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WITH PLATES III—XI

NEW HAWAIIAN PLANTS—VII

By

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New Hawaiian Plants—VII¹

By CHARLES N. FORBES.

IN classifying and incorporating the Hawaiian botanical material at the Bernice P. Bishop Museum Herbarium, the plants on which the present paper is based seemed to be sufficiently distinct to be described as new species. With the exception of the *Hibiscadelphus*, which was collected many years ago by Dr. Wm. Hillebrand and sent by him to Horace Mann, all of these species have been collected by the author since 1908.

Hibiscadelphus bombycinus, sp. nov.

PLATE III.

Tree or shrub? Leaves reniform or somewhat orbicular in outline, obscurely five lobed with the lobes repand above, deeply cordate with the lobes overlapping at the base, rounded at the apex, stellate pubescent on both faces, especially below, 7-8.7 cm. long, 6.5-8.2 cm. wide; petioles pubescent, 4.2-5.2 cm. long. Flowers single, on pedicels of 2.1-3 cm. in length. Involucral bracts strap-shaped, rounded at the apex, 9 mm. long, 2.3 mm. wide, stellate pubescent. Calyx cup-shaped, 6-toothed, or lobed, stellate pubescent on the outside, 1.2 cm. high. Corolla slightly curved, hardly opening, densely stellate pubescent, the nerves prominent, 3.4 cm. long. Staminal column scarcely exerted. Capsules woody, either globular and 2.9 cm. high, or obovoid and 3.2 cm. high, dense stellate hirsute on the outside. Seed covered with yellowish hair.

Type in the B. P. B. M. Herbarium, collected at Kawaihae-uka, (inland) Hawaii, T. H., by Wm. Hillebrand, not numbered; formerly in the Mann and Brigham Herbarium.

This species is closely related to *H. hualalaiensis* Rock, but differs in the strap-shaped involucral bracts, and smaller leaves.

The type sheet bears a label in Hillebrand's handwriting, referring the specimen to "*Hibiscus* section *Bombycina*," and also two envelopes containing capsules. Most of these capsules resemble those of *H. hualalaiensis* Rock, but one in better condition than the others is similar to those of *H. Giffardianus* Rock. Hillebrand

¹ Continued from Occ. Papers, B. P. B. M. Vol. IV, 3, 4; V, 1; VI, 1, 3, 4.
[3] (33)

described no *Hibiscus* with the characters of *Hibiscadelphus*, though Rev. J. M. Lydate informed me, that he remembered collecting this species at Kawaihae, and calling Hillebrand's attention to its peculiarities. It is difficult to understand why Hillebrand should send specimens to Mann without retaining duplicates, but Mr. J. F. Rock informs me that he saw no specimens of *Hibiscadelphus* in the Hillebrand collection at Berlin. As the native vegetation at Kawaihae has practically disappeared, the species is probably extinct.

***Viola kauaiensis* Gray, far. *wahiawaensis*, var. nov.**

PLATE IV.

This well marked variety differs from the species in its leaves which are cuneate at the base, never truncate or reniform. As in the species the petioles vary greatly in length, and the fragrant flowers vary in size. All the plants observed at the Wahiawa bog belong to the variety, those at the type locality, mountains above Waimea, Alakai swamp, and Lehua makanoe, to the species.

Type in the B. P. B. M. Herbarium, collected at the Wahiawa swamp, Kauai, T. H., August, 1909, by C. N. Forbes, No. 166, K. There are two unnumbered specimens in the B. P. B. M. Herbarium, collected at the Wahiawa swamp by Rev. J. M. Lydgate.

***Cyrtandra olona*, sp. nov.**

PLATE V.

Stem 6 dm. high, unbranched, glabrous in all parts. Leaves opposite, broadly ovate in outline, obtusely rounded at the apex, truncate at the base, a few slightly uneven-sided, crenate except at the base, glabrous, very dark green above, paler below, nerves prominent, 15.4-16 cm. long, 12-12.5 cm. wide, petioles 6-11.5 cm. long. Flowers (several?) on a common peduncle of 7 mm.; the pedicels of the same length, bracts not seen. Calyx cup-shaped, shortly 5-cleft with deltoid, acute lobes, glabrous, 8 mm. high. Corolla small, white, slightly curved, 1.1 cm. high. Ovary glabrous. Fruit not seen.

