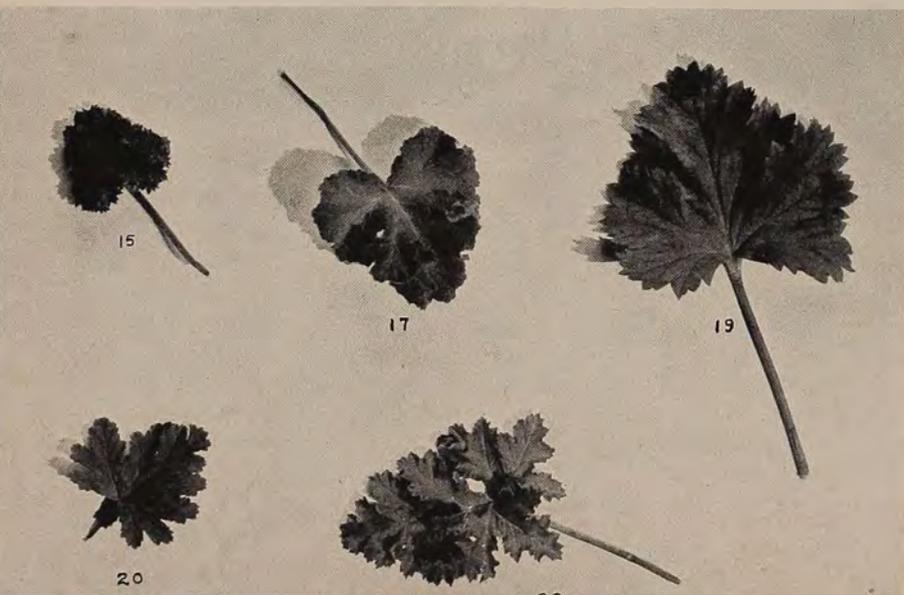
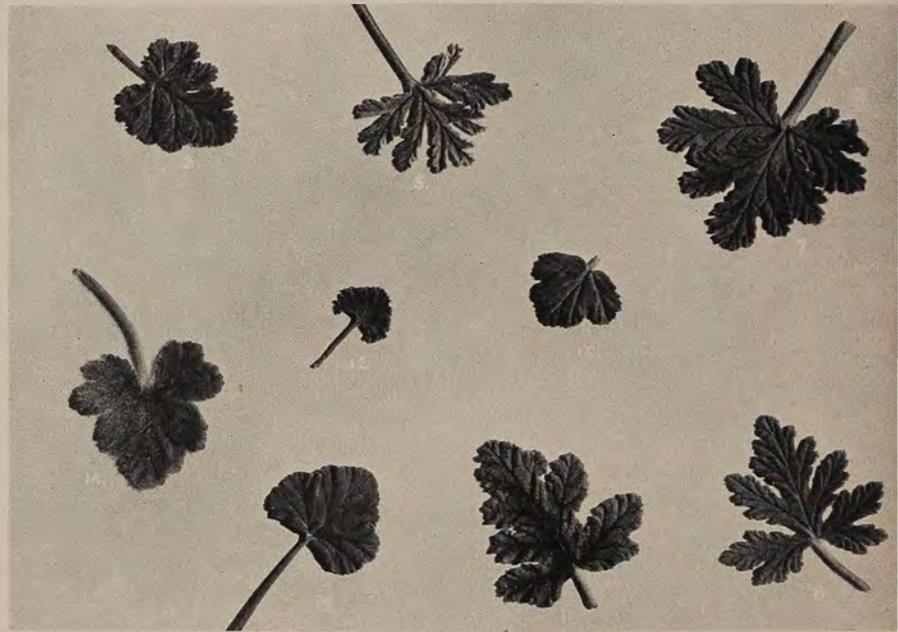
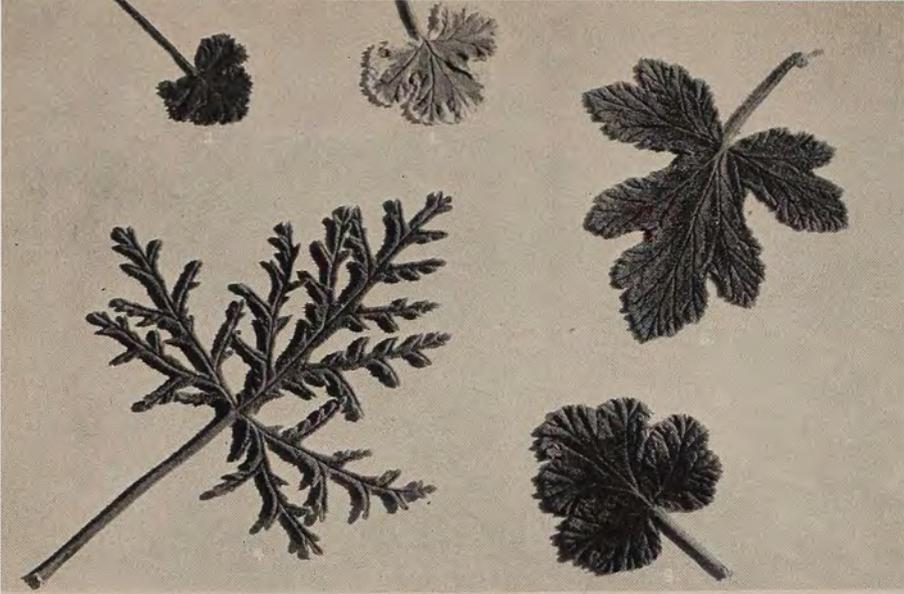
Pungent-Scented Group

