# ADDISONIA

## COLORED ILLUSTRATIONS

AND

## POPULAR DESCRIPTIONS

OF

## PLANTS

VOLUME 17

1932

PUBLISHED BY

THE NEW YORK BOTANICAL GARDEN

(ADDISON BROWN FUND)

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## CONTENTS

Part 1

May 21, 1932



Part 2

July 27, 1932



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October 28, 1932

Part 4

DECEMBER 27, 1932

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# ANNOUNCEMENT

A bequest made to the New York Botanical Garden by its late President, Judge Addison Brown, established the

## ADDISON BROWN FUND

"the income and accumulations from which shall be applied to the founding and publication, as soon as practicable, and to the maintenance (aided by subscriptions therefor), of a high-class magazine bearing my name, devoted exclusively to the illustration by colored plates of the plants of the United States and its territorial possessions, and of other plants flowering in said Garden or its conservatories; with suitable descriptions in popular language, and any desirable notes and synonymy, and a brief statement of the known properties and uses of the plants illustrated."

The preparation and publication of the work have been referred to Mr. Edward Johnston Alexander, Assistant Curator, and Mr. Kenneth Rowland Boynton, Head Gardener.

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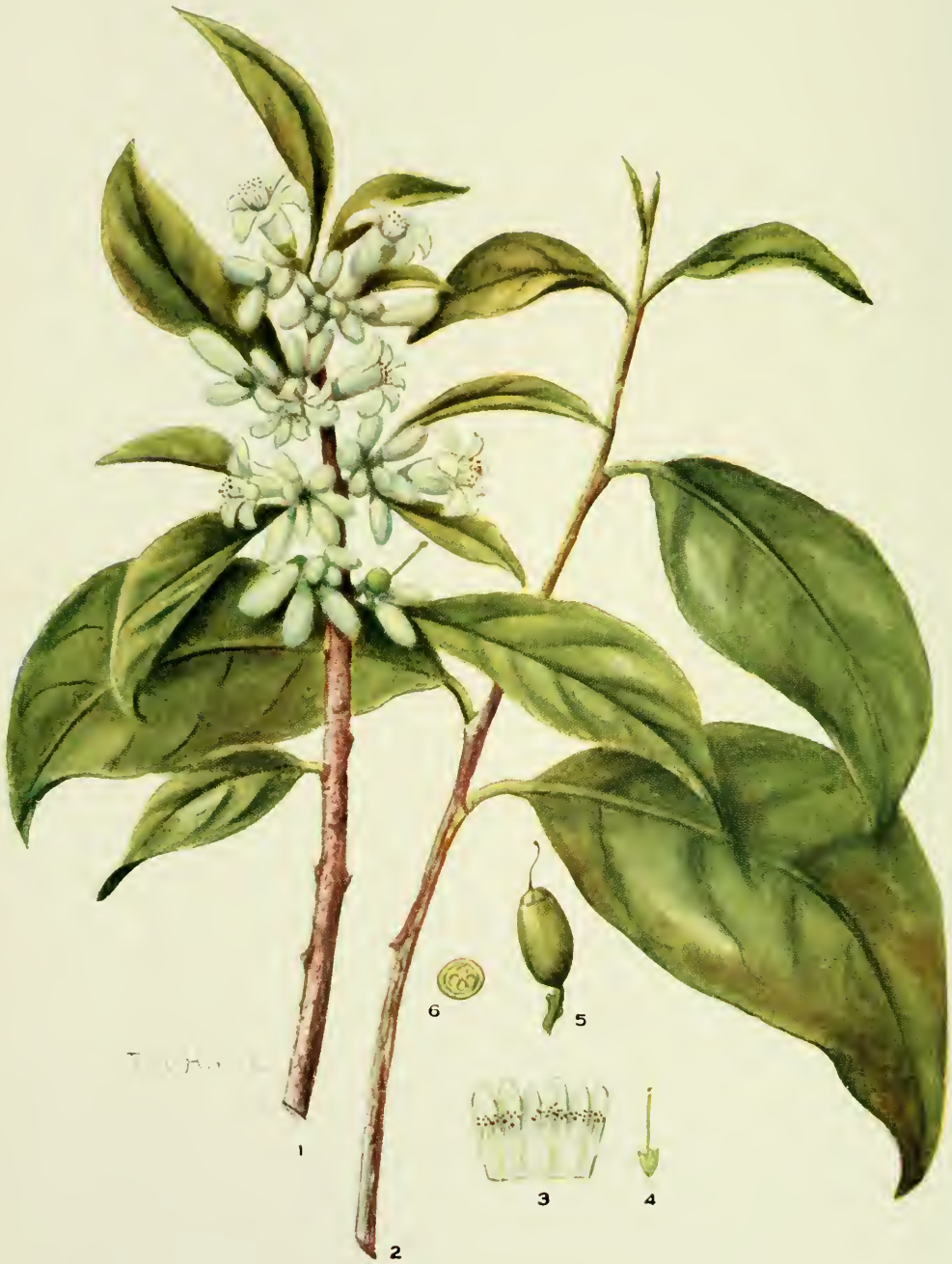



SYMPLOCOS MARTINICENSIS

(Plate 545)

## SYMPLOCOS MARTINICENSIS

### Aceituna blanca

*Native of Porto Rico, the Virgin Islands, and the Lesser Antilles*

Family SYMPLOCACEAE SWEET-LEAF Family

*Symplocos martinicensis* Jacq. Enum. 24. 1760.
*Symplocos latifolia* Krug & Urban, Bot. Jahrb. **15**: 334. 1892.

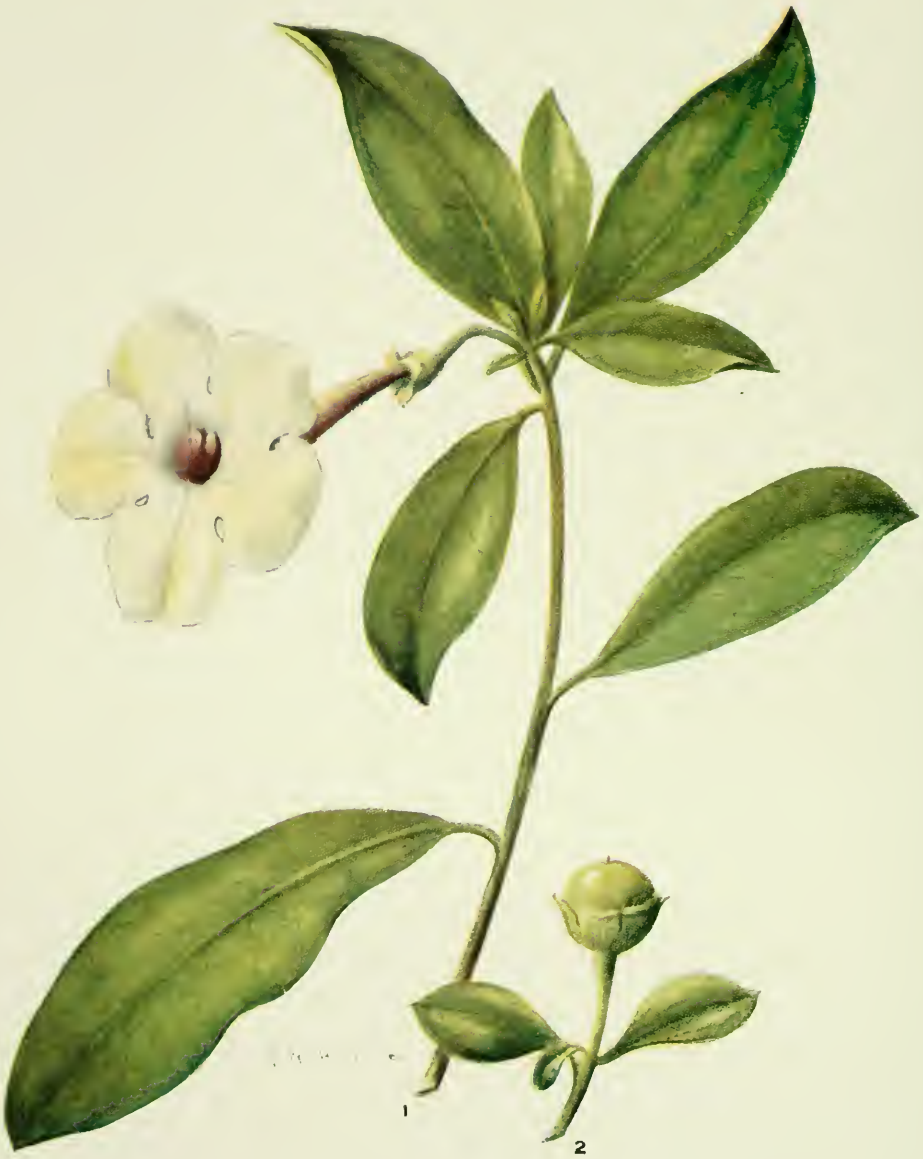
*Symplocos,* the only genus of its family, the name Greek, meaning connected, with reference to the stamens, is a large genus of American trees and shrubs, established by the eminent botanist Jacquin in 1760, the species here described and illustrated, typical. Most of the species are natives of South America, but a few inhabit the West Indies, and one, *Symplocos tinctoria,* the Sweet-leaf, grows in the southeastern United States. Their leaves are alternate; their regular and perfect, white or yellow flowers are borne in lateral or axillary clusters. The tube of the calyx is wholly or partly attached to the ovary. The corolla is 5-lobed, or 5-parted. There are many stamens, in several series, their filaments usually slightly united in clusters at the base of each corolla-lobe. The ovary is few-celled, usually with 2 ovules in each cell, the style simple. The fruit is dry and 1-seeded.

Mrs. Horne's painting is from a tree on Reservoir Hill, near Pueblo Viejo, Porto Rico, the flowering branch June 22, the fruit July 25, 1929.

*Symplocos martinicensis* (first known from Martinique) is a tree, reaching a maximum height of about fifty feet, but usually much smaller. The wood is nearly white, hard and strong, the twigs smooth, or very finely hairy. The short-stalked, thin, pointed leaves are oval or obovate, from about three inches to about six inches long. The flowers are borne few or several together, in small, lateral or axillary clusters. The lobes of the calyx are about one-twelfth of an inch broad. The white corolla is from five to seven-twelfths of an inch long, with oblong lobes. The oblong fruit is bluish-black when ripe, about one-half of an inch long.

N. L. BRITTON.

EXPLANATION OF PLATE. Fig. 1.—A flowering twig. Fig. 2.—A young, leafy twig. Fig. 3.—A corolla, laid open, showing the stamens. Fig. 4.—A calyx and pistil. Fig. 5.—An immature fruit. Fig. 6.—Cross-section of immature fruit.




BRUNFELSIA AMERICANA

(Plate 546)

## BRUNFELSIA AMERICANA

### Aguacero

*Native of Porto Rico, the Virgin Islands, and the Lesser Antilles*

Family SOLANACEAE — POTATO Family

*Brunfelsia americana* L. Sp. Pl. 191. 1753.
*Brunfelsia americana pubescens* Griseb. Fl. Brit. W. I. 432. 1861.

*Brunfelsia* is a genus taken up by Linnaeus from the writings of his predecessor Plumier. It consists of about thirty species of tropical American shrubs, the one here illustrated, typical. The name commemorates Otto Brunfels, a German physician and botanist, who died in 1534. The plants have alternate, entire leaves, and the flowers of the West Indian kinds are large and showy, those of Brazilian species smaller. The calyx is five-toothed, or five-lobed. The corolla is salverform, with a slender tube, and a spreading, five-lobed limb. There are four stamens, in two pairs, all with anthers, or one pair sterile. The pistil has a two-celled ovary containing many ovules, the style is incurved at the apex, the stigma two-lamellate. The nearly globular fruit is fleshy or leathery, and remains closed, or bursts irregularly.

*Brunfelsia americana* grows naturally in thickets and on hillsides in eastern Porto Rico, on the Virgin Islands, and in the Lesser Antilles south to Dominica. It is commonly planted for ornament, and when in full bloom is one of the most elegant shrubs, profusely covered with large, fragrant white flowers, which fade yellow. Rain-tree is an English name for it, and Aleli another Spanish name. Our illustration is made from a wild plant growing near Aibonito on the way to Coamo, Porto Rico, painted by Mrs. Horne, January 4, 1929.

The aguacero (a thunder shower), is usually a shrub about ten feet high or lower, but occasionally forms a small tree about fifteen feet high. It is variously hairy, some races or individual bushes being nearly glabrous, others quite woolly, and the leaf-form varies from oblong to elliptic or obovate, and blunt, rounded or pointed. The leaves vary from two to four inches long. The flowers are short-stalked, usually solitary on the numerous twigs. The campanulate calyx is about one-fourth of an inch long. The corolla, sometimes with a purple eye, has a tube about an inch and a half to two inches long, and a limb nearly two inches broad, with rounded lobes. The globose yellow fruit is from five-twelfths to five-sixths of an inch in diameter.

N. L. BRITTON.

EXPLANATION OF PLATE. Fig. 1.—A flowering branch. Fig. 2.—A fruiting twig.

GHINIA SPINOSA

(Plate 547)

## GHINIA SPINOSA

### Cardero

*Native of Porto Rico and Antigua*

Family VERBENACEAE — VERVAIN Family

*Tamonea spinosa* Sw. Prodr. 94. 1788.
*Ghinia verbenacea* Sw. Fl. Ind. Occ. 1089. 1800.
*Ghinia spinosa* (Sw.) Britton & Wilson, Sci. Surv. Porto Rico & Virgin Ids. **6**: 139. 1925.

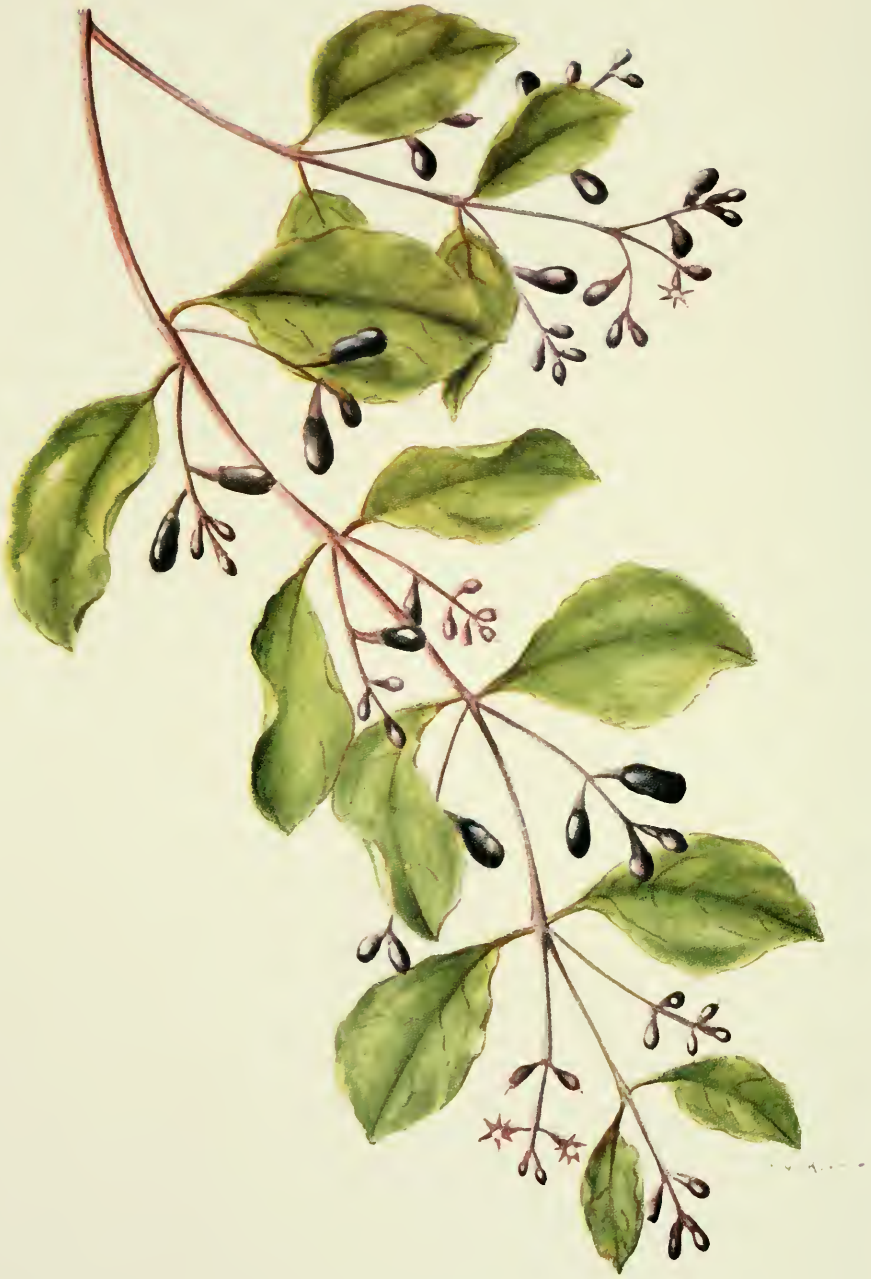
A rare plant, at present definitely known only from the very dry, southwestern parts of Porto Rico, where it grows in rocky thickets at low elevations; it was originally described by Swartz, in 1788, as from the British island Antigua, in the Lesser Antilles. Mrs. Horne's painting was made from a plant growing at Salinas de Guanica, Porto Rico, December 26, 1930.

*Ghinia,* a genus established by Schreber in 1789, commemorates L. Ghini, an Italian botanist and physician, who lived from 1500 to 1556. It consists of four or five species of herbs, or small shrubs, natives of tropical America. They have opposite, mostly toothed, or incised leaves, and nearly regular flowers, in slender clusters at the ends of the branches. The calyx is five-ribbed, and minutely five-toothed. The corolla has a nearly cylindric tube, and a spreading, five-lobed limb. There are four short stamens, in two pairs. The ovary is nearly completely four-celled, with one ovule in each cell, and the style is short. The small, hard, mostly four-celled and four-horned fruit, usually contains four seeds.

The cardero is much branched, about two feet high, or lower, its slender branches and few leaves finely rough-hairy. The upper leaves are lanceolate, or narrowly oblong, acute or acuminate, from seven-twelfths of an inch to one inch long, few-toothed or entire. The lowest leaves (not always found) are oblong, only about five-twelfths of an inch long, and deeply incised. The very short-stalked flowers are distant from each other in slender racemes from about an inch to about four inches long. The calyx is tubular and about one-sixth of an inch long in flower, becoming obconic in fruit. The lavender or nearly white corolla is about one-half of an inch broad. The peculiar fruit is hard and shining, with four horns one-twelfth to one-sixth of an inch long.

N. L. BRITTON.

EXPLANATION OF PLATE. Figs. 1 and 2.—Flowering branches. Fig. 3.—A flowering and fruiting branch.



PHTHIRUSA CARIBAEA

(Plate 518)

## PHTHIRUSA CARIBAEA

### Hicaquillo

*Native of the eastern West Indies*

Family LORANTHACEAE MISTLETOE Family

*Dendropemon caribaeus* Krug & Urban; Urban, Bot. Jahrb. **24**: 27. 1897.
*Phthirusa caribaea* Engler, in Engler & Prantl, Nat. Pfl. Nachtr. **2–4**: 195. 1897.

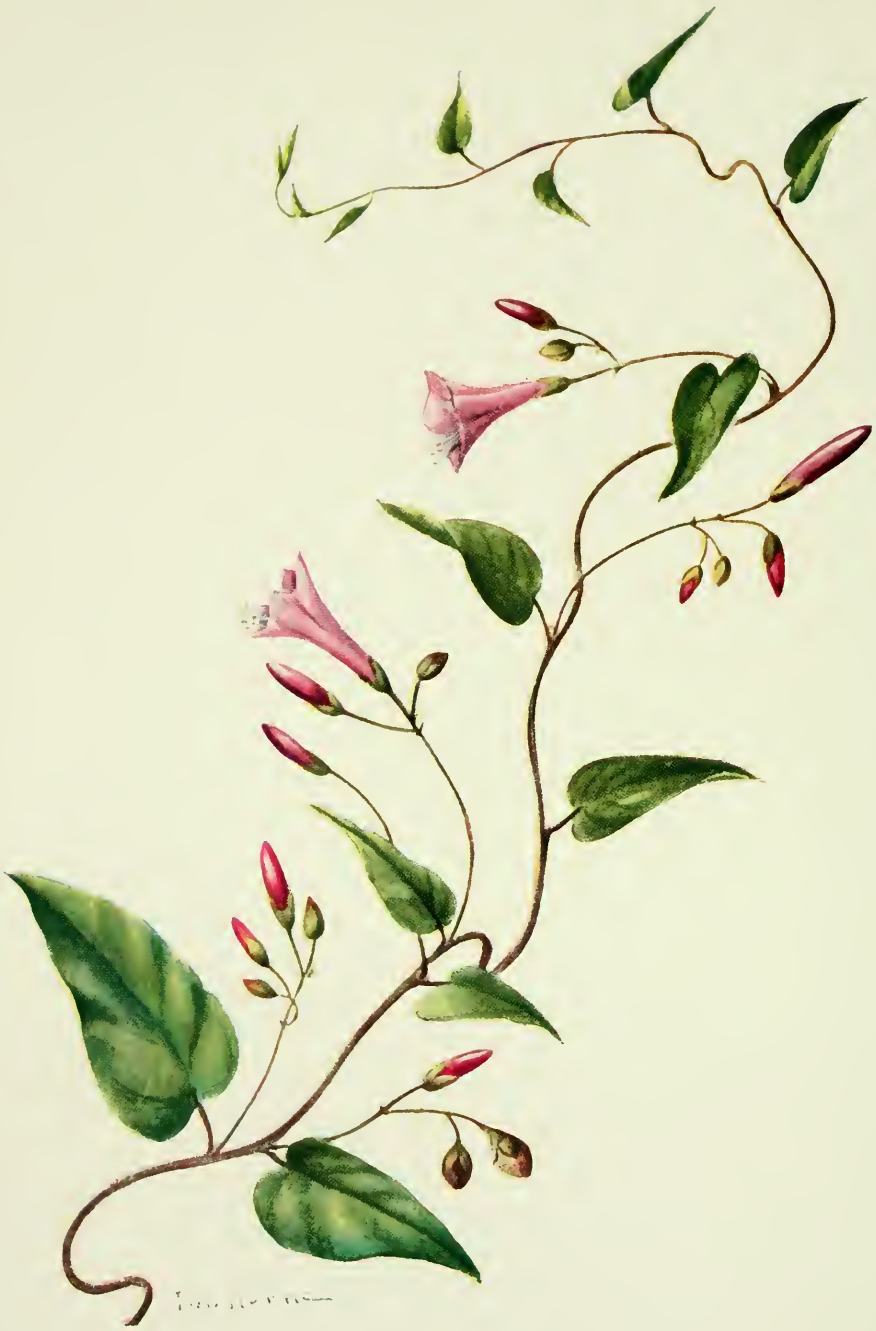
The tropical American flora is rich in species of the Mistletoe Family, grouped in several genera. They are partially parasitic shrubs, growing on trees, or on other shrubs, often forming large green masses, and thus conspicuous, especially on trees with meager foliage, or on those from which the leaves have fallen. Some of the kinds live only on one kind of tree, others are not thus restricted. Their fruits or seeds are carried by birds to other trees, or to other branches of the same tree. The tropical species are all different from the true Mistletoe of Europe; the classification of genera and species is based on small, but constant differences in their small flowers. These partial parasites, taking much of their food from the trees or shrubs they inhabit, are, doubtless, deleterious to them. Our illustration, made from a plant growing on a small tree near Aibonito, Porto Rico, was painted by Mrs. Horne, January 11, 1931.

*Phthirusa* (Greek, destroying), is a genus established by Martius in 1830, and includes some forty-five species, inhabiting the West Indies and tropical South America. Most of them are small parasites, with round or four-angled branches, and opposite, broad, fleshy or leathery leaves. The small but perfect flowers are borne in spikes, racemes, or panicles, and subtended by united cupulate bractlets. The calyx is truncate or slightly toothed. There are usually 6 spreading petals. The few stamens have fleshy filaments inserted below the middle of the petals. The ovary has an annular disk, and the style is stout. The fruit is a small fleshy berry.

The Hicaquillo grows on trees and shrubs from Porto Rico and the Virgin Islands, southward through the Lesser Antilles to Barbados. Its stems are tufted, spreading or drooping, from about one foot to nearly three feet long, the young branches four-angled. The short-stalked leaves, from nearly one inch to about one and three-fourths inches long, are oval, or obovate, obtuse, acute, or notched. The slender flower-clusters are stalked, and from half an inch to over two inches long. The bluish-black berries are one-fourth to one-third of an inch long, and about one-sixth of an inch thick.

N. L. BRITTON.

EXPLANATION OF PLATE. A flowering and fruiting branch.



EXOGONIUM SOLANIFOLIUM

(Plate 549)

## EXOGONIUM SOLANIFOLIUM

### Cambustera de costa

*Native of the eastern West Indies*

Family CONVOLVULACEAE MORNING-GLORY Family

*Ipomoea solanifolia* L. Sp. Pl. 161. 1753.
*Ipomoea filiformis* Jacq. Enum. 13. 1760.
*Convolvulus filiformis* Desv. in Lam. Encycl. **3**: 555. 1789.
*Exogonium filiforme* Choisy, Conv. Rar. 129. 1838.
*Quamoclit solanifolia* Choisy in DC. Prodr. **9**: 335. 1845.
*Exogonium solanifolium* (L.) Britton, Mem. Brooklyn Bot. Gard. **1**: 82. 1918.