Type in the B. P. B. M. Herbarium, collected at the Wahiawa mountains, Kauai, T. H., August, 1909, by C. N. Forbes, No. 213, K.

The mature, bluish-green, and the coarsely veined juvenile leaves are rather suggestive of the *Olona*, *Touchardia latifolia*. The species is distinct from any *Cyrtandra* known to me, but may prove to be distantly related to *C. cyanoides* Rock. Only a single specimen of each of these *Cyrtandras* is recorded.

Cyrtandra hii, sp. nov.

PLATE VI.

Villose shrub, the pubescence on the younger branchlets and petioles dark purplish. Leaves elliptic-lanceolate, or oblanceolate in outline, acuminate at the apex, acutely tapering toward the base, finely serrate, at least in the upper portion, villose on both faces, nerves prominent on the lower side, 15.8-16 cm. long, 3.8-4.3 cm. wide, petioles 2.9-3 cm. long. Inflorescence an open cyme, dark shaggy villose, the pedicels 2 cm. long, the bracts oval, 5 mm. long. Calyx cup-shaped, broadly and shallowly lobed, the lobes acute, rusty villose on both faces. Corolla white, small, curved slightly projecting beyond the calyx, the lower petals the largest, white villous on the outside, the lower part of the tube glabrous, glabrous within, the tube 7 mm. high. Fruit ovoid, white.

Type in the B. P. B. M. Herbarium, collected at the Hii mountains, Kauai, T. H., October 22, 1916, by C. N. Forbes, No. 166, K. (fruit lacking). In the B. P. B. M. Herbarium from the same locality are No. 654, K, collected by C. N. Forbes and an unnumbered, undated sheet of specimens collected by Rev. J. M. Lydgate; collected at the Waioli Valley, Kauai, T. H., August 5, 1909, by C. N. Forbes, No. 132, K.

This species has the calyx of the *Crotonocalyx* group, but the leaves of the *Schizocalyx* group. The calyx shows no tendency to split. The leaves of No. 132, K, 21.3 cm. long, 7.3 cm. wide and the petiole, 5.9 cm. in length, are larger than the type; other features the same. This species differs from *C. Knudsenii* Rock in the calyx, which is broadly lobed instead of narrow-lanceolate, and in the pubescence of the corolla which is villous, not hirsute. The calyx lobes are not parted below the middle. It shows relationship to *C. kauaiensis* Wawra in the thinner calyx, and pubescent ovary.

Cyrtandra propinqua, sp. nov.

PLATE VII.

Shrub with pale rust-colored, spreading, hirsute hairs. Leaves cordate, opposite, abruptly acuminate at the apex, serrate (more coarsely serrate than in *C. waiolani* Wawra), papillose-hirsute above, pubescent below with the veins hirsute, 10.6-12.2 cm. long, 8.3-10.6 cm. wide, with hirsute petioles 4.5-5 cm. long. Inflorescence hirsute, flowers three, on a common peduncle of 2.5-3.1 cm. long, the pedicels 1.8-2.3 cm. long; the bracts ovate, 1.4 cm. long, 8 mm. wide. Calyx hirsute with spreading hairs, 1.7 cm. high, split at the base into five lanceolate sepals, which become recurved at the apex. Corolla as in *C. waiolani*, the pubescence silvery white and slightly longer. Berry not seen.

Type in the B. P. B. M. Herbarium, collected at the Koolauloa mountains between Punaluu and Kaipapau, Oahu, T. H., Nov. 14-21, 1909, by C. N. Forbes, No. 2563, O.

This species differs from *C. waiolanii* Wawra in its cordate leaves, differently shaped bracts, and somewhat in the pubescence of the corolla. *C. propinqua* has calyx lobes broader at the base than those of *C. waiolanii*, which are linear. The two species are closely related.

Cyrtandra Munroi, sp. nov.

PLATE VIII.

