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THE BOTANY OF THE GUAYANA HIGHLAND—PART IV (2)

Continued from volume 10, number 2, page 37.[1]

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AND COLLABORATORS

AQUIFOLIACEAE

Ilex diospyroides Reiss.

The hitherto unknown male plants of this species have been collected in the lowlands adjacent to Cerro Sipapo (*Maguire & Politi 28290, 28405, 28444*), vegetatively matching closely the type collection; the plicate leaves of the Spruce material were probably due to the method of specimen preparation, since the new collections have plane-pressed leaf blades. The male inflorescences are pluri(10–20)-fasciculate in the leaf axils. 4–8(–10)-flowered, subumbelliform, with peduncles 3–8 mm long and pedicels 1 mm long. The flowers are 4-merous, with glabrous to sparsely pulverulent calyx ca. 2.5 mm in diameter and subrotund lobes ca. 1 mm in diameter which are apically sparsely papillose-ciliolate; the corolla lobes are oval, 2.1–2.3 × 1.9–2.1 mm, almost free, and glabrous.

Ilex divaricata Mart. ex Reiss.

All the natural Venezuelan savannas of the upper Río Negro drainage seem to be choice habitats for this rare species, hitherto known only from the type collection of Martius from near Manáos. We have collected it at Maroa (*36441*), Sabana El Venado (*35615*), Sabana Hechimoni (*37646, 37670*), Sabana Pacimoni (*37587, 37588, 37589*), and the Yapacana savannas (*34553, 34554*). Collections from the scrub forest near the savannas (Caño Cupueni, *36228;* Yapacana Caño, *30507, 30795, 34616*) tend to have proportionately narrower oblongish leaves as compared with the open savanna and savanna "tree island" populations; the savanna collections correspond more closely with the type collection. We strongly suspect that both *I. uleana* Loes. and *I. spruceana* Reiss. var. *guainiensis* Loes. (but not *I. spruceana* var. *spruceana*) are synonymous with *I. divaricata,* the latter seeming to correspond with the scrub forest form and the former to the savanna form; however, this tentative synonymy is based on Macbride's photographs and original descriptions and not on the necessary holotype examinations. *I. divaricata* is known also from Amazonas, Brazil (Preto, Matupiry, Rio Negro, *Froes 22815, 22843.*)

The female inflorescences of *I. divaricata* are multi (3–10)-fasciculate on the lateral spur branchlets, usually in the leaf axils, and 1-flowered. The pedicels are about 1 mm long, the four ciliolate sepals each 1 × 1.5 mm, and the petals 2 × 1.5 mm and sparsely erose-ciliolate. The fruiting pedicels are 3–5 mm long and the 2–3-seeded mature fruit ca. 7–10 mm in diameter with smooth exocarp and strongly flattened non-elevated radially striolate stigmas 1.3–1.5 mm in diameter.

[1] The figures in this issue are numbered consecutively with those of the first section of Part IV.

FIG. 23. A–E, *Ilex savannarum*. A, ♂ branch, × 0.75. B, ♂ flower, × 10. C, D, fruiting branchlets, × 1. E, leaf margin, × 2. F–H, *Ilex maguirei*. F, fruiting branch, × 1. G, ♂ flowering branchlet, × 1. H, ♂ flower, × 5. A, B, E from *Maguire & Wurdack 35617;* C from *Maguire, Wurdack & Keith 41823;* D from *Maguire & Wurdack 35616;* F, H from *Maguire, Wurdack & Bunting 37331;* G from *Maguire, Wurdack & Bunting 37014.*

Ilex savannarum Wurdack, sp. nov. Fig. 23, A–E.

I. retusae Kl. ex Reiss. affinis sed inflorescentiis plerumque fasciculatis et floribus racemosis.

Frutex 1–3 m. Ramuli ascendentes primum brunnei demum cinereo-brunnei glabri. Stipulae mox deciduae anguste triangulares 0.2 mm longae; petioli distincti vix evoluti 1–3 mm longi; lamina (2.5–) 4.5–6 × (1–)1.5–2.5(–3) cm anguste obovata apice rotundata vel parce retusa basi cuneata et in petiolo decurrens glabra coriacea subtus modice punctulata ad margines obscure crenato-serrulata serratulis distantibus utrinque 5–8, nervis lateralibus supra in maturitate non evolutis subtus obscure elevatis principalibus utrinque 5–7 ad margines obscure anastomosantibus. Inflorescentiae ♂ in foliorum axillis (1–)3–∞-fasciculatae racemosae 1–2 cm longae pedunculo communo nudo non evoluto singulae (3–)7–12-florae glabrae prophyllis 0.5–0.6 mm longis triangularibus acutis; pedicelli ca. 1.5(–2) mm longi; flores 4-meri; calyx ca. 1.2–1.5 mm diam. glaber lobis ca. 0.4 × 0.8 mm late rotundatis ad margines ciliolatis; corolla 1.8 mm longa ad 0.5 mm coalita; filamenta 1 mm longa; antherae 0.8 mm longae; pistillodium 1 mm diam. conicum apiculatum. Inflorescentiae ♀ ut in ♂ vel in ramulis hornotinis lateralibus foliatis vel non-foliatis singulae, racemis singulis usque ad 9-floris et ad 2 cm longis; pedicelli floriferi ca. 1.5 mm longi, fructiferi submaturi usque ad 4 mm; flores 4-meri; calyx ad anthesim ca. 1.7 mm diam. (fructiferus ca. 2.5–3.5 mm diam.), lobis 0.9 × 1.8 mm late rotundatis ad margines ciliolatis; corolla 2.2–2.3 mm longa et ad 0.5–0.6 mm coalita; filamenta 0.5 mm longa; antherae 0.5–0.6 mm longae, ovarium conicum; stigma 0.7 mm diam. vix supra ovarium elevatum; drupa sphaeroidea 5 mm diam. cum stigmate vix elevata 4-pyrena, pyrenis ca. 4 mm longis 3-gonis.

VENEZUELA: Amazonas: Río Guainía, ♂ flowers white; frequent in Sabana El Venado on left bank of Caño Pimichín above Pimichín; alt. 140 m; 14 Apr 1953, *Maguire & Wurdack 35617* (holotype, NY). *Maguire & Wurdack 35616; Maguire, Wurdack & Bunting 36349; Maguire, Wurdack & Keith 41823* (paratypes; all ♀, from Sabana El Venado).

The ♂ flowers of *I. retusa* are in 3-flowered or compound dichasia with a definite peduncle; usually the inflorescences are puberulous and the leaf crenations much more distinct than in the Sabana El Venado endemic. The other crenate-leafed species of *Ilex* with panicles of racemes (cf. *I. martiniana* Don) have much longer leaves. The various ♀ collections of *I. savannarum* show stages in inflorescence reduction from singly-borne flowers on short leafy branches through such flowers on non-leafy bud-terminated branches to racemose inflorescences. *I. savannarum* has the same habit as *I. divaricata* Mart. ex Reiss., which also is found in Sabana El Venado.

Ilex yutajensis Wurdack, sp. nov. Fig. 24, D–F.

Ex descr. *I. loretoicae* Loes. affinis sed foliis minoribus venis subtus vix reticulatis.

Frutex 2 m, glaber. Ramuli crassi i.s. longitudinaliter striato-sulcati. Petioli 7–9 mm longi 2.5–3 mm crassi; stipulae 0.9 × 0.6 mm triangulares apice parce acuminatae; lamina (6–) 7–9 (–10.5) × (4–) 5–6 (–6.5) cm apice rotundata vel subretusa (raro subobtusa) basi rotundata crasse coriacea ad margines remote (utrinque 5–7) sed distincte crenulato-serrulata supra nitidula subtus opaca et modice punctulata, venis lateralibus utrinque 5–7 supra plerumque indistincte insculptis subtus subelevatis ad margines arcuato-connectis sed vix

reticulatis. Inflorescentiae ♀ in foliorum axillis vel in foliorum delapsorum axillis plerumque 5–6(sed usque ad 12)-fasciculatae 1-florae; pedunculi (5–) 6–8(–9) mm longi. Fructi 4-meri; calycis lobi singuli ca. 1 × 1.3 mm rotundata; drupa 4-pyrena ellipsoideo-sphaeroidea 5–6 mm diam. i.s. irregulariter sulcata stigmate prominulo 0.5 mm alto et 1–1.3 mm diam. coronata, pyrenis trigonis 4 mm longis. Flores ♂ et flores ♀ ignoti.

VENEZUELA: Amazonas: Cerro Yutaje, Río Manapiare, occasional on northeast ridge above Camp Yutaje; leaves very brittle and coriaceous; alt. 1500 m; 23 Feb 1953, *Bassett Maguire & Celia K. Maguire 35398* (holotype, NY).

I. loretoica has leaf blades 12–18.5 × 5–9 cm with manifestly reticulate veins. Other Andean species (*I. scopulorum* H.B.K., *I. anonoides* Loes., *I. obtusata* Turcz., *I. crassifolia* Hook., *I. crassifolioides* Loes.) with leaves similar to *I. yutajensis* all have known solitary ♀ inflorescences or solitary ♂ (and thus by implication solitary ♀) inflorescences, as well as (either or both) other foliar and floral differences. From *I. tateana* Steyermark (the holotype of which has been examined), *I. yutajensis* differs in its smaller proportionately wider leaves with the lateral veins beneath rounded-elevated rather than sharply raised. *Tate 424* was erroneously cited in the original description as a paratype of *I. tateana,* but actually is the type number of *I. culmenicola* Steyerm., a quite different species.

Ilex maguirei Wurdack, sp. nov. Fig. 23, F–H.

I. venezuelensi Steyerm. affinis sed foliis et drupis puberulis.

Frutex 0.5–2 m. Ramuli novelli dense villosuli tarde glabrati. Folia 1.5–2.5 (–3.5) × 1–2(–2.5) cm, breviter petiolata petiolo 2–4 mm longo villosulo, elliptica usque ad ovato-elliptica apice obtusa vel rotundata et minute apiculata basi rotundata, margine i.s. revoluto integerrimo, coriacea subtus primum sparse punctata punctis demum obscuris, primum supra et subtus puberula demum costa subtus excepta plusminusve glabrata, costa media supra impressa subtus elevata, nervis lateralibus supra non evolutis subtus primum obscure evolutis demum obscuris. Inflorescentiae in foliorum axillis solitariae vel ad ligni novelli basim singulatim congestae, ♂ (1–) 3-florae, ♀ 1-florae, griseo-hirtellae; flores 4-meri. Flores ♂ : pedunculus et pedicelli uterque plerumque ca. 3 mm longi; calycis lobi 1.5 × 1.2 mm ovato-triangulares apice obtusi extus hirtelli; petala 2.8 × 1.7 mm papilloso-ciliolata extus sparse papilloso-puberula basi 0.7 mm coalita; filamenta 1.5 mm longa; antherae 0.8–0.9 mm longae; pistillodium 1.5 mm diam. depresso-conicum sparse hirtellum. Flores ♀ : pedunculus ca. 3 mm longus; calycis lobi, petala, et filamenta ut in floribus ♂ ; antherae 0.5 mm longae; ovarium subovoideum dense hirtellum 4-loculare; stylus 0.3 mm longus; stigma ovoideo-capitatum 0.6 mm altum. Drupa submatura hirtella 6–7 × 5 mm late elliptica non sulcata stigmate prominulo 0.6–1 mm elevato coronata; pedunculus fructiferus 6–11 mm longus.

VENEZUELA: Amazonas; Cerro de la Neblina, frequent on south slope of cumbre Camp Caño toward Cañon Grande; alt. 1500–1700 m; ♀, flowers white, fruit red-brown; 16 Jan 1954, *Maguire, Wurdack & Bunting 37331* (holotype, NY); west cumbre; alt. 1800 m; ♂ ; *Maguire, Wurdack & Bunting 37014* (paratype); scrub forest near cumbre camp; alt. 1700 m; ♀ ; *Maguire, Wurdack & Bunting 37049* (paratype); west escarpment; alt. 1700–1800 m; ♀ ; *Maguire, Wurdack & Bunting 37079* (paratype).

I. venezuelensis has sparse foliar pubescence restricted to the midvein of the

FIG. 24. A–C. *Ilex cowanii*. A, ♂ flowering branchlets, × 0.75. B, ♂ inflorescence, × 3.5. C, leaf margin, × 5. D–F, *Ilex yutajensis*. D, fruiting branch, × 0.5 E, fruit, × 4. F, leaf margin, × 1.

lower leaf surface and glabrous ovaries; it is represented on Neblina by *Maguire, Wurdack & Bunting 37157* and *37192*, as well as *Maguire, Wurdack & Maguire 42098*. The Neblina collections have leaves generally more elliptic than in the unicate Duida holotype; in all collections, the lower leaf surfaces are sparsely punctate. The male inflorescences of *I. venezuelensis* are predominantly 1-flowered and only occasionally 3-flowered.

Other species with entire, more or less hairy leaves and the general aspect of *I. maguirei*, but with epunctate leaves, are *I. asperula* Mart. (with 3–7-flowered ♂ inflorescences, glabrous pistillodia, and leaves pubescent above only on the midrib), *I. organensis* Loes. (with 3-flowered ♀ inflorescences), *I. velutina* Mart. (with 3–7-flowered ♀ inflorescences), *I. subcordata* Reiss. (with glabrous fruit and lateral leaf veins prominulous beneath), and *I. rimbachii* Standl. (with longer pubescence, developed lateral leaf veins, larger ♀ flowers, and fruit with sessile stigma).

Ilex cowanii Wurdack, sp. nov. Fig. 24, A–C.

I. hippocrateoidei H.B.K. affinis sed ramulis novellis et inflorescentiis minute hirtellis, foliis subtus punctatis, et pedunculis longioribus.

Arbor 18 m. Ramuli longitudinaliter striato-sulcati novelli cum pedunculis pedicellis calycibusque sub lente minute modiceque hirtelli. Petioli 5–8 mm longi; stipulae triangulares 0.5 mm longae; lamina (3–)4.5–6(–7) × 2–3(–3.5) cm elliptica apice acuta vel anguste obtusa et mucronulata basi acuta ad margines calloso-serrulata serratulis appressis plerumque 2–3 mm inter se distantibus in venulatione *I. hippocrateoidei* similis subtus modice punctulata subcoriacea. Inflorescentiae ♂ in foliorum axillis vel ad lignum novellum solitariae 1-vel plerumque 3-florae; pedunculi 6–11 mm longi bracteis triangularibus ca. 0.5 mm longis; pedicelli ca. 3 mm longi. Flores ♂ plerumque 4-meri rare 5-meri; calycis lobi singuli 2.3 × 2.3 mm apice rotundati vel truncato-rotundati ad margines ciliolati; petala 4.5–5.3 × 3–3.7 mm oblongo-ovata apice rotundata ad 1.4–1.9 mm coalita. Filamenta 1.5–1.8 mm; antherae 1.5–1.8 mm longae. Pistillodium depresso-conicum ca. 1.2 mm diam. et 1 mm altum rostro apicali ca. 0.4 mm alto. Flores ♀ et fructi ignoti.

VENEZUELA: Amazonas: Cerro Huachamacari, Río Cunucunuma, infrequent in dense woodland along right fork of Caño de Dios above Summit Camp; alt. 1800 m; flowers white and faintly fragrant; 13 Dec 1950, *Maguire, Cowan & Wurdack 30187* (holotype, NY).

I. hippocrateoides has glabrous branchlets and inflorescences, epunctate leaves, and generally longer more slender peduncles. Another apparent near-relative of *I. cowanii* is *I. myricoides* H.B.K., with less dense leaf vein reticulation and more distinct marginal crenation, as well as smaller male flowers. *I. boliviana* Britt. has leaves with veins above much more prominent and with more distinct marginal crenation and also ♂ inflorescences 7–31-flowered with much smaller flowers. *I. truxillensis* Turcz. has proportionately narrower leaves with more distinct marginal crenulations and much smaller flowers.

OCHNACEAE

In his doctoral thesis,[2] unfortunately unpublished, Dwyer discussed at length the relationship of the genera of the Luxemburgieae (all American except *Fleurydora* of Africa). Dwyer suggests that the several genera of the tribe

[2] Dwyer, John D. The American species of the Luxemburgieae (Ochnaceae), unpublished thesis in biology, Fordham University, 1941.

are polyphyletic, and that the Dilleniaceae, the Violaceae, the Eucryphiaceae, and the Hypericaceae are possibly all involved in the phyletic history. A key to the genera of the Luxemburgieae, upon which we have drawn, is likewise presented in the thesis.

Of the sixteen genera of the Luxemburgieae here recognized, six (*Tyleria, Poecilandra, Leitgebia, Philacra, Adenanthe,* and *Adenarake*) are wholly endemic to the upland habitats of the Guayana sandstone mountains. The genus *Sauvagesia* is well represented in the Guayana Highland, and possibly finds its most primitive species here; indeed, this area may well be the center of distribution of this the largest and most widespread genus of the tribe. The monotypic *Pentaspatella,* certainly closely related to *Sauvagesia* (and included in *Leitgebia* by Dwyer), is found in low-altitude savannas in the Orinoco-Negro drainage, in which the floras are conspicuously related to those of the sandstone highlands. *Blastemanthus* and *Wallacea,* perhaps most closely to be associated with the Highland *Poecilandra,* are confined to the Río Negro–Alto Orinoco drainages. Ten of the sixteen genera are thus found exclusively within Guayana.

Lavradia, with *Adenarake* of the Guayana Highland its most immediate congener, is found exclusively in the Brazilian Highland to the south of the Amazon, as is the larger genus *Luxemburgia,* which finds its closest relative in the Guayana genus *Philacra.*

The remaining genera, *Cespedezia,* with four or five widespread Hylean species, *Rhytidanthera* with four Andean species, *Godoya* with two Andean species, and *Krukoviella* with a single species known from the upper Amazon, occupy a third geographic genus-grouping within the tribe.

Key to the Tribes and Genera of American Ochnaceae

1. Carpels free and distinct; receptacle conspicuously enlarged at maturity; *Ouratеeae* (three genera; only 1 American, + 100 spp.). 1. *Ouratea.*
1. Carpels fused; receptacle not enlarged at maturity.
   2. Fruit an indehiscent nut; seed without endosperm; *Elvasieae* (a single American genus, 5–6 spp.). 2. *Elvasia.*
   2. Fruit drupaceous or capsular; seed with endosperm; ovary 2–5-celled; *Luxemburgieae* (15 genera, all American except *Fleurydora* of Africa).
      3. Stamens completely cyclic, i.e. forming a complete ring around the base of the ovary.
         4. Pistils tricarpellate or pentacarpellate; capsules intruded at the sutures; ovules borne on intruded parietal placentae.
            5. Pistils pentacarpellate, the styles short, no more than one-sixth the length of the ovary; staminodia lacking; bracts appendaged proximally and ventrally.
               6. Stipules of uppermost leaves persistent; sepals less than half the length of the petals in the mature bud; stamens numerous; seed linear-fusiform. (7 spp. acc. Dwyer). 3. *Cespedezia.*
               6. Stipules all deciduous; sepals half the length of or equal in length to the petals in the mature bud.
                  7. Leaves compound; stamens 50–70, the filaments at least half the length of the anthers. (4 spp.) 4. *Rhytidanthera.*
                  7. Leaves simple; stamens 10, the filaments less than half the length of the anthers.
                     8. Sepals obviously unequal, appendaged ventrally and proximally; anthers dehiscing by two pores. (2 spp.) 5. *Godoya.*
                     8. Sepals subequal, not appendaged ventrally or proximally; anthers dehiscing by a single pore. (1 sp.) 6. *Krukoviella.*
            5.. Pistils tricarpellate, the styles subulate, as long as or longer than the ovary; staminodia rarely lacking; bracts appendaged neither ventrally nor proximally.

9. Staminodia subulate or lance-capitate, free to the base; cupulate corona lacking.
   10. Sepals 8–10; stamens 10, biporous; seed linear-elliptic, acute at both ends, narrowly winged. (4 spp. acc. Dwyer.) 7. *Blastemanthus.*
   10. Sepals 5; stamens 5, uniporous; body of seed oval, broadly membranous-winged. (3-4 spp.). 8. *Poecilandra.*
9. Staminodia, at least the inner whorl, oblong or oblanceolate, united at the base into a cupulate corona.
   11. Seed conspicuously membranous-winged; stipules greatly inequilateral, the left-hand member before vernation tightly enwrapping the blade. (8 spp.) 9. *Tyleria.*
   11. Seed not at all winged.
      12. Sepals conspicuously glandular; seed strongly muriculate; stipules equilateral, auriculiform. (1 sp.) 10. *Adenarake.*
      12. Sepals not at all glandular.
         13. Segments of the exterior corona united almost to the summit, thus forming a deep cup; interior corona lacking. (9 spp. acc. Dwyer.) 11. *Lavradia.*
         13. Segments of the corona united at the base, thus forming a shallow cup; interior corona often present.
            14. Ovules several, obviously parietal. (± 20 spp.) 12. *Sauvagesia.*
            14. Ovules 1 or 2, basal.
               15. Shrubs; stipules conspicuous, usually persistent; flowers axillary. (1 sp.) 13. *Leitgebia.*
               15. Herbaceous perennials; stipules minute, caducous; inflorescence paniculate, terminal. (1 sp.) 14. *Pentaspatella.*

4. Pistils bicarpellate; suture of the capsule not at all intruded; ovules parietal.
   16. Sepals conspicuously glandular; androecial corona and staminodia strongly developed; capsule thin-walled, the seed membranous-winged; leaves sessile, the equilateral, broadly ovate stipules persistent; secondary veins of the blade numerous, 5–6 per mm, ascending at 75–85° angle. (1 sp.) 15. *Adenanthe.*
   16. Sepals eglandular; androecial corona and staminodia lacking; capsule thick-walled, woody, the seed not winged; leaves conspicuously petiolate, the narrowly lanceolate inequilateral stipules quickly deciduous; secondary veins numerous, 6–8 per mm, ascending at ca. 35–45° angle. (2 spp.) 16. *Wallacea.*

3. Stamens incompletely cyclic, i.e. inequilaterally arranged to one side of the base of the ovary.
   17. Capsule dehiscing from the base upward, remaining attached at the apex; ventral cells of the anther longer than and forming a distinct cap or projection over the dorsal; leaves not apically aristate. (3 spp.) 17. *Philacra.*
   17. Capsule dehiscing from the apex, at length the carpels free to the base; ventral cells of the anther not forming a cap over the dorsal; leaves characteristically apically aristate. (16 spp. acc. Dwyer.) 18. *Luxemburgia.*

Cespedezia spathulata (R. & P.) Planch, Lond. Jour. Bot. **5**: 647. 1846.

In the revision of the genus by Dwyer,[3] the range of this handsome tree was given as British Guiana, Colombia, Brazil, Peru, and Ecuador. It could reasonably have been expected to occur also in Venezuela. We now have the following three records, all from mixed submontane rain-forest in Terr. Amazonas, Venezuela: Cerro Huachamacari, *Maguire, Cowan & Wurdack 30345;* Cerro Yutaje, *Maguire & Maguire 35027;* and Cerro Coro-Coro, *Maguire & Maguire 35511.*

[3] Lloydia 9: 59. 1946.

Tyleria Gleason, Bull. Torrey Club **58**:391. 1931.

This interesting genus began its taxonomic history with the publication by Gleason in 1931 of four species, all collected on Cerro Duida, viz. *Tyleria floribunda, T. grandiflora, T. linearis,* and *T. spathulata.* Only the last has been found elsewhere, being a prominent element of the cumbre flora of Cerro Huachamacari, a sandstone mountain that lies to the north of and adjacent to Cerro Duida, and on Serranía Parú, which lies some 150 km to the north.

Our more recent visits to Cerro de la Neblina, more than 300 km to the south of Duida, have resulted in the discovery of four additional species. It is not to be unexpected that further species of *Tyleria* will be found as the great cerros of Neblina and Duida and the immediately associated tabular mountains as yet unvisited by botanists become more fully explored or initially visited.

For those presently known, a curious relationship develops. The four newly discovered species of Neblina stand as morphologic and geographic analogues of their Duida congeners; the eight species thus stand as four mutually bracketed and related pairs.

Tyleria floribunda of Duida and *T. spectabilis* of Neblina bear overwhelming morphologic evidence of immediate affinity in habit. In form of leaf and inflorescence they are exceedingly similar, differing largely in leaf apex and margin and critical characters of the flower. *T. floribunda,* the largest tree of the genus on Duida, is strikingly fastigiate. *T. spectabilis,* the largest tree of the genus on Neblina, is fastigiate-candelabriform.

Tyleria pendula is certainly the analogue of *T. spathulata,* the inflorescence of the first being pendulous and more nearly racemiform, and the leaves more strongly petiolate and strongly aristate. The two occupy comparable ecological niches in their respective geographical areas.

Tyleria linearis of Duida and *T. aristata* of Neblina are both wiry-stemmed shrubs of closely similar habit, forming dense thickets along water-courses. Their flowers are solitary and axillary; yet the leaves of *T. linearis* are, as the name indicates, narrowly linear and sessile and quite devoid of an arista, while the leaves of its Neblina counterpart are elliptic, petiolate, and strongly aristate.

The fourth pair, *Tyleria grandiflora* and *T. tremuloidea,* are less obvious analogues, yet they are probably most nearly interrelated between themselves than to other species of the genus.

It is thus most interesting to postulate a parallel evolution of each of the pairs from a common forerunner, or the segregation of one of each set directly from its analogue. If such a postulation holds, and it is abundantly supported by morphologic analogy, it is exceedingly difficult to give basis to genetic explanation for the presence of the strong aristate leaf-tip that obtains absolutely for the Neblina series, and is absolutely absent from the Duida series. This character, certainly of genetic significance, cuts directly across otherwise clear lines of affinity of the eight species so involved. An alternative explanation is the evolution from two ancestors, with parallel adaptation to similar habitats.

