

# NEW PLANTS FROM VENEZUELA.

By S. F. BLAKE.

At intervals during the last nine years Mr. Henry Pittier, until recently a member of the staff of the United States Department of Agriculture, has made large collections of plants in Venezuela. His specimens, amounting to several thousand numbers, although as yet only partly identified, have added largely to our knowledge of the flora of that country. The new species collected by Mr. Pittier and described in the present paper are derived in part from his earlier collections and in part from the material forwarded by him since his return to Caracas in 1919.

Nearly half of the new species here described are from the small but very interesting collections made by Dr. Alfredo Jahn in the high páramos of Táchira and Mérida at various dates during the past dozen years. Several new species collected by Dr. Jahn were described a few years ago by Mr. Paul C. Standley, but a considerable amount of the material has remained unnamed, and many species not before represented have been found in Dr. Jahn's recent collections.

Of the new plants here described the most interesting are three of the Asteraceae. *Riencourtia ovata* belongs to a genus new to Venezuela, and *Otopappus australis* to one new to South America. *Podocoma bartsiaefolia* is the only northern representative of a genus with several species in Brazil, extending into Uruguay and Paraguay, and a single outlier in Australia.

The description of a new moss collected by Mr. Pittier and named by Mr. R. S. Williams is included in this paper at the request of the author.

## ERPODIACEAE.

*Erpodium latifolium* R. S. Williams, sp. nov.

PLATE 39.

Autoicous, the male flowers ovate, about 0.25 mm. long, with 1 to 3 antheridia and few or no paraphyses, the antheridial leaves small, ovate, obtuse. Plants in thin loose mats, the depressed stems scarcely 1 mm. wide and mostly less than 1 cm. long, bearing scattered radicles beneath; leaves ecostate, entire, broadly ovate with rounded apex, finely papillose on both sides almost to the base in 4 rows, the dorsal leaves up to about 0.6 mm. long, recurved on one

side below, more or less papillose on the margin, the ventral leaves very similar to the dorsal but much smaller; leaf cells at apex often about  $8\ \mu$  square, half-way down the leaf becoming elongate-hexagonal, the basal on one side often somewhat transversely elongate, on the other side square to elongate, those between often rectangular and up to  $25$  or  $30\ \mu$  long; perichaetial leaves small, obtuse, scarcely imbricate; capsule exerted on a short pedicel, oblong-cylindric,  $1\ \text{mm.}$  long or less without lid, the latter acutely pointed, its height sometimes considerably exceeding its basal diameter; exothecal cells more or less rectangular, about  $20\ \mu$  wide and up to  $40\ \mu$  long, with thin walls; stomata, annulus, and peristome apparently lacking; spores minutely papillose,  $25$  to  $28\ \mu$  in diameter.

Type in the herbarium of the New York Botanical Garden, collected on bark with *Stereophyllum radiculosum*, Bosque de Catuche, near Caracas, Venezuela, altitude  $1,000$  meters, January 22, 1922, by H. Pittier (no. 10080a). Duplicate in the U. S. National Herbarium.

This species seems to be most closely related to *Erpodium domingense*, but the leaves are larger, more rounded, and less densely papillose, and the lower leaf cells are mostly not transversely elongate.

EXPLANATION OF PLATE 38.—*Erpodium latifolium* R. S. Williams. Fig. a, Part of fruiting stem, scale 18; b, dorsal stem-leaf, scale 40; c, ventral stem-leaf, scale 40; d, apex of dorsal leaf, scale 200; e, g, alar cells on opposite sides of dorsal leaf, scale 200; f, intermediate basal cells of same, scale 200. From the type specimen.

#### LACISTEMACEAE.

##### *Lacistema pittieri* Blake, sp. nov.

Tree  $4$  meters high; branches slender, strigose; leaves alternate; petioles strigose,  $4$  to  $6\ \text{mm.}$  long; blades oval-oblong or obovate-oval,  $10$  to  $12\ \text{cm.}$  long,  $3.8$  to  $4.8\ \text{cm.}$  wide, rather abruptly acuminate (the point acute,  $1.5\ \text{cm.}$  long), at base rounded-cuneate, subchartaceous, above deep green, somewhat shining, glabrous, beneath duller green, pilose with ascending or spreading hairs along the costa and the  $6$  pairs of lateral veins, glabrous on surface, the secondaries straightish, prominulous on both sides; racemes in axillary clusters of  $1$  to  $3$ , sordid-hispidulous,  $2$  to  $2.5\ \text{cm.}$  long,  $3$  to  $4\ \text{mm.}$  thick, rather loosely flowered; bracts  $2$  subtending each flower, the lower triangular, pubescent,  $0.7\ \text{mm.}$  long, the upper tubular-campanulate, essentially glabrous, deeply bifid,  $0.8\ \text{mm.}$  long; pedicels glabrous,  $1.5\ \text{mm.}$  long; sepals  $4$ , ovate,  $0.9\ \text{mm.}$  long, obtuse, obscurely serrulate, glabrous; disk thick, annular; stamen  $1$ , glabrous, the stout subulate filament  $0.5\ \text{mm.}$  long, the connective dilated, the anther cells divergent; ovary densely hispid-pilose, the placentae  $3$ , each bearing  $2$  ovules; style none; stigmas  $3$ , about half as long as the ovary.

Type in the U. S. National Herbarium, no. 1,056,630, collected on the Upper Guaremales, on road from Puerto Cabello to San Felipe, Carabobo, Venezuela, altitude  $450$  meters, in forest, July 12, 1920, by H. Pittier (no. 8974).

Perhaps nearest *Lacistema poeppigii* A. DC., but distinguished, according to description, by its longer pubescence and by the more numerous veins of the leaves.

#### SILENACEAE.

##### *Cerastium cephalanthum* Blake, sp. nov.

Cespitose herbaceous perennial, densely short-pilose throughout with several-celled subglandular hairs, only slightly viscid; sterile basal branches several, about  $4\ \text{cm.}$  long, very densely leafy; stems simple or subsimple, erect,  $17$  to  $30\ \text{cm.}$  high, bearing  $3$  to  $6$  pairs of leaves above the base, the internodes  $2$  to  $9\ \text{cm.}$

long; leaves linear-lanceolate, 2.5 to 4 cm. long, 3 to 5 mm. wide, acuminate to an obtusish apex, sessile, 1-nerved (the costa impressed above, prominulous beneath), erect, scarcely revolute-margined, the lower marcescent, the uppermost pair usually abruptly reduced; peduncle terminal, 4.5 cm. long or less, bearing a single dichotomous capitate cyme about 1.5 cm. high and 1 to 1.8 cm. thick; bracts ovate, the outermost about 8 mm. long; pedicels becoming 6 mm. long or less; sepals 5, oblong or ovate-oblong, 7.5 mm. long, 2 to 2.5 mm. wide, obtuse or acutish, apiculate, about 3-nerved, herbaceous, the inner with somewhat erose hyaline margin, densely spreading-pilose with several-celled, usually gland-tipped hairs; petals white, cuneate, emarginate, 11 mm. long, 4 mm. wide, marcescent; stamens 10, the filaments glabrous, becoming 5 mm. long; ovary subglobose, many-ovuled; styles 5 or sometimes 6; capsule subcylindric, 7 mm. long, about 2.5 mm. thick, 5-valved, the valves bifid, the teeth revolute; seeds (immature) pale brown, irregularly roughened, about 0.6 mm. long.

Type in the U. S. National Herbarium, no. 1,069,159, collected on the Páramo de Timotes, Mérida, Venezuela; altitude 4,200 meters, September 4, 1921, by Alfredo Jahn (no. 581). Also collected by Dr. Jahn (no. 66) at the same locality, altitude 4,000 meters, December 6, 1910.

Related to *Cerastium kunthii* Briq. (*C. glutinosum* H. B. K., non Fries) and *C. venezuelanum* Briq., but distinguished from both, according to description, by its closely capitate inflorescence, in addition to minor differences in floral details. The dense hairs clothing the stem and leaves are brownish, about 0.2 to 0.5 mm. long, and lack glandular tips; those of the sterile shoots are in part white and as much as 1 mm. long.

***Arenaria jahnii* Blake, sp. nov.**

Densely caespitose, procumbent perennial, the stems branching, 2 to 6 cm. long, slender, densely leafy, glabrous or slightly glandular-papillose in the grooves; leaves narrowly elliptic-lanceolate or lanceolate, 4 to 6 mm. long, 1 to 1.3 mm. wide, acuminate and submucronate, sessile and shortly connate at base and there somewhat puberulous, somewhat revolute-margined, fleshy, pale green, 1-nerved, glabrous or sparsely ciliate at base; peduncles solitary, terminal, becoming pseudo-axillary, 1-flowered, puberulous toward apex, 5 to 8 mm. long; sepals 5, oblong-ovate, 4 mm. long, acutish or obtusish, mucronulate, rather fleshy, narrowly thin-margined, glabrous, 1-nerved and with 1 or 2 pairs of weak lateral veins; petals 5, white, oblong, 3.5 mm. long, obtuse, entire; stamens 10, alternately unequal, the longer equaling the sepals; ovary globose; styles 3, equaling the ovary.

Type in the U. S. National Herbarium, no. 1,069,165, collected on the Páramo de la Sal, Mérida, Venezuela, altitude 3,400 meters, September 2, 1921, by Alfredo Jahn (no. 625).

*Arenaria serpens* H. B. K., apparently the closest relative of *A. jahnii*, is easily distinguished by its conspicuously ciliolate leaves.

***Drymaria paramorum* Blake, sp. nov.**

Base not seen; stems apparently procumbent, about 25 cm. long, slender, glabrous; internodes mostly 6 to 17 mm. long; leaves opposite; stipules lacerate, about 1 mm. long; petioles 1 to 3 mm. long, pilose with several-celled hairs; blades suborbicular-ovate, 6 to 10 mm. long, 5 to 8 mm. wide, obtuse or acutish, mucronulate, at base subcordate or truncate-rounded, submembranous, above sparsely pilose with loose several-celled hairs, beneath somewhat paler green, more densely pilose, ciliate, quintuplinerved; flowers 3 to 5, in a usually dichotomous terminal cyme; bracts ovate, 1.5 to 2 mm. long, obtuse, scarious, somewhat pilose; pedicels 2.5 to 4 mm. long, becoming deflexed, sparsely short-pilose; sepals 5, oval, rounded or very obtuse, the 2 outer 3.5 mm. long, green

with narrow scarious margin, weakly 3-veined, rather densely pilose with several-celled spreading hairs chiefly below the middle, the 3 inner similar but more broadly scarious-margined, 4 mm. long, nearly or quite glabrous; petals 5, white, cuneate, bifid to below the middle, 5 mm. long, persistent; stamens 5, slightly surpassing the pistil; ovary about 22-ovuled; style short, shorter than the 3 stigmatic branches; capsule ovoid, obtuse, about 4 mm. long, slightly surpassing the sepals, shorter than the petals; seeds blackish brown, bluntly muriculate, 1.2 mm. long.

Type in the U. S. National Herbarium, no. 602305, collected on the Páramo de la Cristalina, Trujillo, Venezuela, altitude 2,900 meters, October 20, 1910, by Alfredo Jahn (no. 111).

A species of the *Drymaria cordata* group, apparently nearest the Peruvian *D. pauciflora* Bartl. In that species, known to me only from description, the calyx is glabrous and scarcely a line long, the petals are shorter than the sepals, the stamens are 2 or 3, and the capsule is nearly twice as long as the calyx.

#### BRASSICACEAE.

*Draba chionophila* Blake, sp. nov.

PLATE 39.

Herbaceous perennial; root napiform, densely clothed above with the persistent leaf bases, 11 cm. long or more, 2.5 cm. thick above (including the persistent leaf bases); leaves innumerable in a dense basal tuft, narrowly linear-subulate or linear, 3 to 5 cm. long, 1.5 to 2.5 mm. wide at base, 1 to 1.5 mm. wide above, narrowed to an obtuse apex, sessile, entire, fleshy, flattish, slightly grooved on the upper side, glabrous, apparently glaucescent, obscurely 3-nerved toward base, nerveless above; stem 12 cm. high, stout (1 cm. thick toward base), densely branched throughout (the whole plant subglobose), densely spreading-pubescent with simple and few-branched whitish hairs about 0.7 mm. long; branch leaves and bracts subtending the lower pedicels linear-subulate, 8 to 15 mm. long; racemes many-flowered, loose below, 3 to 4 cm. long; pedicels stout, in fruit wide-spreading, 7 to 11 mm. long, pubescent like the stem, the hairs nearly all branched; sepals 4, oval, broadly rounded, 3.8 mm. long, 2.6 mm. wide, about 3-veined, pilose with simple and forked hairs along middle of back, broadly subscarious-margined; petals pale yellow (when dried), cuneate-obovate, 4.5 mm. long, 2 mm. wide, obtuse; filaments 2.5 mm. long, glabrous, with ovate swollen base; ovary glabrous; capsule elliptic, 8 to 9 mm. long, 3.8 to 4 mm. wide, glabrous, 1-nerved and prominulously feather-veined on the valves, tipped with a stout style 1.2 mm. long; seeds 6 or 7 in each cell, 2-ranked, pale brown, minutely papillose, 1.3 to 1.5 mm. long.