A shrub with rust-colored tomentose branches. Leaves opposite, elliptical in outline, acuminate at the apex, acute at the base, serrate, hirsute on both faces, especially along the rust-colored nerves and petiole, dark green above, paler below, 14.2-15 cm. long, 6.8-9.4 cm. wide; petiole 5.3-5.7 cm. long. Inflorescence rusty tomentose, the common peduncle 2.2-4.5 cm. long, the pedicels 1.4-3.1 cm. long, the bracts ovate, acute, 1 cm. long, 7 mm. wide, 1-3 flowered. Calyx cup-shaped, incised to the middle, lobes broad, acute, hirsute, 9 mm. high. Corolla erect, hirsute on the outside, glabrous within, projecting beyond the calyx; the tube 1.4 cm. long, the small lobes sub-equal. Ovary glabrous. Berry conical, rusty holosericeous, 2.3 cm. long, 1.1 cm. in diameter.

Type in the B. P. B. M. Herbarium, collected at the eastern end of the mountains of Lanai, T. H., June, 1913, by C. N. Forbes, No. 239, L. Also collected at the Pali above Waiopaa, Lanai, T. H., March 25, 1915, by G. C. Munro (No. 417).

C. Munroi belongs to the section *Crotonocalyces* of Hillebrand, resembling certain forms of *C. platyphylla*, from Hawaii, in the shape of its leaves, but is more closely allied to the species belonging to this section which occur on the island of Maui. The leaves of the specimen collected by Munro are unequal sided.

Cyrtandra Georgiana, sp. nov.

PLATE IX.

Shrub. Branches covered with a short hirsute pubescence. Leaves opposite, elliptical to obovate in outline, acuminate at the apex, cunate at the base, hirsute above, rusty tomentose below, especially along the veins, serrate, 16-16.4 cm. long, 7.4-9.8 cm. wide, with pubescent petioles 2.7-4.5 cm. long. Inflorescence rusty tomentose, 3-6 flowered, some pedicels bearing 2-3 flowers, of which the primary and secondary pedicels combined equal in length the primary single flowered pedicel, the common peduncle 3.9-4.3 cm. long, the pedicels 2-2.8 cm. long, the bracts ovate, acute, 1 cm. long, 6 mm. wide.

Calyx deeply parted to near the base, the sepals ovate-acuminate, narrowed at the base, rusty pubescent on both faces, 1 cm. long, 5 mm. wide. Corolla (incomplete) sparingly pubescent on the outside, glabrous within. Ovary glabrous. Berry ovoid, glabrous, 1.2 cm. long, 8 mm. in diameter.

Type in the B. P. B. M. Herbarium, collected in the mountains of Lanai, T. H., September, 1917, by C. N. Forbes, No. 348, L.

Although this species belongs to the *Schizocalyces* of Hillebrand, it is more closely related to *C. Munroi* Forbes of the *Crotonocalyces* than to any other described species.

Clermontia Samuelii sp. nov.

PLATE X.

While collecting botanical specimens on the northern slope of Haleakala, Maui, T. H., between the Keanae Gap and Kipahulu, at an elevation of about 6500 feet, the writer observed a very beautiful species of an undescribed *Clermontia*, in the dense rain forest a short distance west of an old cone called Wai Anapanapa. In color and shape the flowers resemble those of the common form of *C. grandiflora* Gaud., which is common on the western slopes of Haleakala in the vicinity of Ukulele, but in other characters the plant differs widely from any of the described species. While related to *C. grandiflora* Gaud. in character of flowers and in size of leaves, it is at once separated by the character of its inflorescence, and the pubescence of the leaves. This species is very distinct from *C. kakeana* Meyen and related species, having pubescent leaves; while the flowers at once separate it from *C. parviflora* Gaud. and its allies. It was the only *Clermontia* seen in the type locality, but the forest is very dense there, and practically unexplored. I take pleasure in naming the species in honor of Mr. S. A. Baldwin of Makawao, Maui, who very generously aided the Museum in the exploration of Haleakala, and to whom the writer is indebted for many kindnesses.

