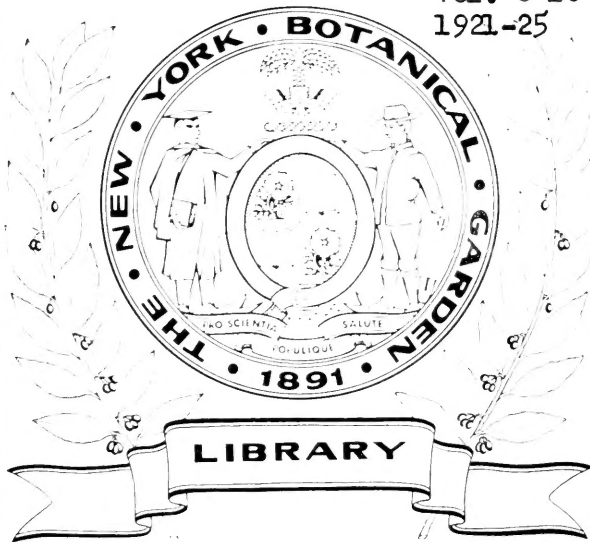
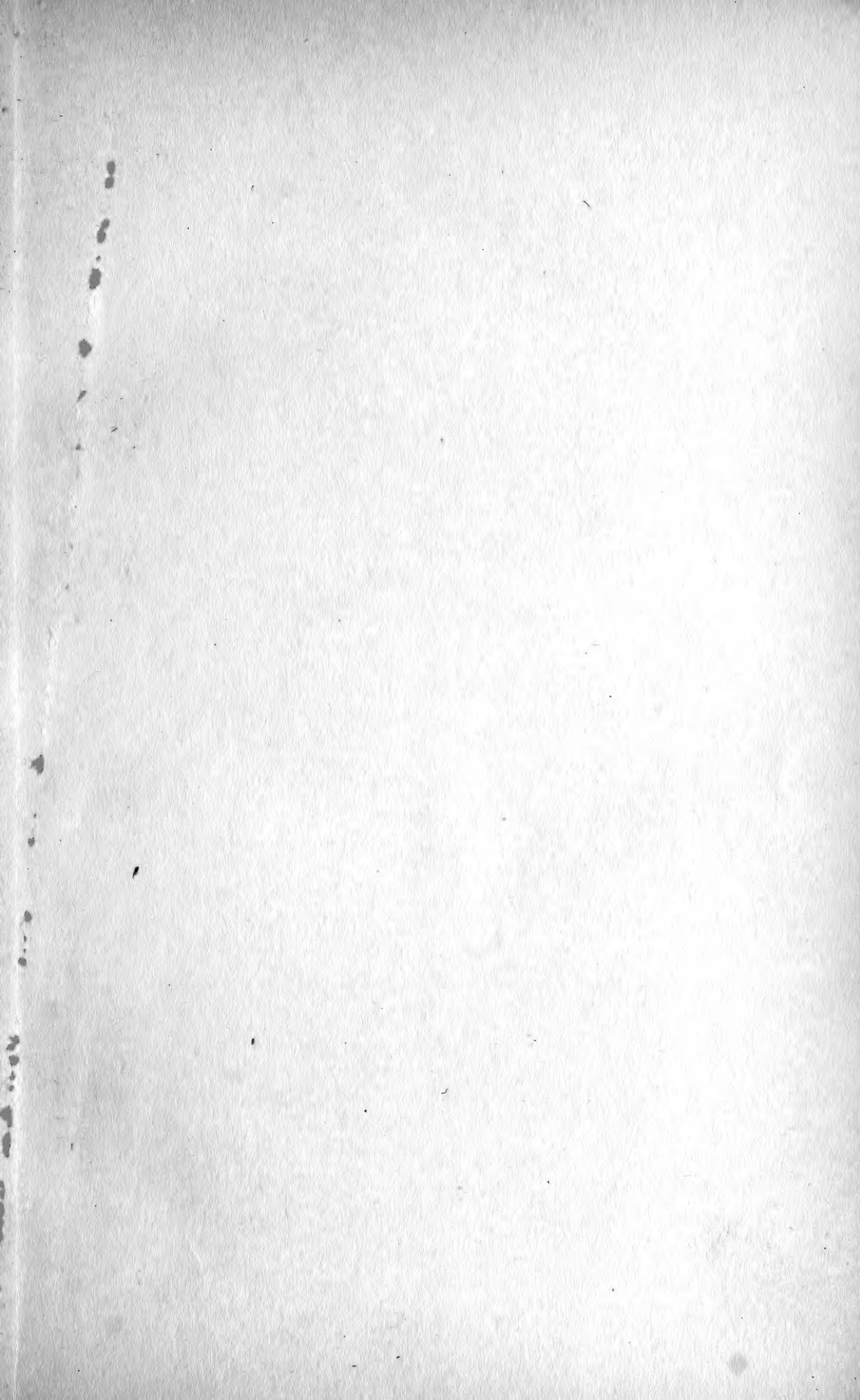
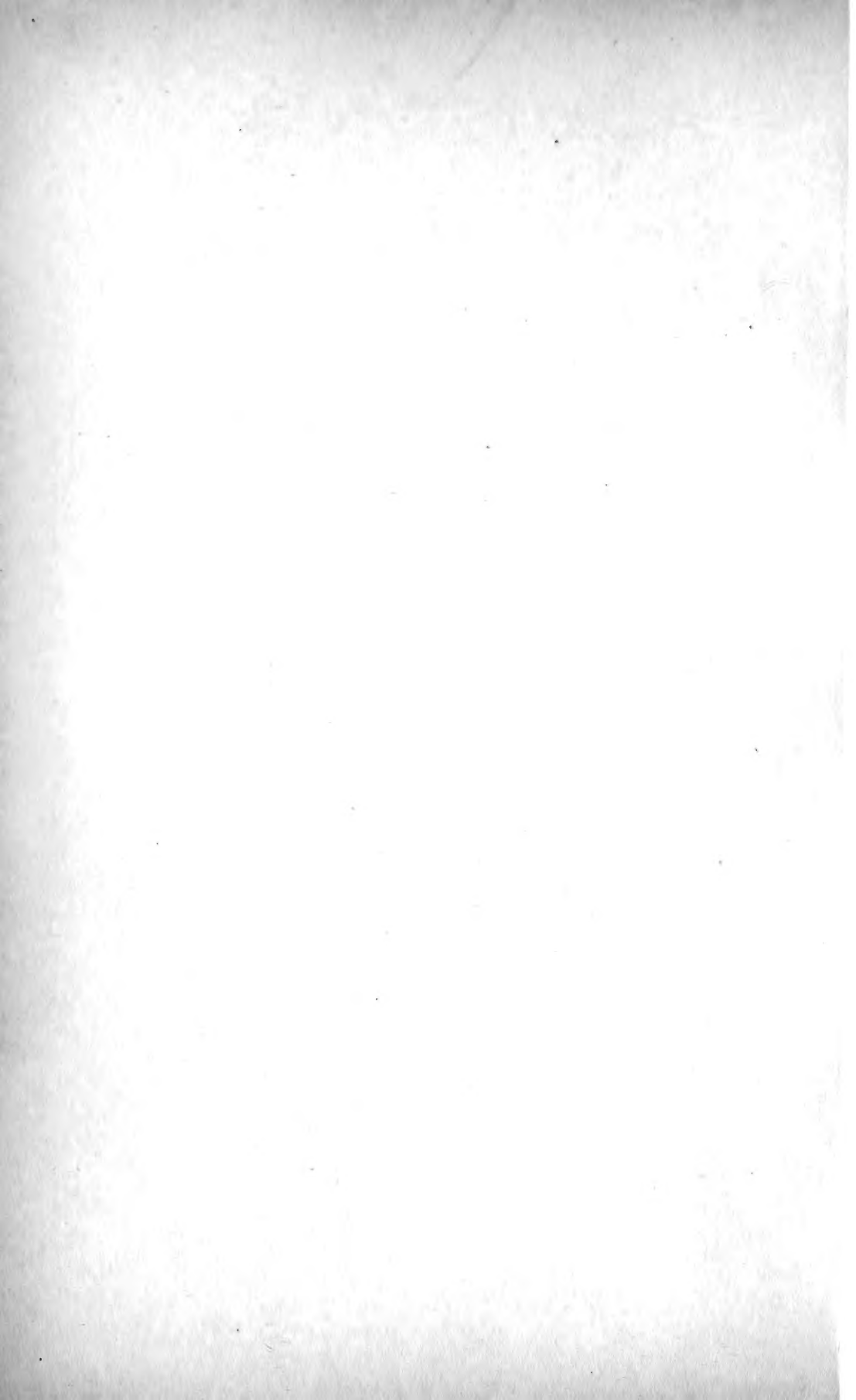


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Vol. 10
1925
Index
Vol. 6-10
1921-25







ADDISONIA

COLORED ILLUSTRATIONS

AND

POPULAR DESCRIPTION

OF

PLANTS

VOLUME 10

1925



PUBLISHED BY

THE NEW YORK BOTANICAL GARDEN

(ADDISON BROWN FUND)

XA
D35

Vol. 10
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Index

Vol. 6-10
1921-25

**THE SCIENCE PRESS
PRINTING COMPANY
LANCASTER, PA.**

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NUMBER 1

MARCH, 1925



PUBLISHED BY

THE NEW YORK BOTANICAL GARDEN

(ADDISON BROWN FUND)

JUNE 23, 1925

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.

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

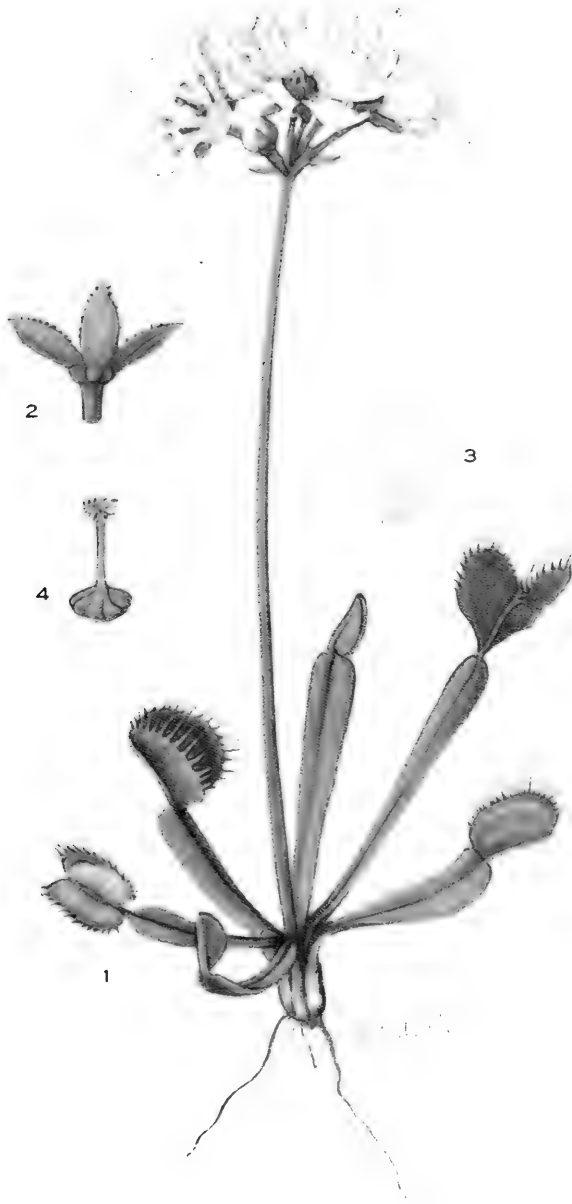
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THE NEW YORK BOTANICAL GARDEN

BRONX PARK

NEW YORK CITY

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 9 has been made up into complete volumes, and but few separate parts can be supplied.



DIONAEA MUSCIPULA

DIONAEA MUSCIPULA

(Plate 321)

Venus-flytrap

Native of coastal North and South Carolina

Family DIONAEACEAE

VENUS-FLYTRAP Family

Dionaea muscipula Ellis; L. Mant. 238. 1771.

Among the many American plant novelties that reached England in the eighteenth century the subject of this note was the most bizarre. A plant with morphological and physiological animal-traps, which work with the precision of man-made mechanical contrivances, was something wholly new to the botanists of those days.

The generic name is derived from that of Dione—the mother of Venus, also applied to Venus herself, through the symbolic representation of that goddess. The present plant or its immediate ancestors must have followed the gradually emerging coast-line from the Tertiary Appalachian biologic refuge, and not being adapted to cooling of the climate, died out in the rear, while the advance guard kept far enough ahead to carry it to its present coastal habitat.

At present the flytrap is confined geographically to the coastal regions of North Carolina and South Carolina, where it occupies sandy acid bogs and moist open pinelands. It thrives just as well, in fact sometimes better, in artificial habitats within its range. For example, near roadsides and railroad embankments, where the natural surface of the land where the plant is wont to grow has been removed, the more luxuriant and precocious specimens may be found. It seems not to be extending its geographic range. Having become accustomed to a certain, in a way a limited, type of habitat, like some of our other Coastal Plain plants—*Elliottia*, *Franklinia*, *Croomia*, *Torreya*—the flytrap may be considered as belonging to a vanishing type of vegetation.

The Venus-flytrap was discovered by John Bartram in or before 1765, and sent to England. John Ellis in a letter to Linnaeus said, "miraculum naturale, folia biloba, radicalia, ciliata, conduplicanda, sensibilia, insecta incarcerantia." William Bartram, son of John, in traveling in 1777 northward on the Carolina coast upon observing an abundance of this plant, records that "This wonderful plant seems to be distinguished in the creation, by the Author of nature, with faculties eminently superior to every other vegetable production; specimens of it were communicated to the curious of the old world by John Bartram, . . ." In the introduction to his

"Travels," Bartram waxing eloquent in regard to the flytrap wrote, "But admirable are the properties of the extraordinary *Dionaea muscipula*! A great extent of each side of that serpentine rivulet is occupied by those sportive vegetables—let us advance to the spot in which nature has seated them. Astonishing production! see the incarnate lobes expanding, how gay and sportive they appear! ready on the spring to entrap incautious insects! what artifice! there behold one of the leaves just closed upon a struggling fly; another has gotten a worm; its hold is sure, its prey can never escape—carnivorous vegetable!"

This plant furnished a favorite theme in connection with studies on insectivorous plants about the middle of the last century. Suffice it to say here that the outstanding features of the flytrap are the three irritable cilia on the faces of each leaf-lobe which transmit the stimulus that causes the paired lobes to snap shut on a victim and eyelash-like cilia of the lobes which close together like the fingers when one's hands are folded, thus making sure the victim is securely held.

The Venus-flytrap is a partly succulent perennial scapose herb with fibrous roots. The leaves are borne in a basal rosette, their bases imbricate and forming a bulb-like structure about the end of the rootstock; they are one to six inches long. The petiole has lateral wings and is thus obovate to cuneate or spatulate, reticulate-veined, toothed, undulate or entire, and truncate or orbiculate at the apex. This structure abruptly contracts to a short stalk which expands into the blade, consisting of two lateral semicircular wings or lobes; these are hinged, as it were, on a stout midrib from which the pinnate veins extend to the cilia. The scape is three to fifteen inches tall, glabrous, simple or with a branch near the top. The flowers are borne on slender pedicels one half to one inch long, in a terminal umbel-like cyme, which is subtended by narrow or broad bracts. The calyx is composed of five ovate or elliptic-ovate persistent bright green sepals. The corolla comprises five whitish or greenish-white veined marcescent petals, borne on the edge of a dilated receptacle; these are cuneate or obovate-cuneate, usually about a half inch long, truncate or emarginate at the somewhat erose apex. The androecium consists of ten or more stamens, usually about fifteen, borne between the corolla and the gynoecium. The filaments are filiform, united at the base, and marcescent; the anthers are ellipsoid, with the obscure connective attached to the filament above the base. The gynoecium is sessile on the receptacle. It consists of a depressed one-celled ovary, a columnar style and five fimbriate stigmas. The capsule is of a broadly ovoid type, membranous, somewhat irregularly five-valved, early decaying, except the basal part with the broad flat placenta upon which the seeds are borne. The seeds are numerous, obovoid, black, smooth, and shining.