Key to the Species of *Tyleria*

1. Inflorescence broadly compound-paniculate; flowers rose or pink; leaves coriaceous or subcoriaceous, oblong-elliptic, normally exceeding 12 cm in length.
   2. Leaves neither scarious-margined nor aristate (in material available); sepals elliptic–lanceolate, not scarious-margined, acutish, at maturity 10–12 mm long; internodes of the branchlets 4–10 mm long; leaf-scars transversely lunate or subreniform. *T. floribunda.*

2. Leaves conspicuously scarious-margined and apically aristate; sepals oblong, obtuse, strongly scarious-margined toward the apex, 4.0–5.5 mm long; internodes of the branchlets 1–2 mm long; leaf-scars transversely linear. *T. spectabilis.*

1. Inflorescence racemose or narrowly subpaniculate; flowers white; veins departing from the midrib at about 45°.

3. Leaf-blades broadly oblanceolate, their dimensions exceeding 2 × 7 cm; inflorescence 20–40-flowered.

4. Leaves subsessile or the petiole broad, 1 cm or less long, the apex of the blade totally devoid of an arista; inflorescence erect or ascending; petals broadly obovate, 16–18 mm wide, 20–22 mm long. *T. spathulata.*

4. Leaves manifestly petiolate, the petiole 2–4 cm long, the apex of the blade strongly aristate, the arista 6–12 mm long; inflorescence pendulous; petals oblong-elliptic to oblanceolate, 5–8 mm broad, 14–18 mm long. *T. pendula.*

3. Leaf-blades narrowly lanceolate, their dimensions 1.5 × 6.0 cm or less, strongly aristate, the petiole slender, 1.2–1.8 cm long; inflorescence (1–)3–5-flowered. *T. tremuloidea.*

1. Inflorescence a 1–3-flowered cyme, most commonly uniflorous.

5. Sepals broadly obtuse; flowers 6–8 cm in diameter; leaves oblong-obovate, broadly obtuse, obviously sessile, totally devoid of an arista; branchlets relatively coarse, 2.5–4.0 mm diam. *T. grandiflora.*

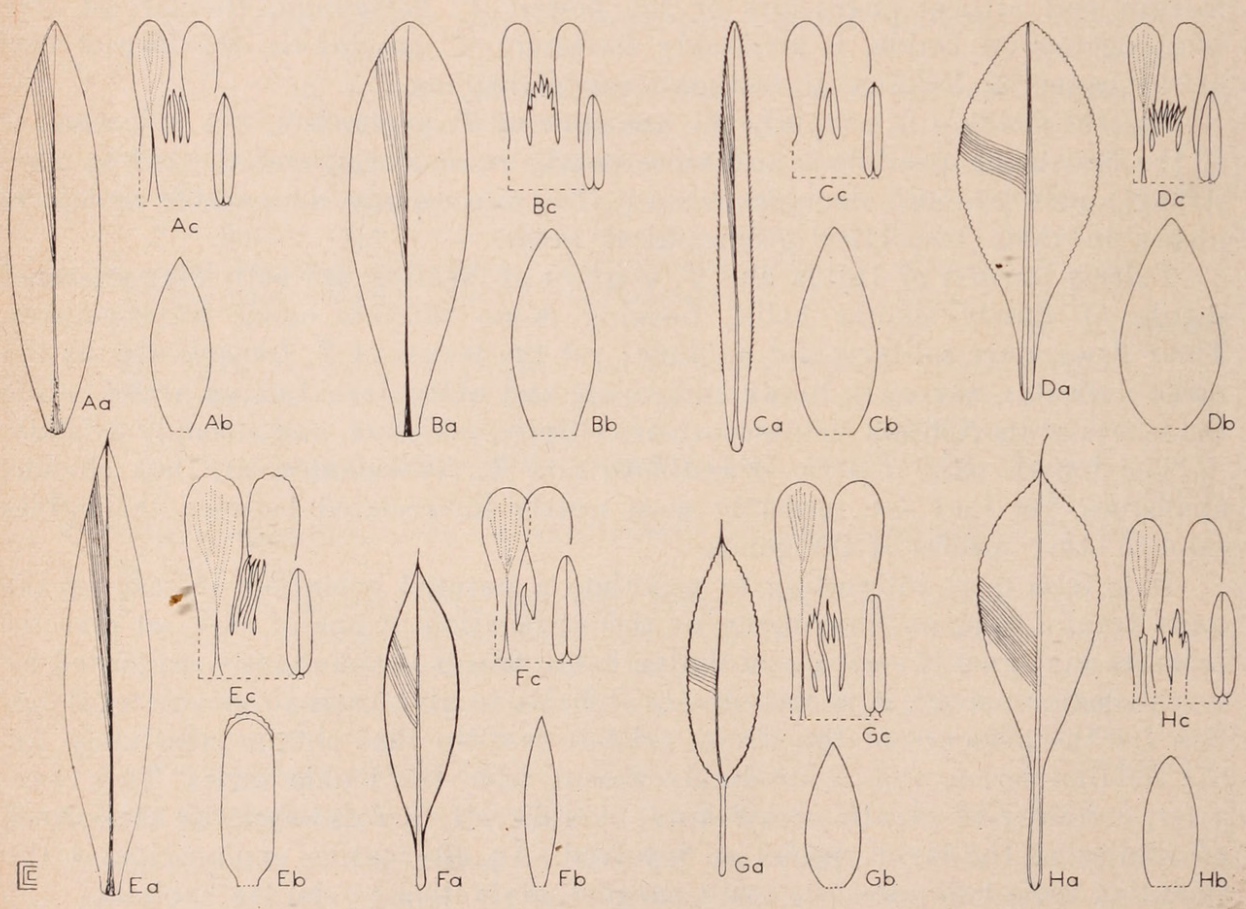


FIG. 25. Diagrammatic representation of leaves, sepals, and inner tangential view of segment of the corona, consisting of primary staminodia, secondary staminodia, and stamen. Aa–c, *Tyleria floribunda;* leaf, × 0.375; sepal, × 1.5; corona, × 1.5. Ba–c, *T. grandiflora;* leaf, × 0.75; sepal, × 1.5; corona, × 1. Ca–c, *T. linearis;* leaf, × 0.5; sepal, × 1.5; corona, × 1.25. Da–c, *T. spathulata;* leaf, × 0.25; sepal, × 1.5; corona, × 1.25. Ea–c, *T. spectabilis;* leaf, × 0.25; sepal, × 3; corona, × 2. Fa–c, *T. aristata;* leaf, × 0.375; sepal, × 0.5; corona, × 1.5. Ga–c, *T. tremuloidea;* leaf, × 0.375; sepal, × 0.5; corona, × 1.5. Ha–c, *T. pendula;* leaf, × 0.25; sepal, × 1; corona, × 2.

5. Sepals acute; flowers 4 cm or less in diameter; branchlets wiry, 1.5–2.5 mm in diameter.
   6. Leaves narrowly linear-lanceolate, 3–6 mm broad, 3–6 cm long, totally devoid of an arista; sepals elliptic, 4–5 mm wide, 11–13 mm long. *T. linearis.*
   6. Leaves elliptic, 6–15 mm broad, 3–7 cm long, strongly aristate; sepals narrowly lanceolate, 2–3 mm wide, 18–20 mm long. *T. aristata.*

Tyleria spectabilis Maguire & Wurdack, sp. nov. Fig. 25 E.

Arbor parva ad 15 m altam, 20 cm diam.; ramis adscendentibus candelabriformibus crassis, 12–15 mm diam.; internodiis brevissimis, 1–2 mm longis, cicatricibus foliorum et stipularum prominentibus; stipulis tarde deciduis; foliis rubritinctis, subcoriaceis, sessilibus lanceolatis 10–15 cm longis, 15–30 mm latis, ad apicem anguste acutis in arista 5–7 mm longa productis, multivenatis, venis ad 80° angulum adscendentibus; margine integra rubro-brunnea scariosa, tarde lacerata deciduaque, ad apicem item minute spinulosa; stipulis castaneis valde inaequalibus, parviore lanceolato-acuminata 1.5–2.0 cm longa, maiore oblongo-lanceolata, acuminata 4.0–5.0 cm longa aristata; inflorescentiis multifloribus ample paniculatis roseis vel subrubris, pyramidalibus, 12–18 cm longis, 10–15 cm latis, bracteolis primariis et secondariis 4–20 mm longis, linearibus, integris vel laceratis caducis; pedicellis tenuibus in anthesi 8–15 mm longis, demum ad 30 mm longos; sepalis plus-minusve aequalibus 4–5.5 mm longis, oblongis obtusis ad apicem conspicue glandulari-scariosis; petalis elliptico-oblongis, obtusis, 15–20 cm longis 8–12 mm latis, roseis; androgynophoro ca. 2 mm alto; corona 1-cyclica, staminodiis 5, oblongo-oblanceolatis 2–3 × 6–7 mm, ad apicem minute irregulariterque crenulatis, carina ventrali prominenti, appendicibus alternatis profunde laceratis 1–4 segmentis linearibus, aristatis, ca. 3–4 mm longis; staminibus 5, subsessilibus, ca. 4.5 mm longis, obtusis; ovario conico, 3-loculari; ovulis numerosis, placentis profunde intrusis, parietalibus; stylo simplice integro subulato, stigmate punctiformi; capsula conica, ca. 12 mm longa, stylo persistenti; seminibus 2.2–2.5 mm longis, 0.8–1.0 mm latis, testa membrano-alveolata, valde alata.

VENEZUELA: Amazonas: Cerro de la Neblina, frequent in low intervale forest, slopes vicinity of Cumbre Camp at 1800 m alt.; small tree to 7 m high, branches coarse-ascending; leaves glossy green, red-tinged, in terminal rosettes, ascending in vegetative shoots, patent or reflexed in flowering branches; inflorescence red, petals pink with yellow centers, anthers deep pink; 4 Jan 1954, *Maguire, Wurdack & Bunting 37033* (holotype, NY). Cerro de la Neblina, in 1954, *Maguire, Wurdack & Bunting 37015, 37092, 37167, 37350* (paratypes); in 1957, *Maguire, Wurdack & Maguire 42117, 42274, 42462* (paratypes).

Distribution: a very handsome candelabra-like tree known only from the cumbre of Cerro de la Neblina. In protected intervale habitats, it becomes a tree reaching nearly fifty feet in height; on exposed summits stature may be reduced to five feet or less. *T. spectabilis,* surely one of the more beautiful of flowering trees in the American tropics, is obviously most nearly related to *T. floribunda* of Cerro Duida, which it closely resembles in habit and form. However, there are differences in leaf margin and apex, as well as critical flower characteristics.

Tyleria pendula Maguire & Wurdack, sp. nov. Figs. 25H, 26A–K.

Frutex pauciramosus virgatus gracilis vel arbor parva pauciramosa, 1–8 m alta; ramis tenuibus 3–5 mm diam., nodis vulgo 2–8 mm longis; foliis petiolatis, laminis oblanceolatis vulgo 2.5–4.5 cm latis, 7–11 cm longis, multivenatis, venis ad 45° adscendentibus, margine minute spinuloso-serrulata, apice obtuso vel late

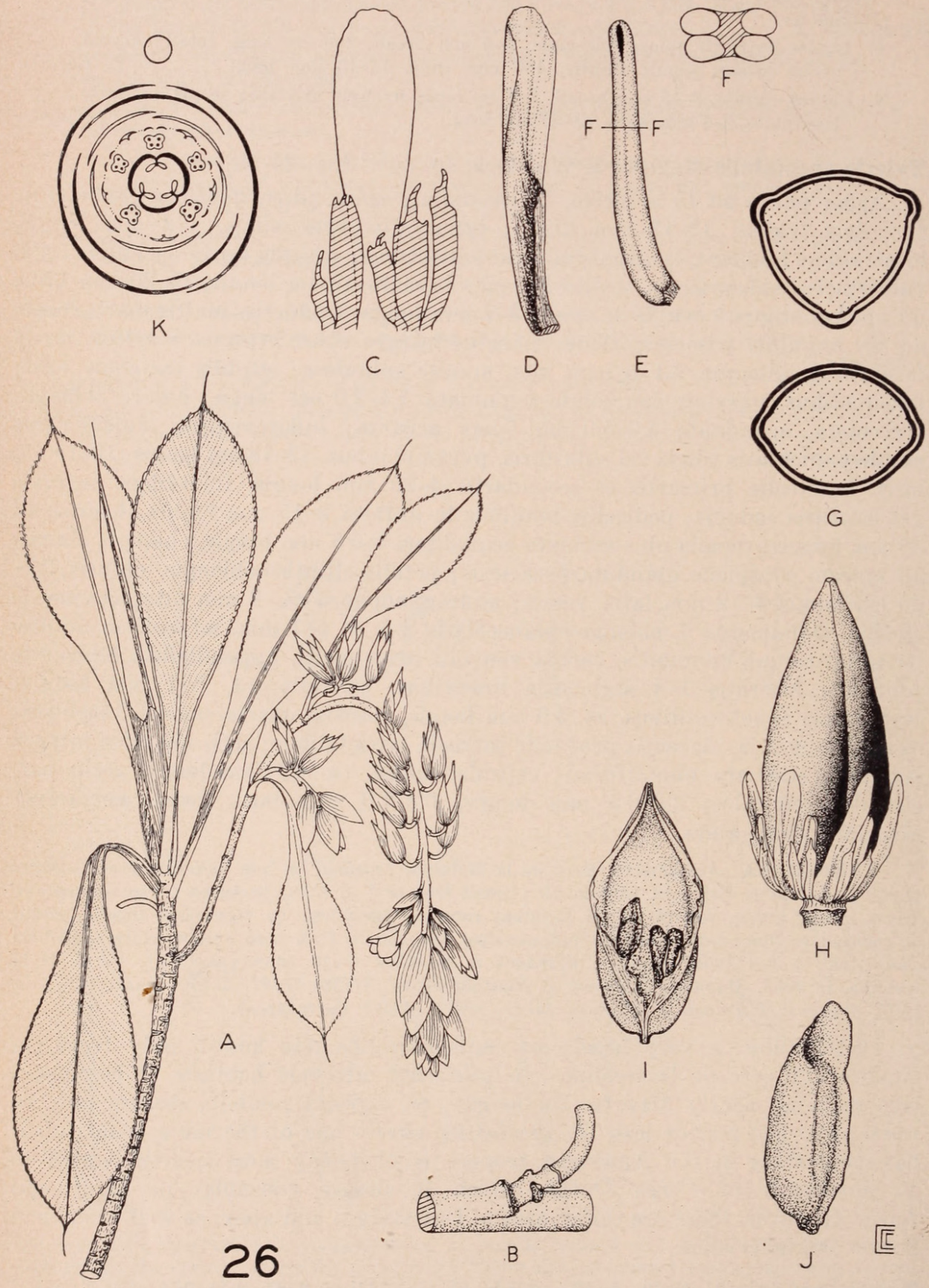


FIG. 26. A–K, *Tyleria pendula*. A, habit, × 0.5. B, segment of flowering axis, × 2.5. C, inner tangential segment of corona showing primary and secondary staminodia, × 7.5. D, inner view of primary staminodia, × 7.5. E, lateral view of stamen, × 10. F, cross section of anther, × 15. G, outline of pollen grains, × 1070. H, capsule, × 3. I, dehisced valve (carpel), × 3. J, seed, × 7.5. K, cross diagram of flower.

acuto, in aristam 6–12 mm longam abrupte producto, ad basim anguste acutis; petiolis 2–4 cm longis, dorsi-ventraliter complanatis, anguste alatis; inflorescentiis cernuis vulgo racemosis 10–15 cm longis, saepe ad basim paniculatis; bracteis primariis integris ovali-ellipticis 15–20 mm longis, 8–10 mm latis, obtusiusculis, bracteis secondariis et tertiariis late ellipticis vel obovatis ad 8 mm longis; pedicellis subcrassis, 3–6 mm longis, recurvatis; calyce quincunciali; sepalis 5, coriaceis lanceolatis multivenatis, exterioribus acutiusculis, interioribus obtusiusculis 10–13 mm longis; petalis albidis ad basim flavis, oblongo-ellipticis vel oblanceolatis, obtusis, 14–18 mm longis, 5–8 mm latis; androgynophoro 0.5–1.0 mm longo, corona 1-cyclica; staminodiis staminibus alternatis 5, oblanceolatis integris vel ad apicem minute crenulatis, 6–7 mm longis, 1.5–2.0 mm latis, carina ventrali prominenti, appendicibus staminibus oppositis vulgo 10, vulgo 2–3-fidis vel integris, saepe aliquantum laceratis, 2.0–2.5 mm longis; staminibus 5, staminodiis alternatis, ca. 4 mm longis, 4-thecatis, poris subapicalibus lateralibus dehiscentibus; granis pollinis 3-poris, 20–23 μ diam.; ovario conico 3-loculari, ovulis numerosis placentis profunde intrusis parietalibus; stylo simplice integro subulato, stigmate terminali; fructu capsulari conico ca. 14 mm longo, septicidali, stylo vulgo deciduo; seminibus elliptico-oblongis 2.5–3.0 mm longis, 1.2–1.3 mm latis, rubro-purpureis, unilateraliter et ad apicem conspicue alatis.

VENEZUELA: Amazonas: Cerro de la Neblina, abundant, exposed ridge, West Escarpment Savanna, 8 km west Cumbre Camp; alt. 2000 m; virgate slender shrub with nodding reddish glaucous inflorescence, leaves red-edged, petals white basally yellow, stamens cream; 15 Jan 1954, *Maguire, Wurdack & Bunting 37293* (holotype, NY). Cerro de la Neblina, in 1954, *Maguire, Wurdack & Bunting 37113* (paratype); in 1957, *Maguire, Wurdack & Maguire 42161, 42257, 42286* (paratypes).

Distribution: known only from Cerro Neblina, where it is a conspicuous virgate shrub 1–2 m high on exposed ridges. In intervale woodland it becomes a small tree reaching a height of 8–10 m.

Its closest congener is *Tyleria spathulata* of Cerro Duida, with which it shares similar but non-pendent inflorescences, and leaves similar in general form and venation.

Tyleria aristata Maguire & Wurdack, sp. nov. Fig. 25F.

Frutex multum ramosus ad 3 m altum; ramulis tenuibus 1–2 mm diam., nigrescentibus; foliis plus-minusve confertis, petiolatis; petiolis 3–5 mm longis, planis, ca. 1.5 mm latis; stipulis inaequalibus, dextrorsum anguste lineari-acuminatis ca. 5 mm longis ciliatis aristatis tarde caducis, sinistrorsum 15–20 mm longis membranaceis pauciciliatis vel eciliatis aristatis, circum gemmas foliis involutis, mox caducis; laminis anguste ellipticis vulgo 3–5 cm longis 6–12 mm latis, ad apicem acutis conspicue aristatis, ad basim acutis in petiolo aliquantum decurrentibus; venis improminulis, ad 65–75° adscendentibus, margine minute serrulato-ciliatis; floribus solitariis axillaribus, pedicellis 7–9 mm longis; calyce quincunciali; sepalis 5, lanceolatis acutissimis vulgo 17–20 mm longis ca. 2.5 mm latis, multinervatis; petalis 5 obovatis vel oblanceolatis, 16–18 mm longis 8–10 mm latis; androgynophoro ca. 1 mm alto, corona 1-cyclica; staminodiis 5, oblongo-spathulatis 8–9 mm longis, 1.7–2.0 mm latis, carina ventrali conspicue sursum saepe in liberam appendicem a 1 mm longa producta, staminodiis a basim aliquando laceratis, saepe 1–2 mm connatis; staminibus 5, sessilibus, ca. 3 mm longis, ad apicem in appendicem 0.5–0.7 mm longam productis; ovario conico, praecipue 3-loculari, ovulis numerosis, placentis intrusis; stylo subulato 7–8 mm longo.

VENEZUELA: Amazonas: Cerro de la Neblina, abundant and dominant along streamcourse in open savanna, 12 km sw Cumbre Camp; alt. 2000 m; flexuous shrub 0.3–2.0 m high, flowers white, petals pale yellow at base; *Maguire, Wurdack & Maguire 42288* (holotype, NY). Cerro de la Neblina, alt. 1800 m, *Maguire, Wurdack & Bunting 37352* (paratype); alt. 2000 m, *Maguire, Wurdack & Maguire 42262* (paratype); alt. 1900 m, shrub 0.5–3.0 m high, petals white, pale orange at base, *Maguire, Wurdack & Maguire 42372* (paratype).

Known only from streamside habitats on the summit of Cerro de la Neblina, but there often abundant and exerting dominance.

Tyleria tremuloidea Maguire & Wurdack, sp. nov. Fig. 25G.

Frutex vel arbor parva ad 6 m altam; ramis ramulisque candelabriformibus, ramulis teretibus lucidis rubritinctis, 2–3 mm diam., internodiis 2–4 mm longis; foliis alternatis belle tremulis adscendentibus; stipulis amplexicaulibus caducis integris lanceolatis 6–8 cm longis ca. 8 mm latis circum gemmas valde involutis; petiolis tenuibus compressis 0.7–1.0 mm latis, 12–18 mm longis; laminis firme subcoriaceis supra lucidis, lanceolatis 10–16 mm latis, 4.5–6.0 cm longis, ad basim plus minusve acutis, ad apicem anguste acutis, in aristam 5–7 mm longam productis; inflorescentiis terminalibus racemosis 2-4-floribus, 4–6 cm longis; bracteis primariis. cum stipulis praeditis, 0.5–1.5 cm longis, aristatis; bracteis secondariis sine stipulis, deinceps parvioribus, exaristatis; pedicellis vulgo 12–15

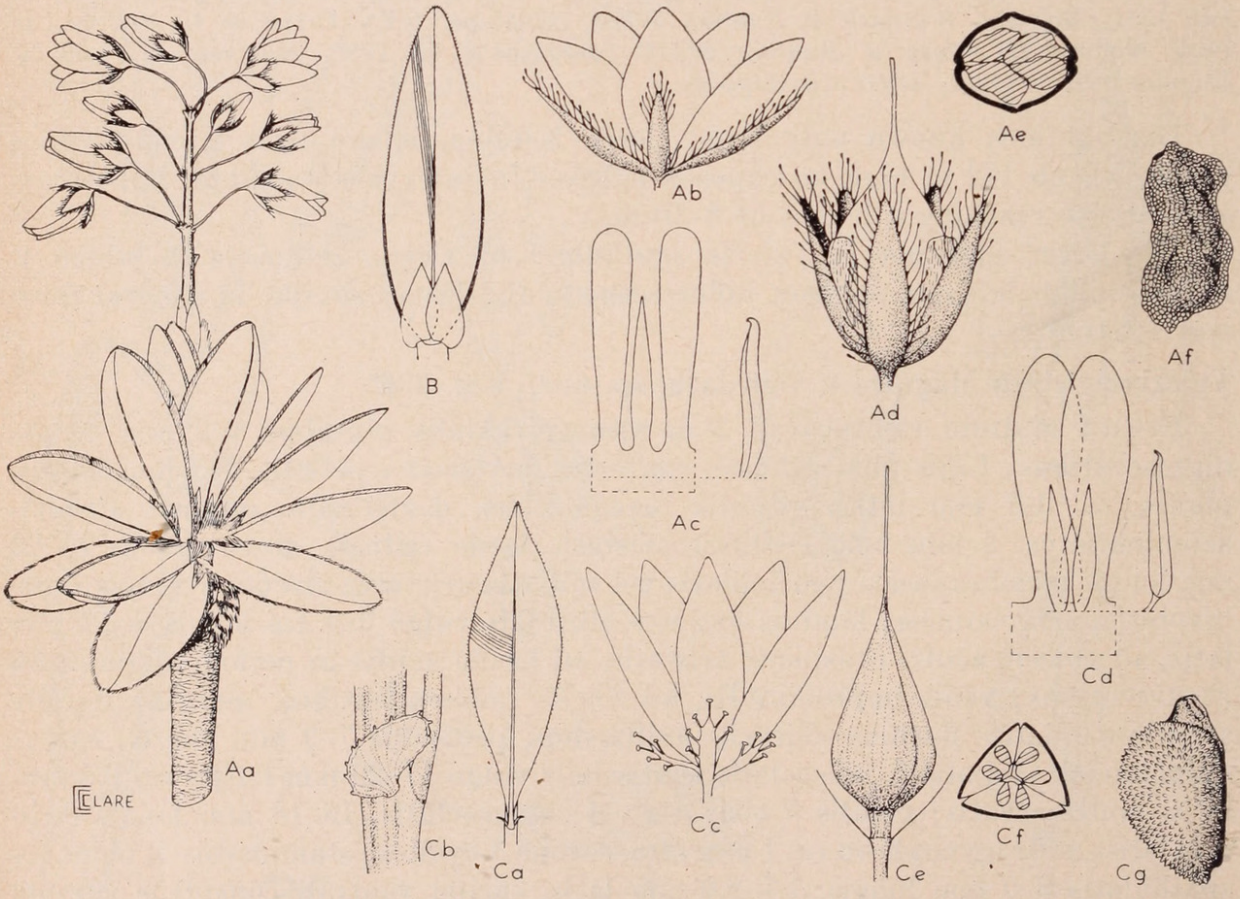


FIG. 27. Aa–f, B, *Adenanthe bicarpellata;* Aa, habit, × 0.5; Ab, diagram of flower, × 0.75; Ac, inner tangential view of segment of corona, and stamen, × 2; Ad, capsule, showing persistent calyx and corona, ×1.25; Ae, cross section of capsule, ×1.25; Af, seed, ×3.75. B, leaf showing position of stipules, × 0.375. Ca–e, *Adenarake muriculata;* Ca, leaf, × 0.25; Cb, stipule, × 2.5; Cc, flower, 0.75; Cd, inner tangential view of segment of corona, and stamen, × 2.5; Ce, capsule, × 1.5; Cf, cross section of ovary, × 1.5; Cg, seed × 10.

mm longis articulatis; floribus conspicuis; sepalis 5, imbricatis lanceolatis acutis 16–20 mm longis, 7.5–8.5 mm latis, valde multinervatis; petalis albis obovatis late obtusis 25–40 mm longis, 18–30 mm latis, multinervatis; staminodiis dimorphicis, in corona 2–3 mm alta dispositis; staminodiis alternatis, spathulato-oblanceolatis, obtusis, 8.5–9.5 mm longis, ca. 2.5 mm latis, 7–9-nervatis, ad basim interne valde carinatis; appendicibus staminibus oppositis 10–15, squamosis, 3–5 mm longis, simplicibus vel profunde trilaceratis, acuminatis, aristatis; staminibus 5 in discis depositis, subsessilibus introrsis oblongo-linearibus obtusis, ca. 6 mm longis lateraliter dehiscentibus; granis pollinis plus-minusve sphaeroidalibus 3-colporatis, ca. 20–22 μ diam.; ovario 3-loculari, placenta parietali, ovulis numerosis, stylo simplici, integro, subulato; capsula ca. 12 mm longa septicidali; seminibus non visis.

VENEZUELA: Amazonas: Cerro de la Neblina, often locally dominant and abundant, in low *Bonnetia* scrub at 2000 m alt., north head of Cañon Grande; fastigiate shrub or small tree to 6 m high, leaves shining, tremulous; 8 Dec 1957; *Maguire, Wurdack & Maguire 42330* (holotype, NY); Cerro de la Neblina, east basin upper Cañon Grande, East Escarpment, alt. 2000 m; shrub 3–5 m high, petals white, pale orange at base, abundant; 13 Dec 1957, *Maguire, Wurdack & Maguire 42383* (paratype); abundant and often dominant in *Tyleria-Bonnetia* scrub, escarpment trail, alt. 2000 m; shrub or small tree 1–5 m high, petals white, pale orange at base; 17 Dec 1957, *Maguire, Wurdack & Maguire 42431* (paratype).