Clermontia Samuelii has the following characters:

Shrub, 12-18 dm. high, densely branched from the base, the branchlets covered with dense brownish pubescence which is purple on new growth. Leaves obovate to elliptical in outline, acute or sub-acuminate at the apex, acute or cuneate at the base, finely serrate with callous pointed teeth, with fine soft whitish tomentum on both faces but most so below, very dark green above but not shiny, dark but much paler below, rather thin chartaceous when dry, 6.4-7.4 cm. long, 2.3-3.2 cm. wide, on pubescent petioles of 1.4-1.6

cm. in length. Inflorescence a 2-5 flowered cyme, the peduncle 13-8 mm. long, marked by scars and one or more pairs of linear bracts 3 mm. in length; the pedicels filiform, drooping, 2-1.6 cm. long, with subulate bracts near the base. Flowers slightly curved or sickle-shaped. Calyx glabrous, thin, slightly shorter than the corolla, the lobes linear acuminate, the upper one splitting to near the base, the lower ones splitting one-third the distance of the tube, a delicate purplish-pink color; the ovarian portion turbinate, bright green, 1.1 cm. long. Corolla 4.6 cm. long, 6 mm. wide, glabrous, slightly lighter colored than the calyx. Staminal column and anthers glabrous, purple. Mature fruit not seen.

The type is mounted on sheet No. 1225, M, in the B. P. B. M. Herbarium at Honolulu, and was collected by C. N. Forbes on the north slope of Haleakala, Maui, T. H., at an elevation of 6500 feet to the west of Waianapana, August 22, 1919. Another specimen is mounted on sheet No. 1215, M, and was collected near the same station on the same date.

***Argyroxiphium caligini* sp. nov.**

PLATE XI.

During the month of May, 1910, while botanizing on Puu Kukui the summit of West Maui, a small colony of a species of *Argyroxiphium* was observed, but unfortunately all the plants were sterile. While the plant has since been observed by Mr. J. F. Rock and others, no one seems to have collected flowering specimens.² In September of 1917 while collecting on Eke an isolated cone which is about 1000 feet lower in elevation than Puu Kukui, this species of Silversword was found to be one of the most conspicuous plants of this boggy habitat. The plant proves to be a different species from that found on either the uplands of the island of Hawaii or of East Maui. It differs from the other described species in its much smaller size. The silvery leaves are about the width of those of *A. virescens* Hbd., but only half the length. The flower heads are smaller than those of *A. virescens*, which are described by Hillebrand as smaller than those of *A. sandwicense*, DC. Field experience has proved that size of head is a variable character, the flower heads of many plants being fully as large as those of *A. macrocephalum* Gray. Another form of *Argyroxiphium* on Eke differed in having somewhat greenish leaves which however were

²J. F. Rock in Annual Rept. Bd. Agr. and For., T. H., for 1910, p. 80 (1911); also for 1918, p. 53 (1919).

much more pubescent than those of *A. virescens* Hbd, and also differed in the glandular pubescent, not silvery raceme. The Puu Kukui plants probably belong to this form. This plant was not observed in any of the extensive bogs on Haleakala, and is probably not a cross between *A. macrocephalum* and *A. virescens* or *Wilkesia Grayana*. *Argyroxiphium* plants growing in the bogs on Haleakala are not depauperate.

A detailed description of *Argyroxiphium caligini* follows:

Herb with a stem of 2-2.5 cm. in diameter, soon tapering into a simple foliose raceme of 3-4 dm. in length. Leaves linear, 10.5-12.2 cm. long, 4-5 mm. wide, densely silvery-sericeous. Raceme simple; the rachis, leaves, and foliar bracts silvery-sericeous; the pedicels slender, green, viscoso-pubescent, 5-9 cm. long. Heads nodding, 1.5-1.7 cm. in diameter. Invocural bracts viscoso-pubescent, green, lanceolate, acuminate. Ray flowers few, ligulate, the ligules bifid, 3-4 mm. in length, 1 mm. or less in width, purplish colored as are the disk flowers. Disk flowers with the limb 4 mm. in length, narrow below and puberulous, widening above and glabrous. Achenes glabrous, 5-7 mm. long, the radial ones shorter and curved. Pappus of ray flowers reduced to a narrow truncate coronula. Pappus of disk flowers reduced to 5 or 6 corneous, acute, teeth-like paleae which are deciduous from a disk.

