ADDISONIA

COLORED ILLUSTRATIONS
AND
POPULAR DESCRIPTION
OF
PLANTS

VOLUME 11
1926

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(ADDISON BROWN FUND)

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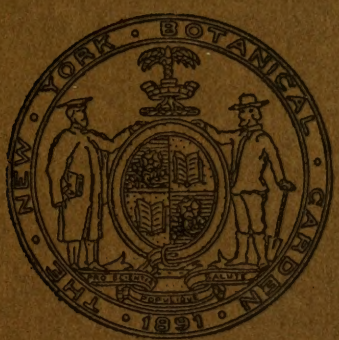

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THE NEW YORK BOTANICAL GARDEN
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ANNOUNCEMENT

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 Dr. John Hendley Barnhart, Bibliographer, and Mr. Kenneth Rowland Boynton, Head Gardener.

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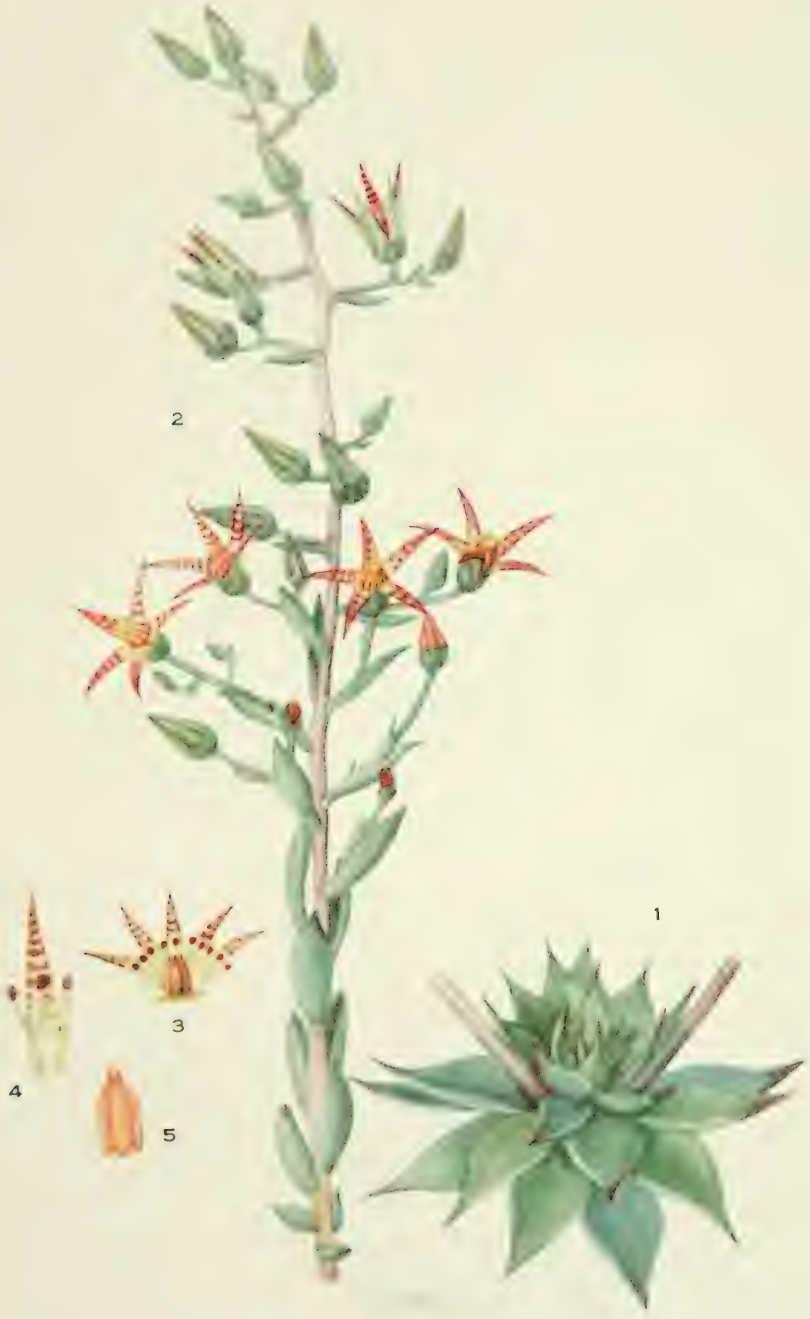
Subscribers are advised to bind each volume of ADDISONIA as completed, in order to avoid possible loss or misplacement of the parts; nearly the whole remainder of the edition of Volumes 1 to 10 has been made up into complete volumes, and but few separate parts can be supplied.



GRAPTOPETALUM BARTRAMII

(Plate 353)

GRAPTOPETALUM BARTRAMII

Bartram's Stonecrop

Native of Arizona

Family CRASSULACEAE ORPINE Family

Graptopetalum Bartramii Rose, sp. nov.

Many American species of *Crassulaceae* have been discovered in recent years. Among them are several which deserve to be grown as ornamentals. A study of the wealth of material now available has led to the recasting of the generic lines in this family and the establishing of a number of new genera. To one of these belongs the subject here illustrated.

The genus *Graptopetalum* has already furnished two subjects for this journal (see PLATES 247 and 304). In our account of the plant illustrated by PLATE 304 we gave some information regarding the genus and told of the rediscovery of *G. Rusbyi* by Edwin B. Bartram in southeastern Arizona in 1920 and January, 1923. In February, 1923, Mr. Bartram collected in the same general region, although from a different mountain, a plant somewhat similar in size and appearance. His herbarium specimen of this was first taken to be simply a form of *G. Rusbyi*. But Mr. Bartram felt quite certain that it was different, and when living specimens were afterward sent in it was observed that they were abundantly distinct. Not only are the leaves very different in shape and color, but also the inflorescence. In *G. Rusbyi* the flowers are arranged in secund racemes, while in *G. Bartramii* the inflorescence is an equilateral panicle. These specimens flowered in October, 1923, and again very abundantly in October, 1925, when our illustration was made. We take great pleasure in naming the new species for Mr. Bartram, who not only discovered it but first recognized that it was distinct from *G. Rusbyi*. Although Mr. Bartram is especially a moss student, he has collected also many interesting flowering plants.

This plant grows at an altitude of 5000 feet on ledges in Flux Canyon, Patagonia Mountain, Santa Cruz County, Arizona. In cultivation the flowering stalks begin to grow early in June but develop very slowly, and the flowers do not open until the last of October and early November. The flowers with their banded petals

are very attractive, but they have a strong disagreeable odor which resembles very much that of the stink-horn fungus.

Bartram's stonecrop forms dense rosettes of twenty or more leaves, usually growing in cespitose clusters. The leaves are flat or somewhat concave above, more or less fleshy, bluish green with reddish margins and tip, an inch to two and one half inches long, ovate to broadly spatulate with acuminate tip, and glabrous. From several of the upper leaves two to seven flowering stems are produced, becoming eight to twelve inches long and bearing fleshy bract-like leaves below and forming above a rather strict panicle or sometimes a simple raceme. The branches of the panicle are one- to three-flowered and are produced each from the axil of a bract; the pedicels are short. The sepals are ovate, small, about one fifth of an inch long. The corolla-bud is acute and strongly 5-angled; the corolla is about half an inch long, at first with erect lobes but on the second day more or less spreading or nearly rotate and then an inch or more broad; after anthesis the lobes become erect again; its tube is a little shorter than the calyx; the lobes or petals are narrow, pointed, and beautifully spotted or banded with red or brown, especially on the upper side. The ten stamens are attached to the top of the corolla-tube, short, erect the first day, but on the second reflexed behind the petals; the anthers are red; the five carpels are erect and tipped by a very short style.

J. N. ROSE.

EXPLANATION OF PLATE. Fig. 1.—Basal rosette. Fig. 2.—Upper part of flowering stem. Fig. 3.—Flower, split open. Fig. 4.—Petal, with three stamens, × 2. Fig. 5. —Gynoecium, × 2.

THUNBERGIA GIBSONI

(Plate 354)

THUNBERGIA GIBSONI

Gibson's Thunbergia

Native of tropical East Africa

Family ACANTHACEAE ACANTHUS Family

Thunbergia Gibsoni S. Moore, Jour. Bot. 32: 131. 1894.

Thunbergia is an interesting genus of the acanthus family, one which has not the strongly two-lipped flowers of most of the family. It is characterized by the two enlarged leaf-like bracts which form a hood over the calyx and the base of the corolla-tube. There are nearly one hundred species, of wide distribution in warm countries; more than fifty are natives of Africa. In horticulture we know one shrub and some half dozen elegant vines. The shrub is *Thunbergia* (*Meyenia*) *erecta*, a tropical African bush with blue and yellow flowers, grown for ornament in West Indian and other tropical gardens. A choice vine for these gardens or our greenhouses is *Thunbergia grandiflora*, with large bell-like flowers of yellow and blue on long stalks. Two herbaceous vines of the genus are of that kind which help to make the very roadsides of the settled tropics gardens in themselves. These vines are *T. fragrans*, the white thunbergia, brought from old world tropics and naturalized along the roadsides in the West Indies and elsewhere; and more common still, the *T. alata* or black-eyed Susan, which adorns the fencerows there. This last African vine has several color forms varying from rich chrome yellow to white, retaining a prominent purple eye in the center of the flowers.

Gibson's thunbergia is but lately introduced into our gardens. It will flower in one season from seed if started early and makes an important addition to our list of annual vines. The seeds germinate readily in a greenhouse or hotbed and perhaps might be tried in warm garden soil out doors. The cotyledons are nearly round, but the first true leaves show the winged petiole and triangular leaf-blade.

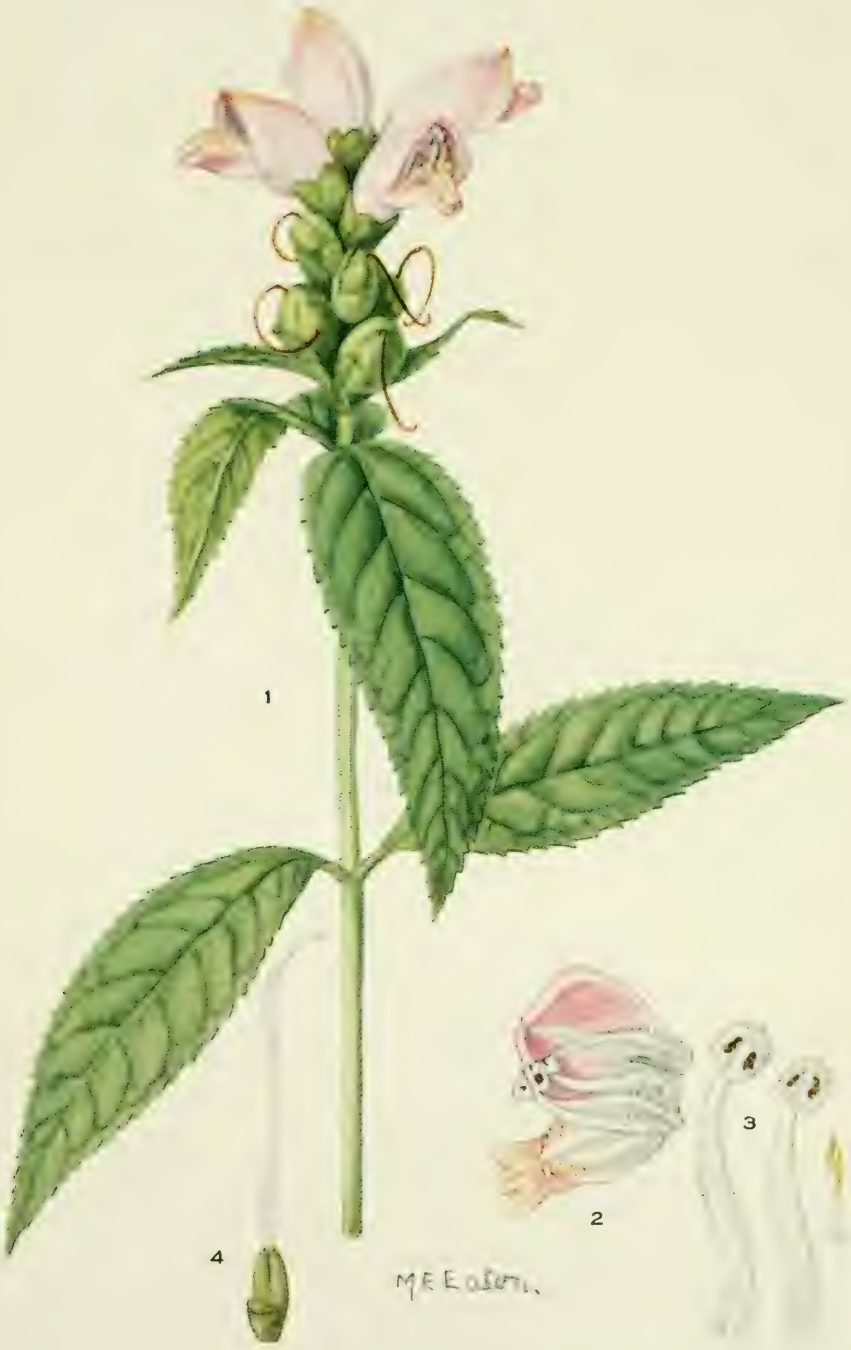
Our illustration was made from plants flowering in a sunny border during the summer of last year. These were grown from seeds listed by local seedsmen.

Thunbergia Gibsoni is an herbaceous vine, with hairy, reclined stems bearing two leaves and a flower at each node. The leaves are opposite, soft-hairy and about one inch broad with winged petioles about one inch long. The leaf-blades are broadly hastate, as long as

the petioles, with bases nearly cordate and acute to rounded apices. The flowers are on slender hairy pedicels three to five inches long. The base of the flower is hooded by a bonnet-like spathe, formed by two joined leafy bracts, which are soft-hairy, brownish in color, and three-ribbed. The corolla-tube is one inch long, constricted, orange outside, inside yellow with orange stripes. The limb of the corolla is about one inch across, with five obovate regular orange-colored lobes. The four stamens are yellow, the lance-shaped anthers on short thickened filaments attached at the base of the tube. The style is nearly as long as the corolla-tube but not exserted, the ovary two-celled, the cells two-ovuled. The capsule has a roundish base containing four seeds and a pronounced beak. It dehisces with some force on a line at right angles to the septum.

KENNETH R. BOYNTON.

EXPLANATION OF PLATE. Fig. 1.—Flowering stem. Fig. 2.—Corolla, split open showing stamens. Fig. 3.—Flower, corolla and stamens removed.



CHELONE GLABRA

(Plate 355)

CHELONE GLABRA

Turtle-head

Native of eastern North America

Family SCROPHULARIACEAE FIGWORT Family

Chelone glabra L. Sp. Pl. 611. 1753.

Scattered about in swamps and other wet places, rarely many plants in any one spot, but widely distributed from Newfoundland to Florida, and westward to and even beyond the Mississippi, one will find plants of the curious turtle-head. The large, white or pallid, hooded corollas, with inconspicuous apertures, indeed almost as completely closed as those of the closed gentian, are not easily overlooked, and are sure to arouse the interest of one to whom they are unfamiliar. Various common names have been applied to the plant, most of them referring to the unusual shape of the corolla; such, for instance, besides the one to which we have given preference, are snake-head, turtle-bloom, cod-head, fish-mouth, and shell-flower.

Another name, found in all the books, but rarely heard in these days, is balmony. This was the favorite name of the plant among the early doctors—mostly quacks—who made much use of so-called Indian remedies. The Indians probably did make some use of the turtle-head in medicine, but it was so valueless that it has quite disappeared from modern medical literature, except as it is favored with an occasional historical note.

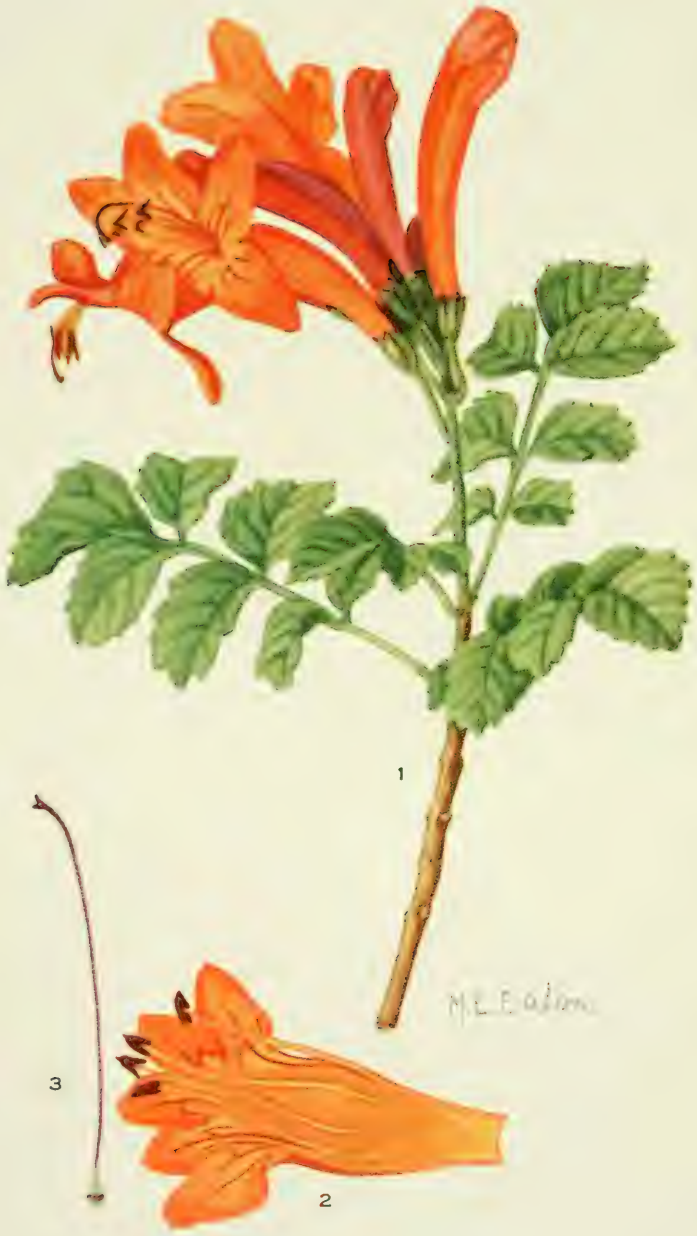
The turtle-head, being a fairly conspicuous and decidedly odd plant, was known to European botanists from dried specimens before the end of the seventeenth century and was cultivated in England as early as 1730. The name *Chelone* ("tortoise," or, in our American vernacular, "turtle") was applied to the genus by Tournefort in 1706. He knew only one species, the one here illustrated. Linnaeus and others combined the genus *Penstemon* with *Chelone*, but it has long been universally recognized as distinct. *Chelone* as now accepted comprises only five or six species; these are all North American. Our drawing was made from plants grown in the north meadows of The New York Botanical Garden.

Chelone glabra is a smooth perennial herb, a foot or more, sometimes up to six feet tall, with very short-petioled opposite leaves, the narrowly to broadly lanceolate blades two to six inches long, acuminate, sharply serrate. The flowers are in dense terminal spike-

like racemes, with sepal-like bracts. The calyx is of five oblong to oval, obtuse, imbricate sepals, less than half an inch long. The white, cream-colored, or faintly rosy corolla is two-lipped, and is about an inch long; the elongate tube is swollen above, the short lips only slightly separated; the upper lip is concave, with a notch at the apex, the lower one copiously bearded within, three-lobed. There are four didynamous stamens, with pubescent included filaments and woolly anthers, and a short sterile filament of a fifth stamen. The single style is filiform with a small capitate stigma. The two-celled ovary, with numerous ovules, matures into an ovoid septicidal capsule about half an inch long, with numerous, compressed, winged seeds.

J. H. BARNHART.

EXPLANATION OF PLATE. Fig. 1.—Summit of flowering stem. Fig. 2.—Corolla, split open, showing stamens and staminode. Fig. 3.—Stamens and staminode, × 2. Fig. 4.—Pistil, × 2.



TECOMARIA CAPENSIS

(Plate 356)

TECOMARIA CAPENSIS

Cape-honeysuckle

Native of South Africa

Family BIGNONIACEAE TRUMPET-CREEPER Family

Bignonia capensis Thunb. Prod. Fl. Cap. 105. 1794.
Tecoma capensis Lindl. Bot. Reg. 13: *pl. 1117.* 1827.
Tecomaria capensis Spach, Hist. Vég. 9: 13. 1840.

The genus *Tecomaria*, of three species, is restricted to Africa, where two are natives of Tanganyika Territory, Nyasaland, and British Central Africa; and one, the subject of this illustration, is found in South Africa, the Cape district especially, often in parts of the tropical Transvaal. *Tecomaria Nyassae* has obtuse leaflets and long calyces, otherwise resembling the Cape species; *T. shirensis* has showy red and yellow striped flowers; neither has been in cultivation.

All are relatives of and have been confused in nomenclature with our American trumpet-creeper or trumpet-vine, which is *Bignonia radicans* and has one congener, a brilliant-flowered vine of Japan. *Tecomaria* was formerly included in the genus *Tecoma*, typified to the horticulturist by *T. stans*, the yellow elder of Tropical gardens. An old greenhouse subject, *Tecoma Smithii* (*Stenolobium alatum*), supposed to be a hybrid, has slender-tubed brown-red and yellow flowers with lobes of the trumpet uniform in size and shape, with no suggestion of the two-lipped trumpet. There are other trumpet-vines in conservatories and tropical gardens, such as the showy orange *Pyrostegia venusta*, which flowers luxuriantly on a pillar in House no. 13, Conservatory Range no. 1. There is also a group of tendril-climbers whose flowers are white and pink, with purple stripes in the throats. This group contains *Pandorea Ricasoliana*, an African vine, and *Clytostoma callistegioides* from South Africa; both are grown in Florida and California gardens, while the former has been introduced into West Indian gardens.

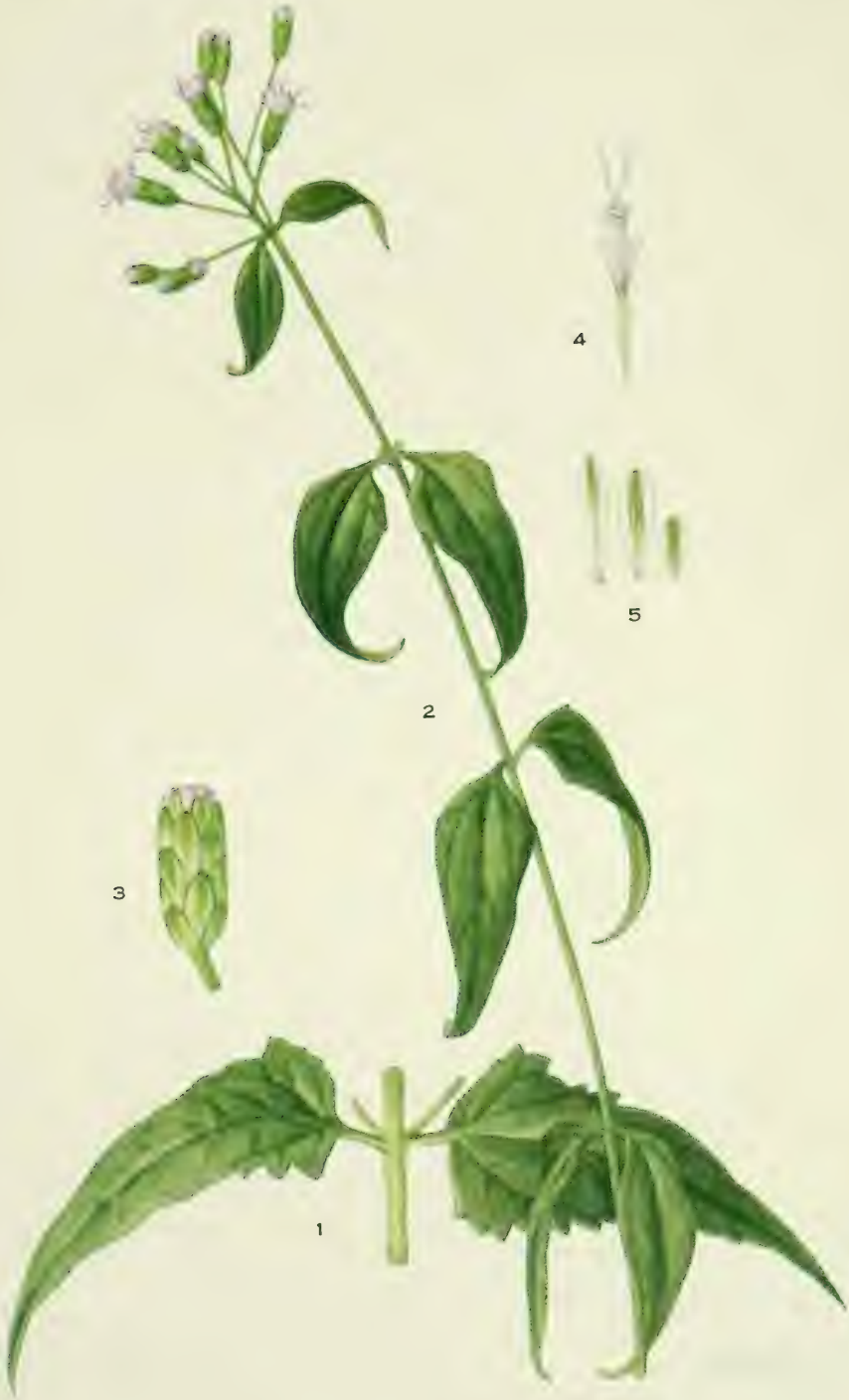
The best use of the Cape-honeysuckle is as a small pot plant in greenhouses; by keeping the side branches cut off, a robust single-trunk plant with a heavy terminal flower-cluster is formed. It is plunged out in the open to advantage during the summer and should be returned to the greenhouse before frost. As a vine, the leading branch is cut short, and long side shoots encouraged.

Long cuttings of ripe wood in the nursery, or green cuttings in spring in sand over bottom heat, effect propagation easily.