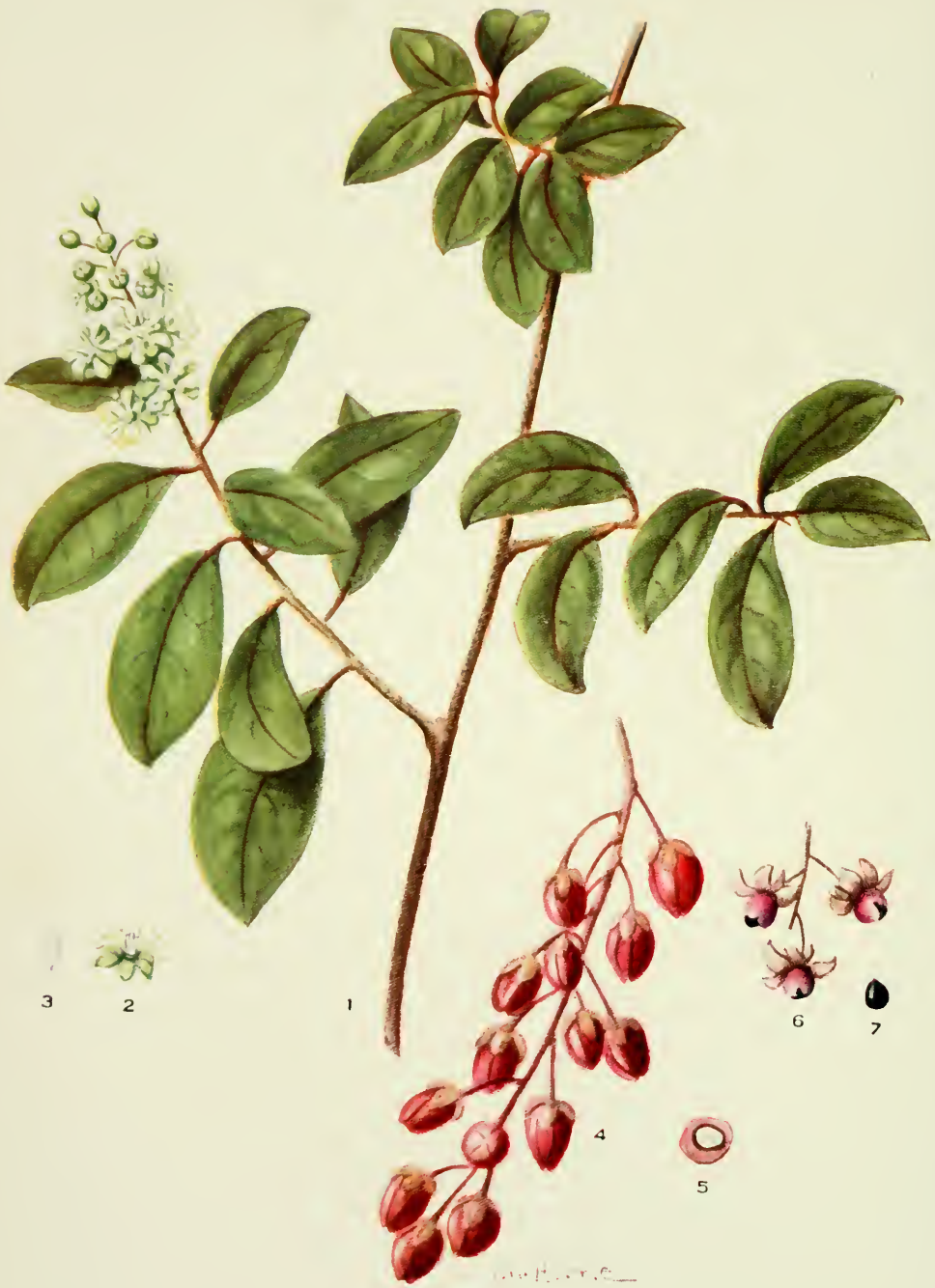
*Exogonium* is a genus of twining or trailing vines, composed of about twenty-five species, natives of tropical and subtropical America. Of these, *Exogonium microdactylon,* distributed in Cuba, Florida, and the Bahama Islands, was illustrated on plate seventeen of Addisonia, in 1916, and *Exogonium arenarium,* of the northeastern West Indies on plate four hundred and two, published in 1927.

The plant now illustrated is occasional in thickets near the coasts of Porto Rico, ranging eastward through the Virgin Islands, and in the Lesser Antilles from St. Martin southward to St. Vincent and Barbados. The synonymy cited above shows that it has been variously classified by different authors, caused by the floral structure not being typical of any of the genera to which it has been referred. Mrs. Horne's painting was made from a plant near Ceiba, eastern Porto Rico, March 6, 1927.

*Exogonium solanifolium* (the leaves resembling those of some species of *Solanum*) is a slender, perennial, glabrous vine, about ten feet long or shorter. The thin leaves vary from ovate to lanceolate, and from about an inch to two inches long; they are acute or obtuse at the apex, cordate or rounded at the base, with petioles from three to ten millimeters long. The flowers, few together in slender-stalked, axillary clusters, are attractive, the clusters often numerous; the very slender pedicels are from five-twelfths to one and one-fourth of an inch long. The ovate, pointed sepals are about one-fourth of an inch long. The crimson, purple, or scarlet corolla is about an inch long, its lobes much shorter than the tube. The stamens and style are slightly exserted. The capsule is nearly globular, about one-sixth of an inch in diameter, the seeds smooth.

N. L. BRITTON.

EXPLANATION OF PLATE. A flowering branch.




STEGNOSPERMA HALIMIFOLIA

(Plate 550)

## STEGNOSPERMA HALIMIFOLIA

### Stegnosperma

*Native of the northern West Indies, Mexico, and Central America*

Family PHYTOLACCACEAE POKE-WEED Family

*Stegnosperma halimifolia* Benth. Bot. Voy. Sulph. 17, *pl. 12.* 1844.
*Stegnosperma cubense* A. Rich., in Sagra, Hist. Cuba **10**: 309. *pl. 44.* 1845.

*Stegnosperma* (Greek, covered seed), is a monotypic genus, comprising only the species here illustrated, first described from specimens collected at Cape San Lucas, Lower California, in 1839, during the important scientific voyage of the British ship Sulphur, surveying the coasts of western North America; specimens collected in western Cuba were described one year later as a distinct species, but comparisons of many specimens have shown that the Mexican and West Indian plants are not separable. The plant is a woody vine, or vine-like shrub, inhabiting dry parts of Jamaica, Cuba, Santo Domingo, and Porto Rico, and ranging on the continent from Sonora and Lower California to El Salvador. Its occurrence in Porto Rico was first made known from plants found by Professor Charles E. Horne, in January, 1931, growing on a steep, wooded slope near Aibonito, and these were used by Mrs. Horne for her painting, made on January 6.

*Stegnosperma halimifolia* (the leaves resemble those of some species of *Halimium*, an Old World genus of the Rock-rose Family), may attain a length of about twenty-five feet, arching, or climbing on low trees, with long, slender, glabrous branches. The alternate, entire, pale green, smooth leaves are elliptic and rather faintly veined, from about an inch to two inches long, the apex acute or obtuse, the base narrowed, the petioles short. The flowers are borne in terminal racemes from two to six inches long, on pedicels five-twelfths to five-sixths of an inch long. The five oblong sepals are about one-sixth of an inch long. The five white petals are a little longer than the sepals. There are ten stamens, with filiform filaments united into a ring at the base, and small, oblong anthers. The one-celled ovary contains from three to five ovules, and there are from three to five styles. The fruit is a fleshy, reddish, ovoid, smooth, three-grooved to five-grooved capsule about one-third of an inch long, which splits when ripe into as many segments as there are grooves. The seeds are black, shining, ellipsoid, about one-sixth of an inch long, enclosed by a white or purple fleshy aril (whence the generic name).

N. L. BRITTON.

EXPLANATION OF PLATE. Fig. 1.—A flowering branch. Fig. 2.—A flower. Fig. 3.—A petal. Fig. 4.—A fruiting raceme. Fig. 5.—Section of a young fruit. Fig. 6.—Capsules after splitting open, showing the purple aril of the seed. Fig. 7.—A seed.


PORTULACA POLIOSPERMA

(Plate 551)

## PORTULACA POLIOSPERMA

### Sand Portulaca

*Native of Porto Rico, Cuba, St. Martin, and Curaçao*

Family PORTULACACEAE PURSLANE Family

*Portulaca poliosperma* Urban, Symb. Ant. 4: 232. 1905.

*Portulaca,* familiar by the weed Purslane (*Portulaca oleracea*), and by the garden *Portulaca grandiflora,* includes over thirty species of low, fleshy, annual or perennial herbs, most of them natives of America. The name is Latin, alluding to the purgative properties of some kinds, and was taken up by Linnaeus from the writings of his predecessors; *Portulaca oleracea* is the type species. They have small, entire, alternate or opposite leaves, and regular perfect flowers, borne several together, or solitary at the ends of the branches. The two sepals are united at the base and partly adnate to the ovary. The four to eight petals usually wither or fall away soon after the flowers expand. There are several or many stamens with slender filaments. The pistil has a one-celled ovary, containing many ovules, and a style deeply cleft or parted into several segments. The fruit is a many-seeded capsule, circumscissile at or near the middle, the top falling off as a lid. The small seeds differ in color, size, and markings in the different species.

Mrs. Horne's painting was made from a plant found in a large white-sand area at Sabana Abajo, Porto Rico, September 5, 1929.

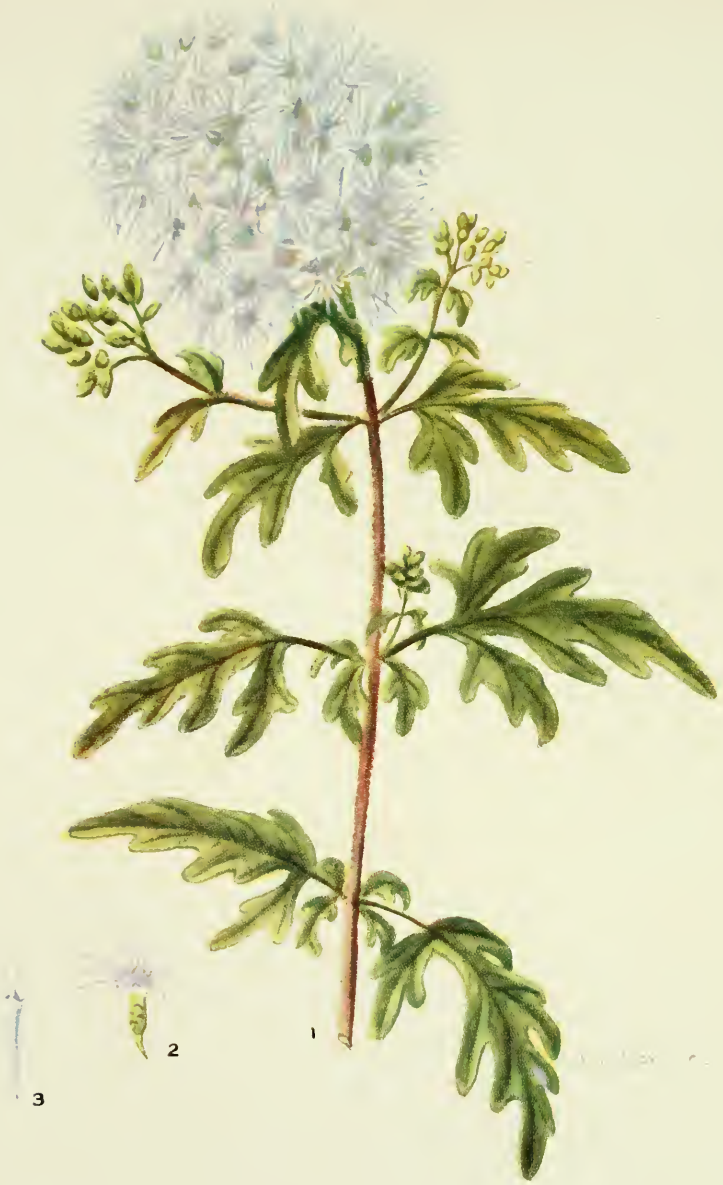
*Portulaca poliosperma* (gray seeds) is a characteristic plant of interesting areas of white silica sand on the northern coastal plain of Porto Rico, which have been referred to in our description of the Porto Rico Partridge Pea (*Chamaecrista mirabilis*) in ADDISONIA **10**: 29, *plate 335.* It grows also in Cuba, on St. Martin, and Curaçao.

The sand Portulaca is a fleshy annual herb, about seven inches high or lower, with ascending branches, and a few short hairs in the axils of the leaves. The alternate, linear or linear-oblong leaves are flattened, pointed or blunt, from about one-fourth to about two-thirds of an inch long, about one-twelfth of an inch wide or narrower, commonly clustered below the flowers. The flowers are usually several together, but with only one of each cluster expanded at the same time. The sepals are about one-twelfth to one-tenth of an inch long. The five to seven, oblong, rose-colored or purple,

blunt or notched petals are from one-third to one-half of an inch long. There are numerous short stamens, with yellow anthers. The capsule is ellipsoid, about one-sixth of an inch long, and is circumscissile at about the middle. The gray tubercled, shining seeds are less than one twenty-fifth of an inch long.

N. L. BRITTON

EXPLANATION OF PLATE. Fig. 1.—A plant in flower. Fig. 2.—An opened capsule. Fig. 3.—A seed, enlarged.




OSMIA GERANIIFOLIA

(Plate 552)

## OSMIA GERANIIFOLIA

### Geranium-leaved Osmia

*Native of Porto Rico*

Family CARDUACEAE THISTLE Family

*Eupatorium geraniifolium* Urban, Symb. Ant. **1**: 458. 1899.
*Osmia geraniifolia* (Urban) Britton & Wilson, Sci. Surv. Porto Rico & Virgin Islands **6**: 288. 1925.

*Osmia* (Greek, odorous, the flowers of many species are fragrant) includes, perhaps, as many as one hundred species of shrubs, small trees, and perennial herbs, all natives of America, most of them tropical or subtropical in distribution. One of them, *Osmia borinquensis* Britton, also endemic in Porto Rico, was illustrated in ADDISONIA in March, 1926 (*plate 357*), where an account of the genus is given. *Osmia geraniifolia* is restricted in distribution to the mountains of central Porto Rico, growing on banks and hillsides, mostly in thickets or woodlands, often forming colonies; an interesting endemic species, with attractive blue flowers.

Mrs. Horne's painting, reproduced herewith, is from a plant growing on a hillside between Aibonito and Coamo, Porto Rico, at an altitude of about 1800 feet, December 6, 1929.

The Geranium-leaved Osmia is a densely hairy shrub, about four feet high or lower. The opposite, stalked leaves are ovate in outline, from less than an inch to about two and one-half inches long, more or less deeply cleft or lobed into three segments, these again lobed or coarsely toothed, the lobes or teeth blunt; the lower leaves sometimes have small stalkless leaves in their axils. The flower-heads form dense corymbs two or three inches thick at the ends of the stem and branches. The cylindric involucre is about one fourth of an inch long, its hairy, obtuse bracts imbricated in four or five series. The blue flowers have a slender corolla and long-exserted styles. The achenes are minutely hairy.

N. L. BRITTON

EXPLANATION OF PLATE. Fig. 1.—A flowering branch. Fig. 2.—A head of flowers. Fig. 3.—A flower.

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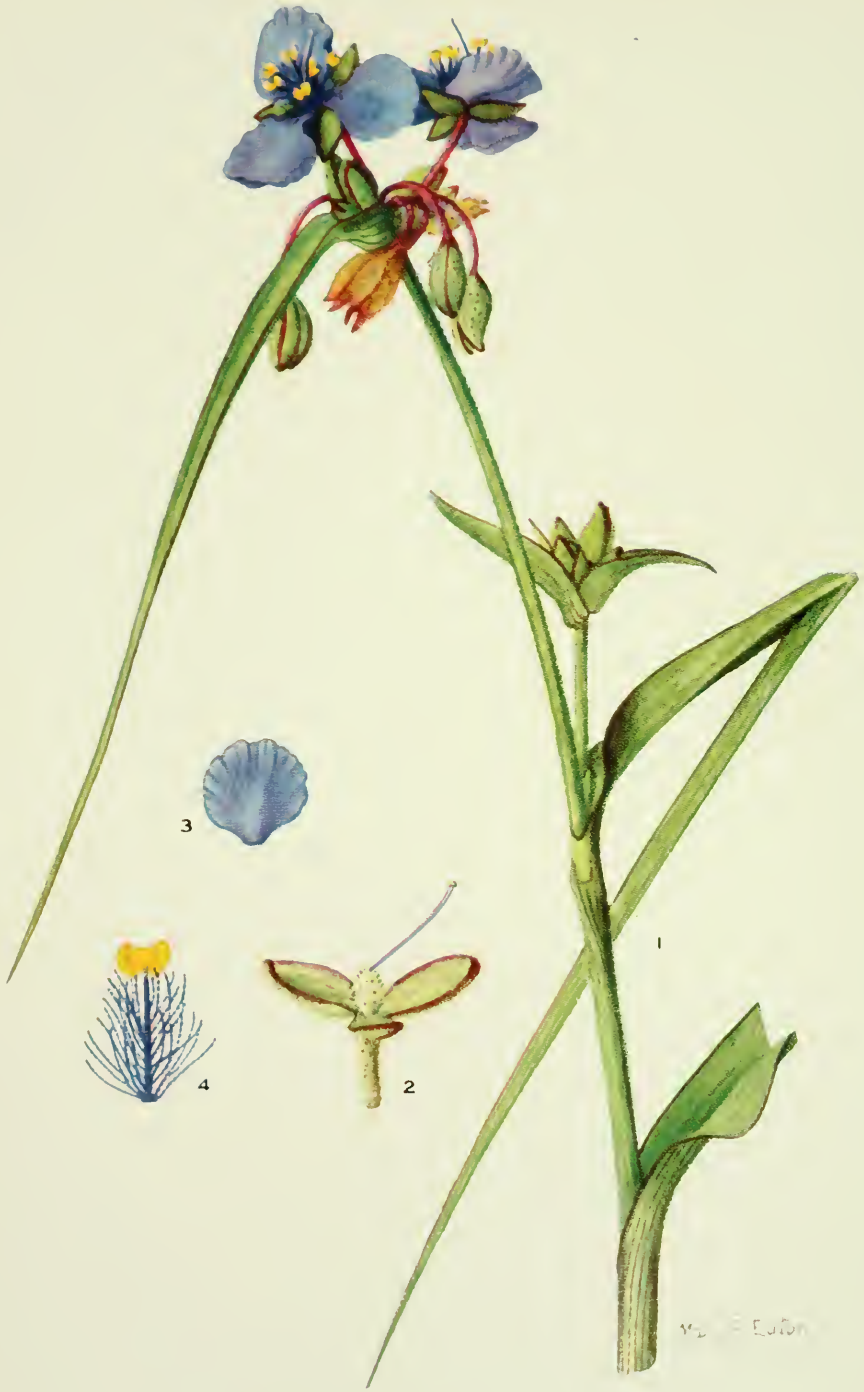



TRADESCANTIA LONGIFOLIA

(Plate 553)



# TRADESCANTIA LONGIFOLIA

## Sandhill Spiderwort

*Native of the Lake Region of Florida*

Family COMMELINACEAE SPIDERWORT Family

*Tradescantia longifolia* Small, Bull, Torrey Club **24**: 233. 1897.

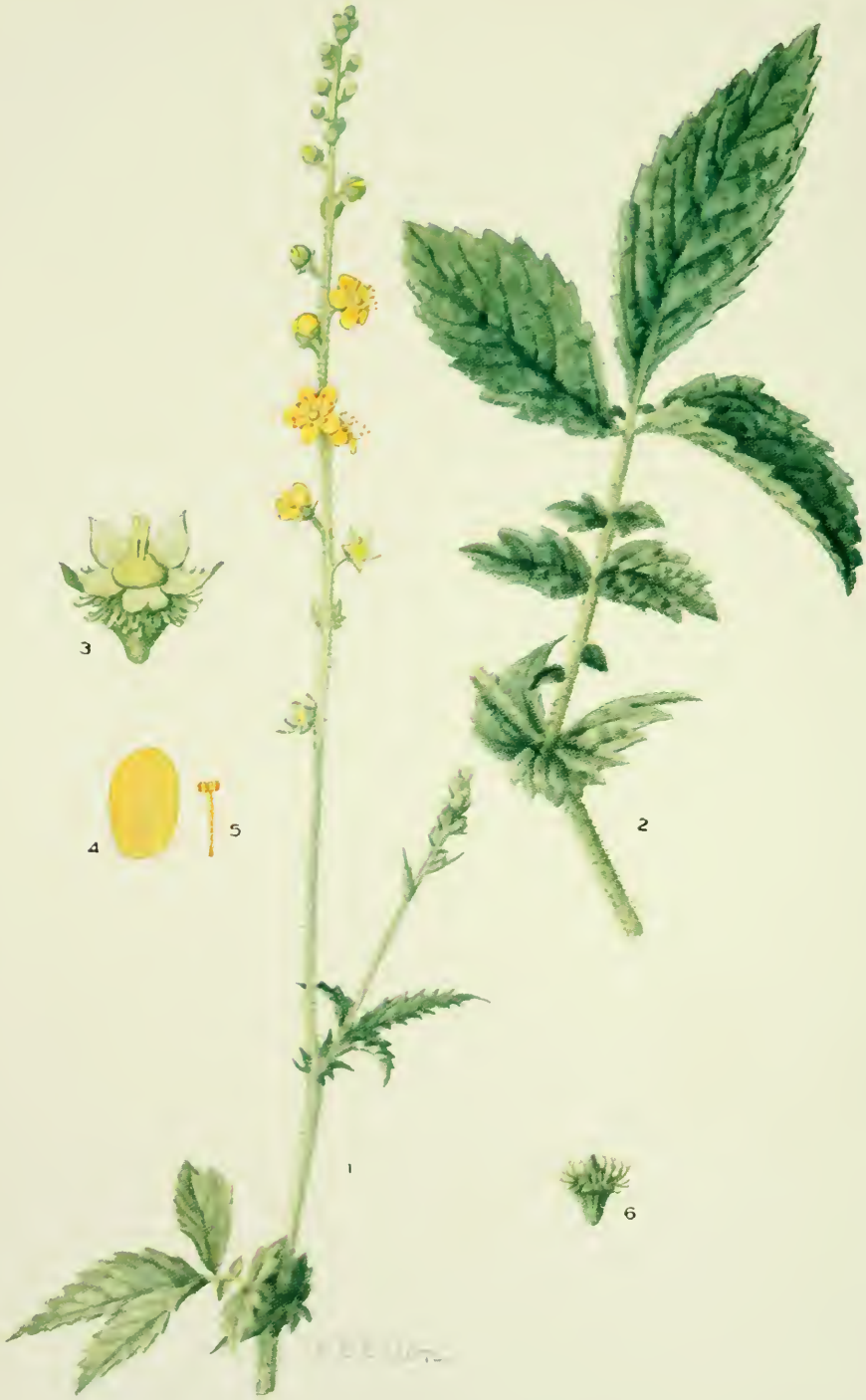
To one used to seeing the type species of this genus—*Tradescantia virginica*—the sandhill spiderwort presents especially strong contrasts—in habitat, habit, and fragrance. It is a member of a desert flora. In a dry season its particular habitat is a desert and in a wet season a rare herbaceous flower garden. Associated with and protected by evergreen scrub-oaks, hollies, blueberries, heaths, and dwarf plums, this succulent can easily maintain itself in a land of almost continuous breezes, which draw generously on the moisture supply in the loose sand. Within itself, this plant has developed much strength for self-preservation. The loose sand, often resembling granulated sugar, is shifted by the winds, so that sometimes the plants will be half buried, at other times the sand will have been blown away so that most of the root-system is exposed. However, by neither of these unusual conditions is the plant's life endangered, for, being a succulent, should the sand remain banked about the plant, a new layer of roots will promptly be formed, and then a new continued aërial growth. Should the root-system remain exposed, the old roots elongate and additional roots are formed sufficient to maintain the aërial parts. The root-system is not succulent like that of many desert plants, but comprises a great number of firm, brown, slender roots, often greatly elongate, both the number and the length serving to anchor the plant firmly in its precarious home. Its frequent herbaceous associates are rare milkweeds (*Asclepias*), milkworts or candy-weeds (*Polygala*), wireweeds (*Polygonella*), green-eyes (*Berlandiera*), well-known generic types; present also are rare generic types endemic to the scrub on the inland sand-dunes of Florida. These unique mountain-like sand hills of the backbone of peninsular Florida are relatively sparsely populated, except for the development of citrus groves. However, settlements have become established here and there, and plants of this spiderwort may often be found in the gardens of newly built homes, but whether their presence there is the result

of introduction or the remains of the original floristics of the spot is not certain. However, experience has taught us that the plant in question is not hard to transplant from one place to another.

The sandhill spiderwort is a perennial succulent herb. The stems are solitary or usually tufted on a short caudex, six to eighteen inches tall, pubescent, especially above, often branched. The leaves are alternate, elongate, linear-attenuate and more or less involute, the basal and lower cauline often equalling or exceeding the stem, pubescent, with reddish veins in the sheaths. The bracts of the involucre are elongate, slightly saccate at the base, colored like the leaves and similarly pubescent, but more copiously so. The flowers are numerous in the involucres, often densely crowded, rose-scented. The pedicels are slender-clavate, densely pubescent with short, spreading, gland-tipped hairs. The sepals are elliptic, pubescent like the pedicels and sometimes with a tuft of hairs at the apex, magenta-margined. The petals are blue, one-half to two-thirds of an inch long, orbicular-ovate, erose-crenulate. The anthers are lemon-yellow. The ovary is hirsutulous. The style is glabrous. The capsule is about one-fourth inch long, ovoid to ellipsoid, glandular-pubescent. The seeds are about one-eighth inch long, gray, sculptured.

JOHN K. SMALL.

EXPLANATION OF PLATE. Fig. 1.—Flowering stem. Fig. 2.—The calyx and gynoecium × 2. Fig. 3,—A petal. Fig. 4.—A stamen × 3.




AGRIMONIA GRYPOSEPALA

(Plate 554)

## AGRIMONIA GRYPOSEPALA

### Hairy agrimony

*Native of North America*

Family ROSACEAE — ROSE Family

*Agrimonia Eupatoria* Pursh, Fl. Am. Sept. 335. 1814. Not *A. Eupatoria* L.
*Agrimonia Eupatoria hirsuta* Muhl. (Cat. 47; hyponym. 1813); W. Barton, Fl. Phila. Prodr. 53. 1815.
*Agrimonia gryposepala* Wallr. Beitr. Bot. **1**: 49. 1842.
*Agrimonia hirsuta* Bicknell, Bull. Torrey Club **23**: 509. 1896. Not *A. hirsuta* Bong.

The genus *Agrimonia* is a group of weedy, coarse, inconspicuously flowered plants, the species of which more or less resemble one another. They differ in size, the position of the bristles on the fruit, and in the number of primary leaflets, which vary from three in some species to twenty-three in others.

Fence-rows, open woodlands, or the borders of woods are the usual habitats of these plants, where their slender spikes with small yellow flowers above and green fruits below (for fruit and flowers follow one another so closely as to be on the same spike at once), are a familiar sight to all who know the countryside, though there is little about them to attract attention, unless it be to avoid the dried stems, as the fruits adhere by their bristles to clothing or hair, and one thus carries off mementos of the plant which probably was not even noticed.

Medieval herbalists wrote glowingly of the "many vertues of Egrimonie or Agrimonie," which according to Gerarde, was good for troubles of the liver and kidneys, and especially good for these troubles in old people, for which purpose it was boiled in wine or tea. According to Dioscorides it was a remedy for bad livers, and for snake-bites; also when "stamped with old swines grease, and applied, it closeth up ulcers that be hardly healed."

Only a generation ago, this American species was confused with the European *A. Eupatoria,* which was the plant referred to by the herbalists. It is now known that *A. Eupatoria* is not indigenous to North America. The resemblance of the two species, however, led to wide-spread use of tea made from its leaves as a tonic and cure-all, or often only to eke out the ordinary supply of orthodox tea by the country people of that time.

The species here illustrated is native to North America from Nova Scotia to North Dakota, and south to North Carolina and

Nebraska. Specimens which appear to be this species have been found also in California, New Mexico, and Mexico.

The hairy Agrimony is a perennial herb with a short, thick rootstock and many coarse, fibrous roots. The stem is one to five feet tall, usually branched above, hirsute with spreading hairs, and glandular-granuliferous, especially above. The leaves are alternate, dark-green, four to twelve inches long. The petiole and rachis are hirsute; the stipules large, sometimes three quarters of an inch broad, semi-cordate, coarsely toothed. The principal leaflets are five to nine in number, ovate or obovate, those of the upper leaves oblanceolate or lance-elliptic, coarsely serrate, rounded to acute at the base, the apex acute; thin, glabrate or sparsely strigose above, sparingly hirsute on the veins beneath and glandular-granuliferous, one and a half to four inches long; the interposed leaflets are often as many as three pairs in the distal intervals, but less than an inch long. The racemes are eight to sixteen inches long, the pedicels ascending, about one-fourth of an inch long, each pedicel subtended by a small three-cleft, ciliate bract. The sepals are about one tenth of an inch long, prominently three-nerved, ovate, acuminate, the tips incurved in fruit and forming a nipple-shaped beak. The corolla is bright yellow, about one fourth of an inch across, the petals obovate. There are five to fifteen yellow stamens, the filaments slender. The hypanthium is somewhat hemispheric, longitudinally ten-grooved, with a ring of sharply hooked bristles above. This becomes about one fourth of an inch long at maturity and about as broad, abruptly contracted and often slightly strigose at the base, strongly grooved with rounded ridges and expanded at the margin. The bristles are in several series, the inner erect and longer than the calyx, the outer short and reflexed.