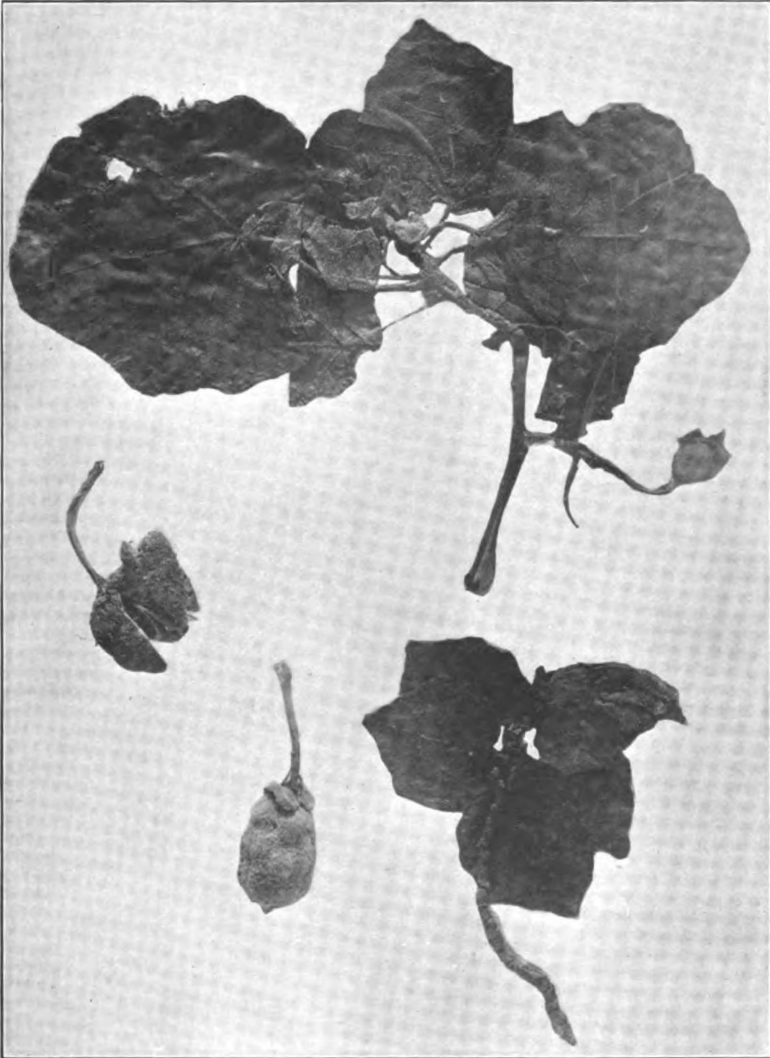
Type in the B. P. B. M. Herbarium, No. 391, M, collected on Eke, West Maui, T. H., October, 1917, by C. N. Forbes.

***Argyroxiphium caligini* var *Kai* var. nov.**

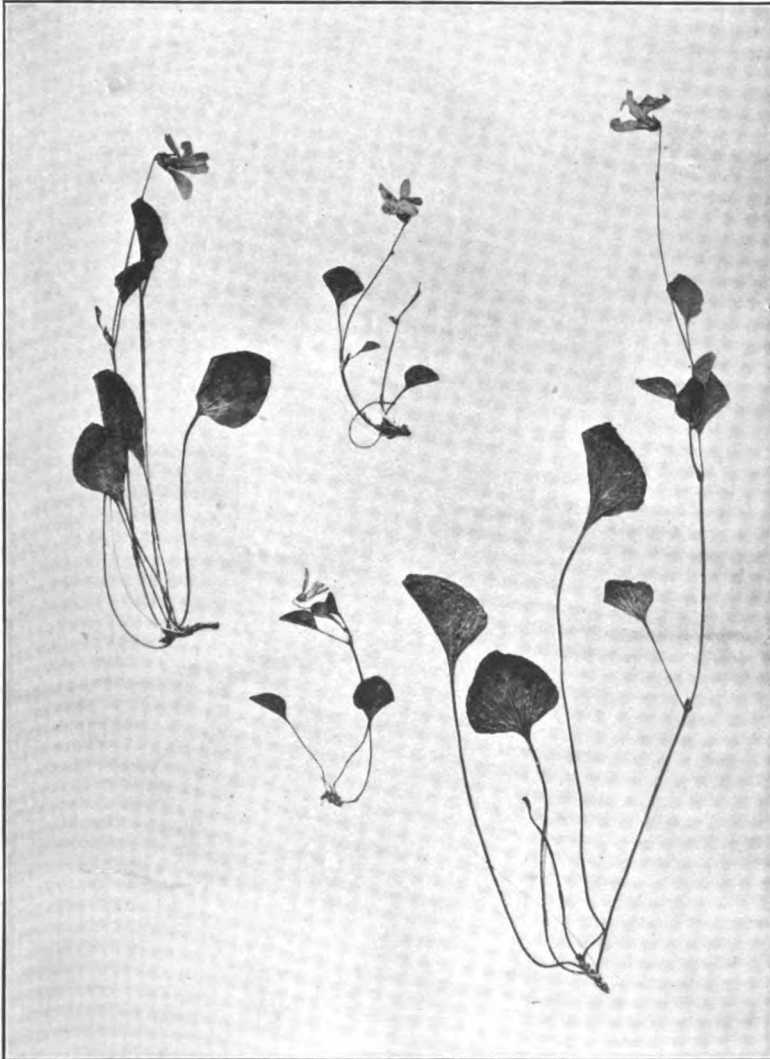
Leaves with a slight greenish hue to the pubescence. Rachis of the raceme glandular pubescent and not silvery.