Type in the U. S. National Herbarium, no. 602331, collected in snow on the Sierra Nevada of Santo Domingo, Mérida, Venezuela, altitude 4,500 meters, December 11, 1910, by Alfredo Jahn (no. 136).

This species belongs either to the section *Arbusculae* or the apparently scarcely distinct section *Volcanicae* of Gilg,<sup>1</sup> and is at once recognizable by its linear-subulate, fleshy, glabrous leaves. The vernacular name is given as "araña."

EXPLANATION OF PLATE 39.—*Draba chionophila*, from the type specimen. Natural size.

#### FABACEAE.

*Bauhinia caudigera* Blake, sp. nov.

PLATE 40.

Shrub or small tree, unarmed; branchlets slender, glabrous, grayish; petioles glabrous, 10 to 17 mm. long; leaf blades ovate, 10 to 14 cm. long, 3

<sup>1</sup> Bot. Jahrb. Engler 40: Beibl. 90: 39. 1907.

to 6.2 cm. wide, entire, caudate-attenuate (the point 0.7 to 2.5 cm. long, 2 to 4 mm. wide), cuneate to broadly rounded at base, 5-nerved, above deep green, slightly lucid, glabrous, beneath paler green, obscurely strigillose along the base of the veins, prominulous-reticulate on both sides; inflorescences axillary, essentially glabrous, the axis 2 cm. long or less, several-flowered; bracts roundish, cillolate, 1 mm. long; pedicels glabrous, about 7 mm. long; calyx glabrous, in flower 4 cm. long, the narrowly campanulate tube 1 cm. long, the limb spathaceous, splitting irregularly; petals cuneate-oblongate, white, rounded at apex, 4.2 cm. long, 1.2 cm. wide; stamens 10, all fertile, inserted at apex of calyx tube, alternately unequal, the filaments united at base, the longer ones 3.7 cm. long, the shorter 2.8 cm., the anthers 7 to 8 mm. long; pistil free throughout, glabrous, 5.3 cm. long, the ovules about 16; fruit (submature) linear, glabrous, 21 cm. long, 1.5 cm. wide, on a stipe 2.3 cm. long.

Type in the U. S. National Herbarium, no. 1,065,082, collected in monsoon forest at Guaremales, on road from Puerto Cabello to San Felipe, Carabobo, Venezuela, altitude 10 to 100 meters, May 20 to June 10, 1920, by H. Pittier (no. 8851).

ADDITIONAL SPECIMEN EXAMINED:

VENEZUELA: Forested hills of Guaremales, road from Puerto Cabello to San Felipe, altitude 350 meters, July 2, 1920. Pittier 8914.

This species belongs to the section *Pauletia*, and is related to *Bauhinia petiolata* (Mutis) Triana, which has much larger flowers and stamens longer than the petals.

EXPLANATION OF PLATE 40.—*Bauhinia caudigera*, from the type specimen. Natural size.

**Chaetocalyx retusa** Blake, sp. nov.

Twining herb, the stem branching, slender, sparsely hispid, the hairs with swollen bases; stipules subulate, 2 mm. long; petioles sparsely pilose or hispid-pilose, 2.5 to 4.2 cm. long, the rachis 1.3 to 3 cm. long; leaflets 5; on sparsely pilose petiolules 0.5 to 1 mm. long, the blades oval or the terminal obovate-oval, 1.8 to 3 cm. long, 1 to 2 cm. wide, at apex retuse and mucronulate, at base rounded to cuneate, membranaceous, sparsely pilose beneath at base, punctulate, the lateral veins about 5 pairs, prominulous beneath; flowers solitary or paired in the axils, the pedicels sparsely hispid-pilose toward apex, very slender, 1.8 to 2 cm. long; calyx 7 mm. long, the teeth subulate from an ovate base, ciliate and tipped with a stiff hair, the upper united about one-third their length, 3.8 mm. long, the lower 2 to 2.5 mm. long, the calyx tube 3 mm. long, each sinus, except the uppermost, with a dark-based bristle; flowers yellow; banner 12 mm. long, 10 mm. wide, the claw 3 mm. long, ciliate, the blade suborbicular, emarginate, pilosulous on back but not ciliate; lateral petals 11.5 mm. long, the glabrous claw 3.5 mm. long, the cuneate-oblongate blade obtuse, auriculate on upper side at base, ciliate (especially on lower margin and toward apex) with long white hairs, provided on outer side toward base above with four series of pockets between the veins; keel petals 11.5 mm. long, united at a short distance below the rounded apex, clawed and auriculate at base of limb, finely glandular-margined below apex; stamens glabrous; ovary short-stipitate, densely pilose like the lower portion of the style and somewhat hispid-setose, 11-ovulate.

Type in the United States National Herbarium, no. 1,065,085, collected in monsoon forest at Guaremales, on road from Puerto Cabello to San Felipe, Carabobo, Venezuela, altitude 10 to 100 meters, June 20, 1920, by H. Pittier (no. 8879).

Nearest *Chaetocalyx scandens* (L.) Urban, of the Lesser Antilles, which has rounded or very obtuse leaflets, a sparsely setuliferous, otherwise glabrous calyx 7 to 8 mm. long, and a corolla 15 to 17 mm. long.



***Stylosanthes sericeiceps* Blake, sp. nov.**

Frutescent below, the glabrate grayish-barked stem 3 to 4 mm. thick, much branched, 30 cm. long and more; branches herbaceous, slender, erect or ascending, with many short branchlets, silky-pilose with erect hairs, these denser in lines; leaves shorter or longer than the internodes, 3-foliate; sheath of the stipules densely silky-pilose, 5 to 7 mm. long, the stiff subulate-acicular teeth mucronate, 4 to 6 mm. long; petioles silky-pilosulous, 4 to 6 mm. long, the rachis 1 to 2 mm. long; leaflets short-petiolulate, narrowly elliptic, 1.3 to 2.3 cm. long, 1.5 to 4 mm. wide, acuminate, mucronate, at base rounded, very sparsely pilosulous or nearly glabrous above, sparsely accumbent-pilosulous beneath, firm, the costa and 4 to 7 pairs of lateral veins impressed above, prominent beneath; spikes oblong or obovoid-oblong, approximate, about 1.5 cm. long; primary bracts unifoliate, the sheath 5 to 7 mm. long, densely silky-pilose-ciliate with whitish hairs and more sparsely silky-pilose dorsally, the teeth 4 to 5 mm. long, the blade lance-elliptic, 9 mm. long or less; secondary bract 1, bifid, ciliate, 4 mm. long; axis rudiment present in the two lowest flowers of the spike, slender-subulate, stiff, densely pilose, 1 to 3.8 mm. long, absent in the other flowers; bractlet 1, similar to the secondary bract but narrower and entire, of equal length; calyx 1 cm. long (including the stipe-like base, this 7 mm. long), the lobes ciliate; corolla yellow, the banner 8 mm. long; pod 6.5 to 7.5 mm. long, with both joints fertile, the lower obovoid-oblong, with incurved back, compressed, densely silky-pilose, 2-nerved on each side, 2.8 to 3.5 mm. long, 2 mm. wide, the upper joint similar but less densely pilose, 2.5 to 3 mm. long, 2 mm. wide, the incurved beak 1 to 1.2 mm. long.

Type in the U. S. National Herbarium, no. 1,069,160, collected at Lagunillas, Mérida, Venezuela, altitude 1,000 meters, October 6, 1921, by A. Jahn (no. 678).

Closely related to *Stylosanthes diarthra* Blake, also of Venezuela, but entirely lacking the hispidity of that species, and with longer and comparatively narrower leaflets.

***Pterocarpus podocarpus* Blake, sp. nov.**

Tree; branches glabrous, gray-barked; leaves alternate, 11 or 13-foliate; petiole (2.2 to 4.5 cm. long) and rachis (9 to 11 cm. long) slender, pilosulous, glabrescent; leaflets subopposite or the lower somewhat separated, petiolulate (petiolules 3 to 4 mm. long), the blades narrowly to broadly elliptic or somewhat ovate-elliptic, 6 to 8 cm. long, 2 to 4.2 cm. wide, obtuse to subtruncate or retuse, mucronate (mucro 1 mm. long), at the base rounded or cuneate-rounded, papery, above green, glabrous, beneath glaucescent, along costa and margin and sometimes along the chief veins rufous-pilose, glabrescent or glabrate, feather-veined (veins about 8 pairs, prominulous beneath, scarcely so above); racemes 1 to 3, subterminal, 5 to 10 cm. long, densely fuscous-pilosulous with ascending or erectish hairs; bracts and bractlets deciduous; pedicels 5 to (fruit) 15 mm. long, bibracteolate near apex; calyx densely fuscous-pilosulous, 9 mm. long, the 5 teeth subequal, very short, obtuse; flowers yellow, the banner with a darker central spot; banner suborbicular, the claw 3 mm. long, the lamina 11 mm. long and wide; lateral petals slightly longer than keel; staminal sheath split above; fruit obliquely ovate-suborbicular, 4.5 to 5.5 cm. long, 4 to 5 cm. wide, shortly falcate-tipped, at base truncate or subcordate, sparsely accumbent-pilose with rufescent hairs, 1 or 2-ribbed on sides, with chartaceo-coriaceous wing, reticulate-veined, unarmed, narrowly decurrent on the upper part of the stipe, this 2 cm. long; seeds 2 (or sometimes 3?).

Type in the U. S. National Herbarium, no. 987734, collected in the vicinity of Las Trincheras, near Valencia, Carabobo, Venezuela, altitude 200 to 400 meters, December 30, 1917, by H. Pittier (no. 7636).

## ADDITIONAL SPECIMEN EXAMINED:

VENEZUELA: Vicinity of Perijá, Zulia, 1917, *Tejera* 81.

Somewhat related to *Pterocarpus draco* L., which has a glabrous inflorescence and pod.

**Platymiscium diadelphum** Blake, sp. nov.

Tree, up to 20 meters high; older branches grayish, glabrous, compressed at the nodes, those of the year blackish green, glabrous; leaves opposite, 5-foliate; stipules united, roundish, subcoriaceous, glabrous, 5 mm. long and wide; petioles of young leaves 4 cm. long, glabrous, the rachis 5 cm. long, the petiolules glabrous, 2 mm. long; blades (very immature) oblong-oval, about 3 cm. long, 1.5 cm. wide, short-pointed, at base rounded, glabrous; racemes solitary in the axils, glabrous, the peduncle 1 to 2 cm. long, the axis 4.5 to 5 cm. long; bracts lanceolate, ciliate, about 1.2 mm. long, caducous; bracteoles linear-subulate, ciliate, 1.2 mm. long, very caducous; pedicels mostly paired, glabrous, 3 to 5 mm. long; calyx campanulate, 3.8 mm. long, the two upper teeth deltoid, 0.3 mm. long, ciliate, the three lower triangular, 0.7 mm. long, ciliate; flowers brownish yellow; banner 8 to 9 mm. long, 7 mm. wide, short-clawed, the orbicular blade emarginate, glabrous; lateral petals 8 mm. long, glabrous, the claw 2 mm. long, the blade oblong-ovate, obtuse, cordate at base on upper side, subtruncate on lower side; keel petals similar but oblique on lower side at base; stamens 10, glabrous, diadelphous, the vexillar free throughout from the first; ovary long-stiped, glabrous, 2-ovulate.

Type in the U. S. National Herbarium, no. 1,065,079, collected in light forest between La Antrada and Las Trincheras, along road from Valencia to Puerto Cabello, Carabobo, Venezuela, altitude 300 to 400 meters, May 2, 1920, by H. Pittier (no. 8818).

Related to *Platymiscium floribundum* Benth., which has monadelphous stamens, oval subpersistent bracteoles, larger calyx (4.8 to 5.8 mm. long) with the blunter teeth not at all or only obscurely ciliate, and corolla 12 to 14 mm. long.

**Coumarouna punctata** Blake, sp. nov.

Tree; branches glabrous; leaves alternate; petiole 2.5 to 4.5 cm. long, flattened and narrowly winged, 4 mm. wide, the rachis 3 to 5 cm. long, not prolonged into a point; leaflets 4, alternate, on petiolules 3 mm. long, the blades elliptic-oblong or oval-oblong, 7.5 to 14.5 cm. long, 4 to 5 cm. wide, obtuse, at base rounded on one side, oblique on the other, strongly inequilateral, coriaceous, densely translucent-punctate, obscurely glandular-papillate on the costa beneath, otherwise glabrous, finely foveolate on both sides, the lateral veins 8 to 14 pairs, somewhat prominulous on both sides, the secondaries obscure; peduncles terminal, 1.2 cm. long, like the panicle finely rufidulous-tomentellous; panicle few-branched, about 6 cm. long; bracts ovate, deciduous, densely gland-dotted, 7 mm. long, densely rufidulous-tomentellous; pedicels stout, 3 to 4 mm. long; bractlets 2, boat-shaped, equaling the bracts; calyx tube glandular-warty, densely rufidulous-tomentellous, oblique, 7 mm. long, the lower lip 2 mm. long, 3-toothed, the middle tooth longer, the two upper lobes oval-oblong, rounded, entire, 9 mm. long, equaling the corolla; banner glabrous, 8.5 mm. long, with reflexed margin and tip, thickened at base; wings 9 mm. long, oblong-oval, subcordate on upper side, the terminal mucro 1 mm. long; keel petals similar, somewhat tomentellous toward apex; ovary glabrous, curved, 0.7 mm. long; ovules solitary; style glabrous, 2.5 mm. long.