Adenarake Maguire & Wurdack, gen. nov.

Inflorescentia paniculata, bracteis dissectis, patelliformi-glandulosis, sepalis unicyclicis; androgynophoro androeciali cupuliformi;; staminodiis 2-seriatis; staminibus 5; ovario 3-carpellato, placentis centralibus; capsula septicidali; seminibus ellipticis echinulatis. Frutex; foliis alternatis, stipulis similibus inaequaliter flabelliformibus.

Typus: *Adenarake muriculata* Maguire & Wurdack.

The name is from adēn, ἀδήν, gland and arakē, ἀράκη, cup.

Adenarake muriculata Maguire & Wurdack, sp. nov. Fig. 27C.

Frutex parvus tenuis pauciramosus, ad 2 m altum; ramis 1.5–3.0 mm diam., glabris; foliis alternatis, vulgo 1–3 cm distantibus; petiolis 2–5 mm longis, tenuibus; stipulis similibus, inaequaliter flabelliformibus 2–3 mm longis glanduloso-denticulatis, demum caducis; laminis elliptico-lanceolatis (3–) 5–8 cm longis, 1.8–2.5 cm latis, chartaceis, ad apicem acuminatis ad basim acutis vel acuminatis; margine minute serrulato glanduloso-ciliato, petiolis 2–3 mm longis; inflorescentiis anguste paniculatis, bracteis bracteolisque plus minusve dissectis, patelliformi-glandulosis; pedicellis subfiliformibus 1.5–3.0 cm longis; sepalis 5, unicyclicis praecipue valvatis, oblongis ca. 5 mm longis, 1.0–1.2 mm latis, ad apicem 4–6-pectinato-patelliformiglandulosis; petalis ellipticis 12–15 mm longis, 6–7 mm latis, acutis; androgynophoro ca. 1.5 mm alto, corona androeceali cupuliformi ca. 1 mm alta; staminodiis 2-seriatis, exterioribus 10, lanceolatis 3.0–3.5 cm longis, 0.7–0.8 mm latis, staminibus oppositis, interioribus 5, spathulato-oblanceolatis 6–7 mm longis, ca. 2 mm latis, 1-nervatis, staminibus alternatis; staminibus 5, filamentis ca. 0.3 mm longis; antheris lanceolatis ca. 4 mm longis, ca. 0.6 mm latis, in apiculum 0.5 mm longum productis, 4-thecatis disto-lateraliter dehiscentibus; ovario ad basim coronae disposito, conico, 3-carpellato, ad basim 3-septato, placentis centralibus, ovulis ca. 20 evidenter anatropis; capsula septicidali, ad basim solo intruso-septata; seminibus ellipticis, 1.1–1.5 mm longis, 0.7–0.8 mm latis brunneis, bicuspidatis minute echinulatis.

VENEZUELA: Amazonas: Cerro de la Neblina, occasional under upper escarpment, cliffs above Camp III, alt. 1800 m; shrub 1–2 m high, inflorescence maroon, petals pink, yellow at base; 24 Dec 1953, *Maguire, Wurdack & Bunting 36837* (holotype, NY); Cerro de la Neblina, in 1953, *Maguire, Wurdack & Bunting 36846, 36922, 36954;* in 1957, *Maguire, Wurdack & Maguire 42042, 42426* (paratypes).

Adenarake muriculata superficially resembles *Adenanthe bicarpellata* in the somewhat similar glandular calyx, and *Lavradea* in general habit. It is obviously closely related to neither, but has more probably developed along an independent evolutionary line. The cyclic calyx, conspicuous androgynophore, and septicidal capsule, valvate above and completely (3–) septate at the base, are unique in the tribe.

Sauvagesia L. Sp. Pl. **1**:203. 1753.

Sauvagesia erioclada Maguire & Phelps var. **grandiflora** Maguire & Wurdack, var. nov.

A var. *erioclada* differt floribus maioribus.

VENEZUELA: Amazonas: Cerro Yutaje, frequent in thickets in scrub forest on Northwest Ridge, alt. 1400 m; slender virgate shrub 1–3 m tall, petals white, corona purple; 11 Feb 1953, *Maguire & Maguire 35151* (holotype, NY).

S. erioclada var. *erioclada* has sepals 4.1–6.1 mm long, the inner corona 2.8–4 mm long, and anthers 1.8–2.2 mm long. In var. *grandiflora* the sepals are 8–10 mm long, the inner corona 4.8–5 mm long, and the anthers 2.5–2.6 mm. All measurements were taken on dry fruiting material. The leaf variability range in recent collections of *S. erioclada* is quite great, but the leaves are always thinly coriaceous to coriaceous with acute to broadly acute apices. The collections of var. *erioclada* now include: Cerro Yutaje, *Maguire & Maguire 35101, 35300, 35313, 35332;* Cerro Coro-Coro, *Maguire & Maguire 35467;* Cerro Moriche, *Maguire & Maguire 35538, Maguire, Cowan & Wurdack 30839, 30871, 30896, 30920;* Cerro Guanay, *Maguire, Phelps, Hitchcock & Budowski 31659, 31796.*

Sauvagesia duidae Steyermark.

Since both *S. duidae* and *S. grandifolia* Dwyer have similar chartaceous acuminate leaf blades, the only apparent valid morphologic distinction between these two species is in the flower size. In *S. duidae,* the fruiting sepals (dry) are 4.2–5.6 mm long, the inner corona 3.6–3.9 mm, and the anthers 1.8–2.2 mm. In the Brazilian species, the corresponding measurements (dry) are 9.1–9.5 mm, ca. 7.5 mm, and 2.3–2.5 mm. In Venezuela, in addition to the type collection, *S. duidae* is known from the Yapacana savanna edge at 125 m alt. (*Maguire & Wurdack 34521*); for Colombia the species is known from two Amazonas collections: Río Miritiparaná, alt. 200 m, *Schultes & Cabrera 15704* (US); Río Popeyacá, alt. 200 m, *Schultes & Cabrera 16183* (US). For *S. grandifolia,* only the holotype (*Glaziou 6478,* US) is known to us. With some qualms, the following key to this species group is offered:

1. Leaves acuminate, chartaceous.
   2. Sepals 4.2–5.6 mm long; inner corona 3.6–3.9 mm high. *S. duidae.*
   2. Sepals 9.1–9.5 mm long; inner corona ca. 7.5 mm high. *S. grandifolia.*
1. Leaves acute (sometimes apiculate but not acuminate), coriaceous to chartaceous.
   3. Shrubs with erect woody stems; leaves thinly coriaceous to coriaceous; fruiting calyx corneous at the base. *S. erioclada.*
   3. Herbs or usually sprawling subshrubs; leaves chartaceous; fruiting calyx not thickened basally. *S. erecta.*

Sauvagesia elata Benth. subsp. **occidentalis** Maguire & Wurdack, subsp. nov.

Coronae exteriores oblanceolatae ad apicem non incrassatae. Coronae interiores parce minores 2.4–2.5 × 0.9 mm.

VENEZUELA: Amazonas: Cerro Sipapo, mixed montane forest between Intermediate Camp and summit, alt. 600–1500 m; 6 Feb 1947, *Maguire & Politi 28791* (holotype, NY).

S. elata subsp. *elata* has very numerous apically clubbed exterior corona segments, the inner staminodia (2.8–)3–3.7 mm long and less than 1 mm wide; the typical subspecies is limited to lowland British Guiana. In subsp. *occidentalis*, the ± 15 outer segments are 0.2 mm wide and not at all thickened apically, presenting a startling contrast to those of the eastern subspecies.

Sauvagesia nudicaulis Maguire & Wurdack, sp. nov.

S. imthurnianae (Oliver) Dwyer distanter affinis, sed foliis maioribus internodiis distantibus stipulis mox deciduis et maioribus pedunculis nudis vel rare unibracteolatis.

Suffrutex ramosus ad 6 dm. Stipulae valde caducae 5–8 × 2–4 mm marginibus apicem versus serratis serratulis unisetosis setis ad 2 mm longis; internodia ca. 5 mm; lamina tenuiter coriacea 2–4 × 0.5–1 cm oblongo-ovata bis ovata apice obtusa bis hebeti-acuta basi cuneata vix distincte (ad 2 mm) petiolata ad margines incrassata et serrulata dentibus appressis 1.5–3 mm inter se distantibus, nervis lateralibus numerosis tenuibus supra vix argute prominulis subtus obscuris. Flores ex axillis foliorum superiorum singulae; pedunculus 1.5–2.5 cm longus demum cernuus ebracteatus vel rare centraliter unibracteatus bractea lineari 6 × 0.7 mm. Sepala 7.5 × 2 mm ovato-lanceolata apice acuta sed non setosa. Petala 7.5–8 × 3 mm oblongo-obovata apice obtusa. Coronae exteriorae desunt; segmenta coronae interioris 5 oblanceolata 4.8 × 1.4 mm apice rotundata intus basim versus valde carinata. Filamenta 0.5 mm longa; antherae 0.3 × 0.5 mm oblongae apice apiculatae. Stylus 3 × 0.15 mm; stigma punctiforme; ovarii placentae parietales; semina 0.9 × 0.6–0.65 mm dense alveolata.

VENEZUELA: Amazonas: frequent in Savanna No. 3 at northwest base of Cerro Yapacana, alt. 125 m; shrub 3–6 dm tall, flowers white; 20 Nov 1953; *Maguire, Wurdack & Bunting 36572* (holotype, NY); Yapacana savannas, *Maguire, Cowan & Wurdack 30541, Maguire & Wurdack 34560* (paratypes); Sabana El Venado on Caño Pimichín, Río Guainía, *Maguire & Wurdack 35580* (paratype); Sabana Hechimoni on Caño Hechimoni, Río Siapa, *Maguire, Wurdack & Bunting 37633* (paratype).

COLOMBIA: Cacagual savanna, Río Atabapo, *Maguire, Wurdack & Bunting 36283, Maguire, Wurdack & Keith 41456* (paratypes).

S. imthurniana has leaves about 1 cm long, internodes only 1–3 mm apart, stipules about 2 mm long and only apically lacerate with persistent bases, and multibracteate peduncles.

Sauvagesia imthurniana (Oliv.) Dwyer subsp. **chimantensis** Maguire, Steyermark & Wurdack, subsp. nov.

Folia elliptica bis vix oblongo-elliptica.

VENEZUELA: Bolívar: frequent in upper northwest cumbre of Churi-tepuí, (Muru-tepuí) 2250–2300 m; shrub 0.2–0.5 m, flowers pink; 26 Jan 1953, *Wurdack 34201* (holotype, NY; isotype, F); lower cumbre of Churi-tepuí, *Wurdack 34169* (paratype); Caño Mojado, Toronotepuí, Chimantá Massif, *Steyermark & Wurdack 991* (paratype); upper part of Auyán-tepuí, *Vareschi & Foldats 4884, Tate 1130* (paratypes).

Typical *S. imthurniana*, apparently limited to Mt. Roraima, has oblanceolate or obovate-oblong leaf blades widest above the middle, while subsp. *chimantensis* has leaves widest at or slightly below the middle.

Sauvagesia miniata Steyermark.

Dwyer (Bull. Torrey Club **72**: 535, 536. 1945) assigned *S. ramosissima* Spruce ex Eichler to the *Longifoliae* and by inference selected a Riedel collection as the lectotype; he did not mention the two syntype Spruce collections cited in the original description. In describing *S. miniata,* Steyermark assigned the species, correctly we believe, to Dwyer's *Linearifoliae,* but did not note the affinities with *S. ramosissima.* Our six recent collections of *S. miniata* show no reliable vegetative distinctions from *S. ramosissima;* however the filaments are 0.2–0.4 mm long, the anthers 0.3–0.5 mm long, and the oval to rotund inner corona segments 0.7–1 × 0.5–0.7 mm. For the Riedel collection of *S. ramosissima* at New York, the corresponding measurements are 0.2 mm, 0.7–0.9 mm, and 1.1–1.4 × 0.5–0.55 mm, with the inner corona segments more oblong than in *S. miniata* and the anthers longer with relatively shorter filaments. Mr. Sandwith kindly examined the Kew material of *Spruce 2497* and *3707,* as well as *Ule 7335* and *8227;* he reported floral measurements consistent with *S. miniata* and also wrote that the Riedel collections of *S. ramosissima* at Kew have larger fruiting perianths and fruits than the Spruce and Ule sheets. The original description and plate of *S. ramosissima* offer no basis for upsetting Dwyer's lectotypification, so we believe it best, pending further Brazilian collections of *S. ramosissima,* to accept two very closely related species, with *S. miniata* being widespread north of the Amazon. The following material seems ascribable to *S. miniata.*

VENEZUELA: Bolívar: Isla Casabe, Río Parágua, *Maguire 32710;* slopes of Cerro Bolívar, *Maguire, Wurdack & Bunting 35954;* base of Piedra Marimare, Río Orinoco, *Wurdack & Monachino 40869.* Amazonas: Puerto Ayacucho, *Maguire, Wurdack & Bunting 36184;* Raudal de Atures, *Maguire, Wurdack & Bunting 36120;* Caño Cupueni near San Fernando de Atabapo, *Maguire, Wurdack & Bunting 36231;* Sanariapo, *Steyermark 58467* (isotype NY); Esmeralda Ridge, *Steyermark 57730* (fide Steyermark).

BRAZIL: Terr. Rio Branco: Serra Tepequem, *Maguire & Maguire 40013;* Serra de Carauma, *Ule 7735* (K); Serra do Mel, *Ule 8227* (K, US). Amazonas: Panure, *Spruce 2497* (K); mouth of Rio Içana, *Baldwin 3228* (US).

Sauvagesia linearifolia St.-Hil. subsp. **venezuelensis** Maguire & Wurdack, subsp. nov.

Habitus robustior; sepalorum setae parce minores; capsulae maiores.

VENEZUELA: Amazonas: frequent in Sabana Hechimoni, Caño Hechimoni 8 km above mouth, Río Siapa, alt. 120 m; shrub to 5 dm tall, petals pink basally white, stamens deep rose; 9 Feb 1954, *Maguire, Wurdack & Bunting 37625* (holotype, NY). Savannas at northwest base of Cerro Yapacana, alt. 125 m, *Maguire, Cowan & Wurdack 30567, Maguire & Wurdack 34508, Maguire, Wurdack & Keith 41533* (paratypes).

COLOMBIA: Cacagual savanna, Río Atabapo, alt. 125 m, *Maguire, Wurdack & Keith 41457* (paratype).

The typical subspecies is up to 15 cm tall, with capsules 4–5.5 mm long and sepals terminated by a seta 1–2 mm long. In subsp. *venezuelensis,* the plants are (25–)35–50 cm tall, the capsules 6–7 mm long, and the sepalar setae 0.5 mm long; generally also the petals are larger, 6–6.5 mm long rather than 3–4.5 mm. The seeds of the two subspecies are alike (0.7 × 0.4 mm) and both subspecies show the same coronal structure. We have not seen the Spruce Venezuelan collection (*3513,* from the mouth of the Río Guainía) cited by Dwyer (Bull. Torrey Club **72**: 538. 1945) for *S. linearifolia;* otherwise, the typical subspecies seems limited to Minas Gerais and Goiás in Brazil. The Venezuelan subspecies in general aspect is reminiscent of *S. sprengelii* St.-Hil.

Pentaspatella ramosa Gleason.

Sauvagesia duckei Sleumer, Repert. Sp. Nov. 42: 263. 1937.

Dwyer (in Fordham University library, thesis) had proposed the transfer of *P. ramosa* to *Leitgebia;* both *L. guianensis* and *P. ramosa* have the same small inner staminodia and placentae limited to the ovary base. We feel however that the vast habital difference warrants the generic retention of *Pentaspatella;* it probably represents a distinct divergence from *Sauvagesia,* with the final floral reduction the same as in *Leitgebia.* We have examined Venezuelan material of *Pentaspatella* from the Yapacana savannas and Esmeralda Sabana Grande, as well as both topotypic (*Ducke 999*) and isotypic (*Ducke H.J.B.R. 30124,* US) material of *S. duckei* and have noted no differences between the Venezuelan and Brazilian collections. Dwyer's placentation character for *Sauvagesia* is certainly valid within the limits of our generic sampling; *S. erecta* L., *S. imthurniana* (Oliver) Dwyer, *S. sprengelii* St.-Hil., *S. nudicaulis* Maguire & Wurdack, and *S. smithiana* Dwyer all have distinct ovary wall placentae.

Adenanthe Maguire, Steyermark & Wurdack, gen. nov.

Inflorescentia paniculata; bracteis dissectis glandulosis; sepalis 5, quincuncialibus; androgynophoro androeciali cupuliformi; staminodiis 1-seriatis; staminibus 5; pistillo 2-carpellato, placentis parietalibus; capsula bivalvata; seminibus elongata alatis. Frutex; foliis alternatis; stipulis similibus aequalibus ovatis.

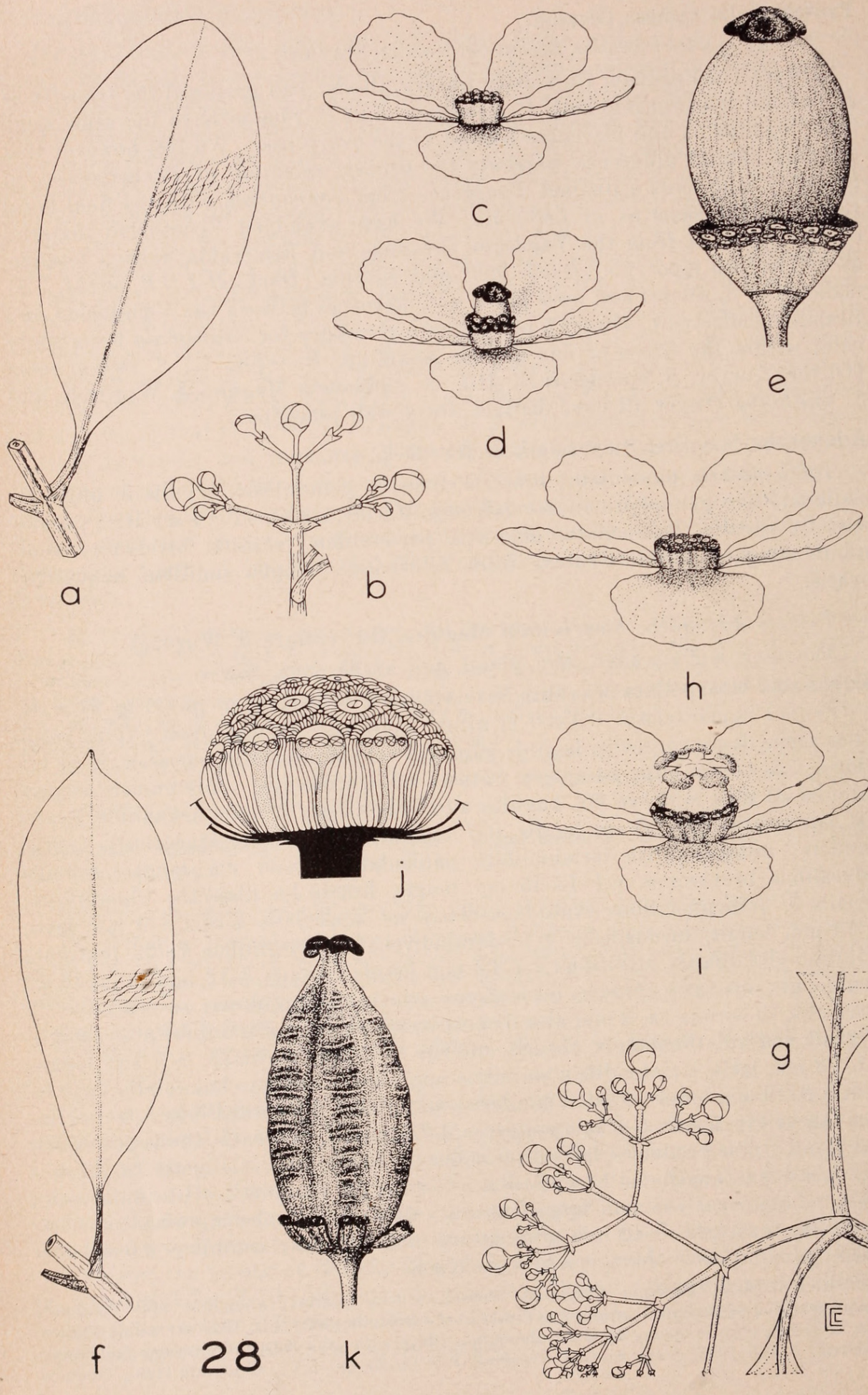
Typus: *Adenanthe bicarpellata* Maguire, Steyermark & Wurdack.

The name is from adēn, ἀδήν, gland, and anthē, ἄνθη, flower.

Adenanthe bicarpellata Maguire, Steyermark & Wurdack, sp. nov. Fig. 27 A, B.

Frutex pauciramosus 0.3–3.0 m altus; ramulis 8–10 mm diam.; foliis sessilibus saepe dense confertis, laminis ellipticis vel oblanceolatis, coriaceis, 3–11 cm longis, 1.5–4.0 cm latis, ad apicem obtusis vel acutiusculis, venis numerosis prominulis ad plus minusve 80° angulos adscendentibus; stipulis aequalibus ovatis vel lanceolatis, 1.0–1.5 cm longis, 5–7 mm latis, ovatis vel lanceolatis, acutis, caducis; inflorescentiis terminalibus paniculatis, 15–30 cm longis, ramulis lateralibus brevissimis vel 12–15 cm longis, bracteolis dissectis, glandulosis; sepalis 5, quincuncialibus ovato-lanceolatis vel lanceolatis acutis 3–5 mm latis, 8–13 mm longis, inconspicue 9–11-parallelivenatis, marginibus valde pectinate stipitato-glandulosis, stipitibus 2.5–3.5 mm longis; petalis 8–12 mm latis, 18–22 mm longis, obovatis obtusis, inconspicue punctato-glandulosis; staminodiis 10, 1-seriatis, in corona ca. 2 mm alta dispositis, staminodiis staminibus alternatis 5, anguste spathulati-oblongis, obtusis, interne ad basim carinatis, 8–9 mm longis, 1.1–1.3 mm latis, staminodiis staminibus oppositis 5, anguste lanceolatis anguste acutis, 9–10 mm longis, 0.5–0.8 mm latis; staminibus 5, subsessilibus introrse lineari-lanceolatis acutis 5–6 mm longis, ca. 1.2 mm latis, 4-thecatis, thecis posterioribus 0.2–0.3 mm productis, lateraliter dehiscentibus a poris elongatis subapicalibus; pistillis 2-carpellatis, 1-locularibus placentis parietalibus 2, ovulis numerosis; stylo subulato ca. 7–8 mm long; capsula ovata acuta, subcompressa, submembranacea, bivalvata, 8–10 mm alta, suturis non intrusis; seminibus 3.0–3.5 mm longis, plus minusve oblongis alatis alveolatis.

VENEZUELA: Bolívar: Chimantá Massif, central section, abundant and dominant around margins of savannas, swampy savanna above Summit Camp, alt. 1940 m; petals smaller than in 375-A, elliptic-oblong to ovate-oblongate, white with pink tips, inflorescence and sepals wine-red; 3 Feb 1955, *Steyermark & Wurdack 377* (holotype, NY). Chimantá-tepuí, frequent



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along Caño Mojado, east of North Escarpment above upper falls, alt. 1975 m; shrub 0.3–1.5 m high, calyx mahogany-colored, petals pink, staminodia purple, open savanna form; 20 Feb 1955, *Steyermark & Wurdack 986* (paratype); frequent, summit of Torono-tepuí alt. 2167–2182 m, *Steyermark & Wurdack 626, 375A* (paratypes); rare, summit of Torono-tepuí at base of zanjones, alt. 2152 m; shrub 3–4 m high, inflorescence and leaves extremely developed as compared with depressed swampy savanna type; 21 Feb 1955, *Steyermark & Wurdack 1005* (paratype); occasional at base of escarpment, Camp 8, alt. 2050 m; shrub 3 m high, buds maroon, petals white apically pink; 23 Jan 1953, *Wurdack 34162* (paratype); northwest summit of Abácapa-tepuí, *Steyermark 7500* (paratype); Apacara-tepuí, *Steyermark 75849* (paratype).

Philacra Dwyer, Brittonia **5**:124. 1944.

Dwyer (l.c.) removed from the genus *Luxemburgia* two species, then known only by specimens collected by Tate on Cerro Duida in Amazonian Venezuela, and placed them together with a third, *P. auriculata* Dwyer, which he knew only from specimens collected by Holt and Blake in the relatively nearby Amazonian Brazil, in his new genus *Philacra.*

Our own field studies extend the known range of *P. longifolia* to Cerros Sipapo (*Maguire & Politi 28360-A*), to Cerro Parú (*Cowan & Wurdack 31071* and *31341*), and to Cerro Huachamacari (*Maguire, Cowan & Wurdack 29877* and *30323*), all in Amazonas, Venezuela, north of Cerro Duida. For the first time, *P. auriculata* Dwyer is known from Venezuela, this attractive golden-flowered shrub occurring frequently in peripheral regions of the upper montane forests of Cerro Neblina, lying some one hundred miles to the northwestward of the original locality: *Maguire, Wurdack & Bunting 37265,* and *Maguire, Wurdack & Maguire 42035, 42135* and *42187.*

GUTTIFERAE

Clusia sect. **Omphalanthera** Pl. & Tr. Ann. Sci. Nat. ser. 4. Bot. **13**: 319. 1860.

The section *Omphalanthera* was set up by Planchon and Triana to accommodate *Clusia eugenioides,* then based on a single collection, *Schlim 934,* from Santa Marta, Colombia, and even now known certainly only by that collection. To the section (as a subsection: Fl. Bras. **12**[1]: 404. 1888) Engler added *C. columnaris,* from the region of the Rio Negro where the species is abundant, and where it is now well represented in the herbaria. More recently, Cuatrecasas (Rev. Acad. Colomb. Ci. **8**: 40. 1950) has described *C. densinervia* from two collections made in the region of the Pacific Coast in Dep. Valle, Colombia. At the present writing the authors propose three additional species, for which they have considerable material, from Venezuela.

Full characterization remains impossible at this time for *C. eugenioides* and *C. densinervia.* Relationship among the six recognized species seems to be clear. On whether the species of Sect. *Omphalanthera* should be considered to represent a discrete section or should be placed in Sect. *Polythecandra* (as was done by Engler, l.c.), we must defer decision until we have a better understanding of intraspecific relationships throughout the genus.

[1] Type species: *Clusia eugenioides* Pl. & Tr.