While of wider distribution than the species, it is much less common. The variety is named for Mr. K. Kai, head ditch man at Honokohau Valley, Maui, who aided in the exploration of Eke.

Type in the B. P. B. M. Herbarium, No. 391, a. M., collected on Eke, West Maui, T. H., October, 1917, by C. N. Forbes. Another specimen in the same Herbarium is No. 64, M, collected on Puu kukui, West Maui, T. H., May, 1910, by C. N. Forbes.

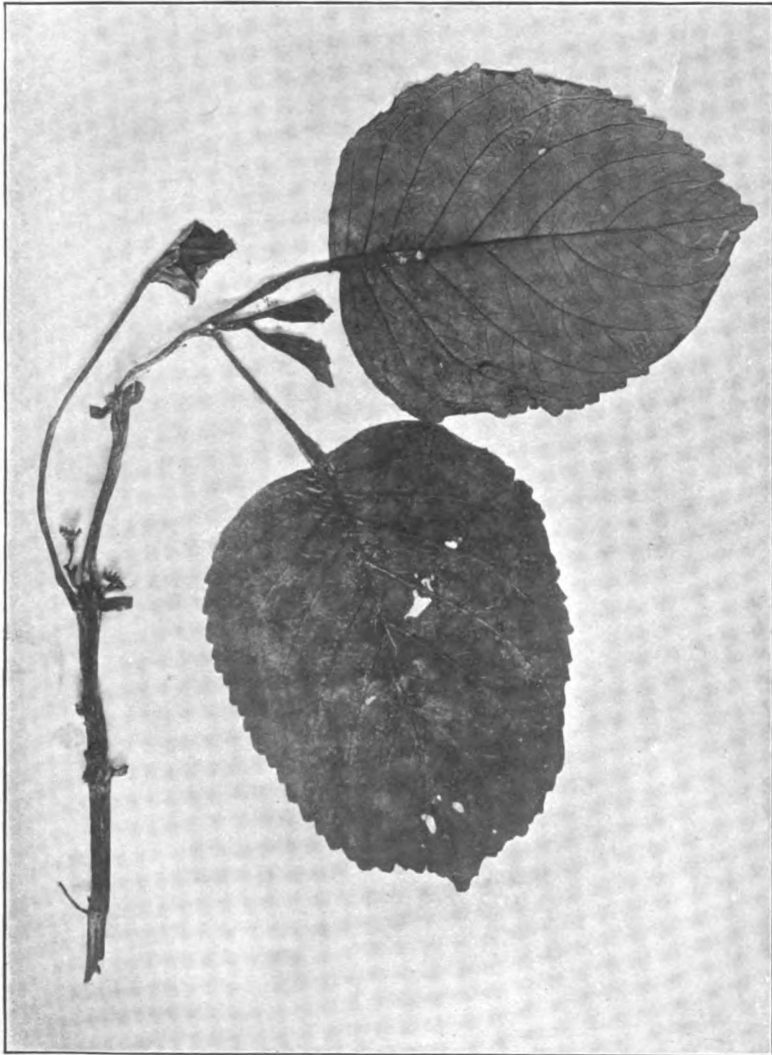


HIBISCADELPHUS BOMBYCINUS FORBES.