Type in the U. S. National Herbarium, no. 1,056,631, collected from cultivated plants in vicinity of Valencia, Carabobo, Venezuela, August 15, 1920, by H. Pittier (no. 9058).

## ADDITIONAL SPECIMENS EXAMINED:

VENEZUELA: Cultivated, Borburata, near Puerto Cabello, July 15, 1913, *Pittier* 6464. Cultivated, Valencia, January, 1919, *Pittier* 8411.

A member of the section *Euoumarouna*, related to *Coumarouna alata* (Vog.) Taub., which may be distinguished by its nearly glabrous calyx wings only 6 mm. long. Also close to *C. odorata* Aubl., to which two of the specimens above cited have been referred. In that species, however, according to Bentham's description,<sup>2</sup> the leaflets (usually 6 to 8) are impunctate, and the petiole is terminated by a long acumination. In *Ducke* 12185, in the National Herbarium, which agrees in these characters with Bentham's description, the pubescence of the panicle is of a much deeper brown than in the specimens of *C. punctata*.

## GERANIACEAE.

*Geranium sebosum* Blake, sp. nov.

Perennial, about 25 cm. high or more, multicapital, the caudex 7 mm. thick below, at apex about 1.5 cm. thick (including the stipules and leaf bases); basal leaves numerous; stipules ovate-oblong, acute, brown, scarious, pilose, about 8 mm. long; petioles slender, 8 to 12 cm. long, densely spreading-pilose with lax 1-celled hairs 1.5 to 3 mm. long and between them densely stipitate-glandular with several-celled hairs about 0.5 mm. long; blades reniform-orbicular, 3 to 4 cm. wide, pergamentaceous, densely subsericeous-pubescent and stipitate-glandular like the petioles and also sessile-glandular, 5-lobed about halfway to base, the lobes broadly cuneate or cuneate-quadrate, the central one (sometimes also the two lateral) 3-toothed with obtuse teeth, or sometimes shortly 3-lobed with entire or 1 to 3-dentate lobes, the two basal and often the two lateral 2-lobed about half their length, the lobes with 2 or 3 blunt teeth; stem stoutish, erect, similarly pubescent, naked below the inflorescence; stem leaves opposite, similar to the basal but smaller, 2.2 cm. wide, their petioles about 7 mm. long, the stipules about 5 mm.; inflorescence short, trichotomous with di- or trichotomous branches, pubescent like the stem but more conspicuously stipitate-glandular; central peduncle 2 cm. long, the others usually suppressed, the pedicels paired, 1.5 to 2 cm. long; calyx densely spreading-pubescent with several-celled, mostly gland-tipped hairs about 0.8 mm. long, the sepals oval, 6 mm. long, 3 mm. wide, 3-nerved, obtusely apiculate at the broadly rounded apex (micro 0.3 mm. long); petals apparently magenta, 9 mm. long (claw 2.5 mm.), 6 mm. wide, the limb cuneate-suborbicular, subtruncate, minutely stipitate-glandular on margin above, otherwise glabrous; filaments lance-subulate, not denticulate, pilose-ciliate and stipitate-glandular on margin nearly to apex; fruit (including styles) 15 mm. long, the beak 1 cm. long, densely pubescent like the sepals, the carpel bodies pilose with chiefly eglandular hairs; seeds (immature) minutely areolate, 2 mm. long.

Type in the U. S. National Herbarium, no. 602198, collected on the Páramo de Timotes, Mérida, Venezuela, altitude 4,000 meters, March, 1910, by Alfredo Jahn (no. 5).

A member of the section *Gracilia* R. Knuth, and nearest *Geranium holosericeum* Willd. In that species, according to Knuth's monograph, the stem is glabrescent below, and merely puberulous above; the leaves are more deeply lobed; the stipules are much longer, and the lowest are glabrous; the peduncles are much longer and only sparsely pubescent; the sepals are larger, and the petals much larger. The specific name refers to the greasy feeling of the entire plant.

<sup>2</sup> Journ. Linn. Soc. Bot. 4: Suppl. 125. 1860.



## POLYGALACEAE.

*Polygala retifera* Blake, sp. nov.

Suffrutescent, erect, 1 to several-stemmed, simple or branched, 18 to 35 cm. high; stem and branches slender, densely pubescent with curved ascending hairs but green, a few longer straighter spreading hairs usually intermixed; leaves alternate; petioles pubescent like the stem, about 2 mm. long; blades oval or oval-ovate to elliptic, 2 to 4 cm. long, 7 to 26 mm. wide, the upper usually narrower and smaller than the lower, acute or the upper sometimes obtuse, mucronulate, at base rounded to cuneate, subchartaceous, above deep green, incurved-pubescent, in age glabrescent except along nerves and margin, beneath slightly paler green, curved-pubescent chiefly along the veins, a few spreading hairs sometimes present on costa, the chief veins 4 to 6 pairs, with the secondaries and tertiaries prominulous-reticulate especially beneath; peduncles terminal and sometimes axillary, 5 to 12 mm. long, pubescent like the stem; racemes rather loose, 3 to 6.5 cm. long, pubescent like the stem; bracts deciduous, subulate-lanceolate, acuminate, ciliate and sparsely pubescent, 2 mm. long; pedicels 2 to 3 mm. long, pubescent like the stem; "flowers dark purple, the keel white or yellowish"; sepals ovate-lanceolate, 4 to 4.2 mm. long, acuminate, ciliate and pubescent with curved spreading hairs; wings oval-ovate, 8 to 9 mm. long, 4.2 to 5.8 mm. wide, rounded, very short-clawed, sparsely spreading-pubescent, more densely so along claw and costa, 7-veined and reticulate; upper petals 6.5 mm. long, ciliate at base, sparsely pubescent within toward base, the free portion obovate-oblong, emarginulate; keel 7.5 mm. long, sparsely pubescent outside; upper part of staminal tube and base of filaments sparsely pilose; apex of style short-pubescent between the stigmata; capsule broadly oval, 9 to 10 mm. long, 7.5 to 9 mm. wide, emarginate, at base rounded or slightly cordate, short-ciliate and on the sides spreading-pubescent with short straight hairs; seeds obovoid, compressed, 4.5 mm. long, pilose; aril 1.5 to 1.8 mm. high, 2 to 2.2 mm. long dorsally, with medium-sized pilose umbo, the anterior edge vertical, the posterior dorsal horizontal or ascending at an angle of 45° or less, the margin irregularly lobed.

Type in the U. S. National Herbarium, no. 601609, collected on the old road from Caracas to La Guayra, Federal District, Venezuela, altitude 1,100 to 1,700 meters, February 28, 1913, by H. Pittier (no. 5897).

## OTHER SPECIMENS EXAMINED:

VENEZUELA: Savannas, Lower Catuche wood above Caracas, altitude 1,000 to 1,200 meters, March 4, 1917, *Pittier* 7014. Lower Cotiza, near Caracas, altitude 800 to 1,290 meters, June, 1918, *Pittier* 7892. Vicinity of Valencia, altitude 400 to 800 meters, December, 1920, *Pittier* 8645.

*Polygala retifera* belongs in the section *Hebantha* of the subgenus *Hebeclada* next to *P. colombica* Chod. No material of the latter species has been examined, but its description indicates a plant with lanceolate leaves, attenuate at each end and not reticulate beneath, and somewhat longer and narrower (3.5 to 4.5 cm. long, 10 to 16 mm. wide), and flowers only 6 mm. long. This species was described from *Otto* 573, and its habitat was given as "Columbiae in montibus apricosis apud Caracas." so that it probably came from near the locality of *P. retifera*, and its name is a misnomer.

Specimens collected by Rose (no. 21880) at La Begonia, between Caracas and Puerto Cabello, Venezuela, in 1916, and possibly others collected by Pittier (no. 7975) at Hacienda de Cura, near San Joaquín, Carabobo, Venezuela, in 1918, may be referable to *P. colombica* Chod., but they have the leaves distinctly reticulate beneath.

***Polygala stenocarpa* Blake, sp. nov.**

Slender annual 35 to 48 cm. high, branched above; stem terete, minutely and evenly but not densely incurved-puberulous; leaves alternate except at extreme base; petioles 0.5 mm. long; blades linear, 7 to 16 mm. long, 0.4 to 1 mm. wide, cuspidate-acuminate, somewhat incurved-puberulous, 1-nerved, somewhat revolute, thickish; peduncles terminal and axillary, 5 to 17 mm. long; racemes loose, slender-cylindric, acutish, comose at apex, 2.5 to 8.5 cm. long, 5 to 7 mm. thick, the axis becoming 30 cm. long or less, pubescent like the stem; bracts ovate, attenuate, 2.4 mm. long, 1-nerved, slightly erose, purplish-tinged, deciduous; pedicels glabrous, 0.8 to 1 mm. long; flowers purplish, especially (in dried specimens) on the corolla; upper sepal ovate-oval, obtuse, 1 mm. long, glabrous, 1-nerved; lower sepals similar, narrower, oblong-oval, 1 mm. long; wings ovate, 1.8 to 2 mm. long, 0.8 to 0.9 mm. wide, obtuse, short-clawed, glabrous, 3-nerved, the lateral nerves simple, extending only to the middle; upper petals 2.3 to 2.6 mm. long, the free portion ovate, narrowed to an obtuse apex, 3-nerved; keel 2.1 to 2.3 mm. long, its crest on each side of a triangular, sometimes 2-lobed lamina and a bifid or 2-parted slender lobe; stamens 8; style and stigma shorter than ovary, the style proper dorso-ventrally flattened, scarcely equaling its excavate apex, the upper stigmatic lobe slightly tufted, barely stipitate, the lower oblique; capsules pendulous, oblong-lanceolate, 3 to 3.5 mm. long, 1.3 mm. wide, emarginulate, rounded at base, not gland-bearing; seed obconic, silky-pilose and comose, 2.2 to 3 mm. long (including coma), acuminate at base; aril fastened below the tip of the beak, 0.3 to 0.5 mm. long, its 2 lobes oblong, appressed.

Type in the U. S. National Herbarium, no. 1,038,657, collected at Hacienda de Cura, near San Joaquín, Carabobo, Venezuela, altitude 480 to 1,200 meters, August 4 to 13, 1918, by H. Pittier (no. 7976).

## ADDITIONAL SPECIMEN EXAMINED:

VENEZUELA: In savannas, vicinity of Valencia, Carabobo, altitude 400 to 800 meters, August 15, 1920, Pittier 9035.

This species belongs in the series *Trichospermae* of *Orthopolygala*, in the group called by Chodat *Penicillatae*, among which it is readily distinguished by its fine incurved puberulence (not at all glandular), its oblong-lanceolate capsule nearly twice as long as the wings, and the size of its wings.

**ERICACEAE.*****Vaccinium lelandrum* Blake, sp. nov.**

Branching shrub, apparently erect; stem and branches olive-green, the younger incurved-puberulous, the older glabrate; internodes 1 to 5 mm. long; petioles puberulous above, 1.5 to 2.5 mm. long; leaf blades ovate, 8 to 11 mm. long, 4 to 6 mm. wide, acute or obtusish, at base rounded to cuneate-rounded, serrulate above the base (teeth about 7 pairs, obtusish, glandular-mucronulate), coriaceous, above blackish green, puberulous along costa or subglabrous, beneath brownish with a lighter marginal line, glabrous, the lateral veins about 4 pairs, like the costa impressed above, obscure beneath; racemes axillary, solitary, crowded toward tips of branches, about 8-flowered, essentially glabrous, the axis about 6 mm. long, the bracts deciduous, subcoriaceous, about 2 mm. long, the pedicels 2 mm. long or less; calyx campanulate, glabrous, 3 mm. long, the limb about equaling the tube, its 4 teeth deltoid, acute or obtuse; corolla subglobose-urceolate, 4.5 to 5 mm. long, glabrous, the teeth 4 or sometimes 5, obtuse, 1 mm. long, spreading or erectish; stamens apparently always 8, equaling the corolla tube, equal, 4 to 4.5 mm. long, the filaments nearly linear, glabrous or with a very few hairs above, 2.5 mm. long, the anther sacs granular,

exaristate, 1.2 mm. long, the 2 tubules 1.5 mm. long; ovary 4-celled; style 4.5 mm. long.

Type in the U. S. National Herbarium, no. 703598, collected on the Páramo de Piedras Blancas, Mérida, Venezuela, altitude 3,800 meters, March 27, 1915, by Alfredo Jahn (no. 427).

Closely related to *Vaccinium floribundum* H. B. K., in which the filaments are densely pilose-ciliate. Evidently allied also to *V. thymifolium* and *V. moritzianum* Klotzsch, both of which are included by Klotzsch in the section *Vitis-Idaea*, to which pilose filaments are ascribed in his synopsis.