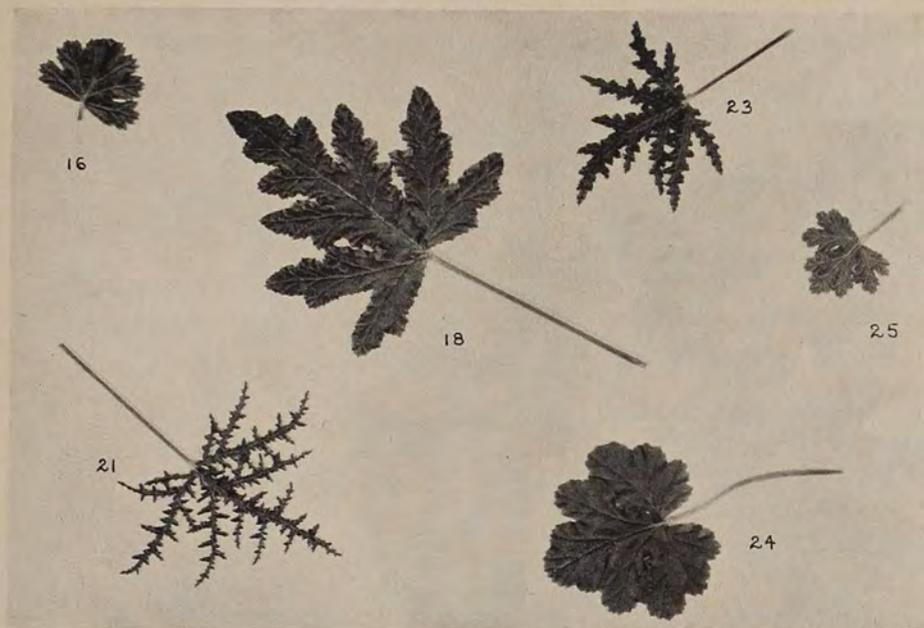
Varieties in the oak leaf group are more distinguished for their beauty of foliage and bloom than for sweetness of scent.

P. quercifolium (Staghorn Oak). Leaves medium, deeply five lobed, rounded at the tip, resembling an oak leaf. Dark green with reddish brown along midriff. Flowers showy rose-pink.

'Beauty Oak.' Has a pretty dark zone to the leaf. It is low and sprawly, a sparse bloomer. Flowers are small, pink. Foliage is less sticky than the above varieties, but to the writer not as attractive and of little merit.

'Fair Ellen.' Perhaps the best and showiest of this group. Foliage is sticky, pungent, prettily brown-zoned of oak-leaf shape. It is a low bushy grower and lends itself well to pot planting. Blooms constantly with very pretty pink flowers with dark blotch in center. Flowers are small but come in clusters which make the plant attractive. 'Fair Helen' is thought to have been its original name.





Leaf patterns of the scented-leaved geraniums

- | | |
|-------------------------------|-----------------------------|
| 1. 'Variegated Prince Rupert' | 16. <i>P. scarboroviae</i> |
| 2. 'Limoneum' | 17. 'Rollisons Unique' |
| 3. 'Concolor Lace' | 18. 'Pheasants Foot'? |
| 4. 'Dr. Livingston' | 19. 'Capri' |
| 5. 'Lady Plymouth' | 20. 'Monsieur Ninon' |
| 6. 'Acerifolium' | 21. 'Filicifolium' |
| 7. <i>P. graveolens</i> | 22. 'Scarlet Unique' |
| 8. 'Large Leaf Rose' | 23. <i>P. denticulatum</i> |
| 9. 'Shrubland Rose' | 24. 'Pretty Polly' |
| 10. 'Lady Mary' | 25. 'Little Gem' |
| 11. 'Fair Ellen' | 26. <i>P. quercifolium</i> |
| 12. <i>P. crispum</i> | 27. 'Clorinda' |
| 13. <i>P. fragrans</i> | 28. 'Variegatum' |
| 14. <i>P. tomentosum</i> | 29. <i>P. odoratissimum</i> |
| 15. 'Mrs. Kingsley' | |

'Giganteum' (Giant Oak). The largest-leaved geranium of this group. They are oak-leaf shaped of a plain dull green color without zone, sticky and of coarse texture, with a strong pungent odor. It is of little merit. Its use is primarily where one would like a low-growing bushlike plant. Blooms are attractive pink, but not a free bloomer.

'Pinnatifidum.' Has darker zone than 'Fair Ellen.' Foliage is very attractive and otherwise similar. Growth is tall, not as bushy and does not flower as freely. This makes a very pretty variety for outdoor planting.

'Pretty Polly.' Used for foliage effect only as it seldom blooms. Many attractive heart-shaped, toothed, dark-zoned leaves. Short thick, woody, central stem branches at the top. Blooms pink.