EDWARD J. ALEXANDER.

EXPLANATION OF PLATE. Fig. 1.—Flowering tip of the stem. Fig. 2.—A mature leaf. Fig. 3.—Gynoecium and calyx × 4. Fig. 4.—A petal × 4. Fig. 5.—A stamen × 4. Fig. 6.—The fruit.


SPHAERALCEA UMBELLATA

(Plate 555)

## SPHAERALCEA UMBELLATA

### Umbellate Globe-mallow

*Native of Central Mexico*

Family MALVACEAE — MALLOW Family

*Malva umbellata* Cav. Icones **1**: 64. 1791.
*Sphaeralcea umbellata* G. Don, Gen. Syst. **1**: 465. 1831.

Most of us are familiar with the various members of the Mallow family, as some of them are among the most cherished of old-fashioned garden flowers, and many, of more recent introduction, are none the less popular. Of the conservatory members, except for the exceedingly common *Hibiscus Rosa-sinensis,* without which, there is scarcely a greenhouse, but little is commonly known, and as the majority of them are shrubs or trees, which can be well flowered only in spacious houses, there is little chance of their becoming popular or commonly seen.

Our present subject, known in cultivation since the eighteenth century, is one of the shrubs, but since it may be brought to flowering in a small size, really deserves to be better known. True, its foliage is coarse, as most of the family is, but its leaves, resembling a woolly maple-leaf are rather attractive, and in mid-winter its long-peduncled heads of dark-red flowers are a welcome addition to the greenhouse collection as something different.

Native of central and south-central Mexico, it may be grown in a warm-house, as it resents too much moisture and is liable to damp off in a tropical greenhouse.

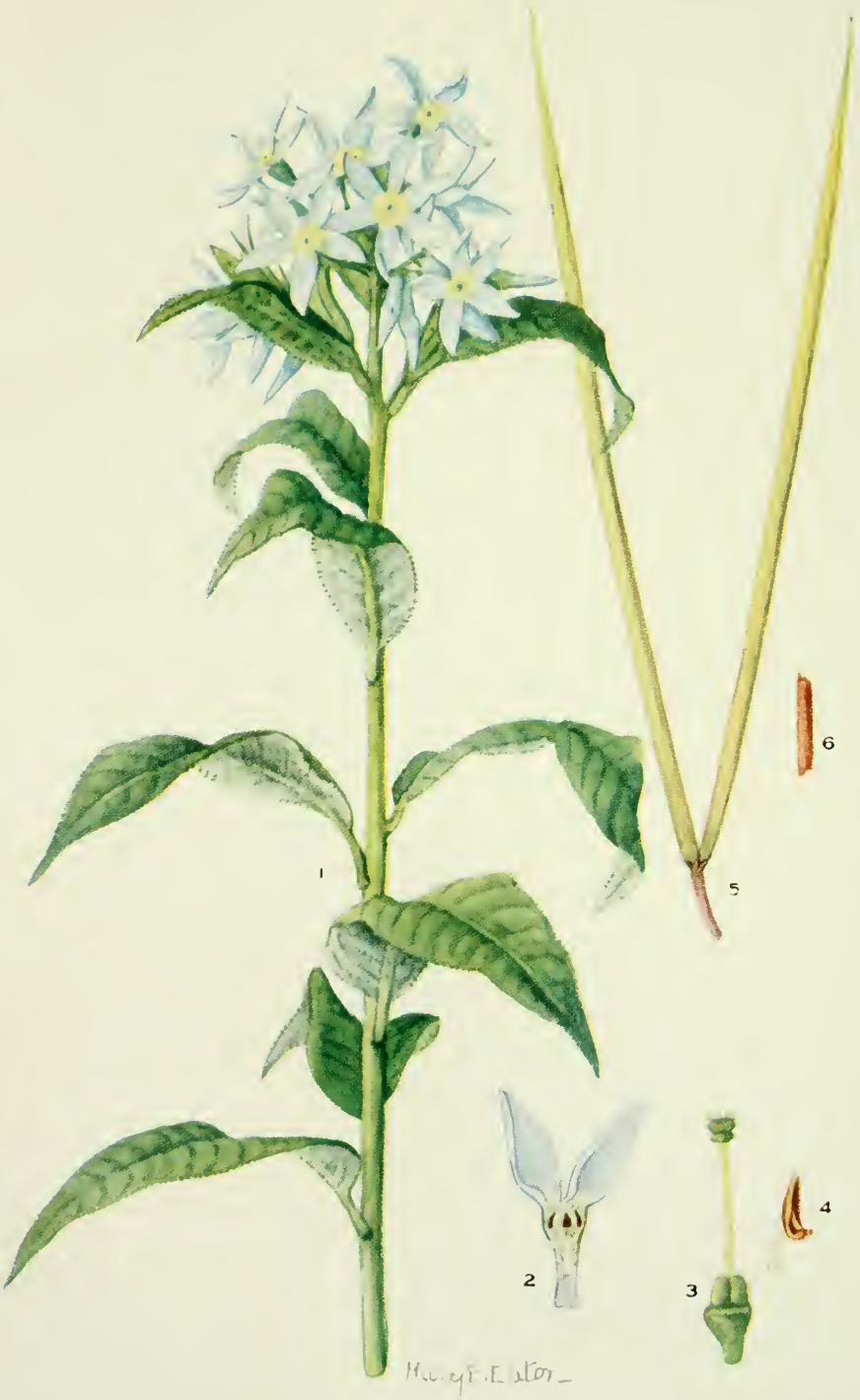
*Sphaeralcea* is a compound of the Greek word for globe and the name of one of the mallows, in allusion to the commonly spherical, mallow-like fruit.

The umbellate globe-mallow is a much-branched shrub or small tree, three to eighteen feet tall in a wild state. The stem is grayish green below, light green above, flocculose-tomentose and with stellate pubescence. The leaves are two and a half to nine inches long, somewhat stellate-pubescent, long-petioled, the blades cordate, somewhat shallowly seven-lobed, the lobes acute or acutish, sinuate-dentate, peltate, glabrate and green above, hoary and ribbed beneath. The peduncles are axillary, the flowers borne in a two- to five-flowered umbel. The flower is subtended by an involucel of three spatulate bracteoles, free to the base. The calyx is about three quarters of an inch long, broadly campanulate, somewhat leathery, stellate-pubescent, five-lobed, the lobes semi-ovate. The

corolla is about two and one half inches long, dark red or scarlet, becoming white at the base, the petals obcordate. The androecium is a columnar staminal tube, the filaments partly free at the summit. The gynoecium is composed of numerous carpels, each bearing a pink style and stigma, which become recurved and receptive after anthesis. The fruit is subglobose, composed of many compressed, two-valved, dehiscent, two or three seeded carpels about one half inch long and stellate-pubescent.

EDWARD J. ALEXANDER.

EXPLANATION OF PLATE. Fig. 1.—Flower-spray. Fig. 2.—A leaf. Fig. 3.—Androecium × 1½, showing the stigmas (pink) protruding from the staminal tube.




AMSONIA LUDOVICIANA

(Plate 556)

## AMSONIA LUDOVICIANA

### Creole Phlox

*Native of the Lower Mississippi Delta and contiguous territory*

Family APOCYNACEAE DOGBANE Family

*Amsonia ludoviciana* Vail; Small, Fl. SE. U. S. 935. 1903.

It not infrequently happens that a plant specimen will lie unstudied in a large herbarium for a century. The original specimens of the plant here considered were sent to Dr. John Torrey from Louisiana and reposed in the Columbia University herbarium for three quarters of a century. About the end of the last century they were unearthed, so to speak, from among an accumulation of specimens, studied, and formally published as indicated above in 1903.

The collections representing the species made in the earlier part of the nineteenth century were two-fold, and were accompanied by some field information furnished by the collectors. With the specimens collected by Dr. Josiah Hale is the scant record that it grew in "Shady woods"[1] April. The specimen collected by Dr. J. R. Ingalls has fuller information preserved with it. It is there recorded that: "This plant I am unable to make out. I found it several years ago in the lower part of Mpi [Mississippi] State. 2 or 3 hundred specimens were growing in a clump. They were immature and I selected the 2 or 3 most advanced, intending to revisit the spot, but could not again find it. I have never seen it elsewhere but from the locality should think it indigenous."

It was not until April, 1926, that the second chapter of the field history in this plant's career was begun. In a forced detour from the town Bay St. Louis to New Orleans, *via* Poplarville, Bogalusa and Picayune, Mississippi, in the course of the early stages of our iris studies in Louisiana, the undersigned met with the plant about the head of Bay St. Louis. It grew in open grassy places and in rather conspicuous abundance. Might not this have been the same station where Dr. Ingalls discovered it early in the past century?

Although it possesses the technical characters of the genus

[1] A correction: In "A monograph of this genus Amsonia" by Robert E. Woodson, Jr., in Ann. Mo. Bot. Gard. 15: 410. 1928, Shady woods has been erroneously interpreted and recorded as "Shackynody." Of course, there is no such locality in Louisiana.

*Amsonia*, in habit it is quite distinctive. At maturity, in habit and foliage, it strongly suggests a horse-mint or *Monarda*.

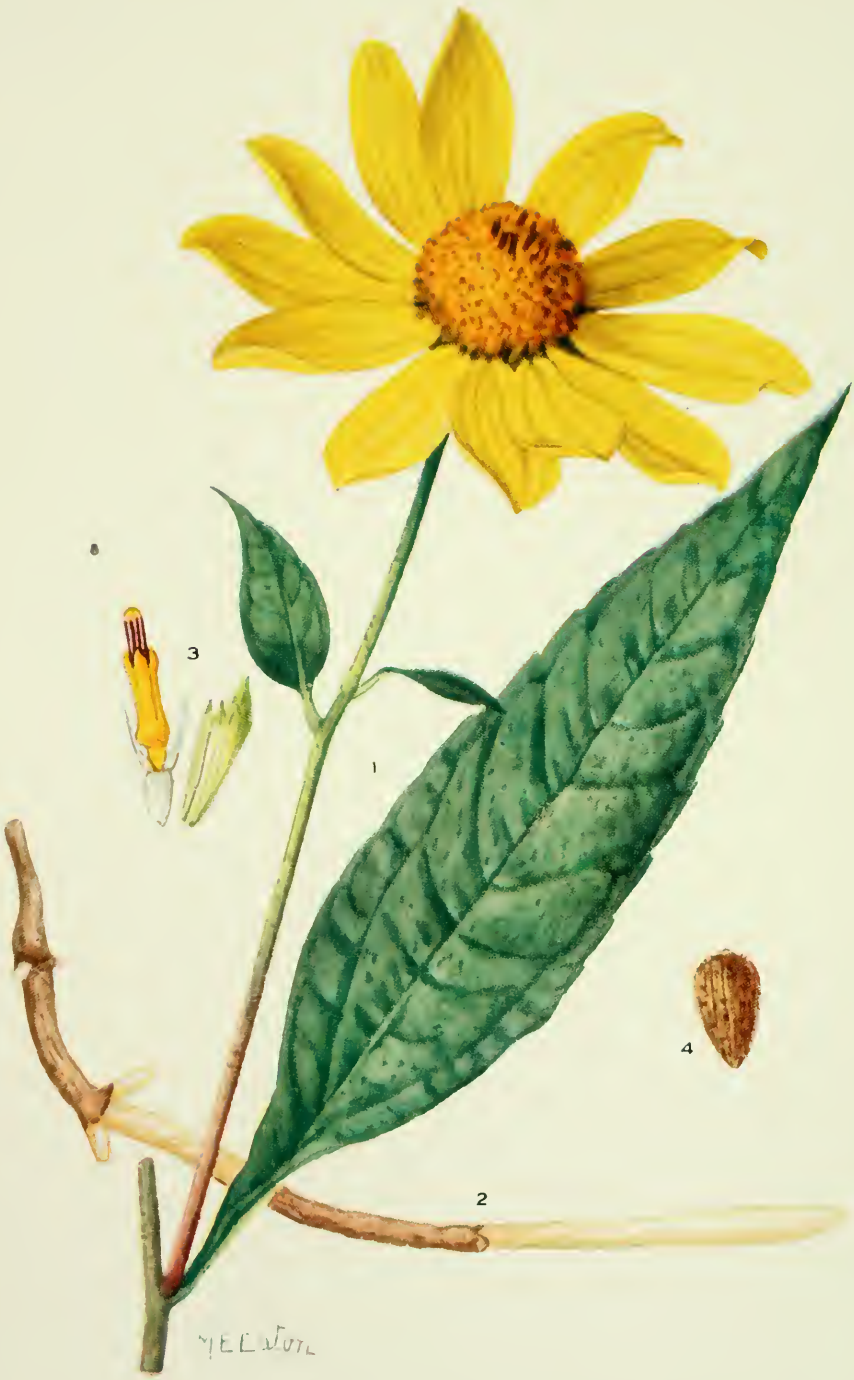
The plants are easy to grow in cultivation and are hardy in the open as far north as New York. The plants collected in 1926 are still thriving in the nursery of The New York Botanical Garden.

The genus *Amsonia* comprises three subgenera. One of these, the one with which we are now concerned, occupies about half the United States east of the 100th meridian. Four species are here involved. Considered by geographic areas, the largest area includes the three smaller areas, the second area includes two smaller areas, while the third and fourth areas are remote from one another. Both of these specific areas are in the Gulf Coastal Plain approximate to the Gulf of Mexico, and curiously enough, each situated at or about the head of a peninsula, peninsular Florida on the east and peninsular Louisiana on the west.

The Creole Phlox is a perennial herb with solitary or clustered stems on the branching rootstock. The stems, up to about three feet tall, are simple or sparingly branched above, glabrous or sparingly pubescent, terete, glaucescent. The leaves are alternate, spreading or recurved-spreading, relatively few, the lower ones mere elliptic or lanceolate scales, ascending or appressed to the stem, the upper with blades varying from elliptic-lanceolate to broadly elliptic or oval-elliptic, two and a half to four inches long, acute or acuminate at both ends, deep-green and glabrous or with scattered hairs above, ciliate, pale and more or less white-tomentose beneath, short-petioled. The flowers are in terminal panicles, very fragrant. The calyx is green, glabrous. The tube is campanulate to hemispheric. The lobes are unequal, deltoid to lanceolate, very short, acute. The corolla, mainly blue, often pale-blue, is salverform. The tube is about a quarter inch long, slightly dilated into a throat above the middle, the lower part lobed, the throat greenish without, pubescent with retrorse hairs within and the mouth closed by white hairs. The limb is about a half inch wide, stellate, with the lobes lanceolate or elliptic-lanceolate, about as long as the tube, acute, each with a whitish pubescent spot at the base, which, together form a whitish "eye," and a smaller spot just above. The five stamens are included, with the filament adnate to the corolla-tube except near the inflexed tip. The anthers are ovate-sagittate, brown. The pistil is included. The ovary is deeply 2-lobed, didymous. The style is green, columnar-filiform, but slightly enlarged under the reflexed collar. The stigma is discoid, green. The follicles are paired, subulate, three and a half to four and a half inches long, green, finely pubescent, at least near the tip. The seeds are cylindric, brown, crusty-rugose.

JOHN K. SMALL.

EXPLANATION OF PLATE. Fig. 1.—The flowering top of a stem. Fig. 2.—Longitudinal section of the corolla × 2, showing the retrorse hairs in the tube and the position of the stamens. Fig. 3.—Pistil × 4. Fig. 4.—Stamen × 8. Fig. 5.—The fruit. Fig. 6.—A seed.




HELIANTHUS STRUMOSUS

(Plate 557)

## HELIANTHUS STRUMOSUS

### Pale-leaved wood sunflower

*Native of the eastern United States*

Family CARDUACEAE THISTLE Family

*Helianthus strumosus* L. Sp. Pl. 905. 1753.

Sunflowers of the genus *Helianthus* are characteristically American plants, mostly North American, with but a few species in South America. The annual members are very popularly cultivated garden subjects, while several of the perennial group are used in the background of the hardy border or for massing among shrubbery, as they are rather tall and coarse-growing plants. There are two colors of disk flowers, yellow or brown, which form group distinctions in the wild species, but in cultivation the normally brown-disked ones are sometimes bred with yellow, pink, or purple disk-flowers; the ray-flowers of some, while normally of some shade of yellow or orange, are bred with zones of dark red markings or entirely dark red; there are also double-flowered forms. These color changes, however, are mostly concerned with the annual species, the perennial ones not being so easily changed.

Of the perennial group, most of which are called wood-sunflowers, the subject of the present sketch is rather wide-spread throughout the eastern United States. It is the only member of its group with leaf-blades that are both pale and nearly smooth beneath, which easily identifies it whenever found.

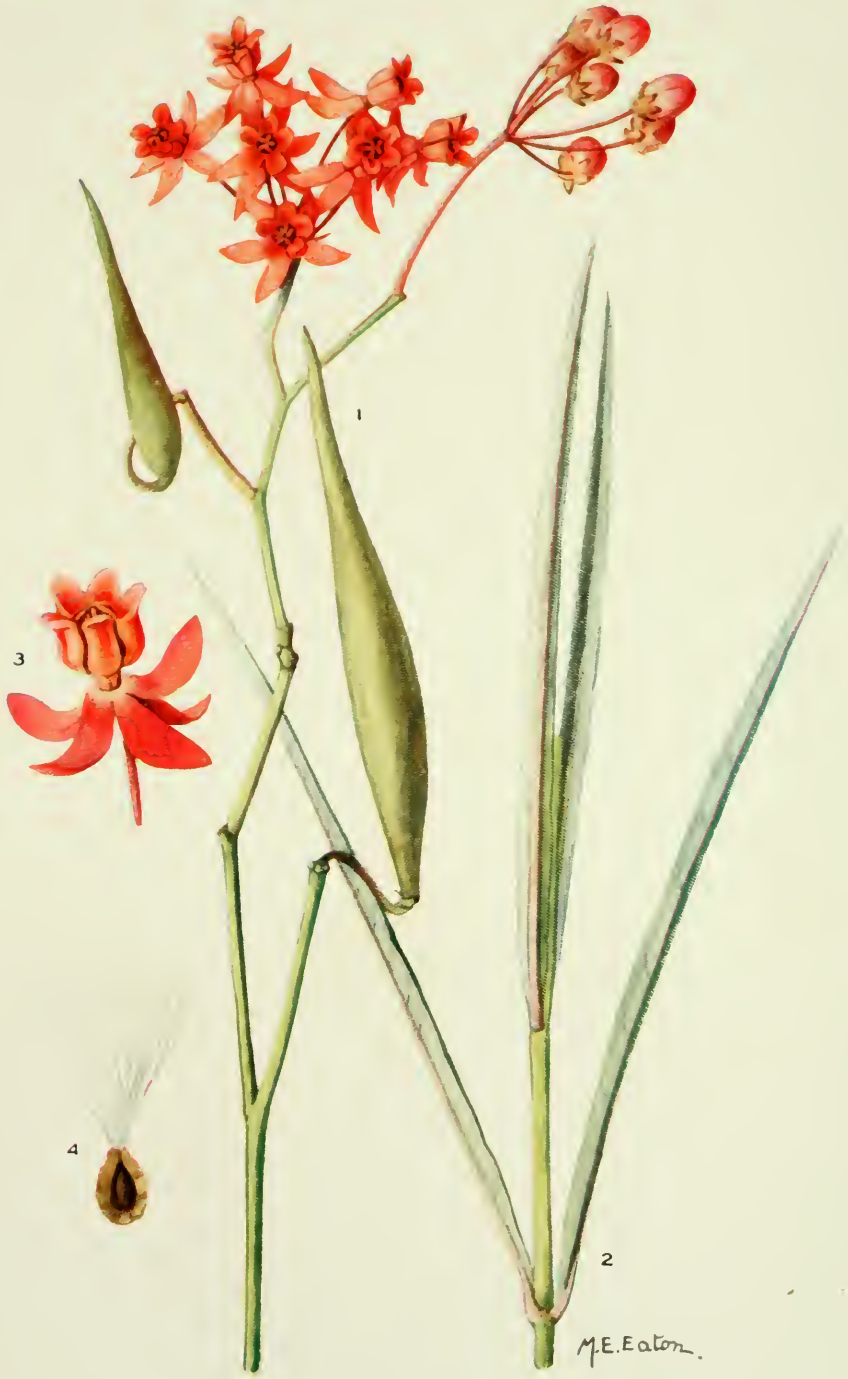
The large yellow heads are conspicuous in the rather shady moist woods which are its chosen place of abode from the New England States and Ontario to Minnesota and thence far southward.

The pale-leaved wood sunflower is a perennial herb with a stoloniferous rootstock. The stem is three to six feet tall, usually simple, very smooth and often glaucous below, somewhat roughened above. The leaves are opposite on the stem, two to ten inches long, the blades ovate-lanceolate, tapering gradually to a pointed apex, and abruptly contracted below into short margined petioles, dark-green and scabrous above, whitish and smooth or minutely downy beneath, the margins rather shallowly and distantly serrate. The inflorescence is cymose, the branches usually opposite. The involucre is from one-half to three-quarters of an inch thick. The involucral bracts are lanceolate, from three-eighths of an inch to

an inch long, the tips widely spreading, the body mostly glabrous; the margin densely ciliate and often the body is sparsely pubescent. The disk florets are yellow, the corolla with a short tube, pubescent at the base of the throat, and in lines down the sinus ridges, the lobes lanceolate, pubescent without. The stamens are dark brown or greenish black. The pistil is deep orange-yellow. The bractlet (chaff) subtending each floret is densely pubescent, three-pronged at the apex, the middle lobe broadly deltoid. The ray-florets are sterile, yellow, often pale, the nine to fifteen ligules an inch to an inch and a half long. The achenes are four-sided and laterally compressed, ovate-turgid, finely striate, brown. The pappus is early deciduous, of two thin chaffy scales on the principal angles, and sometimes two or more small ones between.

EDWARD J. ALEXANDER.

EXPLANATION OF PLATE. Fig. 1.—A flower-head and a mature leaf. Fig. 2.—The tip of the rhizome. Fig. 3.—A disk floret and its subtending bractlet (chaff) × 3. Fig. 4.—An achene × 3.




ASCLEPIAS LANCEOLATA

(Plate 558)

## ASCLEPIAS LANCEOLATA

### Everglade milkweed

*Native of the southeastern United States*

Family ASCLEPIADACEAE MILKWEED Family

*Asclepias lanceolata* Walt. Fl. Car. 105. 1788.
*Asclepias paupercula* Michx. Fl. Bor. Am. **1**: 118. 1803.

The milkweeds—*Asclepias* of botanical parlance, so named by Linnaeus in his "Species Plantarum" in 1753—are quite uniform in the structure of the flowers, but very diverse in showy coloring, while in some kinds white dominates the flower. The Everglade milkweed grows with the saw-grass (*Mariscus jamaicensis*) which is the plant, *par excellence,* of the Everglades, with copious rootstocks forming a dense turf and myriad stems and leaves often almost impenetrable on account of the saw-toothed leaf-edges. A glance over the "glades" at almost any time of the year will disclose a bright red spot here and another there. These points of color are the flower clusters of the milkweed in question. Its associates, such as the marsh-pink (*Sabbatia*), grass-pink (*Limodorum*), lobelia (*Lobelia*), and water-willows (*Justicia*) of attractive colors other than red, all of which grow in colonies. These plants have unappendaged seeds, most of which fall near where they mature, and a sufficient quantity sprout to maintain a colony of plants. On the other hand, the milkweed seeds are feathery-appendaged. When the pod opens they are wafted away from the parent and in addition, many or most of them are caught on the rough leaves of the saw-grass where they may be held until their vitality is spent or until they are eaten by birds. The continuous activity of this milkweed from season to season indicates that there is a continuous succession of insects, bees, etc., present to carry the pollinia from the anther to the stigma in order to effect fertilization and consequent fructification.

The milkweeds show many shades of several colors. The flowers of several species in the eastern United States are dominated by red or orange. A half dozen are in this category. Their combined distributional center lies southward. One species, *Asclepias tuberosa,* ranges as far north as Ontario, while another, a close relative, *A. decumbens,* extends as far north as New York. A third and related species, *A. Rolfsii,* is confined to the southeastern

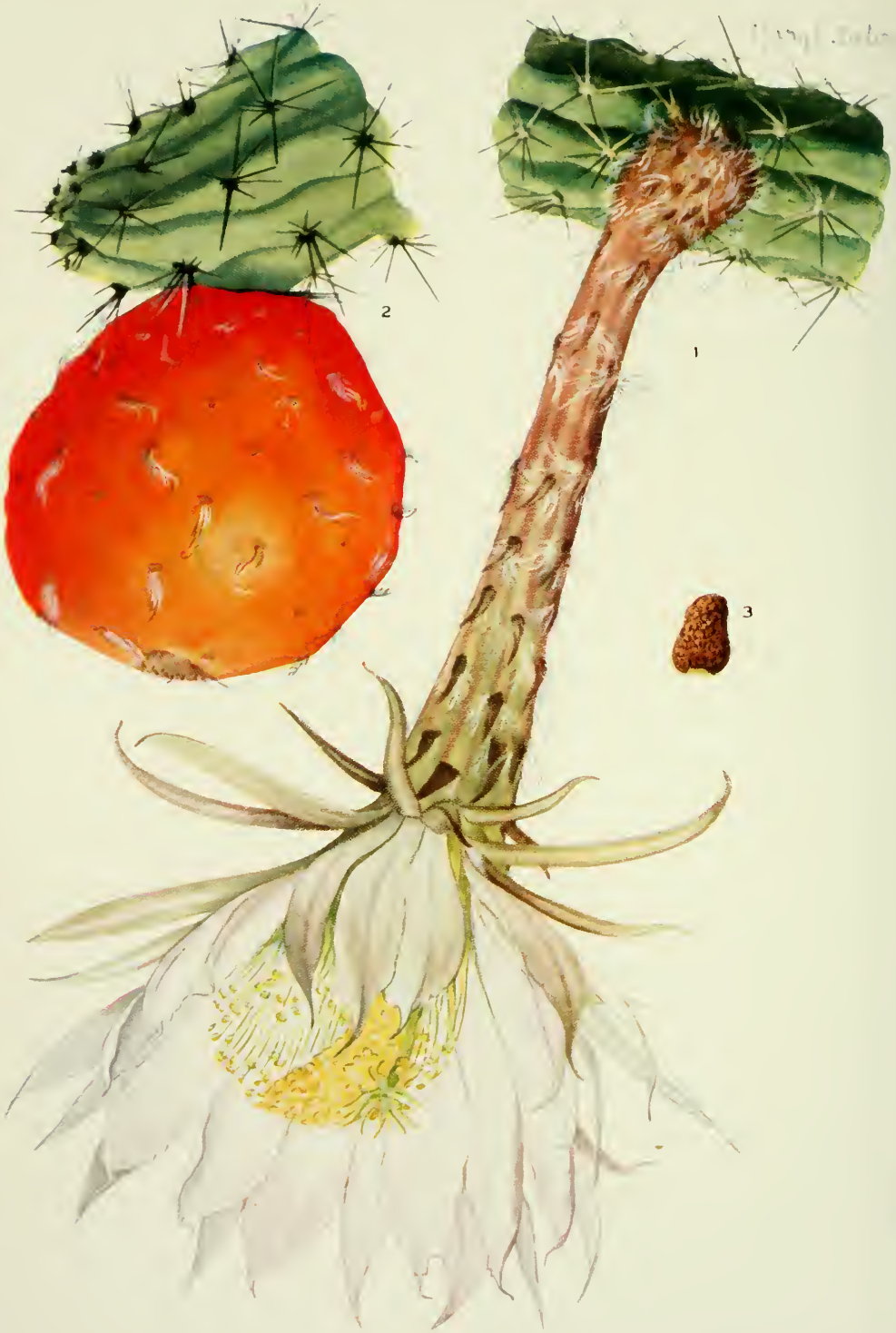
Coastal Plain. A tropical species of a different group, *A. curassavica,* extends into the Gulf Coastal Plain. Still another species, *A. rubra,* closely related to the present subject, grows on the eastern Coastal Plain.