***Thibaudia jahnii* Blake, sp. nov.**

Shrub; stem angulate, essentially glabrous; petioles stout, glabrous, 3 to 8 mm. long; leaf blades elliptic or obovate-elliptic, 5 to 8 cm. long, 2 to 3.8 cm. wide, short-pointed with obtuse apex, cuneate at base, entire, thick-coriaceous, above glabrous, somewhat shining and pustulate, beneath dull brownish green, sparsely hispidulous with brownish hairs, narrowly revolute-margined, feather-veined, the chief veins about 3 pairs, impressed or obscure above, bluntly prominulous beneath; racemes axillary, solitary, subsessile, glabrous, about 10 to 16-flowered, the axis 2 to 3 cm. long; bracts ovate, deciduous, about 1.8 mm. long; pedicels 10 to 12 mm. long, glabrous, thickened at apex and articulate with calyx, bearing near base 2 subopposite ovate acute bractlets about 1.8 mm. long; calyx glabrous, campanulate, 4.5 mm. long, the limb with 5 very short, depressed-deltoid, acute or obtuse teeth; corolla subcylindric, fleshy, glabrous, 12 mm. long, the teeth 5, ovate, erect, obtusish; stamens 10, equal, 10 mm. long, the filaments linear-lanceolate, glabrous, 5.5 mm. long, the anther sacs finely granular, apiculate at base, 4 mm. long, the 2 tubules 5 mm. long; ovary 5-celled; style 11 mm. long.

Type in the U. S. National Herbarium, no. 703595, collected on the Páramo de Piñango, Mérida, Venezuela, altitude 2,600 meters, March 17, 1915, by Alfredo Jahn (no. 424).

A member of the section *Eurygania*, nearest *Thibaudia formosa* (Klotzsch) Hörold, from Mount Roraima, which has much shorter racemes (axis 6 to 8 mm. long), longer pedicels (12 to 18 mm.), and shorter corolla (8 to 10 mm.). The vernacular name of *T. jahnii* is given as "coralito," referring doubtless to the color of the flowers.

**APOCYNACEAE.**

***Forsteronia elachista* Blake, sp. nov.**

PLATE 41

High-climbing shrub; branches gray, glabrous, the younger fuscous, very obscurely hirtellous, glabrescent; leaves opposite; petioles 5 to 7 mm. long, obscurely hirtellous; blades oval or oblong-oval, 6.5 to 12 cm. long, 3 to 5.7 cm. wide, obtusely short-pointed, at base broadly rounded, subcoriaceous, above dull green, glabrous, beneath brownish green, barbate in the axils, the veins about 8 pairs, like the costa impressed above, prominulous beneath, the secondaries obscure; panicles terminal, finely hirtellous, on peduncles 4 to 12.5 cm. long, pyramidal, 12.5 to 23 cm. long, 13 to 30 cm. wide, the branches spreading at right angles, with innumerable flowers, these cymose-paniculate toward the tips of the dichotomous ultimate branchlets; bracts triangular, griseous-hirtellous, 1 mm. long or less; pedicels about 1 mm. long; calyx 1.1 mm. long, densely griseous-hirtellous, the sepals oval, obtuse, about 3-glandular at base; corolla brownish black in drying, 1.5 mm. long, the tube 0.6 mm. long, glabrous, the lobes oblong-ovate, obtuse, 0.9 mm. long, griseous-hirtellous outside, hispidulous within; stamens exerted, 0.8 mm. long, the filaments 0.15 mm. long, the basal appendages of the anthers obovoid, obtuse, the apex acutish and villous.

Type in the U. S. National Herbarium, no. 1,065,091, collected on hills of Guaremales, at La Fortaleza, along road from Puerto Cabello to San Felipe, Carabobo, Venezuela, altitude 400 meters, July 2, 1920, by H. Pittier (no. 8918).

Related to *Forsteronia gracilis* (Benth.) Muell. Arg., the type collection of which has been examined. In that species the leaves are cordate at base, the main axis of the panicle is glabrous, and the corollas are 2 mm. long and 4 mm. wide. *Forsteronia elachista* has apparently the smallest flowers known in the genus.

EXPLANATION OF PLATE 41.—*Forsteronia elachista*, from the type specimen. Natural size.

#### ASCLEPIADACEAE.

##### *Prestonia brachypoda* Blake, sp. nov.

Scandent shrub; stem stout, densely hispidulous and more sparsely hispid with spreading or ascending, tubercular-based, rufidulous hairs; leaves opposite; petioles 5 mm. long, pubescent like the stem; blades oval, 17.5 to 19.5 cm. long, 10.5 to 12.5 cm. wide, apiculate (the point 2 to 4 mm. long), at base cordate, pergamentaceous, above deep green, along costa and nerves hispid, on surface more sparsely so or glabrate, beneath brownish green with a slight yellow tinge, very densely and rather softly pilosulous with spreading hairs, and along the veins sparsely hispid-pilose, the veins about 8 pairs, like the costa and secondaries impressed above, and with them finely prominulous-reticulate beneath; peduncle axillary, densely hispid-pilose with rufous hairs, 1.5 cm. long; flowers numerous in a capitate cluster about 4 cm. wide; pedicels densely hispidulous and hispid-pilose, 9 mm. long; sepals 5, oval, short-pointed, 11 mm. long, 5 to 6 mm. wide, rufidulous-hispidulous and hispid outside, each bearing at base within a deltoid scale 2.5 mm. long, truncate and 4-denticulate at apex, densely strigose outside; corolla yellow, salver-shaped, the tube 16 mm. long, about 4 mm. thick, densely strigose with fulvous hairs, the limb 17 mm. wide, its lobes broadly oblong, strigose on one side without; stamens inserted below apex of tube, barely exerted, the filaments 1.5 mm. long, densely ciliate, the anthers acuminate, 5.2 mm. long; corolla tube bearing below apex 5 linear truncate scales 3.2 mm. long, about twice as long as the depressed lobes of the annulus, and with a hairy ring within just above the stamens; disk 5-lobed, equaling the scales of the calyx, surpassing the ovary.

Type in the U. S. National Herbarium, no. 1,065,080, collected in forest at Guaremales, road from Puerto Cabello to San Felipe, Carabobo, Venezuela, altitude 10 to 100 meters, May 15, 1920, by H. Pittier (no. 8832).

This species is nearly related to *Prestonia surinamensis* Muell. Arg., which is described as having the leaves obtuse at base and pubescent beneath with shorter flexuous hairs, petioles 1 cm. long, and stamens inserted at about the middle of the tube. It is perhaps nearer to *P. ipomaeifolia* A. DC., which is described as having smaller and narrower leaves, acute calycine scales, calyx scarcely shorter than corolla tube, and corolla scales not longer than the corona.

##### *Fischeria subaequalis* Blake, sp. nov.

Scandent shrub; stem minutely hirtellous, more sparsely hispid with wide-spreading many-celled brown hairs; leaves opposite; petioles 3 to 4 cm. long, densely hirtellous, rarely very sparsely hispid; blades oval or obovate-oval, 9 to 14 cm. long, 5.8 to 8 cm. wide, apiculate (the tip about 2 mm. long), or rarely acute, at base cordate, the sinus usually concealed, papery or chartaceous, above dull green, densely hispidulous on both sides with spreading tuberculate-based hairs, the lateral nerves about 7 pairs, prominulous beneath, the secondaries scarcely prominulous; peduncles interaxillary, usually 11 to 15.5 cm. long.

usually exceeding the leaves, hirtellous and more sparsely spreading-hispid, sometimes bifurcate above; flowers corymbosely arranged; bracts filiform, 7 mm. long; pedicels hirtellous and sparsely hispid, 2.5 to 3 cm. long; sepals nearly equaling the corolla, lance-ovate, 12 mm. long, 3 mm. wide at base, long-acuminate, hispidulous and sparsely spreading-hispid, spreading or somewhat reflexed; corolla 2.8 cm. wide, white, deep green at base within, its lobes ovate, acute, strongly crisped at one side toward apex, short-hispid inside toward base, and outside ciliate on one margin; outer corona fleshy, about two-thirds as high as the gynostegium, its lower lobe obscurely sinuate, spreading, its upper slightly sinuate; inner corona of 5 fleshy rounded lobes; anther appendages deltoid, obtuse, appressed.

Type in the U. S. National Herbarium, no. 1,065,086, collected on border of forest near Urama, along road from Puerto Cabello to San Felipe, Carabobo, Venezuela, June 20, 1920, by H. Pittier (no. 8904).

ADDITIONAL SPECIMEN EXAMINED:

VENEZUELA: Near Alpargatón, along road from Puerto Cabello to San Felipe, April 25, 1920, Pittier 8810.

Related to *Fischeria blepharopetala* Blake, of Colombia, which has densely hispid petioles and a corolla only 2 cm. wide, with elliptic-ovate obtuse long-ciliate lobes.

*Vincetoxicum lasiostomum* (Decaisne) Blake.

*Gonolobus lasiostomus* Decaisne in DC. Prodr. 8: 593. 1844.

This species, originally described from Caracas, was collected by Mr. Pittier (no. 8858) at Guaremales, along road from Puerto Cabello to San Felipe, June 6, 1920.

### RUBIACEAE.

*Aleis leiantha* Blake, sp. nov.

Small tree, 8 to 10 meters high; stem stout, quadrangular, pithy, sulcate, at maturity grayish, the younger branches nigrescent in drying, glabrous; stipules of each side united, lance-subulate, nigrescent, 2 cm. long, deciduous at maturity; petioles sparsely ciliate in youth, 5 to 12 mm. long; blades (the younger nigrescent in drying) narrowly elliptic-obovate, 14 to 18 cm. long, 2.5 to 4.5 cm. wide, acuminate, at base long-cuneate into the petiole, in youth sparsely cillolate, glabrous above, beneath finely hirtellous on the veins, sparsely so on surface or glabrate, at maturity deep green and somewhat shining on both sides, glabrous except for tufts in the axils of the veins beneath, the veins 16 to 26 pairs, prominulous beneath, the secondaries few, connecting them nearly at right angles; spikes precocious, about 20 cm. long, subtended by small leaves, densely flowered, the axis densely and sordidly pilose-tomentose, in age glabrescent; bracts filiform-subulate, deciduous, about 2 mm. long; flowers sessile; hypanthium sordid-pilose chiefly below, obovoid, 3 mm. long; free portion of calyx 5-parted essentially to the base, 1.5 mm. long, the teeth lanceolate, glabrous, acute; corolla greenish-yellow, tubular-campanulate, 5.5 mm. long, glabrous outside, pilose within below the apex, the 5 teeth deltoid, subtruncate, 1 mm. long; stamens inserted at base of tube, at maturity long-exserted, the filaments densely pilose to above the middle, becoming 8 mm. long, the anthers papillose, apiculate, 1.8 mm. long; style exserted, glabrous, its undivided portion 6.5 mm. long, the branches papillose; capsules clavate, glabrescent, erect, 10 to 13 mm. long.

Type in the U. S. National Herbarium, no. 1,065,081, collected in monsoon forest at Guaremales, along road from El Palito to San Felipe, Carabobo, Venezuela, altitude 10 to 100 meters, May 29, 1920, by H. Pittier (no. 8850).



## ADDITIONAL SPECIMENS EXAMINED:

VENEZUELA: Guaremales, altitude 10 to 100 meters, 1920, *Pittier* 9099.  
Vicinity of Perijá, Zulia, 1917, *Tejera* 1.

This species is related to *Alseis floribunda* Schott, but has the corolla glabrous outside, the style glabrous, and the branchlets not pubescent.

As already noted by K. Schumann,<sup>4</sup> the aestivation in *Alseis* is open, not valvate as described by Bentham and Hooker, and the flowers are all hermaphrodite and similar, not dimorphous and monoecious as described by Bentham and Hooker and by Hemsley.

**Chomelia polyantha** Blake, sp. nov.

Small tree, 5 to 6 meters high; stem sparsely strigillose, glabrate, the branchlets not spinescent; stipules united into a triangular acute strigose tooth, 2.5 mm. long; petioles 3 mm. long, sparsely strigose, ciliate; blades oval or oblong-obovate, 3 to 7 cm. long, 1.8 to 3 cm. wide, short-pointed or the smaller ones retuse, at base cuneate to rounded, coriaceous, above deep green, glabrous, beneath somewhat paler green, barbate in the axils of the veins, the veins 4 pairs, prominulous beneath, the secondaries somewhat impressed beneath; peduncles axillary, glabrous, 1.5 to 2 cm. long, at apex bearing about 10 sessile ebracteate flowers in a dense cluster; hypanthium 1.4 mm. long, sparsely strigillose; free portion of calyx 2 to 2.5 mm. long, sparsely strigillose, the tube 1.8 mm. long, the 4 suborbicular or oblong teeth 0.7 mm. long, slightly unequal, at apex obtuse or emarginate, bearing a gland on each side at base; corolla white, 2 cm. long, densely strigillose when young, the very slenderly funnelform tube and throat 1.5 cm. long, the 4 lobes oblong-ovate, obtuse, 4.5 mm. long; stamens attached just below apex of throat, barely exerted, the anthers 2 mm. long; style strongly included, glabrous, the stigmatic lobes 1.2 mm. long.

Type in the U. S. National Herbarium, no. 1,065,084, collected in monsoon forest at Guaremales, along road from Puerto Cabello to San Felipe, Carabobo, Venezuela, altitude 10 to 100 meters, May 20 to June 10, 1920, by H. Pittier (no. 8856).