'Prostratum' (Prostrate Oak). Foliage is quite different from type in this form. Medium to small, ruffled, slightly tomentose, almost round in effect, with wide black center and margin of emerald green. Not sticky as of type but of same pungent scent. Can be used to good effect in hanging baskets as growth is heavy and well branched. Will take up a lot of space. Flowers are a lavender pink.

'Skeltons Unique.' Another hybrid of the same type as above. Sprawly habit of growth. Ruffled light green foliage with a dark zone. Not sticky, slightly tomentose. Flowers of a light pink bloom freely but are not too showy. Lends itself well to hanging baskets. Pungent scent.

'Village Hill Oak.' A seedling of recent origin which appeared at the nursery of Dorcus Brigham, Williamsburg, Massachusetts. It is a fine variety. Bushy habit of growth, sticky, pungent. Foliage deeply lobed and rounded. Pink blooms in dense clusters.

Pine-Scented Group

P. denticulatum. Foliage very dark green, deeply lobed, finely dentate, feathery appearance, sticky, glutinous. Strong scent considered to be the fragrance of pine needles; consequently, often called "Pine Scented." Flowers are very small, pinkish white with darker pink markings. A bushy plant.

'Carlton Fern,' a new variety, is very similar to *P. denticulatum* but is not as bushy; taller growing with finer-cut foliage.

'Filicifolium.' About the same as *P. denticulatum*. Foliage finer cut. Flowers are slightly smaller, growth taller and not as bushy. More difficult to grow than *P. denticulatum*.

'M. Ninon' (Apricot scented). This hybrid, usually grown under the name of *P. scabrum*, has recently been renamed by Moore. *P. scabrum* was found to be incorrect and previously belonged to a different plant. Foliage more like *P. graveolens*. Deeply lobed. Sticky. Strong scented. Flowers of medium size; a decorative bright pink.

'Pheasants Foot.' A *P. glutinosum* hybrid. Bushy. Foliage deeply cut and toothed. Sticky. Small pink blooms.

P. viscosissimum (True Pheasants Foot). Foliage dentate in three parts. Sticky. Flowers very small; pink. Grows tall and slender.

Fruit-and-Lemon-Scented Group

P. crispum (Lemon-Scented or Finger Bowl Geranium). Lemon scented. Very small, crinkled, crispy leaves held close to a central main stem. Must be pinched or it will grow into pyramidal shape. Flowers small; lavender. Strong lemon scent. This is the variety used in finger

bowls of pot-pourri. Also may be dried in bunches and hung in closets to give sweet fragrance to clothing.

'Limonium.' Sometimes considered the true lemon-scented geranium as it has a stronger lemon scent than other varieties. Small, crinkled leaves on longer stems than in the *P. crispum* type. Blooms are small crimson-rose. Very pretty. Rather difficult to grow as stem develops black rot easily.

'Lady Mary.' Foliage slightly dentate, small, slightly lobed leaves larger than *P. crispum*. Very mild fruit scent. Free-branching, compact growth of medium height. Flowers decorative white-pink with dark blotch in upper two petals. A fine attractive free-flowering variety.

'Minus.' Tiny, crinkled leaves, stemless, close to the main stalk. Will revert to regular *P. crispum* species, but, when grown in cool conditions, it will remain stemless. Blooms are lavender as in *P. crispum*.

'Prince of Orange' (Orange scented). Leaves larger and broader than *P. crispum*. Grows bushy, branching. Flowers larger than type, attractive white with black blotch in the upper petals. Free blooming in the spring.

'Prince Rupert' (Lemon scented). Small, crinkly leaves larger than *P. crispum*. Same type of growth. Flowers lavender.

'Variegatum' (Gooseberry leaved). This is often erroneously called *P. grossularioides*. By its foliage and flowers it is quite obvious it is a hybrid of *P. crispum*. Foliage is small, crinkled, the same as *P. crispum*. Attractively mottled with yellow. Flowers are lavender. Mildly fruit scented. Bushy, compact growth.

'Variegated Prince Rupert.' A green and white form of the above. 'French Lace' appears to be identical.

P. scarboroviae (Strawberry scented). Small, glossy, dentate foliage. Rather difficult to grow and extremely hard to root. Flowers attractive bright pink with darker markings. Also called 'Countess of Scarborough.'

Peppermint-Scented Group

P. tomentosum (Peppermint scented). Strong peppermint scent. Large, rounded, lobed leaves, densely tomentose, velvety appearance. Sprawling habit of growth. Flowers very small, fluffy white. Grows well in shade. Requires more water than other varieties. Fragrance is so strong it can scent a room even if the foliage is not touched. An attractive, large-leaved variety.

'Pungent Peppermint.' Deeply cut foliage similar to that of *P. graveolens*. Foliage gray-green, tomentose, velvety appearance. Upright, tall, wiry growth. Small, white, feathery blooms, same as those of *P. tomentosum*. Musty peppermint scent. A hybrid of *P. tomentosum* and *P. denticulatum*.

'Joy Lucille.' Large-leaved variety with velvety appearance similar to *P. tomentosum*. Foliage deeply lobed, similar to *P. graveolens*. Scent appears to be a combination of both, musty-peppermint odor. A *P. tomentosum* × *P. graveolens* hybrid grown at Logee's Greenhouse.