JOHN K. SMALL.

EXPLANATION OF PLATE. Fig. 1.—Plant, in flower. Fig. 2.—Calyx, $\times 2$. Fig. 3.—Petals $\times 2$. Fig. 4.—Gynoecium, $\times 4$.





PUSCHKINIA SCILLOIDES

PUSCHKINIA SCILLOIDES

Striped Squill

Native of Asia Minor and the Caucasus

Family LILIACEAE

LILY Family

Puschkinia scilloides Adams, Nova Acta Acad. Petrop. 14: 164. 1805.*Adamsia scilloides* Willd. Enum. Suppl. 16. 1813.*Puschkinia sicula* Van Houtte, Fl. Serres 21: pl. 2200. 1875.

This extremely small genus was named for Count Apollos Mus-sin von Puschkin and was included in the "Flora taurico-caucasica" by Marschall von Bieberstein. Willdenow objected to the name *Puschkinia* on the ground that a genus (*Mussinia*) had already been named after M. Puschkin; but his remarks seem to have carried little weight. Several authorities, Mr. Jacob and Mr. Bowles among them, are now convinced that *P. libanotica* and *P. scilloides* are identical, the only marked variation being a form with a denser spike of flowers known as *compacta*. Mr. Reginald Farrer mentions in his "English Rock Garden" the species *P. hyacinthoides*, which was found in the "highest snows of Kurdistan."

It seems a pity that such a charming and useful rock-garden sub-ject is so little known in the United States. While it is quite easy of culture, establishing itself quickly, and being satisfied to be let alone in a light, sandy loam, the bulbs of *Puschkinia* deteriorate rapidly when kept out of the ground. Perhaps it is for this reason and its dislike of being disturbed, that the bulb-growers have tried so little to make it popular. In marked contrast to other bulbous spring-blooming plants, the flowers of the striped squill remain in good condition for a considerable period and are not affected by late frosts, having been known to survive, while blooming in this coun-try, a drop in temperature to sixteen degrees above zero. It in-creases rapidly from seed and from offsets, and appears to be entirely free from any kind of disease, though the young buds are delighted in by slugs. When first introduced into western Europe *Puschkinia scilloides* was believed to be less hardy than its near relatives the scillas and the chionodoxas, but the original stock from which these bulbs came, purchased from the old firm of E. H. Krelage of Haar-lem, has persisted in New Rochelle, New York, without any especial care or protection, withstanding two winters in succession when the temperature remained for several days in the vicinity of fifteen

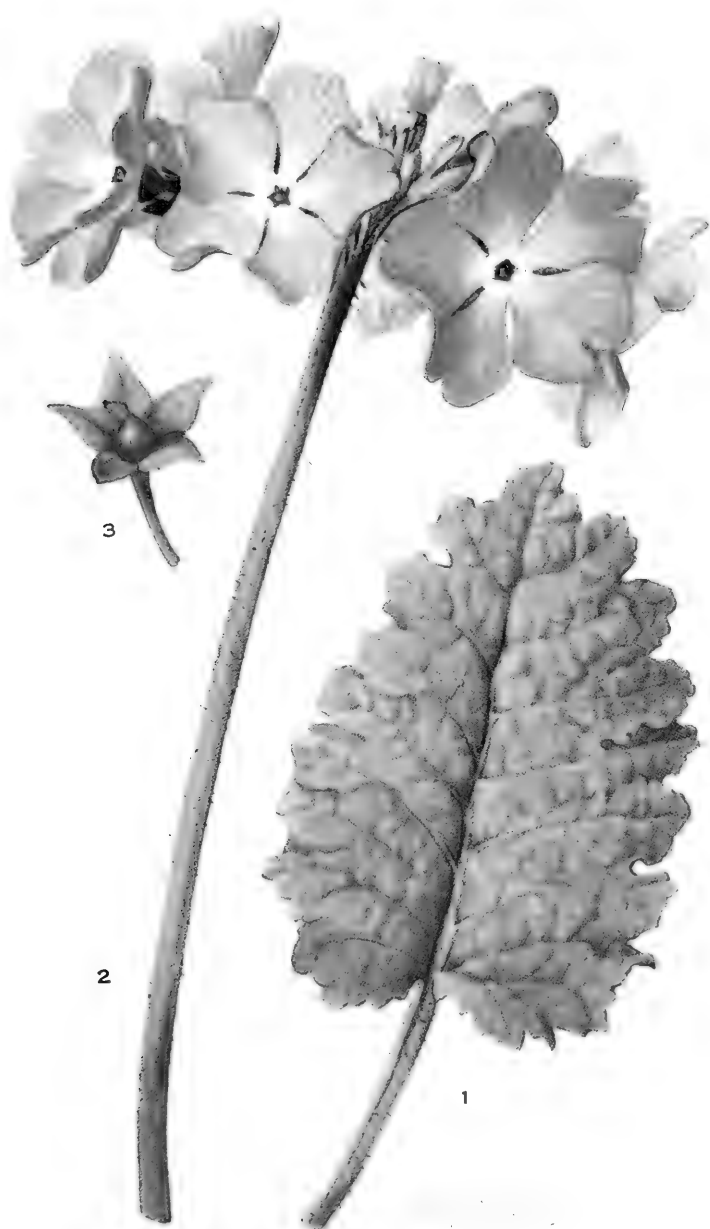
degrees below zero. From this source was derived the plant in the Rock Garden of the New York Botanical Garden which served as a model for our illustration.

These bulbs were bought under the name *Puschkinia libanotica* but it appears that they are of the "variety" *compacta* as shown by comparison with the color-plate of *P. scilloides* in the Botanical Magazine (*pl. 2244*).

The round, white tunicated bulb of the striped squill is about three quarters of an inch in diameter and when full grown the outer coat is flushed with pink. The dark green, fleshy leaves, between half and three quarters of an inch wide, attain a maximum length of eight inches; they are produced at the same time as the flowers, continuing their growth after the flowers fade. The flowers are borne in racemes of from four to ten, on a leafless stalk about seven inches tall. Each flower, held nicely erect on a stiff pedicel, is of a bluish-white or very pale, washy blue, markedly striped with bright "calamine" blue and gives, when the mass is viewed from a distance, an unusually greenish-blue effect. The stamens are carried on a white crown divided into six variously dentate petal-like lobes. The capsule opens back very flat when ripe and it is then seen to be composed of three heart-shaped compartments. The seed-pods being heavy for the slender stems lie on the ground and, as they spring open immediately they are ripe, it is hard to collect the seed. It will be noticed that the seeds are not surrounded with a gelatinose substance as in the pods of the chionodoxas; the lining of the capsule when young is of a satiny texture and still sparkles brilliantly when examined under a glass after the capsule opens. The seeds, when ripe, are of a light brown color, a sixteenth of an inch thick and twice as long, and are egg-shaped, being slightly more pointed at one end than the other; the skin is shiny and covered with little knobs, sometimes set in even rows.

ETHEL ANSON S. PECKHAM.

EXPLANATION OF PLATE. Fig. 1.—Plant, in flower. Fig. 2.—Perianth and crown, partly cut away, with 2 stamens, $\times 2$. Fig. 3.—Gynoecium, $\times 2$.



PRIMULA SIEBOLDII

PRIMULA SIEBOLDII

Siebold's Primrose

Native of Japan

Family PRIMULACEAE

PRIMROSE Family

Primula Sieboldii E. Morren, Belg. Hort. 23: 97. 1875.

Of the hundreds of primulas now known, the hardy types are native of North Temperate regions, probably most abundant in the Himalayas and China. In the latter country explorers have found numerous species of late years, and many of these have found their way into the gardens of the old world, especially the rock gardens of Great Britain. Coming from cool climates and alpine situations generally, they have proved hardy in alpine gardens. Our present subject has also been grown in well-drained flower borders with great success, and color varieties of it have been introduced.

A sheltered position, well-drained soil, and a covering of leaves or manure over winter are essentials in the culture of *Primula Sieboldii*, and it is propagated by seed or division. Planting in early autumn, with the rootstocks set scarcely an inch under the soil, is suggested.

From 1919 to 1923 a group of this primrose was planted in the flower beds near Conservatory Range No. 1. Upon completion of the Rock Garden this group was transplanted to that more favorable site, where it has thrived and produced the flowers shown in the illustration.

Siebold's primrose is a low herb, sending up from creeping rootstocks a rosette of leaves, and a flower scape about six inches high bearing a many-flowered umbel of rose colored flowers. The leaves are hairy, with petioles nearly two inches long and blades of equal length, the blades being ovate-oblong, cordate at the base, blunt at the apex, and with the margin cut into rounded lobes, the lobes irregularly toothed. The flowers, on long slender pedicels, have goblet-shaped non-inflated calyces with five ovate-lanceolate, acute lobes. The corolla-tube is about one half inch long, the limb five-lobed, the lobes emarginate, broadly ovate, and scarcely overlapping.

KENNETH R. BOYNTON.

EXPLANATION OF PLATE. Fig. 1.—Leaf. Fig. 2.—Flower-cluster. Fig. 3.—Fruit.



BEGONIA SANGUINEA

BEGONIA SANGUINEA**Blood-red Begonia***Native of South America*Family **BEGONIACEAE****BEGONIA** Family*Begonia sanguinea* Raddi, Mem. Soc. Ital. Modena 18: 409. 1820.

One of the most extensive and at the same time distinctive genera of plant life is *Begonia*. Extending all around the world in warm regions and presenting nearly five hundred species, it affords a large field of research for botanists; to the collector of living plants it is also fascinating, having varied uses as a bedding plant, a florists' flower plant, a warm conservatory foliage plant, a house plant, or in warm countries a garden decoration.

Its native habitat is varied. Dr. H. H. Rusby, in "Tropical American plants at home,"* gives a most interesting account of these begonias as he saw them in the Andes. Of our present subject he says "This species grows singly, and mostly in the shade of forest trees. When the sun strikes it fully, displaying here a shining green, there a blood-red leaf surface, the effect is peculiarly handsome."

Begonia sanguinea is of the fibrous-rooted type which is easy to grow in a greenhouse and is of possible use as a house plant in a light window well ventilated. Propagation is easily effected by cuttings, if they are rooted in spring, and planted in soil consisting of one part well-rooted manure, one part clean sand, and three parts rich loam.

The blood-red begonia has a fibrous, perennial root-system and smooth, greenish red, terete, succulent stems up to three feet long. The obliquely ovate leaves are three to four inches long by two inches wide, rather fleshy, and thickened at their margins. They are rich green above and deep blood-red below, acuminate, deeply cordate, and attached from the side to smooth red petioles which are subtended by ovate, acute, deciduous stipules. The flowers are numerous, in a dichotomous cyme, the male flower at the ends of the reddish, slender branches, the female in the forks. The former have four white petals, two round or broadly ovate and two narrower oblong or lanceolate, with a cluster of yellow stamens. The female flowers have reddish ovaries with three rounded wings, and four or five equal, round to oval petals.

KENNETH R. BOYNTON.

EXPLANATION OF PLATE. Fig. 1.—Branch with leaves. Fig. 2.—Portion of flower-cluster.

* Jour. N. Y. Bot. Gard. 25: 107. 1924.



PITOSPORUM UNDULATUM

PITTOSPORUM UNDULATUM**Victorian Box***Native of Australia*Family **PITTOSPORACEAE****PITTOSPORUM** Family*Pittosporum undulatum* Vent. Descr. Pl. Cels *pl.* 76. 1802.

This fragrant-flowered family of some hundred species is peculiar to Australia and New Zealand with the exception of the genus *Pittosporum* itself, which occurs also in Japan, China, and Africa. Our present subject is endemic in Australia, where it is said to reach a height of forty feet in favorable sites, remaining a shrub in exposed spots. In Florida and California, particularly the latter, these trees and shrubs find favor and favorable conditions for growth. Dr. H. M. Hall, whose account of the genus, as cultivated, will be found in the Standard Cyclopedia of Horticulture, says that *P. undulatum* is planted near tea-houses and the like, where their delicate but penetrating fragrance is appreciated, and *P. phillyrioides* is planted as a dry-region tree. With the other Australian trees and shrubs, the Victorian box has been grown in the Central Display House of the New York Botanical Garden for many years. One given to our collection by the Bronx Park Department in 1902 furnished the flowers for our illustration. Other members of the genus in our collection are the tobira, an evergreen species of Japan used commonly as a hedge in California, and *P. Ralphii* and *P. crassifolium*, which are found in a wild state only in New Zealand. The Victorian box may be grown in any cool greenhouse in our region, and propagated by seeds sown early in spring.

The Victorian box is a small tree or shrub with smooth gray bark. The leaves are whorled or crowded near the ends of the branches, smooth, linear or long lance-shaped, light green, up to four or five inches long, with conspicuously undulate margins, acuminate and narrowed at the base into petioles half an inch long. The flowers are clustered on the ends of the youngest branches, each cluster containing about six inch-long peduncles which again branch into three or four short pedicels bearing the small white flowers. These are about one-half inch across, with five lanceolate acuminate sparsely-hairy sepals joined at their bases into a shallow cup, and five oblong-lanceolate acute petals, which are joined for half their length, then separated and reflexed. The stamens are five to each flower, alternate with the petals. The pistil is club-shaped, with a hairy two-

celled ovary, a short stout style, and a two-lobed stigma. The capsules are globose, about one fourth of an inch thick, and two-celled, and contain many seeds.

KENNETH R. BOYNTON.

EXPLANATION OF PLATE. Fig. 1.—Branch, in flower. Fig. 2.—Calyx, split open, $\times 2$. Fig. 3.—Petal, $\times 2$. Fig. 4.—Gynoecium, $\times 3$.



ZANTHOXYLUM SCHINIFOLIUM

ZANTHOXYLUM SCHINIFOLIUM**Japanese Prickly-ash***Native of Japan and China*Family **RUTACEAE**

RUE Family

Zanthoxylum schinifolium Sieb. & Zucc. Abh. Akad. Munch. 42: 137. 1845.

Zanthoxylums of horticulture are spiny shrubs or small trees, grown for ornament. More than a hundred species of them are found in temperate, tropical and subtropical countries. One is found in the Eastern United States, but in park conditions it has seemed to be too brittle to endure cultivation even though armed with spines to protect it from marauders. The collection of shrubs in the New York Botanical Garden contains three kinds; the Japanese, *Z. Bungei*, from China, and the American. A fourth will be found in the Arboretum, near the maples opposite the Central Display House, Range No. 2. Our illustration was made from a group of three bushes growing in the rue group in the Fruticetum, near the Ptelea or trefoil-tree group and the hardy orange plants. There are one or two fine plants of this prickly ash elsewhere on the grounds, one being on the college walk near the Third Avenue Elevated entrance and a group of younger plants in the rear of the dahlia border. These always attract notice when the seeds are ripe; they are shiny-black and have the odor of anise. The prickly-ashes vary in hardness, our present subject being superior in that respect. They are propagated by seeds ordinarily, and do well in any fertile soil.