This species differs from its relative, *Chomelia barbinervis* Moric. (*C. anisomeris* Muell. Arg.), in having many-flowered cymes and a calyx longer than the ovary and with subequal teeth. The flowers are described as sweet-scented.

**Evea lucentifolia** Blake, sp. nov.

PLATE 42.

Shrub 1 to 2 meters high; branches slender, green, glabrous; stipules united, coriaceous-herbaceous, truncate, 2 mm. high, sparsely strigose at apex, bearing on each side from near the base a stiff erect spine 5 to 8 mm. long; petioles 1 mm. long or less; blades ovate or oval-ovate, 6.5 to 10 cm. long, 3.3 to 6 cm. wide, acuminate, the apex acute, at base broadly rounded, pergamentaceous, above deep green, shining, beneath much lighter green, glabrous on both sides, the veins about 7 pairs, prominulous beneath, the secondaries loosely prominulous-reticulate; peduncles solitary, terminal, glabrous, monocephalous, 2.5 cm. long; inflorescence capitate, about 2 cm. long and thick; outer bracts 5, ovate, 1.7 to 2.1 cm. long, 6 to 10 mm. wide, acute or acuminate, cuspidulate, rounded at base, glabrous outside, white, turning purple, somewhat hispidulous inside toward base; larger inner bracts about 8, lance-elliptic, acuminate, slightly shorter than the outer; flowers about 12, adnate at base to the inner bracts; free portion of calyx 1.5 mm. long, glabrous, half longer than the glabrous hypanthium, the tube cup-shaped, 1.2 mm. long, the 5 somewhat unequal teeth subulate, 0.3 mm. long or less, rarely with intermediate denticulations; corolla

<sup>4</sup> In Mart. Fl. Bras. 6<sup>e</sup>: 186-187. 1889.



1.8 cm. long, white, glabrous outside except for the sparsely hispidulous teeth, with a pilose ring within below the insertion of the stamens, the cylindrical tube 7 mm. long, the slenderly funnelform throat 7 mm. long, the 5 lanceolate acutish teeth 4.8 mm. long; style 13 mm. long, deeply 2-lobed, the lobes hairy; stamens exerted, the filaments glabrous, the anthers 3 mm. long.

Type in the U. S. National Herbarium, no. 1,065,087, collected in hilly forests at Guaremales, along road from Puerto Cabello to San Felipe, Carabobo, Venezuela, altitude 10 to 100 meters, July 2, 1920, by H. Pittier (no. 8911).

ADDITIONAL SPECIMEN EXAMINED:

VENEZUELA: Valley of Patanemo, east of Puerto Cabello, altitude 10 to 250 meters, December, 1919, Pittier 8653.

EXPLANATION OF PLATE 42.—*Erea lucentifolia*, from the type specimen. Natural size.

ASTERACEAE.

*Oliganthes hypochlora* Blake, sp. nov.

Shrub or tree; branches densely and finely sordid-tomentulose, in age glabrate and gray-barked; leaves alternate; petioles slender, naked, 1 to 2 cm. long, densely and finely sordid- or cinereous-tomentulose; blades broadly ovate or ovate, the larger 11 to 14.5 cm. long, 5 to 8 cm. wide, usually long-acuminate, at base rounded or subtruncate-rounded, obscurely and remotely repand-denticulate or subentire, papery, above deep green, evenly but rather sparsely dotted with shining yellowish glands, along costa and lower portion of the veins cinereous-tomentulose, beneath paler but distinctly green, similarly gland-dotted on surface, along veins and less conspicuously along some of the veinlets densely and finely sordid-tomentulose, feather-veined, the chief veins about 7 pairs, prominulous beneath, the secondaries loosely prominulous-reticulate; panicles corymbiform, terminal, rounded or flattish, very many-headed, 4 to 19 cm. wide, usually leafy-bracted, very densely ochroleucous-tomentulose; heads cylindrical, 2 or 3-flowered, about 9 mm. high in flower, 1.2 mm. thick, umbellate-fasciculate, the pedicels 2 to 6 mm. long; involucre 5.5 to 7 mm. high, strongly graduate, about 6-seriate, the outermost phyllaries triangular-ovate, about 0.8 mm. long, densely tomentulose, the others oval or oval-ovate (middle) to oblong-linear (inner), acute to obtusish, whitish-stramineous, 1-nerved, the outer somewhat tomentulose at the usually thickened apex and ciliolate, the innermost subglabrous, all often pinkish-tinged; corollas (when dried) pale rosy-purplish, sparsely glandular, 7 mm. long, the teeth linear-lanceolate, acuminate, 2.5 mm. long; achenes turbinate, about 10-nerved, glandular at base, about 1.2 mm. long; pappus of 2 or 3 narrowly linear, somewhat twisted, easily deciduous, whitish, paleaceous awns about 3.2 mm. long, and a crown of more persistent, unequal, lacerate, paleaceous, connate squamellae 1.8 mm. long or less.

Type in the U. S. National Herbarium, no. 988283, collected in the vicinity of Las Trincheras, near Valencia, Carabobo, Venezuela, altitude 200 to 400 meters, October 15, 1918, by H. Pittier (no. 8185).

ADDITIONAL SPECIMEN EXAMINED:

VENEZUELA: Limón, altitude 600 meters, August 1, 1916, Jahn 471.

Related to *Oliganthes acuminata* (H. B. K.) Schultz Bip., to which these specimens have been referred. In that species, however, the heads are 1-flowered, and there are no elongate deciduous awns in the pappus. The vernacular name of *O. hypochlora* is given by Dr. Jahn as "zamuro." Specimens of *O. acuminata*, agreeing perfectly with the original description of that species, have been collected by Mr. Pittier on the Upper Cotiza near Caracas (no. 9834) and near Los Teques, Miranda (no. 11245).

***Ageratum sordidum* Blake, sp. nov.**

Suffrutescent, erect, 35 cm. high and more, with few opposite erect branches; stem stoutish, about 3 mm. thick, very densely and sordidly viscid-glandular-pilose with several-celled spreading hairs, glabrescent below; internodes of main stem 0.8 to 3 cm. long; leaves opposite or ternate, pubescent like the stem, often with short leafy branches in their axils; petioles narrowly margined, 6 to 15 mm. long; blades ovate to oblong- or triangular-ovate, 1.7 to 3.2 cm. long, 7 to 15 mm. wide, obtuse, at base rounded or truncate-rounded, dentate-crenate with about 12 pairs of rounded teeth, pergamentaceous, triplinerved, the secondary veins few, prominulous beneath; panicles cymose, rounded, ternately divided, terminating stem and upper branches, 7 to about 40-headed, 2.5 to 6 cm. wide; pedicels 2 to 7 mm. long; heads subglobose, about 56-flowered, 6 to 7 mm. high, 6 to 8 mm. thick; involucre 2-seriate, subequal, 5 mm. high, the phyllaries few (about 12), oblong, short-acuminate, densely glandular-pilose and glandular-ciliolate, with erectish or somewhat loose tips, about 5-nerved, the outer ones with thickened costa; receptacle naked; corollas white, stipitate-glandular on teeth and sometimes very sparsely so on tube, 3 mm. long (tube 1.2 mm., throat slender-campanulate, 1.3 mm., teeth 0.5 mm.); achenes slenderly prismatic-obconic, often somewhat curved, 5-ribbed, blackish, sparsely hispidulous, 2 to 2.5 mm. long, with conspicuous whitish carpopod; pappus of 5 oblong lacerate exaristate squamellae, connate only at very base, 0.8 mm. long.

Type in the U. S. National Herbarium, no. 602315, collected on the Páramo de Timotes, Mérida, Venezuela, altitude 3,600 meters, March 20, 1910, by Alfredo Jahn (no. 121).

A member of the section *Euageratum*, well distinguished by its suffrutescent habit, dense viscid-glandular pubescence, and exaristate squamellae.

***Podocoma bartsiaefolia* Blake, sp. nov.**

PLATE 45.

Suffrutescent, several-stemmed, 23 to 30 cm. high, densely viscid-pubescent throughout with spreading several-celled gland-tipped hairs, and sparsely spreading-pilose; stems slender, simple, erect, or ascending, densely leafy; leaves alternate, linear, 1.5 to 3.5 cm. long, 1.5 to 5 mm. wide, truncate at apex, sessile and auriculate-clasping, repand-crenate, revolute-margined, 1-nerved, dull brownish green; heads 1 to 4 at apex of stem, campanulate-subglobose, 1.8 to 2.5 cm. wide, 9 to 11 mm. high, very many-flowered, on monocephalous peduncles 1.7 to 3.2 cm. long; involucre about 3-seriate, subequal, 8 to 10 mm. high, the phyllaries linear-lanceolate, acuminate, 1 to 1.5 mm. wide, appressed, blackish green, subherbaceous, with very narrow subscarious margins; rays very numerous, several-seriate, the tube slender, 4 to 4.5 mm. long, sparsely pilose above with several-celled hairs, the whole style included, the lamina elliptic-ovate, bidenticulate, erect or spreading, 1.2 to 1.5 mm. long; disk corollas slender-funnelform, pilose at base of throat, 5.5 mm. long (tube 2.5 mm., throat 2 mm., teeth ovate, 1 mm.); achenes of ray ellipsoid-fusiform, about 6-nerved, glabrous, 3.5 to 4 mm. long, with short carpopod and slender beak (0.8 to 1.1 mm. long), the pappus bristles about 18, rufidulous, hispidulous, deciduous in groups or singly; achenes of disk infertile, linear-fusiform, 2.5 to 3 mm. long, rather obscurely beaked, 5-nerved, their pappus similar to that of the ray; style branches of hermaphrodite flowers oblong-linear, rounded, unappendaged, papillose on margin.

Type in the U. S. National Herbarium, no. 602280, collected on the Páramo de Timotes, Mérida, Venezuela, altitude 3,000 to 3,500 meters, December 6, 1910, by Alfredo Jahn (no. 86).

## ADDITIONAL SPECIMENS EXAMINED:

VENEZUELA: Páramo de Piedras Blancas, Mérida, altitude 4,000 meters, March 27, 1915, *Jahn* 398. Páramo de Timotes, Mérida, altitude 4,200 meters, September 4, 1921, *Jahn* 584.

This, the only species of the genus known in America outside of Brazil, Uruguay, and Paraguay, is at once recognizable by its combination of dense glandular pubescence and wingless stem. Schultz Bipontinus's name *Moritzia glandulosa*<sup>5</sup> presumably referred to this species, but no description has ever been published. *Podocoma bartsiaefolia* apparently differs from all the known species of the genus in its essentially equal involucre and ellipsoid-fusiform glabrous achenes, but I have no material of the genus for comparison aside from a single sheet of the Australian species, *P. cuneifolia* R. Br.

EXPLANATION OF PLATE 43.—*Podocoma bartsiaefolia*, from the type specimen. Natural size.

**Achyrocline flavida** Blake, sp. nov.

Suffrutescent, 28 cm. high, few-branched near base; stems stout, simple, densely leafy, densely tomentose-lanate with cinerascens wool, beneath the tomentum densely subglandular-puberulous; leaves crowded, erect, narrowly elliptic, 2 to 2.5 cm. long, 3 to 7 mm. wide, obtuse, obscurely short-decurrent at the scarcely narrowed base, densely tomentose-lanate like the stem, beneath the tomentum densely spreading-puberulous with subglandular hairs, 3 or obscurely 5-plinerved from base; heads very numerous, crowded in a dense terminal glomerule 3.5 cm. thick; involucre straw-yellow, 5 mm. high, slightly graduated, the phyllaries oval-oblong, obtuse or rounded, or the inner apiculate, scarious, nerveless, lanate-pilose and somewhat glandular toward base; heads 6-flowered, the pistillate flowers 3 or 4, the hermaphrodite 2 or 3; pistillate corollas tubular-filiform, at apex sparsely pubescent with short clavate gland-tipped hairs, 3.2 mm. long; hermaphrodite corollas similarly pubescent, slenderly•tubular-funnelform, 3.2 mm. long; achenes (scarcely mature) 0.6 mm. long; pappus bristles 3 mm. long, deciduous in groups.

Type in the U. S. National Herbarium, no. 601978, collected in the upper belt of the southern slope of Pico de Naiguatá, Miranda, Venezuela, altitude 2,400 to 2,765 meters, May 24 to 25, 1913, by H. Pittier (no. 6243).

Apparently distinct from any published species in its single dense terminal glomerule of straw-yellow heads, its elliptic, very crowded leaves, and very dense, lanate tomentum.

**Riencourtia ovata** Blake, sp. nov.

PLATE 44.