Spice-Scented Group

P. odoratissimum (Apple scented). Rounded, ruffled leaves on trailing stems. Low growing, compact, bushy. Small, fluffy, white blooms in small clusters. Strongly scented, resembling that of apples.

P. fragrans (Nutmeg scented). Small, rounded, grayish-green foliage on wiry stems. Branching, bushy, spreading growth. Strong sweet fragrance. A variety of this is called 'Turpenthia' with strong medicinal fragrance.



'Logee.' Low growing, spreading, rounded, ruffled foliage similar to *P. fragrans*. Grayish green. Strong scented. Small, fluffy, white blooms. Originated by Ernest Logee. 'Old Spice' appears to be identical. 'Codys Fragrans,' originated in California, is similar but its leaves are larger and softer. 'Fruit Salad,' introduced by M. H. Arndt in New Jersey, is similar with fruit scent.

Fulgidum Group

Varieties in this group of mildly-scented geraniums are recorded as having *P. fulgidum* blood although many are quite distantly removed from this group and it is questionable as to whether they really belong here. *P. fulgidum* itself is not a scented variety. It has a deeply cut, velvety, tomentose foliage. Blooms are a bright scarlet from which many in this group seem to have inherited the blooming characteristics. The most distinct representative hybrid of *P. fulgidum* is 'Scarlet Unique.' It has large leaves, deeply cut, ruffled, grayish green, slightly tomentose. Showy scarlet blooms on long stems, dark blotches in upper petals.

'Capri.' Slightly tomentose, grayish-green, shallow-lobed medium leaves. Growth compact, bushy, somewhat like Martha Washington type geraniums. Medium-sized clusters of scarlet blooms.

'California Brilliant.' Similar to 'Capri.' Foliage smooth, bright green. Bright scarlet blooms in small clusters.

'Clorinda.' Medium to large, slightly lobed. Its attraction is its extra large bright pink blooms which resemble the Martha Washington or Lady Washington type. It is longer blooming than the

'Clorinda'	<i>P. graveolens</i> (variegated)
'Peppermint'	<i>P. glaucifolium</i>

Courtesy Sunset Magazine/John Robinson Photos

Martha Washington type as it will come into flower early in the winter and will bloom constantly all summer and fall. Foliage has mild pleasant scent.

'Concolor Lace' (Filbert scented). Name 'Concolor Lace' is proposed by Helen K. Krauss for one of the forms of \times *concolor* that has sometimes been called 'Schottesham Pet,' as the name 'Shotesham Pet' (as it was originally spelled) belongs to a different plant. Ruffled, deeply cut, tomentose, medium-sized leaves. Compact, bushy growth. Free blooming. Small clusters of bright scarlet blooms.

'Mrs. Kingsley.' Similar to 'Rollisons Unique.' Leaves are more ruffled and curled. Growth bushy. Flowers identical, cerise, free blooming.

'Mrs. Taylor.' Deeply cut, smooth, green leaves shaped similar to *P. graveolens*. Growth sprawly, not free branching. Hard to make bushy. Free blooming, medium scarlet. Attractive, showy flowers make this hybrid desirable.

'Rollisons Unique.' Slightly ruffled, lobed, slightly tomentose, coarse, light green leaves. Upright, somewhat climbing. Does not branch too freely. Medium-sized showy clusters of cerise blooms. Free blooming.

'Shrubland Rose.' Not as deeply lobed as type. Foliage slightly tomentose. Flowers are very pretty rose-red, free blooming, attractive. (Sometimes listed as 'Shrubland Pet,' the name preferred by Krauss.)

Miscellaneous Group

Varieties in this class apparently seem to belong to no special group.

P. abrotanifolium (Southernwood leaved). Very small, deeply cut, grayish green, very aromatic foliage on slender, woody stems. Tall growing; non-branching. Resembles in looks and scent the hardy herb Southernwood (*Artemisia abrotanum*), hence its popular name.

P. blandfordianum. Has attractive blue gray-green leaves, deeply lobed; tall, spindly growth. Very small, insignificant white blooms. This could be called a climbing scented geranium as it will ramble on in slender fashion to a great height. Said to be a hybrid of a cross between *P. graveolens* and *P. echinatum*.

'Godfrey's Pride.' A large, shrubby plant with light green, yellowish, three-lobed leaves. Pink flowers.

P. grossularioides (Cocoanut scented). Often erroneously called *P. parviflorum*. Small, rounded, glossy leaves on wiry stems from a central rosette. Low growing, trailing. Very minute rosy-red blooms in small clusters. Goes to seed freely. This is a hardy variety; will stand a great deal of freezing. Seeds live over winter in the North and grow in the spring. Strong scented.

P. radens (Crowfoot). Formerly listed as *P. radula* now given the name *P. radens* by Moore. Foliage deeply lobed and coarse. It has a musty scent not identified with any particular flavor. Its lavender-pink flowers are its greatest attraction as they are freely produced in small clusters.

(Mrs. Ross operates Merry Gardens in Camden, Maine, and specializes in all types of Geraniums, the fancy-leaved ones, the scented-leaved ones, and just plain Geraniums. Ed.)