FIG. 28. a–e, *Clusia brachystyla.* a, leaf and stem, habit, × 0.5. b, inflorescence, × 0.5. c, ♂ flower, × 1. d, ♀ flower, × 1. e, fruit, × 2. f–k, *Clusia gratula,* f, leaf and stem, habit, × 0.5. g, inflorescence, × 1. h, ♂ flower, × 2. i, ♀ flower, × 2. j, synandrium, × 5. k, fruit, × 2.

Sepals commonly 6, sometimes 8, paired and decussate, or less commonly 9 or 10, and then the upper imbricate; petals 5; synandrium pentagonal and columnar, or somewhat hemispheric, the filaments prismatic, connate, the anthers distal, depressed, annular or discoid; in the male flowers no vestige of a pistil present; in the female flower the anthers commonly 1–3-seriate and probably mostly functional; ovary 5-locular, the endocarp cartilaginous, commonly becoming strongly rugose at maturity; terrestrial shrub or small tree; latex clear, scanty.

Type species: *Clusia eugenioides* Pl. & Tr.

Key to the Species of *Clusia* sect. *Omphalanthera*

1. Pistil and fruit strongly rostrate.
   2. Leaves strongly petiolate.
      3. Corolla large, the petals 20–30 mm long; leaves elliptic-oblanceolate to oblanceolate, or elliptic-oblong, 10–15 cm long, 5–10 cm broad; fruit globose, to 3 cm long; stigmas sessile on the summit of the ovary; widely distributed in the valleys of the Alto Orinoco, Río Negro, and the Magdalena Valley of Venezuela and Colombia. 1. *Clusia columnaris.*
      3. Corolla small, the petals 12 mm or less long; leaves elliptic to elliptic-oblanceolate, 10–15 cm long, 4–6 (7) cm broad; fruit narrowly oblong, 15–20 cm long; stigmas borne on discrete styles 0.5–1.5 mm long; confined to the Río Pacimoni drainage, Amazonas, Venezuela. 2. *Clusia gratula.*
   2. Leaves sessile or essentially so; Upper Río Orinoco–Ventuari, Amazonas, Venezuela. 3. *Clusia annularis.*
1. Pistil and fruit not rostrate; leaves strongly petiolate.
   4. Branchlets quadrangular; leaf-blades broadly elliptic to elliptic-obovate, 10–15 cm long, 6–8 cm broad.
      5. Sepals 3 (4) pairs, decussate; mature fruit obpyriform; plants of the sandstone area of the Guayana Highland, Venezuela. 4. *Clusia brachystyla.*
      5. Sepals 9–10, the lower paired and decussate; mature fruit elliptic-oblong; plants of Pacific coastal region, Colombia. 5. *Clusia densinervia.*
   4. Branchlets terete; leaves spathulate-oblanceolate, 7–11 cm long, 3–6 cm broad; plants of the Colombian Andes. 6. *Clusia eugenioides.*

1. Clusia columnaris Engl. Fl. Bras. **12**[1]:432. 1888.

Type: in fissuris rupium ad San Gabriel do Cachoeira ad Rio Negro, provincia do Alto Amazonas, *Spruce 1980* (G, two sheets; K; M; photos at NY.)

C. columnaris is widespread and somewhat variable in riparian and savanna and rock outcrop ecotone habitats in the basin of the Alto Orinoco, the Rio Negro, and the Magdalena. The review of some 100 sheets at The New York Botanical Garden has failed to demonstrate any clearcut geographic or ecologic varietal segregation.

Cuatrecasas (Rev. Acad. Colomb. Ci. **8**: 41. 1950) has described two varieties, viz.: *C. columnaris* Engl. var. *magdalenensis* Cuatr. from the Magdalena Valley, Colombia, *Haught 1366* (holotype F, isotype NY); and *C. columnaris* Engl. var. *vaupesana* Cuatr., from Circasia, Río Vaupes, Colombia, *Cuatrecasas 7166A* (holotype, F); and Río Guayabero, *Cuatrecasas 7555* (paratype, F). We have not been able to study sufficiently adequate series of specimens from these areas to enable us to make a critical judgment on the distinctness of these varieties.

2. Clusia gratula Maguire, sp. nov. Fig. 28 f–k.

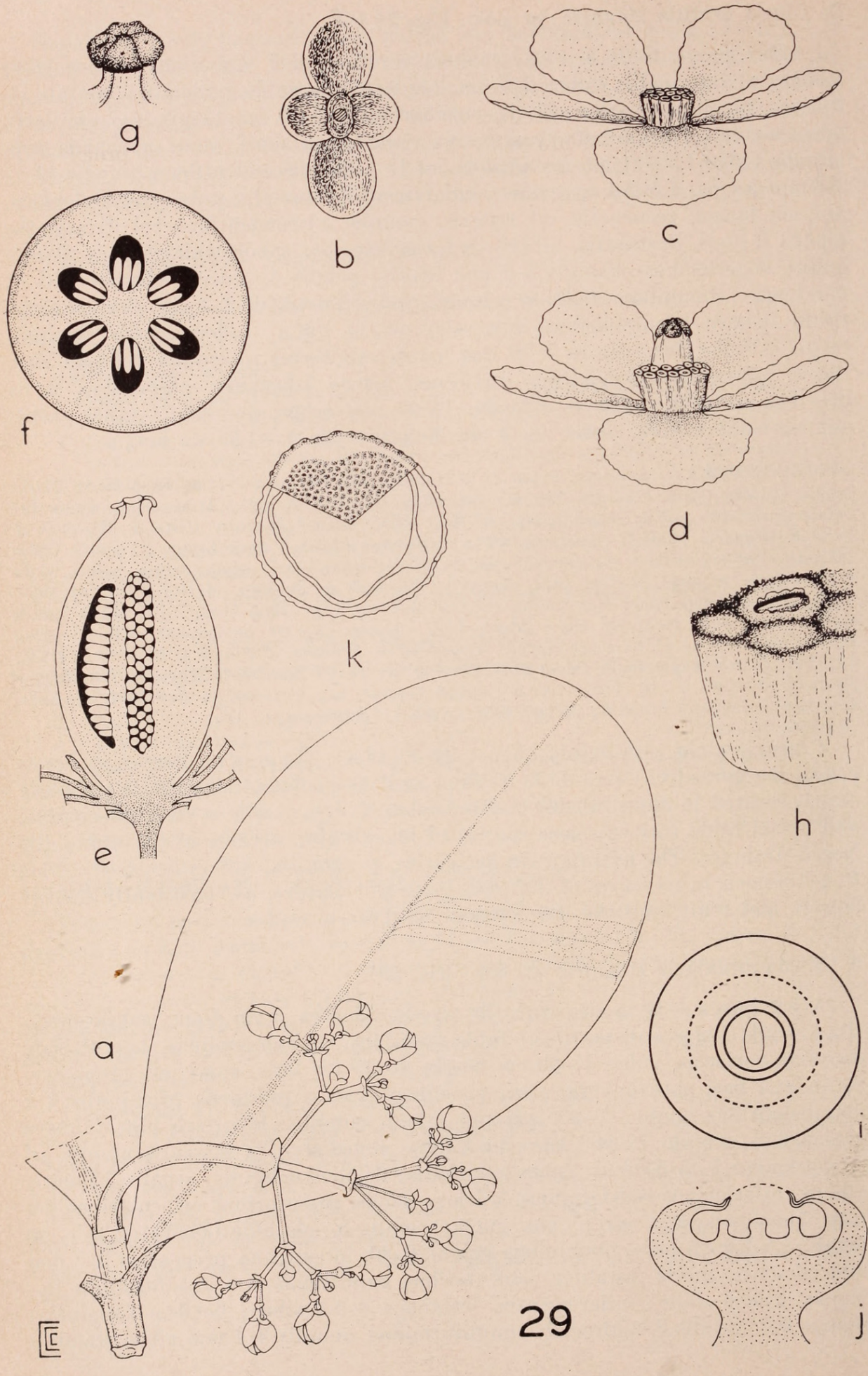
Arbor parva 5–10 m alta; ramulis teretibus 2–5 mm diam.; latice claro moderato; internodiis vulgo 2–5 cm longis; foliis valde petiolatis; laminis ellipticis vel elliptico-oblanceolatis, subchartaceis, 8–15 cm longis, 4–7 cm latis, apice acuto vel acuminato, basi acuta, costa prominenti, venis primariis prominulis vulgo 1.5–3.0 mm distantibus, ad 15°–30° adscendentibus; petiolis (1.5) 2–3 cm longis, 1.5–2.0 mm latis; inflorescentiis masculis vulgo 15–30-floribus, 4–7 cm longis, recurvatis vel reflexis, ramulis adscendentibus vel divaricatis, sepalis 3-jugis, decussatis, albidis, inferioribus late suborbicularibus ca. 2 mm longis, superioribus oblongis 5–6 mm longis; petalis 5, oblongo-obovatis, 10–12 mm longis; staminibus 20–30 in columna semisphaeroidali 2–3 mm alta connatis, thecis distaliter annularibus immersis; ovario nullo; inflorescentiis femineis vulgo 7–15-floribus; petalis 8–10 mm longis; androecio in annulo 3–4 mm alto, thecis 1–2-seriatis probabiliter fertilibus; ovario 5-loculari, stigmatibus stylis brevibus instructis; fructu oblongo, 15–20 mm longo, endocarpo valde cartilagineo, valde rugoso, rostro ca. 1 mm longo; stylis 0.5–1.5 mm longis.

VENEZUELA: Amazonas: Cerro de la Neblina, Río Pacimoni–Yatua, frequent in *Clusia* tangle vicinity Camp III; alt. 700 m; sprawling tree 5–8 m high; latex clear, moderate; petals white with red-lacquered bases; 14 Nov 1957; *Bassett Maguire, John J. Wurdack & Celia K. Maguire 42065* ♂ (holotype, NY); occasional, *Clusia* "moss forest," vicinity Camp III; alt. 700 m; slender subscandent tree to 10 m; latex clear; sepals white, petals white with maroon centers; 23 Dec 1953, *Maguire, Wurdack & Bunting 36819* ♂; 19 Dec 1953, *36972* ♂; occasional, upper Río Yaciba (Yatua) 3–8 km below Base Camp; alt. 140 m; small riverine tree with moderate clear latex; fruit oblong, slightly pentagonal, pellucid-white, flushed red, stigmas white, short-beaked; 30 Jan 1954, *Maguire, Wurdack & Bunting 37437* ♀, *37425* ♀; *Clusia* tangle south Camp III; alt. 700 m; 14–16 Nov 1957, *Maguire, Wurdack & Maguire 42066* ♀; 5 Jan 1958, *42600* ♀; Cañon Grande; alt. 1100 m; 24 Nov 1957, *Maguire, Wurdack & Maguire 42208* ♀; 24 Dec 1957, *42477* ♂ (paratypes).

Clusia gratula with dainty (hence the epithet), diminutive flowers, so far as collected confined to Cerro de la Neblina and the piedmont streams, is obviously closely related to and probably derived from *C. columnaris*, a common riverine and low-altitude rock-exposure species of black-water streams in the upper Rio Negro drainage. The presumptive derivative, *C. gratula*, differs decisively from *C. columnaris* in its leaves of different form and texture, its consistently smaller flowers and fruit, and the development of discrete styles.

3. Clusia annularis Maguire, sp. nov. Fig. 29.

Arbor parva 4–10 m alta; ramulis crassis vulgo ca. 1 cm diam., subsucculentibus, nodis 1–2 cm distantibus; foliis sessilibus vel subsessilibus, laminis late obovatis, coriaceis, vulgo 15–20 cm longis, 10–15 cm latis, apice late obtuso vel rotundato, basi obtusiuscula, costa prominenti, venis primariis prominulis 2–6 mm distantibus, angulo 20–30° adscendentibus, canalibus laticiferis plus minusve evidentibus, angulo 70–90° adscendentibus; inflorescentiis masculis amplis ad 20 cm longas 7–21-floribus, vulgo recurvatis; floribus masculis: sepalis 3-jugatis albidis, inferioribus reniformibus 2–4 mm longis, superioribus orbicularibus vel late oblongo-obovatis, ad 15 mm longa; petalis 5, spathulati-obovatis, 2–3 cm longis, 1.5–2.0 cm latis; staminibus vulgo 20–30, in columna prismatica 3–5 mm alta connatis, thecis distaliter orbicularibus annularibus vel disciformibus immersis, ovario nullo; inflorescentiis foemineis 3–9-floribus; floribus foemineis: sepalis 6–8, petalis 5, androeciis annuliformibus, annulis 3–4 mm altis; stamini-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bus vulgo 15–25, vulgo 2-seriatis, thecis fertilibus; ovario 5-loculari, ovulis 2–3-seriatis, stigmatibus 5, sessilibus, umbraculiformibus; fructu oblongo ca. 3 cm longo, endocarpo cartilagineo, non evidenter rugoso, rostro 2–4 mm longo.

VENEZUELA: Amazonas: Río Ventuari, frequent, dry open eastern slopes Cerro Moriche; alt. 1000 m; small tree to 5 m high; petals 5, white with lacquer-red centers; 15 Jan 1951, *Bassett Maguire, R. S. Cowan & J. J. Wurdack 30848* (holotype, NY). Cerro Yapacana, Río Orinoco, frequent on cumbre; alt. 1200 m; tree 8 m high; sepals 6, white; petals 5, white with lacquer-red base; androecium compact, columnar, base red; 3 Jan 1951, *Maguire, Cowan & Wurdack 30666* ♂. Cerro Moriche; tree 3–10 m high; sepals 8; 13 Jan 1951, *Maguire, Cowan & Wurdack 30851* ♀. Cerro Yapacana, *Maguire, Cowan & Wurdack 30667* ♀, *30730* ♂, *30732* ♀, *37033* ♀; Cerro Moriche, *Maguire, Cowan & Wurdack 30962* ♂, *30963* ♀ (paratypes).

One collection, *Maguire & Politi 28666* ♀, collected on Cerro Sipapo, Amazonas, Venezuela, at 2100 m, 27 Jan 1949, is to be referred to *C. annularis*, but its leaves are narrower and the apex obtusish only. This collection may represent a geographic and ecologic variant.

4. Clusia brachystyla Maguire, sp. nov. Fig. 28 a–e.

Arbor parva; ramulis quadrangularibus; latice claro exiguo; foliis valde petiolatis, laminis vulgo elliptico-obovatis, coriaceis; inflorescentiis masculis 7–15-floribus; sepalis 3 (–4) jugis, albidis; petalis 5 panduriformibus albidis vel roseis, ad basim rubris, vel rare petalis omnino albis; androecio in massa centrali coalescenti, ovario absenti absolute; staminibus 30–40 in columna pentagonali 3–5 mm alta connatis; thecis distaliter annularibus immersis; inflorescentiis foemineis vulgo 3–7-floribus, androecio in annulo 3–5 mm alto, thecis 1–2-seriatis, probabiliter saepe fertilibus; ovario 5-loculari, ovulis numerosis 3-seriatis, rostro defecto, stigmatibus 5, sessilibus; fructibus obpyriformibus, ad 5.5 cm longos, 3.5 cm diam., valde transverse rugulosis.

Key to the Varieties of *Clusia brachystyla*

1. Leaves subcoriaceous, commonly exceeding 12 cm in length, pale beneath; mature fruit ca. 3 cm long, the stigmas hemispheric-umbraculiform, 8–10 mm in diameter at maturity. var. *brachystyla*.
1. Leaves coriaceous, commonly under 12 cm in length, reddish-brown beneath; mature fruit ca. 5 cm long, the stigmas flat, 15–20 mm in diameter at maturity. var. *guaiquinimensis*.

Clusia brachystyla var. **brachystyla.**

Branchlets moderately quadrangular; leaf-blades obovate to elliptic-obovate or oblanceolate, obtuse or abruptly acute, 10–20 cm long, 5–10 cm broad; mature fruit obpyriform, strongly rugose, to 3 cm long; stigmas hemispheric-umbraculiform, 8–10 mm in diameter.

VENEZUELA: Bolívar: vicinity of Misión Santa Teresita de Kavanayén; occasional, forested slopes below south rim of savanna plateau, alt. 1200 m; savannas; 11 Dec 1952, *Bassett Maguire & John J. Wurdack 33754* ♂ (holotype, NY); woodland slopes southeast of Kavanayén Mission, alt. 1400 m; 30 Mar 1952, *Maguire 33707* ♀ (paratype). Ptari-tepuí; alt. 1600 m; 10-11 Nov 1944, *Steyermark 59992* ♂ (NY). Arabupu, Mt Roraima; 21 Jan 1939, *Pinkus 173* ♂. Amazonas: Río Cunucunuma, frequent, trail ascending Cerro Duida; alt. 800 m; small tree 10 m high, petals white with red centers; 25 Nov 1950, *Maguire, Cowan & Wurdack*

FIG. 29. a-k, *Clusia annularis*. a, leaf and inflorescence, habit, × 0.5. b, sepals, dorsal view, × 1. c, ♂ flower, × 1. d, ♀ flower, × 1. e, tangential section through fruit, × 1. f, cross section of fruit, × 1.5. g, stigma, × 2. h, portion of synandrium, × 7. i, diagram of face view of anther, × 15. j, diagram of median long section through stamen, × 15. k, pollen grain, × 900.

29727 ♂ (paratype). Cerro Sipapo; alt. 500 m; *Maguire & Politi 28718* ♀; Danta Falls, Río Cuao, *Maguire & Politi 29037* ♀; Cerro Marahuaca, *Maguire & Maguire 29138* ♀, *29142* ♀, *29220* ♀; Cerro Duida; *Maguire, Cowan & Wurdack 29276* ♀, *29582* ♀, *29583* ♂, *29586* ♂, *29587* ♀, *29601* ♀, *29726* ♀, *29727* ♂, *29728* ♂, *29740* ♀; Serranía Parú; *Cowan & Wurdack 31457* ♂, *31463* ♂, *31489* ♂, *31452* ♀; Serrania Yutaje, Río Manapiare; *Maguire & Maguire 35078, 35105* ♀, *35115* ♂, *35366* ♂, *35426* ♂; Cerro Duida, *Tate 790* ♀ (NY); Cerro Yaví; *Phelps & Hitchcock 21* ♀ (NY); Serranía Parú; *Phelps & Hitchcock s. n.* ♀ (NY).

BRITISH GUIANA: Pakaraima Mountains: Imbaimadai Savannas, Upper Mazaruni River; alt. 1300 m; 24 Oct 1951, *Maguire & Fanshawe 32237* ♂; 25 Oct 1951, *Maguire & Fanshawe 32293* ♂.

Clusia brachystyla var. **guaiquinimensis** Maguire, var. nov.

Ramulis valde acute quadrangularibus; laminis obovatis vel elliptico-obovatis, vulgo 8–10 (12) cm longis, vulgo abrupte acuminatis, rubro-brunneis subtus; fructu maturo obpyriformi valde transverse rugoso, 5–6 cm longo; stigmatibus 5, planis, 15–20 mm diam.

VENEZUELA: Bolívar: Cerro Guaiquinima, occasional along open watercourse, North Valley; alt. 1600–1700 m; tree 10 m high, stems sharply 4-angled; latex clear, yellowish, scanty; petals pink or rose with lacquer-red centers; stigmas 5, sessile; fruit oblong, 6–7 cm long, 3–4 cm broad; *Bassett Maguire 33097* ♀ (holotype NY); North Valley, alt. 1600–1700 m; bushy tree 8 m high; latex scanty, clear, yellowish; sepals 3 pairs, white; petals 5, outside white, inside deep pink or rose, lacquer-red at base; *Maguire 33058* ♂ (paratype); Cerro Guaiquinima; *Maguire 32947* ♂, *33059* ♀, *33105* ♀; Sororopán-tepuí, *Maguire & Wurdack 33804* ♂; Chimantá-tepuí; *Steyermark 75200* ♀ (NY), *75624* ♂ (NY), *Steyermark & Wurdack 1358* ♀.

5. **Clusia densinervia** Cuatr. Rev. Acad. Colomb. Ci. **8**:40. 1950.

COLOMBIA: Valle: Puerto Merizalde, Costa del Pacífico, Río Naya; bosques; alt. 5–10 m; *Cuatrecasas 14025* (type, NY, US). San Isidro, Río Cajambre; *Cuatrecasas 17289* (paratype, F, NY, US).

The type collection represents immature flowering male material. The larger number of sepals (9–10) of the flower buds seems to represent a distinct departure from the prevailing number in the sect. *Omphalanthera* (usually 6). The fruiting specimens of the paratype indicate close relationship with *C. brachystyla* of Venezuela, and perhaps with the poorly known *C. eugenioides* of Colombia.

6. **Clusia eugenioides** Planch. & Lind. Mem. Guttif. Ann. Sci. Nat. ser 4. Bot. **13**:328. 1860

Known certainly only by the type collection, *Schlim 934*, from 4000 ft alt., Santa Marta (holotype P, isotypes Herb. Boissier G, Herb. Delessert G).

Three other collections have tentatively been assigned to *C. eugenioides*, viz., Dolores, Tolima, Colombia, 1300–1700 m, *Lehmann 7302* (K 3 sheets, US); climbing shrub, flowers showy, white, with slight rose flush, on fallen tree, at 750 m alt., Quebrada Bruno, Comisaria Goajira, Colombia, 26 Aug 1944, *Haught 4329* (NY, US); tree 60–80 ft. high, flowers dark pink, thick forest at bank-side, El Umbo region, Mt. Chapon, extreme western part of Dep. Boyaca, northwest of Bogotá, Colombia, 25 Sep 1932, *Lawrance 473* (NY).

The four collections cited here bear some similarity in general facies. Collectors' notes indicate considerable differences in habit. Geographical disposition of the four collections raises further question of their conspecificity. Not improbably a species-complex is represented among even these few specimens. Until considerably more material is at hand, any specific delimitation within the complex is impractical.

Quapoya Aublet, Hist Pl. Guiane Fr. **2**:898. 1775.

Rengifa Poeppig in Poeppig & Endlicher, Nov. Gen. & Sp. 3: 12. *pl. 210.* 1840.

Dioecious; bracts decussate, often numerous, immediately subtending the sepals; petals 5, small, often vittate; in the staminate flower stamens 10, coalesced in a central umbraculiform mass, the anthers free, radiate and recurved, the thecae linear-oblong, lateral, laterally dehiscing; ovary completely lacking; in the pistillate flower staminodia 5, free, complanate, erect, or lacking, the ovary 5-locular, the ovules 2-seriate, the stigmas 5; fruit oblong-globular or oblong, baccate; stigmas 5, distinct, disciform, somewhat elevated; seed narrowly oblong, acute or acutish at both ends.

Small trees, scandent shrubs or woody vines, apparently confined to rainforest areas, distributed broadly in the Amazon headwaters and hylea north of the Amazon.

Type species: *Quapoya scandens* Aublet.

The genus is distinctly marked by the umbraculiform androecium of the staminate flowers. This remarkable structure, superficially somewhat resembling the antheridium of the liverwort *Marchantia,* is unique. Otherwise, *Quapoya* would be indistinguishable from *Clusia.*

Key to the Species of *Quapoya*

1. Leaves obtuse or rounded at the apex, coriaceous.
   2. Midrib extended ca. ⅔ the length of the blade; blades broadly obovate, 8–10 cm long, abruptly short-pointed; petiole 7 mm or less long. 1. *Quapoya scandens.*
   2. Midrib extended nearly the full length of the blade; apex rounded, not abruptly short-pointed; petiole 10 mm or longer.
      3. Leaf-blades obovate to oblanceolate; primary lateral veins improminulous, but discernible; sepals 6, in 3 decussate pairs. 2. *Quapoya sipapoana.*
      3. Leaf-blades oblong to elliptic-oblong; primary lateral veins hardly discernible; sepals 15–17. 3. *Quapoya froesii.*
1. Leaves acuminate at the apex, subcoriaceous.
   4. Paired bracts subtending flower numerous; branches of inflorescence less than 2 cm long; superior sepals 2.5–3.0 mm long; plants of coastal Guiana. 4. *Quapoya bracteolata.*
   4. Bracts subtending flower a single pair; branches of inflorescence divaricate, commonly exceeding 2 cm in length; superior sepals ca. 5 mm long; plants of the Upper Amazon watershed. 5. *Quapoya peruviana.*

1. Quapoya scandens Aublet, Hist. Pl. Guiane Fr. **2**:898. *pl. 433.* 1775.

Rengifa scandens (Aublet) Planchon & Triana, Ann. Sci. Nat. ser. 4. Bot. **14**: 241. 1860.

Cayenne in 1775, *Aublet s.n.* (holotype BM, photo NY).

Additional specimens examined: French Guiana: Godebert, 23 Jun 1921, *Wachenheim 292* (NY); *Melinon* in 1862, *389, 449* (P); *Melinon s.n.* (P).

Though a well-marked species, *Q. scandens* has been little collected, and its distribution is not well known. It is to be expected that it will be found in much of coastal Guiana.