Erect herbaceous perennial; root subglobose, tuberiform, about 8 mm. thick; stems solitary, simple, or with short axillary branches, about 75 cm. high, hispid with appressed or ascending tuberculate-based hairs; leaves remote, opposite, 6 or 7 pairs; petioles hispid, 3 to 5 mm. long; blades ovate or rotund-ovate, those of the middle leaves larger, 4 to 4.5 cm. long, 2 to 2.8 cm. wide, acute or obtusish, at base broadly rounded or subcordate, papyraceous, crenate-serrate with about 9 pairs of teeth, nearly equally green on both sides, hispid-pilose both sides with ascending or somewhat spreading hairs, those on the upper surface tuberculate-based, triplinerved from the base; glomerules ternate at tip of stem, subsessile or on peduncles up to 4 cm. long, subglobose, 8 to 13 mm. thick, each composed of about 12 sessile heads, subtended by one or two lanceolate herbaceous bracts about 7 mm. long; heads obovoid, 5 mm. long, 4 mm. thick; phyllaries 6, the 4 outer subequal, broadly obovate-oval, 4.5 mm. long, subscarious, strigose above, obscurely callous-mucronulate at the broadly

<sup>5</sup> Baker in Mart. Fl. Bras. 6<sup>o</sup>: 14. 1882, nomen nudum.

rounded apex, the two inner similar but smaller; female flower solitary, the corolla white, tubular, 2.3 mm. long, 5-toothed (two of the teeth united for half their length), bearing a few long hairs at tip; style equalling corolla; hermaphrodite flowers 8, white, tubular-funnelform, 1.6 mm. long, 5-toothed, the tube and throat marked with 5 black lines, the teeth 0.7 mm. long, hispid; achene oval, 3.2 mm. long, 2.6 mm. wide, pilose above, lenticular in cross section, olivaceous; sterile ovaries densely intricate-pilose, linear, becoming 4 mm. long.

Type in the U. S. National Herbarium, no. 1,056,632, collected in savannas near Valencia, Carabobo, Venezuela, August 15, 1920, by H. Pittier (no. 9060).

This species is of interest as the first member of the genus to be found in Venezuela, the others ranging from the Guianas to Brazil. It may easily be distinguished from the previously known species by its ovate leaves.

EXPLANATION OF PLATE 44.—*Riencourtia ovata*, from the type specimen. Natural size.

***Espeletia marcescens* Blake, sp. nov.**

Caudex stout, up to 5 meters high, 2 cm. thick above, densely accumbent-pilose, very leafy above, denudate below; leaves densely crowded, oblong-ob lanceolate or oblong-obovate, 26 to 35 cm. long, 5 to 6 cm. wide, obtuse or acute, gradually narrowed to an abruptly ampliate sheathing base, minutely denticulate throughout (teeth 5 to 7 mm. apart), pergamentaceous, not revolute-margined, above deep green, rather densely rufid-hispidulous, glabrescent except along costa, beneath dull brownish green, gland-dotted and rather sparsely hispidulous, closely feather-veined (chief veins 80 pairs or more) and very densely prominulous-reticulate beneath, the veins and veinlets obscure or impressed above; flowering stems 45 cm. high and more, branched, striate, sordidly short-hispid-pilose with glandular-tuberculate-based hairs, more densely so in the inflorescence, leafy; stem leaves alternate or the upper rarely opposite, oval to elliptic-oblong, 5 to 13.5 cm. long (including the short or obsolete, margined petiole), 2.5 to 4.5 cm. wide, apiculate, cuneate-rounded at base, denticulate, or the upper entire, pubescent like the basal leaves, the uppermost smaller, about 2.5 cm. long; heads numerous (11 to 17 per stem), cymose-panicled, nodding, "white," 2.8 cm. wide in flower, 3.5 to 4 cm. wide at maturity; peduncles 2.5 to 11.5 cm. long, monocephalous; disk 1.5 to (fruit) 2.8 cm. wide, about 1 cm. high; involucre 2-seriate, obgraduate, 1.2 to 2 cm. high, the outer phyllaries about 6, broadly ovate, acutish, foliaceous, veiny, densely glandular-tuberculate and sparsely hirsute, the inner shorter; rays about 54, about 3-seriate, marcescent, the lamina wedge-obovate, 6-nerved, 12 mm. long, 3.8 mm. wide; disk corollas sparsely hispidulous on tube and densely so on teeth below apex with short hairs with light base and dark tip, 6 mm. long (tube 2 to 2.5 mm., throat campanulate-funnelform, 2.5 mm. long, teeth ovate, 1.5 mm.); pales oblong, 6 mm. long, obtuse, glandular-ciliolate, toward apex setose with acuminate dark hairs with light bases; achenes (of ray) trigonous-obovoid, 2.5 mm. long, 1.8 mm. wide, blackish brown with whitish base, glabrous, somewhat shining.

Type in the U. S. National Herbarium, no. 1,069,158, collected on the southern slope of the Páramo de Quirorá, Mérida, Venezuela, altitude 2,950 meters, February 24, 1922, by Alfredo Jahn (no. 875).

Related to *Espeletia lindenii* Schultz Bip., but distinguished by the lack of tomentum on the stem and the under leaf surface. In Standley's revision of the genus *Espeletia* mention was made<sup>6</sup> of the fact that *E. lindenii* was the only Venezuelan species of the genus not represented in Jahn's collections. In material received recently from Dr. Jahn it is represented by four numbers

<sup>6</sup> Amer. Journ. Bot. 2: 483. 1915.

(727, 728, 872, 874) from the Páramo de Quirorá, at altitudes of 3,000 to 3,200 meters.

Dr. Jahn states that *E. marcescens* grows in moist, rather shady situations among bushes of *Espeletia neriifolia*, *Myrsine*, *Osteomeles*, and other shrubs, and that it is not found higher up on the open dry parts of the Páramo de Quirorá.

***Espeletia occulta* Blake, sp. nov.**

Caudex stout, 2 cm. thick, simple and densely leafy below the inflorescence, densely lanate-pilose with brownish white hairs; petioles of the leaves below the inflorescence 3 cm. long, sheathing the stem, densely lanate-pilose outside and at apex inside; blades oval-oblong, about 25 cm. long, 8 to 9.5 cm. wide, obtuse, at base cuneate or rounded-cuneate, minutely denticulate on the very narrowly revolute margin, subcoriaceous, above deep brownish green, glabrous or quickly glabrate except sometimes on costa, somewhat resinous, beneath densely ochroleucous- or griseous-tomentose with close tomentum, densely and closely feather-veined, the chief veins about 90 pairs, straight, prominent beneath, impressed above, connected beneath by a fine obscure reticulation; flowering stems about 30 cm. high, branched, densely lanate-pilose with brownish hairs, several-leaved, the leaves opposite or alternate, similar to the basal leaves but much smaller, 15 cm. long or less; heads numerous, in a flattish cymose panicle equaled and essentially hidden by the larger leaves, 2.5 cm. wide in flower, subsessile or short-pedicel in close leafy-bracted clusters of about 3 to 5 at tips of peduncles; disk in young flower 7 mm. high, 1.5 cm. thick; involucre 2-seriate, obgraduate, 1 to 1.3 cm. high, the outer phyllaries about 5, ovate, acutish, densely lanate-pilose, with indurate base and loose herbaceous apex; rays about 25, 2-seriate, yellow (?), marcescent, the lamina elliptic, 7 mm. long, 2.8 mm. wide; disk corollas yellowish (?), 6 mm. long (tube 3 mm., throat 2 mm., teeth 1 mm.), the tube pilose with several-celled hairs, the teeth pilose with conspicuously club-shaped hairs with brown tips; pales oblong, obtuse, 6.5 mm. long, above densely pilose with brownish hairs and especially along margin pilose with slenderly clavate, brown-tipped hairs; achenes of ray (submature) trigonous-obovoid, glabrous, 2.8 mm. long.

Type in the U. S. National Herbarium, no. 1,069,153, collected on the Páramo de Quirorá, Mérida, Venezuela, altitude 3,000 meters, October 8, 1921, by Alfredo Jahn (no. 730).

A very distinct species, characterized by its large, oval-oblong, subcoriaceous leaves, which almost conceal the heads. It is somewhat similar in appearance to *Espeletia neriifolia* (H. B. K.) Schultz Bip., but has much larger heads and leaves, and is evidently of different habit.

***Hymenostephium meridense* Blake, sp. nov.**

Herbaceous, at least above, 60 cm. high and more, the base not seen; stem slender, branched, rather densely cinereous-strigillose above, glabrescent below; internodes 9.5 to 16.5 cm. long; leaves opposite except in the inflorescence; petioles slender, densely cinereous-strigillose, 5 to 20 mm. long; blades ovate, 2.5 to 7 cm. long, 1.2 to 3.5 cm. wide, acute, mucronulate, at base rounded, mucronulate-serrulate (teeth 2 to 4 mm. apart), firm-papery, above evenly and rather densely hispidulous-pilosulous with incurved cinereous hairs with glandular-subtuberculate bases, smooth or slightly rough to the touch, beneath densely cinereous-strigose, triplinerved essentially from base, the veins and veinlets impressed above, prominulous-reticulate beneath; heads about 2.5 cm. wide, in loose irregular panicles of 3 to 6 at tips of stem and branches, on densely cinereous-strigillose pedicels 1 to 5.5 cm. long, naked or with 1 or 2 very small subulate bracts; disk 6 to (maturity) 8 mm. high, 6 to (maturity)



11 mm. thick; involucre 2 or sub-3-seriate, graduate, 4.5 mm. high, densely cinereous-strigose, the phyllaries lance-ovate or lanceolate, narrowed to a callous-mucronulate tip, appressed or the extreme tip somewhat loose; rays 12, golden yellow, oval, neutral, the lamina about 9 mm. long, 4 mm. wide; disk flowers numerous, their corollas yellow, finely hispidulous chiefly above, 4.5 mm. long (tube 0.6 mm., throat cylindrical, 3.2 mm., teeth ovate, 0.7 mm.); pales acute, firm-tipped, accumbent-hispidulous, blackish green dorsally, about 5.5 mm. long; ray achenes inane, hispidulous; disk achenes obovate-oblong, 2.8 mm. long, 1 mm. wide, strongly compressed, multistriatulate, glabrous, blackish brown, epappose.

Type in the U. S. National Herbarium, no. 1,069,161, collected on the Páramo de Timotes, Mérida, Venezuela, altitude 3,200 meters, January 21, 1922, by Alfredo Jahn (no. 845).

Nearest *Hymenostephium goebelii* (Klatt) Blake, also known only from the high páramos of Venezuela, which is distinguished by its much narrower leaves and regularly tricephalous cymes.

**Otopappus australis** Blake, sp. nov.

PLATE 45.

Shrub, evidently scandent; stem slender, rather sparsely strigillose; leaves opposite; petioles 4 to 6 mm. long, strigillose; blades elliptic-ovate or ovate, 6 to 10.5 cm. long, 2.5 to 6.2 cm. wide, acuminate and more or less falcate, at base rounded and often unequal, pergamentaceous, obscurely serrulate, above deep green, shining, evenly strigillose but smoothish to the touch, beneath duller green, strigillose along the venation, densely dotted with shining glands, strongly triplinerved and with an additional weaker nerve on each side near the margin, the primary veins impressed above, the secondaries obscure, the primaries and secondaries prominent beneath, loosely reticulate, the secondaries spreading nearly at right angles; peduncles axillary and terminal, strigillose, 1.3 to 3 cm. long, bearing about 7 heads; bracts spatulate, 7 to 15 mm. long; pedicels 3 to 10 mm. long; heads campanulate, 6 mm. high, about 7 mm. wide; disk 4 to 5 mm. wide; involucre 3-seriate, 2.5 to 3 mm. high; outer phyllaries ovate, with indurate body and strongly reflexed linear obtuse herbaceous tip, gland-dotted and sparsely strigillose, the tip 2 to 3.8 mm. long; middle phyllaries similar but with shorter herbaceous tip; inner phyllaries lance-elliptic, indurate throughout, obtuse or acute, obscurely ciliate, sparsely strigillose, gland-dotted; rays about 10, pale yellow, shorter than the disk, fertile, the tube 0.5 mm. long, the lamina linear, 3-nerved, 3 mm. long, 0.6 mm. wide, sparsely hispidulous and glandular dorsally, the nectary at base of style prominent, 0.5 mm. long; disk corollas pale yellow, 3.8 mm. long, hispidulous toward apex, the tube scarcely distinguishable from the throat; pales acuminate, hispidulous above, slender, 5 mm. long; ray achenes (immature) trigonous, narrowly 3-winged, 1.8 mm. long, the wings lacerate-ciliate, adnate to the base of the 3 awns, these 1.8 mm. long; disk achenes (immature) narrowly obovate, narrowly 2-winged, 2 mm. long, one of the wings lacerate-ciliate; awns 2 (sometimes 3), unequal, spinulose, 2.3 to 3 mm. long, adnate at base to the wings; squamellae united into a lacerate crown about 0.4 mm. long.

Type in the U. S. National Herbarium, no. 1,065,071, collected in valleys and hills of Patanemo, east of Puerto Cabello, Carabobo, Venezuela, altitude 10 to 250 meters, December 4 to 5, 1919, by H. Pittier (no. 8656).

ADDITIONAL SPECIMEN EXAMINED:

VENEZUELA: Trailing on bushes, Guaremales, November 20, 1920, Pittier. 9142.



This species, the first member of the genus to be found in South America, may be easily distinguished from its nearest relative, *O. verbessinoides* Benth. of Central America, by its very much smaller heads.

EXPLANATION OF PLATE 45.—*Otopappus australis*, from the type specimen. Natural size.

*Oyedaea jahnii* Blake, sp. nov.

PLATE 46.