'Variegated Prince Rupert'

(Courtesy of Sunset Magazine)

'Dr. Livingston' (Skelton Rose). Looks very similar to *P. radens*, the species to which it belongs, but on close examination it is much deeper lobed, grows slightly taller, does not bloom as freely but has a lovely lemon scent which is its greatest attraction.

P. nervosum (Lime Scented). Rounded, slightly dentate, slightly ruffled, medium light green leaves. Bushy growth. Flowers freely in spring, medium-sized lavender in showy clusters. Strong scented, resembling lime.

'Toronto' (Ginger Scented). Very similar to *P. nervosum*. Foliage not as ruffled and dentate. Otherwise flowers the same. Growth identical.

P. vitifolium. Large, lobed, coarse leaves, light green, slightly tomentose. Strong, heavy growth, tall. Fine, feathery, white blooms in small clusters. Pungent scent. Called Grape Leaf Geranium.

John Robinson



cur"—but these points are of very minor importance. Well written from obviously first hand experience, this timely and unique little book will most creditably fill an uncrowded spot on the horticultural bookshelf.

H. T. S.

The American Gardener's Book of Bulbs.

T. H. Everett. Random House, New York. 1954. 244 pages. Illustrated. \$5.95.

The title of this one gives enough explanation to determine its completeness of subject, it is well selected, and the text is well done by Mr. Everett. He has included enough material on the bulbs to make this a very welcome encyclopedia; as a matter of fact, there is an encyclopedic listing of bulbs in the latter part of the book.

Aside from the bulbs, per se, he adequately tells of their selection, care, feeding, propagation, naturalization, plantings for fall and spring flowerings, plantings in rock gardens, and, wouldn't you know it—even a section of their usage in flower arrangements!—but Ann Hagan did this chapter. There's also a chapter devoted to groups especially interested in bulbs and an elaborate series of how-to-do-it illustrations, which are perfect. This is really a handsome volume to add to your must list.

The reviewer might add, a little casually, just as a P.S. bonus—Mr. Everett follows the "popular" definition of bulbs and includes almost everything with a bulb-like root storage system, save daylilies, astilbes, potatoes, butterfly weed, etc., etc.

Illustrated Guide to Trees and Shrubs.

Arthur Harmount Graves. Published by the author, Wallingford, Connecticut. 1952. 240 pages. Illustrated. \$4.00. (Library).

This is a guide to the woody plants of the Northeastern United States—native, naturalized and commonly cultivated exotic kinds, including both summer and winter characters. There are 45 plates and 116 text figures. The line drawings give the leaf outline and venation, a close-up of the twig, fruit, and winter bud, or in some cases the flower, in much more detail than could be gathered from looking at an actual specimen. The very readable text together with the superb drawings should enable one to identify any woody plant within the area and compass covered. A very good explanation of how to use the general key is given; the key itself is easy to use (there is a glossary to help if one gets stuck on certain terms). The arrangement of the text follows that of any good botany. The guide is a very helpful one.

The author has published a supplemental *Winter Key to Woody Plants* of some 30 pages which would enable one to identify the plants from winter characters.

Official Nomenclature List of the American Hibiscus Society, 1955.

W. Bruce Parnell, Chairman of the nearly twenty members of the Nomenclature Committee. American Hibiscus Society, Miami, Florida. 1955. 135 pages. Illustrated. \$1.60.

The nomenclature committee worked nearly two years to present this official descriptive list of

Hibiscus varieties. It is an alphabetical listing of approximately sixty-six fancy named varieties registered with that Society and a second alphabetical listing of about seven hundred varieties that are established but are not registered with the Society.

Insofar as information was obtainable, for each listing there is the fancy name; its originator (more often only his surname); the flower type (single, double, semi-double); flower size (small up to ten inches); its texture (medium, heavy, thin, crepey, and so on); the flower color (the yellow section includes almost thirty-five variations); and its various characters (petals reflexed, separated, overlapping, etc.); then, notes on the plant's growth habit are given (tall, upright, prostrate, etc.); and finally a note on its leaves.

The listings comprise the entire book except for Page 1 which furnishes the purposes of the Society. The reviewer believes an introduction (or appendix) would have increased the understanding and value of the list had it included data which would have given the originator's full name and his place of work; defined terms of descriptive references (tall, low, small, medium, heavy, and the like, could be quite meaningless to the herd); and explained the color nomenclature or standard used. The listings, in all cases, would have been much more meaningful and valuable had more botanical terms been used in the descriptions. The greatest asset that could have been given, especially for those varieties registered within the past five years, would be the parentage data. This would not only be a permanent recording place for such (which, actually should be a major part of the official registration record) but would be of inestimable value to future hybridizers.

Lacking these prefatory notes, a non-member of the American Hibiscus Society does not know if its members do know or have access to more data than are recorded in the list.

This is an impressive genesis towards the purpose to which it is devoted, and, regardless of what may or may not appear as shortcomings, the Society is way ahead of others in having made this start for the purpose of the International Registration authorities.

M. E.

The Pruning Manual.

Everett P. Christopher. The Macmillan Company, New York. 1954. 320 pages. Illustrated. \$5.00. (Library).