2. Quapoya sipapoana Maguire, sp. nov. Fig. 30 A–H.

Arbor parva; ramulis 3–4 mm diam., plus-minusve teretibus, conspicue rimosis; foliis oppositis, petiolatis, laminis obovatis vel oblanceolatis, coriaceis, vulgo 10–15 cm longis, 5–8 cm latis, ad apicem rotundatis obtusis, ad basim obtusiusculis, acutis, venis primariis improminulis, 3–7 mm separatis, ad plus-minusve 45° adscendentibus; canalibus laticiferis ad 70-80° adscendentibus, subtus glanduloso-punctatis; petiolis 12–20 mm longis; inflorescentiis

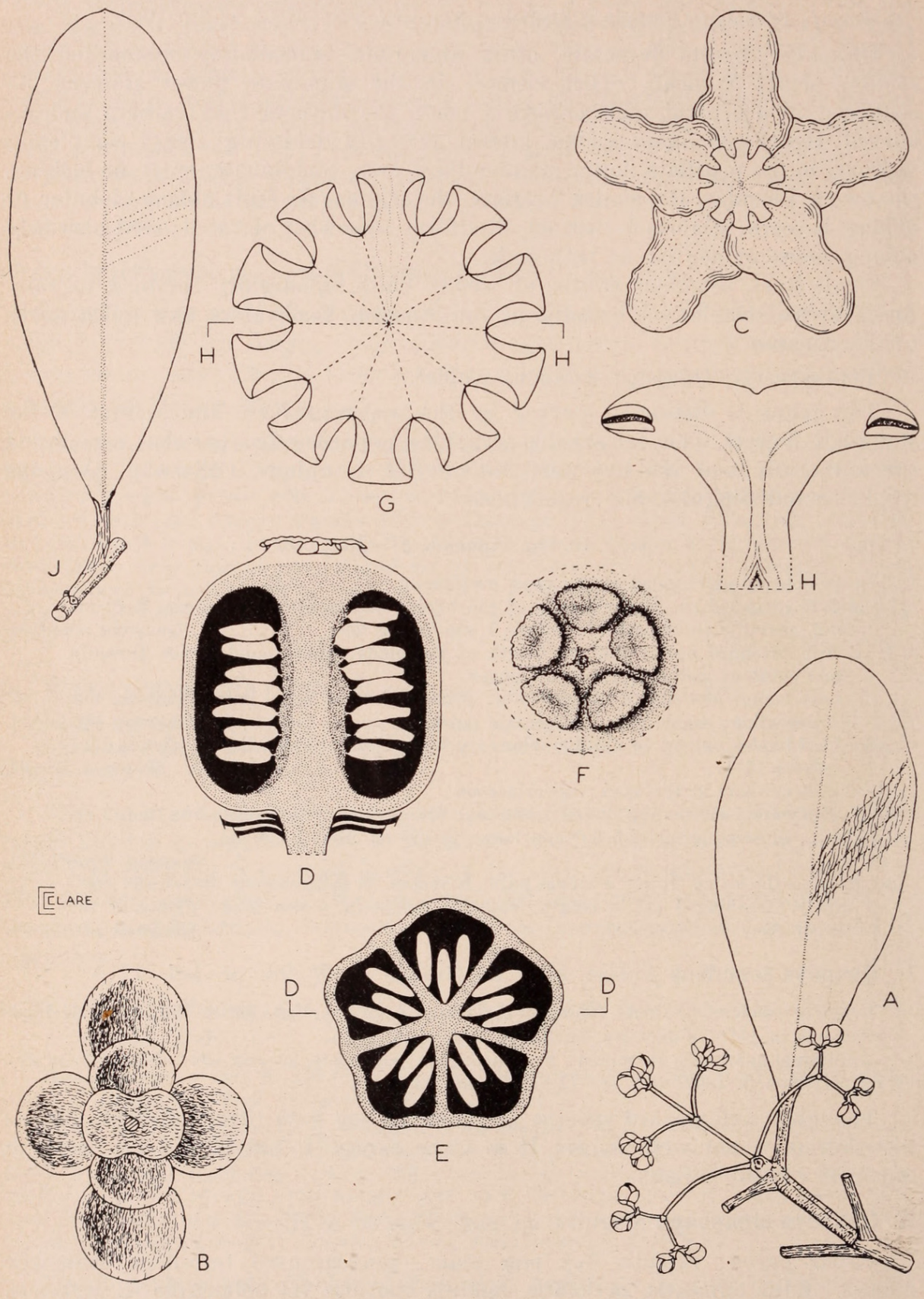

FIG. 30. A–H, *Quapoya sipapoana*. A, leaf, habit, × 0.5. B, dorsal view, sepals, × 2. C, ♂ flower, × 4. D, long median section, fruit, × 3. E, cross section, fruit × 3. **F**, top view, stigmas, × 6.25. G, top view of synandrium, × 10. H, vertical median section of synandrium, × 10. J, *Quapoya froesii;* leaf, habit, × 0.375

masculinis paniculatis, ramulis primariis vulgo 3, 2–3 cm longis, recurvatis vel divaricatis, secondariis 1.0–1.5 cm longis, divaricatis, vulgo 3-floribus per ramum; bracteis ca. 1.5 mm longis; sepalis carneis, 3-jugis, decussatis, orbicularibus, cupulatis, superioribus 4–5 mm longis; petalis 5, carneis, oblongis vel panduriformibus, punctatis, ad marginem vulgo vittatis, ad basim 4–5 mm latis, 7–8 mm longis; staminibus 10 ad basim coalitis, supra in orbe horizontaliter radiatis, thecis lineari-oblongis lateraliter dispositis, dehiscentibusque, ovario nullo; inflorescentiis foemineis evidenter paucifloribus, sepalis et petalis ut in floribus masculis, staminodiis nullis, ovario 5-loculari, ovulis 2-seriatis; fructibus baccatis, oblongo-ovalibus, ca. 15 mm longis; stigmatibus 5, orbicularibus, ca. 1 mm diam., distincte separatis, breviter elevatis; seminibus tenuiter subfusiformi-oblongis.

VENEZULA: Amazonas: Cerro Sipapo; occasional in mixed forest, north escarpment; alt. 1400 m; small tree; 23 Dec 1948, *Bassett Maguire & Louis Politi 27868* ♂ (holotype, NY). Woodland, intermediate Camp, alt. 600 m; 27 Nov 1948, *Maguire & Politi 27468* ♂; 2 Feb 1949, *28738* ♀ (paratypes); Caño Profundo, woodland, alt. 1600 m; small tree; 10 Jan 1949, *Maguire & Politi 28268A* ♂ (paratype). Cerro Arauicaua, Río Yatua; 3 Feb 1954, *Maguire, Wurdack & Bunting 37470* ♀, *37467* ♀. Piedra Tururumeri, Río Yatua; alt. 110–220 m; occasional; 4 Feb 1954, *Maguire, Wurdack & Bunting 37488* ♀; Cerro de la Neblina, vic. Camp III; alt. 650–700 m; 30 Dec 1957, *Maguire, Wurdack & Maguire 42659* ♀.

3. Quapoya froesii Maguire, sp. nov. Fig. 30 J.

Laminis crassulis, oblongis vel elliptico-oblongis, 12–18 cm longis, 5–7 cm latis, apice obtuso, basi acutiuscula; costa prominenti; venis impercepte improminulis, canalibus laticiferis superficialiter non manifestis; petiolis ca. 1.5 cm longis; inflorescentiis masculis non visis; inflorescentiis foemineis recurvatis, ca. 6 cm longis, ramis primariis divaricatis; floribus immaturis, sepalis 15–17, inferioribus crassulis 4-jugatis decussatis, ad 2.5 mm longa, superioribus subimbricatis ad 3 mm longa, omnibus obtusis; petalis 5, stigmatibus 5, staminodiis destitutis.

BRAZIL: Amazonas: high central forest, Igarape Jandistuba, S. Paolo de Olivenca, Rio Solimoes; 2 Feb 1949, *R. L. Froes 24060* ♀ (holotype, NY).

Unfortunately, *Quapoya froesii* is represented by but a single pistillate collection of which the flowers are immature. The bracts and sepals most nearly resemble those of the Guiana *Q. bracteolata* Sandw.; and next to those of *Q. peruviana* (P. & E.) O. Kuntze.

The collector describes the plant obtained by him in the field as a "strangler on top [of] very high trees, [with] white rosy fragrant flowers."

4. Quapoya bracteolata Sandwith, Kew Bull. **1931**: 177. 1931.

Rengifa acuminata Planchon & Triana, Ann. Sci. Nat. ser. 4. Bot. **16**: 243. 1860.
Quapoya acuminata Kuntze, Rev. Gen. 61. 1891; not *Q. acuminata* Walp. Repert. **1**: 393. 1842. (=*Clusia acuminata* Sprengel, Syst. Veg. **2**: 599. 1825).
Renggeria montana Klotzsch in Schomb. Reisen **3**: 1093. 1848; nomen.

Type: "Roraima, Brit. Guiana, 1842-3," *Schomburgk 999* (holotype, P; isotypes, G, K, NY, W).

So far as collected, *Q. bracteolata* occurs only in low-altitude rain-forests of British Guiana. The notation "Roraima" on the original Schomburgk label must be held suspect.

Although characteristically numerous decussate bracteoles subtend the flowers, principally the staminate flowers, some specimens, notably *Jenman*

4059 from the Upper Demerara River, are provided with few (1–3) pairs of bracteoles. Such plants may represent a minor variety.

5. Quapoya peruviana (Poeppig & Endlicher) Kuntze, Rev. Gen. **1**:61. 1891.

Rengifa peruviana Poeppig in Poeppig & Endlicher, Nov. Gen. et Sp. 3: 12. *pl. 210.* 1840.

The original material and more recently collected materials from Peru, Ecuador, and the headwater region of Amazonian Brazil and Amazonian Colombia, are consistent with respect to a large (6–10 cm long) divaricate inflorescence and general form of leaf.

Dr Cuatrecasas has recognized as var. *occidentalis* specimens from the Pacific Coast region (Valle) of Colombia, characterized by him as having somewhat larger flowers, more robust pedicels, and shorter inflorescences than the var. *peruviana.* Foliar differences indicated by Cuatrecasas do not seem to hold.

There has now accumulated a series of collections from the Río Negro—Alto Río Orinoco drainages that have the shorter inflorescences but perhaps somewhat smaller flowers than var. *occidentalis.* They do seem to be recognizable by distinctly white scarious margins abruptly set off from the body of the sepals by a definite costulate line. They are here interpreted as a third minor geographic variant.

Undoubtedly the above specific assemblage is closely related to the Atlantic Coastal *Q. bracteolata* and may some day have to be associated with it.

Key to the Varieties of *Quapoya peruviana*

1. Inflorescence 6–10 cm long; superior sepals 3(4) mm long; neither petals nor sepals vittate; subtending bracteoles somewhat disjunct, 1–2 pairs. 1. var. *peruviana.*
1. Inflorescence 3–5 (6) cm long, the subtending bracteoles little disjunct; sepals and petals vittate.
   2. Superior sepals 4.0–4.5 mm long, their margins gradually scarious; inflorescence open, the subtending bracteoles often of but 1 or 2 pairs. 2. var. *occidentalis.*
   2. Superior sepals 2.5–3.5 mm long, abruptly marginally costulate and white-scarious-margined; inflorescence often more congested, the subtending bracteoles often 2–3 pairs. 3. var. *guayanensis.*

1. Quapoya peruviana var. **peruviana.**

PERU: *Poeppig* (type, Herb. Boissier, G). Huanuco: confluence of Rio Huallaga with Río Cayumba; 16 Oct 1936, *Mexia 8289* (NY).

BRAZIL: Amazonas: São Paolo de Olivenca, near Palmares, Rio Solimoes; *Krukoff 8320, 8517* (NY).

COLOMBIA: Amazonas: trapecio region between Amazon and Putumayo watersheds; *Schultes 6762* (NY).

2. Quapoya peruviana var. **occidentalis** Cuatrecasas, Anal. Inst. Biol. México **20**:112. 1949.

COLOMBIA: Valle: Río Yurumangui, bosque, alt. 5–50 m; gran bejuco; flor blanco; 3 Feb 1944, *J. Cuatrecasas 15889* (holotype, F; isotype, NY). Buenaventura Bay; 16 Feb 1939, *Killip & Garcia 3352* (NY). Region Choco, Río Calima; 23 Mai 1946, *Cuatrecasas 21255* (NY).

3. Quapoya peruviana var. **guayanensis** Maguire, var. nov.

Inflorescentiis vulgo 3–5 cm longis, paucifloribus; ramis inflorescentiarum divaricatis; bracteolis floribus subtendentibus saepe 2–3-jugatis; sepalis superioribus orbicularibus 3.0–4.0 mm longis, in maturitate marginaliter costulatis et abrupte albo-scariosis; petalis orbiculari-oblongis vel oblongis, 5–6 mm longis,

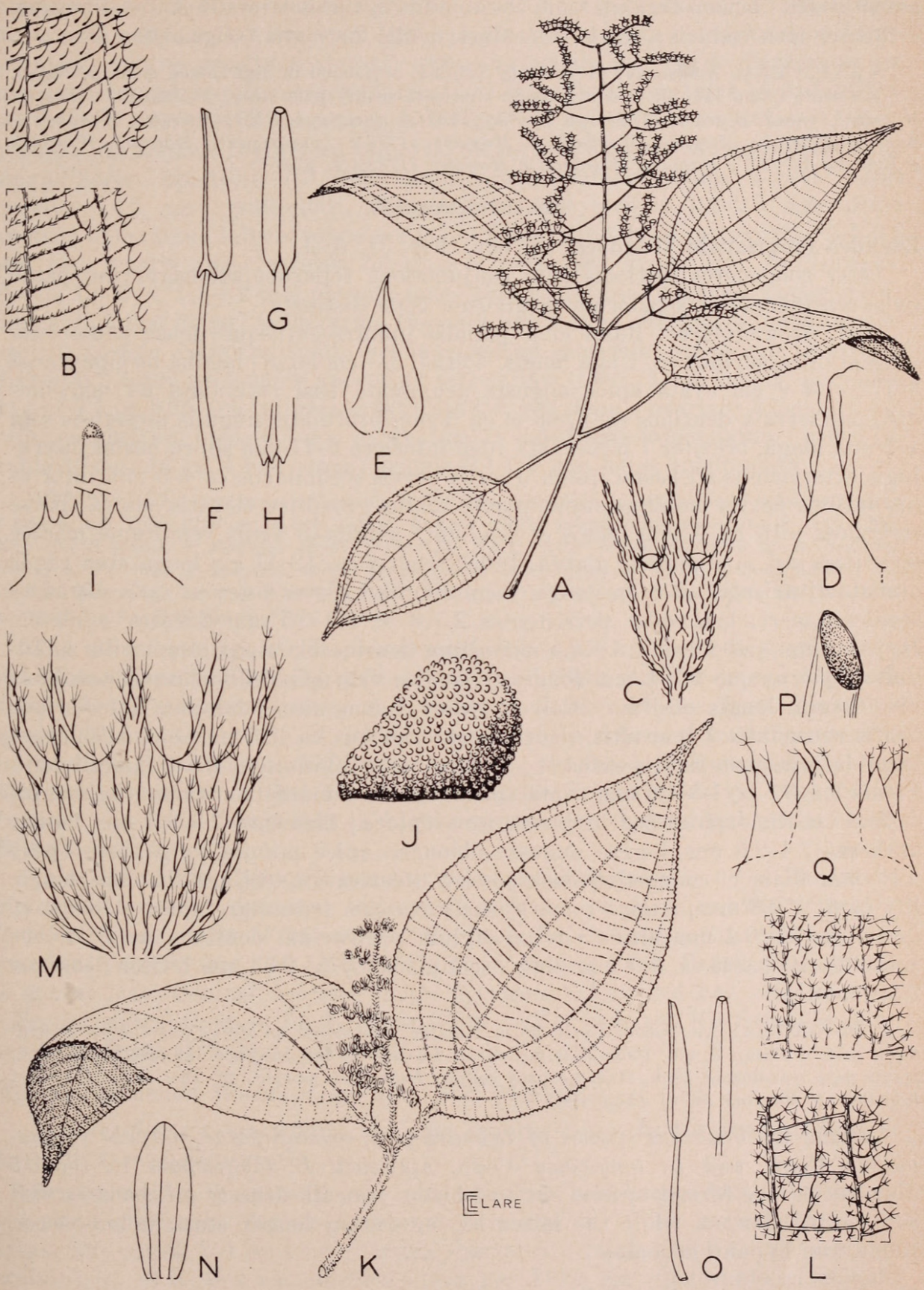

FIG. 31. A–J, *Leandra longisepala*. A, habit, × 0.25. B, detail of upper and lower leaf surfaces, × 2. C, hypanthium plus calyx, × 5. D, sepal and exterior tooth from inside, × 10. E, petal, × 7.5. F–H, stamen in lateral, ventral, and dorsal views, × 10. I, ovary apex, style, and stigma, × 20. J, seed, × 50. K–Q, *Miconia fanshawei*. K, habit, × 0.25. L, upper and lower leaf surface detail, × 2. M, hypanthium plus calyx, × 10. N, petal, × 7.5. O, stamen, lateral and ventral views, × 10. P, stigma, × 25. Q, ovary apex, × 25.

paucivittatis; florum foemineorum staminodiis 5, thecis lateralibus distalibusque, evidenter mox caducis; ovario 5-loculari, ovulis 2-seriatis; stigmatibus 5.

VENEZUELA: Amazonas: Cerro de la Neblina, occasional in high mixed montane forest, 2–8 km south Camp III, alt. 900 m; woody vine with scanty pale latex; 24 Dec 1953, *Bassett Maguire, John J. Wurdack & George Bunting 36881* ♂ (holotype, NY); *Maguire, Wurdack & Bunting 37386* ♂; *Maguire, Wurdack & Maguire 41779* ♀ (paratypes); *Maguire, Wurdack & Bunting 36732* ♂; *Maguire, Wurdack & Maguire 41788A* ♀, *42579*.

MELASTOMATACEAE

Leandra longisepala Wurdack, sp. nov. Fig. 31, A–J.

Inter congeneros sectionis cum conjunctione foliorum submagnorum paulo pubescentiumque et sepalorum magnorum bene distincta.

Sect. *Secundiflorae*. Rami cum petiolis inflorescentiisque dense subsericeo-strigosi pilis laevibus ca. 1 mm longis. Petioli 3–7 cm longi; lamina membranacea 9–17 × 4–9 cm ovata apice anguste acuminata basi rotundata ad margines distincte serrata dentibus ca. 6/cm et ca. 1 mm profundis singulis unisetosis seta 1–2 mm longa, breviter 7-plinervata jugo interiore 6–11 mm supra basim inserto jugis exterioribus ad basim ipsam insertis nervis secundariis ca 4–5 mm inter se distantibus nervis omnibus supra planis subtus graciliter elevatis, supra sparse strigulosa pilis ca. 1 mm longis et 3–4/mm,^{2} subtus in venis venulisque modice strigulosa sed in superficie glabra. Inflorescentia ca. 12–17 cm longa cum ramis arcuato-divaricatis ad 8 cm longis secundifloris. Flores inter se satis distantes sessiles 5-meri; bracteolae persistentes 2.5–3 × 0.3–0.5 mm lineares setulosae. Hypanthium (ad torum) 2.3–2.5 mm altum densiuscule strigulosum pilis eglandulosis plerumque 0.7–1 mm longis et modice cum glandulis clavatis sessilibus vix 0.1 mm longis obsitum. Calycis tubus 1 mm altus, dentibus interioribus ovatis rotundatis 1 mm altis, dentibus exterioribus ca. 2.5 mm longis oblongo-lanceolatis anguste acutis extus et ad margines setulosis setis 0.5–0.7 mm longis. Petala 3.6–3.8 × 1.5–1.6 mm ovata apice anguste acuminata. Stamina in magnitudine vix dimorphica sed in forma isomorphica; filamenta 2.9–3.3 mm longa; antherae 2.4–2.6 mm longae anguste oblongae apice minute uniporosae (poro 0.15 mm diam.), connectivo basi postice unicalcarato calcare 0.2 mm longo. Stylus 6 × 0.3 mm; stigma punctiforme; ovarium triloculare apice glabrum et in collum ca. 0.4 mm altum circum stylum protractum dentibus irregularibus subsetulosis; bacca ca. 6–7 mm diam., seminibus 0.5 × 0.35 mm leviter denseque tuberculatis.

VENEZUELA: Amazonas: Cerro de la Neblina, occasional on slopes just below escarpment east of Camp 3, alt. 1600–1700 m; shrub 1.5–2.5 m, inflorescence branches pale pink, petals pale translucent pink, stamens pale yellow, fruit deep purple; 27 Dec 1953, *Maguire, Wurdack & Bunting 36914* (holotype, NY).

Among the 5-merous species of *Leandra* sect. *Secundiflorae*, only *L. francavillana* Cogn. and *L. longicoma* Cogn. approach *L. longisepala* in sepalar dimensions; the former species has leaf blades beneath densely sericeous as well as crowded flowers, while the latter has spreading longer stem, inflorescence, foliar, and hypanthial hairs.

Miconia pseudocapsularis Wurdack, sp. nov.

M. lateriflorae Cogn. affinis sed cum foliis plinervatis inflorescentiae ramis secundifloris floribus plerumque 5-meris connectivo antice distincte prolongato.

Frutex vel arbor parva usque ad 10 m inflorescentia excepta glabra; ramuli teretes. Folia aequalia vel vix inaequalia; petioli 1–7 cm longi; lamina mem-

branacea (6–)12–21 (acumine excluso) × (2.5–)5.5–12 cm apice subabrupte acuminata acumine 1–2 cm longo basi cuneata 5-plinervata nervis omnino supra subplanis subtus graciliter elevatis nervis primariis per paria plerumque vix inaequaliter insertis nervis secundariis plerumque 5–10 mm inter se distantibus nervulis laxe reticulatis, ad margines integra vel inconspicue crenulata. Inflorescentia inconspicue furfuracea usque ad 10 cm alta cum ramis longis divaricatis secundifloris; bracteolis 0.3 mm longis ovatis caducis; flores 5-meri glabri breviter (0.5 mm) pedicellati. Hypanthium (ad torum) 2.2–2.5 mm altum anguste oblongum; calycis tubus vix 0.1–0.2 mm altus, lobis interioribus 0.4–0.6 mm altis ovatis apice obtusis, dentibus exterioribus acutis non eminentibus. Petala 1.8–2 × 1.1–1.2 mm obovata apice oblique retusa. Stamina isomorphica; filamenta 3 mm longa; antherarum thecae 3 mm longae curvatae subulatae, connectivo postice exappendiculato vel inconspicue calcarato antice sub insertione filamenti 0.4 mm prolongato appendice extremitate 0.1–0.15 mm hebeti-bilobulato. Stylus 7.5 × 0.25 mm; stigma truncatum 0.3 mm diam.; ovarium 3-loculare vix inferum glabrum apice 0.3 mm excavatum et indistincte trilobulatum; bacca i.s. valde 10-costata ca. 4 mm longa; semina 0.4–0.5 mm longa tuberculata.

VENEZUELA: Amazonas: Cerro de la Neblina, abundant in talus forest between Camps 3 and 4, alt. 1000–1200 m; shrub 2–5 m, flowers white, young fruit greenish; 9 Nov 1957, *Maguire, Wurdack & Maguire 42015* (holotype, NY); talus forest of Cerro de la Neblina, *Maguire, Wurdack & Maguire 42004* (paratype); talus forest of Cerro Huachamacari, alt. 1100 m, *Maguire, Cowan & Wurdack 29827* (paratype); slopes of Caño Negro, alt. 305–1095 m, Cerro Duida, *Steyermark 57977* (paratype).

The closest relative of *M. pseudocapsularis* is an undescribed species from the Gran Sabana and Tafelberg, having the paniculate inflorescence of *M. lateriflora* but the plinerved leaves and 5-merous flowers of the Terr. Amazonas species. The fresh fruit of *M. pseudocapsularis* is a spherical translucent white to pale orange berry with high water content; the dried fruit simulates a capsule to such an extent that Dr. Gleason, unable to determine the Steyermark fruiting collection, noted that it might represent an undescribed genus of the *Bertolonieae*.

In updating Dr. Gleason's manuscript of the *Melastomataceae* of Panama, I introduced without comment the synonymization of *M. disparilis* (Standl.) R. O. Williams under *M. lateriflora;* the basis for this synonymy has been the examination of *Baker 116* (MG 9368), from Marco, Pará, Brazil. The species is known from Central America to the Amazon Valley and has been recently collected several times in Pará; *Froes 23810* (NY), from the Rio Solimões, is an exact duplicate of Baker's collection.

Miconia yatuensis Wurdack, sp. nov. Fig. 32, A–E.

M. lateriflorae Cogn. affinis, sed cum ramulis dense furfuraceo-puberulis et foliis distincte 5-plinervatis.

Frutex ad 1.5 m; ramuli cum inflorescentiis petiolisque dense furfuraceipubescentes primum fusco-rufi demum fuscescentes. Folia aequalia vel subdisparilia; petioli 2–4 cm longi; lamina chartacea nitidula (10–)15–23 (acumine excluso) × (4.5–)6–9 cm elliptica apice per 1–1.5 cm subabrupte acuminata basi vix cuneata ad margines (praecipue apicem versus) undulato-crenata dentibus cum cilio brevi caduco armatis triplinervata nervis lateralibus subbasilariter insertis sed usque ad 5–10 mm non divergentibus nervis secundariis tertiariisque supra et subtus vix prominentibus tertiariis laxe reticulatis secundariis ca. 1 cm inter se distantibus, subtus per venam medianam modice fur-

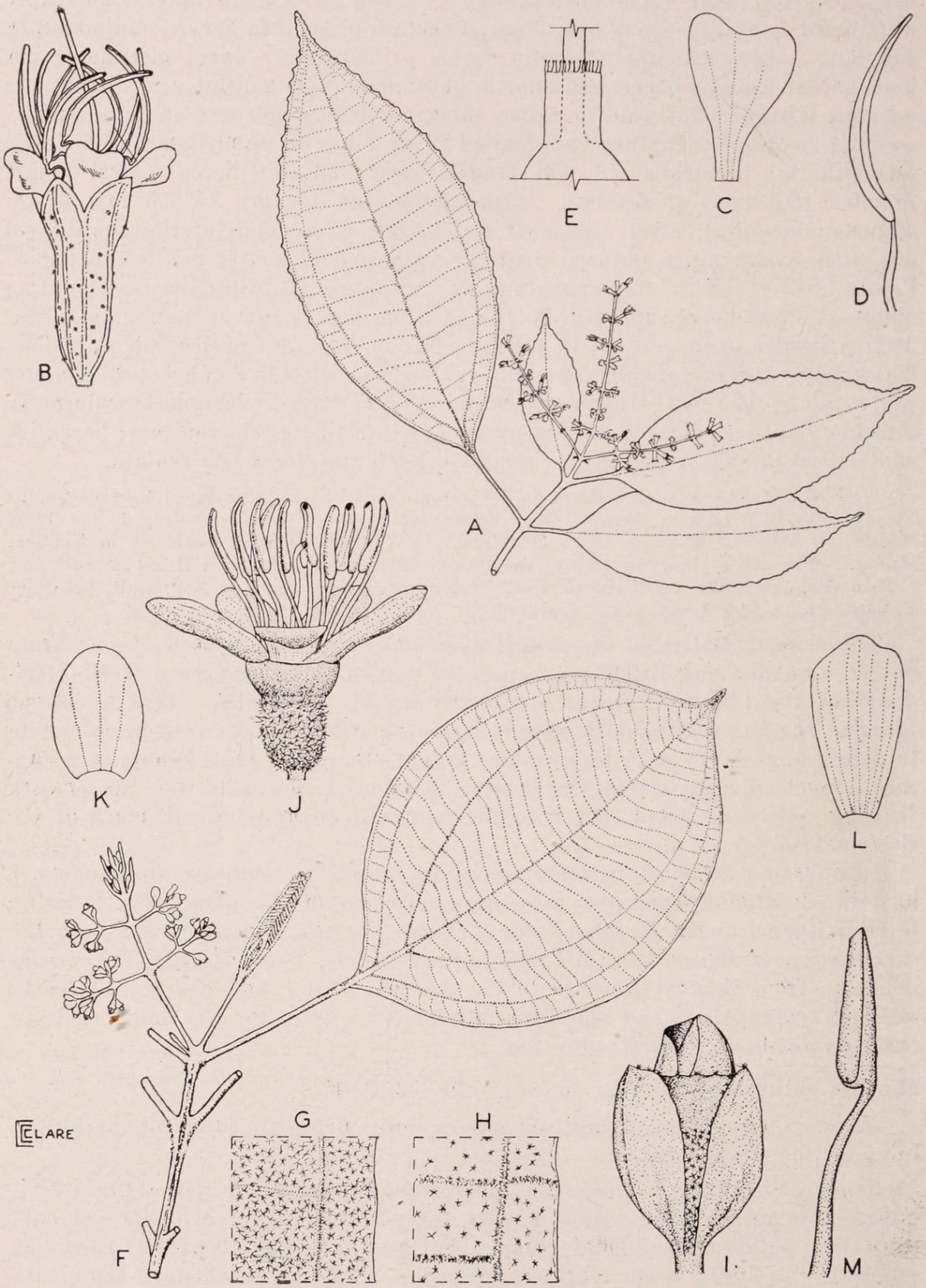

FIG. 32. A–E, *Miconia yatuensis*. A, habit, × 0.3. B, flower, × 7.5. C, petal, × 15. D, stamen, lateral view, × 10. E, ovary apex, × 15. F–M, *Miconia perobscura*. F, habit, × 0.3. G, upper leaf surface, × 5. H, lower leaf surface, × 5. I, bud with bracteoles, × 7.5. J, flower, × 5. K, bracteole, × 7.5. L, petal, × 5. M, lateral view of stamen, × 10.

furacea alioqui glabra. Inflorescentia ca. 7 cm longa plerumque cum ramis duobus 2.5–5 cm longis; ramuli usque ad 5 mm longi confertiflori pauciflori. Flores 4-meri sessiles. Hypanthium (ad torum) 3.4 mm altum anguste oblongum sparse furfuraceo-puberulum 8-sulcatum; calycis lobi interiores membranacei ad 0.2 mm coaliti abrupte acuti, lobis exterioribus quam interioribus vix longioribus 0.6 mm altis triangulari-ovatis apice late acutis. Petala 1.6 × 1–1.1 mm obovata apice oblique retuso-truncata extus vix granulosa. Stamina isomorphica; filamenta 1.3–1.5 mm longa; antherarum thecae 2.6–2.9 mm longae curvatae, connectivo sub thecis 0.3 mm prolongato cum filamento simpliciter articulato non appendiculato. Stylus 5.7 × 0.2 mm; stigma truncatum ca. 0.15 mm diam.; ovarium 3-loculare apice in collum 0.6 mm altum circum stylum prolongatum collo apice brevissime (0.1 mm) glanduloso-ciliato.