The Cape-honeysuckle is a spreading shrub or shrubby vine, without tendrils, holdfasts, or curling petioles. The opposite compound leaves are somewhat crowded together at the ends of branches. They are odd-pinnate, with three or four pairs of rounded obovate leaflets about half an inch wide by three quarters of an inch long, smooth, short-petiolulate, irregularly toothed, with apices obtuse to truncate and bases wedge-shaped to acuminate. The terminal leaflet is larger, rhombic, acute. The flowers are clustered in pubescent terminal racemes of fifteen to twenty orange-red flowers. Each flower is trumpet-shaped in general outline. The calyx is bell-shaped and uniformly five-lobed, the corolla narrowly funnelform, curved, nearly two inches long, slightly compressed laterally, with four spreading lobes, three similar but the upper broader and emarginate. The four stamens are exserted, two filaments slightly longer than the other two. The style is exserted, slightly longer than the stamens; the ovary is two-celled. The fruit is a linear two-valved capsule, three to five inches long, containing many flattened winged straw-colored seeds.

KENNETH R. BOYNTON.

EXPLANATION OF PLATE. Fig. 1.—Tip of flowering branch. Fig. 2.—Corolla, split open, showing stamens. Fig. 3—Pistil.



OSMIA BORINQUENSIS

(Plate 357)

OSMIA BORINQUENSIS

Porto Rico Osmia

Native of Porto Rico

Family CARDUACEAE THISTLE Family

Osmia borinquensis Britton, Sci. Surv. Porto Rico 6: 288. 1925.

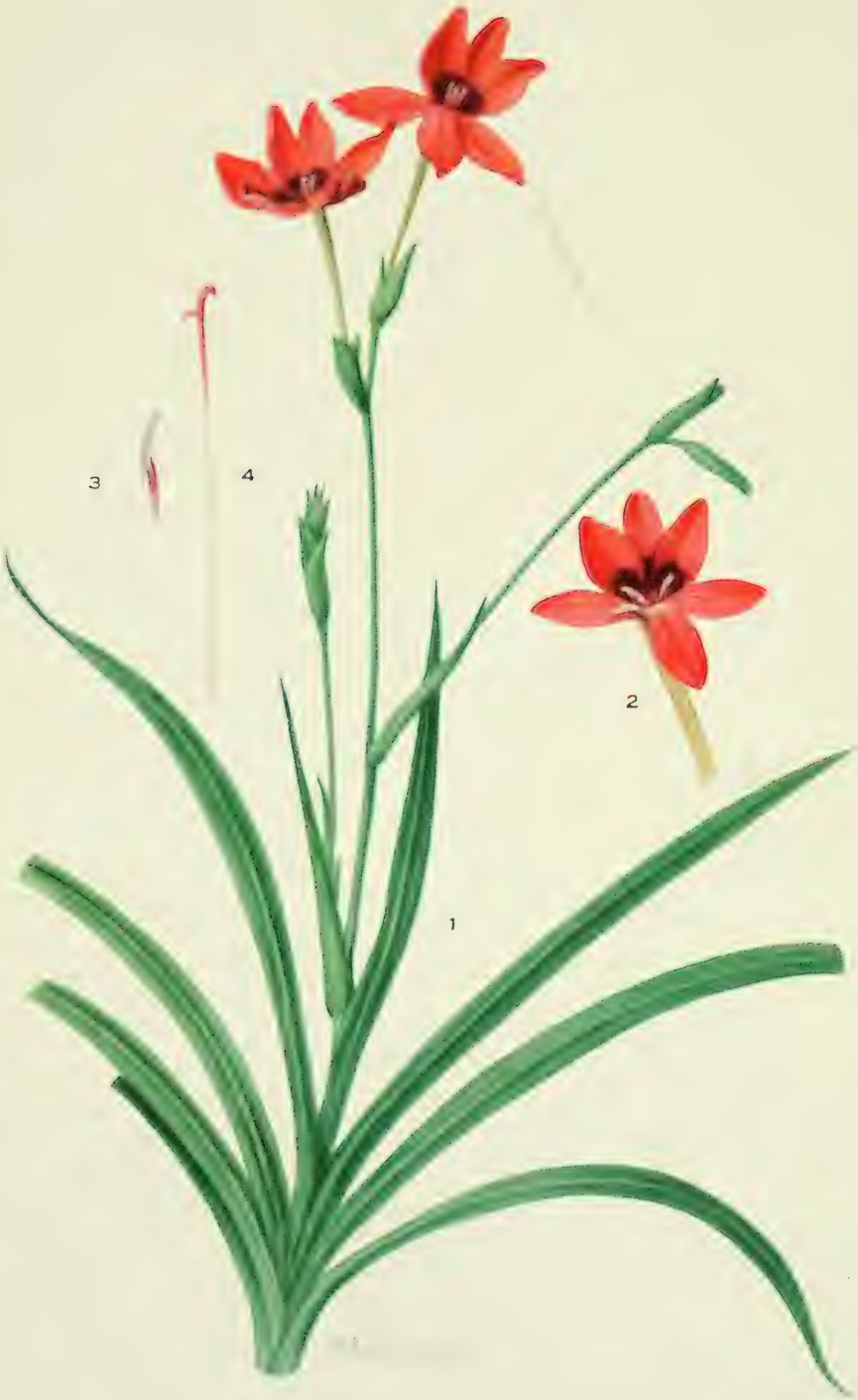
The genus *Osmia*, established by Schultz in 1866, includes, perhaps, one hundred species, natives of tropical and subtropical America. Within the continental United States three occur along the southern border from Florida to Texas and there are numerous species in the West Indies, Mexico, and Central America. They are shrubby fragrant plants with opposite leaves and corymbose-paniculate small heads of white, purple, or blue, tubular flowers, the pappus of capillary bristles. The name *Osmia* is Greek, signifying odorous, and the type species is the widely distributed *O. odorata* (L.) Schultz, based upon *Eupatorium odoratum* of Linnaeus. The genus differs from *Eupatorium* in the structure of the flower-heads, the cylindric or oblong involucre of *Osmia* having several series of papery or leathery striate bracts.

Osmia borinquensis inhabits cliffs and steep hillsides of the Lares limestone in western Porto Rico. This nearly white Tertiary limestone rises into high characteristic mostly round-topped hills, through which the Arecibo-Lares road passes, a few kilometers before reaching Lares, and here the type specimens were collected by me, in company with Kenneth R. Boynton, April 5th, 1925; plants brought at that time by Mr. Boynton to the New York Botanical Garden flowered in a greenhouse toward the end of 1925, and from one of these the accompaying illustration was made.

Osmia borinquensis is a smooth, straggling, vine-like shrub, about six feet long or shorter, its branches slender. The rather thin, triangular-lanceolate leaves are from an inch to nearly three inches long, sharply few-toothed below the middle, or the upper ones entire, with a long-acuminate apex and a broadly wedge-shaped base. The flower-heads are few or several together at the ends of the branches and borne on slender stalks. The cylindric involucre is about three eighths of an inch long, its blunt or rounded bracts imbricated in four or five series, the outer lower ones much smaller than the inner. The flowers are light purple. The achenes are smooth, nearly one sixth of an inch long.

N. L. BRITTON.

EXPLANATION OF PLATE. Fig. 1.—A pair of the lower leaves. Fig. 2.—Flowering branch. Fig. 3.—Involucre, × 3. Fig. 4.—Flower, × 3. Fig. 5.—Bracts of the involucre, × 3.



LAPEYROUSIA CRUENTA

(Plate 358)

LAPEYROUSIA CRUENTA

Blood-spotted Lapeyrousia

Native of South Africa

Family IRIDACEAE — IRIS Family

Anomatheca cruenta Lindl. Bot. Reg. 16: *pl. 1369.* 1830.
Lapeyrousia cruenta Baker, Handb. Irid. 173. 1890.

Lapeyrousia is a genus of some forty-five species, mostly African, inhabiting the dry hilly Cape regions, and one of a series of most beautiful garden subjects from that country, whence came our standard garden flower gladiolus. From the same regions are also produced the fragrant freesia of greenhouses, the belladonna lily, and such other tender "bulbs" as *Watsonia*, *Antholyza* or wand-flower, *Tritonia*, *Crocosmia*, *Montbretia* and *Ixia*, all brilliantly colored. Like the gladiolus, *Lapeyrousia* has a corm ("bulb"), and can be propagated in much the same way, so it is treated in the same manner as that popular flower. The corms can be taken up and dried off over winter. South of New York it is probably hardy, needing a covering only during the most severe weather.

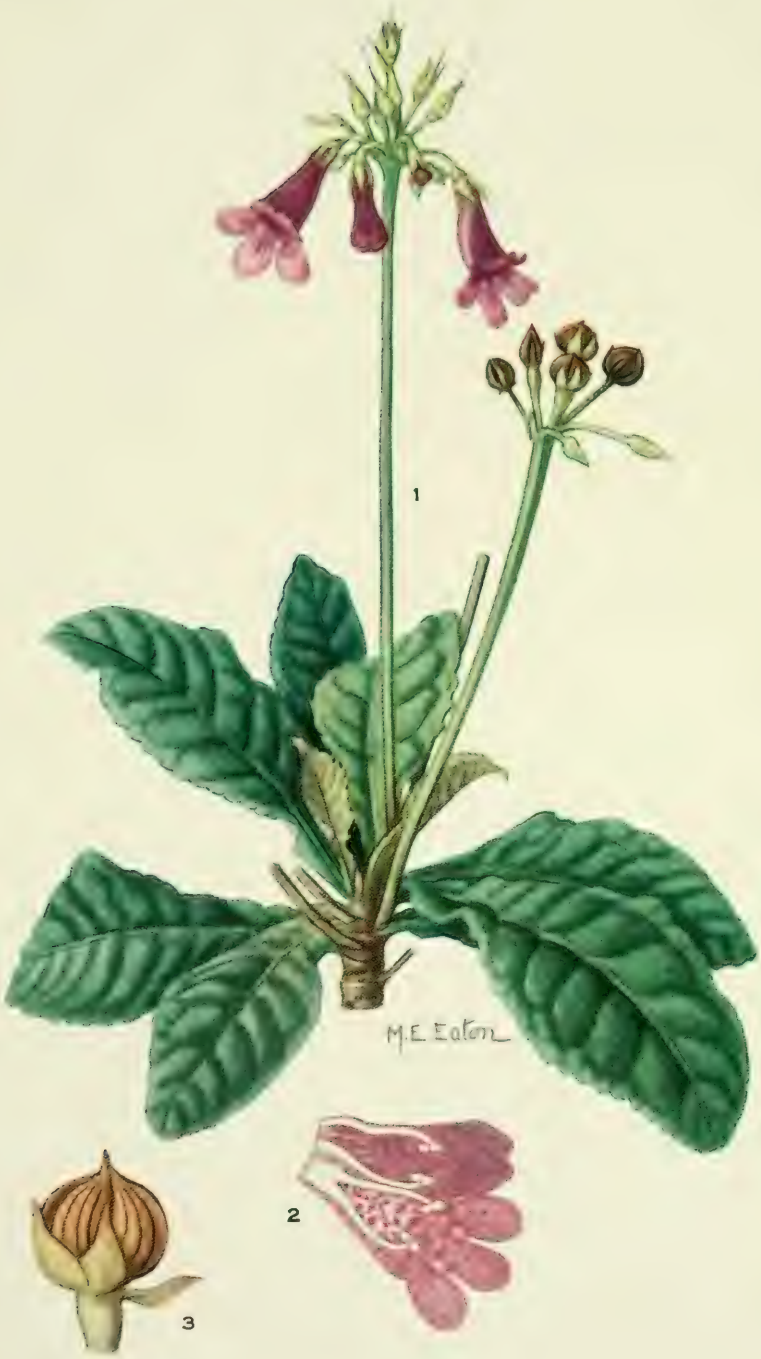
Under such conditions it is said to require frequent division of the corms. It is cultivated in Bermuda occasionally and probably in other West Indian islands.

Our illustration was made from greenhouse-grown seedlings, the seed having been sent from the Botanic Garden at Cambridge, England, last summer. In England it is grown in rockeries, and other sunny situations out doors.

Lapeyrousia cruenta is a perennial herb from a small ovoid corm with fibrous reticulated brown coat. The smooth stem is about one foot high, with many narrowly sword-shaped leaves in two ranks. The lower leaves are about six inches long, the upper shorter and narrower. The two to six flowers are in loose terminal spikes, each flower subtended by two ovate acute herbaceous bracts, one larger than the other. The perianth-tube is slender, straight, about an inch and a half long, the six segments bright red, about a half of an inch long, oblong to lance-shaped and obtuse; three of them plain red, and three larger with a conspicious dark red spot at the base. The stamens are about one quarter of an inch long, inserted in the throat of the perianth-tube, the anthers two-celled, the stigma red, two-lobed, on a long slender style. The fruit is a rough, rounded, three-celled capsule, with many round seeds in two series.

KENNETH R. BOYNTON.

EXPLANATION OF PLATE. Fig. 1.—Upper part of flowering stem. Fig. 2.—Perianth. Fig. 3.—Stamen, × 2. Fig. 4.—Style, × 2.



ALLOPHYTON MEXICANUM

(Plate 359)

ALLOPHYTON MEXICANUM

Purple Allophyton

Native of eastern Mexico

Family SCROPHULARIACEAE FIGWORT Family

Tetranema mexicanum Benth.; Lindl. Bot. Reg. 1843: *pl. 52.* 1843.
Allophyton mexicanum Pennell, Proc. Acad. Phila. 77: 271. 1925.

This Mexican plant was first described over eighty years ago from individuals grown in an English garden, nor does the date of 1843 carry us back to the actual introduction of this species to Europe from the forested mountain-slopes of the state of Vera Cruz. John Lindley, who first described so many of the novelties which in the middle nineteenth century were coming from all parts of the world to the gardens of England, knew of this plant only that it had already been grown in Belgium and had there received a garden name signifying the Mexican beard-tongue or *Penstemon*. Writing a few years later, the great English student of the Scrophulariaceae, George Bentham, knew further of the source. He had found it represented among the dried plants obtained in Vera Cruz both by Galeotti and Linden, two botanical travelers who were independently collecting in Spanish America for a prominent Belgian horticultural house. Doubtless from seeds brought to Belgium by one or both of these explorers the plant was introduced first to Belgium, and later to European and North American gardens.

Although it is easily grown, I suspect that the purple *Allophyton* has scarcely been known outside of strictly botanical gardens. Scientifically it is a curiosity exhibiting features unusual or unique in its family, and so it is natural that such conservatories should have kept the plant carefully. In this country the garden of Harvard University grew the plant as early as 1869. The specimen illustrated in our painting was raised from seed which reached us in 1920 from the Botanical Garden at Zurich, Switzerland.

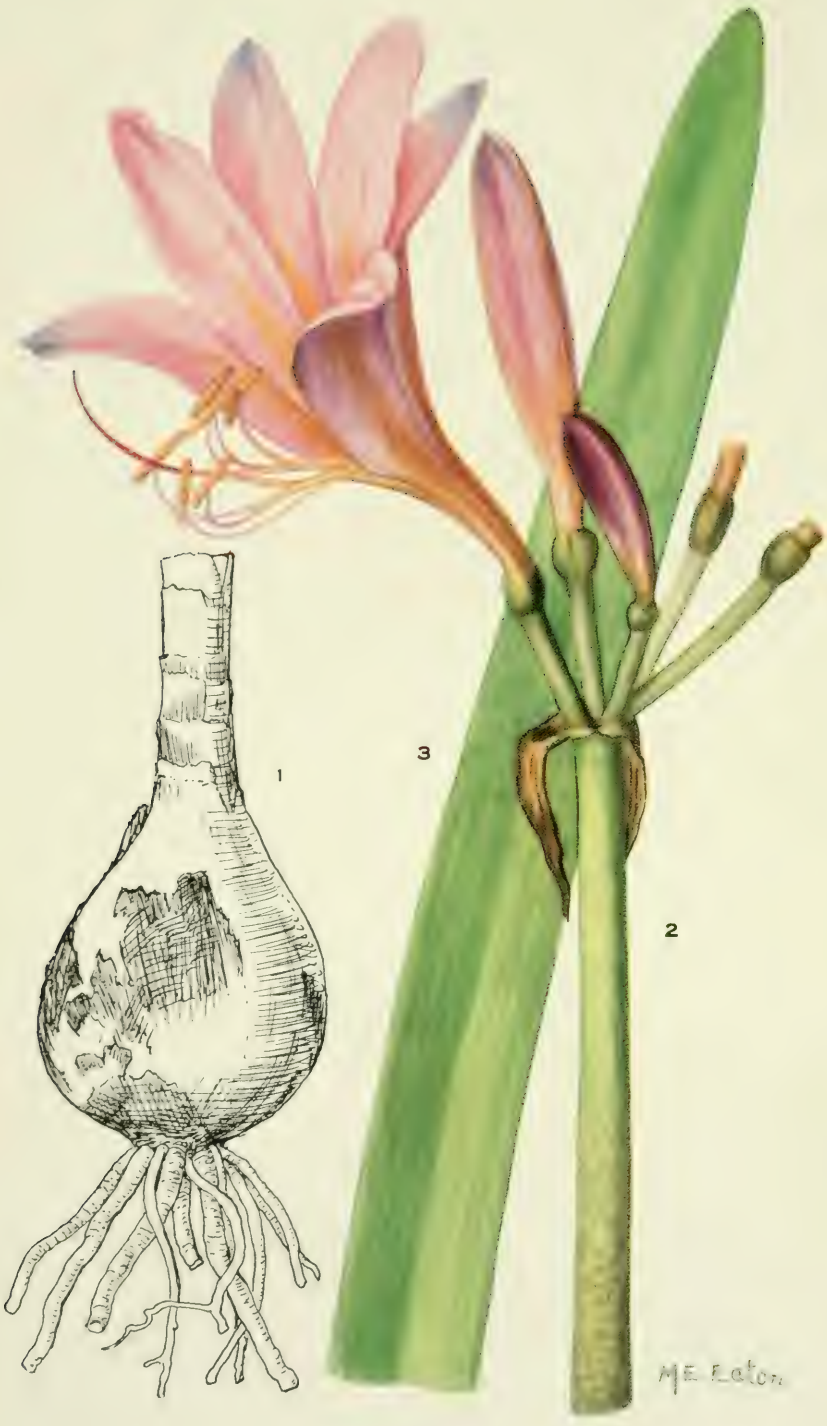
Placed originally in the genus *Penstemon* and considered even by Bentham as a close ally, the genus *Allophyton* seems to have actually little in common with the beautiful and varied group of the beard-tongues, so richly developed in temperate North America. *Allophyton* lacks the sterile filament that forms the bearded tongue of *Penstemon*, its capsule opens by a slit directly into the cells (loculicidally)

instead of between the walls of the cells (septicidally), its flowers are born in umbel-like clusters on the extremities of long stalks or peduncles, and the leaves that crowd the short stem are greatly elongated after the manner of many Gesneriaceae, a related family abundant in the American tropics. The genus, embracing three species, seems to be without near kindred.

Allopyton mexicanum is an herbaceous plant, with a semi-woody stem that persists from year to year. The leaves, which are doubtless also long-persistent, are firm or semi-fleshy in texture, glabrous, widest distally, and usually have a slightly wavy or crenate margin. The peduncles are wholly glabrous, but the short stalks or pedicels that bear the flowers are clothed with soft brown hairs. The sepals are narrow, with attenuate tips. The corolla is about half an inch long and quite glabrous, the throat forming a narrow tube and the lobes spreading widely; throughout the corolla is purple, but within the throat on the lower side this color occurs as deep spots or blotches on a pale background. The four stamens are grouped in two pairs, of which the lower are the longer. The small capsule is rounded, as broad as long, but ends in narrow sharp points. The seeds are numerous, small, rather sharply angled, dark brown.

FRANCIS W. PENNELL.

EXPLANATION OF PLATE. Fig 1.—Flowering plant. Fig. 2.—Corolla, split open, showing stamens, × 2. Fig. 3.—Fruit, × 3.



LYCORIS SQUAMIGERA

(Plate 360)

LYCORIS SQUAMIGERA

Hall's Amaryllis

Native of Japan

Family AMARYLLIDACEAE AMARYLLIS Family

Amaryllis Hallii Hort.
Lycoris squamigera Maxim. Bot. Jahrb. 6: 69. 1885.

One of the older garden bulbs in this country which is forever new is *Amaryllis Hallii* of the trade. Dr. George R. Hall (1820–1899) of Bristol, Rhode Island, after practicing medicine in China, went to Japan about 1854 and sent to his home many rare Asiatic plants; this beautiful lily was one of them. Just how widely it was cultivated here seems not to be known. It is said to have been first distributed by the Boston nurseryman Hovey. It was first illustrated in Garden and Forest, Vol. 3, page 176 (1890), where reference to its culture was made. About 1908, John Lewis Childs offered it for sale again.

The behavior of the plant is rather inimical to its retention in full and busy gardens. In May a group of strap-like leaves appears above ground, ripens away and disappears. If the gardener is not careful the underlying bulb may be unintentionally discarded. Not liking to leave the soil bare he is tempted to put in an annual or a new perennial, and *Lycoris* is forgotten. But on a day in August he finds a stalk bearing five or six delightfully fragrant and colored blossoms.

China has other species of *Lycoris*, *L. aurea*, the *Nerine aurea* of Japanese gardens, with similar but golden blossoms, and one or two red-flowered species.

The culture of Hall's amaryllis is practically finished after planting, as it is perfectly hardy and comes up year after year. One must observe where its leaves are in the spring and not disturb its position until blooming time.

The bulbs from which grew the plants that furnished our illustration was taken were given to the garden in 1917 by John Lewis Childs.

Hall's amaryllis is a bulbous herb, with strap-shaped leaves six inches or more long by one inch broad, from a globose fibrous-coated short-necked bulb about one to two inches in diameter. The leaves appear in spring, followed in August by stout, smooth flower-stalks

up to three feet high bearing umbels of fragrant flowers on short green pedicels, averaging five to a stalk. These flower clusters are subtended by two brownish, reflexed, drying, bracts. The perianth-tube is short, cylindric, somewhat dilated above. The segments or petals are three inches long by three fourths of an inch wide, oblong, obtuse or mucronate, the three outer pink with bluish tips and yellow centers, the three inner of lavender shades with yellow center, the apex often nearly rounded. The six stamens, on slender yellow filaments as long as the perianth-segments, are declined, inserted near the perianth-throat. The style is somewhat longer than the stamens, filiform with a capitate stigma. The ovary is three-celled, the capsule globose, three-celled, containing a few round black seeds.

KENNETH R. BOYNTON.

EXPLANATION OF PLATE. Fig. 1.—Bulb. Fig. 2.—Inflorescence. Fig. 3.—Leaf-tip.

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ADDISONIA

COLORED ILLUSTRATIONS
AND
POPULAR DESCRIPTIONS
OF
PLANTS

VOLUME 11 NUMBER 2

JUNE, 1926

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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 Dr. John Hendley Barnhart, Bibliographer, and Mr. Kenneth Rowland Boynton, Head Gardener.

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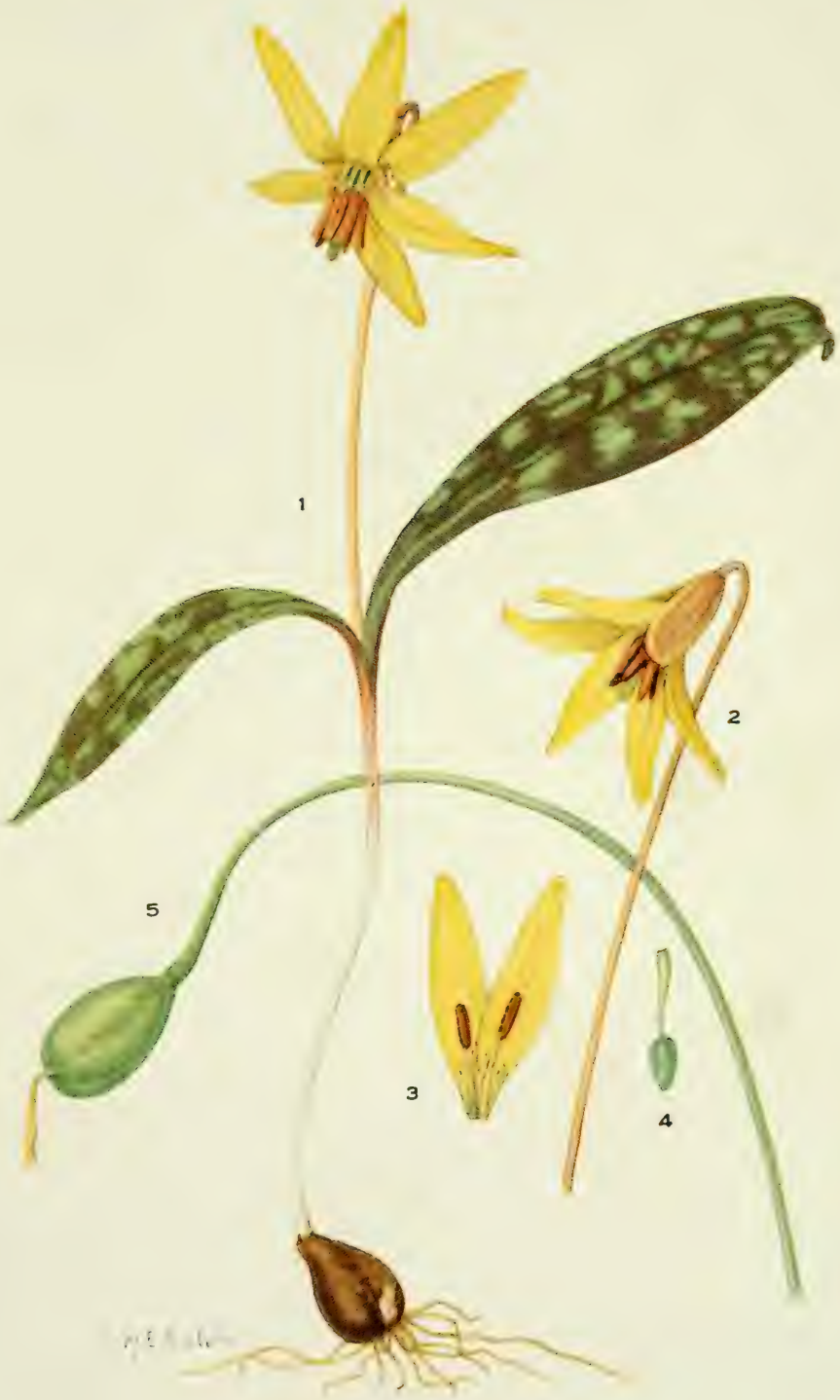


ERYTHRONIUM AMERICANUM

(Plate 361)

ERYTHRONIUM AMERICANUM

Dog's-tooth Violet

Native of eastern North America

Family LILIACEAE LILY Family

Erythronium americanum Ker, Bot. Mag. *pl. 1113.* 1 Je 1808.
Erythronium angustatum Raf. Med. Rep. II. 5: 354. 20 Jl 1808.
Erythronium bracteatum Bigel.; Beck, Bot N. & Mid. St. 365. 1833.