For more than a half a century *The Pruning* manual by Liberty Hyde Bailey has been the definitive reference in its field. This new book, its direct successor, continues the Bailey tradition in providing the most comprehensive and up-to-date information available on pruning.

Specific instructions are given for the pruning of all temperate-zone fruits, shade trees, and ornamental shrubs, including the rose. Sections are devoted to forestry, grafting, root-pruning, wound treatment, and tools. Throughout the book the basic reason for each pruning practice is given, primarily through an explanation of plant anatomy and physiology.

Practical Gardening.

Olive Mason Gunnison. American Garden Guild and Doubleday & Company, New York. 1955. 384 pages. Illustrated. \$4.50 (Library).

This is quite a garden book on what to do, when to do it, and how to do it—designed especially for the person just developing the curiosity of growing plants. Yet, it is also a very pleasant refresher for those who might have a question or two about their own set ways of gardening; for it will bring the more advanced gardener up to date by informing him of the many new methods, materials, and new varieties of plants.

Mrs. Gunnison assumes that the reader knows nothing about gardening. She apologizes for this. Then, she goes ahead for the next 358 pages to furnish the wherewithal needed for the beginner in undertaking almost every garden subject. The authoress has developed a very good style of presentation and her book should be the very first purchased by any gardener.

Caroline K. Allen prepared the many line drawings which are excellent and well illustrate the subjects.

What's New In Gardening.

P. P. Pirone. Hanover House, New York. 1956. 254 pages. Illustrated. \$3.50. (Library).

Drawing from his twenty-years' experience with fruit and vegetable growers, professional arborists and nurserymen, and currently plant pathologist for The New York Botanical Garden, Dr. Pirone presents a really new kind of garden book, particularly helpful to the suburban home owner whose time and energy for gardening, and horticultural knowledge and experiences are usually somewhat limited. He knows that these gardeners can do a better job with less effort and greater success because of the introduction into trade of tested varieties of new fruits and vegetables, new flowers, shrubs, and trees, many of which he describes in brief, understandable text.

Included also are new materials and equipment for controlling diseases and pests, new methods of plant propagation, new ideas on lawn management, practical use of soil conditioners, plant food and growth regulators, many new garden gadgets, and some of the more recent developments in the field of landscaping and well-selected material for specific areas around the home grounds.

Although Dr. Pirone gives the newest information on plants and gardening, he also includes many of the fundamentals, so it can be used by gardeners of varying stages of experience and interests and in many parts of the country. It can profitably be studied before your next planting season.

M. C. L.

Chinese Flower Arrangement.

H. L. Li. Hedera House, Philadelphia. 1956. 122 pages. Illustrated. \$4.00. (Library).

It is exciting, in this age of specialism, to find a reminder that horticulture is a craft needing both science and art. As a professional taxonomist and as a student of Chinese art, Dr. Li is well equipped to describe this blend; and he does so with quiet charm.

It should be no surprise—simply another chapter in the Chinese Legend—to find that flower ar-

range in China has been a highly developed skill for many centuries. As an integral part of Chinese interior decoration, it has been a continuously developing art, firmly based on fifth century principles of design for painting, yet still free of rigid rules and with self expression an essential characteristic. So, to those who worry lest American flower arrangement crumble into a decadent fad, this book could be an assurance that our arrangers are still in their infancy. The Chinese concept of flower arrangement is a much broader one than we are used to, and Dr. Li includes the culture of pot plants, dwarfed trees and dish gardens, as well as the care and arrangement of cut flowers.

Chinese flower arrangement follows Chinese philosophy as truly as form follows function, and its purpose has been to create for the city dweller a symbolic substitute for the distant countryside—so that, "by identifying himself with the cosmos, one can find new strength and happiness." This has given floral decoration a double aspect: first, the creation of an arrangement, and, secondly, its appreciation. In this appreciative function, a tenderly respectful affection, lies much of the delight of Dr. Li's book. His flowers are not just raw materials of design, but living plants with living needs and with symbolism and poetry behind them.

This is a two-level book, and you can read it quickly or slowly, as you please. If you need a Chinese-inspired arrangement for next week's flower show, you can easily find here the necessary information on the basic principles of Chinese design and lists of the traditional plants used in Chinese interior decoration. Also, there are chapters on containers and accessories, and beautiful illustrations from ancient Chinese paintings and prints. If you read it slowly, however, Dr. Li will subtly but surely convince you that the aim of Chinese flower arrangement is indeed "to charm and delight."

Mary Green,
Librarian, Pennsylvania Horticultural Society

The Friendly Evergreens.

L. L. Kumlien. Rinehart and Company, New York and D. Hill Nursery Company, Dundee, Illinois. Reissued 1954. 237 pages. Illustrated. \$10. (Library).

It must be a great satisfaction to an author (and also to his publisher) to realize the demands for his book continue over the years and in time subsequent printings are necessary to please an ever-growing public. Mr. Kumlien's "compilation," so he writes, was first released in 1946, after its popular predecessor *Hill's Book of Evergreens* (1936) was out of print. The 1954 edition was completely rewritten and covers the *coniferous* evergreens in a more comprehensive manner than did Hill's.