VENEZUELA: Amazonas: occasional in flooded forest of uppermost Río Yatua, alt. 140 m; weak shrub, flowers white; 7–8 Dec 1953, *Maguire, Wurdack & Bunting 36695* (holotype, NY); same locality, *Maguire, Wurdack & Bunting 36530* (paratype).

M. lateriflora has glabrous branchlets and basally nerved leaves.

Miconia rupticalyx Wurdack, sp. nov.

M. wagneri Macbr. valde affinis sed cum pubescentia stellata non stipitata bracteolis conspicuis persistentibus connectivi appendice dorsali minore.

Sect. *Laceraria*. Rami teretes vel vix complanato-teretes cum inflorescentiae ramis petiolisque densiuscule stellato-furfuracei. Petioli 4–11 cm longi; lamina membranacea 12–28 × 9–19 cm late ovata apice per 1–2 cm subabrupte angusteque acuminata basi rotundata ad margines undulato-serrulata dentibus ca. 2–3 mm inter se distantibus unisetulosis seta caduca ad 1 mm longa, 5- vel indistincte 7-nervata nervis secundariis 5–9 mm inter se distantibus tertiariis laxe reticulatis omnibus supra subplanis subtus graciliter elevatis, supra glabra, subtus in nervis primariis sparse vel modice stellato-furfuracea alioqui glabra. Inflorescentia paniculata ca. 10–12 cm longa lataque ramis oppositis vel subtus in cuique nodo in paribus duobus distictis; ramuli divaricati. Flores in capitulis paucifloris congesti plerumque 4-meri sessiles; bracteolae ad 1 × 2 mm reniformes amplectae ad margines fimbriatulae et sparse stellato-puberulae. Hypanthium (ad torum) 1.9 mm longum primum sparse stellato-puberulum glabratum; calyx glaber primum in cono membranaceo apiculato ca. 0.7 mm alto clausus demum in lobis irregularibus persistentibus ruptus, dentibus exterioribus obscuris. Petala 2.2–2.3 × 1.3–1.4 mm oblongo-obovata apice rotundata. Stamina fere isomorphica; filamenta 1.6–1.7 mm longa; antherarum thecae 1.9–2 mm longae, connectivo basi vix (0.2 mm) prolongato et postice in calcar 0.1–0.15 mm longo elevato. Stylus 5.6 × 0.3 mm; stigma vix capitulatum vel truncatum 0.4 mm diam.; ovarium (2–) 3-loculare apice in collum 0.6 mm altum circum stylum prolongatum apice lacerato et inconspicue ciliolato ciliis glanduliferis 0.2 mm longis.

VENEZUELA: Amazonas: Cerro de la Neblina, occasional in talus forest between Camps 3 and 4, alt. 1000–1200 m; tree 5–8 m, petals white, anthers yellow; 9 Nov 1957, *Maguire, Wurdack & Maguire 42013* (holotype, NY).

M. wagneri has short-stalked stellate trichomes, inconspicuous setaceous early-caducous bracteoles and a conspicuous blunt dorsal connective appendage 0.2–0.25 mm long. Another close relative, *M. duckei* Cogn., has stalked stellate hairs on inflorescence, stem, and lower leaf surface, and predominantly 5-merous flowers with the young hypanthium setulose and the dorsal stamen connective

calcar 0.3–0.4 mm long. It seems probable that further collections will show *M. dorsiloba* Gleas., of Costa Rica and Colombia, to be conspecific with *M. duckei.* These four species, together with M. *centrodesma* Naud. (and probably *M. diaphanea* Gleason), all have a calyptrate apiculate calyx splitting irregularly at anthesis and persisting. Following Cogniaux' classification, all belong in sect. *Laceraria.*

Miconia centrodesma Naud.

M. buchtienii Cogn. Repert. Sp. Nov. 8: 2. 1910.
M. subtriloba Gleason, Bull. Torrey Club 58: 429. 1931.

This widespread species is now known in the Guayana area from several Schultes collections in the Vaupés drainage, from the slopes of Cerro Duida, and from the Neblina slopes (*Maguire, Wurdack & Maguire 42017*). Two isotypes (*Martius Herb. Fl. 498*) have been examined and show predominantly 4-merous flowers, as do other specimens over the species range; the original description of 5-merous flowers was probably based on one of the few anomalous flowers always found in a large collection series.

Miconia fanshawei Wurdack, sp. nov. Fig. 31, K–Q.

M. diaphaneae Gleas. affinis sed cum foliis supra subpersistenter pubescentibus hypanthio densissime longeque hirsuto calycis dentibus exterioribus eminentibus.

Frutex; rami cum petiolis inflorescentiis hypanthiisque densissime hirsuti pilis stipitato-stellatis plerumque 1.5–3 mm longis stramineis. Petioli 1.5–4 cm longi; lamina chartacea 15–25 × 8–15 cm ovato-oblonga vel ovata apice graditer vel subabrupte acuminata basi plerumque cuneata serrulata dentibus 1–2 mm profundis et ca. 2 mm inter se distantibus 5- vel sub-7-plinervata, supra primum modice cum pilis stipitato-stellatis vestita tarde glabrata pilis in venis primariis plusminusve persistentioribus, subtus praecipue in venis venulisque modice cum pilis stipitato-stellatis induta. Inflorescentia 3–13 cm longa plusminusve compacta ramulis brevibus vel brevissimis. Flores 5-meri sessiles in glomerulis lateralibus compactis. Hypanthium (ad torum) 2.5 mm altum; calycis tubus 0.2 mm altus, lobis interioribus anguste triangularibus et stipitato-stellato-setulosis cum corpore 0.4–0.5 mm longo, lobis exterioribus linearibus acutis dense stipitato-stellato-setulosis cum corpore 1.3–1.5 mm longo lobos interiores ca. 1 mm superantibus. Petala 2.7–3.5 × 0.7–1 mm oblonga apice rotundata. Stamina fere isomorphica; filamenta 2 mm longa; antherarum thecae 2 mm longae, connectivo basi non vel vix (ad 0.3 mm) prolongato et cum filamento simpliciter articulato non appendiculato. Stylus 5–6 × 0.25–0.35 mm; stigma leviter expansum; ovarium 3-loculare apice in collum 0.3–0.6 mm longum circum stylum protractum collo apice vix lacerato et leviter setuloso.

BRITISH GUIANA: Mile 114, Bartica-Potaro Road; subshrub of roadside and open places on lateritic ironstone gravel, inflorescence scarlet, flowers yellow; 6 Mar 1949, Brit. Guiana For. Dep. 6019 (*D. B. Fanshawe F2872*) (holotype, NY, isotype, K); Mile 115, Bartica-Potaro Road, FD 3820 (*Fanshawe F1084*) (K); Eagle Mountain, Potaro River, FD 5494 (*Fanshawe F2701*) (K, NY) (paratypes).

M. diaphanea has the upper leaf surface pubescence almost completely limited to the primary veins, the long hypanthial pubescence limited to the apex, and very short exterior calyx teeth which are exceeded by the interior teeth. As compared with the other two collections, the Eagle Mountain paratype of *M. fanshawei* shows extremely compact inflorescences with lateral branches

scarcely developed; future collections may well show this population to be infraspecifically separable, but there seem to be no floral differences. The radiate trichome branches of the British Guiana species generally are longer than in *M. diaphanea,* but there is overlapping in this character. I was unable to see, even in young buds of *M. fanshawei,* a calyptriform calyx such as is apparently found in *M. diaphanea;* such an observation could be much more easily made in the field on fresh material since the dense pubescence obscures all such delicate features in dried specimens.

Miconia argyrophylla DC. subsp. **gracilis** Wurdack, subsp. nov.

Rami juniores obtuse quadrangulati, vetustiores subteretes. Inflorescentiae ramuli ex axe primario graciles ad basim ca. 0.4–0.5 mm diam.

BRAZIL: Amapá: Serra do Navio, frequent in lowland forest along trail to Rio Araguary; tree 4 m tall, flowers white; 19 Nov 1954, *R. S. Cowan 38428* (holotype, NY); Serra do Navio, *Cowan 38345, 38380* (paratypes). Pará: Akarai Mts. in Rio Mapuero drainage, *A. C. Smith 2933;* Akarai Mts., Imaibau hills, *Guppy 533* (Brit. Guiana For. Dep. 7548) (paratypes).

SURINAME: Rikenau Hill No. 3, vicinity of Moengo, *Cowan 38973* (paratype).

BRITISH GUIANA: basin of Essequibo River near mouth of Onoro Creek, *A. C. Smith 2678* (paratype).

In typical *M. argyrophylla* (including var. *attenuata* Cogn.), the branches are acutely quadrangular and the inflorescence branches 0.7–1 mm diam. *M. crassinervia* Cogn. was placed by Cogniaux in sect. *Chaenanthera;* the *Flora Brasiliensis* illustration shows anthers longitudinally rimose basally but not apically. I have examined two sheets of the type collection (*Riedel 1396,* K, W) and cannot distinguish them from Guiana specimens ascribed to typical *M. argyrophylla;* the anther clefting seems to be caused by drying and/or pressing, rather than a genetic mechanism, and occurs sporadically in Guiana collections of *M. argyrophylla* sensu Cogniaux. Martius synonymized *M. stenostachya* DC. with *M. argyrophylla* and illustrated flowering material of *M. stenostachya* (Nov. Gen. Sp. Plant. **3**: *fig 284*). Unfortunately the type collection of *M. argyrophylla* is fruiting and I have not as yet been able to compare the holotype with recent flowering material. So many *Miconia* species have the same gross aspect as *M. argyrophylla* that the absolute synonymization of *M. crassinervia* is deferred.

Miconia cowanii Wurdack, sp. nov.

M. lepidotae DC. affinis sed cum foliis proportionaliter angustioribus, pube cinerea, antherarum connectivo subtus prominenter expanso.

Sect. *Miconia* subsect. *Seriatiflorae.* Rami acute tetragoni cum petiolis foliis subtus inflorescentiis hypanthiisque pube albido-cinerea stellato-lepidota dense obsiti. Petioli 1–2.5 cm longi; lamina vix coriacea 11–26 × 3–8.5 cm elliptica apice graditer vel subabrupte acuminata basi acuta 5-nervata vel paulo (ad 3 mm) 5-plinervata nervis exterioribus tenuibus nervis secundariis supra vix impressis subtus anguste elevatis nervis tertiariis subtus laxe reticulatis margine integerrima supra glabra. Inflorescentia paniculata 12–28 cm longa cum ramulis extremis secundifloris; flores 5-meri sessiles. Hypanthium (ad torum) 1.9–2.1 mm altum; calycis tubus 0.5 mm altus lobis 0.4 mm altis late deltoideis dente inconspicuo extus ornatis. Petala 2.6–3.1 × 1.5–1.8 mm apice oblique rotundata glabra eciliata. Stamina paulo dimorphica; filamenta 2.2–2.5 mm longa. Sta-

mina antesepala: thecae 1.8–2 mm longae connectivo sub loculis antice 0.2–0.3 mm prolongato et in appendice cordiformi 0.6–0.9 mm longa lataque terminato. Stamina intersepala: thecae 1.6 mm longae, connectivo antice 0.5 mm prolongato et lateraliter bidentato postice sub insertionem filamenti in appendice 0.4 mm longa acuta prolongato. Stylus 3.5 × 0.2 mm apice clavatus cum stigmate 0.5–0.6 mm diam.; ovarium 3-loculare apice in conum glabrum 0.2 mm altum prolongatum; fructus (vix immaturus?) globosus non striatus ca. 4 mm diam. cum calyce persistente.

BRAZIL: Amapá: Serra do Navio, Rio Amapari, occasional in lowland forest along trail to Serra do Viado via Water Supply Dam; tree 7 m tall, flowers white; 17 Nov 1954, *R. S. Cowan 38399* (holotype, NY); Serra do Navio; tree 6 m on southeast lower slopes of Chumbo Ore Body, *Cowan 38071;* tree 10 m on lower slopes of Observatorio Ore Body, *Cowan 38160* (paratypes).

The leaf blades of *M. lepidota* have a length/width ratio of about 2 rather than 3–4, as well as predominantly fulvous stellate-lepidote pubescence rather than predominantly silvery white scales with only scattered fulvous ones; the stamen connectives of *M. lepidota* are proportionately longer-prolonged basally with much smaller basal expansion. *M. cowanii* has somewhat the aspect of *M. argyrophylla* DC., which however has an indiscrete indumentum and glandular-ciliate petals. *M. punctata* (Desr.) Don has a tawny indument, firmer leaves, and anthers widest apically (rather than oblong with a relatively smaller pore), at least in West Indian material.

Miconia navioensis Wurdack, sp. nov.

M. seriali DC, in aspectu arcte affinis sed pubescentia tenuiori floribus vix minoribus connectivo staminum antesepalorum subtus proportionaliter longe prolongato.

Sect. *Miconia* subsect. *Seriatiflorae.* Rami teretes cum petiolis foliis subtus inflorescentiis hypanthiis calycibusque cum pube amorphica tenuissima adpressa pallide fusca dense obsiti. Petioli 1–1.5 cm longi; lamina tenuiter coriacea 9–17 × 2.5–7 cm elliptica apice subabrupte acuminata (acumine 1–1.5 cm longo) basi late acuta vel anguste obtusa margine integerrima 5-nervata nervis duobus exterioribus inframarginalibus nervis secundariis numerosis ca. 2–4 mm inter se distantibus supra vix impressis subtus graciliter elevatis tertiariis laxe reticulatis, supra glabra, subtus cum nervis primariis secundariisque subglabratis. Inflorescentia paniculata 6–10 cm longa ramis longis arcuatis multifloris cum floribus secundis; flores 5-meri sessiles. Hypanthium (ad torum) 1.1 mm altum; calycis tubus 0.7 mm altus apice subtruncatus lobis rotundatis vix 0.2 mm altis. Petala 2.4 × 1.1 mm obovata apice rotundato-subtruncata glabra eciliata. Stamina distincte dimorphica; filamenta 2.3–2.5 mm longa, antheris per porum lateralem pro stamine magnum dehiscentibus. Stamina antesepala: thecae 1.4 mm. longae connectivo usque ad insertionem filamenti 0.6 mm prolongato et sub insertionem postice in appendicem 0.45–0.6 mm oblongam basi rotundato-truncatam armato. Stamina intersepala: thecae 1.2 mm longae, connectivo usque ad insertionem filamenti 0.3 mm prolongato et lateraliter ad 0.4 mm expanso postice sub insertionem in appendicem anguste triangularem 0.5 mm prolongato. Stylus 4.2 × 0.35 mm apice in stigmate truncato 0.4 mm diam. indistincte expansus; ovarium 3-loculare apice in conum subhemisphaericum 0.5 mm altum glabrum prolongatum. Fructus ignotus.

BRAZIL: Amapá: Serre do Navio, Rio Amapari, occasional in forest on Fritz Akerman

Ore Body, alt. ca. 300 m; tree 12 m, flowers white and odoriferous; vern. name "Maramara branco"; *R. S. Cowan 38118* (holotype, NY).

M. serialis has a striking habital similarity to *M. navioensis,* but has a thicker indument and slightly larger flowers with much larger stamens and the antesepalar anther connectives prolonged only about 0.2 mm to the filament insertion, as well as a proportionately smaller anther pore. *M. albicans* (Sw.) Tr. differs from *M. navioensis* in the subcordate to cordate leaf bases, larger flowers, shorter antesepalar anther connective prolongation, very short blunt alternisepalar posterior anther connective spur, and the more distinctly expanded stigma. The large anther pore and long connective prolongation of the flowers of *M. navioensis* are suggestive of *Miconia* sect. *Glossocentrum,* but the obvious close affinity with *M. serialis* makes the present placement desirable.

Miconia abysmophila Wurdack, sp. nov.

M. bracteatae (DC.) Tr. affinis sed cum foliis angustioribus basi anguste acutis superficie supra (venis exceptis) glabra.

Sect. *Miconia.* Rami cum petiolis inflorescentiis hypanthioque densissime incurvo-setulosi pilis laevibus 2–3 mm longis. Petioli 1–3 cm longi; lamina coriacea integra 6.5–11(–15) × 2–4 cm apice acuta vel paulo (usque ad 5 mm) acuminata basi anguste acuta debiliter 3-plinervata (nervis duobus debilibus inframarginalibus neglectis) nervis interioribus alternatim usque ad 2 cm supra basim insertis, supra in nervis primariis secundariisque dense vel sparse strigosis pilis 1–2 mm longis alioque glabra, subtus densiuscule strigosa pilis ca. 1–1.5 mm longis. Inflorescentia spicata cum floribus in glomerulos congestis vel ad basim cum ramulis brevibus lateralibus usque ad 5 mm longis capitulifloris; flores 5-meri sessiles basi bracteolati, bracteolis ca. 2 × 2 mm ad margines lacerato-setosis. Hypanthium (ad torum) 2.5 mm altum; calycis tubus ca. 0.5 mm altus lobis ovatis ca. 0.5 mm altis rotundatis dentibus exterioribus hebeti-acutis quam lobis interioribus vix brevioribus non eminentibus. Petala 4–4.4 × 2.2–2.4 mm anguste obovata apice ipso vix retusa et pauciciliolata. Stamina isomorphica; filamenta 4.5–4.8 mm; antherae arcuato-attenuatae 3.5 mm longae basi non appendiculatae cum filamento simpliciter articulatae. Stylus maturus ignotus; stigma truncatum; ovarium 3-loculare apice libero 1 mm alto obtuse conico et sparse glanduloso-puberulo pilis ca. 0.1–0.15 mm longis.

VENEZUELA: Amazonas: Cerro de la Neblina, occasional in rock crevices along Cañon Grande east of Cumbre Camp, alt. 1100 m; shrub 0.7–1.5 m, buds white, fruit purple-blue; 24 Nov 1957, *Maguire, Wurdack & Maguire 42206* (holotype, NY).

The pertinent differential characters of *M. abysmophila* are summarized in the key to *M. bracteata* and relatives.

Miconia bracteata (DC.) Triana

M. demerarensis Gleason, Bull. Torrey Club **75**:551. 1948.

Gleason's distinctions for *M. demerarensis* do not hold for any series of specimens of this complex; even on the holotype, some stamens have short dorsal connective prolongations below the filament attachment. I have been able to examine holotypic material, except for *M. trichodes* DC. of which material has not been available to any monographer since de Candolle, for all the names involved in this small species group. A tentative key to them follows:

1. Stem and inflorescence hairs strictly appressed. *M. mutabilis* (DC.) Tr.
1. Stem and inflorescence hairs with at least the bases patent.

2. Stamen connectives anteriorly appendaged.
   3. Connectives basally glandular-lobed; leaf primary veins above at maturity nearly or quite glabrous. *M. matthaei* Naud.
   3. Connectives basally with a cordiform appendage; leaf primary veins above persistently setulose. *M. tschudyoides* Cogn.
2. Stamen connectives anteriorly not appendaged.
   4. Calyx lobes scarcely evolved, 0.3 mm high with concave sides; leaves distinctly crenulate. *M. lappacea* (DC.) Tr.
   4. Calyx lobes well developed, 0.5–2 mm high with convex sides; leaves entire to indistinctly crenulate.
      5. Leaves ovate-elliptic, broadly acute to obtuse at the base, the length/width ratio 2–2.5, the upper leaf surface evenly pubescent; calyx lobes 0.8–2 mm high. *M. bracteata* (DC.) Tr.
      5. Leaves narrowly elliptic, narrowly acute at the base, the length/width ratio 3–4.5, the upper leaf surface (apart from the primary and secondary veins) glabrous; calyx lobes 0.5 mm high. *M. abysmophila* Wurdack.

Miconia ceramicarpa (DC.) Cogn. var. **navioensis** Wurdack, var. nov.

A var. *candolleana* Cogn. differt foliis paulo minoribus subtus intense purpurascentibus pilis hypanthii brevioribus.

Folia 7–11 × 3.5–5 cm subtus purpurascentia densiuscule pilosula pilis ca. 0.3–0.4 mm longis. Hypanthium dense cum setulis patulis 0.5–0.7 mm longis hirsutum.

BRAZIL: Amapá: Serra do Navio, abundant on southeast lower slopes of Chumbo Ore Body, alt. 150 m; herb rooting along stem, covering forest floor densely, leaves dark green above and purple beneath, petals rose, stamens white, fruit rose; 1 Nov 1954, *R. S. Cowan 38075* (holotype, NY); Serra do Navio, Water Supply Dam along trail to Serra do Viado, *Cowan 38390* (paratype).

In the typical variety of *M. ceramicarpa* and in var. *violacea* (DC.) Cogn., the stem pubescence is appressed and the appressed lower leaf surface pubescence is limited to the veins and venules. In var. *candolleana,* the apparently concolorous mature leaf blades are 12–16 × 5–8 cm and the hypanthial hairs are 1–1.5 mm long; it is represented, apart from the syntypes, by *Cowan 38386* from the lowland forest near Serra do Navio.

Miconia borjensis Wurdack, sp. nov.

M. aulocalyci Mart. ex Tr. et *M. abbreviatae* Mgf. affinis sed cum floribus maioribus plerumque 6-meris.

Sect. *Miconia.* Rami superne leviter compressi vetustiores teretes juniores cum petiolis inflorescentiis hypanthiisque sub lente dense adpresseque stellato-sublepidoto-pubescentes. Petioli 1.5–2 cm longi; lamina 8–15 × 2.5–5 cm anguste ovata vel ovato-elliptica apice sensim acuminata basi late acuta tenuiter coriacea vel membranacea ad margines indistincte serrulata serratulis tenuibus ca. 2 mm inter se distantibus 3-nervata vel indistincte 5-nervata (propterea 5-plinervata nervis interioribus duobus 2–3 mm supra basim insertis) nervis secundariis supra vix impressis vel obsoletis subtus leviter elevatis, tertiariis vix evolutis cum areolis magnis laxis, supra glabra, subtus dense vel densiuscule adpresseque albido-stellato-sublepidoto-pubescens. Paniculae 3-10 cm longae ramis trifloris vel simpliciter furcatis cum ramulis plerumque trifloris; flores plerumque 6-meri rare 5-meri plerumque 1–2 mm pedicellati ad basim hypanthii bibracteolati bracteolis caducis linearibus 5 × 0.9–1.6 mm. Hypanthium (ad torum) ca. 3 mm altum; calycis tubus 1.4–1.5 mm altus apice truncatus extus

inconspicue 6-dentatus dentibus non eminentibus. Petala 6–6.5 × 4–4.5 mm obovata apice oblique truncata extus centraliter granuloso-sublepidoto-pubescentia. Stamina subisomorphica; filamenta ca. 6 mm longa; antherarum thecae 4.5–5 mm longae oblongo-lanceolatae connectivo postice 0.2 mm vel 0.4–0.6 mm in appendice truncato prolongato antice non vel vix bilobulato glabro vel ad basim per margines cum glandulis minutis sessilibus munito. Stylus 10.5–12.5 × 0.6–0.8 mm basim versus sparse stellato-puberulus; stigma truncatum 0.5 mm diam.; ovarium 6-loculare apice in collum 0.7–0.9 mm altum ad verticem stellato-puberulum protractum.

VENEZUELA: Bolívar: frequent at base of Cerro San Borja, Río Orinoco, alt. 100 m; shrub 3 m, petals white, flowers mostly 6-merous; 12 Dec 1955, *Wurdack & Monachino 39827* (holotype, NY); occasional along Río Parguaza between mouth and El Carmen (50 river km upstream), alt. 80–110 m; shrub 1.5 m, flowers white; 3 Jan 1956, *Wurdack & Monachino 41086;* La Paragua, Río Paragua, alt. 70 m, *L. Williams 12591* (NY) (paratypes).

The field notes for the type collection indicate that the leaves are sometimes 3-whorled. Both of the paratypes have leaf blades proportionately wider than in the type collection and, in *41086,* of thinner texture.

Both *M. aulocalyx* and *M. abbreviata* have 5-merous flowers, hypanthium plus calyx 3–3.5 (rather than ca. 4.5) mm long (ex Macbride photographs), and entire leaves. From the foliar variability seen in New York material of *M. aulocalyx* and *M. abbreviata,* the distinctness of these two species seems doubtful although *M. aulocalyx* was described with glabrous petals and *M. abbreviata* with pubescent petals. The flower size in *M. borjensis* suggests somewhat *Miconia* sect. *Tamonea* near *M. trailii* Cogn. I have examined the Kew material of *M. trailii,* which has much larger leaves with prominent tertiary veins and coarser pubescence, smaller bracteoles, and larger flowers with the campanulate-oblong regularly sulcate calyces and long-attenuate anthers characteristic of other members of sect. *Tamonea,* rather than suggesting a close relationship with *M. borjensis.*

Miconia guaiquinimae Wurdack, sp. nov.