Herbaceous above, doubtless shrubby below, erect-branched; stem stout, densely hispidulous or short-hirsute with incurved-ascending hairs with brownish tuberculate bases, glabrate below and densely maculate with the brownish persistent extreme bases of the hairs; leaves opposite; petioles stout, 5 to 10 mm. long, 2 to 4 mm. wide, marginate (especially in the upper leaves), densely strigose and accumbent-hirsute and ciliate; blades ovate or lance-ovate, or the uppermost lanceolate, 6.5 to 10.5 cm. long, 1.3 to 3.5 cm. wide, acuminate, cuneate or rounded-cuneate at base and decurrent on the petiole, serrulate (teeth about 8 to 10 pairs, 4 to 7 mm. apart), firmly pergamentaceous, above deep green, somewhat lucid, harshly and rather sparsely short-hispid with incurved hairs with persistent lepidote-tuberculate bases, along the chief veins densely hispid-pilose, beneath brownish green, evenly but rather sparsely hispidulous on surface with incurved subtuberculate-based hairs, along the larger veins densely hispidulous-pilosulous with several-celled subglandular brownish hairs and less densely hispid-pilose with antrorse eglandular hairs, triplinerved about 1 cm. above the base, prominulous-reticulate beneath; heads about 3.5 cm. wide, solitary at tips of branches on peduncles 3 to 4.5 cm. long and pubescent like the stem; disk 1 to 1.4 cm. high, 1.5 to 2.2 cm. thick; involucre 3-seriate, subequal or obgraduate, 11 to 12 mm. high, the 2 outermost series of phyllaries subequal, oblong-lanceolate, acute or subacuminate, erect or somewhat loose, with blackish green, indurate, usually subglabrous base (4 mm. long or less, 3 to 3.5 mm. wide) and much longer herbaceous tip, rather sparsely hispid-pilose and sordidly pilosulous with several-celled subglandular hairs, densely hispid-pilose-ciliate; innermost series of phyllaries usually shorter, oblong, the base subglabrous, indurate, the tip much shorter, usually deltoid, acute, densely hispidulous and sordid-pilosulous, hispid-pilose-ciliate, subherbaceous; rays about 10, golden yellow, oval, about 17 mm. long, 6.5 mm. wide, bearing an abortive undivided style; disk corollas yellow, glabrous except for the hispidulous teeth, 7.2 mm. long (tube 2.5 mm., throat slender-funnelform, 4 mm., teeth deltoid-ovate, 0.7 mm.); pales narrow, carinate, acute, 8.5 mm. long, glabrous on the sides, hirsute-pilose on keel, spinulose-ciliolate, toward apex densely pilosulous-ciliate with several-celled hairs; achenes (very immature) glabrous laterally, hispid-pilose-ciliate on margins; pappus of 4 or 5 (sometimes only 2?) slender unequal hispidulous fragile awns 4.5 mm. long or less, and a corona of about 12 unequal lacerate squamellae, connate below, 1 mm. long or less.

Type in the U. S. National Herbarium, no. 1,069,163, collected on the Páramo de Canaguá, Mérida, Venezuela, altitude 2,400 meters, January 21, 1922, by Alfredo Jahn (no. 911).

This species is nearest the Colombian *Oyedaea reticulata* Blake, but is distinct in its longer involucre of narrower phyllaries with much longer herbaceous tips, and its solitary heads. From *O. verbessinoides* DC., which it somewhat approaches in character of involucre, it is readily distinguished by its solitary heads and smaller leaves, which are sparsely and much more harshly pubescent beneath and not at all canescent. *Oyedaea jahnii* is the first species of the genus in which abortive styles have been found in the ray flowers. In its usually if not always 4 or 5-aristate pappus it is approached only by

*O. verbosinoides*, which sometimes has a pair of shorter awns in addition to the two which are normal for the genus.

EXPLANATION OF PLATE 46.—*Oxydactea jahnii*, from the type specimen. Natural size.

***Verbesina laevifolia* Blake, sp. nov.**

PLATE 47.

Shrubby; stem stout, glabrous, purplish-tinged; leaves alternate, crowded toward apex of stem (or branches); petioles stout, purplish, glabrous, 3 to 4 mm. long; blades wedge-obovate or elliptic-obovate, 6.5 to 11.5 cm. long, 2 to 3.8 cm. wide, rather abruptly short-acuminate, long-cuneate to base, obscurely crenate-serrulate chiefly above middle, somewhat wavy and slightly revolute on margin, glabrous and smooth to the touch on both sides, deep green above, somewhat paler green beneath, with purplish costa, feather-veined, the lateral veins about 13 pairs, anastomosing toward margin, impressed above, prominent beneath, the costa prominent beneath; panicle terminal, flattish, 8 to 13 cm. wide, surpassing the leaves, very many-headed, the branches purplish, densely spreading-pilose with several-celled whitish hairs, the bracts linear, 5 to 12 mm. long, about 1 mm. wide, the heads mostly sessile in glomerules of about 4, sometimes solitary on pedicels up to 6 mm. long; heads discoid, 8 to 10-flowered, 1 to (fruit) 1.2 cm. high, 5 to (fruit) 8 mm. thick; involucre 2-seriate, unequal, 4 to 5 mm. high, the phyllaries few, oblong, obtuse, rather sparsely pilosulous with erectish hairs especially toward margin, short-ciliate, with greenish white base and subequal, blackish green, appressed apex; disk corollas white, 6 mm. long, the tube and throat isodiametric, densely hispid-pilose with several-celled erectish hairs, the teeth linear-elliptic, papillose-ciliolate (tube 2.2 mm., throat 1.4 mm., teeth 2.4 mm.); pales obtuse or acutish, sometimes apiculate, about 7 mm. long, sparsely hispid-pilose on back, ciliolate above, blackish green toward apex; achenes obovate, compressed, 5 mm. long, 2.5 to 3 mm. wide, narrowly white-winged on both margins (wings about 0.5 mm. wide), short-pilose, ciliolate on the wings; awns 2, unequal, slender, 2.2 to 3.2 mm. long, adnate at base to the wings.

Type in the U. S. National Herbarium, no. 988436, collected on the Silla de Caracas, Coastal Range, Federal District, Venezuela, altitude 2,000 to 2,640 meters, December 26 to 29, 1918, by H. Pittier (no. 8332).

A member of the section *Lipactinia*, related to *V. guianensis* Baker and *V. schomburgkii* Schultz Bip., but distinguished by its smaller, perfectly glabrous and smooth leaves and glabrous stem.

EXPLANATION OF PLATE 47.—*Verbesina laevifolia*, from the type specimen. Natural size.

***Calea lindeni* (Schultz Bip.) Blake.**

*Allocarpus lindeni* Schultz Bip.; Wedd. Chlor. And. 1: 74. 1856.

Weddell's description, based on *Linden* 1625 of 1844, from the Sierra Nevada of Santa Marta, Province of Río Hacha, Colombia, altitude 4,050 meters, applies perfectly to specimens collected by Dr. Jahn (no. 70) at Pueblo Llano, Venezuela, altitude 2,150 meters, December 2, 1910. The species is a member of the small group of section *Allocarpus* centering around *Calea caracasana* (H. B. K.) Kuntze, and is readily distinguished from all its relatives by its perfectly glabrous stem.

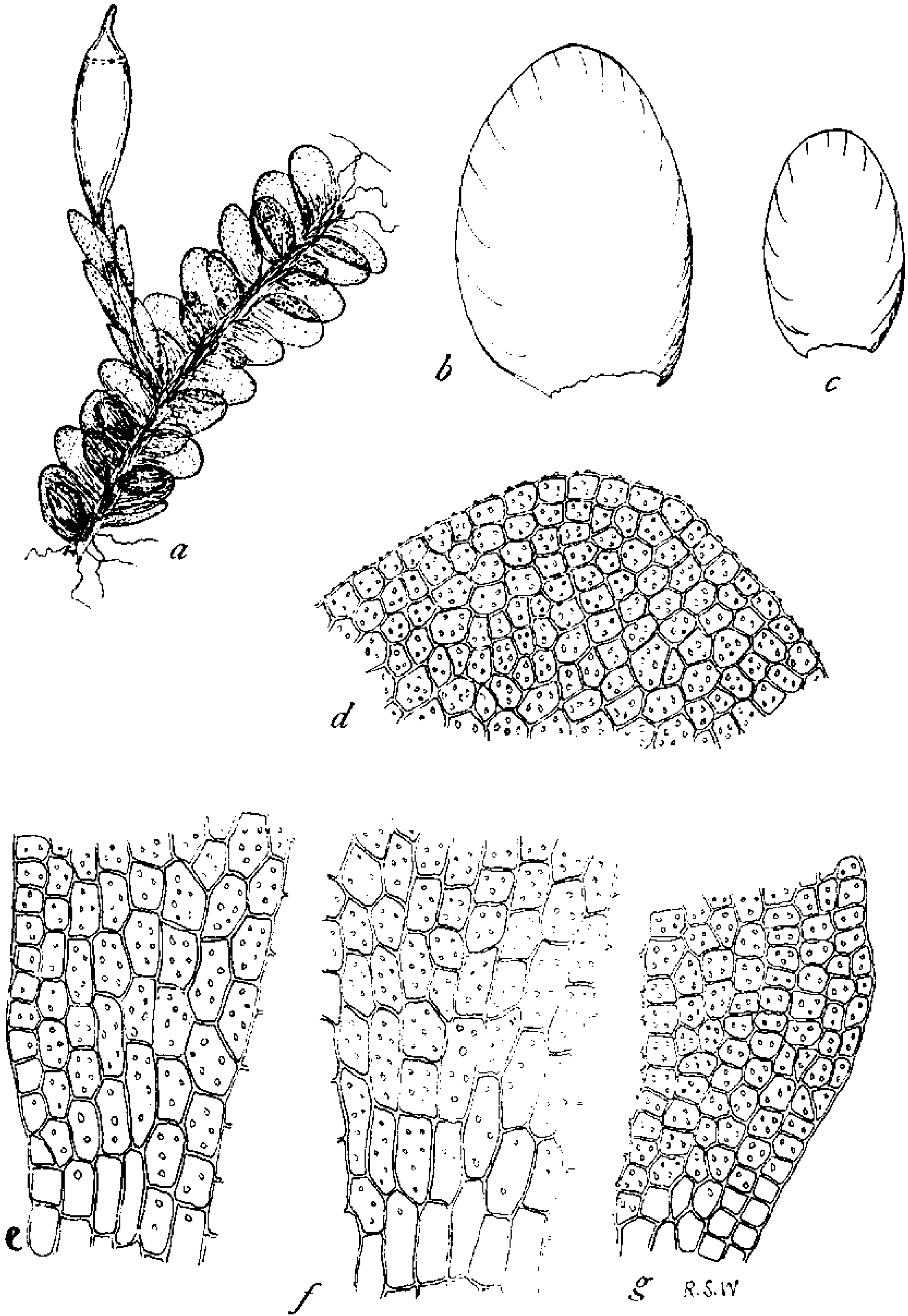
***Chaptalia meridensis* Blake, sp. nov.**

Scapose perennial, 20 to 28 cm. high; root not seen; leaves all basal, 2 or more, marcescent; petioles 1 to 5 cm. long, stout, naked, densely rufous- or ochroleucous-lanate, becoming griseous; blades oval or suborbicular-oval, 5 to 6 cm. long, 3 to 4.5 cm. wide, broadly rounded and sometimes minutely apiculate, at base broadly rounded to subcordate, repand or subentire, coriaceous, above cinereously arachnoid-lanate, becoming glabrous and shining, beneath densely

lanate-tomentose with ochroleucous or griseous hairs, feather-veined, the lateral veins 7 to 9 pairs, impressed or prominulous above, prominulous beneath; scapes solitary, monocephalous, densely ochroleucous-lanate-tomentose, glabrescent, bearing scattered minute bracts similar to the outer phyllaries; head 2.5 cm. wide; disk turbinate, 1 to 1.2 cm. high, 1.2 to 1.6 cm. thick; involucre about 6-seriate, graduate, 1.1 to 1.3 cm. high, appressed, glabrous, the 3 outer series of phyllaries lance-linear or linear, acuminate, 4.5 mm. long or less, olive-green, 2-ribbed and with 2 central vittae, firm and somewhat rigid, the 2 innermost series broader and thinner, linear, acute or acuminate, with narrow subscarious margin, few-nerved above, the fourth series intermediate in length and characters; rays 2-seriate, bilabiate, pistillate, those of the outer series about 22, erect, apparently whitish, glabrous, the tube 2.5 mm. long, the outer lip narrowly elliptic, tridenticulate, 9 mm. long, 2 mm. wide, 4-nerved, the inner lip of 2 small erect teeth about 0.5 mm. long; those of the inner series few, similar but with shorter outer lip, this surpassing or slightly shorter than the style, 3.5 to 6 mm. long, tridentate with elongate central tooth or bidenticulate, in the latter case with a short supplementary third tooth to the inner lip; disk flowers hermaphrodite, their corollas glabrous, 7.5 mm. long, bilabiate, their lips erect, the outer tridenticulate, 3.5 mm. long, the inner equal, 2-parted to base into erect linear-lanceolate lobes; receptacle naked, glabrous, flattish; ray achenes (submature) fusiform, subrostrate, glabrous, not papillose, 5-nerved, 4.2 mm. long; disk achenes (immature) apparently similar; pappus of numerous, about 2-seriate, equal, slender, hispidulous, whitish or purplish-tinged setae 5 to 6.5 mm. long, irregularly and slightly connate at extreme base; anther tails subulate-acuminate, subentire, 1.2 mm. long; style branches (hermaphrodite flowers) very short, rounded, erect, minutely hispidulous, 0.4 mm. long.