With the exception of the marsh marigold (*Caltha palustris*) and the hepatica (*Hepatica Hepatica*), this is the only one of our showy spring flowers that is not white or pink in color, and its choice of habitat sets it off to great advantage. The various shades of yellow and orange which so many of the American members of the lily family assume are too suggestive of heat to be associated with spring. However, the light yellow flowers of this plant with their foil of purple-and-green mottled leaves are an admirable sight when growing in large patches along some moist, shaded stream-bank. When the flowers close at sunset, the purple coloring on the outside of the sepals, blending with the leaves, makes the flowers rather inconspicuous. Soon after the plant has passed its flowering season, the leaves die and the capsule lies on the ground until ripe, when it bursts and sows its seeds near the parent plant, thus forming the large colonies in which it is usually found.

The seeds have the peculiar habit of germinating near the surface and forming a tiny corm the first year, and the next year sending down runners from the base of this corm to form another a few inches deeper. This process continues for from four to five years, the old corm drying up each time, and when the corm has reached a depth of from three to fifteen inches, depending on the character of the soil, it stops producing runners and begins to bloom. This habit, which saves the plant from being easily uprooted, as so many spring flowers are, has probably been a considerable factor in saving it from the local extermination many of its associates have undergone.

The generic name is derived from the Greek word meaning red, in allusion to the European species, *E. Dens-canis*, the flowers of which are purplish-red.

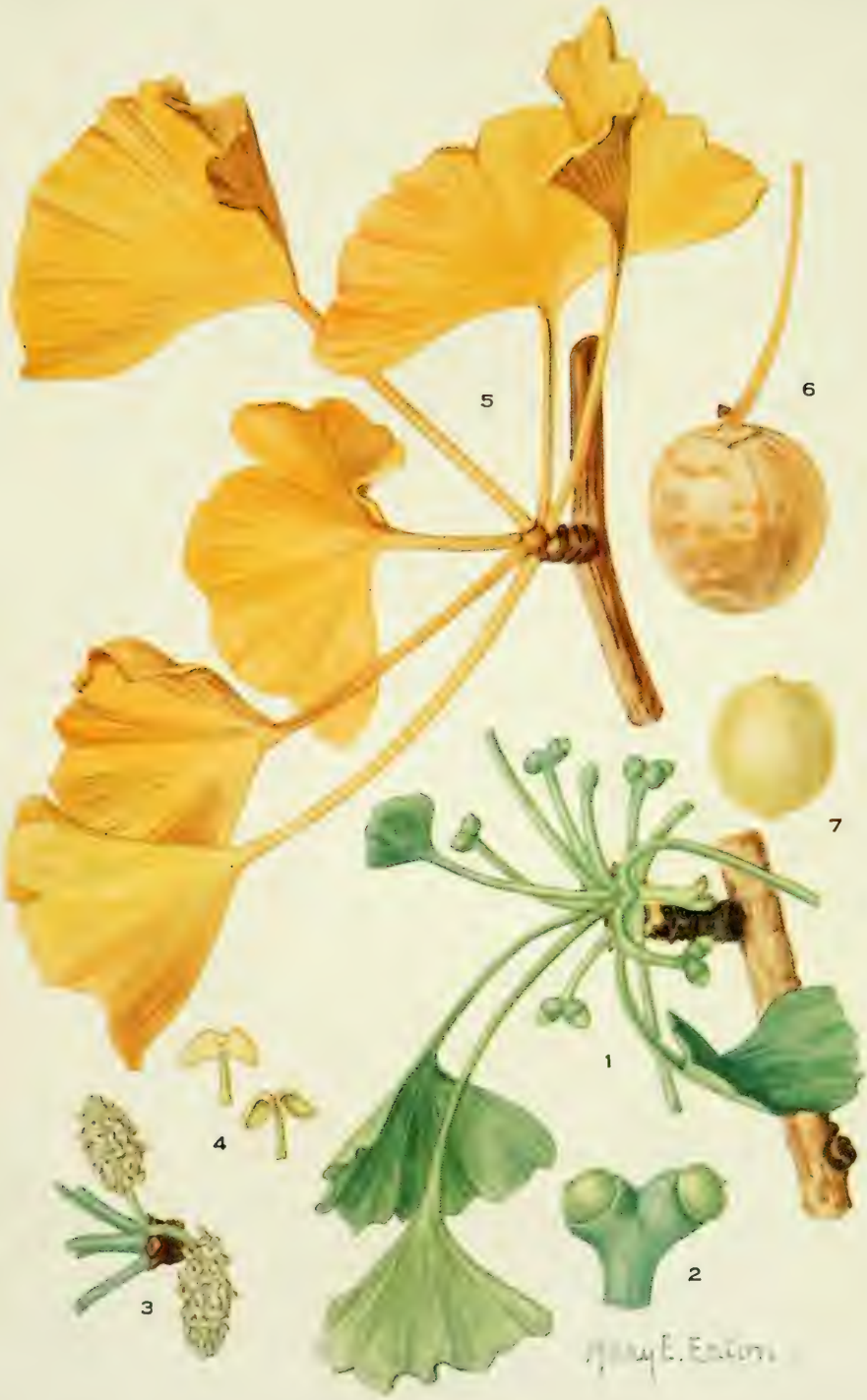
The plant grows in rich soil in moist, rocky woods, and particularly along stream-banks, seeming to have a particular liking for

the company of the spice-bush (*Benzoin aestivale*), which blooms at the same time. Its geographical distribution is from New Brunswick to Ontario and southward to Florida and Arkansas, but it is rather rare south of the Appalachian mountains and their neighboring regions.

The dog's-tooth violet is a low, glabrous herb, the slender stem arising from a small, membranous-coated, tooth-shaped corm, buried from three to fifteen inches under the surface of the ground, and bearing above the surface two oblanceolate leaves four to five inches long. The leaves are mottled purple and green, and sheath the flower-scape at its base, The nodding, pale yellow, lily-like flower is solitary on an erect scape. The three lanceolate sepals are from an inch to an inch and a half in length, marked with purple on the outside, and are pale yellow on the inside, with reddish-brown spots at the base. The three lanceolate petals are the same length as the sepals, but are pale yellow inside and outside, and also reddish-brown spotted at the base. The six stamens are born on the receptacle between the perianth and the ovary. The filaments, broadly winged at the base and slender above, are shorter than the perianth-lobes. The anthers are erect, brown, and open lengthwise. The ovary is superior and three-celled, with many ovules borne on parietal placentae. The style is slightly longer than the stamens, terminating in the clavate stigma. The capsule is broadly obovate, shallowly three-lobed, and splits loculicidally. The seeds are light brown and curved, tubercled at one end.

EDWARD J. ALEXANDER.

EXPLANATION OF PLATE. Fig. 1.—Plant, in flower. Fig. 2.—Flower, partly closed. Fig. 3.—Sepal and petal, with accompanying stamens. Fig. 4.—Gynoecium. Fig. 5.—Fruit.



GINKGO BILOBA

(Plate 362)

GINKGO BILOBA

Maidenhair-fern Tree

Native probably of China

Family GINKGOACEAE GINKGO Family

Ginkgo biloba L. Mant. 313. 1771.

The ginkgo, a word derived indirectly from the Chinese name of the species, is becoming a rather widely cultivated tree in this country, where it is hardy as far north as Massachusetts, lower Canada, and southern Minnesota. A few trees were brought to America in the latter part of the 18th century from England, and these same trees are vigorous and thriving at the present time. The tree, indeed, is said to live at least a thousand years, and to attain a height of one hundred feet and a diameter of eight or nine feet. The original home of the ginkgo is unknown, as it is not found in a wild state either in China or Japan, where it has been in cultivation for at least twelve hundred years. Moreover it has no close living relative in the world to-day, although a number of fossil species occur throughout the northern hemisphere. Formerly classed with the pine family, it is now considered a separate group more or less related to yews, cycads, and ferns.

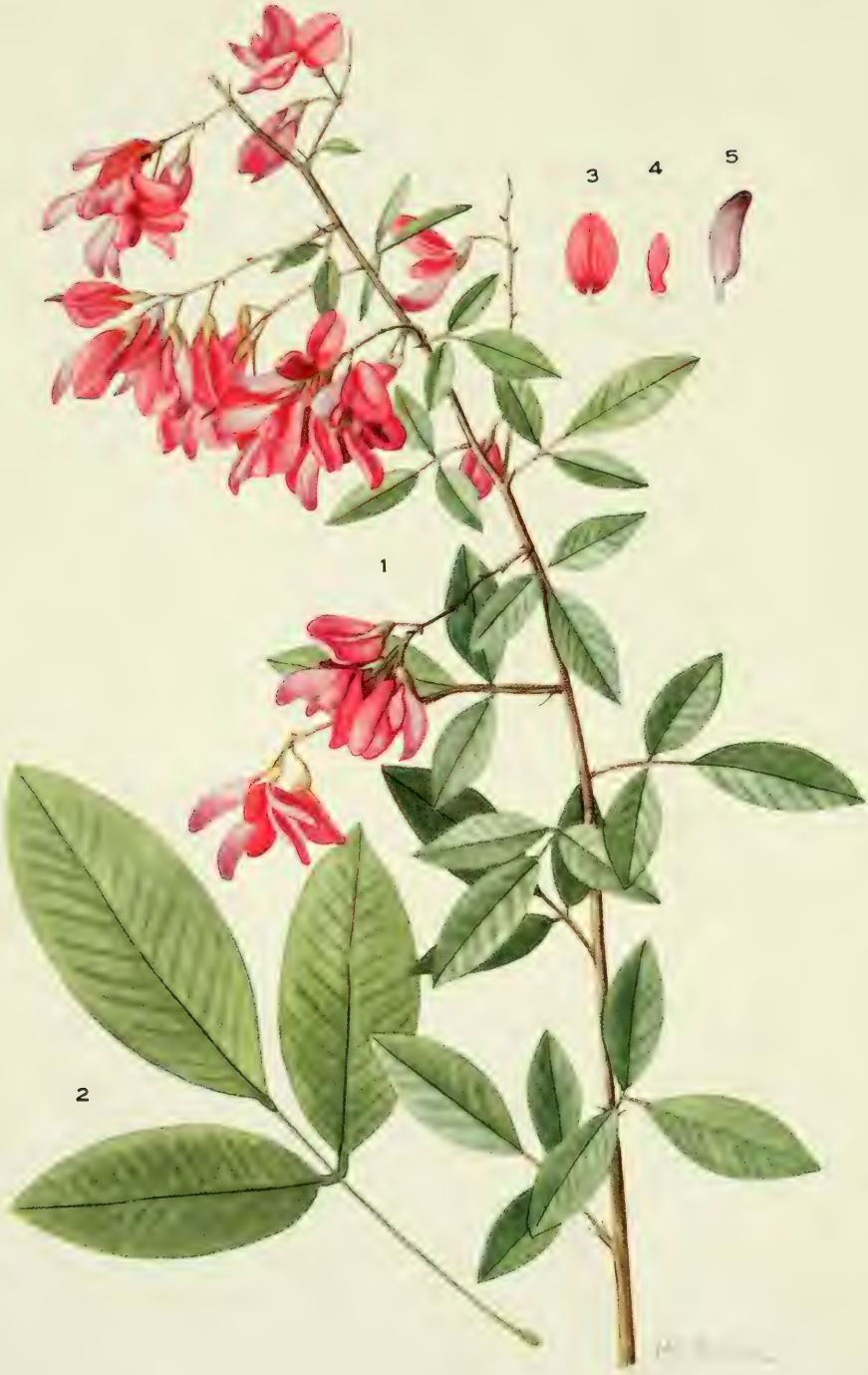
The tree itself is of rather unsymmetrical appearance when young but finally becomes tall and spire-like and is considered very desirable for planting for ornamental purposes, as it is not attacked by insects and appears to be resistant to all plant diseases. The nut of the fruit of this tree, enclosed within the soft outer covering, is edible, either raw or roasted, and used as food, especially by the Chinese, although the juicy and ill-smelling outer part is said to be poisonous. The only objectionable feature of the ginkgo, indeed, is this fruit, which falls in great abundance under the pistillate or fertile trees, after they attain an age of some twenty-five years or so. This one objection, however, can be avoided by taking slips for propagation from the staminate or sterile trees. The wood of the ginkgo is rather fine-grained, not very hard, yellowish white in color, and is not considered very valuable for commercial use. Several horticultural varieties are known, one with pendulous branches, another with the leaves more divided into a number of lobes than in the typical form.

The illustrations are from trees planted in the New York Botanical Garden twenty years ago; these bore their first fruit in 1924. Some of the larger trees now measure thirty-five to thirty-eight inches around, a foot above the base, and are twenty-five to thirty feet high. The flowers shown in the plate were obtained the middle of May.

The ginkgo has a tapering trunk, rarely or never divided above, a pale, somewhat rough, brownish bark and long slender, often nearly horizontal branches, The leaves grow in clusters, mostly five or six together, and remind one of the segments of the frond of the maidenhair-fern (whence the common name, maidenhair-fern tree); they are parallel-veined, often bilobed, except in the young state, and fall rather late in the season after turning yellow. The flowers are of two kinds, the staminate on one tree, the pistillate on another, and begin to form when the trees are from twenty to twenty-five years old. The staminate flower-clusters resemble those of some oak. The pistillate flowers consist of two pistils on a slender stalk without floral envelopes, only one of which usually matures into a nearly spherical fruit slightly more than one inch in diameter when ripe, the soft juicy and ill smelling pulp enclosing a whitish nutlike seed. This seed is about three fourths of an inch long, is somewhat flattened, slightly pointed at either end, with two rather prominent ridges extending from end to end, or rarely three ridges, about equally distant, occur. The shell of the nut is thin and brittle and mostly shows when fresh the faintest of ridges circling it, about equally distant from either end, and it is along this ridge that a fresh nut usually splits the most readily, disclosing another peculiarity. There are some thin membranes lining the shell within which divide just under this ridge, those in the upper half of the shell remaining attached to the embryo when removed, those of the lower half clinging to the inside of the shell and giving it a different color from that of the upper half.

R. S. WILLIAMS.

EXPLANATION OF PLATE. Fig. 1.—Pistillate flower of May. 2.—The same, × 3. —Staminate flowers, forming a catkin. 4.—Two stamens, × 4. 5.—Late autumn foliage. 6.—Mature fruit. 7.—Nut.



LESPEDEZA SIEBOLDII

(Plate 363)

LESPEDEZA SIEBOLDII

Siebold's Bush-clover

Native of Japan

Family FABACEAE PEA Family

Desmodium penduliflorum Oudem. Neerl. Plantent. 2: *pl. 2.* 1866.
Lespedeza Sieboldii Miq. Ann. Mus. Lugd. Bat. 3: 47. 1867.

Lespedeza Sieboldii in our climate is neither a tender shrub nor a hardy perennial; like species of *Buddleia* it is usually killed back to the ground each winter, but the first of June it sends up new shoots. These reach the height of a shrub and take on almost the woody character of such by flowering time. The blooming period is September and October, when there is a scarcity of flowering shrubs. The background of the flower-borders or the shrub groups are then enriched by the arching sprays of color.

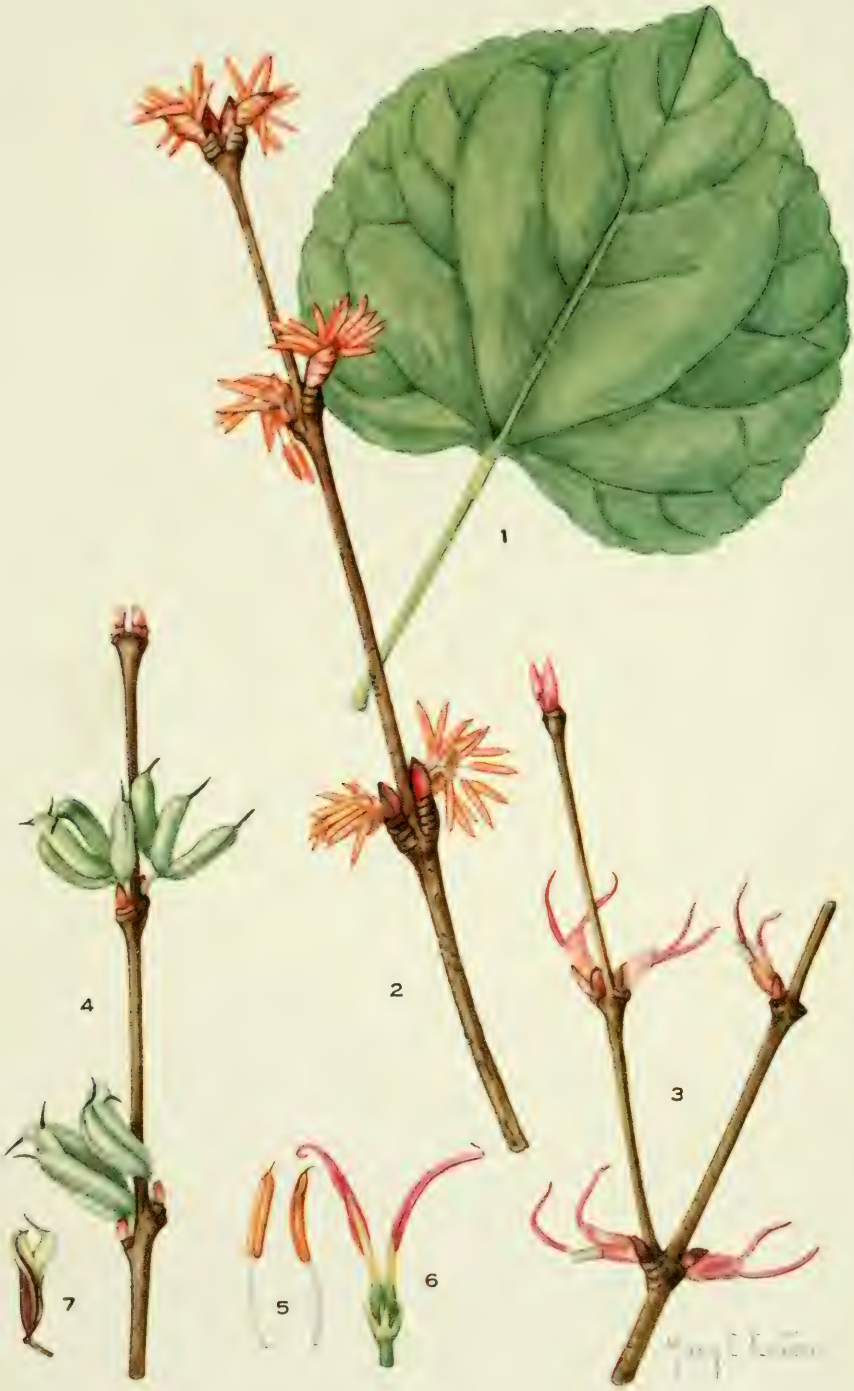
Of the other species of *Lespedeza* in cultivation, *L. striata* is of economic importance. This is a pasture and hay crop in the southern United States. Two relatives are used in ornamental horticulture, *L. japonica*, a white-flowered sort, and *L. bicolor*, with smaller and lighter purple flowers. The latter and *L. Sieboldii* are included in our new plantation of late flowering shrubs.

The plant is propagated easily by cuttings of half-ripened shoots taken in late summer, or by division of the crowns.

The young growth of Siebold's bush-clover is silvery silky-hairy. The shoots and branches are angled, and smooth when older. The pinnately trifoliolate leaves are on petioles an inch and a half long, are light green above, and silky white-pubescent below when young or smooth when old. The three leaflets are elliptic-lanceolate, short-stalked, the lateral ones about two inches long by three inches wide, the terminal one larger, three inches long by one inch wide. The flowers are borne in drooping axillary racemes, three to six inches long, the flowers on short pedicels. The calyx is soft-hairy, bell-shaped, with five lanceolate lobes, the two upper smaller. The irregular corolla is about twice as long as the calyx, of five irregular petals, the lower two being joined to form a purplish keel containing the stamens and pistil, the two lateral are narrow-obovate rounded, clawed wings, and the upper is a broadly ovate erect standard. The filaments of the ten stamens are united, or with one separate. The ovary is two-celled, the style short-filiform, somewhat curved upward, and the stigma simple.

KENNETH R. BOYNTON.

EXPLANATION OF PLATE. Fig. 1.—Summit of flowering stem. Fig. 2.—Lower leaf. Fig. 3.—Banner. Fig. 4.—Wings. Fig. 5.—Keel.



CERCIDIPHYLLUM JAPONICUM

(Plate 364)

CERCIDIPHYLLUM JAPONICUM

Katsura

Native of Japan and China

Family CERCIDIPHYLLACEAE KATSURA Family

Cercidiphyllum japonicum Sieb. & Zucc. Abh. Acad. Münch. 4³: 238. 1846.

This most magnificent tree of Japan and western China is quite unique among our families of cultivated plants. It appears to be one of those petal-less plants related to the crowfoot family, the flowers consisting of three to six naked carpels and styles on pistillate plants, the staminate of groups of ten (more or less) stamens. The leaves are somewhat in the manner and appearance of cercis or red-bud.

The katsura is one of the largest trees of Japan and in western China there is a form (var. *sinense* Rehd. & Wils.) which E. H. Wilson found in valleys and open areas. The Japanese is said to be a spreading, several-trunked tree, the Chinese, taller and with a single trunk.

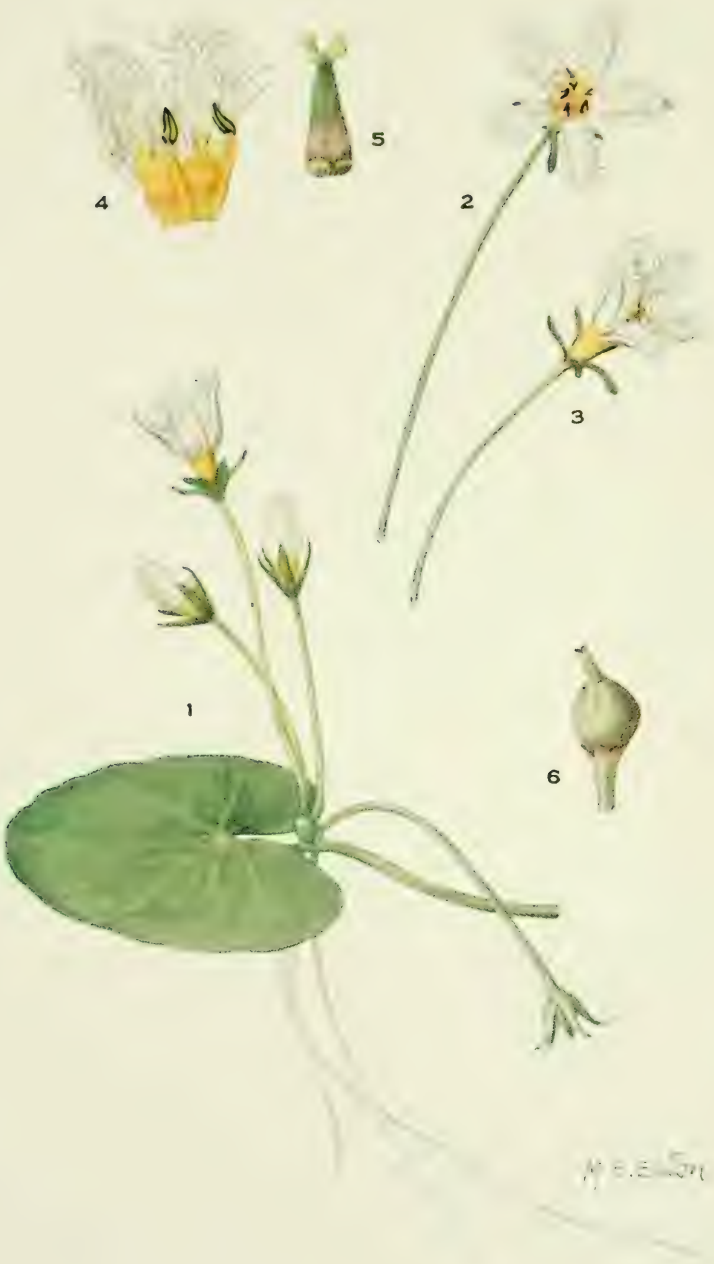
We have in the New York Botanical Garden seven trees. Upon entering the grounds from the Elevated railroad station one is seen directly to the left of the bridge. This is a staminate tree and is covered with pink bloom in early spring. A few years since a portion of the top was injured, the tree apparently recovering after the affected parts were pruned out. Two others stand nearby. The other four specimens, in the Arboretum, just east of the Boulder Bridge, are now thirty years old. One fine pistillate tree has produced fruits and seeds in great abundance for several years past, and seedlings from it are now in our nursery. Three trees are rather spreading, with a subordinate trunk-system, one, the tallest, is rather erect, single-trunked and altogether a fine specimen tree. These trees all bloom in April, the leaves appearing in May,

The katsura is a dioecious tree with rough dark-brown bark. The leaves are opposite, and on the old branches appear each successive year on short, appressed spurs. The petioles are reddish, about an inch and a half long, and the leaf-blades are cordate, dentate, five-to seven-nerved, prominently so beneath where they are glaucous; they are light green above and measure about two and a half inches across. The staminate flowers are sessile, five in a cluster, the pistillate solitary and short-stalked. The staminate flower has only a rudimentary four-pointed calyx, with several stamens of

long slender filaments and two-celled linear anthers, which split lengthwise. The pistillate flower has also a rudimentary calyx, and from two to seven club-shaped pistils; the carpels many ovules in two rows, and slender styles with stigmas on the side. The fruits are three to seven follicles, on short stalks, splitting on one side. The seeds are brownish, in two rows.

KENNETH R, BOYNTON.

EXPLANATION OF PLATE. Fig. 1.—Leaf. Fig. 2.—Staminate inflorescence. Fig. 3.—Pistillate inflorescence. Fig. 4.—Clusters of fruit. Fig. 5.—Stamens, × 2. Fig. 6.—Gynoecium, × 2. Fig. 7.—Fruit.



NYMPHOIDES HUMBOLDTIANUM

(Plate 365)

NYMPHOIDES HUMBOLDTIANUM

Water-snowflake

Native of tropical America

Family MENYANTHACEAE BUCKBEAN Family

Villarsia humboldtiana H.B.K. Nov. Gen. & Sp. 3: 187. 1818.
Limnanthemum humboldtianum Griseb. Gen. & Sp. Gent. 347. 1839.
Nymphoides humboldtianum Kuntze, Rev. Gen. Pl. 429. 1891.