M. pilgerianae Ule in inflorescentiae antherarumque forma affinis, sed cum foliis subtus pubescentia densissima sublepidoto-stellata appressaque vestita.

Sect. *Glossocentrum.* Rami juniores obtuse quadrangulati vetustiores teretes cum foliis subtus petiolis inflorescentiis hypanthiisque densissime granuloso-stellato-pubescentes pube primum rava demum fuscescenti. Petioli 1–2 cm; lamina coriacea plerumque 6–15 × 2.5–5 cm elliptica apice graditer vel subabrupte brevi-acuminata basi late acuta vel anguste rotundato-obtusa, supra primum modice stellulato-puberula demum glabrata, trinervata (jugo inframarginali debili neglecto) nervis secundariis supra anguste impressis subtus elevatis utrinque 15–20 et 3–6 mm inter se distantibus tertiariis non evolutis, ad margines integerrima. Inflorescentia paniculata 7–12 cm longa ramis distichis ad nodos plerumque 4; flores 5-meri sessiles, bracteolis ca. 0.5 mm longis oblongo-linearibus valde caducis. Hypanthium (ad torum) 2 mm altum; calycis tubus 0.4 mm altus ad apicem cum lobulis indistinctis 0.2 mm altis. Petala ca. 2.2 × 1 mm obovato-oblonga apice rotundata extus et intus cum marginibus superficieque granuloso-puberulis. Stamina paulo dimorphica apice cum poro lato 0.4 mm diam. dehiscentia, filamentis ca. 2.4 mm longis. Stamina antesepala; thecae 0.9 mm longae, connectivo sub loculis 0.7–0.9 mm prolongato et postice in appendice rotundata 0.3–0.6 mm prolongato. Stamina intersepala: thecae 0.9–1 mm longae, connectivo sub loculis 0.7–0,8 mm prolongato et

postice in appendicem triangularem prolongato. Stylus 4.2 × 0.4 mm apice vix (ad 0.5 mm diam.) in stigma truncatum expansus; ovarium 3-loculare apice truncatum et minute granulosum.

M. guaiquinimae Wurdack subsp. **guaiquinimae.**

Lamina usque ad 9 × 4.5 cm late elliptica apice subabrupte breviacuminata basi rotundato-obtusa proportione longitudinis/latitudini ca. 2:1.

VENEZUELA: Bolívar: Cerro Guaiquinima, Río Paragua, infrequent in quebrada below southeast escarpment, alt. 1600–1700 m; tree 4 m high, flowers white and very fragrant; 7 Jan 1952, *Bassett Maguire 33024* (holotype, NY), lower slopes of Ilu-tepuí, occasional in low *Clusia-Magnolia* woodland on ridge east of Mesa Grande, alt. 1650 m; tree 10 m in bud; 9 Mar 1952, *Maguire 33320* (paratype).

M. guaiquinimae Wurdack subsp. **angustifolia** Wurdack, subsp. nov.

Lamina usque ad 15 × 5 cm anguste elliptica apice graditer acuminata basi late acuta proportione longitudinis/latitudini ca. 3–4:1.

VENEZUELA: Bolívar: Cerro Guaiquinima, occasional in mixed montane forest at Intermediate Camp, alt. 1200 m; tree 15 m tall; 14 Jan 1952, *Bassett Maguire 33102* (holotype, NY).

Both *M. pilgeriana* and the closely related *M. stellipilis* Cogn. have much sparser foliar pubescence, with individually much larger stellate hairs, and considerably smaller flowers, with the hypanthium plus calyx only 1–2 mm long. The pubescence of *M. guaiquinimae* is intermediate between these two subandean species and that of the scorpioid-cymed group centering around the poorly distinguishable species *M. punctata* (Desr.) Don and *M. lepidota* DC.; *M. semisterilis* Gleason, with compact-scorpioid inflorescence branches, seems to be a very close relative of these two widespread species, but has stamens similar to *M. guaiquinimae* and its relatives in sect. *Glossocentrum*. The inflorescence pattern is basically quite different in the two species-groups, with the *M. pilgeriana*-group having four branches per main inflorescence axis node while the *M. punctata*-group has two branches per node.

Miconia perobscura Wurdack, sp. nov. Fig. 32, F–M.

De affinitate mihi incognita sed ob stamina de sectione *Amblyarrhenae*.

Ramuli sulcato-quadrangulati primum sparse cum pilis brevistipitatis stellatis muniti et densiuscule cum inflorescentiae ramis petiolis laminisque pilis stellatis sessilibus obsiti. Petioli 4–13 cm longi apicem versus cum pilis brevistipitatis stellatis subpersistentibus densiuscule armati; lamina chartacea vel subcoriacea (9–)15–23 × (5–)10–17 cm late elliptica apice abrupte breviterque (ad 1 cm) acuminata basi late obtusa vel truncata ad margines inconspicue crenulata 7-plinervata nervis primariis interioribus usque ad 7 cm supra basim insertis paribus exterioribus 5–10 et 8–15 mm supra basim insertis nervis secundariis 3–6 mm inter se distantibus et marginem versus paulo arcuatis tertiariis laxe reticulatis, nervis ambiter supra subplanis subtus anguste elevatis, nervis primariis subtus ad laminae basim cum pilis brevi-stipitatis stellatis obsitis, superficie subtus subglabrata. Inflorescentia laxe paniculata usque ad 20 cm longa lataque; bracteae valde caducae vix carinatae in ramis primariis oblongo-lanceolatae et ad 15 × 4 mm, in ramulis oblongo-ovatae et ad 7 × 4 mm sparse (in nervis densiuscule) stellato-puberulae. Flores 5-meri breviter (1–3 mm) pedicellati cum bracteolis duabus conspicuis ca. 2.5–3.5 × 2.3 mm in anthesi caducis ovalibus vel suborbicularibus sparse stellato-puberulis ad basim hypanthii insertis investi. Hypanthium (ad torum) 2 mm altum dense

stellato-puberulum; calycis tubus 1–1.2 mm altus subglaber apicem inconspicue 5-dentatus dentibus vix 0.1 mm altis. Petala glabra 5–5.2 × 2.3–2.6 mm oblongo-obovata apice rotundata. Stamina isomorphica; filamenta 2.7 mm longa; antherae 2.3 mm longae oblongae non appendiculatae cum poro unico minuto ventraliter subterminali dehiscentes. Stylus ca. 4.5 × 0.5 mm; stigma truncatum; ovarium 3-loculare apice breviter conicum et sparse stellato-puberulum.

VENEZUELA: Amazonas: Cerro de la Neblina, frequent along upper escarpment slopes east of Camp 3, alt. 1700 m; shrub 2–3 m, flowers pale pink; 27 Dec 1953, *Maguire, Wurdack & Bunting 36833* (holotype, NY).

The involucrate floral bracteoles of *M. perobscura* are suggestive of *Miconia* sect. *Tamonea,* the hypanthium of sect. *Octomeris,* but the 4-celled one-pored narrowly oblong non-subulate anthers are congruent with sect. *Amblyarrhena.* No close relatives are apparent, although the leaf venation and shape (apart from the margins) are similar to those of the Ecuadorian *M. rivetii* Dang. & Cherm.

Tococa pachystachya Wurdack, sp. nov. Fig. 33, C–G.

Ut videtur *T. hirtae* Berg ex Tr. affinis sed cum floribus sessilibus in racemo pachystachyo.

Sect. *Epiphysca.* Frutex 0.5–3 m. Rami cum petiolis laminis inflorescentiisque modice setosi setis glanduliferis plerumque ca. 1.5 mm longis sed in formicariis crassioribus et ad 3 mm. Folia plerumque vesiculifera sed pro parte vesiculis nullis; petioli (formicario excluso) ad 1 cm longi; formicaria in foliis maioribus ca. 2–2.5 cm longa et usque ad 1 cm lata ½–2/3 in lamina immersa; lamina vesiculifera plerumque 12–21 × 6–9 cm (in lamina non-vesiculifera 4–7 × 2–3 cm) elliptica vel vix obovato-elliptica apice per ca. 1–1.5 cm subcaudato-acuminata basi supra formicarium cordulata breviter 7-plinervata (vel in folio minore 7-nervata) nervis omnino supra indistincte impressis subtus vix elevatis nervis secundariis plerumque 3–5 mm inter se distantibus, ad margines indistincte irregulariterque undulata. Inflorescentia tetragona et 4-alata 7–15 cm longa 5–8 mm crassa racemiformis; flores 5-meri sessiles in angulis oppositis rhachis distichi et ut videtur in paribus, ad basim cum bracteolis duabus ca. 2–3 × 1–1.5 mm late ovatis apice obtusis extus apicem versus paucisetosis investi. Hypanthium (ad torum) 3–3.2 mm altum glabrum; calycis tubus 0.9-1 mm altus apice indistincte 5-lobatus lobis rotundatis usque ad 2 mm altis apice 1–2-setosis setis glanduliferis ca. 1.5 mm longis. Petala 6.8–7 × 4.2–4.4 mm oblongo-obovata apice oblique truncata glabra. Stamina isomorphica; filamenta 4 mm longa; antherae 3.3–3.5 mm longae oblongae leviter arcuatae ventraliter uniporosae non appendiculatae. Stylus ca. 6 × 0.6 mm; stigma capitatum 1.6–1.9 mm diam.; ovarium 4-loculare apice glabrum et in collum conicum 1 mm altum circum stylum protractum; bacca nigro-caerulea ca. 7 mm diam., seminibus 1 × 0.6–0.7 mm laevibus angulato-pyramidatis.

VENEZUELA: Amazonas: Cerro de la Neblina, frequent in upper slope forest east of Camp 3, alt. 1600 m; shrub 1–2 m, petals burnt orange, stamens white; 24 Jan 1954, *Maguire, Wurdack & Bunting 37368* (holotype, NY); upper escarpment slopes east of Camp 3, alt. 1700 m, *Maguire, Wurdack & Bunting 36832, 36919;* escarpment overlooking Cañon Grande below Cumbre Camp, alt. 1650 m, *Maguire, Wurdack & Bunting 37211;* scrub forest along caño 2 km north of Cumbre Camp, alt. 1700 m, *Maguire, Wurdack & Bunting 37154;* Cumbre Camp swale, alt. 1800–1900 m, *Maguire, Wurdack & Maguire 42126* (all paratypes).

In Cogniaux' treatment, *T. pachystachya* would key closest to *T. capitata* Trail ex Cogn. and *T. trailii* Cogn., both of which have a very short inflorescence

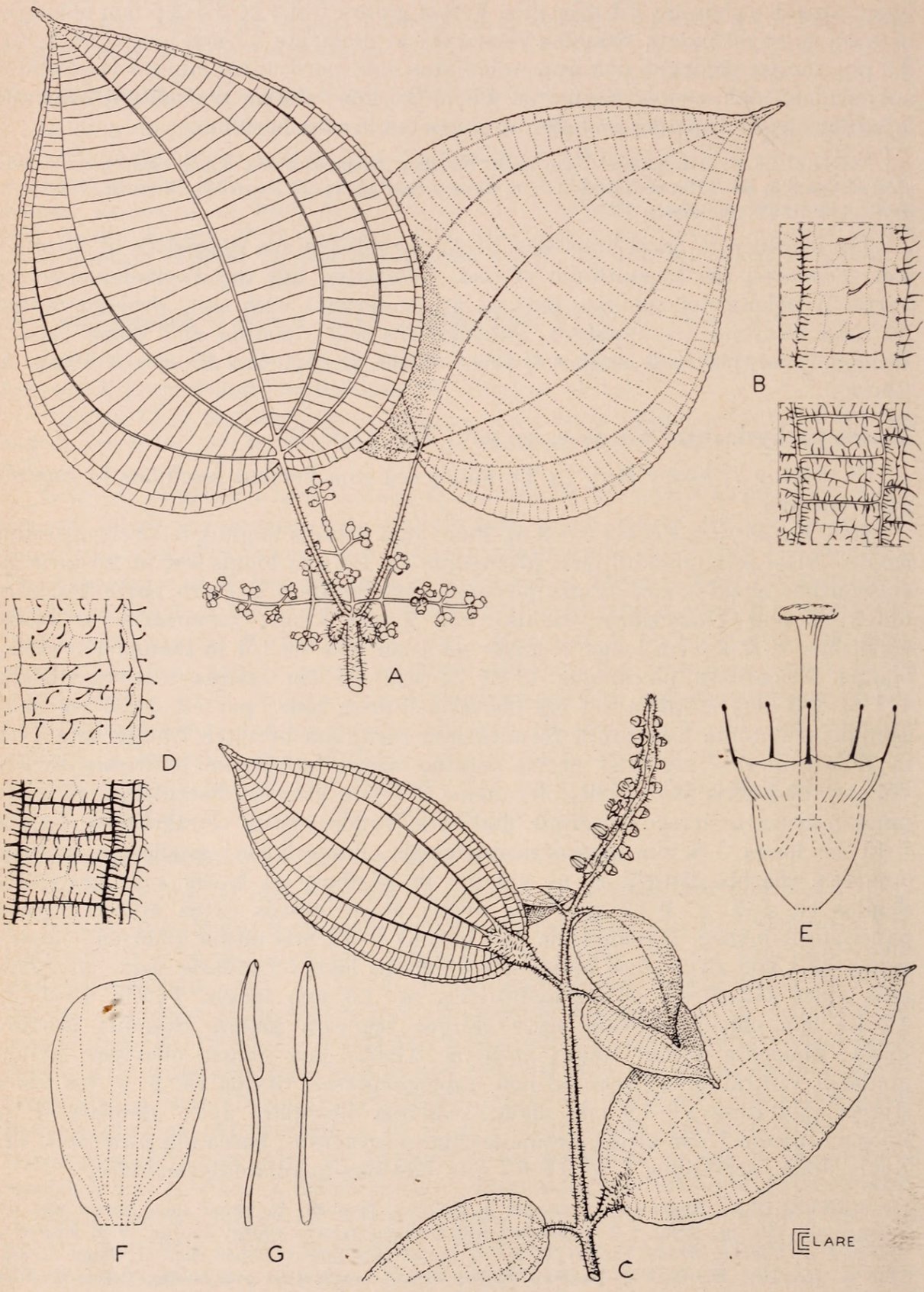

FIG. 33. A, B, *Clidemia neblinae*. A, habit, × 0.25. B, upper and lower leaf surface details, × 2. C–G, *Tococa pachystachya*. C, habit, × 0.25. D, upper and lower leaf surface details, × 2. E, flower with stamens and petals removed, × 5. F, petal, × 5. G, lateral and ventral views of stamen, × 5.

axis and rather different flowers with a setulose ovary apex. In vegetative and flower characters, *T. hirta* seems the closest relative, but differs widely in inflorescence nature, having a loose panicle with a few pedicellate flowers. The thickened inflorescence axis of *T. pachystachya* is not at all teratologic, being constant throughout the abundant Neblina population; such an axis can be seen developed to some extent in such other species as *T. setifera* Pilger and *T. stellata* Gleason, both of which have otherwise nothing suggestive of very close relationship with *T. pachystachya*.

Tococa bolivarensis Gleason subsp. **occidentalis** Wurdack, subsp. nov.

Rami nodis exceptis glabri; folii lamina ad margines primum ciliata sed ciliis valde caducis alioqui glabra; hypanthium glabrum; calycis tubus et lobi sparse glanduloso-setosi.

VENEZUELA: Amazonas: Cerro Yutaje, Río Manapiare, occasional on rocky slopes and cliffs below summit, alt. 2000–2100 m; rounded densely branched shrub 1–3 m high, petals rose-colored, stamens pale yellow; 17–19 Feb 1953, *Bassett Maguire & Celia K. Maguire 35309* (holotype, NY); Cerro Yutaje, alt. 2200 m, *Maguire & Maguire 35319;* Cerro Yaví, alt. 2200 m, *Phelps & Hitchcock 43, 65* (paratypes).

In typical *T. bolivarensis,* known only from Estado Bolívar (Carrao-tepuí, *Steyermark 60856;* Serra do Sol, *Maguire & Maguire 40410*), the branchlet internodes are sparsely glandular-setose and also thinly furfuraceous with clavate sessile glands, the hypanthium as well as the calyx is glandular-setose, and the leaf blades are persistently glandular-ciliate as well as plus-or-minus glandular-setulose marginally above and on the primary veins beneath. The mature calyx of both subspecies is obscurely 5-lobed, rather than strictly truncate as originally described.

Clidemia neblinae Wurdack, sp. nov. Fig. 33, A, B.

C. tococoidiae (DC.) Gleas. et *C. crenulatae* Gleas. in aspectu vegetativo affinis sed inflorescentia bene evoluta et floribus 5-meris.

Rami cum petiolis modice setosi, setis rigidis patentibus 2–3 mm longis et glandula caduca terminatis, et densissime setulosi setulis ca. 0.5 mm longis plusminusve deflexis, ad basim petiolorum vesiculiferi vesiculis reflexis ca. 1 cm longis dense setosis. Petioli (2–)8–13 cm longi; lamina membranacea (13–)20–35 × (6–)13–27 cm ovata apice subabrupte per 1–2 cm acuminata basi leviter cordata ad margines crenato-denticulata denticulis ca. 3–4 per cm et 0.5–1 mm profundis, 7- vel debiliter 9-nervata nervis secundariis ca. 5–8 mm inter se distantibus tertiariis laxe reticulatis nervis omnibus supra subplanis subtus graciliter paulo elevatis, supra in superficie sparse strigulosa (pilis ca. 1/mm^2) et in venis primariis modice reflexo-setulosa pilis omnibus caduco-glanduliferis et ca. 0.5–1 mm longis, subtus in venis primariis densiuscule setulosa in venulis sparse setulosi pilis non-glandulosis plerumque ca. 0.3–0.7 mm longis. Inflorescentia paniculata densissime reflexo-setulosa (setulis ca. 0.3–0.5 mm longis) ca. 10 cm longa, ramis principalibus lateralibus duobus oppositis ad 7 cm longis subbasilaribus. Fructus 5-meri sessiles teretes ca. 5 mm diam. densiuscule puberuli setulis ca. 0.2–0.3 mm longis ad apicem breviter 5-lobati dentibus interioribus exterioribus aequantibus lobis singulis seto unico 1–1.5 mm longo glandulifero terminatis; ovarium 3-loculare apice glabrum; semina numerosa laevia ovoidea ca. 0.5 × 0.3 mm.

VENEZUELA: Amazonas: Cerro de la Neblina, frequent in high montane forest 6–8 km

south of Camp 3, alt. 1400–1600 m; much branched tree 3–6 m, inflorescence branches reddish, fruit green and 5-merous; 24 Dec 1953, *Maguire, Wurdack & Bunting 36862* (holotype, NY); same place, *Maguire, Wurdack & Maguire 42583* (paratype).

The vegetative similarity in cauline formicaria and type of pubescence to the two postulated relatives is remarkable; both these species, however, with their subsessile-leafed relatives centering around *C. elata* Pittier, have 4-merous flowers. The inflorescence of *C. neblinae* appears terminal, but such other species of *Clidemia* as *C. coriacea* Naud. also have terminal or pseudo-terminal inflorescences. The present generic disposition of *C. neblinae* is based primarily on the notable cauline formicarial specialization known to me in the family only in this *Clidemia* species-group.

Mouriri uncitheca Morley & Wurdack, sp. nov.

M. subumbellatae Tr. affinis sed cum foliis cordatis et thecis antherarum minus valde dorsaliter curvatis.

Subg. *Pericrene* sect. *Cyrtotheca*. Frutex glaber 1–3 m altus. Folia sessilia crasse coriacea (3.5–)6–10 × (2–)3-6 cm ovata vel oblongo-ovata apice per ca. 5 mm subabrupte acuminata basi rotundata et leviter (2–3 mm) cordata vena centrali supra insculpta subtus vix elevata nervis lateralibus non vel vix evolutis supra et subtus anguste obscureque insculptis. Inflorescentiae in foliorum superiorum axillis 1–3-aggregatae singulae 1-3-florae; pedunculi 3–15 mm longi; pedicelli 3–12 mm longi circa medium bibracteolati; bracteae bracteolaeque 3–6 × 1.2–2 mm lanceolatae ascendentes post anthesim plus minusve persistentes. Flores 5-meri. Hypanthium (usque ad torum) 3.2–3.5 mm altum; calycis tubus 0.7–1 mm altus, lobis 1.3–1.5 × 3–3.2 mm depresso-triangularibus ad margines vix fimbriato-ciliolatis singulis extus minute unidentatis mucrone ca. 0.2–0.3 mm eminenti. Petala 9.5–9.8 × 6–6.5 mm oblongo-ovata apice attenuato-acuta undique dense granulosa. Filamenta 7.5–8 mm longa; antherarum thecae 2.3–2.7 mm longae uncinatae dorsaliter vix prolongatae, glandula dorsali 1.5–1.7 mm longa, connectivo sub thecas usque ad filamenti insertionem ca. 0.3 mm prolongato postice in calcar 1.1–1.4 mm longum hebeti-acutum protracto. Stylus 13–14 × 0.6–0.75 mm; stigma punctiforme 0.3 mm diam.; ovarium 5-loculare in cuique loculo 4-ovulatum placenta basilari. Fructus i.s. depresso-globosus ca. 10 mm diam. 3–5-spermus; semina ca. 6 × 4 mm asymmetrice ellipsoidea nitida laevia.

VENEZUELA: Amazonas: infrequent at edge of Sabana El Venado on left bank of Caño Pimichín above Pimichín, alt. 140 m; shrub 1.5–3 m, petals white, filaments pink, anthers purple; 14 Apr 1953, *Maguire & Wurdack 35570* (holotype, NY; isotype, MIN); same place, *35576;* fruit pale orange, *Maguire, Wurdack & Keith 41814* (paratypes).

Anatomical features: margins of midrib xylem turned up, in, and slightly down at the very edges, not touching each other nor the upper surface of the xylem; foliar stone cells above and below the midrib xylem extending less than one-fourth the distance from the node to the midrib tip; foliar terminal sclereids filiform, running vertically between the epiderms and there turning and spreading out horizontally as well as usually branching; stomatal crypts simple, 75–110 per square mm, the cavity averaging ca. 31 μ in diameter and 120 μ deep, the mouth ca. 5 μ in diameter; upper epidermis double, the outer layer with more cells than the inner, the lower epidermis single, the inner walls of the lower epidermal cells and of the cells of the inner layer of the upper epidermis from frequently to not at all mucilage-thickened; hypodermis absent except near

the midrib; floral terminal sclereids short-filiform, occasional in calyx lobes, rare in petals, otherwise absent; floral stone cells absent.

Within the sect. *Cyrtotheca, M. uncitheca* shows the following unusual features:

1. The moderately inrolled midrib xylem, in which the margins are rolled up and in but scarcely turn down at all, as compared to the other species in which the margins turn down so as almost to touch the upper surface of the xylem.

2. The thick, ovate-cordate leaves, as contrasted with the slightly thinner elliptic leaf blades with abruptly acuminate bases of the near relatives.

3. The large bracts, which exceed in size those of other members of the section with the possible exception of *M. subumbellata,* whose bracts are unknown.

4. The relatively long anther gland and very short dorsal prolongation of the anther sacs, with the near relatives having more nearly equal distribution of the thecae on both sides of the connective.

M. uncitheca is clearly the least specialized member of the section, judging by the two characters that almost certainly have phylogenetic significance: the form of the midrib xylem and the form of the anther. The former feature, as described above, appears definitely to be less complex in our new species than in the other members of the section. The anther form is evolution-wise particularly illuminating; it illustrates the first step in the phylogenetic movement of the pollen sacs from the usual ventral position to the gland side of the connective. In *M. subumbellata* and in some specimens of *M. densifoliata* Ducke the pollen sacs lie about one-third on the gland side of the anther and two-thirds on the opposite side; in other specimens of *M. densifoliata,* in *M. dumetosa* Cogn., and in *M. crassifolia* Sagot, the pollen sacs are about equally distributed on both sides; and in *M. anomala* Pulle, more than one-half of the thecae is on the gland side. Thus *M. uncitheca* seems most closely related to *M. subumbellata* on the basis of anther morphology. Other characters, however, are inconclusive, and, in view of the differences listed above, the new species cannot be said to have a truly close relationship to any of the other section members.

ACANTHACEAE[4]

Chaetochlamys wurdackii Leonard, sp. nov. Fig. 34.

Herba usque ad 50 cm altam, caulibus basi 4.4 mm crassa, subquadrangularibus, bifariam hirtellis vel basi glabris, pilis recurvatis usque ad 0.3 mm longis, cystolithis pluribus, 0.064–0.112 mm longis, parallelis; lamina foliorum inferiorum oblongo-ovata, usque ad 10 cm longam et 3 cm latam, acuta vel subacuminata, basi acuta, petiolata (petioli graciles, 1–2.5 cm longi, puberuli, pilis curvatis, circa 0.1 mm longis), supra (sicca) prasina, parce pilosa et ciliata, pilis patentibus, usque ad 1.5 mm longos, subtus olivacea, glabra vel costa parce et minute puberula, costa et venis lateralibus (6–8 paribus) subtus aliquanto prominentibus, supra obscuris, cystolithis aliquanto obscuris, usque ad 0.32 mm longos, gracilibus; folia 4 apicalia inflorescentiam subtendentia ovata, usque ad 11 cm longa et 5 cm lata, breviter acuminata (apice ipso acuto), basi rotundata, sub-

[4] By Emery C. Leonard. Published by permission of the Secretary of the Smithsonian Institution.

sessilia; capitula terminalia congesta, 2 paribus foliorum (internodiis 4 vel 5 mm longis) suffulta; bracteae capitula subtendentes ovatae, acuminatae, apice minusve curvatae, usque ad 3.5 cm longae, 1.8 mm latae; bracteae flores subtendentes subulatae, usque ad 17 mm longae, 0.75 mm latae, ciliatae, intus glabrae, extus pilosae, pilis albis, usque ad 1.5 mm longis, patulis vel ascendentibus, costa prominenti; bracteolae 14 mm longae, ceteroqui bracteis similes; calycis segmenta anguste lanceolata, 8–9 mm longa, 1 mm lata, ciliata, apice graciliter acuminata, intus glabra, extus pilosa, pilis albis, patulis vel ascendentibus, usque ad 2 mm longos; corolla matura deest; lobi (immaturi) antherarum superpositi, recti, paralleli, oblongi, apice utrinque rotundati; capsulae clavatae, 11 mm longae, 5 mm latae, 4 mm crassae, obtusae puberulae, apice pilis erectis vel patulis, basi retrorsis, stipitibus sterilibus capsularum candidis, planis, basi 2 mm latis, apice 5 mm latis; semina 2 vel 4, sphaerica, fuliginea, 2–2.5 mm diam.