The Japanese prickly-ash is a small tree or shrub with gray trunks armed with short, conic mucronate spines, the branches armed with single sharp stipular spines, and the branchlets and flower-stalks unarmed but purplish red. Its leaves are light green, about a foot long, odd-pinnately compound with five to eight pairs of inch-long, broadly lanceolate, smooth, shallow-toothed leaflets, half an inch wide. The flowers are dioecious, small, greenish, with five short thickened acute petals. The staminate flowers have five yellow anthers on stout filaments as long as the petals, the pistillate ones have sessile pistils as long as the petals, with a round three- to five-celled ovary about one eighth of an inch in diameter, opening at maturity to disclose shiny, globose, black, anise-scented seeds.

KENNETH R. BOYNTON.

EXPLANATION OF PLATE. Fig. 1.—Flower-cluster, with leaf. Fig. 2.—Cluster of fruit, with leaves. Fig. 3.—Staminate flower, $\times 5$. Fig. 5.—Pistillate flower, $\times 5$. Fig. 6.—Gynoecium, $\times 5$.



Henry E. Eaton

BEGONIA DREGEI

BEGONIA DREGEI**Drège's Begonia***Native of South Africa*Family **BEGONIACEAE****BEGONIA** Family*Begonia Dregei* Otto & Dietr. Allg. Gart. 4: 357. 1836.

The New York Botanical Garden was fortunate to secure some three years ago from a California collection the rare little *Begonia Dregei*, a small semi-tuberous species of no consequence directly to horticulture, but indirectly very much so, as a parent of a famous and profitable race of florists' begonias; a race containing the beautiful Gloire de Lorraine, Glory of Cincinnati, Melior, Mrs. J. A. Peterson, and others, pink, red, or white, of profuse flowering habit. This greenhouse-flowering type resulted from crossing *B. Dregei* with a species endemic in the island of Socotra, *Begonia socotrina*, an annual species requiring warm temperature and sandy soil.

Begonia Dregei comes from the Cape of Good Hope, and was named for its discoverer, Jean François Drège, a collector and traveller in Africa during the last century. The named varieties are grown as winter-flowering cool-greenhouse subjects. Propagated by leaf-cutting taken around November, they are grown carefully and slowly, and prepared for sale the following November and later.

Drège's begonia has a fleshy rootstock or tuber and herbaceous somewhat succulent reddish stems up to two feet high, occasionally thickened or swollen near the lower nodes. The reddish, slender petioles are subtended by ovate, acute deciduous stipules. The shiny green leaves are small, less than two inches long and one inch broad, obliquely ovate and acuminate, subcordate, deeply five- to seven-lobed, the lobes coarsely serrate. The flowers, in axillary, few-flowered cymes, are white, and monoecious. The male flowers have four roundish petals, two about half an inch in diameter and two almost half as large. The stamens are many, with conspicuous golden yellow two-celled anthers. The ovary of the female flowers is green, with three triangular wings, and bearing four round white petals, equal in size, surrounding the three sessile bifid yellow stigmas.

KENNETH R. BOYNTON.



SHERWOODIA GALACIFOLIA

SHERWOODIA GALACIFOLIA

Shortia

Native of western North and South Carolina

Family GALACACEAE

GALAX Family

Shortia galacifolia Torr. & Gray; A. Gray, Am. Jour. Sci. 42: 48. 1842.

Sherwoodia galacifolia House, Torreya 7: 235. 1908.

The story of shortia is an oft-told tale, but will bear repetition. It was in December, 1788, that André Michaux, the French botanical explorer, was on a journey from Charleston into the mountainous region near the boundary of the two Carolinas. On the 8th of that month, in what is now Transylvania County, North Carolina, he found a small plant which he recognized as something he had seen nowhere else, but as it had no flowers he was uncertain of its relationship and did not venture to describe or name it. Fifty years later Asa Gray, while studying in the Michaux herbarium in Paris, discovered there a specimen, in fruit, without a name, and recognized the plant as representing a genus previously unknown; he wrote at once to his friend and colleague, John Torrey, announcing his discovery and proposing to call the new genus "*Shortia* Torr. & Gr.," in honor of Dr. Charles Wilkins Short, a well-known Kentucky botanist. In the summer of 1841 Gray visited the high mountains of North Carolina, but failed to find *Shortia*; so, rather reluctantly, he published a description of the new genus, from the imperfect material of Michaux, in January of the following year. Years passed by, and many botanists searched for the lost plant in vain. At last, in May, 1877, it was found in flower on the banks of the Catawba river, in McDowell County, North Carolina, by a seventeen-year old boy, George McQueen Hyams. He took it to his father, who sent a specimen to Joseph W. Congdon of Providence, Rhode Island, for identification; he recognized the plant, and sent a specimen to Gray, who thus saw, for the first time, in October, 1878, flowers of the plant he had described as new thirty-six years before. In the following spring Gray visited the Catawba river locality, and saw the growing plant, but was too late for the flowers. The individuals here were few, and were soon exterminated, but Gray felt sure that this was an outlying locality, and that the plant would be found again farther back in the mountains. In 1886, Charles Sprague Sargent re-discovered Michaux's original locality, and it was soon found that shortia was abundant in the limited area in which it occurred. It

has been introduced extensively into cultivation, and is much appreciated not only for the beauty of its flowers, which come in early spring and soon disappear, but for its glossy foliage, which lasts all through the season.

When Gray made his discovery in Paris in 1839, he wrote to Torrey "Please lay an injunction upon Nuttall, that he publish no other *Shortia*, and I will do the same to Hooker." But they ignored Rafinesque, who, in 1840, used *Shortia* for a genus of cruciferous plants. The present plant, therefore, has been re-christened in recent years *Sherwoodia*, for William Lounsbury Sherwood, of New York City, an enthusiastic nature-lover who has grown this plant in large quantities upon his property in North Carolina. "Shortia" it is likely to remain, however, in popular language, as long as it is loved and its history is not forgotten.

In spite of its narrowly limited natural distribution, *Sherwoodia* has proven of easy culture over a wide geographic range. It flourishes in rich loam in partial shade, and is hardy in the climate of New York; it does not seed freely, and is usually propagated by division. Our illustration is from a plant in the New York Botanical Garden, secured from Harlan Page Kelsey in 1921, and since grown in the Rock Garden.

Shortia is a perennial herb. The long-petioled leaves and one-flowered scapes are borne separately but close together near the tips of the branches of the slender rootstock. The leathery, glossy leaf-blades are oval to suborbicular, eventually up to two inches or more across, the margin toothed, each tooth often spiny-tipped. The erect scapes, a little longer than the leaves, usually bear no scales except two or three near the top, appearing like bracts under the flower, but more distant under the fruit. The five imbricated sepals are reddish and striate. The corolla, white or rarely pink, is about an inch broad, with campanulate tube and spreading erose lobes. The five stamens are alternate with the corolla-lobes, the filaments about as long as the tube, and partially adnate to it, the anthers bent horizontally inwards and forming a ring about the style, the sacs opening by a slit along the edge. There are five small staminodes, at the base of the tube, opposite the corolla-lobes. The ovary is three-celled, with numerous ovules on axile placentae; the style is slender, exerted; the stigma is slightly three-lobed. The capsule is within the base of the persistent calyx, ovoid, less than a quarter of an inch long, three-celled, with numerous seeds.

J. H. BARNHART.

EXPLANATION OF PLATE. Fig 1.—Flowering plant. Fig 2.—Portion of corolla, from within, with two stamens and two staminodes. Fig. 3.—Gynoecium, $\times 2$. Fig. 4.—Fruit.

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ADDISONIA

COLORED ILLUSTRATIONS
AND
POPULAR DESCRIPTIONS
OF
PLANTS

VOLUME 10

NUMBER 2

JUNE, 1925



PUBLISHED BY

THE NEW YORK BOTANICAL GARDEN

(ADDISON BROWN FUND)

AUGUST 6, 1925

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BARLERIA PRIONITIS

BARLERIA PRIONITIS

Prionitis

Native of tropical Asia and Africa

Family ACANTHACEAE

ACANTHUS Family

Barleria Prionitis L. Sp. Pl. 636. 1753.

Barleria is a large genus of shrubs and herbs, natives of tropical regions, mostly of the Old World, some unarmed, others with axillary spines, their flowers axillary or terminal, large or small, sometimes in bracted spikes. They have opposite entire-margined leaves. The calyx is deeply four-cleft with two of the segments somewhat larger than the others. The corolla has a slender tube and a deeply 5-lobed, somewhat irregular limb. There are four stamens, borne at the base of the corolla-tube. The two-celled ovary has two ovules in each cavity; the style is long and slender. The capsule is elastically two-valved, the seeds flattened, borne on short projections from the placenta, quite characteristic of the family Acanthaceae.

Grown in tropical flower-gardens for ornament, *Barleria Prionitis* sometimes escapes from cultivation to roadsides and waste grounds in the West Indies. Our illustration is from a painting of a plant found on a roadside at Mayaguez, Porto Rico, in 1923, presumably escaped from cultivation.

Prionitis is shrubby, glabrous, or when young somewhat pubescent, branched, from a foot to nearly four feet high, its leaf-axils armed with acicular spines about half an inch to nearly an inch long. The oblong or elliptic leaves are acute or acuminate, from about one and one half to about three and one half inches long. The flowers are sessile in the axils and sometimes form terminal bracted spikes; the calyx is about half an inch long, the yellow corolla about an inch and a half broad. The pointed capsule is somewhat less than an inch long.

N. L. BRITTON.

EXPLANATION OF PLATE. Fig. 1.—A flowering branch. Fig. 2.—A capsule and calyx. Fig. 3.—A capsule in dehiscence. Fig. 4.—Section of capsule.



URENA LOBATA

URENA LOBATA

Cadillo

Native of tropical regions

Family MALVACEAE

MALLOW Family

Urena lobata L. Sp. Pl. 682. 1753.

The generic name *Urena* is Malabaric in origin, first used botanically by Dillenius, and accepted by Linnaeus and subsequent authors. The species are few in number and differ from each other principally in form of leaves; some botanists have regarded the plants as forming a single species only, composed of several or numerous races or varieties, widely distributed, largely as weeds in tropical regions of both the Old World and the New, and of possible economic value for the fibre found in their stems and branches.

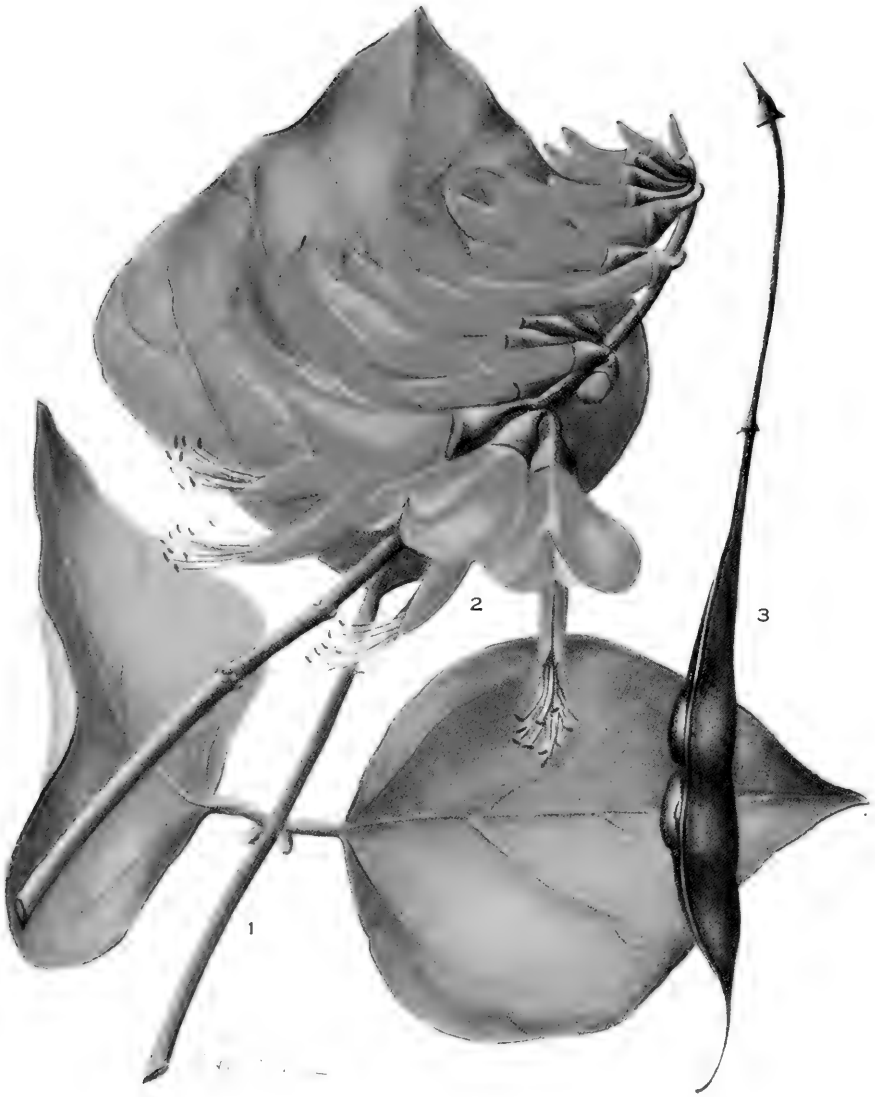
They are pubescent or tomentose shrubs, with alternate, variously toothed or lobed leaves, palmately veined, the midvein bearing an oblong gland on the lower side near the base. The large, rather showy, chiefly axillary and solitary flowers are subtended by a five-cleft involucre; the calyx is also five-cleft, the five broad petals wedge-shaped at the base, rose to purple; the stamens are united into a tube, the style is ten-cleft, the tubercled ovary five-celled, with a single ovule in each cavity. The capsule is depressed-globose, echinate or tubercled.

Urena lobata occurs commonly in tropical America and the Old World tropics. The accompanying illustration is reproduced from a painting by Mrs. Horne of a wild plant at Mayaguez, Porto Rico, in 1923.

The cadillo is a soft-wooded shrub, from about two feet to six feet high, its branches stellate-pubescent. The nearly orbicular petioled leaves, one to four inches broad, are angulately toothed or lobed, whitish-tomentose beneath, rather dark green above, the upper ones often ovate or oblong and nearly or quite entire-margined. The short-stalked flowers are attractive; the involucre and the calyx are about one-third of an inch long, the rose-tinted petals are half an inch long or a little longer, the stamen-column somewhat shorter. The tomentose echinate capsule is about as long as the calyx.

N. L. BRITTON.

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



ERYTHRINA POEPPIGIANA

ERYTHRINA POEPPIGIANA

Bucare

Native of Peru

Family FABACEAE

PEA Family

Micropteryx Poeppigiana Walp. *Linnaea* 23: 740. 1850.*Erythrina micropteryx* Poepp.; Urban, *Symb. Ant.* 1: 327. 1899.*Erythrina Poeppigiana* O. F. Cook, *Bull. U. S. Dep. Agr.* 25: 27. 1901.

The genus *Erythrina* of Linnaeus comprises some thirty species, nearly all of them trees, widely distributed in tropical and warm-temperate regions of both the Old World and the New. They have pinnately trifoliolate leaves and racemose, showy, red or yellow or orange flowers, the standard large, the wings small or wanting, the keel-petals united or separate; the stamens are monadelphous or diadelphous with anthers all alike; the ovary is stipitate, the several-seeded pod long-stalked, constricted between the seeds.

Bucare, or Bois immortelle, was introduced from Peru, many years ago, for shading coffee, into several West Indian Islands, where it has become naturalized, and is now one of the most abundant trees in Porto Rico and Trinidad and when in bloom in the late winter, one of the most elegant and conspicuous. Our illustration is from a tree at Mayaguez, Porto Rico.