The interesting Buckbean Family of aquatic plants, consisting of some five genera, is typified by the marsh-trefoil or buckbean, *Menyanthes trifoliata*, which is found in cold bogs of the Northern Hemisphere. The genus *Villarsia*, a name once applied to most of the family, is restricted to certain Australian and African marsh plants. *Nymphoides* includes the floating-hearts and the water-snowflakes, among them *N. lacunosum*, the floating-heart of ponds of eastern North America, *N. aquaticum*, the larger floating-heart of the southeastern States, *N. nymphaeoides*, the old world floating-heart which has been naturalized in the United States, *N. indicum* of Asiatic tropics, the common water-snowflake of horticulture, and our present subject from the American tropics. This has been collected by members of the Garden staff in Cuba, Jamaica, Porto Rico, British Guiana, and Bolivia. Another, endemic, species of *Nymphoides* is found in Cuba, and one in the Bahamas, both yellow-flowered. The name water-snowflake is applied to all white-flowered species, floating-heart to all, on account of their leaves. Two other species with crested corolla-segments are found, one in the Pacific Northwest, another in India.

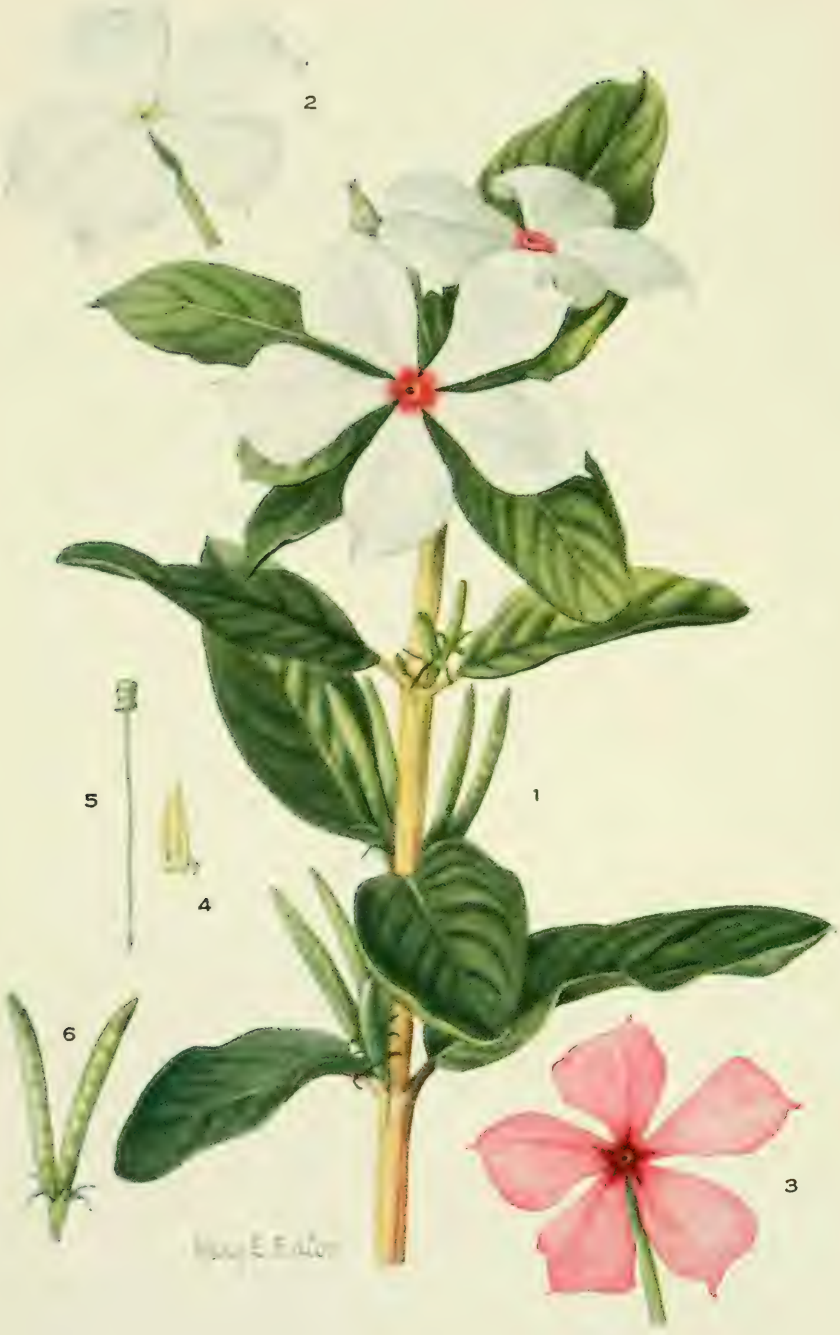
Many of these aquatics have been in cultivation, especially *N. indicum*. Unless mistakenly grown as *N. indicum*, the subject of our illustration, which was brought by Dr. N. L. Britton from Laguna Tortuguero, Porto Rico, in 1922, has not been in cultivation before. Water-snowflakes may be grown in shallow tanks or in tubs set in large tanks. They are easily propagated, new plants being constantly formed with the flowers. It is only necessary to separate these and plant them.

The water-snowflake is a viviparous aquatic herb, with floating leaves. The petioles are long and smooth, somewhat glandular, the leaf-blades somewhat fleshy, about two inches across, orbicular, deeply cordate, the obtusish lobes spread far apart, the margin entire, the upper surface green, lustrous, the lower reddish-dotted,

palmately five-to many-nerved. A short distance below the leaf is a viviparous tuberosity bearing flowers, roots, and plants, often at the same time. The flowers, up to twelve, are borne in an umbellate cluster, one opening each day. The flower, on a long slender pedicel which reflexes after blooming, is about one inch across. The calyx is rotate, with five linear-lanceolate somewhat glandular lobes, the corolla subrotate, with a short yellow tube which is smooth on the outside and villous within at the throat, and five white oblong-lanceolate lobes which are smooth without, the inner surface fringed and bearded with long hairs. The five stamens are alternate with the corolla-lobes, attached in the throat of the corolla-tube, the filaments short, inflexed, the anthers blackish, lanceolate. The pistil is bottle-shaped, greenish yellow, the ovary one-celled, the style short and the stigma two-to four-lobed. The fruit is a one-celled indehiscent capsule, turned down to the water by the reflexing pedicel. The numerous seeds are light brown or straw colored and smooth.

KENNETH R. BOYNTON.

EXPLANATION OF PLATE. Fig. 1.—Flowering plant. Figs. 2, 3.—Flowers. Fig. 4.—Two corolla-segments, inner surface, showing 2 stamens, × 2. Fig. 5.—Gynoecium, × 4. Fig. 6.—Fruit × 2.



CATHARANTHUS ROSEUS

(Plate 366)

CATHARANTHUS ROSEUS

Old-maid

Native of Madagascar?

Family APOCYNACEAE DOGBANE Family

Vinca rosea L. Syst. ed. 10. 944. 1759.
Lochnera rosea Reichenb. Consp. 134. 1829.
Catharanthus roseus G. Don, Gen. Syst. 4: 95. 1838.
Ammocallis rosea Small, Fl. SE. U. S. 936. 1903.

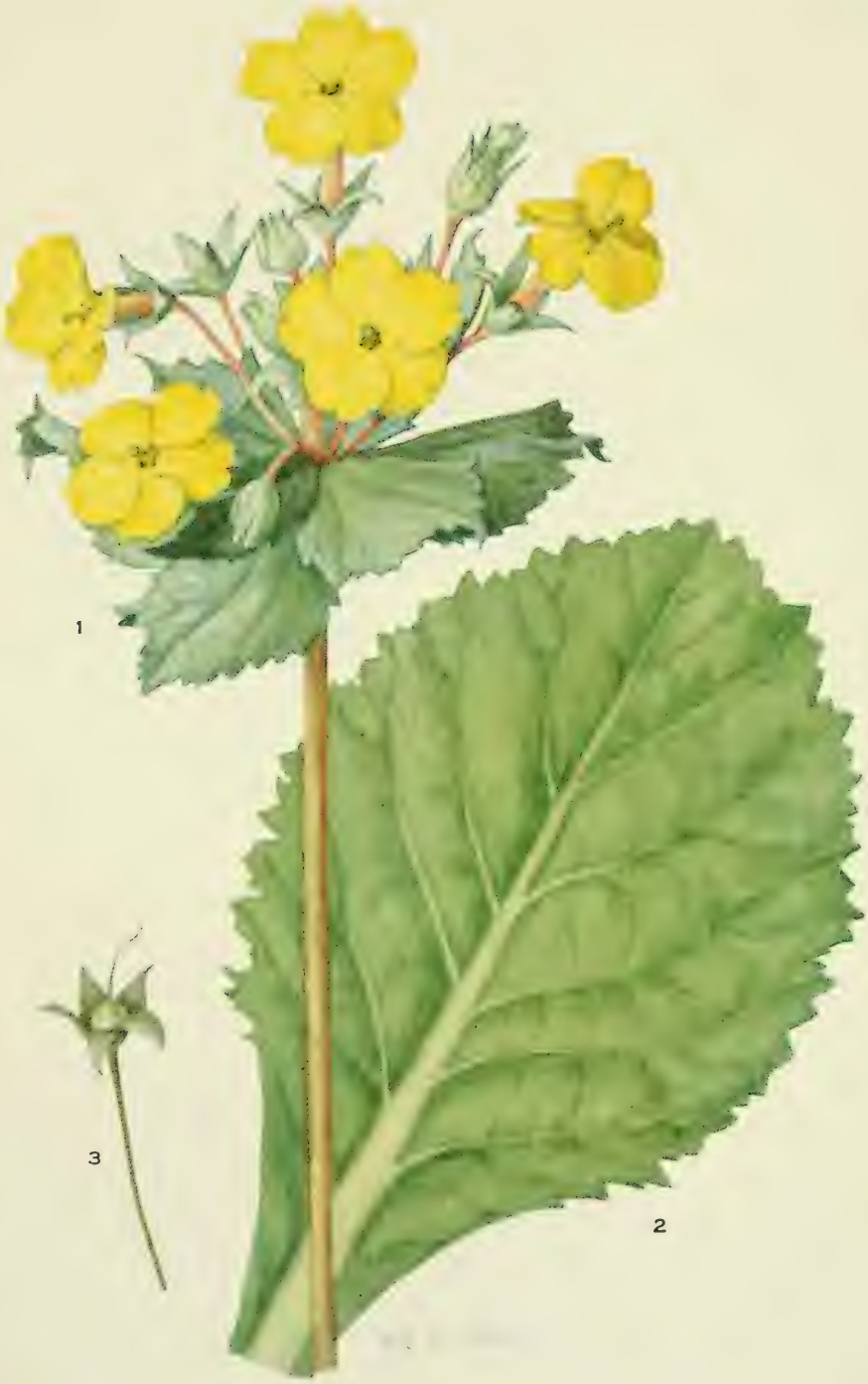
The generic name of the subject of this note, according to the author, refers to the "neatness and beauty of the flowers." This statement can well be extended to the foliage, for the clean glossy green leaves and often red-tinted stems are free from disfiguring blemishes. These attributes led promptly to its adoption as a garden plant in tropical and temperate regions. In the tropics and even in subtropical lands it is a perennial, often somewhat woody; while in cooler lands, where its tropical savor gives it added interest, it is a short-lived annual. The early accounts claim Madagascar for its native home. Later accounts reject the claim of Madagascar, but offer the plant no native home. However, the first printed notice in England records that, "This plant grows naturally in the Island of Madagascar, from whence the seeds were brought to the Royal Garden at Paris, where the plants were first raised, ..." Seeds from these plants are said to have been sent to England, and we learn that, "The *Vinca rosea* was first cultivated in this country [England] by Mr. Philip Miller in 1757, he observes that it deserves a place in the stove as much as any of the exotic plants that we have in England, because the flowers are very beautiful, and there is a constant succession of them all the summer."

Promptly after the middle of the eighteenth century this periwinkle spread around the tropics and beyond them. Its latest great natural invasion is in peninsular Florida. The result of a popular vote in peninsular Florida would doubtless indicate the "periwinkle" the most commonly cultivated garden plant in the peninsular State, and also the most abundant naturalized one. Its abundance on roadsides, in waste places and in abandoned fields, and in undisturbed natural habitats, is often unusual. The immaculate white or mixed bright colors of the myriad flowers often illuminates large areas in the landscape to a striking degree.

The old-maid is usually one to two feet tall, but may vary from six inches to three feet, from a slender woody tap-root. The stem is simple or usually branched, minutely pubescent, more or less woody below, firm-succulent above, green or often tinged with red. The leaves are opposite, persistent; the blades are obovate, often narrowly so, or elliptic, one to three inches long, shining, minutely pubescent, especially on the veins, membranous-succulent, entire, obtuse or sometimes acutish, with the veins impressed above, prominent beneath and usually paler than the rest of the blade, short-petioled. The flowers are paired in the leaf-axils, or sometimes solitary, on short, very stout, usually minutely pubescent pedicels. The five calyx-lobes are slender-subulate, bright green, finely pubescent, more or less recurved, a quarter of an inch long or less. The corolla is showy, salvershaped, with a green tube which is about one inch long, obscurely pubescent below and finely pubescent at the swollen and ribbed top. The limb is one and a half to two inches wide, pink, red, purple, or white, except the darker "eye," glabrous, except the finely hairy orifice, with the lobes shorter than the tube, inequilaterally obovate and obliquely pointed, The five stamens are included. The filaments are adnate to near the top of the corolla-tube, with the free part very short, flattened, and incurved. The anthers are lanceolate, about one eighth of an inch long, acute, with each sac bearing an incurved spur at the base. The ovary is sessile, the two sessile hairy carpels with a lanceolate-subulate appendage on each side. The style is filiform, glabrous. The stigma is capitate, obscurely lobed, with a reflexed sheath at the base, which surrounds the tip of the style. The follicles are paired, subtended by the persistent calyx, each one columnar and stout-tipped, about three quarters of an inch to one inch and a quarter long, many-ribbed, finely pubescent. The seeds are ellipsoid or cylindric-ellipsoid, about one twelfth of an inch long, dark brown or nearly black, sharply papillose.

JOHN K. SMALL.

EXPLANATION OF PLATE. Fig 1.—Summit of flowering plant. Figs. 2, 3.—Corollas, showing color-variation. Fig. 4.—Stamen, × 5. Fig. 5.—Pistil, × 2. Fig. 6.—Fruit.



PRIMULA KEWENSIS

(Plate 367)

PRIMULA KEWENSIS

Kew Primrose

Of Garden Origin

Family PRIMULACEAE PRIMROSE Family

Primula kewensis W. Wats. Gard. Chron. III. 27: 130. 1900.

This yellow primrose is a hybrid which appeared in the Royal Botanic Gardens, Kew, England, in 1897, supposed to be a cross between the Himalayan yellow *P. floribunda*, and *P. verticillata*. It is largely cultivated as a winter-flowering display plant.

Seed sown in April will furnish strong plants for flowering the following winter. Sow the seeds in pans. First place a few pieces of broken crock in the bottom for drainage. Then fill to within one half inch of the top with finely sifted garden loam. Sow the seeds thinly over the surface, then press into the soil and cover seeds slightly with a mixture of one half finely sifted loam and one half sand; water thoroughly with a fine spray. The pan should be covered with a piece of glass and put in a warm shaded place. The temperature for germination should average from 65° to 70°. When the seedlings have formed two or three leaves they should be pricked out into shallow boxes about one inch apart, using a soil composed of one half garden loam, one fourth leaf soil, and one fourth sand. Shade from the sun for a couple of days, when plants are large enough to transplant into small pots; using the same mixture of soil as before transplant into larger pots as required. Be careful that they never become pot-bound. For final potting the soil must be made richer by adding a little rotten cow manure and a little bone meal.

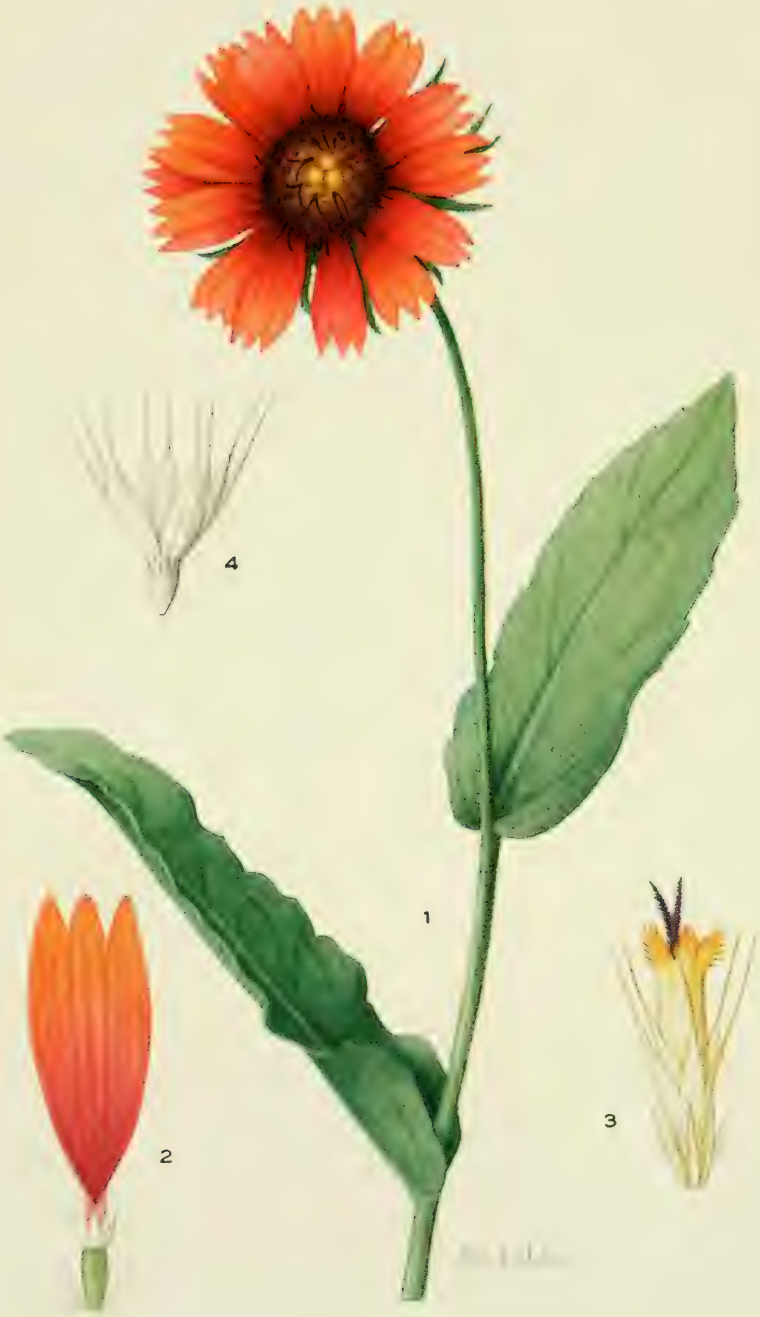
When the pots are filled with roots frequent applications of weak liquid manure will be beneficial. The plants must never be allowed to become dry, as this retards the growth of the plant, and predisposes them to red spider. Plenty of air and sunshine are essential while the plants are growing.

Primula kewensis is a perennial herb with a basal rosette of leaves, and flowers in whorls on short scapes. The light green somewhat mealy leaves are about seven inches long and one and one half inches wide, spatulate, narrowed at base into short petioles; their margins are undulate, with irregular shallow teeth. The flowers are on smooth scapes about one foot high, in whorls of up to a dozen flowers subtended by leafy bracts, the upper smaller, entire, the lower irregulary incised. The flowers are on slender pedicels, three quar-

ters of an inch long. The campanulate calyx is five-lobed. The corolla is salver-form, the tube one inch long and the limb about three quarters of an inch wide, rich yellow, with five rounded, imbricated notched lobes. The stamens are five, opposite the corolla-lobes, attached in the throat. The ovary is superior, one-celled, many-ovuled, the style short, and the stigma undivided. The fruit is a one celled capsule, many-seeded, the seeds smooth.

KENNETH R. BOYNTON.
E. W. POOLE.

EXPLANATION OF PLATE. Fig. 1.—Inflorescence. Fig. 2.—Leaf. Fig. 3.—Fruit.



GAILLARDIA AMBLYODON

(Plate 368)

GAILLARDIA AMBLYODON

Blunt-toothed Gaillardia

Native of Texas

Family CARDUACEAE THISTLE Family

Gaillardia Amblyodon Gay, Ann. Sci. Nat. II. 12: 62. 1839.

The genus *Gaillardia* was described by the French botanist Fougeroux in 1788, and dedicated to Gaillard de Charentoneau, "a friend of botany." There are about twenty species, nearly all natives of western North America, including Mexico. One of these, *G. picta* Sweet, extends eastward to the sea-beaches of South Carolina and Florida. *G. megapotamica* R. Br. occurs in several varieties from southern Brazil to Patagonia. All the species are rather handsome and several have been brought into cultivation. In some the flowers are wholly yellow, in others wholly purple; still others have purple disk-flowers and yellow or partly yellow rays, which make them desirable border plants. Some hybridization has been tried in order to increase the variation and combine desirable characters. *G. grandiflora* Van Houtte is such a hybrid, combining the purple or variegated colors of the annual *G. Drummondii* (Hook.) DC. with the large heads and perennial habit of *G. aristata* Pursh.

The present species was described in 1839 by Gay, in *Annales des sciences naturelles*, from specimens collected by Drummond in Texas. It is confined to that state as a native plant, but has been in cultivation since 1845, when it was raised at the Cambridge Botanic Garden from seeds collected by Lindheimer. The specimen here illustrated was raised in the New York Botanical Garden from seed secured from Dreer of Philadelphia.

Gaillardia Amblyodon is a leafy annual, at first simple but later sparingly branched. The stem is sparingly and coarsely hairy with crisp hairs. The leaves are without stalks, lanceolate or inversely lanceolate, entire or toothed, one to three inches long, slightly eared at the base. The flower-stalks are two to four inches long. The bracts of the head are two fifths to one half of an inch long, tapering into long tails. The ray-flowers are about twelve, without stamens and pistils, brownish purple, the ligules two thirds to four fifths of an inch long, less than one quarter of an inch wide, three-lobed. The disk is also purple, two fifths to three fifths of an inch broad, the corollas about one quarter of an inch long; the tube is very short, glabrous, the throat is elongate-funnelform, the lobes

triangular, glandular-ciliate. The fruits are densely long-woolly at the base, but glabrous above. The scales of the receptacle are lanceolate, produced into an awn.

P. A. RYDBERG.

EXPLANATION OF PLATE. Fig. 1.—Summit of flowering stem. Fig. 2—Ray-flower, × 2. Fig. 3.—Disk-flower, × 3. Fig. 4.—Fruit, × 3.

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ADDISONIA

COLORED ILLUSTRATIONS
AND
POPULAR DESCRIPTIONS
OF
PLANTS

VOLUME 11 NUMBER 3

SEPTEMBER, 1926

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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 Dr. John Hendley Barnhart, Bibliographer, and Mr. Kenneth Rowland Boynton, Head Gardener.

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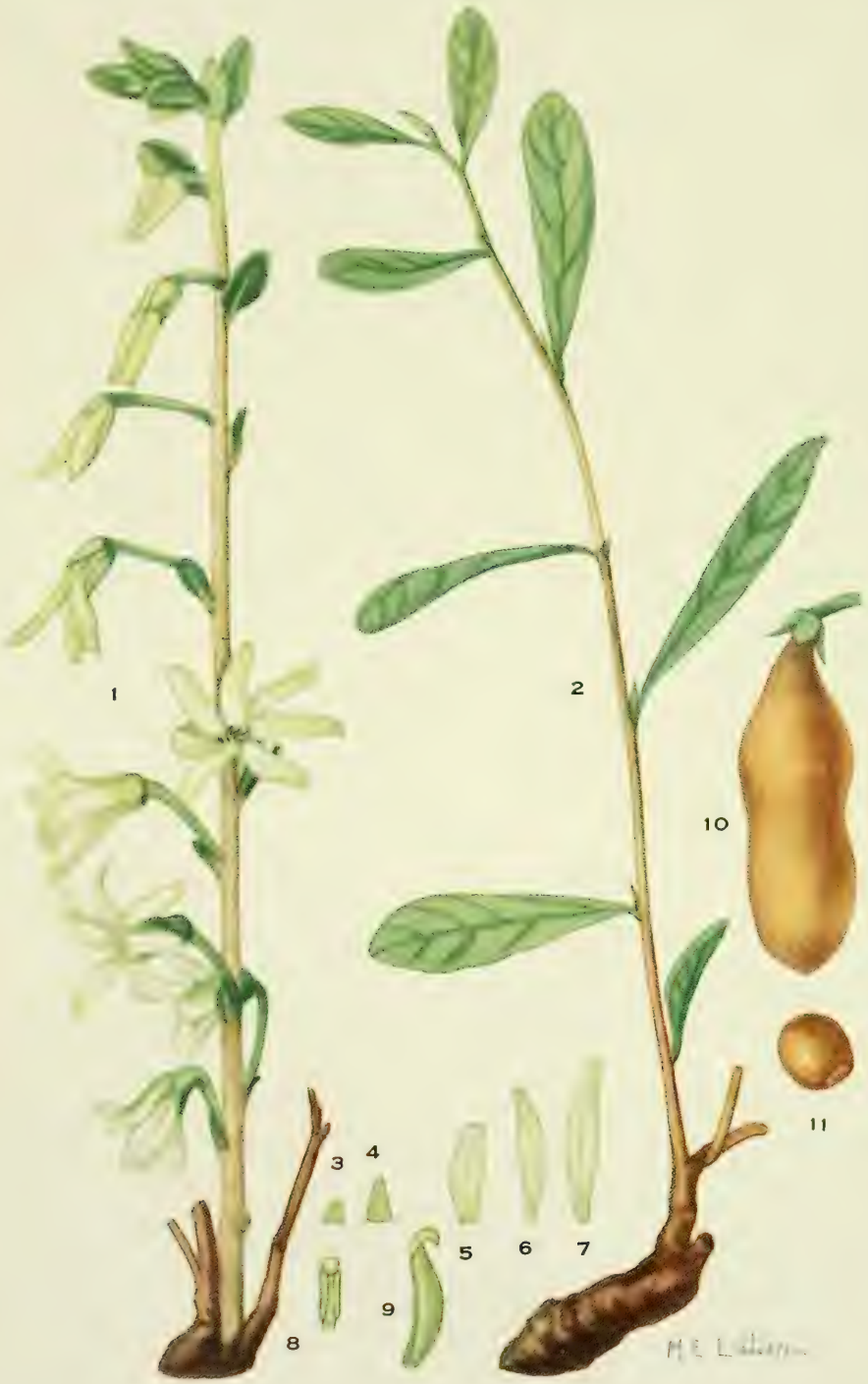


DEERINGOTHAMNUS PULCHELLUS

(Plate 369)

DEERINGOTHAMNUS PULCHELLUS

Squirrel-banana

Native of southern peninsular Florida

Family ANNONACEAE CUSTARD-APPLE Family

Deeringothamnus pulchellus Small, Bull. Torrey Club **51**: 390. 1924.