VIOLA KAUIENSIS WAHIAWAENSIS FORBES.

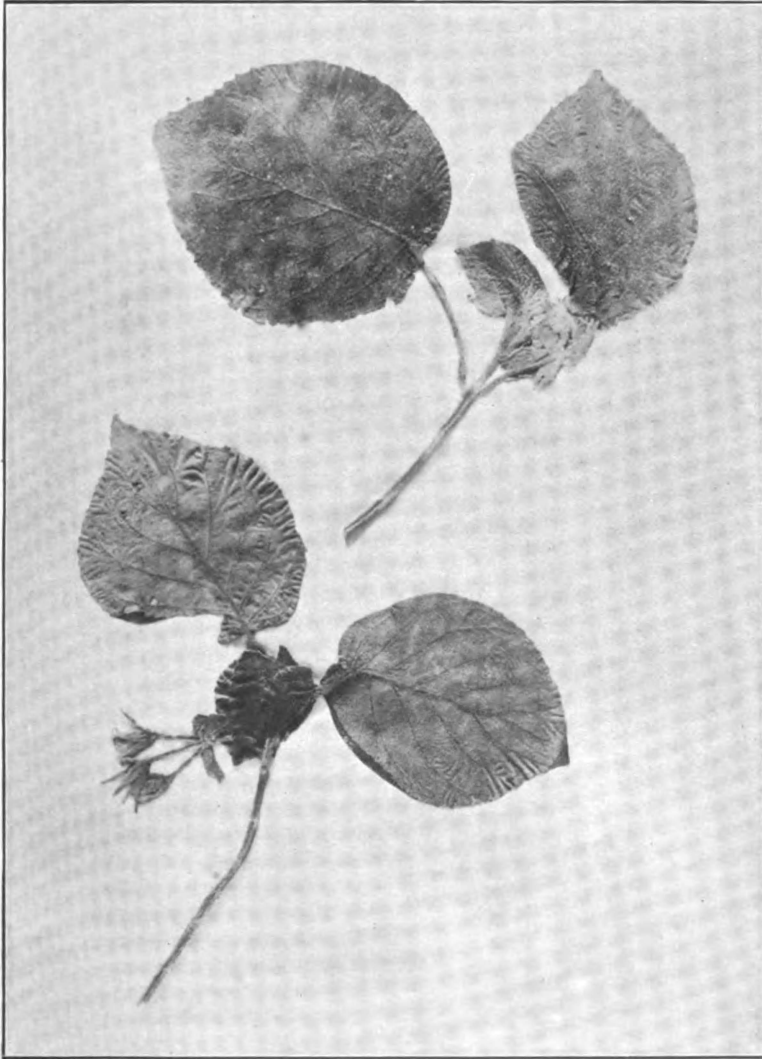




CYRTANDRA OLONA FORBES.