Type in the U. S. National Herbarium, no. 1,069,625, collected on the Páramo del Molino, Mérida, Venezuela, altitude 2,200 meters, February 19, 1922, by Alfredo Jahn (no. 954).

Although this plant, which is very similar to species of *Trichocline* in appearance, is certainly referable to *Chaptalia* by virtue of its subrostrate achenes and the presence of reduced inner pistillate flowers, it departs from the definitions of that genus given by Bentham and Hooker and by O. Hoffmann in its bilabiate pistillate corollas. Several species having pistillate corollas with a short inner lip have been described, however, and among them the Peruvian *Chaptalia rotundifolia* D. Don seems to be the closest ally of *C. meridensis*. *C. cordata* Hieron., of Colombia and Peru, is also related to *C. meridensis*, but from description appears to differ decidedly in the narrower, cordate-ovate or cordate-elliptic leaves, only 2.5 to 2.8 cm. wide, the broader bracts of the scape (up to 2 mm. wide at base), the broader phyllaries, and the 3-nerved, bidentate ligules.



ERPODIUM LATIFOLIUM R. S. WILLIAMS

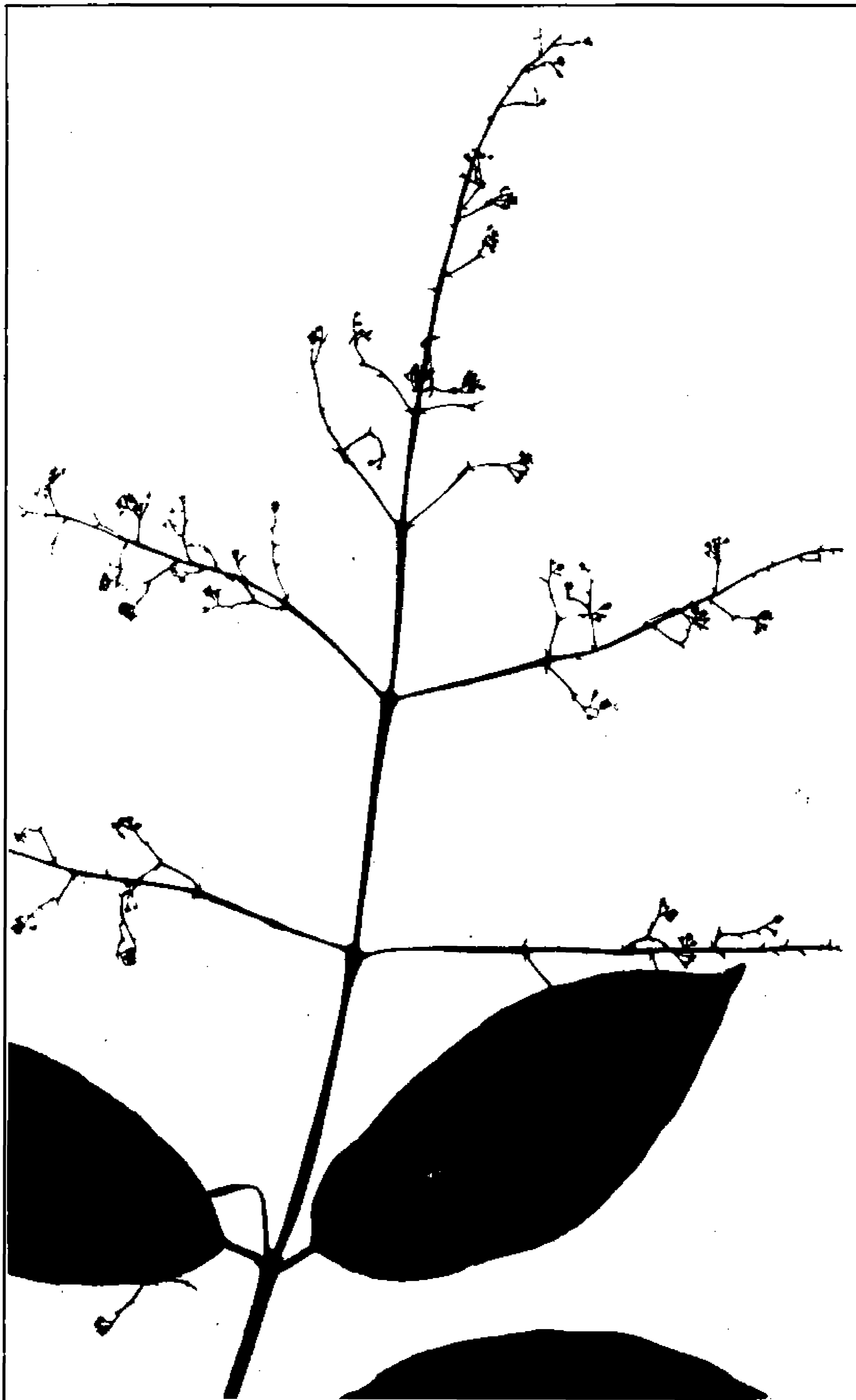


DRABA CHIONOPHILA BLAKE



BAUHINIA CAUDIGERA BLAKE

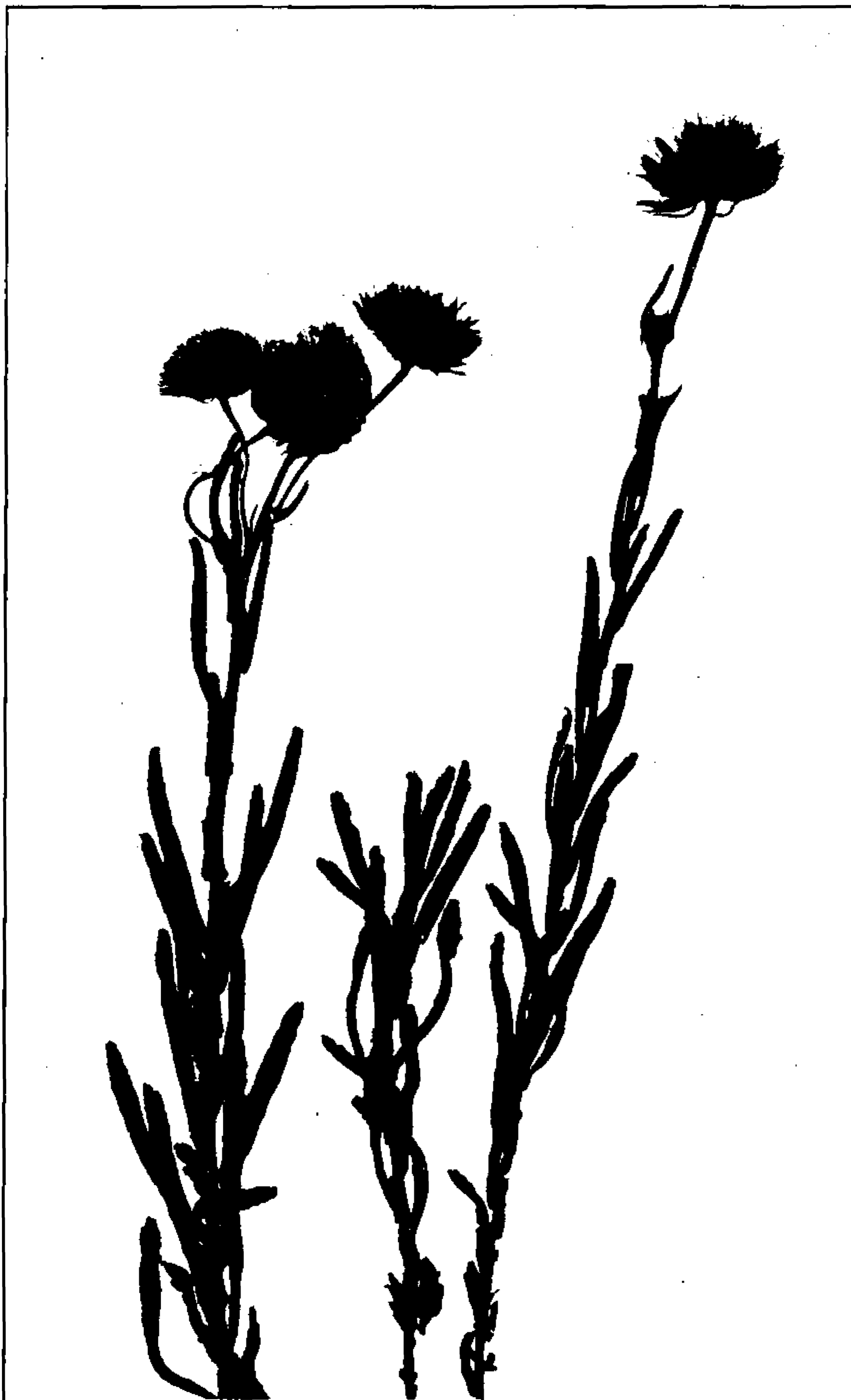




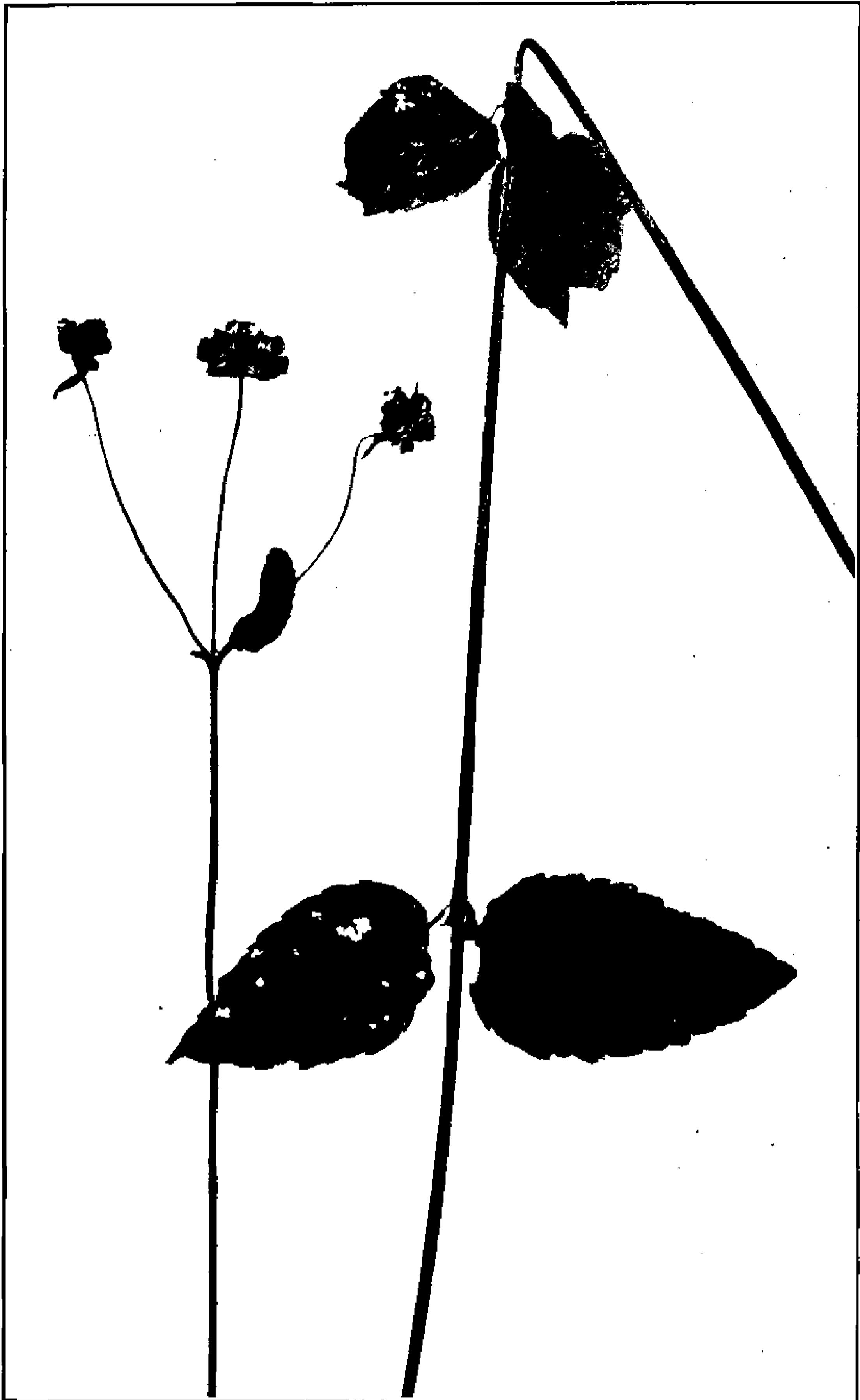
FORSTERONIA ELACHISTA BLAKE



*EUA LUCENTIFOLIA* BLAKE



PODOCOMA BARTSIAEFOLIA BLAKE



RIENCOURTIA OVATA BLAKE



*OTOPAPPUS AUSTRALIS* BLAKE



OYEDAEA JAHNII BLAKE





*VERBESINA LAEVIFOLIA* BLAKE