Erythrina Poeppigiana is a tree attaining a height of from fifty to eighty feet. Its trunk and branches are armed with stout prickles, which usually fall away from the trunk when old. The leaflets are broadly ovate or rhombic-ovate, three to six inches long, acute or short-acuminate, glabrous, rather thin. The racemes are densely many-flowered, four to eight inches long, the pedicels short and stout. The turbinate calyx is about a quarter of an inch long, puberulent, truncate. The oval or elliptic standard is bright orange, about one and one half inches long; the wings less than half an inch long; the keel-petals are united except at the tips and shorter than the standard. The stamens and style are considerably longer than the keel. The pod is flattened, about four inches long and half an inch wide, narrowed to both ends and slender-beaked. The seeds are compressed, about half an inch long.

N. L. BRITTON.

EXPLANATION OF PLATE. Fig. 1.—A leaf. Fig. 2.—A raceme of flowers. Fig. 3—A pod.



BYRSONIMA HORNEANA

BYRSONIMA HORNEANA

Mrs. Horne's *Byrsonima**Native of western Porto Rico*

Family MALPIGHIACEAE

MALPIGHIA Family

Byrsonima Horneana Britton & Small; Britton & Wilson, Sci. Surv. Porto Rico 5: 447. 1924.

Byrsonima (Greek, *tanning*) includes about one hundred species of tropical American trees and shrubs, with opposite entire-margined leaves, the flowers in terminal, often conspicuous, racemes or panicles. There are five persistent sepals, five clawed petals, ten short stamens, a three-lobed ovary, and three styles with small subulate stigmas. The fruit is a small drupe.

Mrs. Horne's *Byrsonima* is as yet known only from a thicket at Guanajibo on the western coast of Porto Rico, near Mayaguez. The thicket in which this tree grows contains two other related species of *Byrsonima*. These are (1) *B. cuneata* with smaller and more spatulate leaves than those of *B. Horneana*, its petals white to red. and (2) *B. ophiticola*, with yellow petals, turning scarlet, and smaller leaves with longer petioles.

Our illustration is made from a painting by Mrs. Horne in April, 1924, of a branch of the tree from which type specimens were obtained at Guanajibo, Porto Rico.

Byrsonima Horneana is a small tree, up to about fifteen feet high, with red-tomentose twigs, which become gray. Its leaves are ovate to elliptic, from one and one half to about three and one half inches in length, glabrous or with some scattered hairs along the midvein on both sides, pointed or bluntish, the base narrowed, sometimes wedge-shaped, the petioles short. The flowers are in rather dense racemes two or three inches long on slender pedicels which become recurved in fruit; the ovate sepals are a little less than one sixth of an inch long, accompanied by ten small glands; the slender-clawed, nearly orbicular petals are at first yellow soon turning reddish. The globular drupe is nearly half an inch in diameter.

N. L. BRITTON.

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



TABEBUIA HAEMANTHA

TABEBUIA HAEMANTHA

Roble colorado

Native of Porto Rico

Family BIGNONIACEAE

TRUMPET-CREEPER Family

Bignonia haemantha Bertero; Spreng. Syst. 2: 832. 1825.*Tabebuia haemantha* DC. Prodr. 9: 214. 1845.*Tecoma haemantha* Griseb. Cat. Pl. Cub. 194. 1866.*Spathodea portoricensis* Bello, Anal. Soc. Esp. Hist. Nat. 10: 292. 1881.

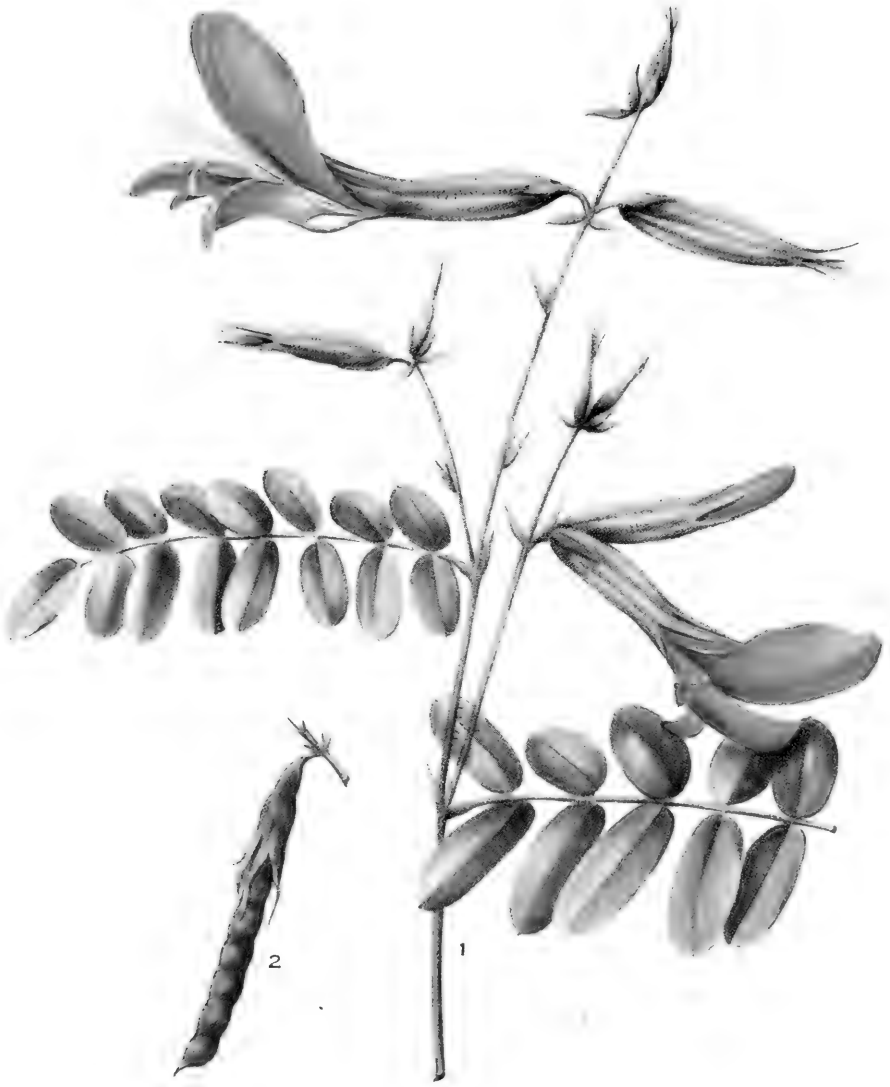
Tabebuia is a genus of showy-flowered tropical American trees and shrubs; some seventy-five species, or more, are known, many of them West Indian. The generic name is the Brazilian appellation of the typical species, taken up by Gomez in 1803. Many of the species have been included by authors in the genus *Tecoma*, which is now restricted to related trees and shrubs with pinnate leaves, *Tabebuia* having digitately compound, or in some species, simple or unifoliolate leaves. The flowers have a tubular or nearly campanulate calyx, a funnelform, salverform or nearly campanulate large corolla, four didynamous stamens, and a two-celled ovary containing many ovules. The fruit is a long capsule, not flattened; the numerous seeds are winged. The trees are called Roble in Spanish speaking islands, the wood being valuable; roble is Spanish for oak.

Tabebuia haemantha inhabits hillsides and woodlands at lower and middle elevations, in dry and moist parts of central, western, and southern Porto Rico, and is restricted to this island, being one of the most elegant of the endemic species. It has been erroneously recorded from Cuba. The painting herewith reproduced was made in April 1924 from a branch of a tree at Guanajibo, Porto Rico.

The roble colorado becomes a small tree, up to about twenty-five feet in height, but often flowers as a shrub. Its rather short-stalked leaves are composed of three to five stalked leathery leaflets, which are two to six inches long, elliptic, ovate or somewhat obovate, their margins entire. The loosely clustered flowers are often numerous and conspicuous; the calyx is about half an inch long with short teeth; the red or crimson nearly salverform corolla is one and a half to nearly two inches long, with a spreading, five-lobed limb and a slightly curved tube. The slender, grooved capsule is from two to four inches long, the many seeds broadly winged at each end.

N. L. BRITTON.

EXPLANATION OF PLATE. Fig. 1.—A flowering branch. Fig. 2.—A fruit. Fig. 3.—A seed.



BARBIERIA PINNATA

BARBIERIA PINNATA

Enredadera

Native of tropical America

Family FABACEAE

PEA Family

Galactia pinnata Pers. Syn. Pl. 2: 302. 1807.*Clitoria polyphylla* Poir. in Lam. Encyc. Suppl. 2: 300. 1811.*Barbiera polyphylla* DC. Mem. Leg. 242. pl. 39. 1825.*Barbieria pinnata* Baill. Hist. Pl. 2: 263. 1870.

The monotypic genus *Barbieria* was established by Augustin Pyramus de Candolle in 1825, in honor of Jean Baptiste Grégoire Barbier, a French pharmacologist, this beautiful plant, different in floral structure from all others, having been first described by Persoon as a *Galactia* and again by Poiret as a *Clitoria*. It is a shrub with very slender long branches, sometimes forming a vine, with unequally pinnate leaves composed of many small leaflets, and large and showy red flowers, few in axillary and terminal racemes. The long tubular calyx has five slender narrow teeth. The standard and the wings are oblong, the keel long and blunt. Nine of the stamens are partly united, the tenth one separate from the others; the anthers of all ten stamens are alike. The sessile ovary contains many ovules; the slender style is longitudinally bearded at the base, the stigma small and terminal. The narrow straight pod is septate between the black oblong seeds.

Barbieria pinnata inhabits thickets and woodlands, mostly in moist regions, and is frequently seen in Porto Rico, its flowers conspicuous and highly ornamental. The painting by Mrs. Horne, here reproduced, is from a plant found between Mayaguez and Maricao, Porto Rico, in December, 1923.

The branches of the enredadera are villous-pubescent when young. The short-stalked leaves are about eight inches long or shorter with short lanceolate stipules and from thirteen to twenty-one thin oblong mucronate leaflets about an inch to two inches long, finely pubescent and pale on the under side; the villous calyx is about an inch and a half long. The standard is nearly two inches long. The linear pod is pilose, about two inches long and quarter of an inch wide.

N. L. BRITTON.

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



CHAMAECRISTA MIRABILIS

CHAMAECRISTA MIRABILIS**Porto Rico Partridge-Pea***Native of northern Porto Rico*

Family CAESALPINIACEAE

SENNA Family

Chamaecrista mirabilis Pollard, Proc. Biol. Soc. Wash. 15: 19. 1902.*Cassia mirabilis* Urban, Symb. Ant. 4: 276. 1905.

The northern coastal plain of Porto Rico is characterized by large areas of fine, nearly white silicious sand, and this peculiar soil supports numerous kinds of highly interesting plants, among them, and sometimes forming large patches, the little *Chamaecrista* here illustrated. In places it covers the dry sand, almost to the exclusion of other vegetation, its bright yellow flowers conspicuous and attractive.

Mrs. Horne made the painting herewith reproduced, at Laguna Tortuguero, Porto Rico, in February, 1924.

Chamaecrista mirabilis is a low nearly prostrate shrub, its branches sometimes ascending or erect, its slender stems one to two feet long, finely pubescent when young, becoming glabrous. The small stipules are linear-subulate; the short-petioled leaves are from one to about three inches long, with from three to seventeen pairs of sessile linear or linear-oblong leaflets which are about a quarter of an inch long, pointed, thin, the midvein nearly central; the petioles bear one to three small stalked discoid glands. The usually solitary flowers are slender-stalked, about one inch broad, the peduncles about an inch long or shorter; the sepals are from a quarter to nearly a half inch long; one of the five petals is much larger and wider than the other four. The pod is about an inch long and one twelfth as wide.

N. L. BRITTON.

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



DISTICTIS LACTIFLORA

DISTICTIS LACTIFLORA

*Liana fragrans**Native of the northern West Indies*

Family BIGNONIACEAE TRUMPET-CREEPER Family

- Bignonia lactiflora* Vahl. Symb. 3: 80. 1794.
Bignonia rigescens Jacq. Hort. Schoenb. 2: 44. 1797.
Distictis lactiflora DC. Prodr. 9: 191. 1845.
Distictis rigescens DC. Prodr. 9: 191. 1845.
Bignonia odorata Bello, Anal. Soc. Esp. Hist. Nat. 10: 293. 1881.
Macrodiscus lactiflorus Bureau; Baill. Hist. Pl. 10: 36. 1891.

Among the many genera of tropical American vines related to the Trumpet-creeper (see ADDISONIA, plate 276), *Distictis* is of interest as inhabiting the northern West Indies only; three species are known, the present typical one, on which the genus was established by Martius, and the Cuban *D. gnaphalantha* (A. Rich.) Urban and *D. rhynchocarpa* Urban. All are showy-flowered woody vines, with opposite leaves composed of two or three leaflets, or of two leaflets and a tendril; the flowers have a thick disk, a nearly salverform corolla with a subcylindric tube and a spreading, five-lobed limb. The fruit is an oblong flattened leathery capsule, the many flat seeds with thin wings.

The liana *fragrans* inhabits dry parts of Cuba, Hispaniola, Porto Rico, St. Croix and St. Thomas. Our illustration is reproduced from a painting by Mrs. Horne of a specimen collected between Parguera and Ensenada, Porto Rico, July 18, 1923.

Distictis lactiflora climbs to a length of eight to nearly twenty feet; it is slender and glabrous, or the young shoots puberulent. Its leaves are short-stalked; the two or sometimes three leaflets are ovate to elliptic, about two inches long or shorter, coriaceous and reticulate-veined; a tendril, when present, occupies the place of a third leaflet. The strongly odorous flowers are in terminal panicles, their pedicels short; the campanulate puberulent calyx is about one fifth an inch long and nearly truncate; the corolla is white, its tube about an inch and a half long, its limb a little more than an inch broad, with broad rounded or somewhat notched lobes, and the throat is yellow. The stamens and style are shorter than the corolla-tube. The capsule is three or four inches long, about an inch wide at the middle, narrowed to both ends; the seeds broadly winged.

N. L. BRITTON.

EXPLANATION OF PLATE. Fig. 1.—A flowering branch. Fig. 2.—A capsule. Fig. 3.—A seed.

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ACOKANTHERA SPECTABILIS

ACOKANTHERA SPECTABILIS

Wintersweet

Native of South Africa

Family APOCYNACEAE

DOGBANE Family

Toxicophloea spectabilis Sonder, *Linnaea* 23: 79. 1850.*Acokanthera spectabilis* Benth.; Hook. f. *Bot. Mag.* pl. 6359. 1878.