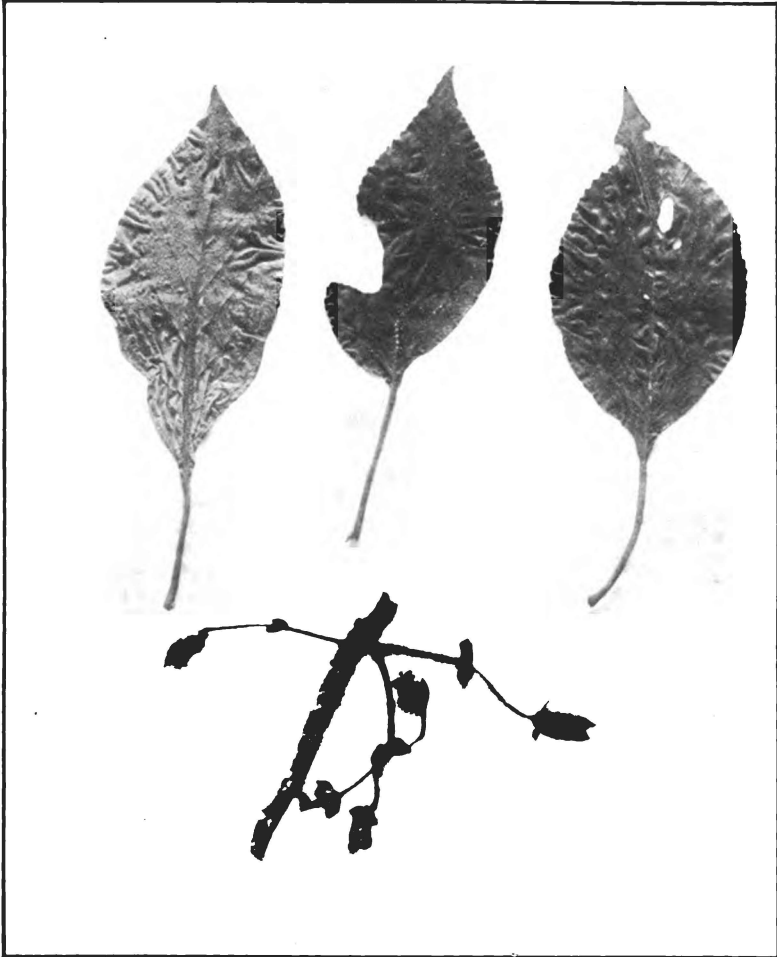


CYRTANDRA HII FORBES.



CYRTANDRA PROPINQUA FORBES.





CYRTANDRA MUNROI FORBES.



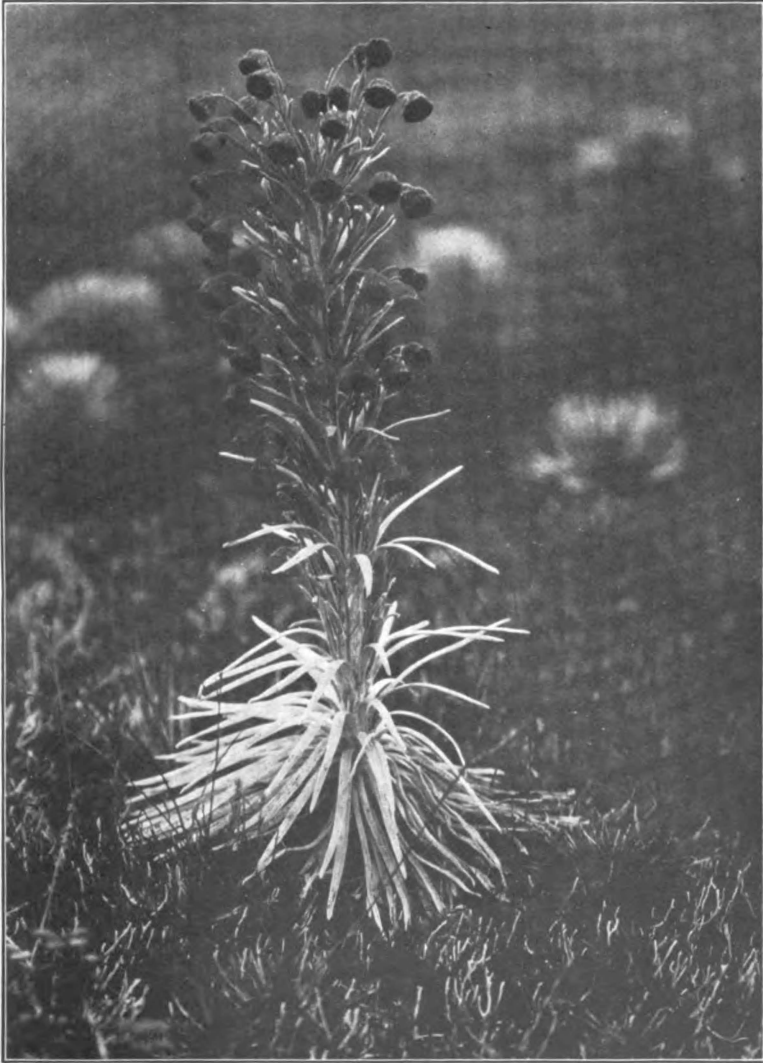


CYRTANDRA GEORGIANA FORBES.



CLERMONTIA SAMUELII FORBES.





ARGYROXIPHUM CALIGINI FORBES.