A party of four, the driver alone really wide awake, was riding through the uninhabited flatwoods east of Punta Gorda, Florida, headed for Fort Myers, several years ago. A delicious fragrance, yet peculiar, suddenly filled the air, and one of the drowsy ones exclaimed, "here is a new genus!" A glance to the right strengthened the suspicion, and an examination of the source of the fragrance established the fact. In a wide vista through the open pinewoods where fire had cleaned the surface of brush were numerous clumps of small shrubs six to twelve inches high covered with a multitude of white flowers. The floor was clean as a lawn and nothing elevated above the close green turf, except the clumps of white flowers.

Investigation disclosed a very interesting plant. By far its greatest bulk is beneath the surface of the soil. A stout black fusiform tap-root, which is commonly one to two and a half feet long, often with spreading rootlets, with an odor resembling that of licorice-root, renders the plant fire-proof. The abundant nourishment stored in the root enables the plant to begin replacing its aerial parts as soon as the fire is over. For some reason, in replacing the aerial part the nourishment of the root is much diverted into several channels and goes into short stems, instead of producing a single long one. It has even gone a step further in its peculiar economy, in dividing its stems into two kinds, those that bear leaves alone and those that bear flowers and fruits.

The genus, here introduced to ADDISONIA, was named to commemorate the active interest of Charles Deering, patron of science and art, in the elucidation of the flora and floristics of the southeastern United States during the early decades of the twentieth century.

During the summer following its discovery the fruits were collected from plants at the original station and during the next spring the shrub was discovered at several additional stations in the same region. Its geographic distribution, as far as known, is confined to the eastern part of the watershed of the Peace River in Charlotte and De Soto counties.

Structurally *Deeringothamnus* is related to *Asimina* from which however it differs in both habit and technical characters.

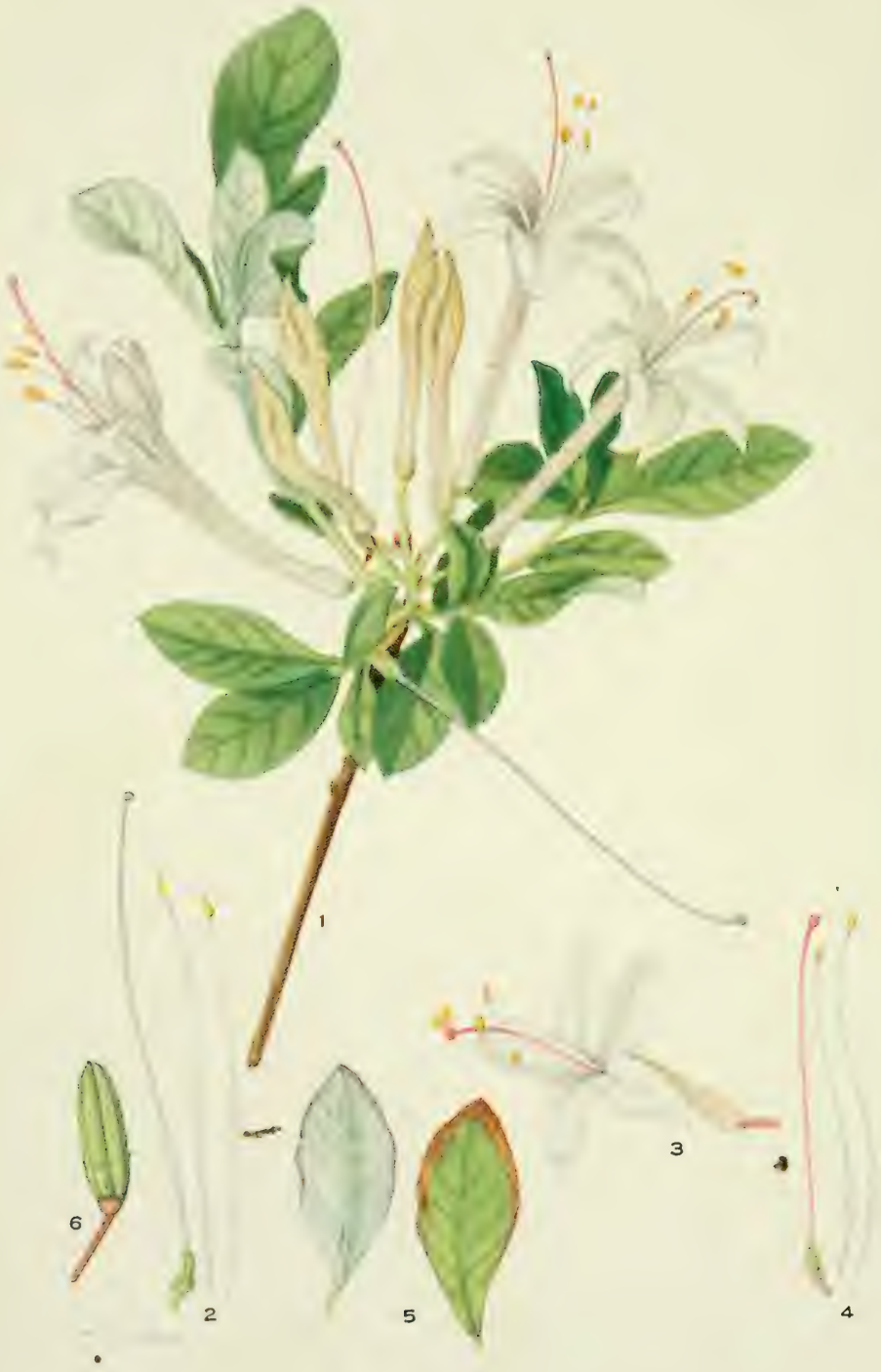
The natural habitat of this shrub is a white permanently water-soaked sand which in times of heavy rains or in rainy seasons is flooded. Specimens have been grown with indifferent success under glass at The New York Botanical Garden.

Although fire is the direct enemy of this plant, another indirect one would soon deplete the growth if unchecked in some way. In spite of the great abundance of flowers, mature fruits are scarce, not because the fruits do not form, but because the rabbits and squirrels eat most of the crop before it is ripe. This situation would be still more desperate were it not for the kind offices of the diamond-back rattlesnakes and moccasins which inhabit that region. To the dietary programme of these reptiles, many a small animal falls victim.

The squirrel-banana is a small shrub with several to many clustered wiry erect or arching red glabrous stems arising from the top of a long perpendicular fusiform or clavate tap-root. The stems are of two kinds, one kind bearing leaves which are alternate, bright-green, and finally deciduous. The blades are cuneate to spatulate, mostly one to four inches long, obtuse or rounded at the apex, entire, pinnately veined and finely reticulate, sharply so when dry, glabrous above, at least at maturity, with scattered fuscous hairs, especially on the yellow or orange midrib, beneath, or sometimes glabrous throughout at maturity, acute at the base. The flowering stems are somewhat stouter than the leafy stems and bear broad, ovate, oval, or elliptic sessile or nearly sessile bracts which subtend one, two, or three flowers. The pedicels are curved, up to one inch long. The flowers are perfect or polygamous. The two to four sepals are coriaceous, green, ovate to lanceolate, about one third as long as the petals, acute, red-pubescent. The six to thirteen petals are white or ochroleucous, linear or nearly so, or somewhat broadened upward, recurved-spreading, up to three quarters of an inch long. The fourteen to twenty-one stamens are crowded on a flat receptacle. The filaments are mere disk-like dilations. The anthers are parallel, surmounted by a gland-like protuberance from the top of the connective. The carpels are borne at the center of the receptacle, solitary or two together. The style is wanting. The stigma is subulate, deciduous, The ovary is one-celled, with six to eight ovules. The fruit is usually of one or two baccate obovoid to ellipsoid but more or less irregular or somewhat torulose carpels with thin flesh, up to two inches long, yellowish and more or less glaucous. The one to four seeds are subglobose, sometimes lobsided from mutual pressure, shining.

JOHN K. SMALL.

EXPLANATION OF PLATE. Fig. 1.—Flowering stem. Fig. 2.—Sterile stem at flowering time. Fig. 3, 4.—Sepals. Fig. 5, 6, 7.—Petals. Fig. 8.—Stamen. Fig 9.—Carpel, × 4. Fig. 10.—Fruit. Fig. 11.—Seed.



AZALEA VISCOSA GLAUCA

(Plate 370)

AZALEA VISCOSA GLAUCA

Glaucous-leaved swamp-azalea

Native of eastern North America

Family ERICACEAE HEATH Family

Azalea viscosa glauca Michx. Fl. Bor. Am. 1: 151. 1803.

For the student of nature unafraid to wet his feet, there are many pleasures ever awaiting. In the midsummer bogs and swamps, the air is close and hot, but deliciously fragrant with the spicy scent of the swamp-azalea. In the deep and dark sections of the bog, where the sphagnum gives underfoot with a spongy squash, there are carpets of callas and cinnamon-ferns, and overhead the tangled maze of rhododendron, in season lit up by the huge white clusters of flowers. In the more open parts and around the edges, especially near the water's edge, grow the close thickets of azalea, their straight smooth stems and whorls of branches offering quite a contrast to the gnarled and twisted growth of the rhododendron. Their display too is different, for the rhododendron's flowers, while handsome, are stiff and scentless, while these are airy and graceful, laden with a perfume that pervades the air far from its source.

On examining the flowers, one finds the outside of the tube usually dotted here and there with the bodies of crawling insects and small flies and gnats, would-be pilferers of the store of nectar, who have become entangled in the gland-tipped hairs on the outside of the corolla and perished.

This last of the procession of the azaleas and large-flowering heaths is one of the few fragrantly scented members of the family, seeming to use its fragrance to leave a pleasant recollection of the family as its most conspicuous members pass away for the year.

The name *Azalea* is derived from the Greek word meaning hot or dry, in allusion to the habitat of most species, to which this is an exception.

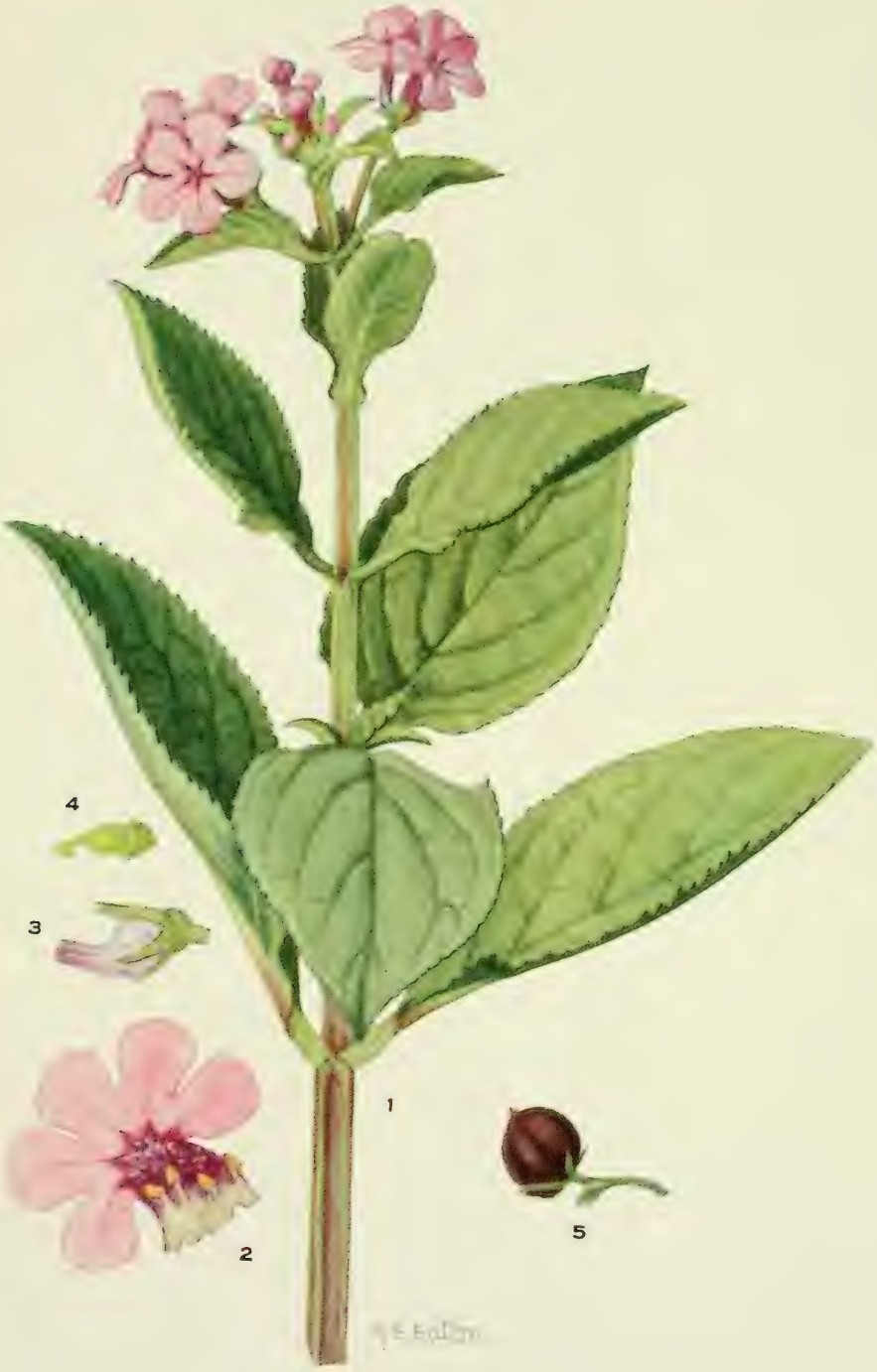
The plant grows in open bogs and swamps and along streambanks. Its geographical range is from the New England states south to Virginia.

The glaucous-leaved swamp-azalea is a shrub 3–10 feet high, the stems and branches clothed with smooth brown or black bark, the young branchlets bristly, especially towards the tips. The leaves

are approximate on the branchlets. The leaf-blades are obovate, oblanceolate or spatulate-oblanceolate, tapering to a cuneate base and a very short petiole, deep-green to bluish-green in color, glaucous above and beneath, sometimes merely glaucescent or only glabrous above, but always very glaucous beneath. In the sunlight the leaf-blades are yellow-green and tinged with red around the edges. The leaves are bristly on the margins and the midrib beneath (the young leaves bristly above), the marginal bristles spreading, more numerous and finer than *A. viscosa*. The midrib bristles are also more numerous and finer. When the plant grows in full sun the bristles are as in typical *viscosa* (less numerous and appressed). The flowers are borne from 5 to 10 in a cluster, heavily spice-scented. The calyx is very small, five-lobed, glandular-pubescent as are the pedicels, the lobes extended into several long, gland-tipped hairs. The corolla is white, often suffused with pink, or sometimes entirely pink or rose-colored, slightly two-lipped, the middle lobe of the upper lip broader than the others. The tube is shallowly five-ridged, exceedingly glandular-pubescent, with smaller and finer gland-tipped hairs than the type, the glands also more viscid, the pubescence extending down the midvein of the lobes to the tip. The buds above the tube are usually broadly obovate and abruptly pointed, usually tipped with pink, but a form is known with the buds only slightly obovate, tapering to a point, and tipped with yellow-green (see illustration). Corolla with the limb one and one fourth to one and three fourths inches broad, the tube one to one and one half inches long, the lobes less than half the length of the tube. The five stamens are conspicuously exserted and depressed, the slender filaments are fastened in the angles of the corolla-tube between the ridges at its base, flattened at the base, copiously pubescent for about the lower third, except at the base, glabrous from the point of exsertion to the tip. The anthers are light yellow-brown (two shorter than the others), two-celled, opening by pores at the tips. The ovary is superior, five-celled, containing many ovules on parietal placentae, copiously pubescent, the hairs more or less gland-tipped. The style is much exserted and depressed, usually exceeding the stamens, though sometimes it is equaled or even surpassed by them, short-pubescent at the base, less so farther up and glabrous from the point of exsertion to the tip. The stigma is capitate, but slightly five-lobed. The fruit is a dry capsule, one half to three quarters of an inch long, splitting into five valves, from which the wind scatters the scale-like seeds.

EDWARD J. ALEXANDER.

EXPLANATION OF PLATE. Fig. 1.—Flowering branch. Fig. 2.—Pistil and two stamens. Fig. 3.—Flower of a plant growing in bright sunlight. Fig. 4.—Pistil and two stamens of fig. 3. Fig. 5.—Leaf of the plant of fig. 3. Fig. 6.—Fruit.



TEEDIA LUCIDA

(Plate 371)

TEEDIA LUCIDA

Shining Teedia

Native of southern Africa

Family SCROPHULARIACEAE FIGWORT Family

Capraria lucida Ait. Hort. Kew. 2: 353. 1789.
Teedia lucida Rudolphi, Jour. Bot. Schrad. 1799[2]: 288. 1799.
Borckhausenia lucida Roth, Cat. Bot. 2: 56. 1800.

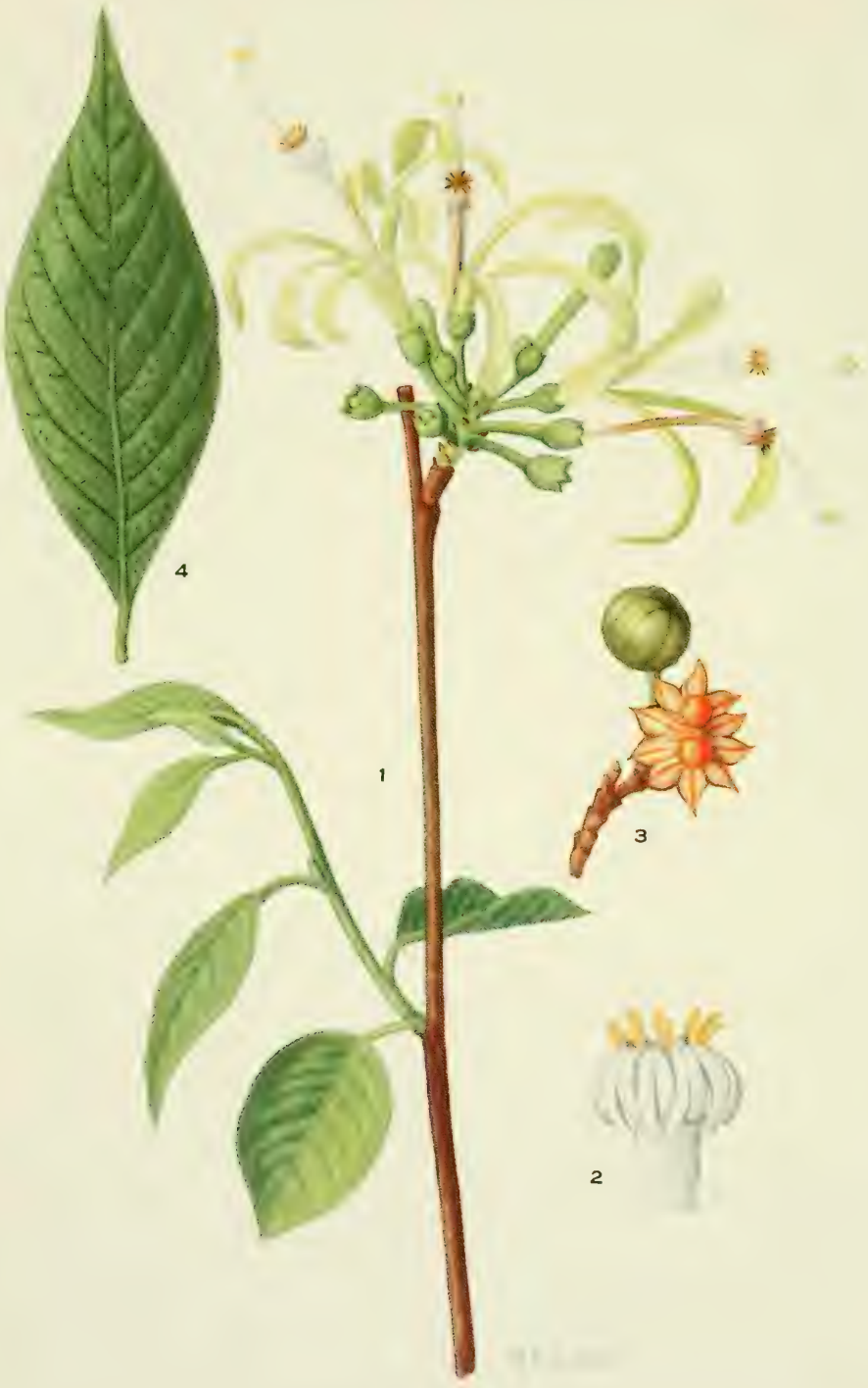
The genus *Teedia*, named to commemorate J. G. Teede, a traveller and nature-lover, consists of two closely related species, natives of southern Africa, the one here illustrated and *Teedia pubescens* Burchell. They are biennial or perennial plants, a little woody, but usually regarded as shrubs, and become two to four feet high, with thin broad serrulate leaves, and attractive purple or rose-colored flowers in terminal and axillary cymes, followed by globose dark purple or brownish fruits, subtended by a five-parted calyx. The stems and branches are sharply four-angled. The corolla has a short cylindric tube and five nearly equal spreading lobes. There are four stamens, with short filaments and short ovoid anthers. The ovary is two-celled, the style short, the stigma capitate.

Teedia lucida was introduced into English greenhouses from the Cape of Good Hope in 1774. It it a glabrous, somewhat unpleasantly odorous plant when bruised, easily propagated by seed; grown out of doors in California it flowers as an annual. Its ovate to elliptic leaves are from three to five inches long, somewhat shining (whence the specific name), narrowed into short margined petioles with a broadened, partly clasping base. The peduncles of the few-flowered cymes are about one inch long, the pedicels short, the calyx one sixth to one fourth of an inch long, the corolla about three fifths of an inch broad; the fruit is about half an inch in diameter.

Plants from which our illustration was made were grown in greenhouses of the New York Botanical Garden, from seed received from the botanical garden at Lyons, France.

N. L. BRITTON.

EXPLANATION OF PLATE. Fig. 1.—Top of plant in flower. Fig. 2.—Flower cut open. Fig. 3.—Base of flower. Fig. 4.—Fruit.



TURRAEA FLORIBUNDA

(Plate 372)

TURRAEA FLORIBUNDA

Cluster-flowered Turraea

Native of tropical Africa

Family MELIACEAE MAHOGANY Family

Turraea floribunda Hochst.; Krauss, Flora 27: 297. 1844.

Two species of the genus *Turraea* have been occasionally cultivated. They are perhaps found in Florida gardens, one kind being recorded as introduced there, and both have been brought to this country by the United States Department of Agriculture. In the north they are cultivated in greenhouse collections.

In the family Meliaceae, characterized by the filaments of the stamens being united to form staminal tubes, they are closely related to the mahogany and to the Pride-of-India or China-berry tree. It is not known that they serve any such utilitarian purposes as the former or have any such general decorative use as the latter. They are natives of Africa, Asia, and Australia.

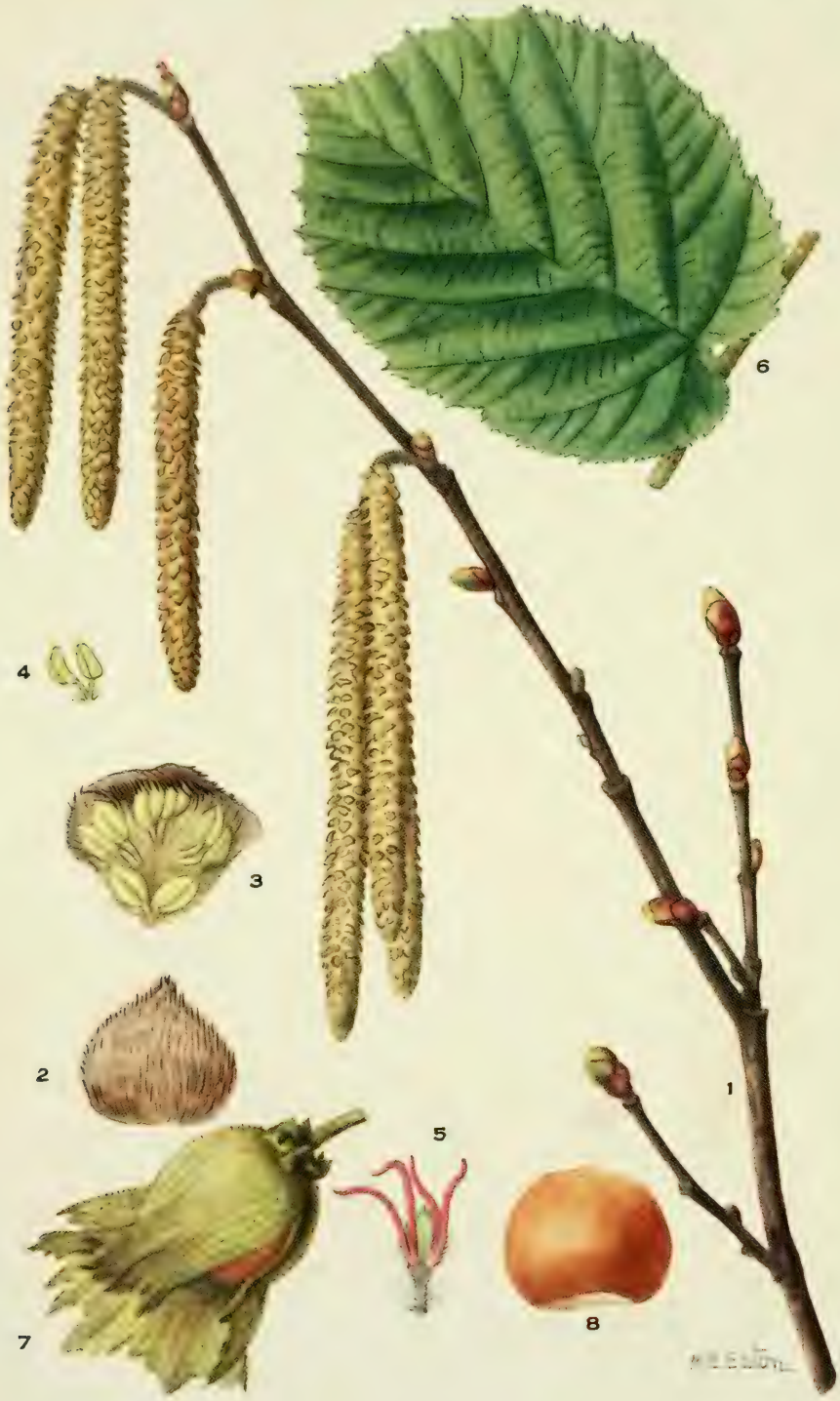
Seeds of the present subject were sent from the Botanic Garden at Durban, South Africa, in 1912, together with those of *Turraea obtusifolia*. The plants of both flower and fruit in our conservatories, and from plants of the former our illustration was taken.