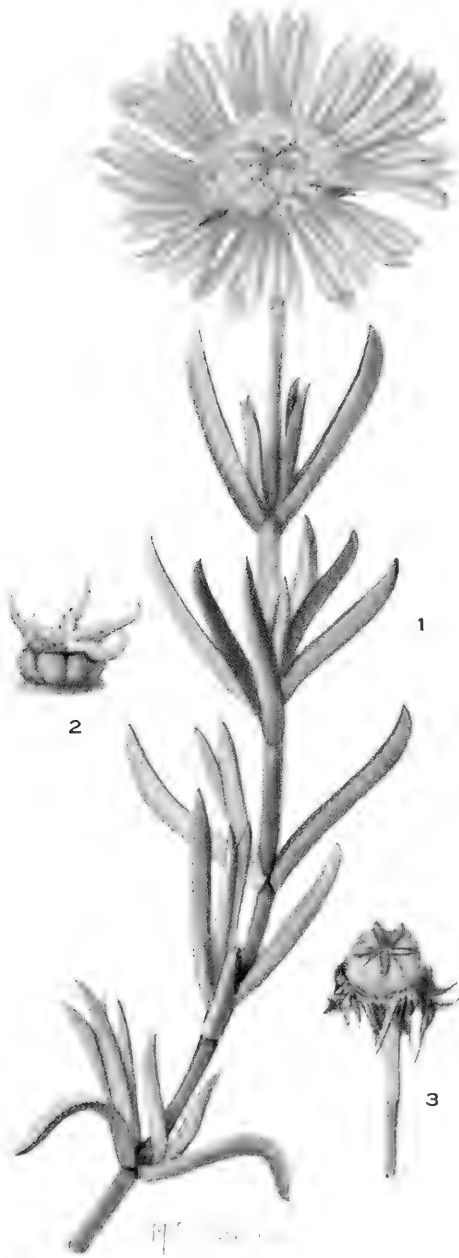
The gardener's toxicophloea, or wintersweet, is one of five African shrubs of the genus *Acokanthera*, two of which have been cultivated in greenhouses for over a century. It is related to the *Allamanda* vines and the spiny *Carissa* shrubs, to our herbaceous perennial *Amsonia* and *Vinca*, and is in the front rank of larger flowering shrubs for the greenhouses, reminding one of a viburnum or the white ixoras. Another close relative is the beautiful white crape jasmine, or *Tabernaemontana*, of tropical gardens. The fragrance of the heavily clustered white flowers is pleasing.

This shrub can be propagated by cuttings taken in the spring. Cultural requirements are plenty of water, frequent syringing and a rich peaty soil. Plants twenty-five years old, originally from the National Botanic Gardens at Washington, are shown in house No. 4 of Conservatory Range 1; from one of these plants, which bloom nearly all winter, our illustration was made.

The wintersweet is a branching shrub five to six feet high, with black bark and smooth branches. The leaves are entire, smooth, leathery, opposite in arrangement; in shape elliptic or oval. They are up to five inches long, acute at the apex and base. Their color is rather deep green on both sides. The flowers are in dense terminal clusters of from twenty to fifty fragrant tubular white blooms. The calyx is five-lobed, the lobes ovate, ciliate. The corolla has a tube one inch or more long, topped by five ovate recurved lobes. The five stamens, with two-celled ovate anthers, are attached by short stout ciliate filaments to the throat of the tube, alternately with the corolla lobes. The style is slender, as long as the tube, raising the stigma to the level of the anthers. The fruit is a berry, purple to black in color, about one inch long, elliptic to nearly round, containing one or two elliptic seeds.

KENNETH R. BOYNTON.

EXPLANATION OF PLATE. Fig. 1.—Flowering branch. Fig. 2.—Corolla, split open, showing stamens, $\times 2$. Fig. 3.—Stamens, $\times 8$. Fig. 4.—Gynoecium, $\times 2$. Fig. 5.—Fruit.



MESEMBRYANTHEMUM SPECTABILE

MESEMBRYANTHEMUM SPECTABILE**Showy Fig-marigold***Native of the Cape of Good Hope*

Family TETRAGONIACEAE CARPET-WEED Family

Mesembryanthemum spectabile Haw. Obs. Mesemb. 385. 1794.

Fig-marigolds, though not hardy, make excellent bedding plants in this climate; in mild parts of California they are common garden subjects. Three types are grown as plant curiosities; the ice-plant, *M. crystallinum*; the tiger's-claws, *M. tigrinum*, *M. felinum*, etc., which have thick triangular leaves edged with incurving spine-like processes; and sorts like *M. Bolusii*, whose thick short leaves resemble the bare stony locale of their nativity. A variegated form of *M. cordifolium* is often used as a basket plant and to some extent in city window gardens where it seems to grow thriftily and flower profusely.

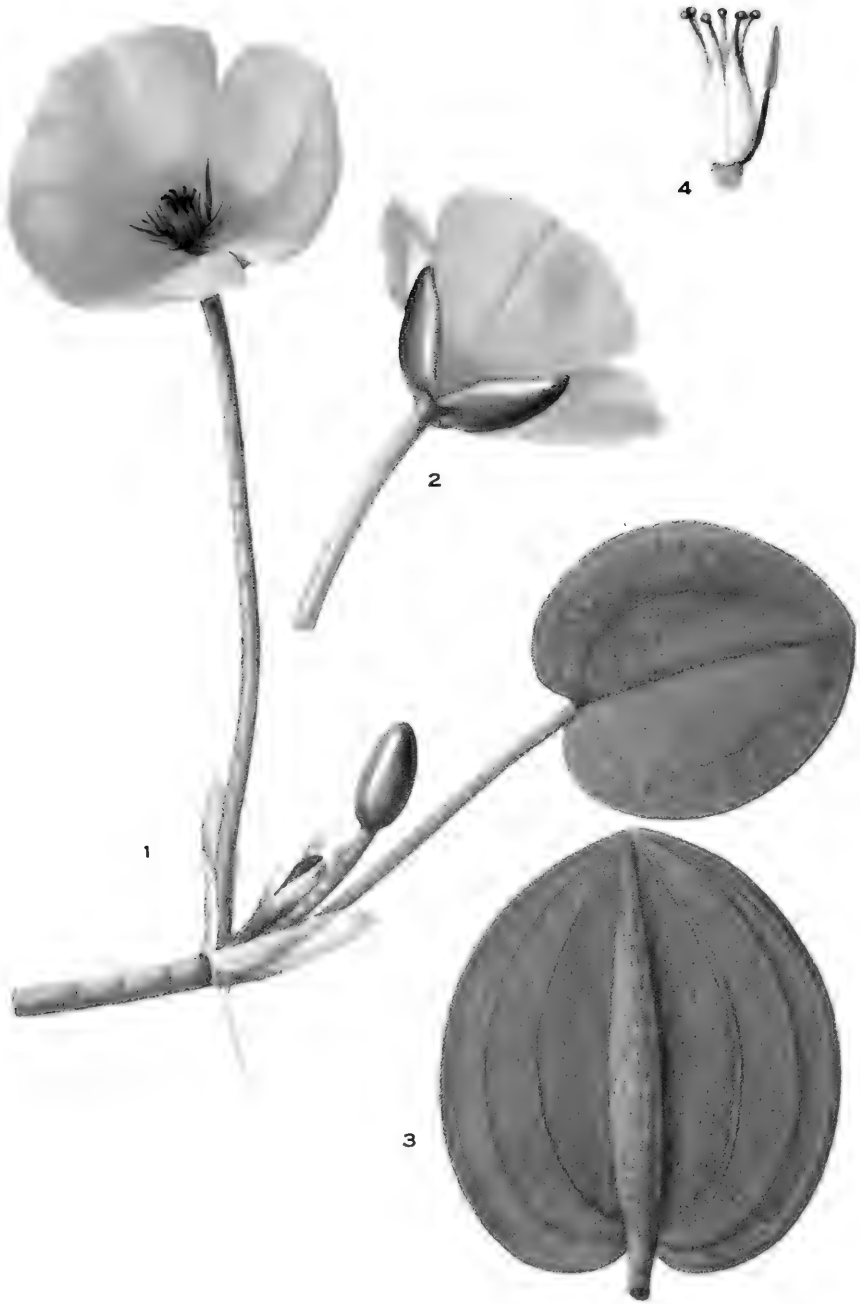
All mesembryanthemums are propagated readily by cuttings. For bedding purposes these should be taken in autumn with the coleus and similar plants.

Our illustration was made from plants obtained from the collection of Central Park, New York City, nearly twenty-five years ago.

The showy fig-marigold is a low straggly shrub, whose slender stems reach three feet in length, and branch upward. The glaucous leaves are opposite, two to three inches long, one inch wide, incurved, three-sided with one angle blunt or rounded, the apex acute. The flowers terminate the ends of branches on three- to six-inch peduncles; they are nearly two inches in diameter and rose purple, with yellowish center cushion formed of the stamens. The calyx is top-shaped, with five green thickened, unequal lobes. The petals are numerous, linear, about one inch long in several rows, but united at their bases, the inner rows perhaps shorter. The numerous stamens are in many rows and united at the base. The ovary is five-celled, bearing five sessile stigmas. The five-celled capsule splits along five radiating lines at the summit, disclosing the many seeds.

KENNETH R. BOYNTON.

EXPLANATION OF PLATE. Fig. 1.—Flowering branch. Fig. 2.—Gynoecium, $\times 2$. Fig. 3.—Fruit.



HYDROCLEYS NYMPHOIDES

HYDROCLEYS NYMPHOIDES

Water-poppy

Native of Brazil

Family BUTOMACEAE

FLOWERING-RUSH Family

- Stratiotes nymphoides* Willd. Sp. Pl. 4: 821. 1806.
Hydrocleys Commersonii L. C. Rich. Mém. Mus. 1: 368. 1815.
Limncharis Humboldtii L. C. Rich. Mém. Mus. 1: 369. 1815.
Hydrocleys Humboldtii Endl.; Kunth, Enum. 3: 166. 1841.
Hydrocleys nymphoides Buch. Abh. Nat. Ver. Brem. 2: 2. 1868.

The curious family of the flowering-rush is related to the pondweed and water-plantain groups. The flowering-rush itself, *Butomus*, resembles the water-plantain in growth and habit, but has larger flowers and grass-like leaves. The water-poppy and the *Limncharis*, tropical aquatics in cultivation, have such showy yellow flowers as to seem almost out of place in the family. They have been confused in the past, but *Limncharis* has both leaves and flowers raised above the water on stout triangular winged stalks; *Hydrocleys* has strictly floating leaves and flowers slightly above the water. Two spellings are used for this genus, *Hydrocleys* and *Hydrocleis*.

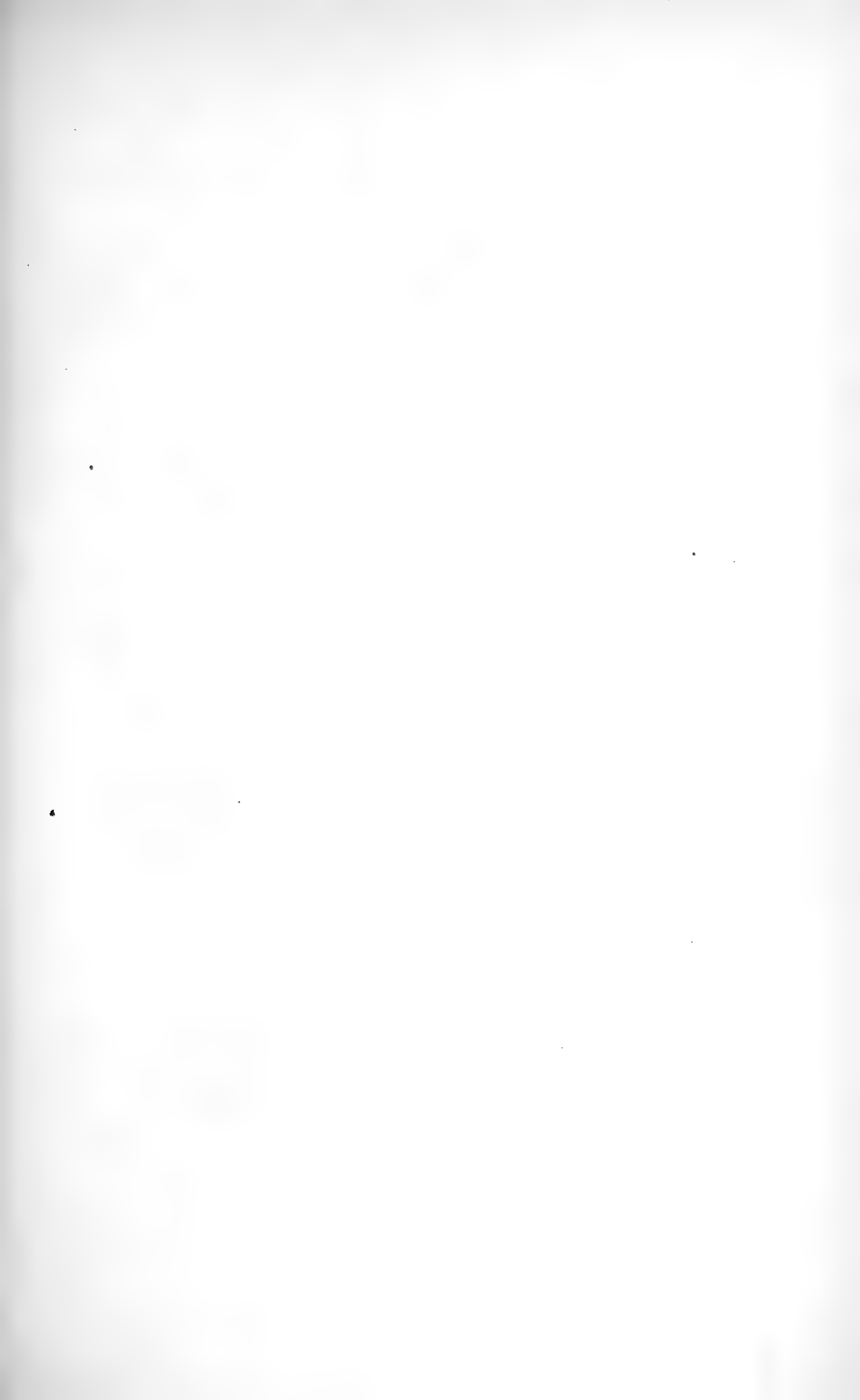
According to Mr. John Sommer, expert in aquatics, the water-poppy requires a temperature of 60–70° F., full sunlight, and soil compounded of topsoil, sand, and cow manure. It may be planted in any tub or box if placed four inches below the surface of the water. Plants of the flower as illustrated may be seen in House No. 9, Conservatory Range 1, where they have been grown for many years.

Hydrocleys nymphoides is an aquatic herb with articulated slender green submerged stems, which bear roots at the nodes and three or four oblong transparent bracts, from the axils of which arise flowers and leaves on peduncles, and petioles, also articulated, somewhat more slender than the stems and from six to twelve inches long. The leaf-blades are oval to nearly round, cordate at the base and blunt at the apex. They are light green in color, with seven very prominent parallel ribs, the midrib being enlarged below and inflated, the resulting air-cushion serving as an aid in floating. The flowers are from one to two inches in diameter, about two inches above the surface of the water and last only one day. The sepals are three in number, lanceolate, thick and incurved. The pale yellow petals are obovate or nearly wedge-shaped, fragile, and quickly falling. The numerous stamens are purplish, one half inch long, with yellow two-celled anthers, some sterile, some fertile, and

surround the five to seven club-shaped carpels, which are joined below; the styles are slender and stigmas free, globular and purple.

KENNETH R. BOYNTON.

EXPLANATION OF PLATE. Fig. 1.—Flowering branch. Fig. 2.—Flower, showing calyx. Fig. 3.—Leaf-blade, lower surface. Fig. 4.—Gynoecium, with one stamen.





DIMORPHOTHECA AURANTIACA

DIMORPHOTHECA AURANTIACA**Golden Cape-marigold***Native of the Cape of Good Hope*Family **CARDUACEAE**Family **THISTLE***Dimorphotheca aurantiaca* DC. Prodr. 6: 72. 1837.

The genus *Dimorphotheca* is endemic to South Africa, and contains perhaps two dozen species. The present subject is the only one of these cultivated in America and is of comparatively recent introduction. It is of the tribe of the pot-marigold, *Calendula*, from which it differs technically in not having the seed incurved and in other characters.