The range of the species under consideration, and that of its relative, extends from the latitude of southern Pennsylvania to the Gulf of Mexico. This red milkweed was discovered, after the middle of the eighteenth century, perhaps in or near his botanic garden by Thomas Walter, and named by him *Asclepias lanceolata.* Fifteen years later André Michaux gave the plant the second name cited at the head of this note, namely, *A. paupercula.* The species seems to occur in two forms; one with lanceolate leaf-blades, the other with greatly elongate linear blades. Should the two prove to be specifically distinct the binomial just cited would be the name under which the Everglade plant would appear.

The Everglade milkweed is a perennial herb. The stems are glabrous or nearly glabrous throughout, slender, mostly simple, naked above, mostly two to four feet high, from a ligneous root-stock. The leaves are distant. The blades are lanceolate to linear, four to thirteen inches long, elongated and acuminate at the apex, narrowed at the base, rough on the margins, the primary veins ascending. The umbels are terminal, solitary, or two to four near the top of the stem, few-flowered. The peduncles are about as long as the slender pubescent pedicels. The corolla-lobes are oblong, about a third of an inch long, deep red or reddish-purple. The column is thick, very short. The hoods are deep orange, obovate or oblong, nearly as high as the anthers, the ventral margins auriculately toothed near the base. The horn is slender, arising from the base of the hood, exserted over the anthers. The anther-wings are notched and spreading at the base. The follicles are erect on recurved pedicels, fusiform, three to four inches long, long-attenuate to the apex, less tapering to the base, minutely pubescent. The seeds are about a third of an inch long, glabrous, thin, the wing-like margin very broad. The coma is about an inch long.

JOHN K. SMALL.

EXPLANATION OF PLATE. Fig. 1.—Flowering and fruiting portion of the stem. Fig. 2.—Leafy portion of the stem. Fig. 3.—Flower × 2. Fig. 4.—Seed.




HARRISIA FRAGRANS

(Plate 559)

## HARRISIA FRAGRANS

### Fragrant prickly-apple

*Native of eastern coast of Florida*

Family CACTACEAE CACTUS Family

*Harrisia fragrans* Small; Britton & Rose, The Cactaceae **2**: 149. pl. 19. 1920.

Of the three described species of *Harrisia* in Florida, two are less susceptible to the damaging effects of cold than the third one—*Harrisia Simpsonii,* which thrives in the extreme southern end of the peninsula and on the Florida Keys. One of the two more hardy species referred to, *H. Aboriginum,* inhabits the western coast region, and is distinguished by brown wool on the flowers and large yellow fruits, while the other, *H. fragrans,* inhabits the eastern coast and has white wool and smaller red fruits. They both stick close to the tempering effects of the Gulf of Mexico and of the Atlantic Ocean respectively and at the northern limit of their ranges occupy artificial habitats—aboriginal relics or kitchen-middens. The fragrant prickly-apple was first observed by us in Florida in the spring of 1917, a few miles north of Fort Pierce.

The prickly-apple here figured first aroused botanical suspicion by its geographic range, which is much over a hundred miles north of the range occupied by *Harrisia Simpsonii.* Frequent casual observations also indicated a more robust plant. When flowers and fruits were secured, its identity with any of our other prickly-apples was negatived. Its more slender flower, with very long wool and the dull red obovoid berries at once set it off by itself. In addition to these structural characteristics, the flowers are very fragrant. These are produced from the side of the ribbed stem, appearing as long-silky nubbins which grow into clavate buds six to seven inches long, and expand at ten o'clock in the evening, shedding their fragrance about them. Naturally this prickly-apple is found on the sites of aboriginal activities, particularly on kitchen-middens. Like certain kinds of prickly-pears, it was probably used for food by the Indians, who apparently used a great variety of plants, as well as of animals for food. The fruits are edible, but they are rather insipid. In the northern extension of its range it occurs only on habitats which contain stored-up heat, for example on the coquina rock of Merritt's Island and on the kitchen-middens of the dunes south of Mosquito Inlet. The mid-

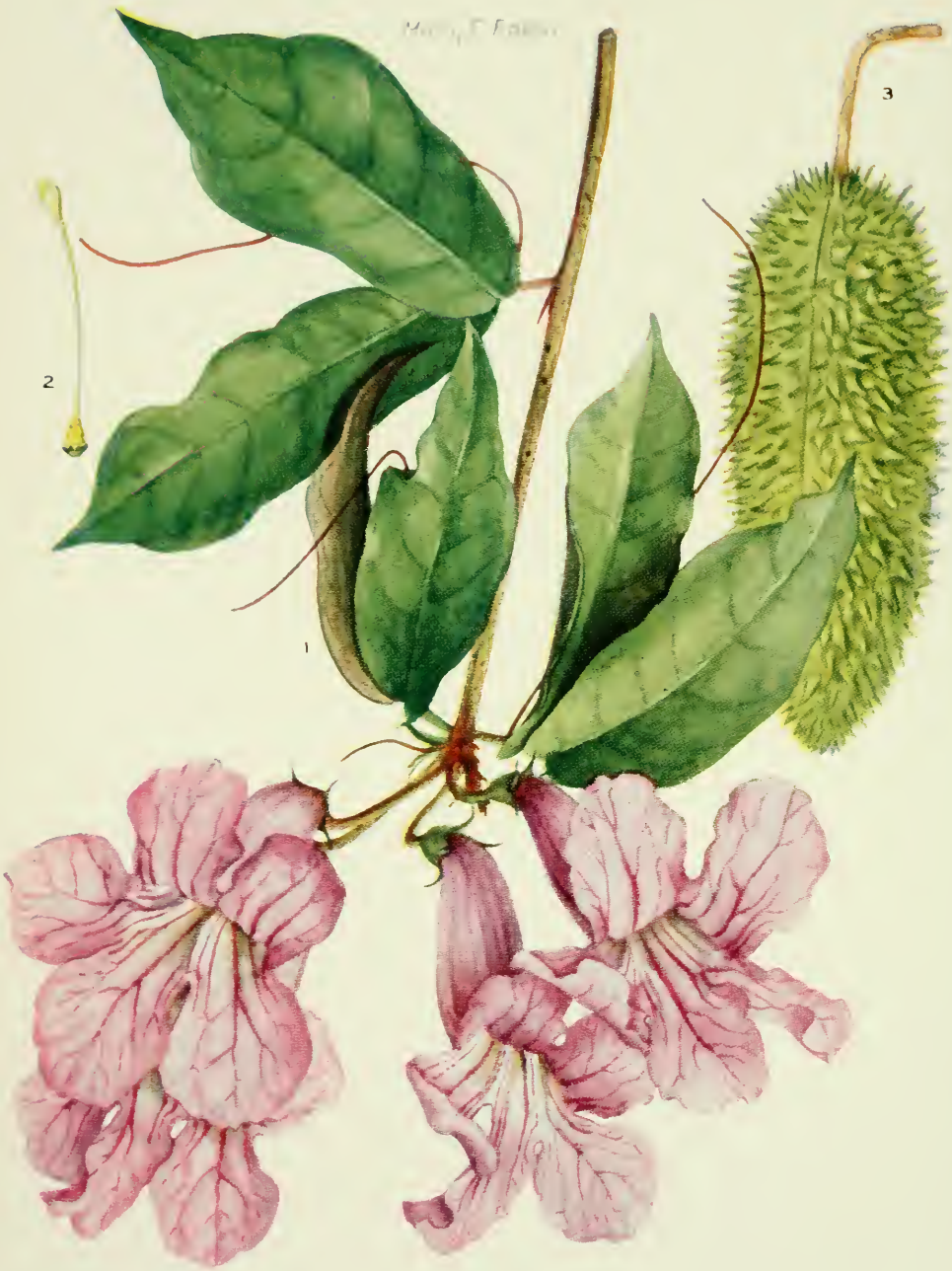
dens, consisting mainly of oyster and clam shells, store up a great deal of warm air in the interstices during the long warm season and by gradual radiation permit tender plants to pass the short cool season with impunity.

This prickly-apple lends itself readily to cultivation. When planted *en masse* its hundreds of flowers in season present a rare sight all through the night. In fruit it is an attractive sight and also a great attraction as food for birds, many of whom are ravenously fond of the seeds.

The fragrant prickly-apple grows to fifteen feet tall, with coarse fibrous roots. It occurs singly or sometimes approximate, but not in colonies. The stems are erect, reclining, or clambering, very stout and succulent, prominently ten- to twelve-ridged, the ridges more or less depressed between the areolae, the grooves rather deep and sharp. The areolae are about three-quarters of an inch apart, each with a dense tuft of very short hairs on the upper side. The spines are acicular, nine to thirteen in each areola, mostly grayish and yellowish at the tip, one of each areola longer than the others, mostly three-quarters of an inch to an inch and a half long. The young buds are copiously white-hairy. The buds about to expand are about six inches long, or up to eight inches. The flowers are nocturnal, very showy and very fragrant. The hypanthium is light-green, longer than the flower-limb, slender-funnel-form, scarcely ridged, the swollen base bearing subulate or lanceolate-subulate separated scales, with long, white, very lax hairs protruding from beneath them. The scales of the tubular part of the hypanthium are few and remote, subulate, slenderly acuminate, not turgid, with a tuft of long white hairs in each axil. The sepals are very narrowly linear, slenderly acuminate, the outer ones are green, the inner ones with white midribs or the innermost nearly white. The corolla is white or pinkish, about three and a half to four and a half inches wide, rotate-campanulate. The petals are numerous, of a spatulate type, with the broadened upper part unevenly toothed, acuminate, sometimes caudate-acuminate. The stamens are very numerous, not exceeding the petals. The filaments are filiform, white or nearly so. The anthers are yellow. The style is greatly elongate. The stigmas are mostly nine to twelve. The berry is obovoid, two to two and a half inches in diameter, dull red, with tufts of long white hairs persistent with the scale-bases. The seeds are black, about an eighth of an inch long, somewhat swollen at the base, obscurely crested at the apex, finely pitted.

JOHN K. SMALL.

EXPLANATION OF PLATE. Fig. 1.—Flower. Fig. 2.—Fruit. Fig. 3.—Seed × 4.




CLYTOSTOMA CALLISTEGIOIDES

(Plate 560)

## CLYTOSTOMA CALLISTEGIOIDES

### Purple Bignonia

*Native of southeastern South America*

Family BIGNONIACEAE TRUMPET-CREEPER Family

*Bignonia callistegioides* Cham. Linnaea **7**: 712. 1832.
*Bignonia speciosa* Graham, Bot. Mag. pl. 3888. 1842.
*Bignonia picta* Lindl. Bot. Reg. **28**: pl. 45. 1842. Not *B. picta* H.B.K.
*Clytostoma callistegioides* Bur. Adansonia **8**: 353. 1868.

Many of our choicest and most beautiful greenhouse climbers are members of the Bignonia family, which is mostly tropical, and particularly noteworthy for the many large, brilliantly colored flowers with which it has endowed gardens and conservatories. Various shades of yellow, orange, and red are most plentiful, but some few species have violet, blue or purple flowers, and it is to this lot that the present subject belongs.

The purple bignonia, as it is commonly called, is a beautiful-flowering, high-climbing, woody vine, raised in greenhouses in the north, but in the extreme south, especially in the regions bordering the Gulf of Mexico it has proven its worth as an outdoor oramental, its stems climbing into trees, or over trellises and porches, where it forms dense bowers of deep, shining green, covered in the spring by its large rosy-violet flowers, which are quite a spectacle in New Orleans and its environs.

In the north, our desire for looking upon its beauty must be satisfied in conservatories, where it may be trained high up on the rafters in a moderately warm house. Like most of the other members of the family, it rather resents too much pruning, and so should be allowed free growth, although the space required is too much for other than large greenhouses. It is easily propagated by cuttings, taken from the half-ripened wood in spring, and placed in sand under a bell-glass or in a propagating box, and kept warm and carefully watered until rooted. Stout, short-jointed lateral growths are best suited for this purpose.

In its native home, which is in southeastern South America, in southern Brazil, Paraguay, Uruguay, and the northeastern Argentine, it grows in the borders of the forest or on river-banks, where it makes long, high-climbing lianes among the forest trees.

The name *Clytostoma* is derived from the Greek *klytos,* splendid or beautiful and *stoma,* mouth, in allusion to the beautiful

flowers. The name *callistegioides* is from the Greek *kallos,* beautiful, *stege,* a roof or covering, and *eidos,* similar or resembling.

The purple bignonia is an evergreen climbing shrub with grayish bark on the older stems, the younger branches green. The leaves are borne opposite, trifoliolate, the terminal leaflet represented by an elongation of the rachis into a slender, simple tendril, by means of which the plant climbs; this tendril is sometimes missing; the lower leaves are often unifoliolate. The blades of the leaflets are dark green, lustrous, oblong-elliptic or obovate, glabrous, abruptly short-acuminate, entire or undulate-margined, reticulate below, two to four inches long. The flowers are borne on two-flowered peduncles, these peduncles terminal. The pedicels are about three-fourths of an inch long. The calyx is campanulate, with five subulate teeth, somewhat coriaceous, deep green. The corolla is funnel-form-campanulate, about three inches long, the lobes rounded, imbricated in the bud. The tube is yellowish within, streaked purplish, lavender-flushed without: the limb is lavender-violet, streaked violet, two or three inches broad, the lobes spreading, broadly ovate, rounded at the apex and wavy-margined. The four stamens are arranged against the upper side of the tube in two pairs, the anther-sacs spreading. The pistil is pale green, the style slender. The stigma is two-lobed, the lobes plate-like, one slightly the larger. A short, crenate disk surrounds the ovary, which is conical, warty and two-celled, the ovules in two rows. The fruit is a slightly compressed, but bluntly four-angled prickly capsule, septicidal, with many flat, nearly orbicular winged seeds.

EDWARD J. ALEXANDER.

EXPLANATION OF PLATE. Fig. 1.—Flowering tip of a branch. Fig. 2.—The gynoecium. Fig. 3.—The fruit.

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## COLORED ILLUSTRATIONS
AND
## POPULAR DESCRIPTIONS
OF
## PLANTS

VOLUME 17 NUMBER 3

SEPTEMBER, 1932


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OCTOBER 28, 1932

# ANNOUNCEMENT

A bequest made to the New York Botanical Garden by its late President, Judge Addison Brown, established the

## ADDISON BROWN FUND

"the income and accumulations from which shall be applied to the founding and publication, as soon as practicable, and to the maintenance (aided by subscriptions therefor), of a high-class magazine bearing my name, devoted exclusively to the illustration by colored plates of the plants of the United States and its territorial possessions, and of other plants flowering in said Garden or its conservatories; with suitable descriptions in popular language, and any desirable notes and synonymy, and a brief statement of the known properties and uses of the plants illustrated."

The preparation and publication of the work have been referred to Mr. Edward Johnston Alexander, Assistant Curator, and Mr. Kenneth Rowland Boynton, Head Gardener.

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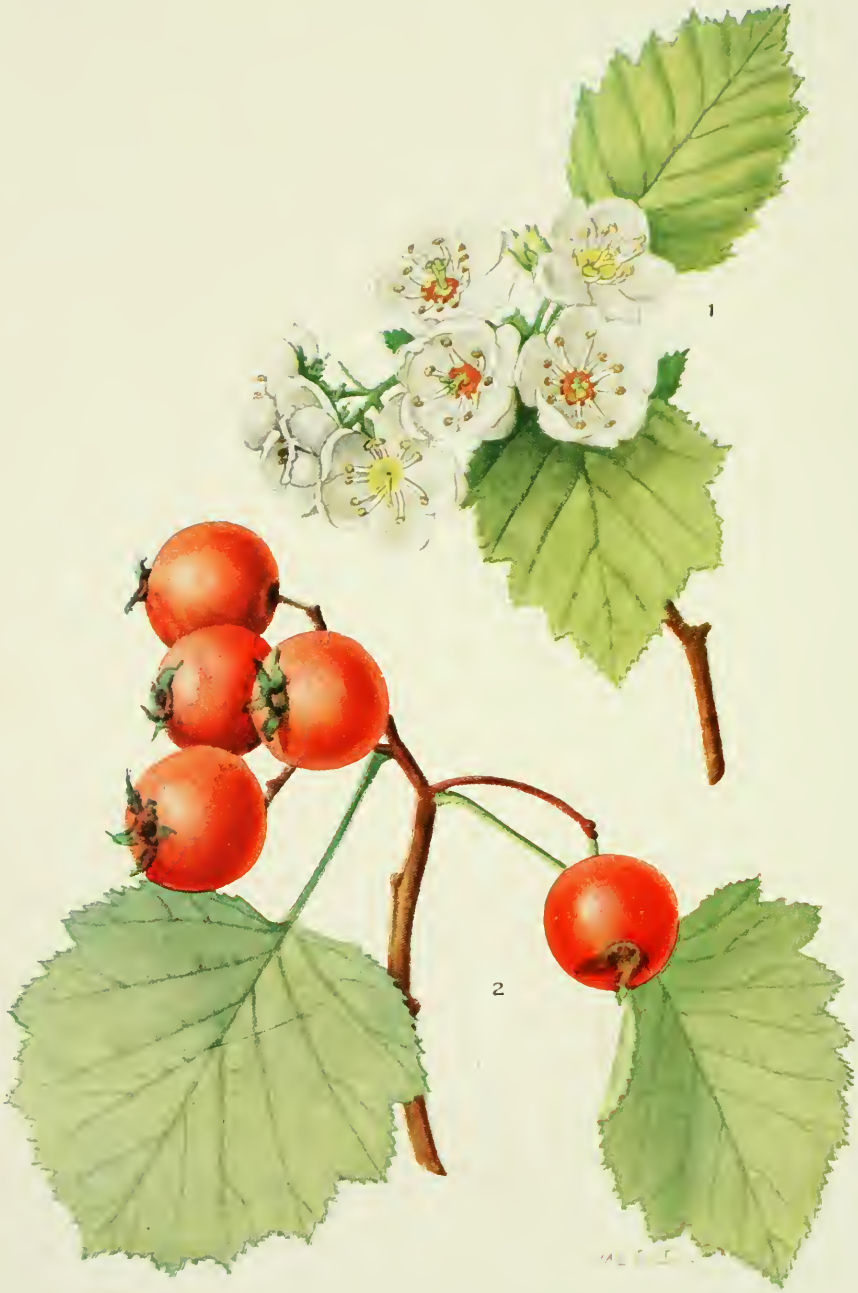



CRATAEGUS ARNOLDIANA

(Plate 561)

## CRATAEGUS ARNOLDIANA

**Arnold Thorn**

*Native of the New England States*

Family MALACEAE — APPLE Family

*Crataegus Arnoldiana* Sargent, Bot. Gaz. 31: 221. 1901.

The genus *Crataegus* is widely distributed in the temperate and subtropical parts of both the Old and the New World. Several species have been found in eastern Asia, and some of those best known in cultivation are natives of the Mediterranean region and of central and western Europe. In North America they are very abundant from southeastern Canada to Florida and through the eastern and middle states, with a few species in the Rocky Mountains and on the Pacific coast, as well as in Mexico and the Andes. More than a thousand species have been described from North America, many of which are little known and are of interest only to botanists.

They are popularly known as Hawthorns, Thorns, Thorn Apples, Haws, or Red Haws. A few American species are so striking as to have distinctive common names, such as the Cockspur Thorn, Dotted, Scarlet, Green or Downy Haw, or the blue-fruited Pomette Bleue and the May Haw of the southern states, the fruit of the last being edible and sold in the markets in season.

Most of the Hawthorns are small trees, although some species are shrubby. They usually grow, in the wild, along the borders of woods or in copses, glades, or rocky pastures. A few kinds prefer wet or alluvial ground along streams, and others are found in dry sandy uplands. Many species are quite attractive on account of their symmetrical shape, bright-green foliage, and abundant white flowers in spring, and the brightly colored fruit and leaves in autumn.

The Old World Hawthorns have long been celebrated in lore and literature, especially in England, where the tree was associated with the May festival, which probably ran back into pagan times. Besides the names Hedge or Hedge Thorn, which indicate the practical uses to which it has been put, it has been more poetically called May or Maybush, and many references to it are found in Shakespeare, Milton, and other early as well as later writers.

Several varieties of the English Hawthorn and a number of native species have long been planted in American gardens, where

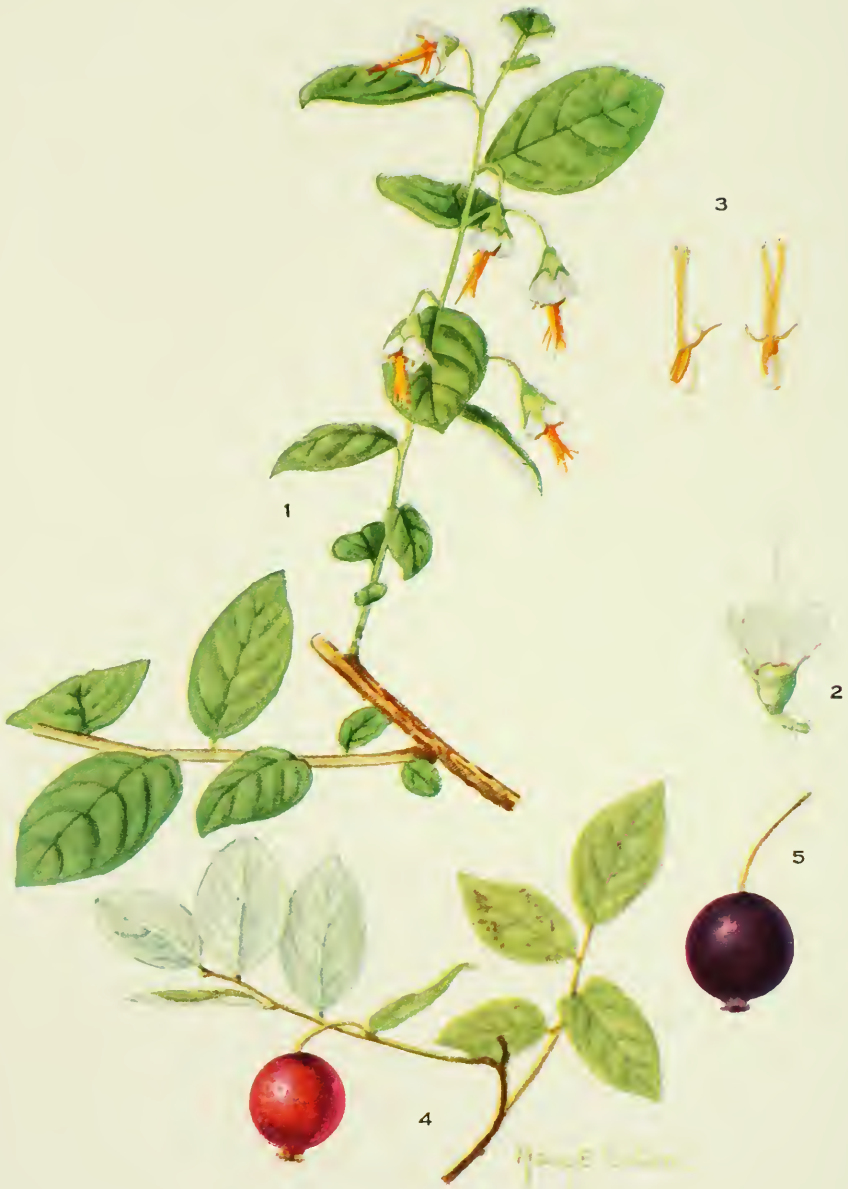
they have grown in favor in recent years, but the beauty and value of many of the latter in landscape work should be more widely recognized.

The Arnold Thorn was first found growing wild on a bank in the Arnold Arboretum, where the type tree, or a sprout from it, is still living. It has since been found native in other parts of Massachusetts and Connecticut, and it has been extensively planted in parks and gardens about Boston, New York, and elsewhere. The specific name was given in honor of Mr. James Arnold, whose bequest to horticulture was the financial nucleus for founding the Arnold Arboretum. It is one of the handsomest of the early-blooming species. Early in May, when the flowers open in the latitude of New York, the slender branches are thickly set with clusters of fragrant white blossoms, attracting swarms of early bees and other insects, whose busy humming adds to the air of drowsy opulence that pervades the first warm sunny days of summer. Later in the season the abundant clusters of pendulous bright-crimson fruit also make it attractive, although the fruit soon falls.

When growing in an open situation the Arnold Thorn becomes a small symmetrical tree with a short stout trunk and spreading or ascending branches, forming when fully grown a broad, flat-topped crown. The leaves are broad-ovate, with 4–6 pairs of shallow lobes, sharply double serrate on the margins, with acute apex and abruptly cuneate or rounded base. When they first unfold they are softly downy on both surfaces, and at maturity they are dark-green, scabrate above and villous, especially on the prominent veins beneath, one and one-fourth to two inches wide and one and one-half to two and one-half inches long, except on young shoots where they are sometimes much larger. The flowers, produced in great abundance, in rather compact compound corymbs, seven to ten in a cluster, on villous pedicels, are three-fourths to one inch in diameter, with broad-ovate white petals, concave upwards. The stamens number about twenty, with pale-yellow or cream-colored anthers, fading brown, and three to five, usually four, styles. The mature fruit is subglobose or a little thicker than long, one-half to three-fourths of an inch in diameter, bright-crimson or dull-scarlet, with mellow or succulent, subacid, yellow flesh, and three to four nutlets. The fruit is edible and of a pleasant flavor, but like other species, it is often infested with weevils or the larvae of the Curculio (*Conotrachelus Crataegi*). It furnishes valuable bird food, as after it falls much of it remains fresh for some time amid the grass and leaves. Some trees of *Crataegus Arnoldiana* are nearly thornless, as shown in the illustration, and others are moderately armed with curved, stoutish, chestnut-colored thorns one and one-half to two and one-half inches long.

ERNEST J. PALMER.

EXPLANATION OF PLATE. Fig. 1.—Flowering spray. Fig. 2.—Fruiting spray.




POLYCODIUM FLORIDANUM

(Plate 562)

## POLYCODIUM FLORIDANUM

### Florida-gooseberry

*Native of Coastal Plain, Florida to South Carolina*

Family VACCINIACEAE BLUEBERRY Family

*Picrococcus floridanus* Nutt. Trans. Am., Phil. Soc. (II) 8: 261. 1837.
*Polycodium floridanum* Greene, Pittonia 3: 325. 1898.

"Will you have some gooseberry jelly? We made it from wild gooseberries collected in the woods last week." This spoken to a botanist in Florida would seem very strange were he new to the English names applied to some of the native plants in the peninsular State. The newcomer is surprised to learn that the "gooseberry" in question is not a species of *Grossularia,* but a blueberry in the broad sense, or a species of *Polycodium.*

For many years only one species of *Polycodium* was generally recognized as valid. Attempts to break the deadlock in one case begun as early as 1818, but success was long delayed. Its value as an economic plant was also slow in being recognized. In botanical texts and floras the fruit was often designated "bitter," "sour," "insipid," "mawkish." Some writers claimed that the berries never ripened. The berries are not very juicy, but they are palatable. However, like the service-berry (*Amelanchier*), they must be eaten off the bush to be enjoyed.