While the author claims to have gathered these data from many books and compiled his story from them in a non-technical vein, he casually glances over the fact that he has had several decades of experience as a practical nurseryman with a curiosity and a love for evergreens which are evidenced in his presentation. He very thoroughly discusses the nature of evergreens, their classification, their description, uses, culture, and all possible related subjects.

The text is generously aided by detailed line drawings of foliage, cones, —over 200—actually

A Book Or Two

(Books noted "(Library)" are available for loan to the membership.)

Modern Rhododendrons.

E. H. M. Cox and P. A. Cox. Thomas Nelson and Sons, Limited, London. 1956. 193 pages. 26 line drawings and 4 color plates. \$3.08.

For the serious amateur gardener, this is a most serviceable volume in choosing the best among the true Rhododendrons. For each of the Rhododendron series and subseries, Cox, father and son, describe the species outstanding for garden purposes. Fair warning is given where botanists have given species rank to plants that have only minute botanical differences and by describing only the best in a close alliance of species and ignoring the rest. Relative hardiness and characteristics of importance to the gardener are emphasized.

The chapter on Rhododendron hybrids is an exceedingly valuable appraisal of what constitutes the best in various hybrid groups. It inspires assurance in the fairness of the judgments expressed. The reputation of the senior author, however, one of Britain's great gardeners and horticultural writers, with the added advantage of a modicum of Rhododendron exploration behind him, alone is enough to give confidence. The fact that he gardens on the colder east coast of Scotland, and not in Cornwall or the Inner Hebrides, is also helpful.

There are good chapters on cultivation and propagation, as well as recommended lists of species and hybrids for various purposes.

A short chapter is given over to Azaleas as one among the numerous Rhododendron series. Whatever its value from a British viewpoint, from an American viewpoint, the chapter is an inarticulated skeleton with most of the bones missing—out of character with the excellent company it keeps. Also some of the statements impel slight gasps. Thus, the habitat of *calendulaceum* is Pennsylvania and Ohio; *speciosum* is sometimes listed as a form of *nudiflorum*; and the Eastern United States (apparently all of its 1500 miles north to south) is an area where winters are too severe for the general run of evergreen hybrids including the Kurumes. British horticultural writers in general should in some way be induced seriously to study a large scale map of the United States and of its climatic zones.

For the American gardener interested in the true Rhododendrons, *Modern Rhododendrons* should be on the shelf with Street's *Hardy Rhododendrons* and the American Rhododendron Society's *Rhododendrons, 1956*. There would be but little overlapping in data.

The manuscript of *Modern Rhododendrons* was a gift by the authors to the Garden Committee of the National Trust for Scotland of which the senior author is a Vice-Convenor.

F. P. L.

The Studio Book of Flowers and Flower Arrangements.

The Studio Publications, Inc., New York, in association with Thomas Y. Crowell Company, New York. 1956. 224 pages. Illustrated. \$10.00. (Library).

"In presenting in one volume the research, ideas and techniques of this leading group of exponents

from the East and West, the editors had in mind an impressive cooperative demonstration, a cross-section of the finest work being done today. The book explains origins and shows influences. It also demonstrates in words and pictures the close relationship that exists between the flower arranger's art and that of the painter and decorator." is the expression of Bryan Holme in the introduction.

With the assistance of Julia Berrall in organizing the material, there are presented in 21 chapters excerpts from previously published books of twelve author-arrangers, including Ruth Gannon, Jean Gordon, Julia Berrall, Jiro Harada, Niada Hayes, Amelia Hill, Seido Iwata, Wm. Pahlmann, Caroline Peterson, Patricia Roberts, Constance Spry, and Margaret Watson. These cover the history of flower decoration in Europe; rose gardens; growth of flower arrangement in America with much on principles and methods of arranging with garden and wild plants, dried plant material, and special Christmas decorations; table settings; house plants; Chinese and Japanese influences; the art of Bonsai, and flower show arrangement classes. Each chapter is profusely illustrated with the work of such outstanding photographers as Roche, Gottsho-Schleisner, R. Platt, Hugelmeyer, H. D. Faas, and Boutrelle-Sevecke Associates, together with copies of paintings in various art galleries. In fact, there are some 140 black and white and 57 color plates to delight the eye and beauty-sense of the experienced and novice arranger alike.

This exceptionally fine edition proves that "flower decoration in America has matured to a point where hundreds of artists emerge each year with stature." It is a veritable "Who's Who" in the world of some 46 artists with flowers.

M. C. L.

Window Box Gardening.

Henry Teuscher. The Macmillan Company, New York. 1956. 180 pages. Illustrated. \$3.95. (Library).

In still another return to the Victorian era, window boxes and the culture of plants in contained areas are finding a new usefulness in association with the modern home, whether ranch style or apartment as the case may be.