The attractiveness of this cape-marigold as a garden flower lies in the unusual color of its daisy-like flowers, chrome-yellow, heightened by the contrast with the steel-blue ring or eye around the center; they open in the sun and close at dusk. In the Garden flower-borders where it has been grown for ten years, it flowers continuously all summer, and furnishes an abundance of seed. Our list of annual flowering plants has had few additions as worth while as this little daisy. Seeds can be obtained from any seedsman now; if sown in March in a greenhouse or cold frame they may be transplanted to the borders in June, and succeed in any good garden soil.

This daisy is shrubby in its native country, but an herbaceous annual in cultivation, with semierect stems reaching a length of two or three feet, bearing terminal heads of flowers. The leaves are from two to three inches long and half an inch wide, oblong to spatulate, entire or with two or three blunt teeth. The flowers are in heads surrounded by an involucre of one series of lanceolate, acuminate green bracts; the ray-flowers pistillate, about 20, the rays oblong, three-toothed at the apex; the disk-flowers perfect, with tubular five-lobed corolla. The styles are bifid and glandular. The achenes of the ray-flowers are dark, prismatic or three-sided, and rough, those of the disk-flowers oval, light brown, with two broad wings.

KENNETH R. BOYNTON.

EXPLANATION OF PLATE. Fig. 1.—Flowering branch. Fig. 2.—Flower-head, showing involucre. Fig. 3.—Ray-flower, $\times 2$. Fig. 4.—Disk-flower, $\times 2$. Fig. 5.—Ray-achene, $\times 3$. Fig. 6.—Disk-achene, $\times 3$.



LONICERA FRAGRANTISSIMA

LONICERA FRAGRANTISSIMA

Fragrant Bush-honeysuckle

Native of China

Family CAPRIFOLIACEAE

HONEYSUCKLE Family

Lonicera fragrantissima Lindl. & Paxt. Flower Garden 3: 75. 1852.*Lonicera caprifolioides* Koch, Dendr. 2: 19. 1872.

Three of the bush-honeysuckles bloom very early in our gardens before the leaves appear; they are *Lonicera Standishii*, *L. gracilipes*, and the one here illustrated, which differs from the first-named in having acute, smooth leaves rather than acuminate hairy leaves, from the second in having smaller, lighter colored and earlier flowers. Its general aspect is different from both, more robust and more ragged of stem. The fragrance of its flowers is one of the earliest to greet us in spring.

For many years *Lonicera fragrantissima* was believed to be a native of China and Japan, but it was known only as a cultivated plant. It was introduced into the gardens of the Royal Horticultural Society of England by Robert Fortune, who found it cultivated in China. Mr. Alfred Rehder assigns it to China by virtue of a specimen collected there from a wild plant.

The fruits of this honeysuckle are not persistent, the only autumn feature worth notice being a new growth of bluish-gray leaves on brown branches. The off-season appearance is on the whole a rather unattractive one, unlike that of several of the fly-honeysuckles, *Lonicera Morrowi* and its varieties.

The plants from which our illustrations are made are in the Fruticetum of the New York Botanical Garden. They were among the first shrubs to be introduced into our collection, coming from the Meehan nurseries, Germantown, Pennsylvania, in 1896. Others from the same source were distributed over the park grounds. One group may be found blooming early each March over the stone wall of the five-arch bridge, others on the College Walk, where their flowers attract the earliest bees.

Propagation is effected by seeds sown in September, by softwood cuttings in summer, or by hardwood cuttings in winter.

The fragrant bush-honeysuckle is a large spreading shrub up to twenty feet high, with old trunks up to six inches in diameter at the base and with thin dark-gray outer bark separating from the inner in loose strings or broad paper-like strips. The younger branches

are straw-yellow and smooth. The leaves are usually obovate on young shoots, and ovate when older, all acute, some with sharp spiny tips. The flowers are in axillary pairs, subtended by two small lanceolate bracts, on pedicels one inch long. They are nearly one inch across. The calyx has five short acute lobes. The corolla has a short gibbous tube and is five-lobed, irregular, usually two-lipped with four ovate lobes forming the upper, and one recurved, slightly larger, oblong, forming the lower lip. The stamens are five in number, with glabrous white filaments and yellow anthers. The fruits are round or oval, two joined together by their bases, bright scarlet in color.

KENNETH R. BOYNTON.

EXPLANATION OF PLATE. Fig. 1.—Flowering branch. Fig. 2.—Corolla, split open, with stamens. Fig. 3.—A leaf. Fig. 4.—Fruiting branch.



MARANTA KERCHOVEANA

MARANTA KERCHOVEANA

Kerchove's Arrowroot

Native of Brazil

Family MARANTACEÆ

ARROWROOT Family

Maranta Kerchoveana E. Morren, Belg. Hort. 29: 77. 1879.

Aside from the well-known arrowroot of commerce, *Maranta arundinacea*, the plants of this family are generally greenhouse foliage plants, particularly of private fanciers' or public collections. They were mostly introduced into cultivation during the periods of fashion in new plants of variegated or showy leaves; when the nurserymen strove to obtain new ones from far lands to fill the enthusiast's collections, and the new plants were illustrated in the horticultural journals of the old world. The Belgian, German, English, and French were all interested in foliage plants at the same time.

Our present subject was introduced from Brazil about 1870 by the Belgian nursery firm of Jacob-Makoy, and was named for the Comte de Kerchove de Denterghem. The other marantas as well as the genus *Calathea* of the same family are not thoroughly straightened out botanically, being known chiefly by their foliage forms. Horticulturally marantas and calatheas are spoken of together and treated alike. In our collections are many forms: *Calathea Luceyana*, with large leaves, purple underneath, lustrous green above; *C. Princeps*, chocolate beneath, above with deep green center and lighter margins; *C. ornata*, purple beneath, and with pink or white lines in parallel pairs along the side-veins above; *C. zebrina* and *C. leopardina*, with long oblong leaves, purple beneath, but light green above and with dark almost black green portions of distinct pattern and of velvety texture; *Maranta Van-den-Heckeri*, with oval oblique leaves with white mid-veined section and zone of white encircling the leaf near the margin; *C. Leitzei*, with bright to dark green blotches, and finally *M. Kerchoveana*, blotched distinctly dark green when old, but the new and well grown leaves with the blotches of soft velvety brown gracefully arranged.

Marantas and calatheas require a temperature close to 70° F., plenty of moisture in the atmosphere, frequent syringing, and a soil containing both leaf-mold and sand, and they do best in a small snug house protected from strong air-blasts which harm the leaves.

Kerchove's arrowroot is a low rhizomatous herb with zigzag stems nearly prostrate or up to six inches high, rooting at the nodes. The leaves, on sheathing petioles about four inches long, are ovate to nearly round, two to five inches long and two to three inches wide, with abruptly acuminate, slightly curved apex. They are grayish green beneath or with a tendency toward purple, above light green with four or five dark green or velvety brown blotches on either side of the midrib. The few or often solitary flowers are borne on branches that are long, slender, encircled with one or two brownish, scarious, ovate, acuminate bracts. The flowers have a calyx of three equal lanceolate sepals and a short-tubular corolla of three unequal lobes or petals. The stamens are three, two exterior being petal-like staminodia, obovate, colored, the third fertile and bearing an anther. The ovary is one-celled and the fruit one-seeded.

KENNETH R. BOYNTON.

EXPLANATION OF PLATE. Fig. 1.—Flowering branch. Fig. 2.—Young leaf, showing venation. Fig. 3.—Flower, split open, $\times 2$.



MALPIGHIA COCCIGERA

MALPHIGIA COCCIGERA**Box-leaved Barbados-cherry***Native of tropical America*

Family MALPHIGIACEAE

BARBADOS-CHERRY Family

Malphigia coccigera L., Sp. Pl. 426. 1753.*Malphigia coccigyra* L., Sp. Pl. ed. 2. 611. 1762.*Malphigia coccifera* Cav. Diss. 408. 1789.

Uncommon in cultivation although widespread in the tropics of both hemispheres and very abundant in northern South America, the family of vines, shrubs, and occasionally trees, which commemorates the celebrated Italian scientist, Malphigi, is not familiar to American horticulturists except perhaps through the medium of one vine. This is the Golden Vine, *Stigmaphyllon ciliatum*, of Brazil, which is often seen on greenhouse walls or posts. One covers a warm side of House No. 4, Conservatory No. 1, at the New York Botanical Garden. The Barbados-cherry, *Malphigia glabra*, is cultivated in the West Indies for its edible berries; and *M. coccigera* is grown in the gardens of Porto Rico as an ornamental. It has been taken up somewhat in California and South Florida as a small box or holly substitute, for which it would seem to be well adapted. Another member of this family may be cultivated, *Thryallis*, a yellow-flowered shrub, which is found in Porto Rican gardens and perhaps in other islands; it flowers freely in our greenhouses. In North American Flora are described twenty-two native genera, and more than a hundred species, of which thirty are of *Malphigia*.

The attractiveness of these plants lies in the graceful oddity of the flowers, which resemble in fancy those of the butterfly orchid, *Oncidium*; in the present subject the lustrous, evergreen holly-like leaves and pink flowers with typical family grace are to be admired. Growth is not rapid, and plants seldom exceed three feet in stature, but they thrive in any good soil in a cool greenhouse, and may be propagated by seeds or cuttings. The illustration was made from plants in our houses which came from Central Park, New York City, in 1900.

Malphigia coccigera is a shrub up to three feet high, with slightly rough greenish black bark; the leaves are ovate to obovate or nearly round, from one half to one inch long and from one to three quarters of an inch wide, smooth, lustrous, dark green above, lighter beneath, obtuse or rounded at both apex and base, entire when young, eventually with five or six irregular teeth tipped with sharp

spines. The pink flowers (under cultivation) are borne singly on slender pedicels one inch long, and usually measure about half an inch across. The five sepals are lanceolate, each with two oblong green glands on the back. The petals number five, and are clawed, the claws an eighth of an inch long, the limbs nearly round with fringed edges; these petals are usually irregular, three larger and two smaller, with slight differences in shape. There are ten perfect stamens, two with larger anthers and thicker filaments. There are three carpels, with three thickened styles and small green stigmas; the fruit is a round drupe, without wings, three-celled, three-seeded, each seed with three crests on the back.

KENNETH R. BOYNTON.

EXPLANATION OF PLATE. Fig. 1.—Flowering branch. Fig. 2.—Largest petal, $\times 3$. Fig. 3.—One of the medium petals, $\times 3$. Fig. 4.—One of the smallest petals, $\times 3$. Fig. 5.—Sepal, with glands, $\times 4$. Fig. 6.—Gynoeccium, $\times 4$. Fig. 7.—Stamens, $\times 4$.



ECHEVERIA WHITEI

ECHEVERIA WHITEI

White's Echeveria

Native of Bolivia

Family CRASSULACEAE

ORPINE Family

Echeveria Whitei Rose, sp. nov.

Certain species of *Echeveria* have long been favorite greenhouse plants. They are easy to grow and propagate readily, not only from seeds and cuttings but often from the leaves. Some of them flower freely in midwinter when there is a dearth of bloom, and some are much used for formal bedding and for lettering. Bentham & Hooker, many years ago, reduced the genus to a synonym of the South African genus *Cotyledon*. Botanists generally accepted this reduction, but gardeners who knew the plants living still clung to the old name. So it was that in our herbaria and in technical botanies these plants were referred to *Cotyledon*, while in greenhouses and parks they passed under the name of *Echeveria*.

In 1902 and 1903 Dr. Britton and Dr. Rose assembled a large series of Crassulaceae in New York and Washington, and after careful study reached the conclusion that *Echeveria* deserved generic rank. As it is now understood, it contains about sixty species, most of which are native of Mexico. Only one species extends as far north as the United States. One species each has been described from Venezuela and Colombia; several species have been found in Peru, while the species here illustrated and described as new comes from Bolivia and is therefore from the most southern limit of the genus.

In 1922 Dr. H. H. Rusby headed the Mulford Exploring Expedition to South America. He was accompanied by Dr. Orland E. White of the Brooklyn Botanic Garden, who brought back from Quime, Bolivia, an *Echeveria* which proved to be new. Our illustration is from a plant received by the New York Botanical Garden from the Brooklyn Botanic Garden in 1923.

The stem of White's echeveria is weak, usually less than four inches long, and is crowned by a dense rosette of leaves. The leaves are fleshy, flattened, spatulate, acute, one and one half to two inches long, glabrous, pale green, with purplish margins or sometimes with a blush over the whole surface. The flowering stem is sometimes one foot long, red, bearing a few small leaves; the inflorescence is an equilateral raceme about four inches long, with ten to fifteen flowers. Each flower is subtended by a small linear bract a half inch or less long. The five sepals are linear, acute, unequal,

and green. The corolla is red, about half an inch long, with the five petals angled, erect but with spreading tips. There are ten stamens, five of which are borne on the petals, the alternating five free.

J. N. ROSE.

EXPLANATION OF PLATE. Fig. 1.—Base of flowering stem, with leaf-rosette. Fig. 2.—Upper part of flowering stem. Fig. 3.—Flower, dissected, the sepals removed.

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ADDISONIA

COLORED ILLUSTRATIONS
AND
POPULAR DESCRIPTIONS
OF
PLANTS

VOLUME 10

NUMBER 4

DECEMBER, 1925



PUBLISHED BY
THE NEW YORK BOTANICAL GARDEN
(ADDISON BROWN FUND)
APRIL 8, 1926

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.

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

Address:

THE NEW YORK BOTANICAL GARDEN

BRONX PARK

NEW YORK CITY

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DAHLIA IMPERIALIS

DAHLIA IMPERIALIS

Imperial Dahlia

Native of Mexico

Family CARDUACEAE

THISTLE Family

Dahlia imperialis Roezl; Ortgies, Gartenflora 12: 243. pl. 407, 408. 1863.

Three species of tall dahlias have been described, all differing much in habit, in late flowering, and in leaf-characters from the representatives of this genus in ordinary cultivation in temperate regions. The relations of these three species or alleged species need critical investigation. The oldest of the three is *Dahlia excelsa* Bentham, which was described in great detail, with colored illustrations, in 1838. It is said to be a native of the mountains of Mexico, where it is reputed to attain a height of thirty feet.

Dahlia imperialis was collected in Mexico by Roezl and the species was first described chiefly from specimens grown in the open in the botanical garden of Zürich. Some of the plants were dug up at the beginning of November and brought under glass, where they flowered about the middle of the same month. Roezl had written, presumably from Mexico (trans.): "It blooms in pyramidal inflorescences with 150 to 200 great white bell-shaped nodding flowers, similar to a Yucca, or a giant white lily."

Dahlia Maxoni Safford (Jour. Washington Acad. Sci. 9: 371. f. 4. 1919) was described from type material collected in the Department of Alta Verapaz, Guatemala, but the species is said to extend into the state of Chiapas, Mexico. It is reputed to reach a height of from three to five meters. It would appear to differ from the plant that we know as *Dahlia imperialis* chiefly in the erect flowers, the obtuse rays, and the more elongate, more slender-pointed leaflets. Later description and photographs of the Guatemalan plant by Mr. Wilson Popenoe (Jour. Heredity 11: 264-268. 1920) indicate that the flowers are not always erect, that the rays are not always obtuse, and that "single," "anemone-flowered," and fully "double" heads may occur on one individual plant. The published photograph of the anemone-flowered head is strongly suggestive of the figured type of *Dahlia excelsa* Bentham, with which Safford makes no comparisons. The more elongate and longer-pointed leaflets would appear to be its most constant distinguishing character.

The nodding bell-shaped flowers are apparently the most reliable characteristic of *Dahlia imperialis* when compared with the other two species. This is, unfortunately, not well shown in our own fig. 2,

in which the flower-head had been tilted up to show a "face" view. The nodding character is indicated in our fig. 3 and may be seen in a photograph (with chrysanthemums) published on page 10 of the Journal of The New York Botanical Garden for January, 1926.