This gooseberry is a friendly plant, so to speak, for it rarely grows alone. Its stature is very variable and often seems to be accommodated to that of its associates. When growing among scrubby vegetation averaging knee-high or waist-high, it will be found to be of about the same height, sending its irregular branches out among those of its associates. In the case of taller woody growth it follows suit. Irregularities of various kinds aside from its stature obtain in this plant. Its branching is very uneven, its flowering season is irregular, for it often has several crops of flowers in a year, its production of flowers and fruits is not uniform, for a flower or two and consequently a fruit or two may form the inflorescence clusters in place of a great number of flowers and fruits.

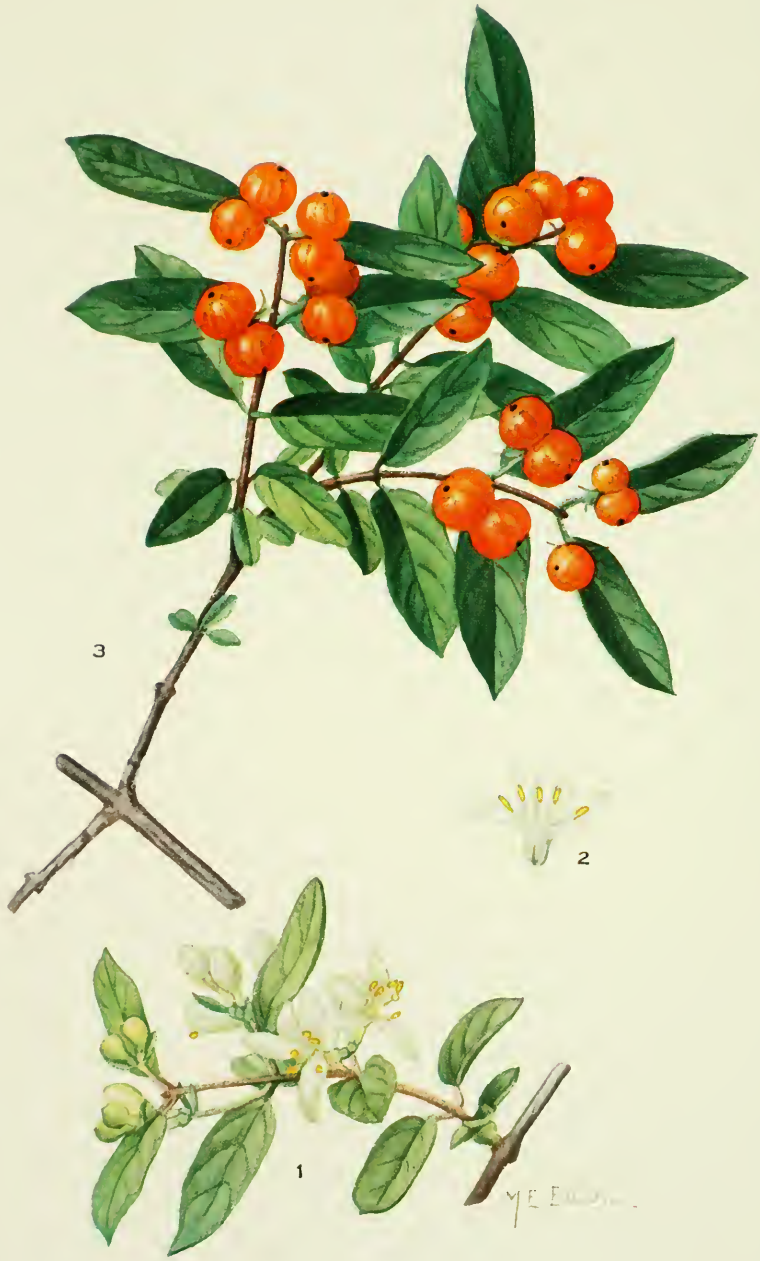
Like many of our native plants, as far as we know, this shrub has not been introduced or developed as an ornamental. It has good possibilities. If given a chance to develop without the inter-

ference of woody associates, the plants would doubtless be more uniformly branched. Copiously flowered forms would be showy subjects in the spring by the "hands" of drooping white or pink flowers and even more conspicuous the rest of the year by the numerous drooping purple berries which hold tenaciously to the parent. In fact, a naturalist claims that *Polycodium* is the prettiest of all our vacciniaceous plants, except perhaps the sparkleberry.

The Florida gooseberry is a shrub up to six feet tall. The stem is usually slender, very irregularly branched, with the branches again irregularly branched. The twigs are brown, finely pubescent. The leaves are alternate, numerous, and usually quite uniform in size on a plant. The blades are ovate, oval, or elliptic, mostly a half inch to an inch in length, obtuse or acute, nearly smooth and often very sparingly pubescent above, more or less reticulate, pale, either glaucous or thinly pubescent beneath, entire, ciliate, often slightly revolute, rounded to subcordate at the base. The very short petioles are finely pubescent. The flowers are in leafy-bracted racemes or panicles, nodding, with the bracts somewhat smaller or sometimes only slightly larger than the leaves. The pedicels are slender, curved, a quarter of an inch to three-quarters of an inch long, usually finely pubescent. The hypanthium is glabrous, open-campanulate. The five sepals are deltoid to ovate-deltoid, about as long as the hypanthium, acute or slightly acuminate, sometimes ciliate at the tip. The corolla is white or pink, broadly campanulate or rotate-campanulate, up to one-third of an inch wide, with deltoid or rounded lobes shorter than the tube. The ten stamens are erect, about a third of an inch long, conspicuously exserted. The filaments are flattened, pubescent. The anthers are longer than the filaments, each sac awned on the back and prolonged into a slender apical tube, glabrous. The ovary is inferior, 5-celled, flat-topped. The style is slender-subulate, terminating in a minute stigma. The fruit is a subglobose berry, a half inch in diameter or slightly more, nodding, purplish, tipped by the persistent calyx. The seeds are minutely reticulate.

JOHN K. SMALL.

EXPLANATION OF PLATE. Fig. 1.—A fragment of a branch showing a flowering and a leafy spray. Fig. 2.—A flower with corolla and calyx partly cut away to show the gynoecium. Fig. 3.—Stamens, front and side view. Fig. 4.—Spray in fruit. Fig. 5.—A fully ripe fruit.




LONICERA MORROWI XANTHOCARPA

(Plate 563)

## LONICERA MORROWII XANTHOCARPA

### Yellow-fruited form of Morrow's Honeysuckle

*Native of Japan*

Family CAPRIFOLIACEAE HONEYSUCKLE Family

*Lonicera Morrowii* var. *xanthocarpa* Nash, Journal N. Y. Bot. Garden 21: 120. 1920.

The genus *Lonicera,* named after Adam Lonitzer (or Lonicer), a German physician and botanist of the 16th century, contains many species of ornamental merit which are widely planted as well for their showy and sweetly fragrant flowers as for their abundantly produced, usually bright red fruits.

Of the shrubby species there is besides the Tatarian Honeysuckle (*L. tatarica*) and the hybrid *L. bella* (*L. tatarica* x *Morrowii*) none more frequently met with in parks and gardens than *L. Morrowii.* This was named in honor of Dr. James Morrow, who collected it for the famous expedition of Commander M. C. Perry, which in 1854 woke up sleeping Japan.

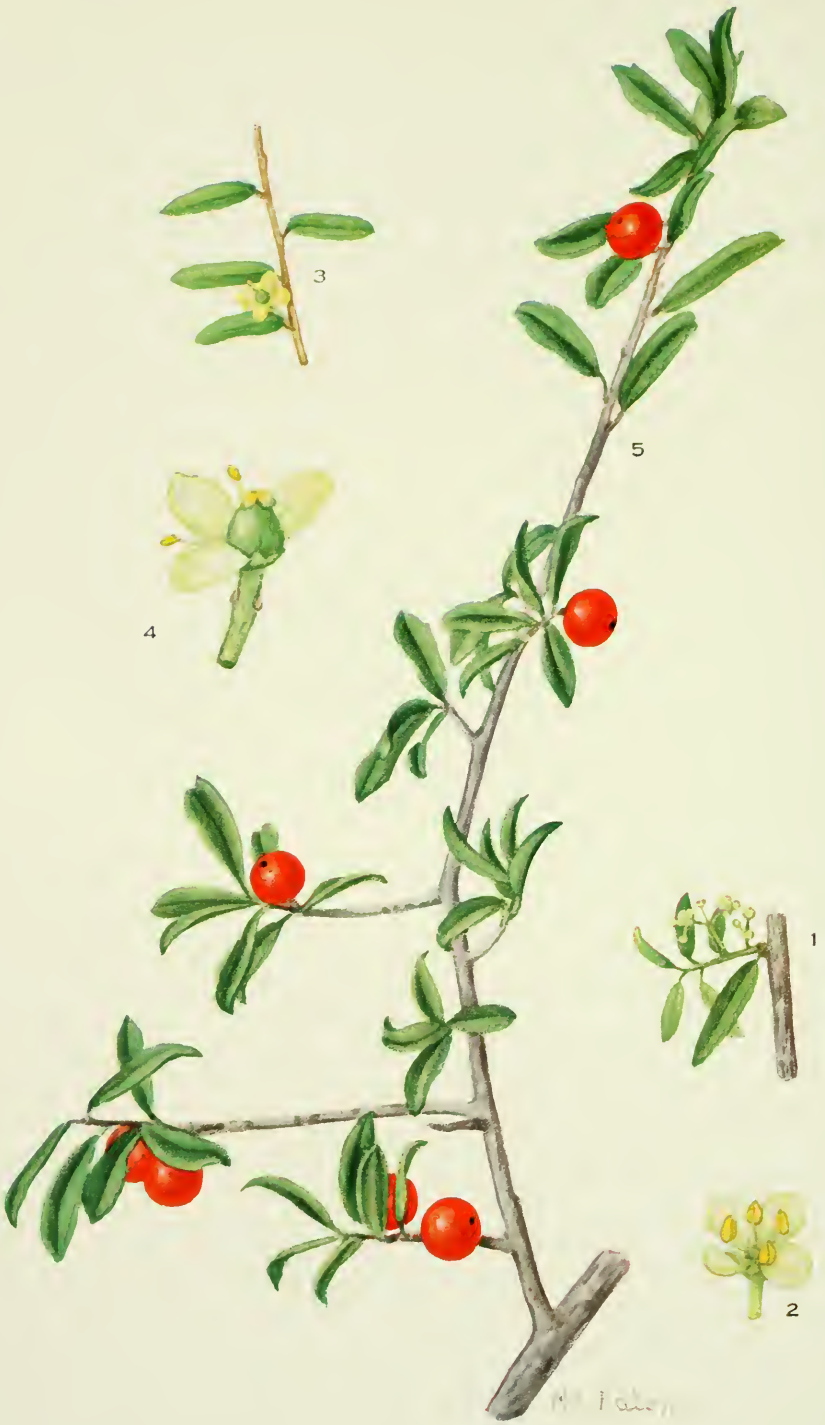
The type form of the species has red fruits. The yellow-fruited form, pictured on the accompanying plate, was mentioned, apparently for the first time, by Rehder in his Synopsis of the genus *Lonicera* (1903). However Rehder did not give it a name. Nash, in the Journal of The New York Botanical Garden (vol. XXI, June, 1920), applied to it the name *xanthocarpa* (Greek: yellow-fruited). The plant to which Nash refers was obtained by The New York Botanical Garden from a nursery in 1896. The only difference between the variety and the type apparently is the color of the fruit. Like most honeysuckles, *L. Morrowii* and its variety delight in a fresh, rather rich, humus soil. Growing naturally on the margin of woodlands, they will stand some shade and considerable drought, but they will attain their best only in a sunny, not too dry position. The flowers are not particularly showy, but a well-grown plant in full fruit, whether the berries be red or yellow, is a highly ornamental subject, although birds remove the fruit so rapidly that its period of showiness is short-lived.

This fondness of birds for the berries accounts for the rapid spread of the species from gardens into adjoining woodlands. It has frequently been reported as naturalized, especially from the eastern part of the United States.

*L. Morrowii* forms a medium-tall shrub, reaching rarely more than six or seven feet, and is of gracefully spreading habit. Its young branches as well as the undersides of its oblong leaves are soft-pubescent. Its flowers are creamy white when opening, changing to yellow before they fade. Both of these characters, the color-changing flower and the pubescence of the leaves and branches, distinguish this species easily from the Tatarian Honeysuckle with which it is frequently confused in gardens. Both characters are found also on the hybrid between the two, *L. bella,* which, however, has the pink flowers of *L. tatarica.*

H. TEUSCHER.

EXPLANATION OF PLATE. Fig. 1.—Flowering branch. Fig. 2.—Flower, longitudinal section. Fig. 3.—Fruiting branch.




ILEX MYRTIFOLIA

(Plate 564)

# ILEX MYRTIFOLIA

## Myrtle-leaved Holly

*Native of the Southeastern United States*

Family AQUIFOLIACEAE — HOLLY Family

*Ilex myrtifolia* Walt. Fl. Car. 241. 1788.
*Ilex Dahoon myrtifolia* Chapm. Fl. S. States 269. 1860.
*Ilex Cassine myrtifolia* Sarg. Garden & Forest 2: 616. 1889.

The resident of the more northern parts of the north-temperate regions of eastern North America may be well acquainted with the hollies, but he does not know them in all their glory as does the resident of the Gulf States.

Holly plants are not showy in flower, but in fruit they are frequently a gorgeous sight. The northern holly known for its red fruits in fall and winter is the winterberry or black-alder (*Ilex verticillata* and its variations). In the south there are more than a half dozen bright-red-fruited hollies. They are wide-spread geographically, but for the most part confined to the Coastal Plain and adjacent provinces. In the lower parts of the Coastal Plain may be found the favorite haunts of these showy shrubs and trees.

Some of the southern hollies have been of economic importance for ages. A relative of this holly (*Ilex myrtifolia*) was a ceremonial plant of the aborigines of the lower Atlantic seaboard. The Indians of the interior are said to have made annual pilgrimages to the seaboard to get a supply of leaves for their purification ceremonies. This is botanically *Ilex vomitoria.* Its leaves contain less than one percent of caffein. Today the leaves are prepared and sold as a tea under the aboriginal name "Cassena." Occasionally the leaves of the plant here figured are used locally for making a tea.

Cypress-heads, sour-gum swamps, and hog-wallows are the favorite haunts of this plant. It often grows in company with the cassena or yaupon (*I. vomitoria*) and dahoon-holly (*I. Cassine*), and together with these it is much sought for decorations at winter festivals. The drain on the natural supply became so great near large cities a few years ago, that laws were passed making it a penal offense to gather branches for decorations.

Unlike our northern winterberry which is deciduous-leaved, the southern hollies have evergreen leaves. These are deep-green or dark-green and help much to set off the clusters of red, orange, or yellow fruits from autumn to spring.

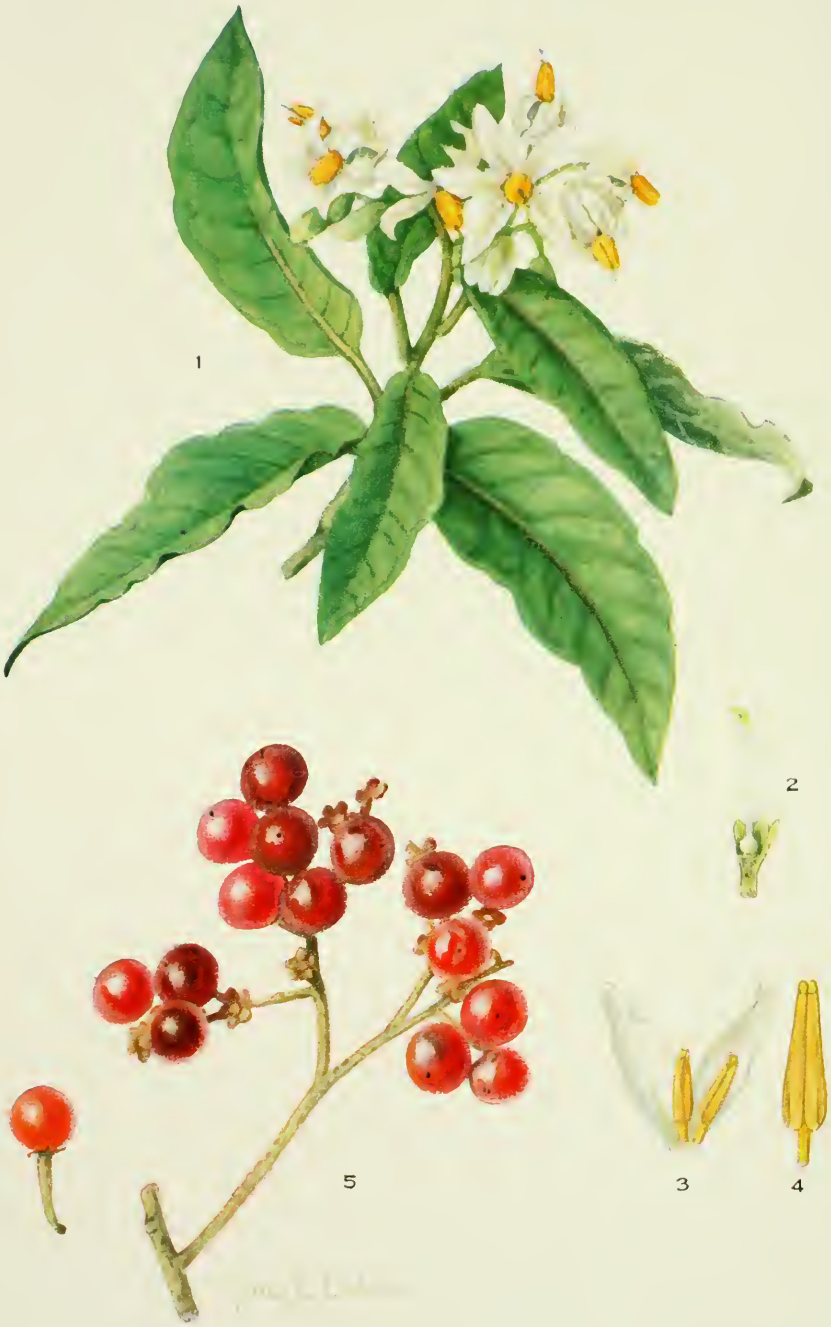
To one unacquainted with the swamps of the near coastal regions of Florida, the beauty of the hollies massed among the other trees is beyond the power of their imagination to comprehend. Growing in company with this myrtle-holly often are generic evergreen associates, as *Ilex opaca, I. vomitoria,* and *I. Cassine.* The fruits of these, red and occasionally yellow, are usually plentiful enough to dominate the greenery of the hammock. They begin to turn in the fall, and through the winter and the following spring they furnish the outstanding color element in the hammocks. Red-fruited haws and crab-apples are often associated with these hollies.

The specimens from which the accompanying figure was made were found between Wewahitchka and the Dead Lakes on the Chipola River in middle Florida.

The myrtle-leaved holly is a shrub or small tree with irregular, spreading, rigid branches and branchlets which often spread at right angles, with the branchlets usually gray, reddish, or brown, the twigs puberulent or finely pubescent. The leaves are alternate, numerous, sometimes even crowded, usually glabrous. The blades are coriaceous, linear, varying from linear-elliptic to narrowly linear-lanceolate, obtuse, acute, or gland-tipped, deep-green and shining above, paler and dull beneath, very faintly veined, with the midrib impressed above, very prominent beneath. The short stout petioles are finely pubescent. The staminate flowers are in clusters of usually three to six, terminating very slender peduncles, each flower on a short clavate pedicel which is subtended by a minute bract. The usually four calyx-lobes are deltoid, often broadly so, acutish. The four petals are suborbicular to oval-obovate, about thrice as long as the sepals, white, concave. The four stamens are alternate with the petals and about equaling them in length. The filaments are subulate. The anthers are ovoid or globose-ovoid, about half as long as the glabrous filaments. The pistillate flowers are usually solitary, with the sepals and petals often slightly larger than in the staminate flowers, with smaller and abortive anthers. The ovary is ovoid or globose-ovoid, sessile, glabrous. The stigma is sessile on the top of the ovary, depressed, four-lobed. The drupe is subglobose, one-quarter of an inch to one-third of an inch in diameter, red or sometimes yellow, smooth and shining, short-pedicelled. The nutlets are sharply ridged on the back, the ridges sometimes branching.

JOHN K. SMALL.

EXPLANATION OF PLATE. Fig. 1.—Branchlet with staminate flowers. Fig. 2.—Staminate flower. Fig. 3.—Branchlet with a pistillate flower. Fig. 4.—Pistillate flower. Fig. 5.—A branch in fruit.




SOLANUM BLODGETTII

(Plate 565)

## SOLANUM BLODGETTII

### Christmas-berry

*Native of southern Florida and the Bahamas*

Family SOLANACEAE — POTATO Family

*Solanum Blodgettii* Chapm. Fl. So. States 349. 1860.

It is a curious fact that some species of plants with few and weak morphological characters take full and complete standing in their category at once. Others with well-marked characters are questioned generally, and only slowly reach their deserved place in the taxonomic scale. This Christmas-berry[1] is one of the plants which has had the latter experience. Strange to say, it has not only strong structural characters, but its geography was also wholly in its favor for specific recognition.

This shrub was discovered on Key West, Florida, in the days when that island's botanical treasures were first being brought to light. This island was the scene of various stages of activity: first by the aborigines, then by the pirates, and finally it was permanantly settled by the peaceful white-man in 1822. Within a decade a botanist and apothecary, Dr. John Loomis Blodgett, settled on the island and began to collect herbarium specimens. These were sent to Dr. A. W. Chapman and Dr. John Torrey, and are now in the herbarium at the Garden, preserved with their original labels. Many of the specimens collected, probably the great majority of them, represented herbs, shrubs, and trees not previously known to occur in the United States. Some of them were well-known West Indian plants. Since the West Indies and the Florida Keys have been more thoroughly explored, a greater number of plants have been found to be common to the two regions. *Solanum Blodgettii*, many years after its discovery on Key West, was discovered in the West Indies on Cat Cay of the Bahamas about the beginning of this century.

Whatever was the geographic range of this plant in former times, it is rather restricted now. It is, however, plentiful within the limits of its range. It is a lime-loving plant and inhabits moist or low grounds. Soft, water-soaked lime-rock and marl are its favorite soils. Shallow depressions in the pinewoods of the Ever-

1 Almost all shrubs with red berries, in Florida, are popularly known as Christmas berries.

glade Keys, in the Everglades, and the margins of wet hammocks are its favorite haunts. The plants vary much in size. In colonies growing on limestone the plants are often knee-high or waist-high with very little individual variation. These colonies flower and fruit the year round and, according to the dominance of flower or fruit, they show as patches of white, pink, or bright-red.

Like all species this one has its variations. There are two groups of Royal-palm hammocks in southern Florida, one in Dade County, another in Collier County. This Christmas-berry grows in both of them. In the former hammocks the plants grow to their usual height, which is about three feet. In the Collier County hammocks, where more humus has collected in the soil, the plants grow to the unusual height of ten to fifteen feet.

This Christmas-berry is a shrub with hoary-pubescent often slightly tomentulose foliage, with the hairs branched or stellate, unarmed. The stem is erect, with a somewhat furrowed bark, that of the branches pale-green or stramineous, soon glabrous, except the new tips. The leaves are alternate, evergreen, usually rather numerous. The blades are subcoriaceous, elliptic, varying to elliptic-lanceolate or rarely elliptic-ovate, two to six inches long, or rarely longer, obtuse or acute at the apex, entire, deep-green above and thinly pubescent with the hairs rather evenly spaced, densely pubescent with the hairs close-set and pale, often hoary beneath, with the lateral veins slightly visible through the pubescent coat. The petioles are rather long for the size of the leaf, copiously pubescent, usually slender. The cymes are erect, with the peduncle usually a half inch to two inches long and like the pedicels densely pubescent. The flowers are often crowded, appearing at all seasons. The calyx is campanulate or hemispheric, with the base of the tube tapering into the pedicel. The calyx-lobes are ovate to deltoid, shorter than the tube. The corolla is white or sometimes pink-tinged, one-half to three-quarters of an inch wide, copiously pubescent without, glabrous or nearly so within. The lobes are lanceolate, much longer than the tube. The anthers are stout-subulate, about half as long as the corolla-lobes, much longer than the filaments. The ovary is ovoid, usually with few very minute glandular hairs near the top. The style is filiform, much longer than the ovary, often with few minute glandular hairs near the base, terminating in a minutely lobed stigma. The berry is erect, globose or oval, a third of an inch to nearly a half inch long, bright-red, shining, seated in the persistent calyx. The seeds are roughened and wrinkled.

JOHN K. SMALL.

EXPLANATION OF PLATE. Fig. 1.—Tip of a flowering stem. Fig. 2.—Gynoecium with calyx partly removed. Fig. 3.—Petals and stamens. Fig. 4.—A stamen. Fig. 5.—A spray in fruit, and an individual fruit.


SOLANUM SANITWONGSEI

(Plate 566)

## SOLANUM SANITWONGSEI

### Siamese Solanum

*Native of Siam*

Family SOLANACEAE — POTATO Family

*Solanum Sanitwongsei* Craib, Kew Bull. 1928: 246. 1928.

To a very large degree our knowledge of drugs and drug plants is based on empiricism. In the history of the human race many thousands of species of plants have been used for the treatment of disease, and much of our present knowledge of drugs and drug plants is fundamentally based on the crude experimental work carried on by our remote ancestors. Many of these plants were found, through experience, to have definite curative properties, and were gradually adopted in primitive materia medica for the treatment of specific illnesses. There are still numerous species of plants, reputed locally to have definite therapeutic properties, that have never been investigated from a pharmaceutical standpoint, and occasionally one of these appears, on investigation, to have specific value, as illustrated by the modern investigations of *Ephedra sinica* Stapf, the source of a new important drug ephedrine. The species was actually described in 1927, but *Ma Huang* has been used in Chinese materia medica for many centuries, yet it attracted no attention in Europe and in America until well into the present century. Another example is that supplied by certain Asiatic species of *Hydnocarpus,* the seeds of which yield the so-called chaulmoogra oil, a product used for many centuries in India for the treatment of many skin diseases and for leprosy. Modern investigations have shown that derivatives of chaulmoogra oil have definite curative properties in the treatment of leprosy, but the general use of this remedy for the treatment of this race-old disease has been developed within the present century.

In 1927 there appeared in Science, (n. ser. **66**: 619–620), a short article by Doctor Hugh M. Smith, entitled "The control of diabetes in Siam by the use of solanaceous plants." Here was recorded the fact that Doctor Yai S. Sanitwongsei of Bangkok, Siam, had his attention called to the fruits of a native species of *Solanum,* the use of which as a condiment, with meals, seemed to have a marked effect on the control of sugar in diabetics. A year later this species was described by Professor W. G. Craib of Aberdeen University as a new species, *Solanum Sanitwongsei* Craib.