The flowers are whitish yellow, borne in clusters, while those of *T. obtusifolia* are clear white and usually solitary. Fruits borne by these plants mature, but a full complement of seeds never develops. *Turraea* is propagated readily by seed, and requires a warm moist atmosphere in the greenhouse.

The cluster-flowered turraea is a shrub or small tree with dark brown bark. The simple leaves are alternate, ovate or ovate-lanceolate, acute to acuminate and soft-hairy. The peduncles and calyces are soft or silky villous. The calyx is bell-shaped, five-lobed, and the corolla is made up of five strap-shaped twisted petals which are about two inches long. The ten stamens are united by their filaments to form a slender, cylindric staminal tube, which has about ten acute, reflexed, two-lobed teeth at the summit, and bears the erect anthers attached between the teeth just inside the rim of the tube. The slender style is one third longer than the staminal tube, curved, and the stigma top-shaped. The ovary is five-celled, each cell containing two ovules and the fruit is a rounded, five-celled capsule, splitting along five partitions into the cavity. Each cell contains two seeds, or one or less after abortion.

KENNETH R. BOYNTON.

EXPLANATION OF PLATE. Fig. 1.—Flowering branch. Fig. 2.—Summit of staminal tube, × 4. Fig. 3.—Fruit, both before and after opening. Fig. 4.—Lower leaf.



CORYLUS PONTICA

(Plate 373)

CORYLUS PONTICA

Pontine Hazel

Native probably of Asia Minor

Family BETULACEAE BIRCH Family

Corylus pontica K. Koch, Linnaea 22: 329. 1849.

The so-called Pontine hazel has given botanical students a good deal of discomfort. Filberts in general were called "Nux Pontica" by the Romans, because they were introduced from Pontus, a country in Asia Minor. A number of species and varieties must have become naturalized in southern Europe in very early days. At the present time it does not seem possible to determine just which nut in olden times was understood to be the Pontine hazel, if there really was any one which should have been given that distinctive name.

Some of the older authors like C. Bauhin, Dodonaeus, Jonstone, Cordus and Camerarius classed the red Lambert nut and in fact all of the large hazelnuts as Nux Pontica. Pomologists like Christ, Dittrich and others were in favor of calling the large Barcelona hazel or the large round highly colored Zellernut the original Nux Pontica.

Karl Koch (Die deutschen Obstgehölze 263, etc.) is the botanist perhaps who has been most certain that he was dealing with a good species, after finding this plant in the region of Pontus and comparing it with other species of hazel in 1843.

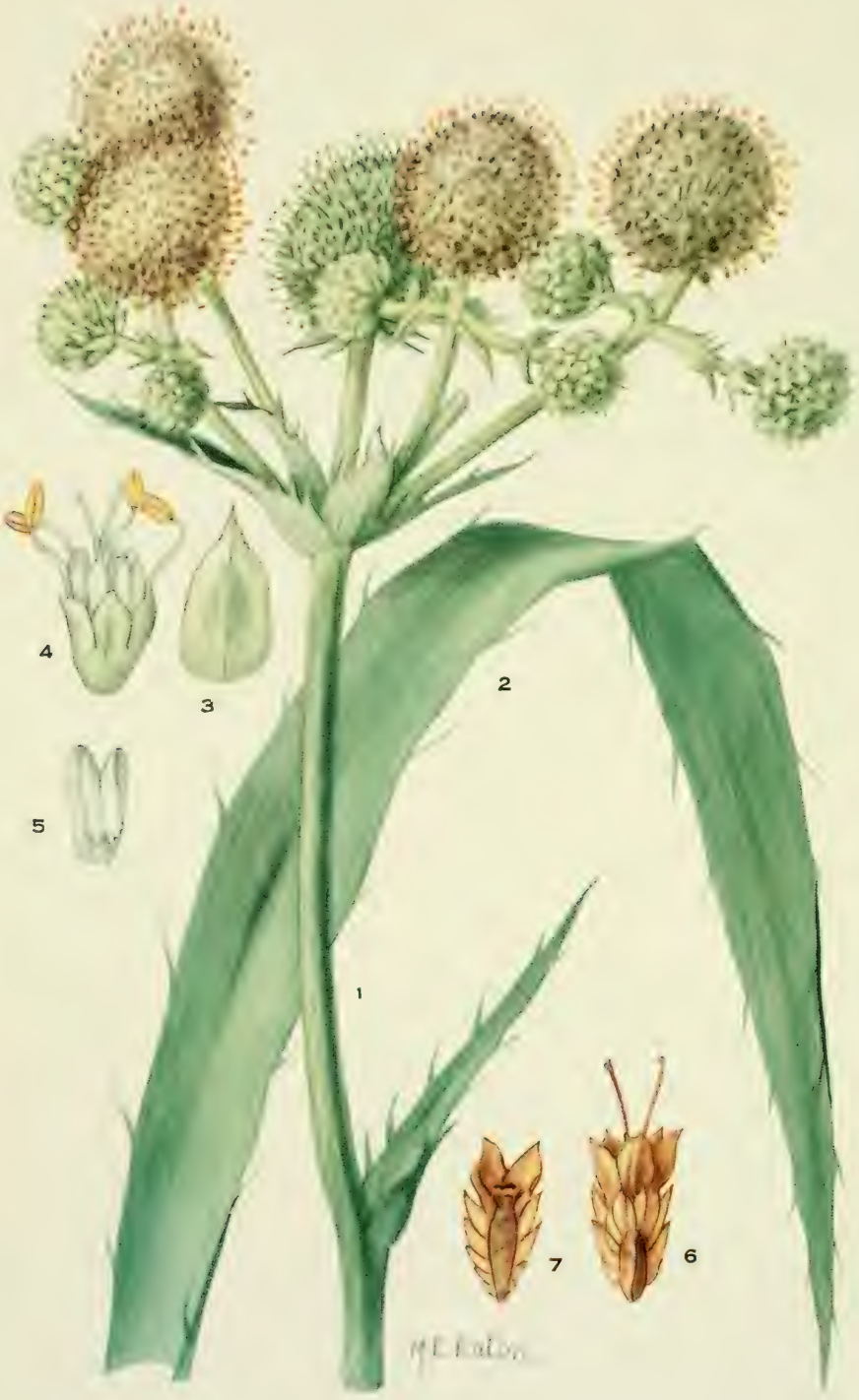
The shrub which in this country is known as the Pontine hazel bears an extremely large rather thick-shelled nut with a kernel of high quality. The handsome little tree with its large leaves is well worthy of position in our gardens and on our lawns because of the beauty of the plant aside from the value of its crop of nuts. It is rather remarkable that a species at home in Asia Minor should be hardy so far north as to New York City and perhaps farther north in America. This hazel furthermore seems to be highly resistant to the blight (*Cryptospora anomala* Peck). The Pontine hazel shares with the Byzance hazel (*Corylus Colurna*) these two characteristics of adaptability to cold winter climate and resistance to blight when introduced into regions in which other Old World hazels have proven to be vulnerable to these two enemies.

The Pontine hazel may be grafted readily upon other hazels. In hybridization work in the writer's experience pollen from this species upon pistillate flowers of the common American hazel (*Corylus americana*) has resulted in the development of fertile nuts. The progeny of these when planted, however, carry comparatively few characteristics of the pontine hazel but retain American hazel characteristics rather distinctly. This would seem to indicate that the American hazel is older or at least more vigorous in retaining distinctive characters in the history of descent. The same statement is true of crosses between the other hazel from Asia Minor, the Constantinople hazel, and the common American hazel. When breeding hazels in the hope of securing a very large nut like that of the Pontine hazel with a thin shell of the sort belonging to other species or varieties there seems to be a tendency for reversion to a nut of small size and of little value. Further experimentation in this direction, however, may give here and there a hazelnut combining qualities and characters of two superior parents.

At the present time the Pontine hazel is best propagated by grafting or layering for purposes of securing a number of plants from some one desirable individual which bears nuts of particularly large size and high quality. When grafting scions of *Corylus pontica* upon stock of the American hazel it is necessary to graft close to the root; otherwise the heavy top will bend or break the slenderer stock. It is better to employ stocks of other European or Asiatic hazels which are naturally more robust than those of the American hazel.

ROBERT T. MORRIS.

EXPLANATION OF PLATE. Fig. 1.—Branch with staminate flowers. Fig. 2.—Scale of staminate catkin, dorsal view, × 8. Fig. 3.—Same, frontal view, × 8. Fig. 4.—Stamens, × 6. Fig. 5.—Pistillate flower, × 4. Fig. 6.—Leaf. Fig. 7.—Fruit. Fig. 8.—Nut.



ERYNGIUM AQUATICUM

(Plate 374)

ERYNGIUM AQUATICUM

Rattlesnake-master

Native of southeastern North America

Family AMMIACEAE CARROT Family

Eryngium aquaticum L. Sp. Pl. 232. 1753.
Eryngium yuccaefolium Michx. Fl. Bor. Am. **1**: 164. 1803.

No plant less resembles the family to which it belongs than does the subject of this sketch. Its dense globose heads of flowers look much more like a composite or a teasel, than the carrot family. Indeed, the peculiar blue-green of the plant makes it a conspicuous figure wherever it grows, and sometimes when growing in large colonies it imparts a touch of its own weird color to the landscape. The long exserted filaments and styles give a misty appearance to an otherwise rather stiff plant, and seen against the dark background of the white cedars and other pine-barren plants it chooses for companions it is a beautiful and unusual sight. The plant when not in bloom resembles the yucca so much that it was once called *E. yuccaefolium*.

A cousin of this (*E. amethystinum*) is much used in gardening and bedding, where its peculiar steely-violet color gives a most unusual note of color to any garden that it is grown in, and is a most desirable plant for this reason.

The common name of rattlesnake-master is derived from an old folk-belief that a concoction from either the plant or the root would cure the bite of a rattlesnake. The root of the plant is at present used as a diaphoretic and expectorant. The generic name comes from the Greek word for eryngo, the ancient name used by Dioscorides for a European species used as a diuretic.

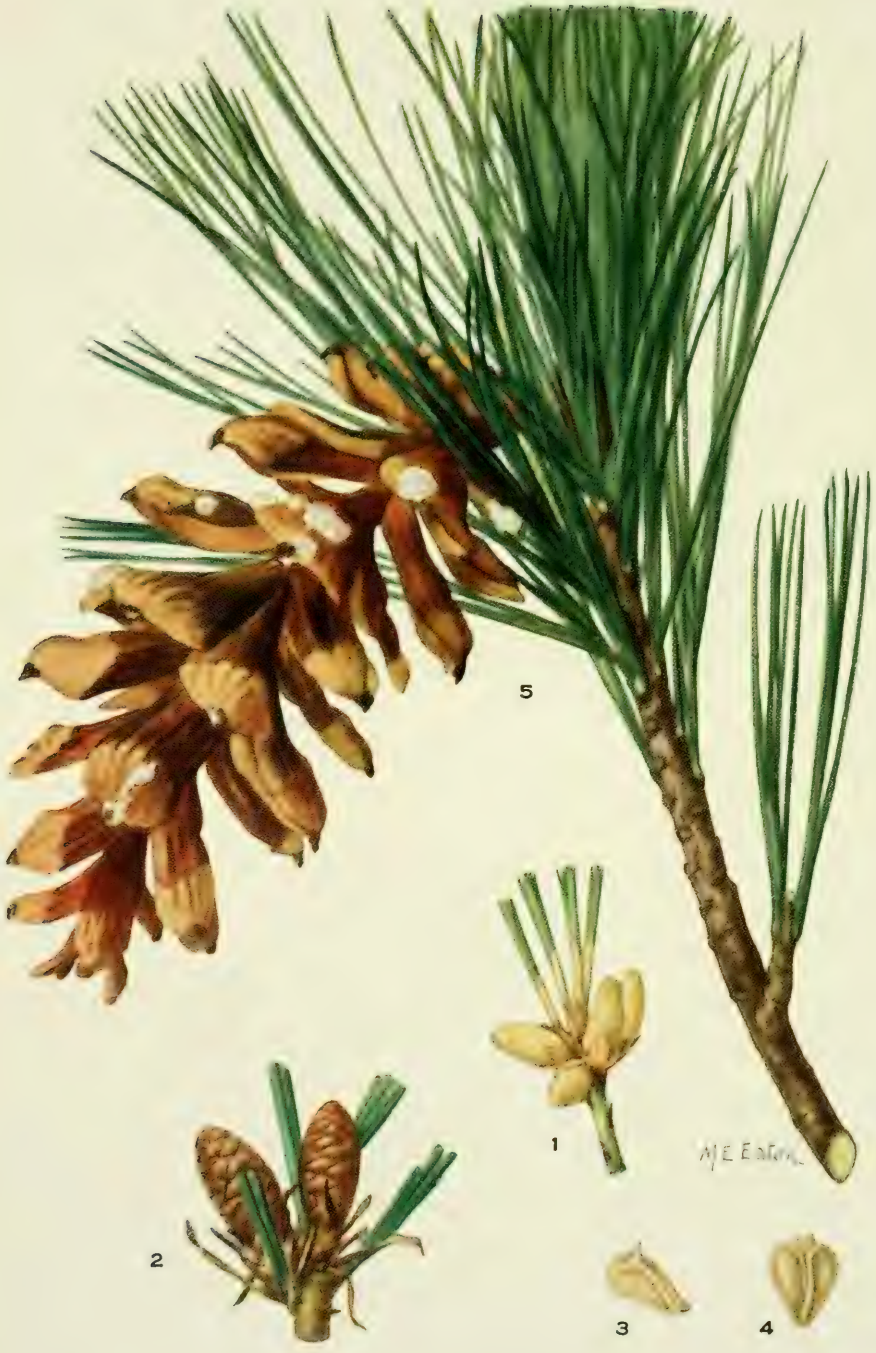
The plant grows in wet or sometimes dry pine barrens from New Jersey south to Florida, and west to South Dakota, Kansas, and Texas.

The rattlesnake-master is a perennial herb arising from a large, woody, underground rootstock. The entire plant is glabrous and glaucous, dull blue-green, and grows from two to four feet tall. The stem rises from a cluster of lanceolate, sword-like leaves from eight inches to two feet long, becoming more reduced toward the top of the stem, and finally becoming bracts in the inflorescence-branches. The blades are remotely but stiffly bristle-margined. The leaves are parallel-veined, sheathing-clasping at their base, es-

pecially the cauline ones, and are from one half to one inch wide at the middle; the stem is slightly swollen at the nodes from which they grow. The flowers are borne in dense globular heads in much branched panicles. The heads, one half to three quarters of an inch in width and height, are peduncled and subtended by an involucre of numerous lanceolate bracts from one eighth to three quarters of an inch long, and spine-tipped. Each flower is in turn subtended by one of these spine-tipped bracts. The calyx consists of five ovate, stiff sepals, which are persistent as a crown on the fruit. The corolla consists of five oblong bluish-white petals, sharply inflexed at the middle and fastened on a disk which crowns the ovary. The five stamens are fastened with the petals on this disk. The gynoecium consists of two long-exserted, stigma-tipped styles and an ovary of two inferior one-celled carpels. The fruit consists of two united scaly achenes with five oil-tubes, and crowned with the persistent calyx.

EDWARD J. ALEXANDER.

EXPLANATION OF PLATE. Fig. 1.—Flowering branch. Fig. 2.—Leaf. Fig. 3.—Bract, × 4. Fig. 4.—A flower, × 4. Fig. 5.—A petal, × 8. Fig. 6.—Fruit, × 3. Fig. 7.—A single carpel, × 3.



PINUS PEUCE

(Plate 375)

PINUS PEUCE

Macedonian White Pine

Native of southeastern Europe

Family PINACEAE PINE Family

Pinus peuce Griseb. Spicil. Fl. Rumel. 2: 349. 1845.

Of the soft or five-leaved pines perhaps nine are hardy in the New York region. Besides our own white pine, the Pinetum of the New York Botanical Garden contains the Himalayan white pine, *Pinus excelsa*, the Japanese white pine, *Pinus parviflora*, the Western white pine, *Pinus monticola*, the Swiss stone pine, *Pinus cembra*, the limber pine, *Pinus flexilis*, the Korean pine, *Pinus koraensis*, and the Macedonian white pine, *Pinus peuce*. *Pinus Armandi*, the Armand pine, is hardy in the region.

The Macedonian white pine was long confused with the Swiss stone pine, which it resembles in some aspects, but it is distinguished from that tree by its taller, narrow growth, and by having smooth rather than brown-tomentose branchlets.

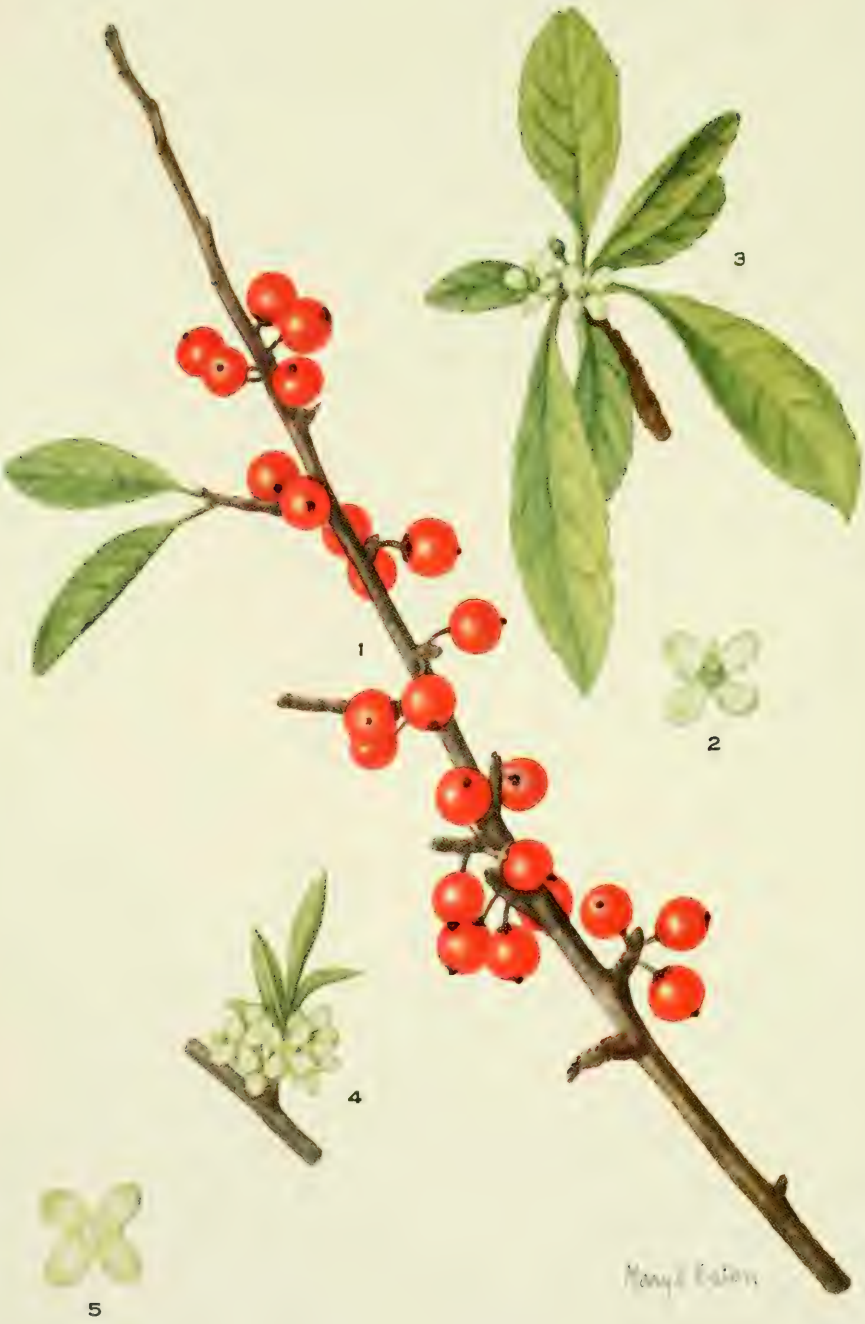
Some dozen fine trees represent this species in our collection, the oldest specimens from the collection of Mr. Loren M. Palmer, given to the Garden in 1903, being nearly thirty feet tall. These are found along the main drive through the garden, near the Southern Boulevard entrance. The general appearance of the tree is narrowly pyramidal, with branches and foliage closely set together and bluish green in color. The trees are hardy in this region and as far north as Ottawa; they withstand considerable exposure and make excellent small garden or yard subjects, being slow growing and compact. They are not of great importance commercially.

Pinus peuce is propagated by seeds sown in early spring an inch deep in a thoroughly prepared, shaded seed-bed.

The Macedonian white pine is a tree with grayish-brown bark, smooth in a young state but at length divided into plates. The branches are ascending, the branchlets greenish-yellow and smooth. The needles are in clusters of five, with deciduous strawy short cylindric sheaths wrapping the base of the clusters. The needles are slender, about three to four inches long, stiff and upright, the margins serrulate. The cones are pendent, mature and opening in one season, cylindric, from four to eight inches long. The scales of the cones are obovate, thickened convexly at the end, and abruptly pointed, and the seeds are small, with long wings.

KENNETH R. BOYNTON.

EXPLANATION OF PLATE. Fig. 1.—Staminate inflorescence. Fig. 2.—Pistillate inflorescence. Fig. 3, 4.—Scales of pistillate inflorescence, × 8. Fig. 5.—Fruiting branch, with leaves and cone.



ILEX DECIDUA

(Plate 376)

ILEX DECIDUA

Deciduous-leaved Holly

Native of southeastern North America

Family AQUIFOLIACEAE HOLLY Family

Ilex decidua Walt. Fl. Car. 241. 1788.

When the autumn winds have spent their force on the frost-tinged leaves of the swamp, and little is left but the bare branches to sway in the winter winds, the scarlet berries of the holly give their touch of color to the landscape, and their warm glow gives promise of the hearth-fire and home. Throughout the spring and summer they have been the unnoticed and plain citizens of the swamp with no attractiveness in either flowers or leaves to claim attention. But they have well bided their time, for with the coming of winter, all else has passed away and they stand forth the cynosure of all eyes, much to their regret, for thoughtless people when they see beauty cannot leave it be, but must strip the trees of their fruit-bearing branches and carry them home for decorations, thus destroying the growth of many years, as well as removing the hope of future propagation.

Our American hollies are without rivals in the beauty of their fruit for ornamental purposes, particularly the evergreen kinds, of which *Ilex opaca*, *I. Cassine*, and *I. vomitoria* are the most showy and most plentifully fruited. The subject of this sketch, with *I. verticillata* and *I. monticola*, are deciduous-leaved, but the plentifulness of their berries makes up for the lack of leaves, and though they are not as often grown for ornament, they make the more display when left alone in their native haunts.

Since the flowers are dioecious it must be borne in mind in cultivation that only the pistillate trees bear fruit, but the staminate trees are needed on the grounds to pollinate the pistillate and thus insure fruit.

The name *Ilex* is derived from the latin word *ilex*, the name of the holm-oak (*Quercus Ilex*). This name in turn is probably derived from the celtic word for point in allusion to the spines on the leaf-margins of the European species.

This plant grows in swamps, and along streams from Virginia west to Illinois and Kansas, and south to Florida and Texas.

The deciduous-leaved holly is a tree twenty to thirty feet high, with a trunk six to ten inches in diameter, or more often a shrub six to fifteen feet high, the branches and trunk clothed with a pale gray or silvery gray, smooth bark. The leaves are oblanceolate, broadest above the middle, tapering to a cuneate base and a short petiole, acuminate at the apex, irregularly crenate-serrate, softly pubescent, especially on the veins beneath and on the petioles; bright green, smooth and shining above, lighter green and dull beneath. The flowers are dioecious, the staminate and pistillate flowers being borne on different trees. They are borne in clusters on pedicels one eighth to three eighths of an inch long, along the branches or at the beginning of the year's growth. The four white petals are three sixteenths of an inch long, obovate, and united just above the base. The four stamens are alternate with the petals, present in both staminate and pistillate flowers, but those of the pistillate flowers are not pollen-bearing. The filaments are white and shorter than the petals. The anthers are ovoid and yellow. The pistil, which is wanting or rudimentary in the staminate flowers, consists of a capitate, depressed stigma, usually sessile on the globose-ovoid superior ovary, which is usually four-celled. The calyx consists of four triangular, sometimes ciliate sepals one sixteenth of an inch long. The fruits (berries) are borne along the branches and twigs on short pedicels one eighth to three eighths of an inch long. The berries are bright scarlet, one eighth to one fourth of an inch long, globular-depressed, seated on the persistent calyx, and crowned with the dried but persistent stigma-tip. The nutlets are about one tenth of an inch long and prominently ribbed on all three sides, light yellow-brown in color.

EDWARD J. ALEXANDER.

EXPLANATION OF PLATE. Fig. 1.—Branch in fruit. Fig. 2.—Pistillate flower, × 2. Fig. 3.—Spray of pistillate flowers. Fig. 4.—Spray of staminate flowers. Fig. 5.—Staminate flower, × 2.

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ADDISONIA

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AND
POPULAR DESCRIPTIONS
OF
PLANTS

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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 Dr. John Hendley Barnhart, Bibliographer, and Mr. Kenneth Rowland Boynton, Head Gardener.