Our illustration was made from a plant that was grown from roots given by Mr. William J. Matheson in 1921 and flowered in Conservatory Range No. 2. Plants are grown annually in tubs sunk in the dahlia border of The New York Botanical Garden. Before the first frost the plants in their tubs are brought into the Central Display House, where they flower about the middle of November, quite regardless of the date of the starting of the shoots in the spring.

The imperial dahlia or tree dahlia is a tall plant, commonly seven to twelve feet high, with large white or mostly white "single" flower-heads. The stems are stout, percurrent, one and a half to two inches in maximum diameter, pubescent or tomentulose, except in older parts. The leaves are bipinnate, or the larger subtripinnate, horizontal or the older more or less deflexed, the strong common petioles conspicuously canaliculate, widened and connate at base. The primary pinnae are usually in five or six pairs, the leaflets are ovate to lanceolate-ovate, short-pointed, mostly one to two inches long, from a commonly inequilateral base, sparingly pubescent or pilose above, strigose-pubescent on veins and veinlets below, the margins serrate or crenate-dentate, the teeth mucronate and ciliolate. The flowers are borne on terminal and axillary peduncles as in other dahlias but on account of their number, the progressive reduction in size of the subtending leaves or bracts, and the frequent occurrence of two branchlets from a single axil, the inflorescence assumes the aspect of a loose terminal panicle. The flower-heads are mostly five to six and one-half inches broad; the form and position of the rays give a somewhat campanulate contour to the head as a whole and it is more or less nodding by a rather abrupt curve near the top of the slender peduncle. The bracts of the outer involucre are usually five or six; they are oblong-ovate or ovate-spatulate, thick and coriaceous in texture, and rounded-obtuse at apex. The eight bracts of the inner involucre are ovate or oblong-ovate, scarious-margined, and inclined to become erose-denticulate at apex. The ray-florets are eight; their ligules are elliptic-lanceolate, about three inches long, rather taper-pointed, each conspicuously 8-12-veined, and twice canaliculate-carinate, white, flushed and streaked with dahlia-carmine at base, this color extending out on the veins for one fourth to one third, rarely one half, the length of the ligule. The disk-florets are commonly one hundred and twenty-five to one hundred and fifty, their sulphur-yellow corollas and orange anthers forming a pleasing contrast with the colors of the ligules.

MARSHALL A. HOWE.

EXPLANATION OF PLATE. Fig. 1.—A pinna of a twice-compound leaf. Fig. 2.—Flower-head (in a tilted "face" view). Fig. 3.—Bud of flower-head. All figures about three fourths of the natural dimensions.



MESEMBRYANTHEMUM AUREUM

MESEMBRYANTHEMUM AUREUM**Golden Fig-marigold***Native of South Africa*

Family TETRAGONIACEAE CARPET-WEED Family

Mesembryanthemum aureum L. Syst. Nat. ed. 10. 1060. 1759.

About four hundred species of *Mesembryanthemum* are known. They are more or less succulent herbs or shrubs, mostly natives of South Africa, chiefly of the western part of the Cape region. Their number rapidly decreases farther east and north on the continent, but a few species reach the Mediterranean region, even the European shores, the Canaries, the near Orient, and Southern Arabia. A few other species are widely scattered, and occur on the islands of St. Helena and Reunion, on the coasts of Australia and New Zealand, of Chile and Peru, and of California, and on some islands of the Pacific.

Most of the fig-marigolds have opposite succulent leaves, which in the different species are very variously shaped. The flowers of most are conspicuous and often brilliantly colored, and, though of totally different structure, much resemble a daisy with their many radiating petals and the cluster of stamens. Petals and stamens are spirally arranged and sometimes separated by a number of staminodia. The calyx is usually five-parted, but the number of carpels and pistils varies from four to twelve, or even more. The capsules are hard, woody or corky, and very complicated structures, and, as a rule, highly hygroscopic, only opening during rain. The seeds are washed out or thrown out to some distance by the rain drops.

Mesembryanthemums are largely cultivated by lovers of succulent plants for their beautiful flowers or for the curiously or oddly shaped bodies. *M. aureum* was introduced into cultivation about 1750. It is a native of Saldanha Bay, Cape of Good Hope. The drawing for this plate was made from specimens grown in the New York Botanical Garden, received from the Royal Gardens, Kew, in 1902.

The golden fig-marigold forms a small erect shrub, about one foot to one and a half feet high, with terete brown stems, which later on become gray. The leaves are shortly connate at the base, cylindrically triquetrous, smooth, glaucous and finely punctulate, about an inch to an inch and a half long, ending in a short point. The showy golden-orange flowers measure about two inches across. They appear at the top of the branches, solitary or in threes, the flower-

stalks bearing one or two pairs of leaflike bracts. The calyx is turbinate, with five deltoid, densely punctate, somewhat unequal lobes, three of them with a parchment-like margin. The petals stand in several spiral rows. The stamens are deep orange with yellow oblong anthers. The five pistils are dark red. The capsule is slightly woody and opens with five valves.

ALWIN BERGER.

EXPLANATION OF PLATE. Fig. 1.—Flowering branch. Fig. 2.—Gynoecium, $\times 2$.



MALUS PULCHERRIMA SCHEIDECKERI

MALUS PULCHERRIMA SCHEIDECKERI

Scheidecker's Crab Apple

Of horticultural origin

Family MALACEAE

APPLE Family

Malus Scheideckeri Zabel, Handb. Laubh. Deuts. Dendr. Ges. 188. 1903.*Pyrus Scheideckeri* Späth; Wittm. Gartenflora 53: 417. 1904.*Pyrus floribunda Scheideckeri* L. H. Bailey, Cycl. Am. Hort. 1472. 1906.*Pyrus pulcherrima Scheideckeri* L. H. Bailey, Stand. Cycl. Hort. 2875. 1916.

The pleasure derived from the Japanese flowering cherries, in Spring, is immediately followed by the delight of the flowering apples. The term "flowering" is one commonly applied in gardening and nursery trade to forms of trees grown for their flowers which are ordinarily cultivated in the orchard for their fruits.

While the cherries are largely Asiatic in origin, these apples of flower-gardens are both Asiatic and American, some of our most magnificent of flowering trees originating here, notably the famous Bechtel's Crab (see ADDISONIA, plate 208). Our native species are very showy at blooming time. Other decorative apples illustrated in ADDISONIA, both objects of great beauty in spring, are *Malus Halliana* (plate 134), with rose-colored single blooms, and *M. Niedzwetzkyana* (plate 204), with broad single pink flowers and dark purple pink-fleshed fruit.

Scheidecker's apple is called a variety of the showy crab, **Malus pulcherrima** (*Pyrus pulcherrima* Aschers. & Graebn.), which is the *floribunda* crab of the trade. The flowers of the variety distinguish it from related crabs, they being slightly double, having one or two extra petals or petal-like parts. With some of those showy apples, notably *Malus Halliana*, "*Pyrus*" *atrosanguinea* and *pulcherrima* itself, a group of small, compact trees may be made use of for garden effects, notably for masses or drifts of bloom at their particular season.

Scheidecker's crab apple is a small spreading tree, with bark very light gray below and orange to reddish-tinted above. The leaves are ovate in outline, about three inches long and one inch wide, with deeply serrate margins, rounded bases and acute apices. They are slightly woolly underneath when young but glabrous at maturity. The flowers are about an inch and a half across, pink, semi-double, with their calyces slightly woolly inside, five-lobed, often partly persistent on the small rounded, yellow fruit.

KENNETH R. BOYNTON.

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



MALUS GLAUDESCENS

MALUS GLAUCESCENS**American Crab Apple***Native of central United States*

Family MALACEAE

APPLE Family

Malus glaucescens Rehder, *Trees & Shrubs* 2: 139. 1911.*Pyrus glaucescens* L. H. Bailey, *Stand. Cycl. Hort.* 2877. 1916.

Malus glaucescens was long associated with *M. coronaria* (*Pyrus coronaria* of Linnaeus). The oldest trees in our Arboretum, obtained from the old Meehan Nurseries in 1895, were grown and sold under that name. This crab apple is a member of the thin, smooth leaved group, and has distinctly three- to five-lobed leaves, with truncate or slightly rounded bases, not wedge- or heart-shaped as in other crabs. The species distribution centers around Ohio, spreading north to Ontario and Michigan, west to Missouri, and east to South Carolina.

The aspect of this dainty spring flowering tree is that of a much smaller duplicate of the old veteran tree of the orchard. The petals drop all too quickly, the blooming time in the garden being of short duration, but of concentrated, or massed color effect.

The tree from which our illustration was made stands with several others of its type, near *M. baccata*, the Siberian crab, *M. angustifolia*, the narrow leaved crab, and others in the Arboretum south of Conservatory Range No. 2.

The American crab apple is a small tree, fifteen to twenty-five feet high, with trunk about six inches in diameter and long, spreading branches. The old bark is rough, and dark gray, the young smooth and light gray. The winter buds, on short spurs, usually on the upper sides of the branches, are mostly terminal, half an inch long and bright red. Sharp spines an inch or more long are borne sparingly along the branches. The smooth thin leaves are triangular-ovate in outline with deeply serrate margins, usually distinctly three- to five-lobed, and with truncated, occasionally rounded bases and acute apices. The flowers, on slender pedicels one to one and a half inches long, are from one to two inches across, rose pink and fragrant, with five slender clawed oval petals and a five-lobed, woolly semi-persistent calyx. The acid fruit is round or slightly oblate, greenish yellow, less than an inch in diameter.

KENNETH R. BOYNTON.

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



STIGMAPHYLLON CILIATUM

STIGMAPHYLLON CILIATUM

Golden-vine

Native of Brazil

Family MALPIGHIACEAE

BARBADOS-CHERRY Family

Banisteria ciliata Lam. Encyc. 1: 369. 1783.*Stigmaphyllon ciliatum* A. Juss. in A. St. Hil. Fl. Bras. Mer. 3: 49. 1832.

About fifty species of plants in tropical America make up the genus *Stigmaphyllon*. Only one is commonly cultivated, another being occasionally seen in Californian gardens. They are related to the barbados-cherry and its relatives of the genus *Malpighia*, the only one common in gardens being *Malpighia coccigera*, the box-leaved Barbados-cherry, illustrated in the last issue of ADDISONIA (plate 343).

The present subject is best treated in the North as a greenhouse wall vine and should be planted out rather than grown in pots. In Florida and California it is a garden vine suitable for light foliage and free flowering effects. It is readily propagated by cuttings in September.

Stigmaphyllon ciliatum is called Fringed Amazonvine in "Standardized Plant Names." In tropical regions, it is called Bejuco de Paralejo; by some gardeners Butterfly-vine, a name which fits the plant, the flowers resembling in many respects those of certain orchids or butterfly orchids. The name used in our conservatories, Golden-vine, is also apt. The plant from which our illustration was taken came from the National Botanic Garden at Washington, and for many years grew in the southeast corner of House No. 4, Conservatory Range No. 1, where it flowered freely every spring. A new and more vigorous specimen given by John Sommer will be found in House No. 13.

The golden-vine is a slender vine, becoming woody at the base, reaching a height of ten to fifteen feet in cultivation. The opposite, ovate leaves are on slender petioles two inches long, bearing two small yellowish glands at the junction of petiole and midrib. The base of the blade is deeply cordate, the apex shortly acuminate, the margins with a sparse short fringe; they are dark green above, glaucous below, and finely net-veined. The flowers are in clusters of two to four in the axil of the leaves. The five ovate sepals bear glands on the back. The five yellow petals are short-clawed, with irregular, generally roundish or orbicular blades, about half an inch across, usually three larger and two smaller, and with fringed mar-

gins. The ten unequal filaments are united at the base; only six of them bear anthers. The ovary is three-lobed; the styles are three in number, sometimes with somewhat leaf-like stigmas.

KENNETH R. BOYNTON.

EXPLANATION OF PLATE. Fig. 1.—Flowering branch. Fig. 2.—Flower, the petals removed, $\times 2$. Fig. 3.—Sepal, $\times 2$. Fig. 4.—Style and stigma, $\times 4$. Fig. 5.—Fertile stamen, $\times 4$. Figs. 6, 7.—Sterile stamens, $\times 4$.



BERBERIS THUNBERGII

BERBERIS THUNBERGI**Japanese Barberry***Native of Japan*

Family BERBERIDACEAE

BARBERRY Family

Berberis Thunbergi DC. Syst. 2: 9. 1821.

Though not as famous as the rose or lilac, the Japanese barberry ranks with the California privet as one of our most useful garden plants. It is too well known to need any introduction to even the garden beginner. The common or European barberry is the only other one well known to gardeners; this species is notorious for its part in the dissemination of the wheat rust and the consequent drastic means to eradicate it from farms and their vicinity by the government. *Berberis vulgaris* has longer, less persistent fruits in drooping racemes, while the flowers and fruits of the Japanese species are usually in clusters of two to four, the fruit persistent and short oval. It is readily propagated by seeds, often sows itself, and, with the yellow pendent flowers in early spring and the showy scarlet fruit staying with us all winter, is a valued standby for dooryards, hedges, and many garden uses.

The Japanese barberry is a thick shrub, up to five feet high, with bark light gray, dark-striped, occasionally being reddish tinted on young branches, and with single slender sharp spines, less than one inch long, representing modified leaves, on all branches. The leaves are spatulate, entire, smooth, about one and a half inches long and a half inch wide. The flowers, appearing in April, are single or two or three together on slender pedicels pendent from the nodes. They are small and yellowish in color. The persistent fruits, on slender pedicels, are more than half an inch long, elliptic, scarlet, showy, about as long as the pedicels, with dry orange flesh and brown seeds.

KENNETH R. BOYNTON.

EXPLANATION OF PLATE. Fig. 1.—Flowering branch. Fig. 2.—Outer sepal, $\times 3$. Fig. 3.—Inner sepal, $\times 3$. Fig. 4.—Petal, inner surface, showing glands, with stamens, $\times 3$. Fig. 5.—Gynoecium, $\times 3$. Fig. 6.—Fruiting branch.



PACHYLOPHUS MARGINATUS

PACHYLOPHUS MARGINATUS**Hairy-margined Mountain-primrose***Native of the western United States*

Family ONAGRACEAE EVENING-PRIMROSE Family

Oenothera marginata Nutt.; Hook. & Arn. Bot. Beechey Voy. 342. 1838.*Pachylophus marginatus* Rydb. Bull. Torrey Club 33: 146. 1906.

In 1922, Dr. C. G. Abbot transmitted to us from Mr. A. F. Moore some specimens of a mountain-primrose collected on Mount Harque Hala, northwestern Arizona. Its flowers were four inches broad, and, although nearly pure white at first, dried with a pale pink tinge. Seeds, sent later by Dr. Abbot, germinated soon after planting and, early in 1923, the plants began to flower profusely, producing new flowers each day for several weeks. The flowers opened early in the evening and remained widely expanded the following morning but closed as soon as the sun struck them; on rainy days they remained open as late as 2:20 in the afternoon. Additional plants grown later from these seeds began to flower early in 1924, and from one of these, growing at the New York Botanical Garden, our illustration was made. The beauty and attractiveness of this plant promises to make it a welcome addition to greenhouse collections.

This species was formerly referred to the genus *Oenothera* before that genus was divided into its component parts. It is now properly referred to *Pachylophus*, a very distinct and characteristic genus of ten to twelve species, mostly confined to the western United States. *Pachylophus* is readily distinguished from its relatives by its cylindrical tubercled double-ridged fruit.