While it seems probable that the therapeutic properties assigned to the fruit of this species may be exaggerated, still there is a possi-

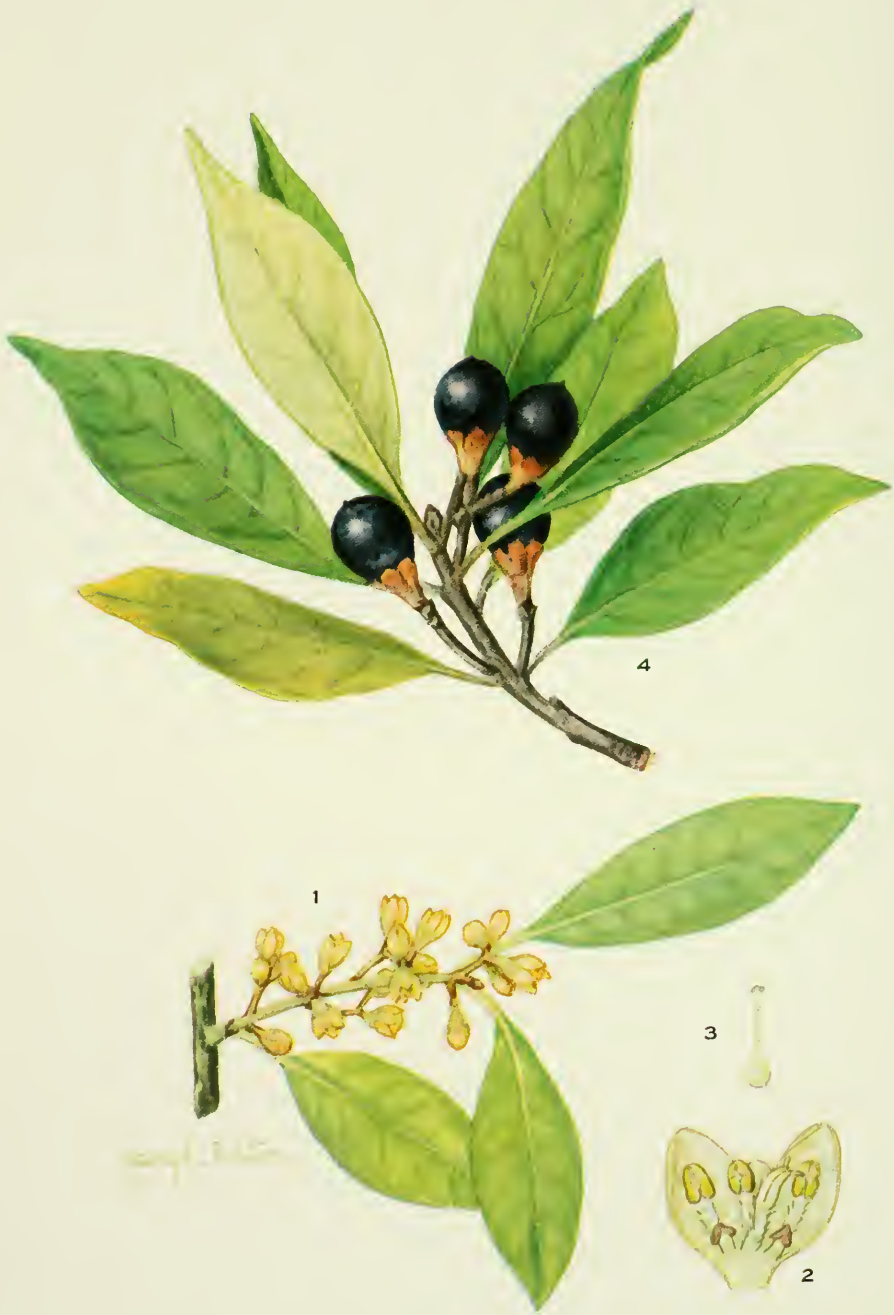
bility that the fresh and dried fruits of some species of Solanum may have a real application in the control of diabetes. The evidence to date is that while the fruits of *Solanum Sanitwongsei* Craib apparently have little or no value, those of an allied species, *Solanum indicum* Linn. may have some application. Investigations being carried on in various medical institutions in Europe and in Europe and in America have not clearly demonstrated any considerable therapeutic value of the fruits of either species.

The publication of Doctor Smith's note attracted considerable attention, and the wide newspaper publicity given to it aroused the interest of numerous diabetics. The matter seemed worth following up, with view first to determining the identity of the plant, and second whether or not the claims made for its fruit as a remedy for the control of diabetes were well founded. Through the courtesy of Doctor A. F. G. Kerr of Bangkok, fresh seeds taken from plants grown in his garden were secured and from these plants were grown first at the University of California, Berkeley, and later at The New York Botanical Garden. Both in Berkeley and in New York the plant produced flowers and fruits in abundance when grown out of doors during the summer season, but in New York fruits did not mature until toward the end of the growing season. The plant can be maintained in New York only when grown under greenhouse conditions.

*Solanum Sanitwongsei* is an erect, much-branched, unarmed, suffrutescent plant 1–1.5 m. high, the younger plants being more or less stellate-pubescent, the branches terete, becoming glabrous or nearly so. The leaves are chartaceous, ovate to oblong-ovate in outline, obtuse at the apex, cordate to obtuse or even cuneate at the distinctly inequilateral base, the margins distinctly lobed, the lobes 2 or 3 on each side, broad, obtuse or rounded, up to 2 cm. long and wide, the sinuses rather broad, rounded, the upper surface pale-green, somewhat roughened with rigid short-stellate hairs, the lower surface more or less tomentose with pale stellate hairs; lateral nerves 3–5 on each side of the midrib; petioles 1–5 cm. long. The flowers are lavender, rarely solitary, usually in few-flowered lateral racemes, sometimes subumbellate, normally about three flowers in each inflorescence, the pedicels 8–15 mm. long, thickened upward in fruit, pubescent. The five sepals are usually oblong-cuneate, obtuse to acuminate, about 4 mm. long and 2 mm. wide, and stellate-tomentose. The five petals are united for the lower 4 mm., more or less stellate-tomentose on the back, the lobes oblong-lanceolate, subacute, about 8 mm. long and 5 mm. wide, lavender. The stamens are equal, their filaments 1 mm. long, glabrous, the anthers 6 mm. long, yellow. The mature fruit is red, subglobose, fleshy, glabrous, shining, about 1 cm. in diameter, the seeds pale, compressed, puncticulate, about 2 mm. in diameter.

E. D. MERRILL.

EXPLANATION OF PLATE. Fig. 1.—A branch showing leaves, inflorescences, and mature flowers. Fig. 2.—An inflorescence with mature fruits.




TAMALA LITTORALIS

(Plate 567)

## TAMALA LITTORALIS

### Dune red-bay

*Native of the coasts of Florida and Texas*

Family LAURACEAE LAUREL Family

*Persea littoralis* Small, Fl. SE. U. S. 820. 1902.
*Tamala littoralis* Small, Fl. SE. U. S. ed. 2. 822. 1913.

The avocado (*Persea*), native of the American tropics, occurs in many varieties and forms in cultivation in the tropics and nearby parts of the temperate zone.

In another geographic area far separated from the natural geographic range of *Persea,* is a small group of shrubs and trees belonging technically to the same plant family. Both the avocado and the red-bay (the popular name for the southeastern United States relative) were known to Linnaeus, who considered them as belonging to the comprehensive genus *Laurus.* A half century later (1805) the avocado was removed from *Laurus* as *Persea gratissima.* About a quarter of a century later (1825) the more wide-spread species of the United States was interpreted under the genus *Persea.* Again in 1838, the sanest interpretation was made by Rafinesque, who, considering technical characters and geographic range, gave the United States plant a refuge in a genus named *Tamala.* Rafinesque records that *Tamala* is the Indian name for the plant. But this was not the end of the generic wanderings of these plants, for as late as 1889 a celebrated botanist went all the way to the opposite side of the world, the Malay region, for a generic concept to associate it with.

The genus under consideration is typified by the most widely distributed species, *T. Borbonia.* The red-bays, so called from the color of the heart-wood, which was formerly much used in furniture, started botanically as a single species. At periods through one hundred and fifty years three species have been added.

The two earlier-described species are rather large trees, inhabitants of low grounds, swamps, and stream-banks. The two other species, more recently described, are inhabitants of dry places. The scrub-bay grows in the dry sand of the scrub, and has large fruits and silky-pubescent leaves. The dune bay grows very abundantly on the sand-dunes along the eastern coast of Florida; in fact, it is more abundantly represented in a given locality than any of the other species. For great distances on the dunes it often forms the dominant arboreous vegetation. The dune bay also bears more fruit than any of the other species. The shrubs or small trees

are then conspicuous objects, for *en masse* the bright-green leaves and the dark-blue fruits are strongly contrasted.

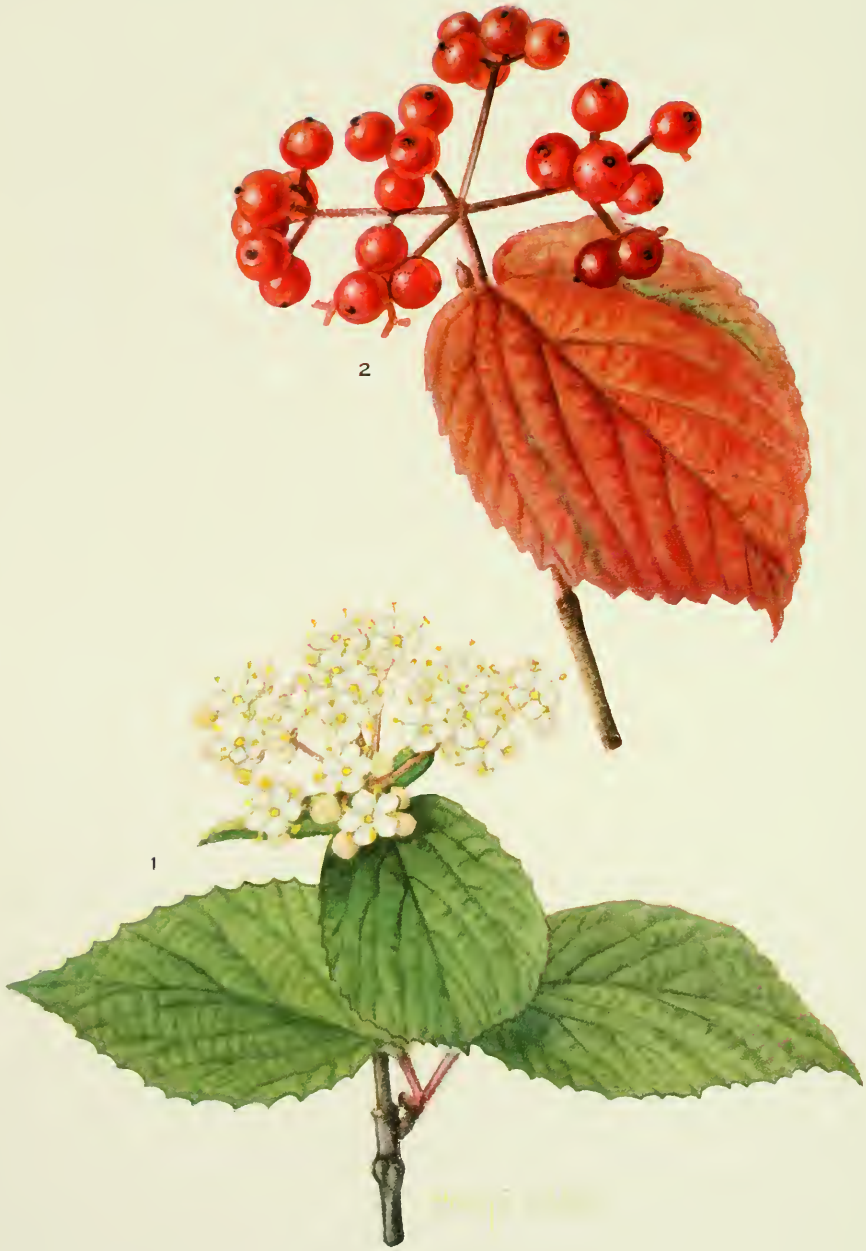
The tree cannot be said to be economic, although we have known its leaves to be used after the manner of bay-leaves in cooking. The fruits are important bird-food, in season. They are aromatic and irritating to the tongue. However, fruits very irritating to the human tongue and throat are often the more highly prized by birds—witness the wild cayenne-peppers (*Capsicum*) of the Florida hammocks, which the birds keep cleaned of all ripe and even green fruits.

When not crowded the bay develops into a well-shaped small tree. It was brought to our attention in a striking way, about thirty years ago, on the dunes south of Palm Beach, where it was plentiful in stretches several miles in extent. Today scarcely a tree can be found where formerly it was so abundant. However, it is still abundant at many places along the Florida coasts, and specimens from Texas have also come to our notice. The specimens from which the accompanying figure was made were collected on the celebrated kitchen-midden, Turtle Mound, on the sand-dunes about twelve miles south of New Smyrna, Florida.

The dune bay is a shrub or a small tree up to twenty feet tall, the stem much-branched, the branches rigid, the twigs puberulent, reddish, becoming dark-purple, leafy. The leaves are alternate, numerous, persistent, and evergreen. The blades are elliptic to oval, one and a half to three and a half inches long, thin-coriaceous, mostly obtuse at the apex, entire, becoming revolute, lustrous and bright-green above, dull and slightly paler beneath, finely pitted on both sides when dry, acute or somewhat acuminate at the base, with the veins obscurely impressed above, prominent beneath, the midvein especially prominent. The petioles are rather long and slender, usually slightly puberulent. The flower-clusters are axillary, with several flowers terminating a flattened peduncle, which is often as long as or slightly longer than the petiole. The flowers are very short-pedicelled, subtended by minute acute bracts. The outer sepals are broadly ovate, obtuse, puberulent, persistent. The inner sepals are about twice as long as the outer, narrowly obovate, often somewhat rhombic, obtuse, usually veined. The stamens are in four series, those of the second and fourth series reduced to short staminodia, those of the first and third series anther-bearing, the filaments of the third series each with a pair of glands near the base. All the filaments are copiously pubescent. The anthers are four-celled, with cavities opening by hinged valves. The ovary is ovoid or oval, sessile, glabrous. The style is columnar or subulate, glabrous, slightly enlarged under the stigma. The drupes are subglobose, seated on the indurated persistent calyx, averaging about a half inch in diameter, purple-black under the bloom, with a rather thick very aromatic flesh. The stone is thin-coated.

JOHN K. SMALL.

EXPLANATION OF PLATE. Fig. 1.—A small branch in flower. Fig. 2.—Part of a corolla laid open, showing the three types of stamens. Fig. 3.—The gynoecium. Fig. 4.—A branch in fruit.




VIBURNUM WRIGHTII

(Plate 568)

## VIBURNUM WRIGHTII

### Wright's Viburnum

*Native of Japan*

Family CAPRIFOLIACEAE HONEYSUCKLE Family

*Viburnum Wrightii* Miq. Ann. Mus. Bot. Lugd. Bat. 2: 267. 1866.

This *Viburnum* was brought to the attention of western botanists by C. Wright, who collected it on hillsides near Hakodate, Japan, when traveling as botanist of Commodore Rogers' North Pacific Exploring Expedition (1853–56), at about the same time as Perry's expedition to Japan. Asa Gray, who sorted the plant material brought back by both expeditions, did not recognize this as a new species, mistaking it for the then incompletely known *V. erosum* Thunb. However, he sent specimens of it to Miquel, who identified it as a new species, and described it in 1866 in the Annales of the Botanical Museum of Leyden, Holland. In honor of the collector he gave it the name *Viburnum Wrightii.*

American horticulture is indebted for this handsome shrub to the late Professor C. S. Sargent, Director of the Arnold Arboretum, who in 1892 sent seeds of it from Japan to the Arnold Arboretum.

In gardens *V. Wrightii* is frequently confused with *V. dilatatum, V. phlebotrichum* and *V. furcatum.* The last-named resembles *V. Wrightii* rather closely in the shape of its leaves, especially on cultivated plants, but its naked, scaleless buds, its scurfy branches and the cordate base of its leaves distinguish it easily. The stamens of *V. furcatum* are only about half as long as the corolla of its flower. *V. dilatatum* is distinguished by the dense, soft pubescence of its branches and leaves, and by its smaller fruit. *V. phlebotrichum,* under which name *V. Wrightii* is frequently listed, especially in European gardens, is not only much more tender but also very rare in cultivation. Its leaves are smaller and narrower and the stems of its flowers are shorter than the corolla.

The large clusters of glossy, scarlet fruits and the dark red fall coloring of the leaves render this shrub very ornamental. However, it shows itself much more exacting and of a less easy temper in cultivation than its nearest relatives, *V. dilatatum* and *V. theiferum.* Healthy, well-grown plants of it are rather scarce. Though perfectly hardy, it will die back in part and will assume a rather

stunted appearance if it is allowed to suffer from drought. For best results it should be grown in a rich, fresh, humus soil and in a somewhat sheltered position where dry winds and the hottest sun do not reach it.

*V. Wrightii* is a shrub of rather erect habit, with upright, grayish-brown branches. It is said to reach a height of nine feet, though it will hardly reach that height in cultivation. Its broadly ovate or suborbicular leaves are, on cultivated plants, especially on the flowering branches, usually not more than two and one-half inches or three and one-half inches long, though on sterile shoots they may reach a length of about five inches. They are abruptly acuminate at the tips and usually broadly cuneate, though frequently rounded or even subcordate at the base. The veins beneath and the petioles are covered with scattered, long hairs. The flowers appear in June, in upright, pedunculate cymes. The stamens exceed the corolla, which has a diameter of one-fourth of an inch. The fruit is a subglobose, juicy, scarlet drupe, about three-eighths of an inch high. The very characteristic winter buds are covered with two pairs of imbricate scales, the inner pair showing a yellowish pubescence toward the apex, while the outer, shorter pair is usually glabrous and lustrous.

H. TEUSCHER.

EXPLANATION OF PLATE. Fig. 1.—Flowering branch. Fig. 2.—Fruiting branch.

## RECENT PLATES

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# ADDISONIA

## COLORED ILLUSTRATIONS
AND
## POPULAR DESCRIPTIONS
OF
## PLANTS

VOLUME 17 NUMBER 4

DECEMBER, 1932


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DECEMBER 27, 1932

# ANNOUNCEMENT

A bequest made to the New York Botanical Garden by its late President, Judge Addison Brown, established the

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The preparation and publication of the work have been referred to Mr. Edward Johnston Alexander, Assistant Curator, and Mr. Kenneth Rowland Boynton, Head Gardener.

ADDISONIA is published as a quarterly magazine, in March, June, September, and December. Each part consists of eight colored plates with accompanying letterpress. The subscription price is $10 annually, four parts constituting a volume. The parts will not be sold separately.

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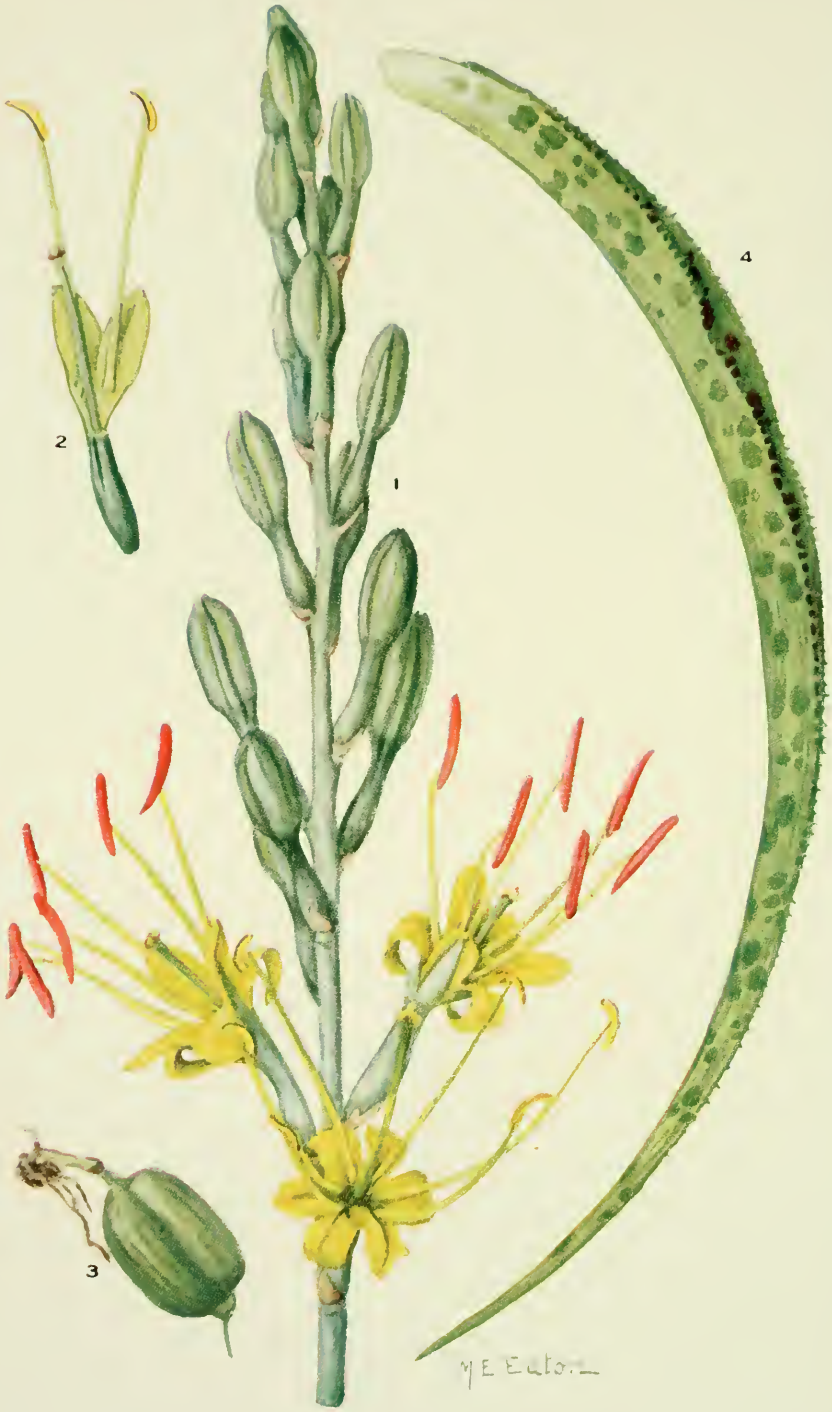



MANFREDA VARIEGATA

(Plate 569)

# MANFREDA VARIEGATA



## Huaco

*Native of southern Texas and northern Mexico*

Family AMARYLLIDACEAE AMARYLLIS Family

*Agave variegata* Jacobi, Hamb. Gartenz. **21**: 459. 1865.
*Manfreda variegata* Rose, Contr. U. S. Nat. Herb. **8**: 20. 1903.

The United States has two decidedly southern extremities, the one, Florida, ending at 24° 30′ N, the other, Texas, reaching 26° 51′ N. In Florida, tropical types of vegetation abound; in Texas, desert types are numerous. Both these regions are represented by plants in this number of ADDISONIA. Although southern Texas has green desert areas, mesquite-cactus country, it also has other types of floristics. *Manfreda* inhabits the desert and semi-desert areas. It has many succulent associates. These succulents aften occupy large patches to the exclusion of other kinds of plants. The genus was named for Manfred, an old Italian writer.

The huaco was found growing, under cultivation, in the botanic garden at Copenhagen in the summer of 1856. It was named as *Agave variegata* in 1865. It is said to have been discovered in Mexico by Dr. Josiah Gregg in 1847.

This species has a generic associate in southern Texas and northern Mexico in *Manfreda maculata.* It also has two generic associates in the Gulf and southern Atlantic Coastal Plains and adjacent plant provinces, in *M. virginica* and *M. tigrina.*

Associated with the huaco are desert plants, often in colonies of low-growing succulents, among them family relatives, Runyon's huaco (*Runyonia*) and rain-lily (*Cooperia*); sedum (*Lenophyllum*) of the Orpine family, and members of the Cactus family: prickly pear (*Opuntia*), dahlia-cactus (*Wilcoxia*), and hedgehog-cactus (*Hamatocactus*). The elements of this unique plant association are often arranged over large areas in the manner of a crazy-quilt, the various shades of green in the foliage, one to each kind of plant, standing out, often in strong contrasts. However, in some places the plants are more or less camouflaged, especially in seasons of drought when the pale dust of the country collects on this vegetable carpet, as it were, and subdues the coloration.

This lay-out naturally becomes more and more varied and conspicuous as these plants come into flower.

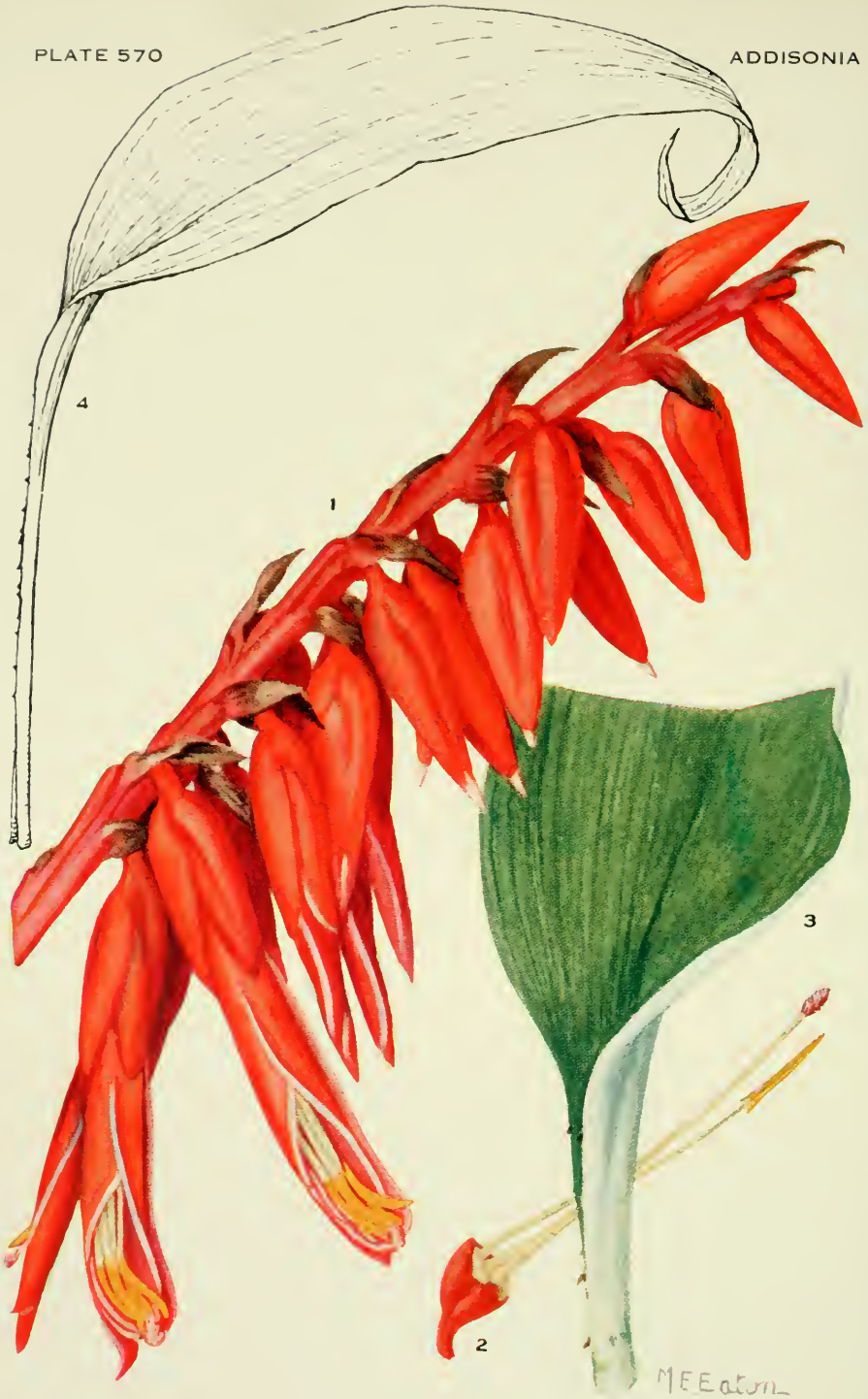
This plant is drought-resisting. A large, deep-seated, fleshy root and succulent leaves hold a good supply of water against rainless seasons. These water reservoirs enable the plant to carry out its routine regardless of weather by rapidly sending up its whip-like flower-stalks in the spring, flowering promptly, and maturing its fruits in late summer.