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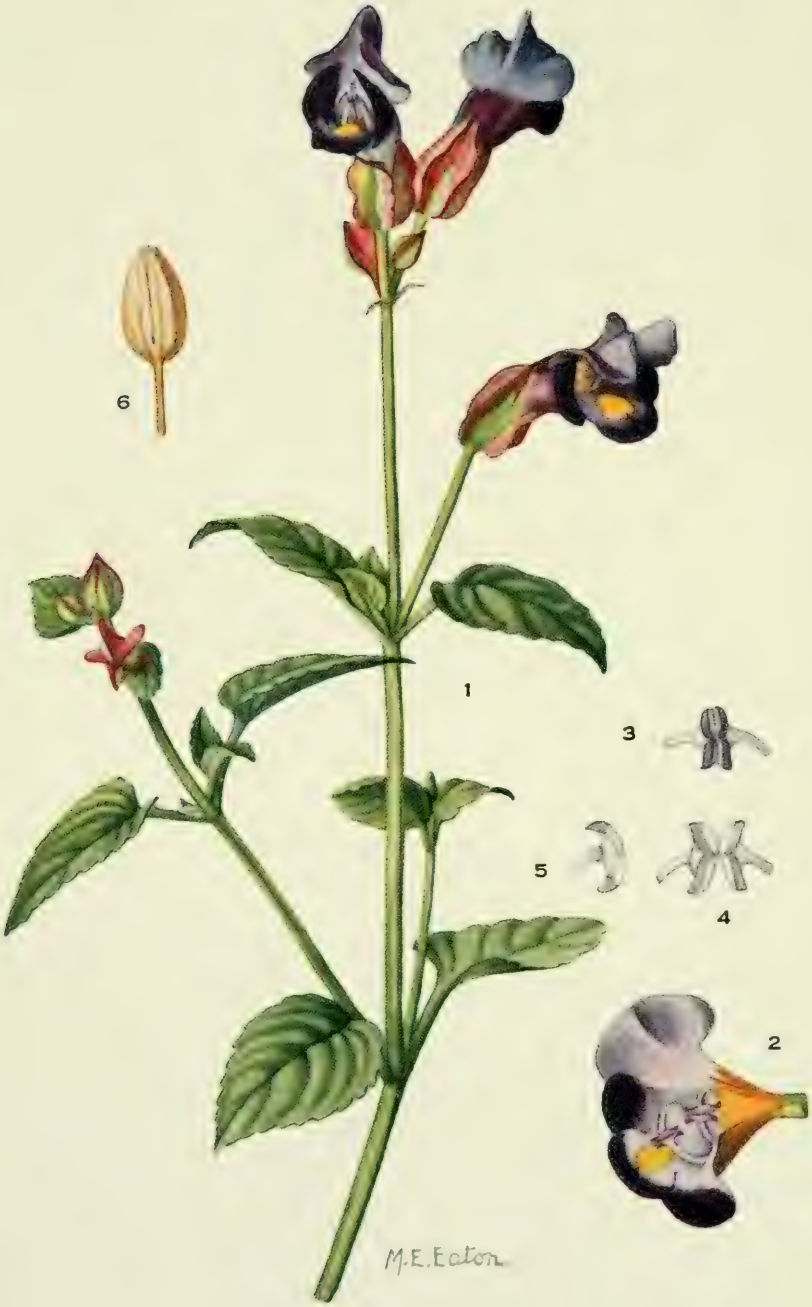


TORENIA FOURNIERI

(Plate 377)

TORENIA FOURNIERI

Blue Torenia

Native of Cochin-China

Family SCROPHULARIACEAE FIGWORT Family

Torenia Fournieri Linden; Fourn. Illust. Hortic. 23: 129. 1876.

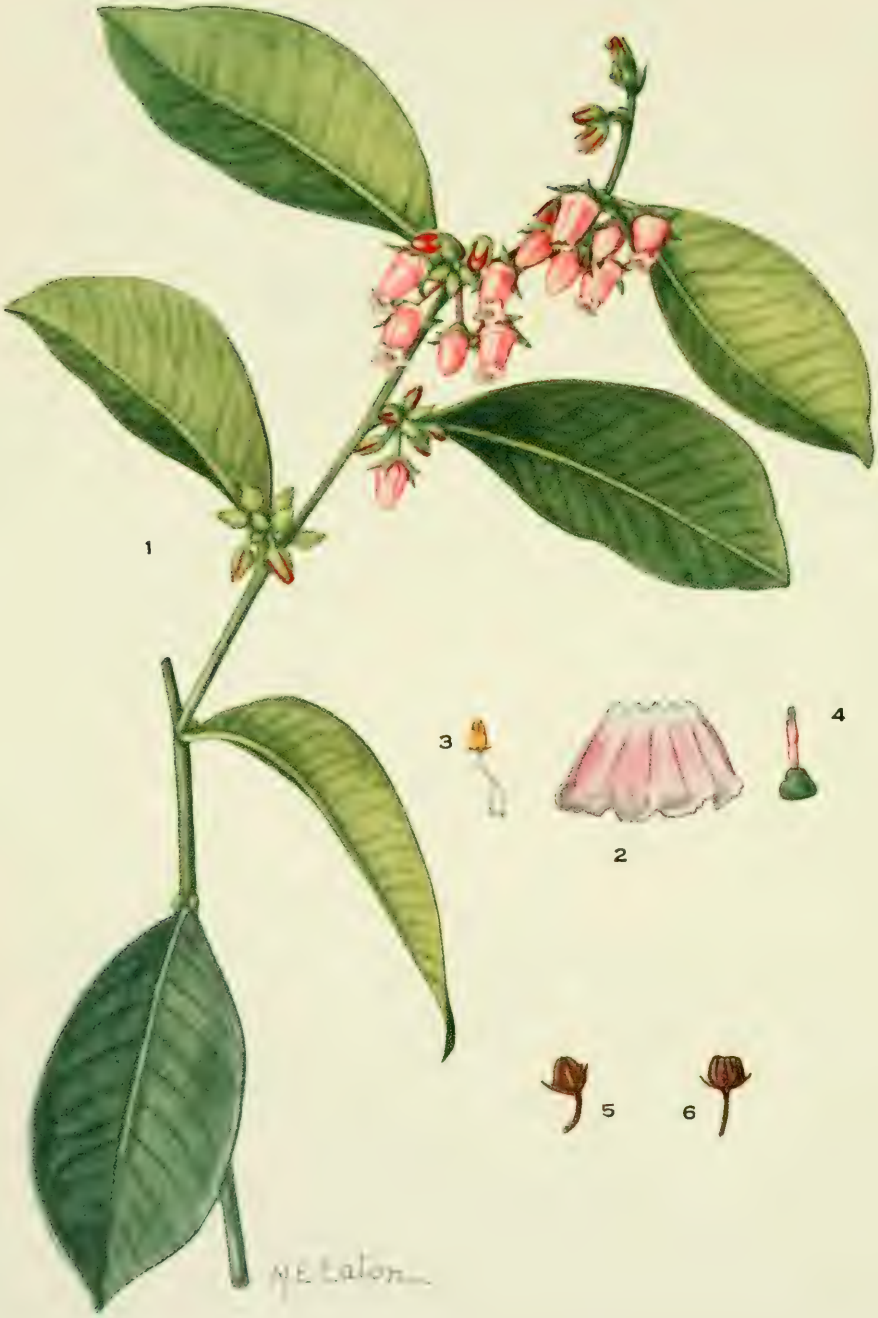
In the last century, during the rapid introduction for trial of new plants from distant parts into continental gardens, one of the plates of the publication "L'illustration horticole" illustrated this *Torenia*, and therewith was presented a description of the species by Eugène Fournier under the name assigned to it by Linden in his honor. The seeds were sent to Linden by Godefroy from Cochin-China. In addition to this species there are some thirty others, mostly of tropical Asia; one of them has been cultivated in this country, the yellow torenia, *T. flava*. Both have been treated as garden annuals in this country.

The blue torenia is said to furnish white and other varieties. It was grown in this country before 1890, and is occasionally offered by seedsmen. Plants growing and flowering in a border-group in the beds near Conservatory Range 1 furnished the illustration for our plate. The usual methods followed in the culture of garden annuals suffice to bloom this curious blue-spotted flower.

The blue torenia is a spreading glabrous herb with four-angled stems about one foot high. The leaves are opposite, broadly lanceolate, with cordate bases, acute, and with shallow-toothed margins; they measure from one and one half to two inches long. The flowers are in the upper axils or form few-flowered terminal racemes. The calyx is ellipsoid, nearly an inch long, slightly inflated, with five angles and wings and five short pointed teeth. The tube of the corolla is bluish, one and one half inches in diameter; the corolla-limb is irregularly two-lipped. The upper lip is broadly rounded, obscurely notched or two-lobed; the lower lip is distinctly divided into three rounded velvety purple lobes, the middle lobe with a yellow spot at the back. The four stamens are perfect; two longer inserted inside the corolla-tube, two shorter inserted at the throat. The filaments of each pair incurve, the anthers standing together; and there are no appendages at the base of the longer filaments. The pistil is club-shaped, the style slender, the stigma bifid. The capsule is ellipsoid, four-winged, and many-seeded.

KENNETH R. BOYNTON.

EXPLANATION OF PLATE. Fig. 1.—Summit of flowering plant. Fig. 2.—Corolla, split open, showing stamens. Fig. 3.—Anthers, × 2. Figs. 4, 5.—Older anthers, × 2. Fig. 6.—Fruit.



DESMOTHAMNUS LUCIDUS

(Plate 378)

DESMOTHAMNUS LUCIDUS

Fetterbush

Native of southeastern North America

Family ERICACEAE HEATH Family

Andromeda lucida Lam. Encyc. 1: 157. 1783.
Andromeda nitida Bartr.; Marsh. Arbust. 8. 1785.
Pieris nitida Benth. & Hook. Gen. Pl. 2: 588. 1876.
Neopieris nitida Britton; Britt. & Brown, Ill. Fl. ed. 2. 2: 690. 1913.
Desmothamnus nitidus Small, Shrubs Fla. 96. 1913.
Desmothamnus lucidus Small, N. Am. Fl. 29: 64. 1914.

Generic botanical names are frequently suggested by structure or habit. They may be directly suggested to the author by the plant or by the popular name given to a plant by the people in the locality where it grows. Some shrubs, rather low-grown in habit, with elongate, wand-like sprawling, or vine-like tough-woody branches which are liable to retard or to trip one passing through them, have as a consequence been popularly known by the names hobble-bushes, fetter-bushes, and kindred terms. Hence the generic name with which we are here concerned, *Desmothamnus*, is a compound of two Greek words δεσμός—chain or fetter, and θάμνος—shrub.

The subject of this illustration and note is one of our native heaths. Although it and its close American relatives are isolated in southeastern North America it also has close relatives in eastern Asia. This fetterbush ranges in the Atlantic and Gulf Coastal Plain from Florida to Louisiana and Virginia, and it occurs in Cuba.

Although geologically and geographically now rather restricted, its habitats are numerous—from wet to dry, from deep shade to full sun. It grows equally well in almost continuously standing water or desert-like sands which are wet only by the rain that falls. In the swamps the plants naturally grow tall and spread the branches widely; in the marsh they grow to medium stature; in the scrub they are lower and spread wider—hobbles for the giant as well as for the pygmy.

In swamps when crowded with other greenery and overshadowed by trees this shrub is much subdued and its pale-pink flowers are sometimes eclipsed by larger flowers. In the scrub or desert-like sandhills this fetterbush is very decorative. The numerous bright-green leaves are shining and free from parasitic fungi and insect mutilation and the numerous drooping clustered cone-like flowers are rosy. The whole color scheme is enhanced by the background

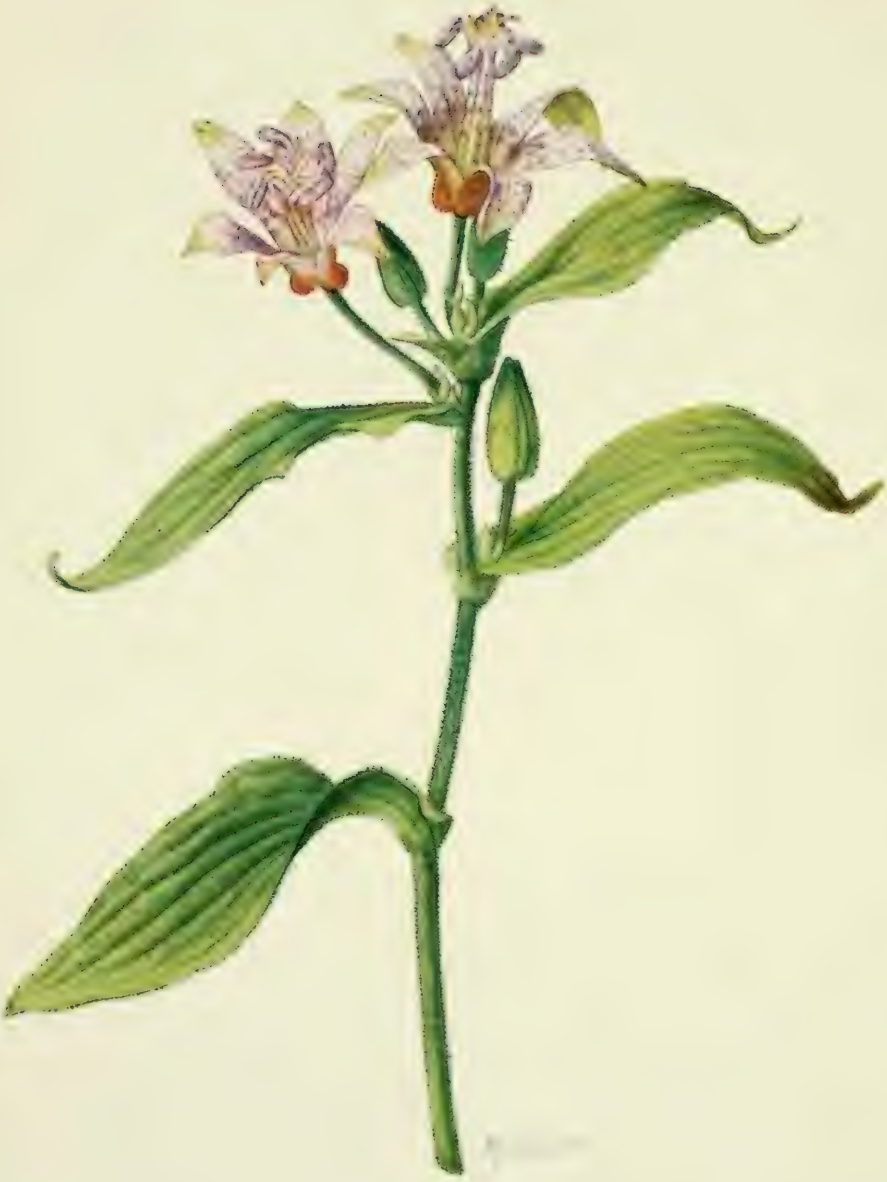
of white sand, especially where the shrubs occur in pure growth acres in extent.

The specimens from which our accompanying illustration was made were brought to the Garden accidentally, mixed in the roots of the Chapman-honeysuckle (*Rhododendron Chapmanii*) from a scrub ridge near Port St. Joe, Florida.

The fetterbush is an evergreen shrub, mostly three to six feet tall, with green, sharply angled glabrous branches. The leaves are alternate, ascending or spreading, deep-green or bright-green, glabrous, shining. The blades are coriaceous, oval, elliptic, obovate, or somewhat spatulate, mostly 1-3 inches long, abruptly acuminate, smooth, with intramarginal veins, slightly revolute, short-petioled. The flowers are perfect, in clusters arising from the axils of the persistent leaves of the preceding year, the pedicels one fourth to one third of an inch long, clavate. The calyx is somewhat succulent, stellately five-lobed, green, persistent, often about a quarter inch wide. The lobes are narrow, usually lanceolate to linear-lanceolate, acute or acuminate, shining. The corolla is much longer than the calyx, nearly white, pink, or rosy-red, nodding, ovoid-conic, somewhat constricted at the orifice, with the five short lobes recurved. The ten stamens are included. The filaments are slender above a slightly dilated base, glabrous, but sometimes papillose, each with a pair of appendages near the top. The anthers are short, unappendaged. The ovary is ovoid, somewhat lobed. The style is fusiform. The stigma is minute. The capsule is subglobose or ovoid-globose, rounded at the apex, exceeded by the sepals or about equaling them, with the sutures thickened.

JOHN K. SMALL.

EXPLANATION OF PLATE. Fig. 1.—Flowering branch. Fig. 2.—Corolla, split open, × 2. Fig. 3.—Stamen, × 4. Fig. 4.—Gynoecium, × 2. Figs. 5, 6.—Fruit.



TRICYRTIS HIRTA

(Plate 379)

TRICYRTIS HIRTA

Japanese Toad-lily

Native of Japan

Family MELANTHIACEAE BUNCH-FLOWER Family

Uvularia hirta Thunb. Fl. Jap. 136. 1784.
Tricyrtis hirta Hook. Bot. Mag. *pl. 5355.* 1863.

Wallich proposed the generic name *Tricyrtis* for the beautiful Himalayan toad-lily, *T. pilosa;* the name taken from the Greek, referring to the curious swollen cavities at the base of the three outer perianth-segments. Thunberg, the early collector in Japan, describes a "*Uvularia hirta*" but he did not see flowers. Hooker, in describing this species, attributes its rediscovery to Mr. Fortune, who sent it from Japan to English nurserymen, in 1863; and connected it with the Wallich genus. Later botanists have found it to be a rather common flower in Japanese woods; and related species have been described from China, Korea, and Formosa.

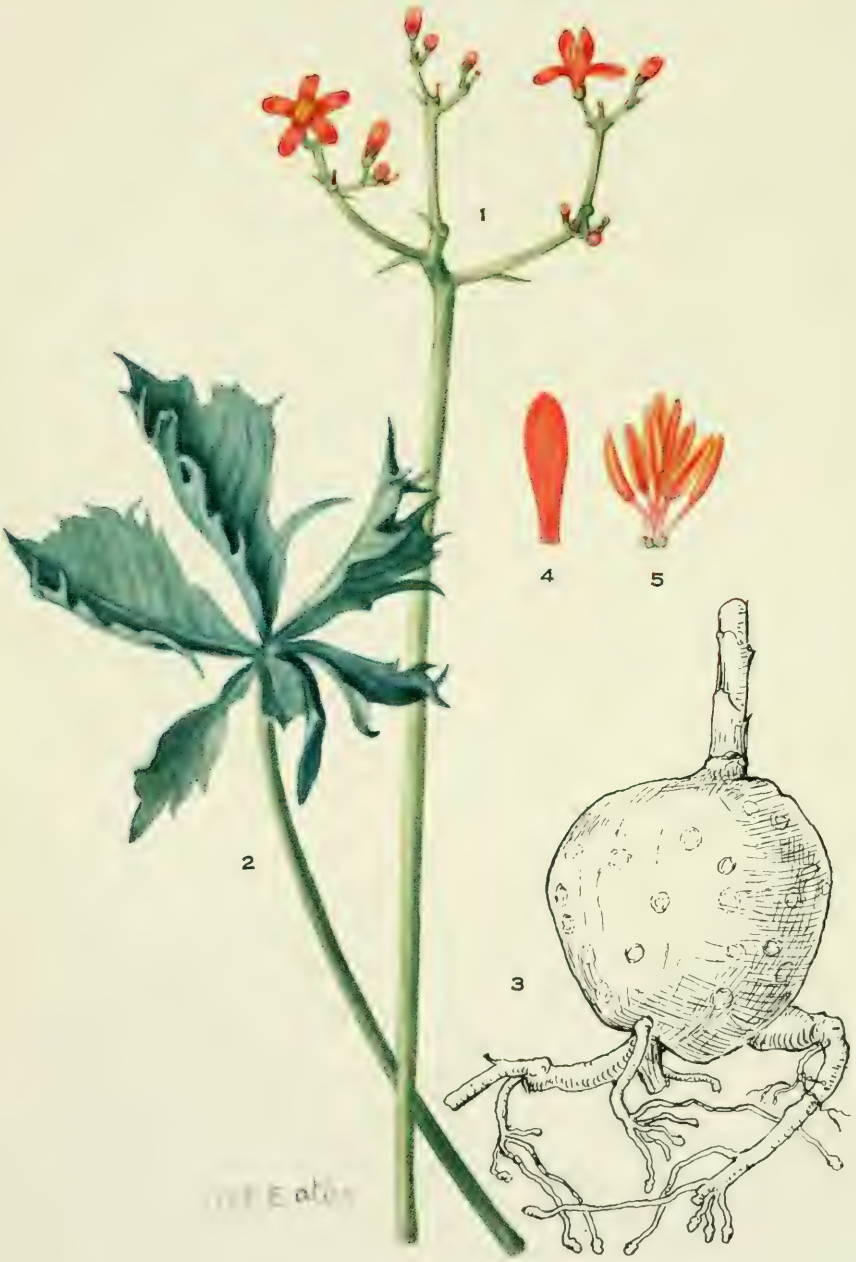
Tried in a Cambridge, Massachusetts, garden in 1890, it proved hardy. G. W. Oliver, the distinguished horticulturist, found the protracted drouths of the vicinity of Washington, D. C., were unfavorable to a plant which matures and flowers so late in the season. By November first, when the flowers are at their best, the leaves may be considerably browned, and on the whole this plant has been rather useless as a garden subject. The curious perianth and stamen and style arrangement attract the attention; the brown or purple spotted appearance suggests the common name. The late blooming period, with the Tatarian aster, the many-spiked knotweed and the American witch-hazel, constitutes another point in its favor.

Two small groups of this toad-lily are located in the valley southeast of the Museum, one in the bed in the Morphological Garden illustrating perfoliate leaves, another in the Melanthiaceae bed in the Herbaceous Grounds; from the latter the illustration for Addisonia was made.

The Japanese toad-lily is a bushy perennial herb, with short creeping rhizomes. The erect stems are densely pilose with soft spreading hairs. The leaves are alternate, oblong-lanceolate, entire, the bases clasping the stem and the apices acuminate and recurved. The flowers are borne singly or two or three together in the axils of the upper leaves, on pilose stalks as long as or longer than the flower. The perianth of the flower is bell-shaped, one to two inches across;

the six perianth-segments are lanceolate, acute, recurved, white with purple spots, the three outer with distinct, obscurely notched swellings at the base. The filaments of the six stamens are curved outward, as are the three styles, each of which is divided into two thick blue or purple branches above with the stigmas on the lower surfaces. The slender, hairy, club-shaped ovary is three-sided and three-celled. The fruit is an oblong three-cornered, three-celled capsule about one inch long.

KENNETH R. BOYNTON.



~~APENOROBIUM BERLANDIERI~~

ADENOROPIUM BERLANDIERI

(Plate 380)

ADENOROPIUM BERLANDIERI

Jicamilla

Native of southern Texas and adjacent Mexico

Family EUPHORBIACEAE SPURGE Family

Jatropha Berlandieri Torr. Bot. Mex. Bound, Surv. 198. 1859.
Adenoropium Berlandieri Small, comb. nov.

The spurges are well-known for their various kinds of glandular appendages. Sometimes they are in the foliage as in the case of the handle-not or tread-softly (*Cnidoscolus*) or in the inflorescence, as in the case of *Euphorbia* and relatives where the glands and their appendages simulate petals. The glands often viscid, along the stems, particularly at the base of the leaves in the group of spurges of which jicamilla is a member suggested the generic name *Adenoropium*, made from two Greek words ἀδήν and ῥωπίον—gland-shrub. The vegetative structures of certain groups of spurges (*Euphorbiaceae*), like the cacti, orpines, and fig-marigolds, indicate a one-time arid or desert habitat as the typical home of these plants. Some still keep to the desert, others have migrated to other now less trying salubrious environments, or, perhaps the one-time deserts have been changed to garden-spots; but they still maintain their desert habits of growth to a greater or lesser degree.

The spurge under discussion may be found on the dry shelf-like plateaus along the Rio Grande, the llanos and other open places, never among shrubbery and otherwise its associates are few. Botanically speaking *Gutierrezia eriocarpa*, *Baccharis Wrightii*, *Clappia suaedaefolia*, *Coreopsis cardaminefolia*, and *Verbena ciliata* are chief associates. It has an immense subterranean food reservoir, compared with the size of the aerial parts. With the abundant nutriment in the large root to draw on this plant can maintain itself and thrive in the arid soil of its circumscribed geographic area. Even when removed from the heavy black gumbo soil, the plants will live for two or three years, putting forth foliage and flowers each year even without water. As a result of the proper temperature and moisture early in spring, the root sends up foliage and produces flowers during the entire summer or until the advent of cold weather. The foliage is very bright green which is emphasized by the leaves whose blades are cut after the manner of those of many of the desert plants. More conspicuous, however, are the starry scarlet flowers

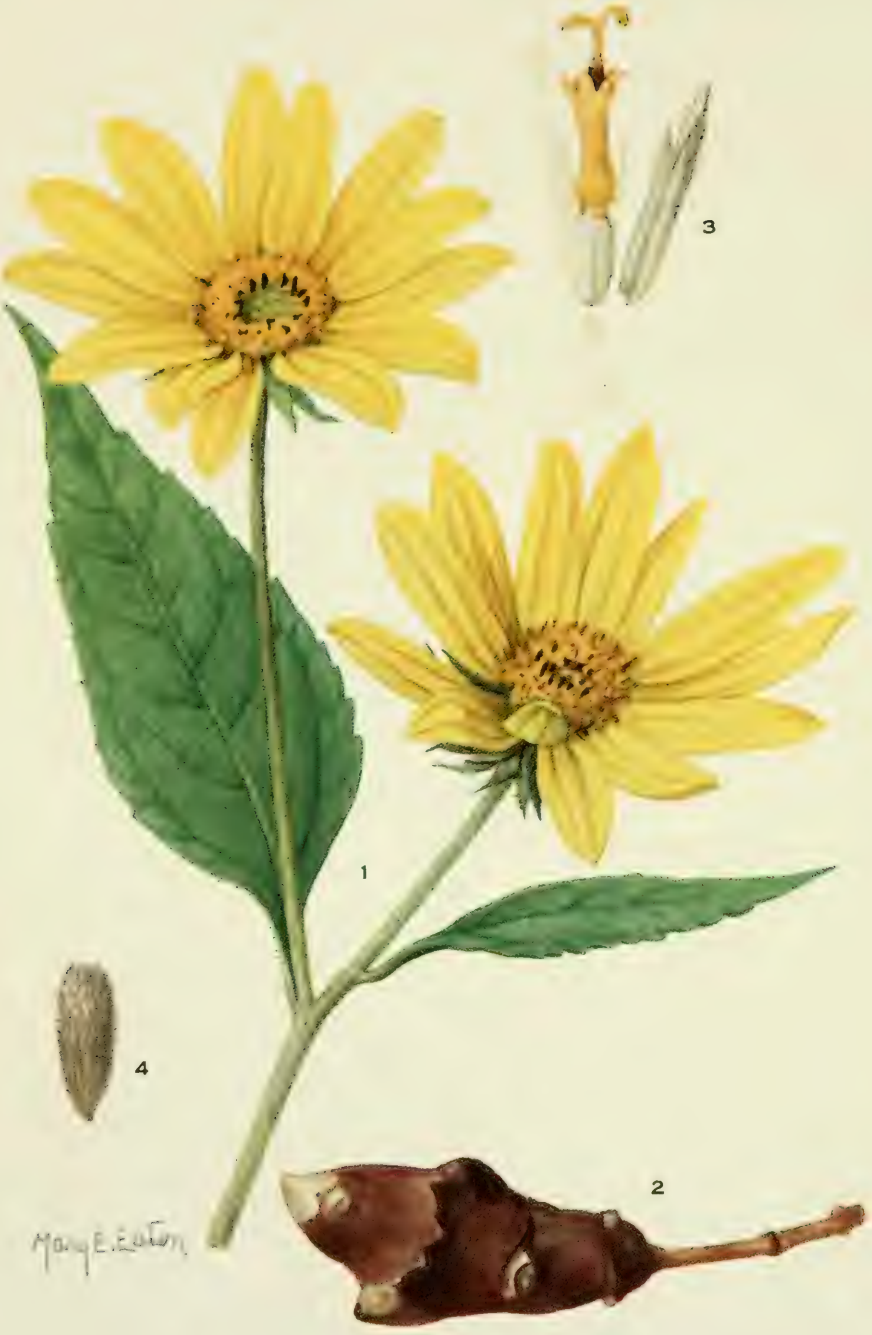
which are clustered at the top of stem and form scattered red spots over the dull gray of the arid surface of the plain.