Pachylophus marginatus is closely allied to *P. hirsutus* Rydb. They are practically identical in pubescence, size and color of the flowers, shape of the leaves and length of the hypanthium. Of course, as is true with many evening primroses, these characters are not constant but vary to a considerable extent. The most reliable characters for separating the two species lie in the fruit; the capsules of *P. marginatus* are fusiform, noticeably stipitate and narrowed at the base; those of *P. hirsutus* are conic-ovoid, blunt at the base and sessile or, at most, subsessile. In addition to these differences in fruit our plant sometimes produces stems eight inches or more high. These stem-bearing plants may be confused with *P. caulescens* Rydb., but can be separated by the sessile capsules and nearly glabrous leaves and hypanthium of the latter.

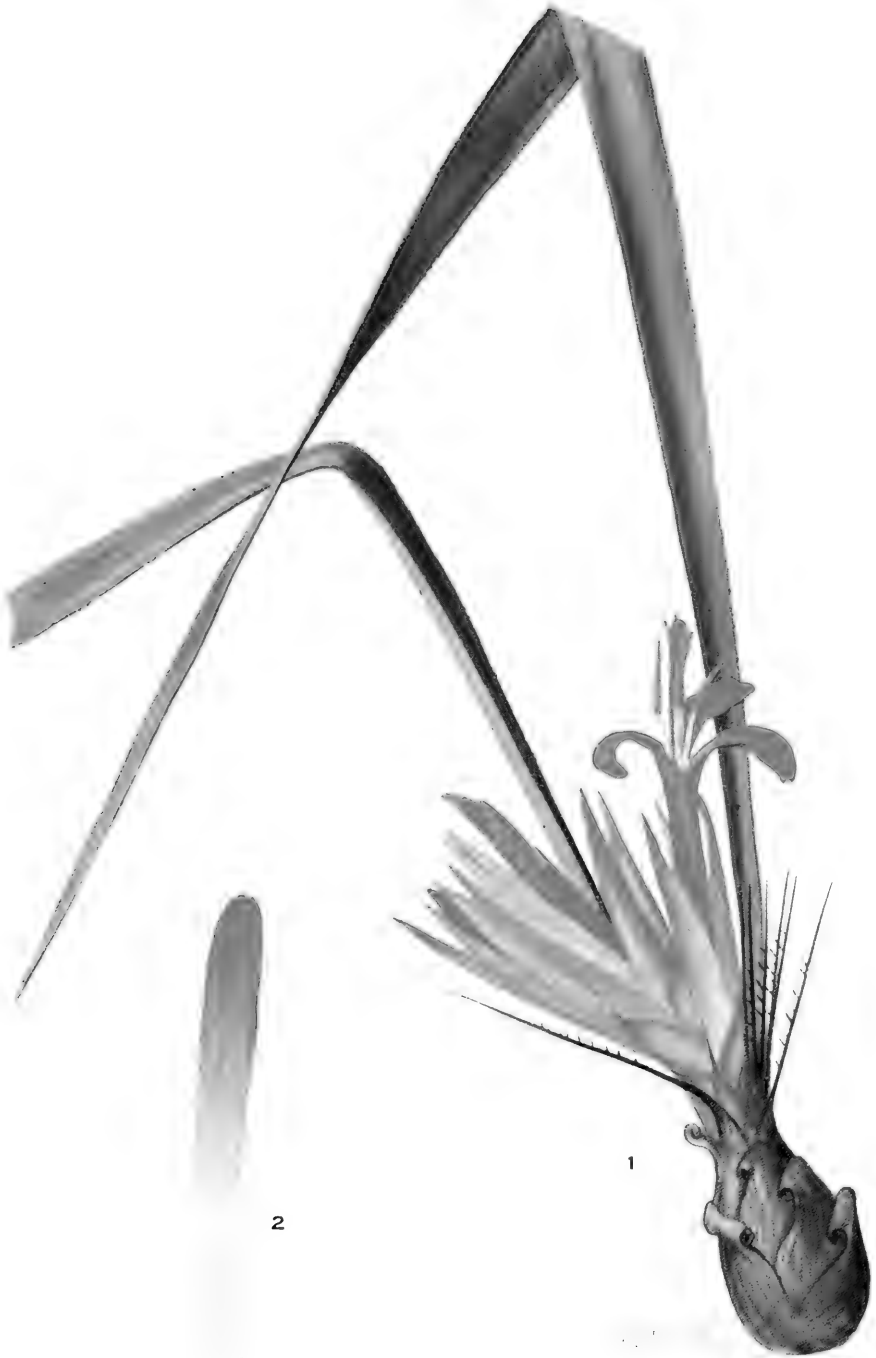
Like all of the genus, the species compared above grow in dry regions: on bluffs, in canyons, dry creek-beds, banks of streams, and slopes of volcanoes. The center of distribution for *P. marginatus* is northern Nevada and Utah and southern Idaho with occasional occurrences in Washington, Oregon, northern California, and northern Arizona. The range of *P. hirsutus* is more southern. It centers in Arizona, New Mexico, southern Utah, Colorado, and Nevada with occasional occurrences in Idaho.

The hairy-margined mountain-primrose is a perennial beginning to flower the second year, at first stemless but in age developing a short caudex; the leaves are elongate, four to six inches long, or occasionally reaching ten inches, lanceolate to oblong, tapering into a long somewhat winged petiole, softly pubescent with straight white hairs confined chiefly to the margins and veins of the under surface; flower-buds nodding; flower-tube long and slender, sometimes eight inches long; petals broad, two inches long or less; fruit narrowly oblong, two inches long, pilose, the ridges slightly tuberculate.

J. N. ROSE.

E. C. LEONARD.

EXPLANATION OF PLATE. Fig 1.—Flower and leaf. Fig. 2.—Leaf. Fig. 3.—Fruit.



PITCAIRNIA EXSCAPA

PITCAIRNIA EXSCAPA

Stemless Pitcairnia

Native of Ecuador and Colombia

Family BROMELIACEAE

PINEAPPLE Family

Pitcairnia exscapa Hook. Bot. Mag. pl. 4591. 1851.*Pitcairnia heterophylla exscapa* Mez, in DC. Monog. Phan. 9: 375. 1896.

On the western declivities of the Andes, usually between the altitudes of 3000 and 7000 feet, are to be found many interesting as well as ornamental species of *Pitcairnia*. Some of these are much prized in European conservatories, where they have long been cultivated. Others are known only as names in herbaria, while others are still undescribed.

It has been my good fortune to see many of these in Peru and Ecuador. Some of them love to grow among rocks, especially on the sides of a cliff, while others are epiphytic, growing in the crotches of tree-branches, sometimes in the dense rain-forests and sometimes along the border of some arid belt where they find a definite dry and wet season.

Two or three of the species which I collected in Ecuador in 1918 definitely belong to the latter zone for they were found dormant or just coming into flower. When the rains begin they rapidly send forth beautiful clusters of flowers and these are soon followed by the green leaves. In nature the flowers always come first, but in greenhouse plants like the one from which our illustration was made the leaves may persist until the flowers appear the next season. In growing these plants it is better to dry them off after the leaves have matured and hold them in this way until time to flower them again. In their dormant state several of these species seem much alike, but when in flower they are easily distinguished.

The subject of our illustration belongs to the subgenus *Cephalopitcairnia*, of which Baker recognizes but two species, both Mexican, but one, according to him, extending into northern South America. His South American representative of *P. heterophylla*, at least a part of it, is the plant here illustrated. It was collected by J. N. Rose and George Rose above Huigra, Ecuador, in 1918 (no. 22155), and has flowered each spring since in the New York Botanical Garden and in the Cactus house of the United States Department of Agriculture at Washington.

The stemless pitcairnia has leaves of two kinds, the outer ones with broad papery bases terminated by long, purple, spine-margined tips; the inner leaves are linear, elongate and entire. The flowers are sometimes two and one half inches long, eight to twelve in a head, bright scarlet; the bracts which subtend the flowers are ovate, green, acute. The style and stamens are as long as or longer than the petals; the stigma-lobes and the upper part of the style red.

J. N. ROSE.

EXPLANATION OF PLATE. Fig. 1.—Plant. Fig. 2.—Petal.

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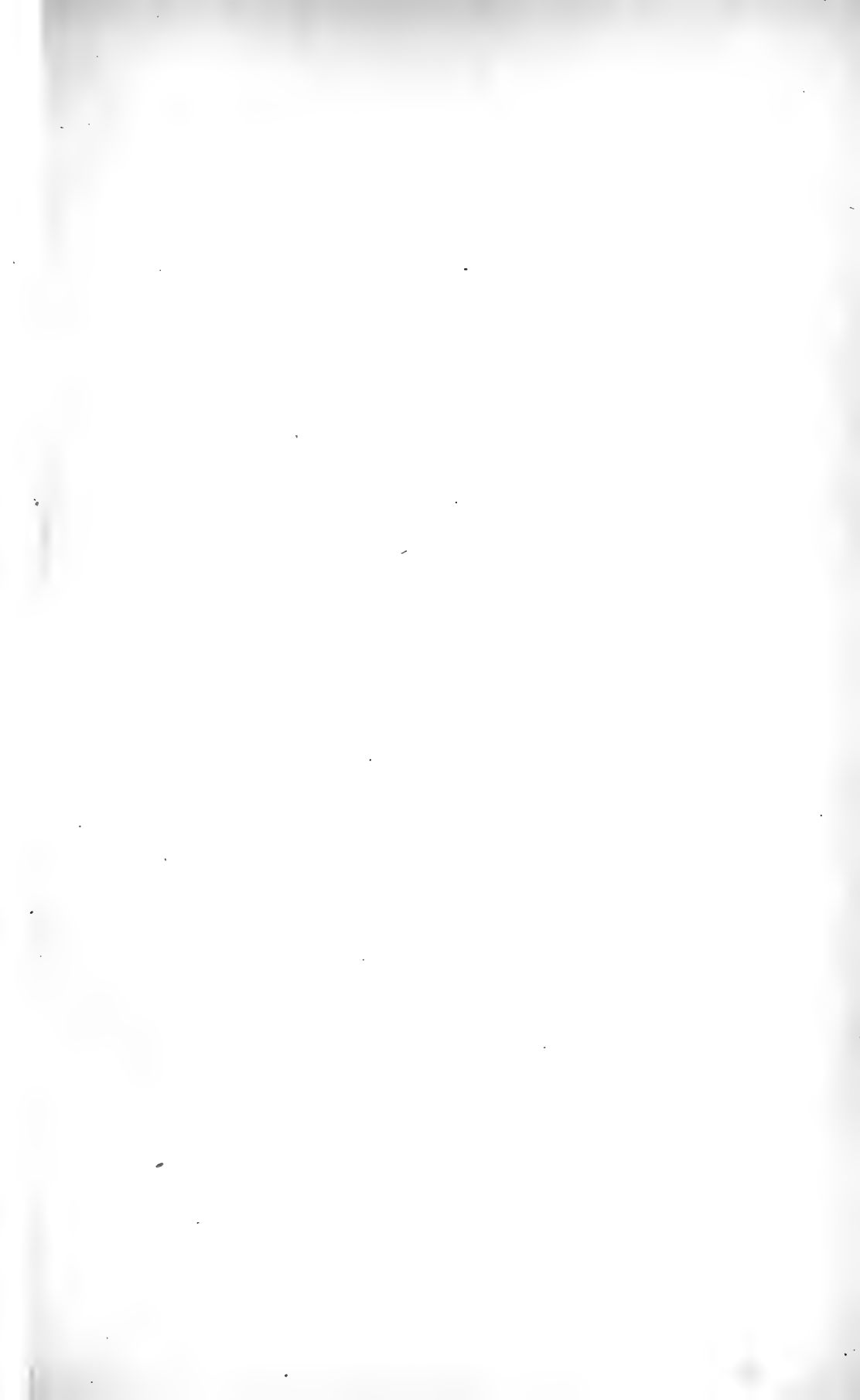
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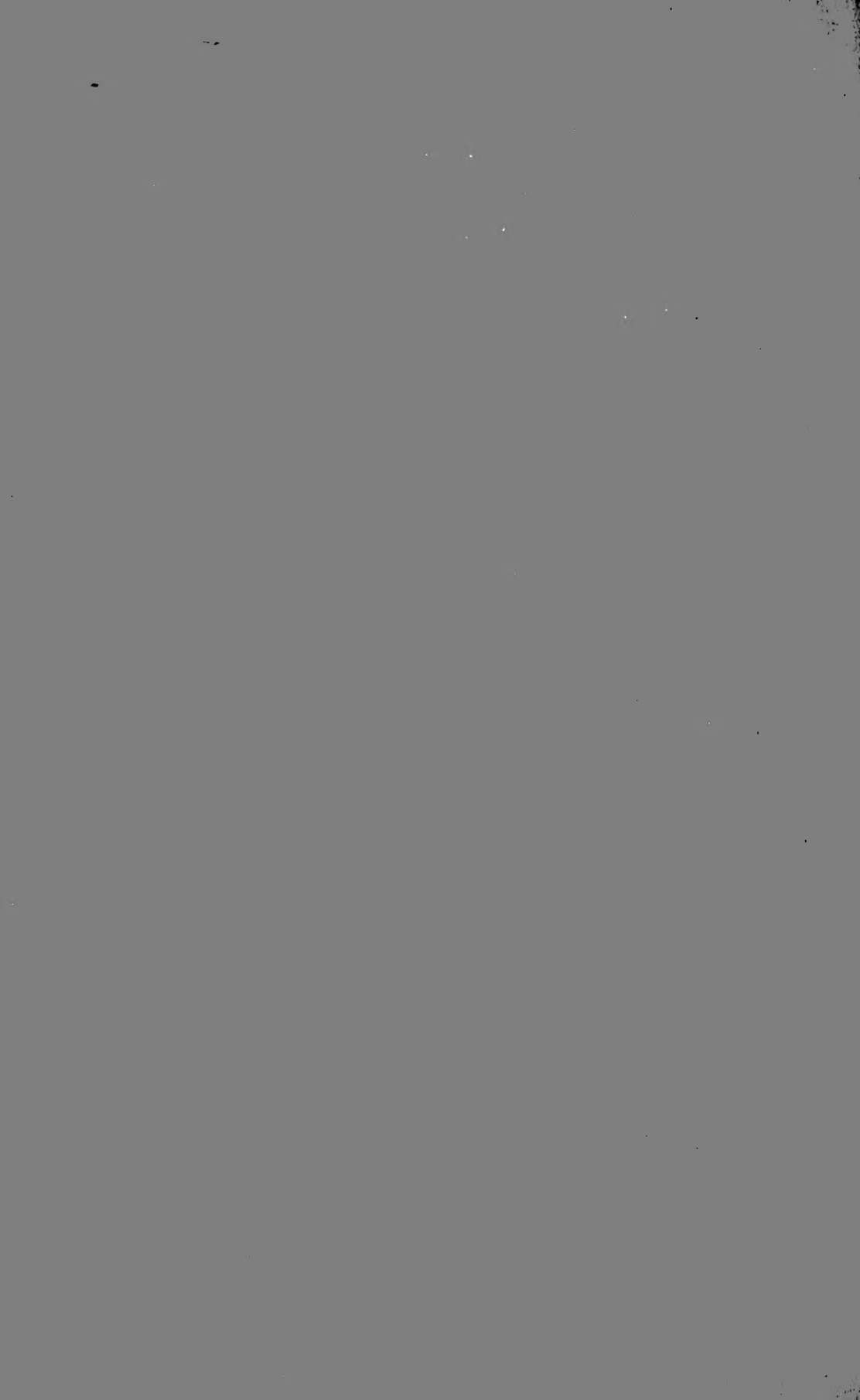
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