The huaco prefers a sandy loam, but will grow in any rich soil. It grows well in conservatories in the North, producing its leaves and flower-stalks to the maximum length. It is naturally distributed in the lower Rio Grande Valley in Texas and in northern Tamaulipas, Mexico. The root is sometimes used as a substitute for soap and the herbage is used as a remedy for poisonous snake-bites.

The huaco is light-green throughout, but it is so covered with glaucous bloom as to appear dull-blue-green, with a fleshy deep-seated root. The leaves are in a basal rosette, usually nine to eighteen together, and spreading. The blades are lanceolate or linear-lanceolate, eight to fifteen inches long, channeled, acute, finely cartilaginous-toothed, with the green ground-color spotted with brown. The flower-stalk is seven feet tall, floriferous on about the upper twelve inches, with lowest bract leaf-like, but upright and much reduced, the other bracts all very short, a half inch long or less, appressed to the axis, distant. The entire flower is about two inches long, with the hypanthium nearly 1 cm. long. The flowers, each from a separate small lanceolate-ovate bract which encloses within it a second still smaller bract or ovate bractlet, which protrudes sideways, are usually alternate and sessile, glaucous in the bud, the three sepals covering all but the midrib of the three petals. The perianth, when expanded, is greenish-yellow inside. The sepals and petals are lanceolate, blunt, fully a half inch long, with a slight tuft of pubescence on the inside at the tip. The petals are upright or straight the first day, afterward slightly recurved at the tips; they have a thick midvein and thin margins. The three sepals are sharply recurved at first and continue so, flat on both surfaces, thick throughout, deeply grooved into the midvein on the inner side. The six filaments are about an inch and a half long the first day, elongating somewhat the second, opposite the lobes and adnate to the base of the perianth parts, a slight protuberance being formed on the outside of each sepal and petal at the point of adnation. The anthers are less than a half inch long the first day, and red-brown, shedding their pollen from the second day on and shriveling to half that size, the lobes of each sac opening out flat. The stigma is capitate, brown, except for the white stigmatic lines, and sharply and deeply three-lobed. The style is about an inch and a quarter long the first day, becoming two inches long after the second day. The ovary is nearly a half inch long, inferior, three-celled, each cavity with two rows of ovules, separated by a partition extending half into the cell from the outer wall. The capsule is ellipsoid, an inch to an inch and a half long, obscurely angled, opening from the top. The seeds are black and nearly flat.

JOHN K. SMALL.

EXPLANATION OF PLATE. Fig. 1.—The flowering portion of the inflorescence. Fig. 2.—The gynoecium, with two of the perianth divisions and their adnate stamens. Fig. 3.—A mature capsule. Fig. 4.—A leaf.




PITCAIRNIA CORALLINA

(Plate 570)

## PITCAIRNIA CORALLINA

### Coral Pitcairnia

*Native of Colombia*

Family BROMELIACEAE PINEAPPLE Family

*Pitcairnia corallina* Linden & André; Carrière, Rev. Hort. **47**: 251, *pl.* 1875.

One of the most beautiful members of a family noted for its beauty, the Coral Pitcairnia, with its enormous drooping spike of bright-red flowers closely set against the stem, is surpassed by few of its family when in bloom. For decorative purposes, in fact, it is superior to all others of its genus, and, while its flowers do not possess the startling combinations of color found in many of its relatives, the leaves themselves are highly ornamental, with their two-color surfaces, so that this Pitcairnia would be worth growing even though it never bloomed.

The plant was introduced to cultivation about 1870 by J. J. Linden, to whom it was sent by E. F. André from the province of Choco, New Grenada (now Colombia), and when it flowered for the first time in Europe in 1874 in the greenhouses of Baron Rothschild at Ferrières near Paris, it created a sensation, and was at once awarded a first prize, placing it among the world's finest ornamental plants.

The genus *Pitcairnia* was named for W. Pitcairn, a London physician. The name *corallina* refers to the coralline appearance of the inflorescence.

*Pitcairnia corallina* succeeds best in cultivation when potted in a rough mixture consisting of orchid peat, oak leaves, and charcoal, together with some fibrous, turfy loam and a small proportion of dried cow-manure. The receptacles in which it is grown should be very thoroughly drained and the compost should be pressed firmly about the roots.

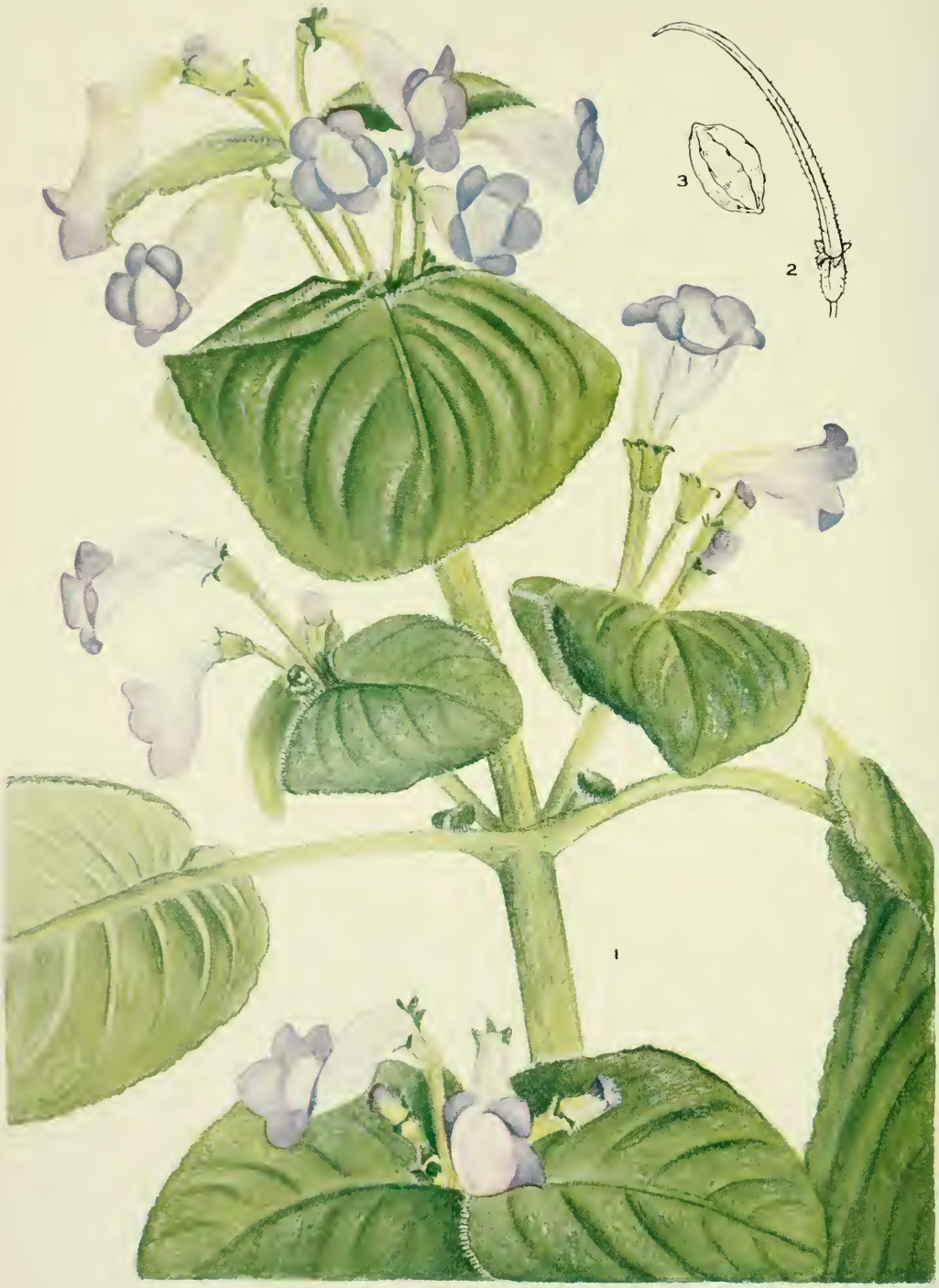
Very humid atmospheric conditions are appreciated and in bright weather the foliage should be sprayed freely with clear water, while at all times the floors, benches, and other surfaces from which evaporation takes place should be kept moist.

Shade is desirable only when the sunlight is very intense and for the greater part of the year full exposure is to be recommended. Stock of *Pitcairnia corallina* may be increased by means of division of the old plants in April or May.

The coral Pitcairnia is a stemless, caespitose plant. The leaves are rosulate, the outer without marginal spines, hard, brown, and dry, not produced into a blade, the inner with a petiole about 1 foot, and a blade about 3 feet long. The petiole is light yellow-green, margined with sharply decurved, flat, horny spines, yellow-green at first, black-brown at maturity. The blade is plicate, much resembling that of *Curculigo,* but not so markedly veiny, bright yellow-green, three to four inches wide, abruptly acuminate, the petiolar spines extending about three inches up the blade margins, the blade otherwise entire, smooth, and glabrous. The under surface of the blade and petiole is covered with a grayish-white, furfuraceous coating, removable only by scraping. The peduncle rises from the base of the tuft of leaves. It is sharply recurved, about one foot long, bright red, with lanceolate-acuminate, grayish-brown bracts. The inflorescence is about one foot long, bright red, rather densely flowered, the individual flowers about three inches long, their pedicels one fourth inch long, spreading or drooping. The sepals are lanceolate and horny, about one inch long, bright coral-red. The petals are bright coral-red, lingulate, three inches long, furnished with a large, oblong basal scale, which is free at the summit and along the edges. The six stamens are as long as the petals, the filaments white, the anthers and pollen bright yellow. The ovary is broadly conical, the basal portion only adnate to the hypanthium. The style is filiform, about two inches long, the three stigmas twisted together spirally. The fruit is a septicidally three-valved capsule.

EDWARD J. ALEXANDER,
T. H. EVERETT.

EXPLANATION OF PLATE. Fig. 1.—A portion of the inflorescence. Fig. 2.—The gynoecium and one stamen. Fig. 3.—The basal portion of a leaf. Fig. 4.—An entire leaf (reduced).




CHIRITA LAVANDULACEA

(Plate 571)

## CHIRITA LAVANDULACEA

### Lavender Chirita

*Native of tropical Asia?*

Family GESNERIACEAE GESNERIA Family

*Chirita lavandulacea* Stapf, Bot. Mag. **150**: *pl. 9047.* 1925.

*Chirita lavandulacea* was originally described and figured in Curtis's Botanical Magazine. Plants grown at Kew from seeds received from various European sources served as the basis of the original description and it is believed that to the Botanic Garden at Herrenhausen, Hanover, should be accorded the credit for having introduced this species to cultivation. Stapf states that the seed was received at Kew "under the names of *Chirita Horsfieldii* var. *scabrida, Didymocarpus Horsfieldii* and *Roettlera Horsfieldii,* names which are evidently inapplicable." It is of interest to note that seed of this same plant has been received in the United States as *Chirita Blumei,* and in view of the fact that it possesses considerable merit as a decorative subject and may be expected to meet with favor in establishments where choice greenhouse plants are grown, it seems especially desirable that any confusion in nomenclature which may exist should be corrected before inacceptable combinations enter into common usage. The precise country of origin is unknown, but as the genus is confined to Indo-Malaysian and Chinese regions, it may be expected that the habitat of this species is to be found in some part of tropical or subtropical Asia.

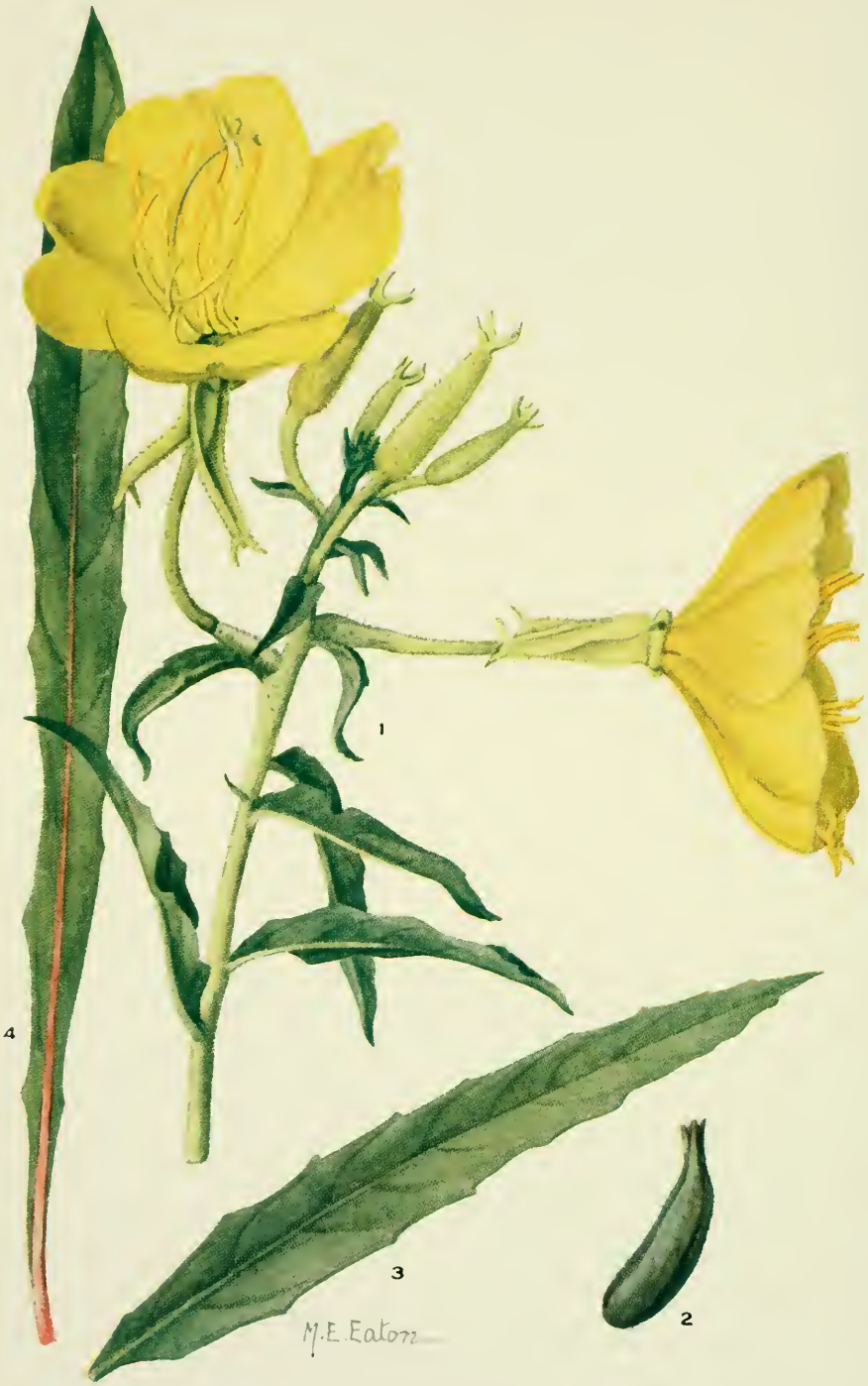
As a winter-blooming subject for the embellishment of the conservatory or warm-greenhouse, *Chirita lavandulacea* will commend itself to the horticulturist, and for this purpose it must be ranked amongst the best of the Gesneriads. It is of easy cultivation and remains decorative over a very long season.

Propagation may be effected by means of seed sown in spring or early summer, or by stem or single-leaf cuttings inserted at the same season. In either case the young plants should be grown on without receiving any check in a minimum temperature of 60° F. A humid atmosphere and light shade are required. Chiritas revel in a soil rich in humus, and should have ample drainage. While they must be given generous supplies of water at the roots, they are impatient of moisture on the foliage, and overhead spraying should not be practiced.

*Chirita lavandulacea* is an erect, branched, perennial herb, under favorable conditions attaining a height of two and a half feet or more. The stout stems are decidedly succulent and semi-translucent in appearance and are sparsely furnished with short glandular hairs and rather distant, pale greenish-white, longitudinal protuberances. The leaves are opposite (or the lower sometimes whorled), elliptic-oblong to broadly ovate, with a slightly cordate base and crenulate margins. They are strongly pinnately veined, with a channeled midrib, with the upper surface shining green and softly hairy, while the under surface is also pubescent but paler in color. The leaf-blade is up to seven inches long by five inches wide. The lower leaves have drooping petioles up to six inches long but the upper leaves are sessile. The flowers are borne in cymes terminal upon the main stem and upon the laterals and sublaterals. The cymes are few- to sixteen-flowered and are either supported by two small amplexicaul leaves or are sessile in the axils of the upper leaves. The pedicels are glandular-hairy and are from one-half to five-eights of one inch in length. The calyx is about one-fourth of an inch in length and consists of five slightly imbricated sepals, glandular-hairy and of membranous texture except for the recurved tips. The tubular corolla is slightly curved downward and is sharply constricted toward the base. It is from one to one and a quarter inches in length and up to five-eighths of an inch across the mouth, is covered with a short pubescence, and is delicate lavender in color except for the throat and the outside of the tube, which are almost or quite pure white. The two epipetalous stamens are erect but not exserted. The ovary is softly downy. The style is glandular-hairy and deflexed toward the tip and furnished with a bilobed stigma. The capsules are narrow-terete, conspicuously hairy, and up to two inches in length.

T. H. EVERETT.

EXPLANATION OF PLATE. Fig. 1.—Flowering portion of a plant. Fig. 2.—A mature capsule. Fig. 3.—A seed × 30.




OENOTHERA ARGILLICOLA

(Plate 572)

## OENOTHERA ARGILLICOLA

### Allegheny Evening-primrose

*Native of mountains, Pennsylvania to West Virginia*

Family ONAGRACEAE . EVENING-PRIMROSE Family

*Oenothera argillicola* Mackenzie, Torreya 4: 56. 1904.
*Onagra argillicola* Mackenzie, Torreya 4: 57. 1904.

Certain plants, like certain animals and people, prefer or demand special habitats, the determining characteristics of which may be soil, moisture, altitude, temperature, or other such factors. For example, in calcareous soil one is apt to find *Campanula rotundifolia;* in argillaceous soil, *Trifolium virginicum;* in granite soil, *Diamorpha pusilla.* Other habitats also have their individual followings among the plant species, and even, in some cases, among the genera. As special geologic outcrops have been more thoroughly explored, this localized plant distribution according to soils has become more and more evident.

Exploration of the shales of the more northern part of the Allegheny highlands was tardy. Yet, each incursion brought out something interesting in plant life, even novelties in both species and genera.

The shale formations where this plant was discovered, near the boundary of Virginia and West Virginia, extend northeastward into southern Pennsylvania. There in Perry County just north of where the Blue Ridge fades out are located the few stations of the box huckleberry (*Gaylussacia brachycera*). It was on a visit to the largest known plant of this huckleberry, on the north bank of the Juniata River, that this showy evening-primrose was first found north of its original station.

Oenothera is an old name of uncertain origin.

This evening-primrose is one of the more showy species of the genus. The narrow, bright green, often glossy leaves and bright yellow flowers are often conspicuously set off among its associates on the bluffs along the Juniata—this primrose has many associates, some of them also showy. Among these are both ferns and flowering plants. Ten different ferns were found thereabouts. None of the rarer flowering plant associates of the mountains further south, such as *Eriogonum Alleni, Pseudotaenidia montana, Senecio antennariifolius, Trifolium virginicum,* and *Viorna albicoma,* were found in Pennsylvania. Some of the associates growing with the plants from

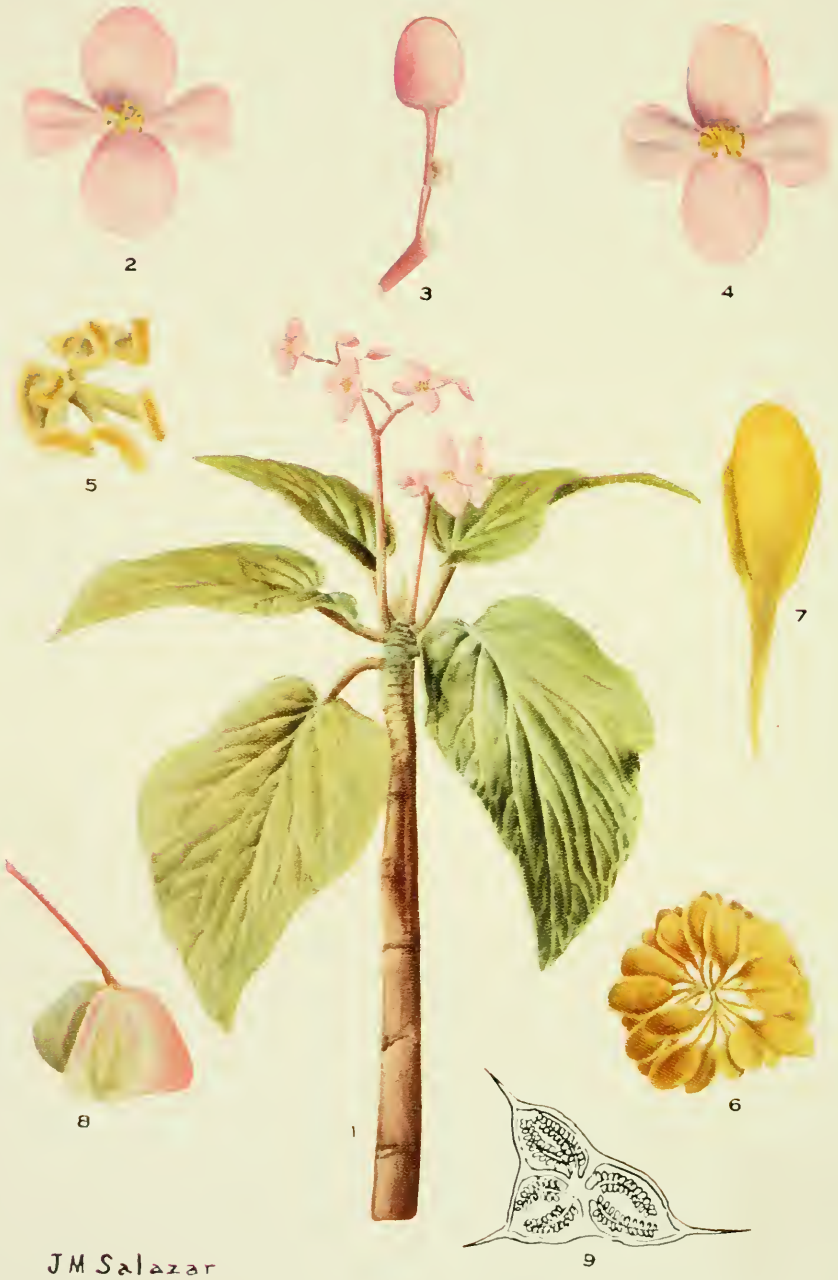
which the accompanying painting was made, were the columbine (*Aquilegia canadensis*), the shooting-star (*Dodecatheon Meadia*), and the cardinal flower (*Lobelia cardinalis*). The ledges of the cliffs were carpeted by the starry-stonecrop (*Sedum ternatum*) in fine leafage, and among it were often clumps of the wild onion (*Allium cernuum*) with its nodding, pink to purple cluster of flowers. At the base of the cliff many plants had accumulated in the talus and there was the tall halberd-leaved hibiscus (*Hibiscus militaris*), which was strongly suggestive of the wild-cotton plant.

We found that the plant was not only very easy to cultivate, either from seeds or seedlings, but that it improved greatly when domesticated. Though its chosen habitat in the wild is argillaceous soil, we grew it in eastern Pennsylvania in heavy soil and in southern New Jersey in sand. In both places the growth of the plants and the size and color of the flowers were exceptionally fine. Furthermore, the plants seeded themselves from year to year. The same record was made when the plant was grown at the Botanical Garden for several years after its discovery in Pennsylvania. For some unexplained reason this plant has remained in the Allegheny plant province. It has neither migrated to the Blue Ridge nor to the Coastal Plain.

The Allegheny evening-primrose has a biennial taproot which produces one or more stems at the summit. The seedling or plant of the first year is stemless. The stems and branches are puberulent, but otherwise without pubescence, decumbent and diffuse or ascending, one to three and a half feet long; leaves of the stemless plant of the first year are in a rosette, three to seven inches long. The blades are oblanceolate or spatulate, acute at the apex, sinuate, puberulent on both sides, with the mid-nerve strongly developed, tapering downward to a long, rather narrowly winged, petiole-like base. The cauline leaves of the flowering plants are spreading. The blades are narrowly linear-lanceolate, the well-developed ones three to six inches long, acute, remotely sinuate-dentate, glabrous or slightly puberulent, tapering to a petiole-like base and often strongly decurrent on the stem, and there forming well-developed ridges. The hypanthium is one to one and a half inches long, longer than the sepals, glabrous, as also are the sepals, except sometimes, especially when young. The four sepals are lanceolate or linear-lanceolate, free at the tip, spreading. The four petals are bright-yellow, obcordate, crenulate, one to one and a half inches long, so that the open flower is up to three or four inches across. The capsule is glabrous, one to one and a quarter inches long, sessile, gradually tapering upward from the broad base and often strongly curved, somewhat quadrangular, strongly ribbed. The seeds are angled and very small.

JOHN K. SMALL.

EXPLANATION OF PLATE. Fig. 1.—Tip of a flowering branch. Fig. 2.—A mature capsule. Fig. 3.—A cauline leaf. Fig. 4.—A basal leaf.




BEGONIA WADEI

(Plate 573)

## BEGONIA WADEI

### Wade's Begonia

*Native of the Philippine Islands*

Family BEGONIACEAE — BEGONIA Family

*Begonia Wadei* Merrill & Quisumbing, sp. nov.*

The genus Begonia is rather remarkably developed in the Philippines, with about 90 described species already recorded. They vary from small plants but an inch or two high in such species as *Begonia parva* Merr. and small forms of *B. nigritarum* Steud., to erect semi-shrubby plants 5 to 6 feet in height, as in *B. Merrittii* Merr., and coarse scandent vines with large leaves, long petioles, and very long peduncles with ample inflorescences, as in *B. oxysperma* A. DC. They occur from sea level to an altitude of at least 2500 meters, growing chiefly in the primary forest, some species being confined to the faces of cliffs or ledges along streams, rarely however in the full sunlight, but none occurring naturally in the open country. While some of these numerous species are of rather wide geographic distribution within the Philippines, they are mostly very local, and very few of them are known from outside the limits of the Archipelago. Few, if any, of these species have been introduced into cultivation, although many are most attractive in vegetative, flower, and fruit characters, and are well worthy of cultivation as greenhouse subjects.

The subject of this illustration is remarkable in two respects: first, in its habitat, as it grows on exposed coralline limestone formations at sea level in places where, at times, the plants may be subject to spray from the ocean; and second, in its elongated thickened stems which attain a length of 60 cm. and a diameter of from 1.5 to 2.3 cm., in this character differing from all hitherto described Philippine forms. This great thickening of the stems is doubtless associated with the unusual habitat in which the plant grows, being an adaptation to the habitat for the conservation of the plant's water supply, as the region in which it grows is one subject to a prolonged dry season, with little or no rainfall for a period of several months.