It is native in southeastern Texas and northeastern Mexico. The native Mexicans use the plant medicinally. As in the case of the castor-oil plant, the ripe pods of the jicamilla burst automatically and scatter the seeds.

The jicamilla has a large subglobose rough tuber-like root, usually two to four inches in diameter, from whose base irregular stout and slender rootlets arise. The stems, which rise from the top of the root singly or several together, are mostly six to twelve inches tall, stout, ultimately scarred from the leaf-bases, glabrous, and often glaucescent or glaucous. The leaves are alternate, approximate or ultimately separated, the lower ones with long, usually very long petioles, the upper ones with shorter petioles. The blades are suborbicular in outline, deeply palmately lobed—almost to the base—glaucous, glabrous, the lobes broad and elliptic to obovate, one to two and a half inches long, coarsely and irregularly toothed or irregularly, often deeply, pinnatifid, with the segments acute or acuminate. The flower-stem (peduncle) terminating the foliage stem is erect, rather slender, simple, green or glaucescent, glabrous; the branches are usually ascending, glabrous, sometimes curved. The bracts are subulate or lanceolate, acuminate. The pedicels are short, often slightly thickened upward. The flowers are of two kinds, but borne in the same inflorescence, in an erect corymb-like cyme. The calyx is green. The corolla is red or purple-red. The staminate flowers have a campanulate calyx with five ovate lobes about as long as the tube. The five petals are spatulate, one fourth to one third of an inch long, obtuse. The eight stamens are erect, with the five outer shorter than the three inner. The filaments are united at the base with the free part filiform or subulate-filiform, glabrous. The anthers are red, erect, sagittate, with the basal auricles acutish or obtuse, the apex acute. The pistillate flowers have a calyx of five lanceolate or linear-lanceolate, acute sepals which are united only at the base. The petals are nearly similar to those of the staminate flowers. The ovary is sessile, subglobose, finely ribbed. The three styles are distinct, much shorter than the ovary, erect or finally somewhat recurved near the apex. The stigmas are two-lobed, shorter than the style. The capsule is subglobose or ovoid-globose, about a half-inch in diameter, pale-green or glaucous, obscurely three-lobed, finely verrucose and minutely warty. The three seeds are ellipsoid, about one third of an inch long, mainly brown with pale markings; with a two-lobed apical appendage.

JOHN K. SMALL.

EXPLANATION OF PLATE. Fig. 1.—Inflorescence. Fig. 2.—Leaf. Fig. 3.—The tuber-like root. Fig. 4.—Involucral bract, × 3. Fig. 5.—Staminate flower, × 3.



HELIANTHUS TUBEROSUS

(Plate 381)

HELIANTHUS TUBEROSUS

Je usalem-artichoke

Native of entral North America (?)

Family CARDUACEÆ THISTLE Family

Helianthus tuberosus L. Sp. P. 905. 1753.
Helianthus tuberosus subcane ens A. Gray, Syn. Fl. 1²: 280. 1884.

Ages ago, the Greeks tell us, there was a beautiful water-nymph named Clytie. Each day of her life, with eyes of love, she had watched the sun-god Apollo drive his flaming chariot across the heavens. But her love for him was unrequited, for the god never even cast a look upon her. So enamored she became that she sat for days without food or water, other than her own tears and the dew, and never took her eyes from him throughout his course. At last the gods took pity upon her, and rooted her limbs into the earth and changed her face into a flower with the disk and rays of the sun she loved, and which still contains the soul of the nymph, for it faces the sun as it rises, turns its head on its stalk to follow it through the day, and still faces it as it sets.

So came into being the sunflower, the name *Helianthus* being derived from the greek words *Helios*, the sun, and *Anthos*, a flower, for it is supposed to resemble the sun with its disk and long yellow rays.

The sunflower is still used as the emblem of constancy, as witness the poet Moore:

"The heart that has truly loved never forgets,
But as truly loves on to the close;
As the sunflower turns on her god when he sets
The same look which she turned when he rose."

The sunflower was used by many prehistoric peoples as the emblem of the sun god by reason of its resemblance to their conception of the form of the sun, as witness particularly the Aztec indians, who used the flower in religious ceremonies, and worshipped it as the emblem of their god, the particular species used being *Helianthus annuus*.

The name artichoke is given this plant for the supposed resemblance of the flavor of its tubers to the true artichoke (*Cynara Scolymus*). The name Jerusalem is a corruption of the Italian word girasole, meaning sunflower.

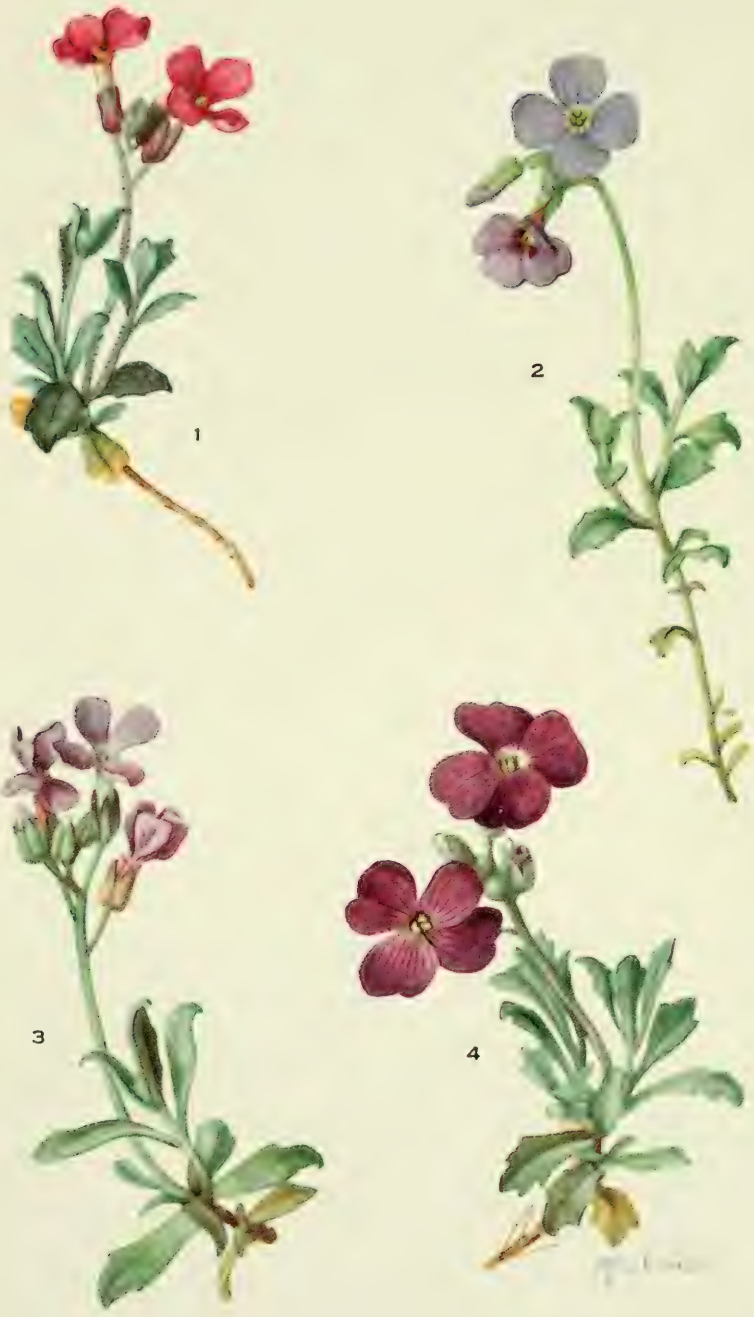
The Jerusalem-artichoke is grown usually as a food for pigs, which are turned into the fields and allowed to gather the crop themselves. The tubers, which mature in about five months, grow in clusters of from thirty to fifty close around the thick, fleshy root, and are irregularly pear-shaped. There are white, yellow, red, and purple varieties. The tubers are often used for human food, and resemble potatoes closely in their composition. The tubers may be left in the ground over the winter without harm, but should not be allowed to freeze out of the ground. The plants commonly yield a crop of from two hundred to five hundred bushels per acre, and crops of one thousand bushels per acre are recorded. The plants are propagated like potatoes, by their tubers. They thrive well in poor soil where no other crop can be profitably grown.

The plant grows in moist soil from Nova Scotia and Ontario to Manitoba, Georgia, Arkansas, and Kansas; also grows along roadsides and in waste places in the east where escaped from cultivation by the Indians. Probably native in the western part of its range.

The Jerusalem-artichoke is a perennial pubescent herb, two to ten feet tall, usually branching above, and arising from a tuberous edible rootstock, which forms underground runners, that in turn become tuberous. The leaves are four to twelve inches long, becoming smaller towards the upper part of the stem, obovate to oblanceolate in outline, bright green, very rough-hairy above and soft-hairy and lighter green beneath. They taper abruptly to a winged petiole or in some cases are sessile; sharply serrate, sometimes deeply so, and long-acuminate. The involucres are borne in branching panicles, each head from a leaf-axil. The bracts are in several series, linear to linear-lanceolate, one half inch to one inch long, ciliate and rough-pubescent on both sides. The receptacle is flat and chaffy. The ray-flowers are neutral, with yellow ligules, an inch to an inch and a half long. The disk-flowers are yellow and perfect. The corolla consists of five ovate petals united into a long tube, which is swollen at the base and then contracted where it is inserted on the ovary. The five stamens are united in a ring around the style. The anthers are dark brown, lanceolate, twice as long as the filaments, and with ovate appendages. The ovary is a one-celled and one-ovuled carpel. The style is longer than the stigma, slightly swollen at the base. The stigma is two parted, the two parts lanceolate and recoiled. The pappus consists of two deciduous scales. The fruit is a dry gray-brown achene, flattened on the dorsal and ventral sides, slightly pubescent at the tip; about one fifth of an inch long.

EDWARD J. ALEXANDER.

EXPLANATION OF PLATE. Fig. 1.—Branch in flower. Fig. 2.—A tuber. Fig. 3.—Chaff and a flower, × 3. Fig. 4.—Achene, × 3.



AUBRIETIA DELTOIDEA

(Plate 382)

AUBRIETIA DELTOIDEA

Purple Rock-cress

Native of the Levant

Family BRASSICACEAE MUSTARD Family

Alyssum deltoideum L. Sp. Pl. ed. 2, 908. 1763.
Farsetia deltoidea R. Br. in Ait. Hort. Kew. ed. 2. 4: 97. 1812.
Aubrietia deltoidea DC. Syst. 2: 294. 1821.

Aubrietia was named after Claude Aubriet, the French artist who accompained Tournefort on his famous voyage to the Levant in 1700–1702; and the specific name *deltoidea* was given to this species on account of the deltoid shape of its leaves. It is said to have been introduced into cultivation in Europe from the Levant in 1710.

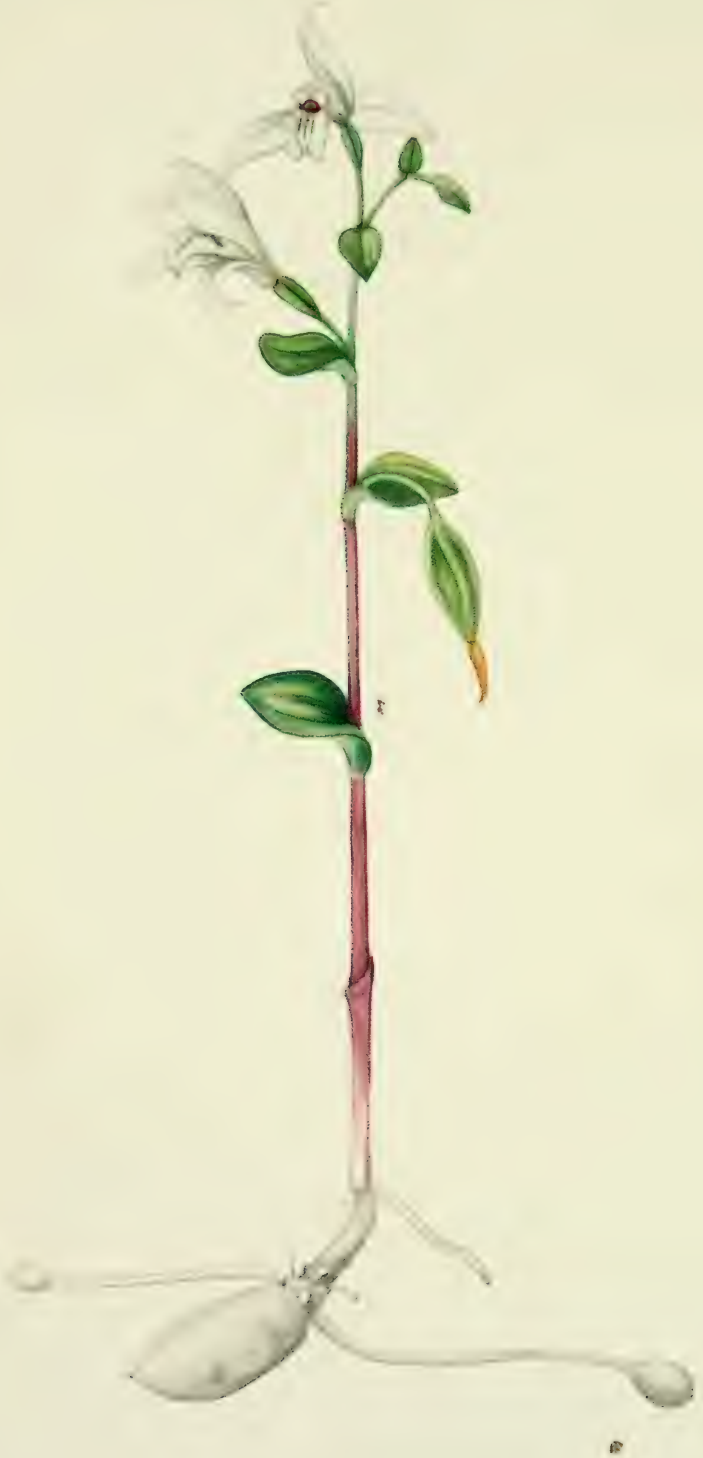
The genus is very different from *Berteroa* in its habit and its entire petals, and from *Alyssum* in its saccate calyx and oblong fruit. The leaves are covered with stellate hairs, which give the foliage a silky appearance.

There are perhaps half a dozen species of *Aubrietia*, but the many forms in cultivation are nearly all horticultural vatieties of *A. deltoidea*. The var. *purpurea* is nearly or quite identical with the original form of the species. As we know them in gardens, the varieties are so near each other in character that it is very difficult to identify them, and they vary a great deal from seed. They all agree, however, in their manner of carpeting rocks and walls with dense dwarf cushions of compact rosettes of leaves, which in spring are clothed with beautiful purplish blue flowers. There are two variegated-leaved forms, which produce excellent effects in rock-garden work. Thirteen varieties are grown in The New York Botanical Garden, where they are entirely hardy.

The purple rock-cress attains a height of from two to twelve inches. The leaves are oblong-spatulate, deltoid, or rhomboid, with one or two teeth on either side, grayish, and narrowed into a very short petiole. The flowers are in few-flowered, lax clusters, the violet or purple petals twice the length of the calyx.

EDMUND B. SOUTHWICK.

EXPLANATION OF PLATE. Fig. 1.—*A. deltoidea erubescens.* Fig. 2.—*A. deltoidea*, typical form. Fig. 3.—*A. deltoidea olympica.* Fig. 4.—*A. deltoidea graeca.*



TRIPHORA TRIANTHOPHORA

(Plate 383)

TRIPHORA TRIANTHOPHORA

Nodding Pogonia

Native of eastern North America

Family ORCHIDACEAE ORCHID Family

Arethusa trianthophora Sw. Sv. Vet.-Akad. Nya Handl. 21: 230. 1800.
Arethusa parviflora Michx. Fl. Bor. Am. 2: 160. 1803.
Arethusa pendula Willd. Sp. Pl. 4: 82. 1805.
Triphora pendula Nutt. Gen. 2: 193. 1818.
Pogonia pendula Lindl. Bot. Reg. *pl. 908.* 1825.
Pogonia trianthophora B.S.P. Prel. Cat. N. Y. 52. 1888.
Triphora trianthophora Rydb. in Britton, Man. 298. 1901.

This orchid appears to be generally distributed throughout the eastern United States, and it is reported from Canada. It seems to be nowhere common, with the exception of a rather broad belt in central New Hampshire; and there it is decidedly fugitive and periodic in its appearance. The plants grow in hollows under beech and oak trees, in colonies of twenty to one hundred individuals. I have seen fully twenty thousand plants in an area of not more than one square mile. The following year less than five hundred plants were found; a year later the number dwindled to two, and the year after that not a single plant was discovered. Two years later the plants were as abundant as in the first year mentioned. This remarkable periodicity seems in some way bound up with the peculiar vegetative reproduction of the plant, and doubtless explains why some collectors have been unable to find the plant where others have recorded it as abundant.

The root-system is very different from that of any other orchid found in the northern United States. It occurs in the upper strata of humus, apparently never penetrating to the soil below. Essentially it consists of a single ovoid or pyriform translucent white tuber. From the lower portion of the flowering stem, a number of stolons grow out in a horizontal direction, each bearing at the end a smaller tuber. A well-grown plant may have ten or twelve of these stolons, with tubers ranging in size from a pinhead to a third of an inch or more in length.

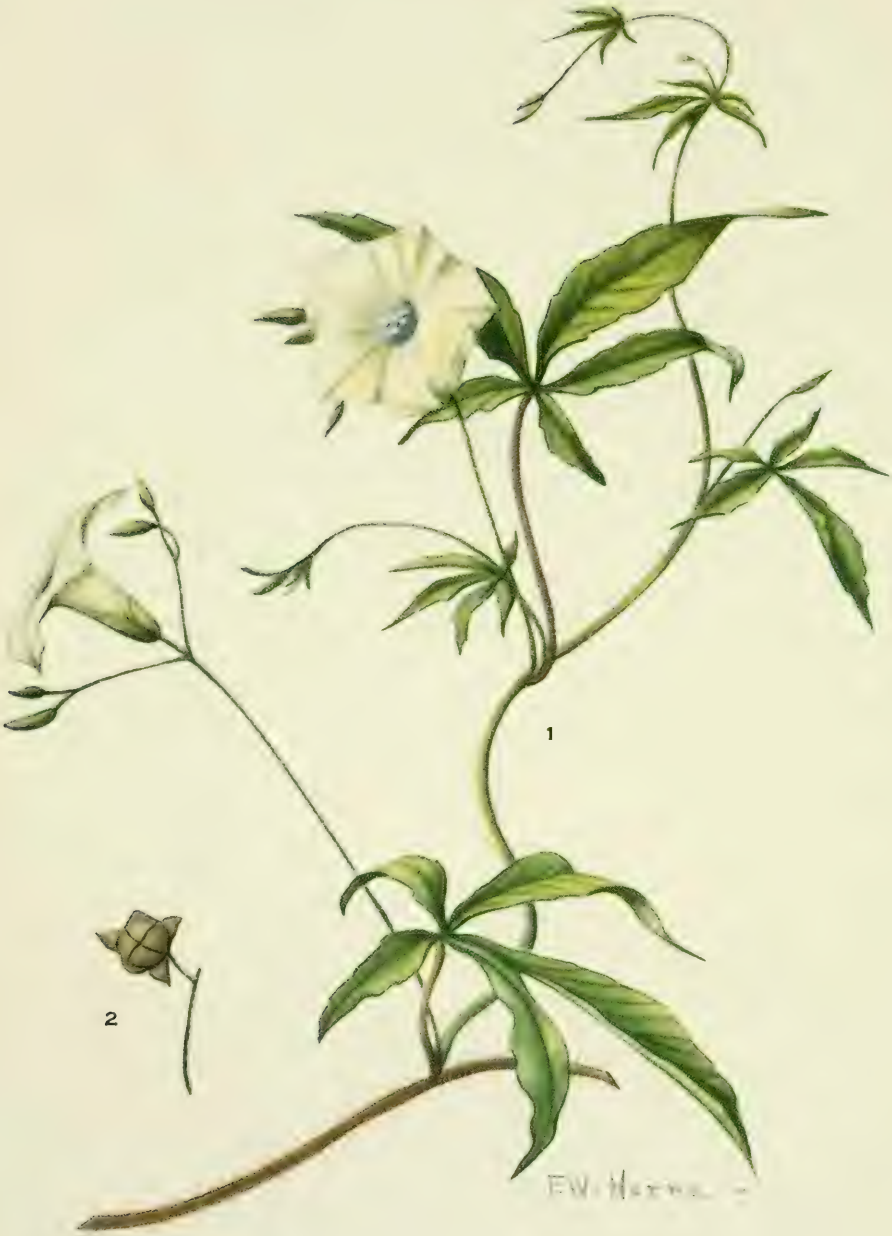
The whole plant is very brittle, and this is true especially of the root-system and the stolons. If, however, a plant is carefully removed from the humus in which it grows, and the root-system carefully studied, a small scar or process will be found at the tip of the mature tuber. Each plant apparently blooms but once. The sub-

sequent decay of the mature tuber cuts off the small tubers at the ends of the stolons; each of these in due season produces a bud, which in turn forms a new plant. In this way the large colonies are formed, and thus, too, the extraordinary periodicity is explained.

No sign of the species can be seen until the end of July or early August. Then the sharp stiff tip of the stem, with the leaves folded closely about it, pushes its way through the leaf-mould. In about a week or ten days the blossoms appear. At night and during unfavorable weather conditions the flowers close and nod. When conditions are right, every plant opens its flowers wide, and the pedicel is erect; this occurs, however, only once or twice during the season. Fertilization is effected by small bees of the genus *Halictus*, but the seed is rarely if ever ripened in the northern states.

The nodding pogonia is a small erect watery herb, three to eight inches in height. The leafy stem is deeply tinged with magenta and is somewhat striate. The few leaves are alternate, ovate to orbicular, clasping, rather fleshy, and dull green. The three to eight (rarely more) axillary flowers are white or very slightly magenta-tinged, and are borne on slender pedicels. At full anthesis these pedicels are erect or slightly recurved, but in bud and very soon after pollination they droop, whence the common name of nodding pogonia. The sepals and petals are lanceolate, spreading, about two thirds of an inch long. The labellum is ovate, somewhat three-lobed, not crested, but with three prominent bright green nerves; there are no glands at the base of the lip as in *Pogonia*. The edges of the lip become incurved after pollination. The anther is fixed, not hinged and mobile as in *Pogonia*. The pollen is a deep rich magenta-violet. The capsule is pendulous, somewhat hexagonal, and retains the withered perianth at its apex.

ALBERT E. LOWNES.



IPOMOEA QUINQUEFOLIA

(Plate 384)

IPOMOEA QUINQUEFOLIA

Small White Morning-glory

Native of tropical America

Family CONVOLVULACEAE MORNING-GLORY Family

Ipomoea quinquefolia L. Sp. Pl. 162. 1753.
Convolvulus quinquefolius L. Syst. ed. 10. 923. 1759.
Batatas quinquefolius Choisy, Conv. Rar. 127. 1838.
Merremia quinquefolia Hallier f. Bot. Jahrb. 16: 552. 1893.

The genus *Ipomoea* consists of several hundred species, widely distributed, but most numerous in tropical regions. The species are extremely various; most of them are twining or prostrate herbaceous vines, but some are erect plants, and they exhibit great differences in shape of leaves and in size and color of flowers. All agree, however, in having the styles united, the stigmas globose, the stamens and styles not exserted and their capsular fruit dehiscent by valves. The pollen-grains are smooth in some species, tuberculate in others; in some the seeds are glabrous, in others pubescent or woolly.

The small white morning-glory, called Batatilla blanca in Porto Rico, grows on banks and in thickets in dry soil on many islands of the West Indies and in continental tropical America. It is a slender vine, sometimes about six feet long, twining or trailing, glabrous or with some long hairs. The slender stalked leaves are palmately divided into five (rarely three or four) sessile leaflets, which are oblong to lanceolate, pointed, toothed, and about two inches long or shorter. The flowers are few together in long-stalked axillary clusters, their pedicels nearly filiform; they have five somewhat unequal ovate-oblong sepals about an inch long; the white or pale yellow corolla is nearly an inch broad, with five short lobes, the globose capsule is about one third of an inch in diameter; the two to four seeds are puberulent.

Mrs. Horne's painting, here reproduced, was made from a wild vine at Mayaguez, Porto Rico, in 1923.

N. L. BRITTON.

EXPLANATION OF PLATE. Fig. 1.—A flowering branch. Fig. 2.—A fruit.

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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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