The sub-title to this refreshingly original volume, "An Illustrated Guide for the Outdoor Culture of Plants in Boxes, Tubs, and Hanging Baskets," provides a more adequate clue to the contents which open with a clear discussion of window box construction and proceeds from normal to drip-proof and self watering types and through plant raising and culture to an inclusive consideration of plants, from annuals, bulbs, and alpine, to roses, chrysanthemums and artistic arrangements of tomatoes, parsley and runner beans. The plates are excellent, plant descriptions are detailed and authoritative and the "use" listings should be eminently helpful. There will doubtless be some who may miss their favorite polyethylene short cuts for rooting cuttings, who may choose to take liberties with some of the suggested color combinations or be willing to risk the overwintering of a few of the perennials somewhat beyond those regions where "no more than occasional light frosts oc-

serving as perfect keys to identification in most cases, and of landscape layouts, etc. There are 80 plates of specimen plants in color, most of which are first rate. Over 150 black and white half-tones of specimen plants and layouts complete the illustrations.

This book will long remain a standard for the popular gardener who will always look upon the friendly evergreens as being Pines, Firs, Junipers, Cryptomerias, etc., and who will never quibble because the Hollies, Magnolias, Rhododendrons, Mahonias, Buxus, Kalmia, and many other genera of evergreens were not considered friendly at all.

M. E.

Liberty Hyde Bailey. An Informal Biography.

Philip Dorf. Cornell University Press, Ithaca, New York. 1956. 259 pages. Frontispiece of Dr. Bailey at his desk. \$3.50. (Library).

A very good idea of the problem behind Mr. Dorf is now recorded in his preface:

"If one makes a book, one must keep within limits, otherwise the publisher is offended and the author is open to charges of lack of discrimination or the capacity to condense. Yet it is difficult to compress a genus of plants."

Liberty Hyde Bailey.

"In the foregoing quotation Bailey was commenting on the problem of compressing *Rubus*. I encountered the same difficulty when with more enthusiasm than wisdom I set out to compress, not a genus, but a genius. A man of many careers, many interests, Liberty Hyde Bailey 'retired' in 1913 at the age of fifty-five; he had lived a full and useful life. However, to complicate matters for biographers, he then proceeded to live another full and useful life—thirty-six working years—until overtaken not by old age but by an accident."

The author did a most interesting paper and this will well serve the next biographer who must add considerably to the text. From our own selfish viewpoint, Dr. Bailey's early influence in establishing the U. S. National Arboretum is not even mentioned. His holding one of the two Fellowships in the Society is not either. The Macmillan Company, publishers of his work for over sixty years, could easily conclude their long list of titles with the more "scholarly" biography, but, perhaps, it would not be as readable as this.

Drying Flowers for Color.

Sarah Whitlock & Martha Rankin. Privately published by the authors, 3 Gildersleeve Wood, Charlottesville, Virginia. 1956. 19 pages. Illustrated. \$1.25. (Library).

This is an enlarged, revised (almost completely rewritten), second edition of their successful (over 6,000 copies sold) 1954 venture. The authors include many improved methods over those given in the older edition and present many other original

ideas and helpful information on drying flowers in their natural colors for use in arrangements.

It is a most practical guide for those who are anxious to learn the more advanced methods and techniques as well as for the beginners.

The Fruit Year Book, 1956.

Edited by P. M. Synge and Lanning Roper. The Royal Horticultural Society, London. 132 pages. Illustrated. \$1.65. (Library).

Mr. A. P. Preston's article on shaping and pruning systems for bush apples and H. Gavin Brown's authoritative article on bud sports are important contributions. Much is to be learned from the account by G. H. L. Dicker and A. H. M. Kirby of their impressions of apple orchard practice in Canada.

This book also carries a most exhaustive and well illustrated account of the Apple 'Blenheim Orange,' by Dr. Robb-Smith, who describes all the minor variants and seedlings. This is likely to form the standard authority on this apple for many years.

There are other articles covering a wide range of interest for both the amateur and professional fruit grower. The illustrations are numerous and well chosen.

Sundials. How to Know, Use, and Make Them.

R. Newton Mayall & Margaret L. Mayall. Charles T. Branford Company, Boston. 1951. 197 pages. Illustrated. \$3.75.

The Mayall's *Sundials* has been among the classics since its early publication in 1938. While it has been in its Second Printing since 1951, the reviewer ran across it only recently and wished to advise another audience of its availability.

The authors interestingly prove that a good sundial will show the time of day just as accurately as many watches and, what is of equal importance, they present plans in designs that any one can fashion to suit his own needs and pleasures in today's landscape. They authoritatively dispel the implications that sundials involve great mathematical calculations and construction abilities beyond the ken of the average mortal.

They illustrate famous landmarks of yesterday and also the simplest of kinds that one would wish on the terrace of today's ranch house or on the outdoor wall of same, where, from her electrically controlled and timed kitchen, Madam could see if her electronic oven and automatic dishwasher were performing on schedule. The authors do not specifically illustrate a design for the popular split-level house; however, their basic designs could easily be adapted for the upper level if the living area were on the lower level and this were used during most of the sunlit hours. The usage in landscape is also carefully presented.

By all means invest in a copy of this excellent book, build yourself a sundial, and return to enjoy one of the "simple" things of life before Seth Thomas and GE.

M. E.

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- American Association of Nurserymen
- American Begonia Society
- American Begonia Society, San Francisco Branch
- American Begonia Society, Santa Barbara Branch
- American Camellia Society
- American Gesneria Society
- American Gloxinia Society
- American Iris Society
- American Peony Society
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- American Rhododendron Society, Middle Atlantic Chapter
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