This species was first discovered by Doctor H. W. Wade, chief pathologist of the Culion Leper Colony, to whom it is dedicated, on Coron Island, near Culion, in January, 1923. It was subsequently

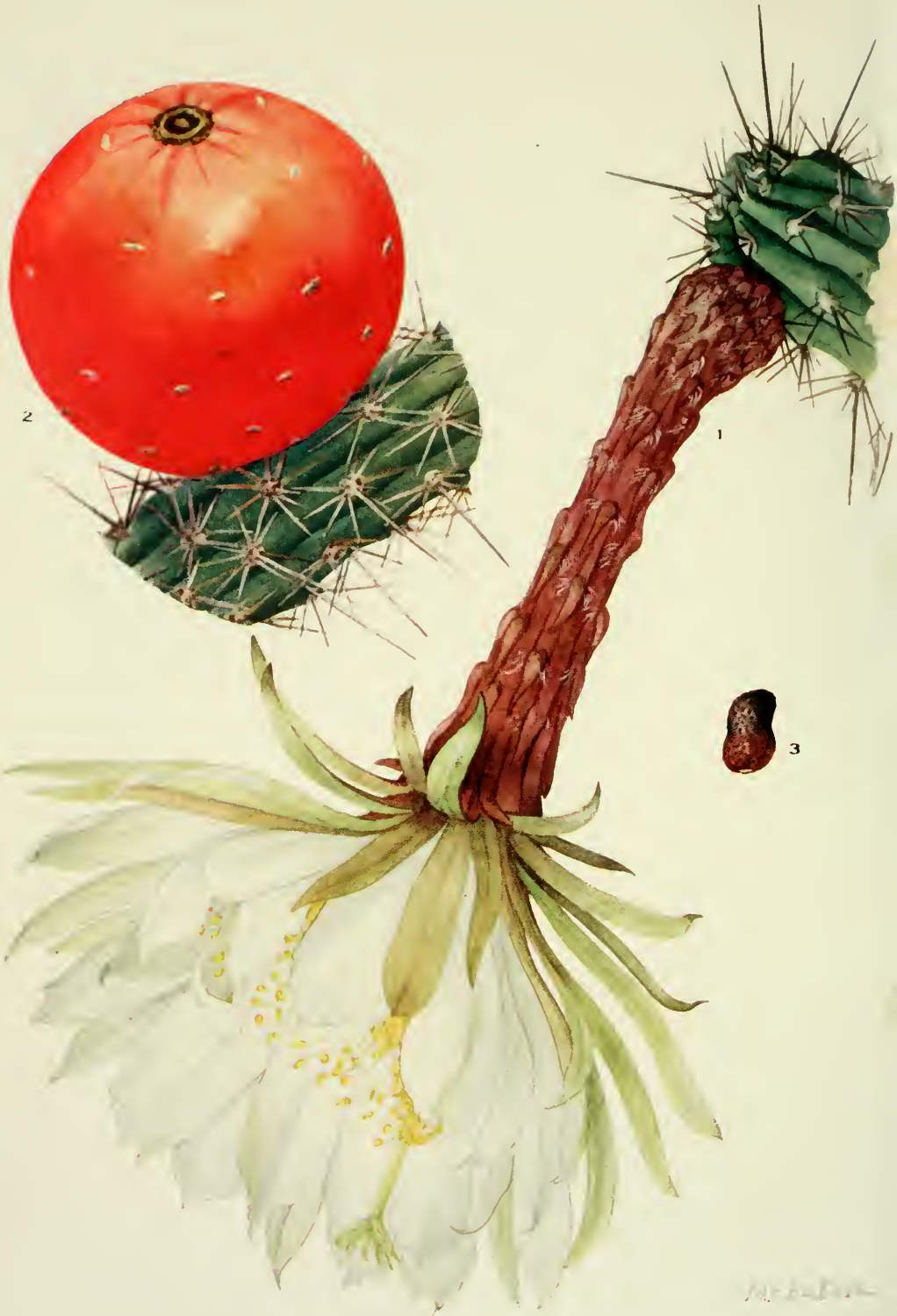
* **Begonia Wadei** Merrill & Quisumbing, sp. nov. § *Diploclinium*. Species distincta, ab omnibus speciebus Philippinarum adhuc cognitis differt caudicibus crassis, erectis, normaliter simplicibus, usque ad 60 cm. altis, 1.5 ad 2.3 cm. diametro. Insula Coron, Philippinarum, *Bur. Sci. 78801 W. H. Brown*, Dec. 24, 1929 (typus), *H. W. Wade*, s.n., Jan., 1923.

collected by Doctor W. H. Brown, Director of the Bureau of Science, at the same locality, December 24, 1929. The description is based on the two collections, the type being *Bur. Sci. 78801 W. H. Brown,* deposited in the herbarium of the Bureau of Science, Manila, with an isotype in the herbarium of The New York Botanical Garden. The illustration was prepared from living specimens brought to Manila by Doctor Brown, some of which were transmitted to The New York Botanical Garden.

*Begonia Wadei* is an erect suffrutescent plant, with normally simple, glabrous stems up to 60 cm. high, 1.5 to 2.3 cm. in diameter, smooth, dark brown, greenish above, with prominent petiolar and stipular scars. The leaves are crowded at the tops of the stems, the blades ovate to oblong-ovate, somewhat inequilateral, fleshy when fresh, 11.5 to 21.5 cm. long, 6 to 13 cm. wide, slightly shining, the upper surface green when fresh, glabrous, the lower surface much paler and with scattered pale-reddish hairs especially on the nerves and midrib, the base broad, rounded, or rounded on one side and subacute on the other, the apex acute to acuminate, the margin minutely pubescent with reddish hairs, wavy or denticulate; basal nerves usually nine, with two additional lateral ones on each side of the midrib shortly above the base; petioles 3 to 10 cm. long; stipules lanceolate, acuminate, strongly keeled, membranaceous, 2.5 to 3 cm. long, 1.3 cm. wide in the widest part, deciduous, green, the keel and tips reddish. The inflorescences are in the upper axils, 7 to 18 cm. long, the peduncles 5 to 13 cm. long. The flowers are laxly arranged, rose-pink to nearly white, the bracts pale green, deciduous, membranaceous, boat-shaped when young, the expanded ones 13 to 19 mm. long, 10 to 11 mm. wide. The two bracteoles subtending each flower are caducous, falling before the flower opens, thinner and paler than the bracts, 6 to 7 mm. long, 4.5 to 6 mm. wide. The staminate flowers are more numerous than the pistillate ones, 2.5 to 3.4 cm. in diameter. The two sepals are orbicular-ovate to elliptic, 12 to 20 mm. long, 11 to 14 mm. wide. The two petals are obovate to oblong-obovate, truncate to retuse, narrowed below, 8 to 18 mm. long, 7 to 9 mm. wide. The stamens are 31 to 42 in number, their filaments 1 to 2.5 mm. long, the outer filaments shorter, the anthers narrowly oblong-obovoid, 1.5 to 1.75 mm. long. The pedicels are slender, 12 to 15 mm. long. The pistillate flowers are long-pedicelled, the perianth segments similar to those of the staminate flowers. The capsules are turbinate, truncate, with rounded base, including the wings 15 to 17 cm. long, 20 to 22 mm. wide, unequally 3-winged, the wings reticulate, rounded at the upper outer corner, the two narrower ones up to 3.5 mm. wide, the wider one up to 9 mm. in width. The placentate are 2-partite.

E. D. MERRILL,
E. QUISUMBING.

EXPLANATION OF PLATE. Fig. 1.—Plant in flower, reduced two thirds. Fig. 2.—A staminate flower, natural size. Fig. 3.—Lateral view of a flower in bud, natural size. Fig. 4.—Pistillate flower, natural size. Fig. 5.—Stigmas, × 5. Fig. 6.—Stamens, × 5. Fig. 7.—A single stamen, × 15. Fig. 8.—A capsule, natural size. Fig. 9.—Cross section of an immature fruit, slightly enlarged.




HARRISIA SIMPSONII

(Plate 574)

## HARRISIA SIMPSONII

### Simpson's prickly-apple

*Native of Southern Peninsular Florida and the Keys*

Family CACTACEAE CACTUS Family

*Harrisia Simpsonii* Small; Britton & Rose, The Cactaceae 2: 152. *f. 223.* 1920.

The great majority of the plants of the present flora of the eastern United States have been supplied from the one-time refugees preserved in the Appalachian highlands during the latest "flood," geologically considered. Some, however, particularly in the Coastal Plain, especially in Florida, have come from ancient West Indian reservoirs. The genus *Harrisia,* of which there are at least three species in Florida, was appropriately named for William Harris, a student of the flora of Jamaica, West Indies.

At present there are eighteen known species. They range from Florida to Argentina. The present species is not a tree-cactus, but a shrub-cactus. It is a vigorous grower in its native haunts and often forms impenetrable thickets. Its armament is copious and vicious. Woe be unto one who unawares runs foul of a colony. When caught in it, an attempt to save one part of the body from the myriad spines results in another part being attacked. With the protecting and supporting help of shrubbery, the mass-growth of this succulent is astonishing. This is caused by the long-continued development of the original plant and the new vegetative growth of all parts that may be detached, as well as by the great number of seedlings. Such interesting growths are to be found mainly in the hammocks of the Cape Sable region and in those of the lower Florida Keys. The flower of this plant is a marvel, especially to those unacquainted with the habits of some of the cacti. The first indication of a flower is a little silky nubbin on the side of a stem. This grows rapidly into a clavate bud six or seven inches long, and then, under normal circumstances, expands into a beautiful white, wax-like flower at ten o'clock in the evening. The flower-limb remains open, inviting nocturnal insects to help in pollinations, until about dawn, when the flower closes and droops. If pollination has been accomplished, a bright red or orange, depressed, apple-like fruit (berry) results. This is unarmed, and naturally opens only by dessication. However, birds are ravenously fond of cactus seeds, and they frequently puncture

the fruit-coat and thus open the berries artificially. This prickly-apple is thus often maintained in a limited area. The plants are evidently quite averse to cold, and the species has not progressed any distance up the Florida coasts, not even in the neighborhood of the tempering effects of the Gulf Stream.

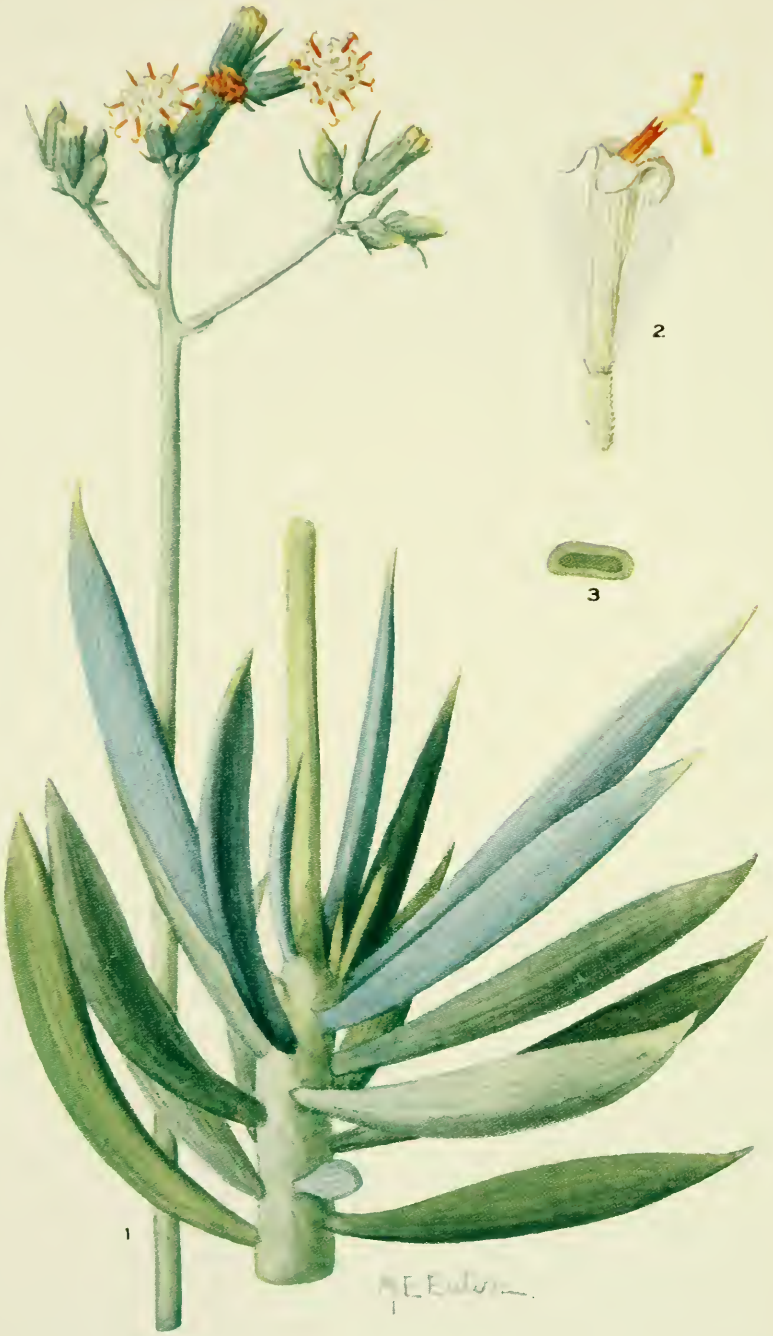
Although to be considered primarily a terrestrial, this prickly-apple is also an epiphyte. In the Cape Sable tidal mangrove-swamps, for example, the plant may be found on tree trunks just above the high-tide mark or even ten or fifteen feet up in the trees. It is thus closely associated with the epiphytic orchids.

The plant here illustrated is a hammock species. It was discovered on the lower Florida Keys many years ago, and later came to light in the forests of the upper Keys. Still later the Cape Sable region of Florida contributed a third area of distribution. It has been considered for a century under a variety of generic and specific names too confusing to mention here. It is not known to grow naturally outside of extreme southern Florida. However, it grows well in cultivation not only within its natural geographic limits, but also somewhat further north. It thrives in properly prepared soil. Hedges or beds with a generous planting are showy objects, whether in flower or in fruit.

Simpson's prickly-apple is a very succulent, copiously spine-armed, leafless plant up to twelve feet tall, scattered or in dense colonies, terrestrial or often epiphytic. The stems are sometimes vine-like or usually strict and rigid, simple or individually branched, nine- or ten-ridged. The spines are mostly seven to nine in each areola, slender, the longer ones of each cluster mostly one half to one inch long. The young flower-buds are clothed with white hairs. The hypanthium is longer than the flower-limb, long-funnelform, prominently and coarsely ridged, with the swollen base clothed with broadly lanceolate, closely set or imbricate scales, with white hairs protruding from beneath them. The scales of the tubular part of the hypanthium are rather numerous and close-set, very turgid, lanceolate, each with white hairs protruding from beneath. The flowers are inodorous. The sepals are green, of various lengths, the longer inner ones linear, an inch and three quarters to two and a quarter inches long, acuminate. The petals are white, narrowly spatulate or narrowly cuneate-spatulate, erose near the apex, each abruptly narrowed into a short tip. The stamens are very numerous, nearly erect. The berry is depressed-globose, two to two and a half inches in diameter, red or orange, usually with partly persistent scales, the scar at the apex about a fourth of an inch in diameter. The numerous seeds are very small and shining.

JOHN K. SMALL.

EXPLANATION OF PLATE. Fig. 1.—A flower. Fig. 2.—The fruit. Fig. 3.—A seed.




KLEINIA FICOIDES

(Plate 575)

## KLEINIA FICOIDES

### Ficoid Kleinia

*Native of Cape Colony*

Family CARDUACEAE THISTLE Family

*Cacalia ficoides* L. Sp. Pl. 834. 1753.
*Kleinia ficoides* Haw. Syn. Pl. Succ. 313. 1812.
*Senecio ficoides* Sch.-Bip. Flora **28**: 499. 1845.

This plant is an attractive subject, and well worthy of a place in a collection of succulents. The blue-gray bloom which covers the fleshy stems and leaves shows to advantage, and wherever plants of this nature form part of a summer display in the garden, *Kleinia ficoides* can be used with good effect, while as a subject for cultivation in a sunny window-garden it possesses decided merit.

As with most plants of succulent character, this Kleinia must be provided with an open, well-drained soil—not too rich in nitrogenous matter and containing lime in some form or other. A satisfactory compost consists of loam, leaf-mold, sharp sand, and some old lime-rubble or broken brick mixed in such proportions that it is of a coarse, open character. Ample drainage must be provided in the bottom of the receptacles in which the plants are grown.

While it will exist if given but a minimum of moisture, this Kleinia must not be kept too dry if it is to be seen at its best, and the compost in which it is grown should be maintained in a moderately moist condition at all times but more especially during the growing season.

Propagation is readily effected by means of cuttings of the leaves or stems inserted in sand. Seed is also satisfactory.

This species is native to the Karroo region of Cape Colony, South Africa, where it grows as a succulent shrub or small tree under desert conditions.

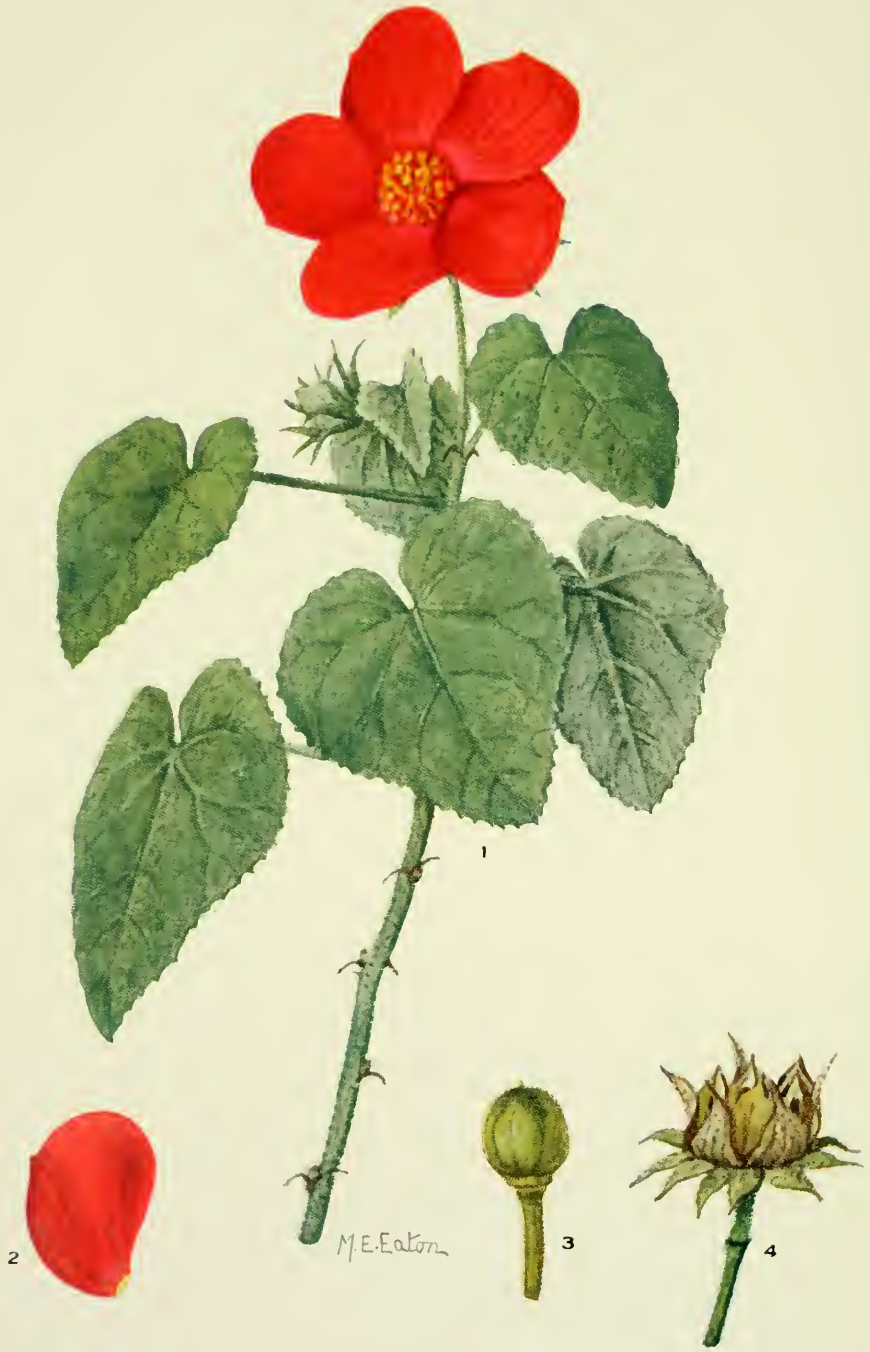
The genus *Kleinia* is named in honor of J. Th. Klein, a German zoölogist. The specific name *ficoides* refers to the resemblance of this species to some species of fig-marigolds (*Mesembryanthemum*) which were named *Ficoides* by some early botanical writers.

The ficoid *Kleinia* is a succulent, branching, tree-like shrub reaching a height of about six feet, the entire plant powdery-glaucous, thus having a bluish-white appearance, but dark, bluish-green beneath the bloom. The leaves are alternate, with a dilated, sessile base, linear, two and a half to four inches long, nearly terete,

very slightly compressed laterally, flattened, with a prominent, shallow groove on the upper surface. The inflorescence is an axillary, long-pedunculate, corymbiform cyme. Each involucre is on a stout peduncle subtended by a single bractlet, with two or three bractlets on the peduncle. Three bractlets at the base of the involucre form an involucel. The involucre is cylindrical, the bracts linear, tapering to a blunt, translucent tip, this tip pubescent with minute, glandular hairs. The bracts are in two series, but connate into what appears to be a single series, the outer with a narrow, hyaline, entire margin, one indistinct central nerve and two prominent lateral nerves; the inner with a broad, hyaline, finely erose-ciliate margin, and one prominent mid-nerve and two indistinct laterals. These are three-eights of an inch long, the bodies thickened, the transparent margin of the outer interlocked between the body of the inner and its wide margin, thus connate. The receptacle is shallowly alveolate. The disc-florets are about one-fourth of an inch long, the pale yellow-green tube longer than the campanulate white throat, the five ovate limbs sharply recurved, white. The filaments are greenish, longer than the yellow-brown anthers. The style is very long, exserted beyond the stamens, its two sharply recurved forks terminating in short-conical appendages, surrounded by a ring of hairs, appearing penicillate. The ovary is ten-ribbed, finely white silky-pubescent on the ribs. The pappus is composed of numerous soft, capillary, barbellate bristles but slightly shorter than the corolla.

T. H. EVERETT,
EDWARD J. ALEXANDER.

EXPLANATION OF PLATE. Fig. 1.—Tip of a flowering stem and the inflorescence. Fig. 2.—A floret × 6. Fig. 3.—Cross-section of a leaf.




HIBISCUS CARDIOPHYLLUS

(Plate 576)

## HIBISCUS CARDIOPHYLLUS

**Tulipán del monte**

*Native of southern Texas and northeastern Mexico*

Family MALVACEAE — MALLOW Family

*Hibiscus cardiophyllus* A. Gray, Pl. Wright. **1**: 22. 1852.

As recorded under *Manfreda variegata* in this number of Addisonia, several plants from the two extreme southern tips of land of the continental United States are discussed and illustrated. Two states are concerned, Florida and Texas. Both regions are rich in mallows. Fourteen genera of the Mallow family and also many of the species are duplicated in the two areas. However, it would not be fair to compare numbers in this case, for although Florida extends nearly a degree and a half further south than Texas, the latter extends about five degrees further north. In addition, Texas is about four and a half times as large as Florida, and has altitudes up to 9000 feet, while Florida shows a maximum altitude of little over 350 feet. Partly as a result of size and altitude, Texas can boast of about eighty species of malvaceous plants as against about fifty in Florida.

Mallows as a whole inhabit all kinds of regions and plant associations. The mallow under consideration is one of a large number of plants representing many families, that have developed or have been isolated in the Texano-Mexican region of the Rio Grande. This plant association is one of extreme interest and is being made a special study at the Garden.

This peculiar flora was brought to light about the middle of the past century. The two main contributing sources furnishing information were the Mexican War and the Mexican Boundary Survey. Privates, officers, surgeons, settlers, and traders connected with the army collected specimens, and special collectors on the Survey did very thorough work in that field.

Most all of the well-known American botanical collectors of the middle of the nineteenth century found this hibiscus either in northeastern Mexico or southern Texas. The earliest collection, in Mexico, seems to have been by Thomas Coulter about 1825. The earliest collection in Texas was in 1849 by Charles Wright. *Hibiscus* is an ancient Greek and Latin name of unknown meaning.

This hibiscus is nowhere very abundant. It occurs as a low shrub in well-drained lands, preferring sandy or gravelly hillsides

and sloping flats. It flowers from spring to fall, and most abundantly after heavy rains. Its more interesting associates are a joint-fir (*Ephedra*), creosote-bush or gobernadora (*Covillea*), berretta (*Helietta*), junco (*Koeberlinia*), tasajillo (*Opuntia leptocaulis*), and dahlia-cactus (*Wilcoxia Poselgeri*), all plants of a desert or semi-desert character. Its range is within territory occupied by Spanish speaking people, therefore it has no English name. The Mexicans call it "Tulipán del monte" and sometimes "Malva rosa del monte." From the road side it is often mistaken for *Pavonia lasiopetala* and the Mexicans make no distinction.

The plants grow ordinarily rather indifferently under glass at the Garden, but flower and fruit every year. However, with properly prepared soil and adjusted light conditions this plant might well be made an attractive conservatory subject. It is a splendid ornamental shrub, and will do well in rock gardens of the South.

*Hibiscus cardiophyllus* is an erect shrub, usually about two feet tall. The stem is much branched and the branches are densely pubescent with short close-set hairs among which are scattered longer hairs, usually giving an almost velvety effect. The leaves are alternate, with stout petioles, which are pubescent like the branches. The blades are somewhat rhombic-ovate or rhombic-reniform, or even suborbicular, mostly one to three inches long, obtuse or acutish, dentate or crenate-dentate, five- to seven-ribbed from the base, green and copiously fine-pubescent above, grayish or brownish and densely fine-pubescent beneath and somewhat velvety, cordate at the base. The subulate curved stipules are often persistent after the leaves fall. The flowers are long-stalked, with the stalks exceeding the petioles and even the leaves. The branchlets of the involucel are eight to eleven, linear-lanceolate or linear-elliptic, acuminate, one-half to five-eighths of an inch long, somewhat three-ridged, light-green. The calyx is five-lobed, with the lobes lanceolate or ovate-lanceolate, three-fourths of an inch to an inch long, or longer in fruit, acuminate, five-ribbed, the ribs with long hairs, the intervals with short hairs. The corolla is red, an inch and a half to two and a fourth inches wide. The petals are spreading, obliquely obovate, rounded and undulate at the apex. The staminal column is one-half to three-fourths of an inch long, and the anthers are yellow. The ovary is ellipsoid, glabrous. The style is one-half to three-fourths of an inch long, the five free parts about as long as the united part, or slightly shorter. The stigmas are yellow. The capsule is globose-ovoid to depressed-globose, one-half to three-fourths of an inch in diameter, with long hairs along the sutures. The seeds are hairy.

JOHN K. SMALL,
ROBERT RUNYON.

EXPLANATION OF PLATE. Fig. 1.—A flowering branch. Fig. 2.—A petal. Fig. 3.—A mature capsule with the calyx and involucel removed. Fig. 4.—An opened capsule, showing the dehiscence.

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**Bold-face** type is used for the Latin names of plants illustrated; SMALL CAPITALS for Latin names of families illustrated and for the names of the authors of the text; *italics* for other Latin names, including synonyms.

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