VENEZUELA: Bolívar: occasional on Cerro Negro Peron and E–W crystalline range on right bank of river just below El Carmen (about 50 km from river mouth), Río Paraguaza, alt. 120–350 m; fruit green; 27 Dec 1955, *J. J. Wurdack & J. V. Monachino 40985* (type, US).

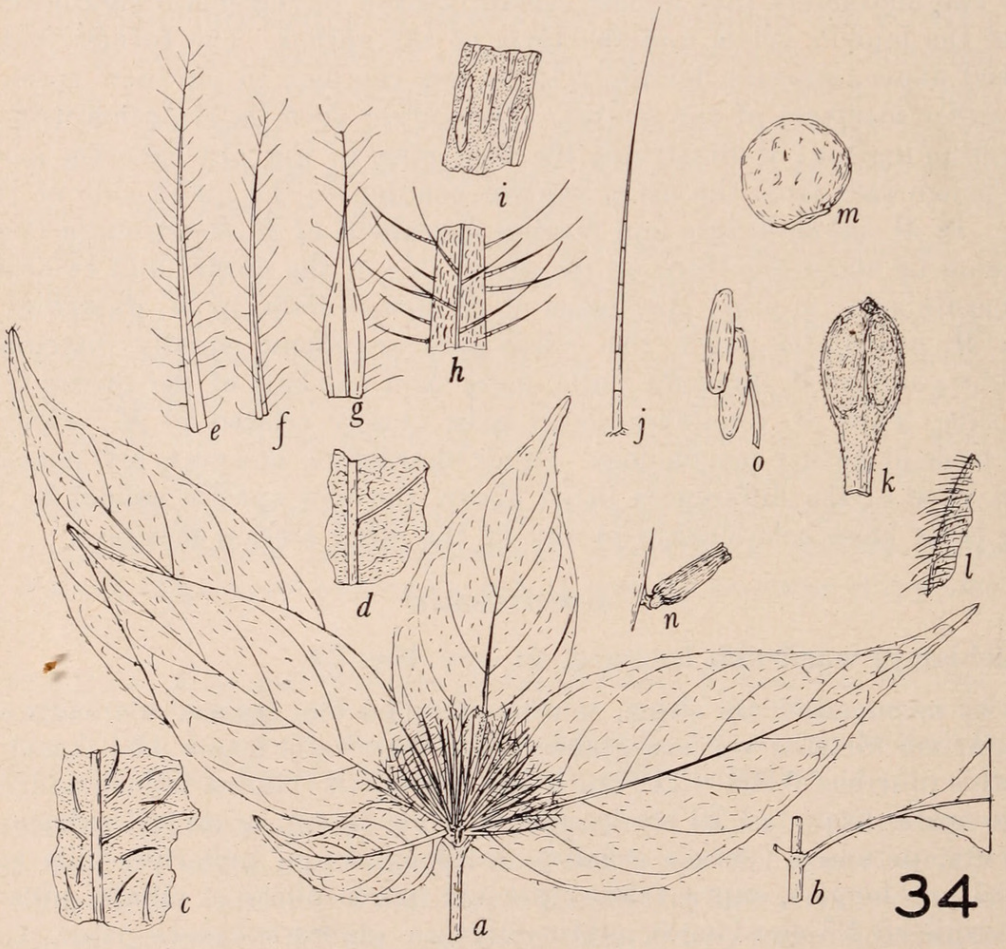

FIG. 34. *Chaetochlamys wurdackii* Leonard (*Wurdack & Monachino 40985*). a, tip of plant, × 0.5; b, petiole of one of the lower leaves, × 0.5; c, portion of leaf blade (upper surface enlarged to show hairs and cystoliths), × 5; d, same of lower surface to show cystoliths, × 5; e, bract, × 3; f, one of a pair of bractlets, × 3; g, calyx segment, × 3; h, portion of segment enlarged to show hairs and cystoliths, × 7.5; i, portion of the calyx segment yet more enlarged to show cystoliths, × 50; j, hair from a calyx segment, × 30; k, capsule valve, × 2; l, portion of capsule enlarged to show pubescence, × 44; m, seed, × 5; n, retinaculum, × 2.5; o, anther (immature), × 7.5.

A single very immature flower bud was found to have escaped the ravages of insects. From this an imperfect concept of the anthers was obtained but no sign of caudae could be found, a character usually well marked in the genus. Perhaps they would be present in mature flowers.

Justicia cataractae Leonard, sp. nov. Fig. 35.

Herba usque ad 40 cm altam, caulibus ascendentibus, basi in nodis radicantibus, subquadrangularibus (angulis rotundatis), bifariam puberulis, pilis retrorse recurvatis, albidis, usque ad 0.25 mm longos; lamina foliorum lanceolata, usque ad 12 cm longam et 2 cm latam, graciliter acuminata, basi angustata (basi ipso rotundato), firma, glabra vel in costa parce et inconspicue pubescens, pilis ascendentibus, usque ad 0.3 mm longos, integra vel undulata, marginibus recurvatis, costa et venis (8 paribus) et venulis aliquanto crasse reticulatis prominentibus, supra cystolithis parcis 0.16 mm longis; petioli 2–3 mm longi, marginibus canalis puberulis; spicae terminales, oblongae, densae, usque ad 4.5 cm longas et 1 cm latas, rhachi puberula, pilis curvatis, 0.13 mm longis; bracteae et bracteolae subulatae, 1.5 mm longae, 0.25 mm latae, carinatae, parce puberulae; calycis segmenta 5, lanceolata, 5.5 mm longa, 0.5 mm lata, acuminata, basi angustata, parce et minute puberula, pilis acutis et pilis glandulosis brevioribus intermixtis, costa prominenti; corolla (immatura) pallide purpurea, parva, 10 mm longa, hirtella, pilis albis, 0.1 mm longis, rectis, patulis; stamina vix exserta, lobis antherarum superpositis, 1 mm longis; capsulae clavatae, 5 mm longae, 1.5 mm latae, 2 mm crassae, puberulae; semina ignota.

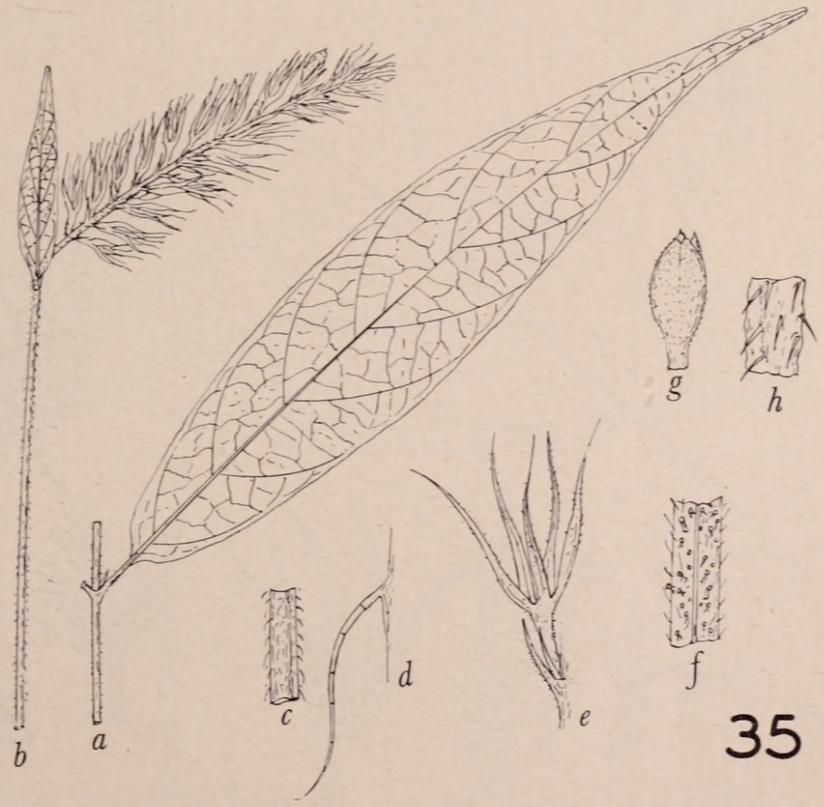

FIG. 35. *Justicia cataractae* Leonard (*Maguire & Politi 27325*). a, node and leaf, × 1; b, inflorescence, × 1; c, portion of stem enlarged to show pubescence, × 3; d, one of the stem hairs much enlarged, × ca. 100; e, calyx, bract, and one of a pair of bractlets, × 3.5; f, portion (mid) of calyx segment enlarged to show pubescence, × 6.5; g, capsule, × 3.5; h, portion (sub-basal) of capsule enlarged to show pubescence, × 44.

VENEZUELA: Amazonas: frequent, moist woodland trail, Danta (Tapir) Fall, Río Cuao, Río Orinoco; perennial; flowers pale purple; 19 Nov 1948, *Bassett Maguire & Louis Politi 37325* (type, US); same place and date, *Bassett Maguire & Louis Politi 37332a* (para type, US).

The corollas were too immature to permit measurement.

Justicia hylaea Leonard, sp. nov. Fig. 36.

Herba usque ad 1.5 m altam, caulibus subquadrangularibus, leviter 4-sulcatis, nitidis, bifariam hirtellis, pilis retrorse curvatis. 0.5 mm longis, cystolithis parallelis, usque ad 0.32 mm longos; lamina foliorum oblonga, usque ad 16 cm longam et 4.5 cm latam, breviter acuminata, basi angustata, firma, scabrida, integra, parce hirtella, pilis curvatis, 0.25 mm longis, costa et venis lateralibus (10–12 paribus) subtus prominentibus, supra aliquanto obscuris, cystolithis pluribus et conspicuis, usque ad 0.3 mm longos; petioli circa 5 mm longi, parce hirtelli; paniculae terminales, usque ad 7 cm longas et 2 cm latas, densae, floribus sursum contiguis; pedunculi usque ad 5.5 cm longos, subquadrangulares, aliquanto hirsuti, pilis retrorse curvatis, circa 0.4 mm longis, rhachi et rhachillis dense hirsutis, pilis retrorse curvatis, circa 0.4 mm longis; bracteae subulatae, usque ad 11 mm longas et 1 mm latas, carinatae, parce puberulae et ciliatae; bracteolae similes sed minores; calycis segmenta 5, lanceolata, graciliter acuminata, 1 cm longa et 1 mm lata, parce et minute puberula et ciliata, trinervata; corolla pallida caesia, 15 mm longa, glabra vel apice parce pubescens, pilis patulis, 0.2

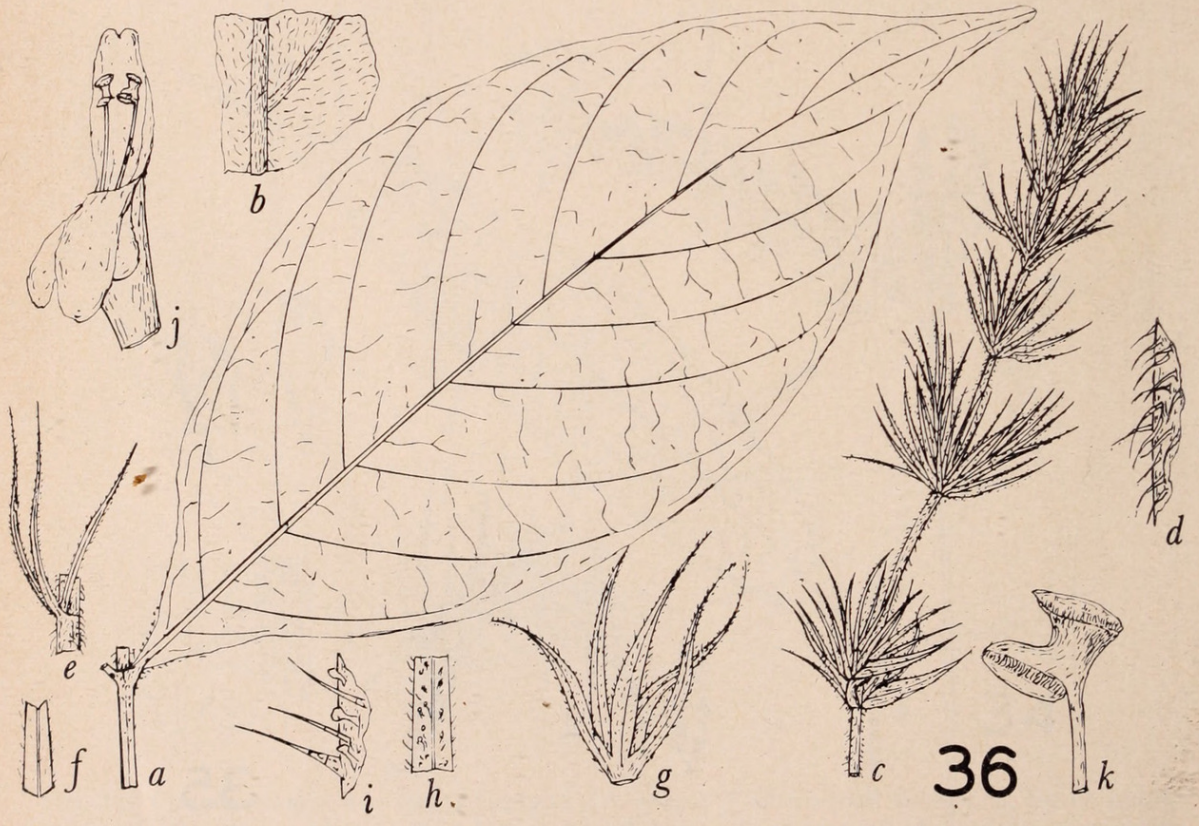

FIG. 36. *Justicia hylaea* Leonard (*Maguire, Wurdack & Bunting 36152*). a, node and leaf, × 1; b, portion of leaf blade (upper surface) enlarged to show cystoliths and hairs, × 2; c, inflorescence, × 1; d, portion of rachis enlarged to show pubescence, × 9; e, bract and bractlets, × 2; f, portion of bract enlarged to show pubescence, × 7; g, calyx, × 2.5; h, portion of calyx enlarged to show pubescence, × 3.5; i, same, more enlarged, × ca. 60; k, anther, × 8.

mm longis, tubo 5 mm longo et 4 mm lato, labio superiore erecto, triangulari, basi 4.5 mm lato, apice bilobato, lobis rotundatis, 1 mm longis, 0.75 mm latis labio inferiore erecto vel leviter patulo, 1 cm longo, trilobato, lobis 2 mm longis 2–2.5 mm latis, rotundatis; stamina exserta sed labio superiore breviora, lobis antherarum superpositis et parallelis, margine ciliatis, pilis planis, connectivo plano, 1 mm longo; capsulae (immaturae) pilosae, pilis patulis, deorsum retrorsis.

VENEZUELA: Amazonas: occasional in forest between Sanariapo Road and Salto Carestia (5 km north of Sanariapo), alt. 100–120 m; herb 0.7–1.5 m; flowers pale lavender; 11 Nov 1953, *Bassett Maguire, John J. Wurdack & George S. Bunting 36152* (type, US).

The specific epithet is from the Greek ὑλαῖος, meaning belonging to the woods.

Justicia kunhardtii Leonard, sp. nov. Fig. 37.

Herba usque ad 60 cm altam, caulibus ascendentibus, basi in nodis radicantibus sulcatis, subquadrangularibus, angulis rotundatis, glabris vel sursum hirsutis, pilis ascendentibus, brunneis, usque ad 0.5 mm longos; lamina foliorum lanceolata

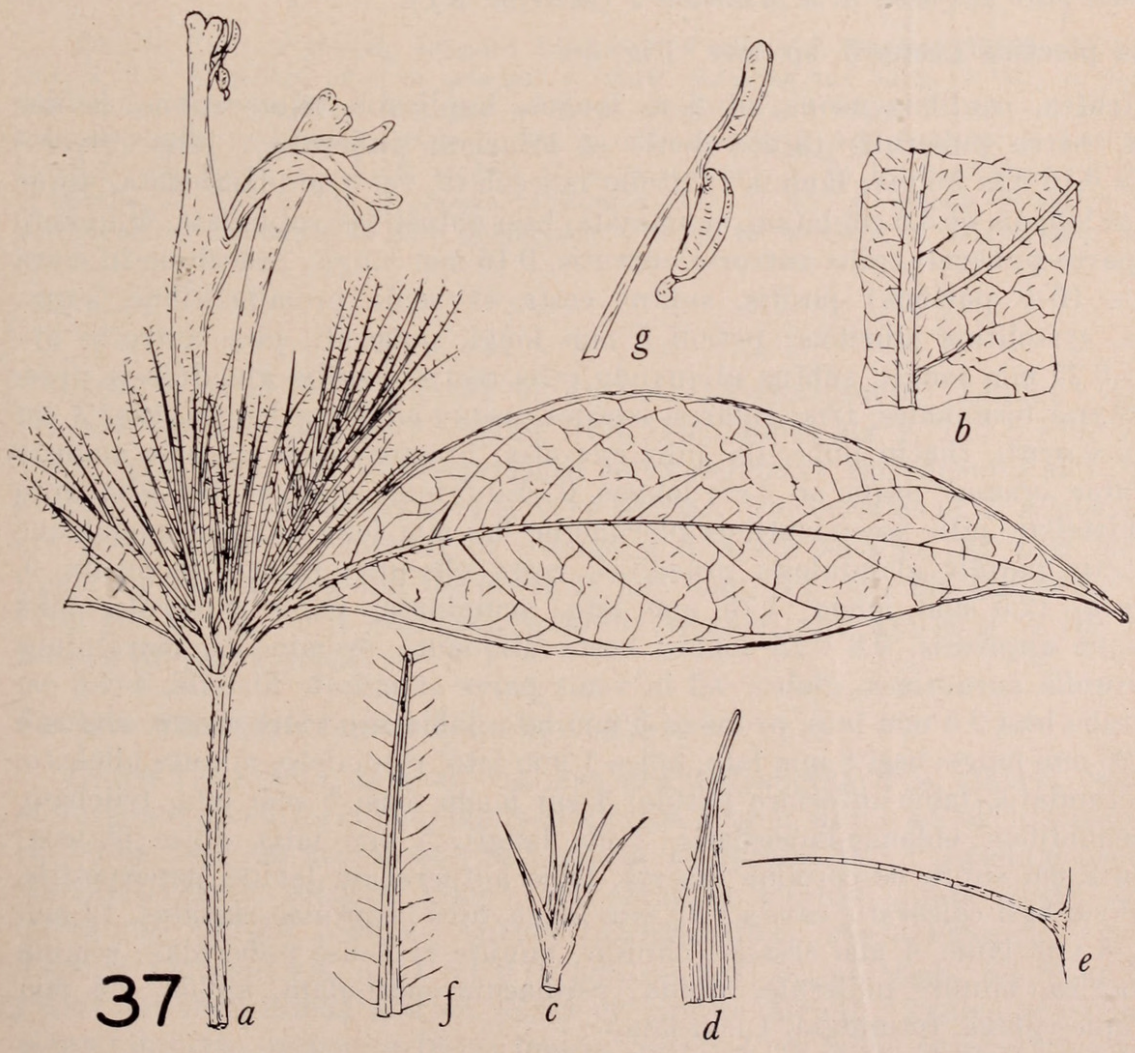

FIG. 37. *Justicia kunhardtii* Leonard (*Kundardt 9*). a, tip of plant, × 1; b, portion of leaf blade (under surface) enlarged to show venation and hairs, × 2; c, calyx, × 3; d, calyx segment, × 6; e, hair from margin of bract, × 3; f, tip of bract, × 4.5; g, anther, × 6.

vel oblongo-lanceolata, 3–10 cm longa, 0.8–3.5 cm lata, acuminata, apice saepe curvata, basi angustata, firma, integra, nitida, margine recurvata, utrinque aliquanto parce hirsuta, pilis appressis vel ascendentibus, brunneis, usque ad 0.5 mm longos, costa et venis lateralibus (6–8 paribus) subtus prominentibus, venulis crasse reticulatis, supra obscuris, cystolithis mullis; petioli usque ad 1.5 cm longos, dense hirsuti, pilis brunneis, ascendentibus usque ad 0.5 mm longos; spicae breves, densae, usque ad 2 cm longos, terminales, pedunculi 2–3 mm longi, pilosi; bracteae et bracteolae, 10–12 mm longae, 0.5 mm latae, acuminatae, firmae, hirsutae, pilis patulis vel ascendentibus, usque ad 1 mm longos, brunneis, costa prominenti, calycis segmenta 5, anguste acuminata, 5 mm longa, 0.75 mm lata, acuminata, glabra, marginibus albidis subhyalinis, costa prominenti; corolla purpurea (?) parce pubercula, 4 cm longa, basi tubo 1.5 mm lato, prope os 4 mm lato, labio superiore 15 mm longo, erecto, triangulari-ovato, basi 6 mm lato, apice bilobato, lobis rotundatis, 0.5 mm longis et latis, marginibus tuberculatis, labio inferiore 15 mm longo, basi 3 mm lato, trilobato, lobo medio oblongo 8 mm longo, 2 mm lato, rotundato, stamina labio superiore corollae aequalia antice declinata, lobis antherarum superpositis, rectis, connectivo 0.5 mm longo gracili; ovarium glabrum; capsulae ignotae.

VENEZUELA: Bolívar: Angel Falls, Auyan-tepuí; 5 Apr 1950, *H. B. Kunhardt 6* (type, NY); same place and date, *H. R. Kunhardt 9* (paratype, NY).

Justicia plectica Leonard, sp. nov. Fig. 38.

Suffrutex, caulibus usque ad 2 m longos, implicatis, subteretibus, leviter sulcatis, parce puberulis (apice dense et bifariam puberulis), pilis retrorse curvatis 0.16 mm longis; lamina foliorum lanceolata, vel ovato-lanceolata, usque ad 15 cm longam et 3.5 cm latam, acuminata, basi obtusa vel rotundata, aliquanto firma, parce puberula, pilis antrorse curvatis, 0.16 mm longis, praecipue in costa et venis (6–8 paribus) positis, subtus costa et venis prominentibus, supra obscura, cystolithis pluribus; petioli 5 mm longi, puberuli, pilis antrorse appressis, 0.25 mm longis, subtus aliquando pilis rectis, patulis glandulosis praeditis; thyrsi terminales, triangulares, sessiles, usque ad 7 cm longos, basi 3 cm lati, apice acuti, rhachi puberula, pilis curvatis; bracteae et bracteolae anguste lanceolatae, crassae, usque ad 2 cm longas, 0.75–1.5 mm. latae, acutae, aliquanto parce hirtellae, pilis ascendentibus plerumque 0.5 mm longis, apice quandoque pilis rectis patulis glandulosis praeditae, costa obscura; calycis segmenta 5, lanceolata, 12.5 mm longa, 1.75 mm lata, acuminata, parce puberula, pilis plerumque appressis, 0.8–0.16 longis, costa aliquanto prominenti, marginibus albis; corolla aurantiaca, glabra vel in venis parce et minute hirtella, 4–4.6 cm longa, tubo basi 2.5 mm lato, prope os 5 mm lato, labio superiore erecto, anguste ovato, 26 mm longo, basi 8 mm lato, apice 1 mm lato, rotundato, minute bilobato, lobis rotundatis, labio inferiore patulo, 3 cm longo, basi 5 mm lato, trilobato, lobis aequalibus, oblongo-lanceolatis, 2 cm longis, 5 mm latis, apice obtusis; stamina 2 cm supra os corollae exserta, lobis antherarum leviter superpositis, lobo infimo basi calcarato, cauda 0.75 mm longa, alba; capsulae clavatae, 12 mm longae, 6 mm latae, 4 mm crassae, obtusae, minute et dense puberulae; semina 4, sphaerica, minute puberula, albida; retinacula spathulata, albida, 2.5 mm longa, apice plana, rotundata, 1 mm lata.

VENEZUELA: Amazonas: locally frequent on Isla Carestia at Saltos Carestia 7 Gallo (5 km north of Sanariapo), alt. 100–120 m; woody, forming great tangles in low trees to 2 m; flowers orange; 11 Nov 1953, *Bassett Maguire, John J. Wurdack & George S. Bunting 36165* (type, NY; isotype, NY).

FIG. *38. Justicia plectica* Leonard (*Maguire, Wurdack & Bunting 36165*). a, node and leaf, × 0.5; b, section of stem enlarged to show cystoliths and hairs, × 2.5; c, portion of leaf blade (lower surface) enlarged to show cystoliths and hairs, × 3.5; d, gland-tipped hairs of ventral surface of petiole, × 38; e, inflorescence, × 0.5; f, bract, × 1.5; g, bract, bractlets, and calyx, × 1.5; h, portion of calyx segment, × 6; i, tip of same, × 6; j, tip of corolla, × 1.5; k, tip of stamen to show anther, × 2.5; l, capsule valve, × 1.5; m, portion of valve enlarged to show pubescence, × 2; n, retinaculum, × 2.5; o, seed, × 5.

Justicia plectica is related to *Justicia albomarginata* (Lindau) Leonard (*Beloperone albomarginata* Lindau, Bull. Herb. Boiss. ser. 2. **5**:373. 1905. *Hassler 2755,* Paraguay). The white-margined calyx segments, the capsules and globular seeds of the two species seem to be very similar. The corollas of *J. albomarginata* are however purple instead of orange and much smaller, 32 mm long, the upper lip 14 mm long and the lower 17 mm long. The specific epithet is derived from the Greek word πλεκτικός, meaning tangled and alluding to the tangles formed by the species.

Justicia wurdackii Leonard, sp. nov. Fig. 39.

Herba 1–2 m alta, ramosa, caulibus subquadrangularibus, glabris, cystolithis minutis, subpunctiformibus; lamina foliorum magna, usque ad 30 cm longam et 12 cm latam, breviter acuminata, basi obtusa vel rotundata, in petiolum decurrens, aliquanto firma, integra, glabra vel parce et minute ciliata, costa et venis lateralibus (12–14 paribus) subtus prominentibus, supra obscuris, cystolithis minutis, inconspicuis, e 0.1 ad 0.16 mm. longos; petioli usque ad 9 cm longos, glabri vel marginibus alarum parce et minute hirtelli; paniculae terminales, aliquanto laxae, usque ad 18 cm longas, basi 3–4 cm latae, apice acutae vel subobtusae, floribus secundis, pedunculo 8 cm longo, glabro, internodiis panicularum puberulis, pilis 0.1–0.3 mm, longis; bracteae subulatae, illae ramos infimos paniculorum subtendentes usque ad 2.5 cm longas et 1.5 mm latas, aliae minores;

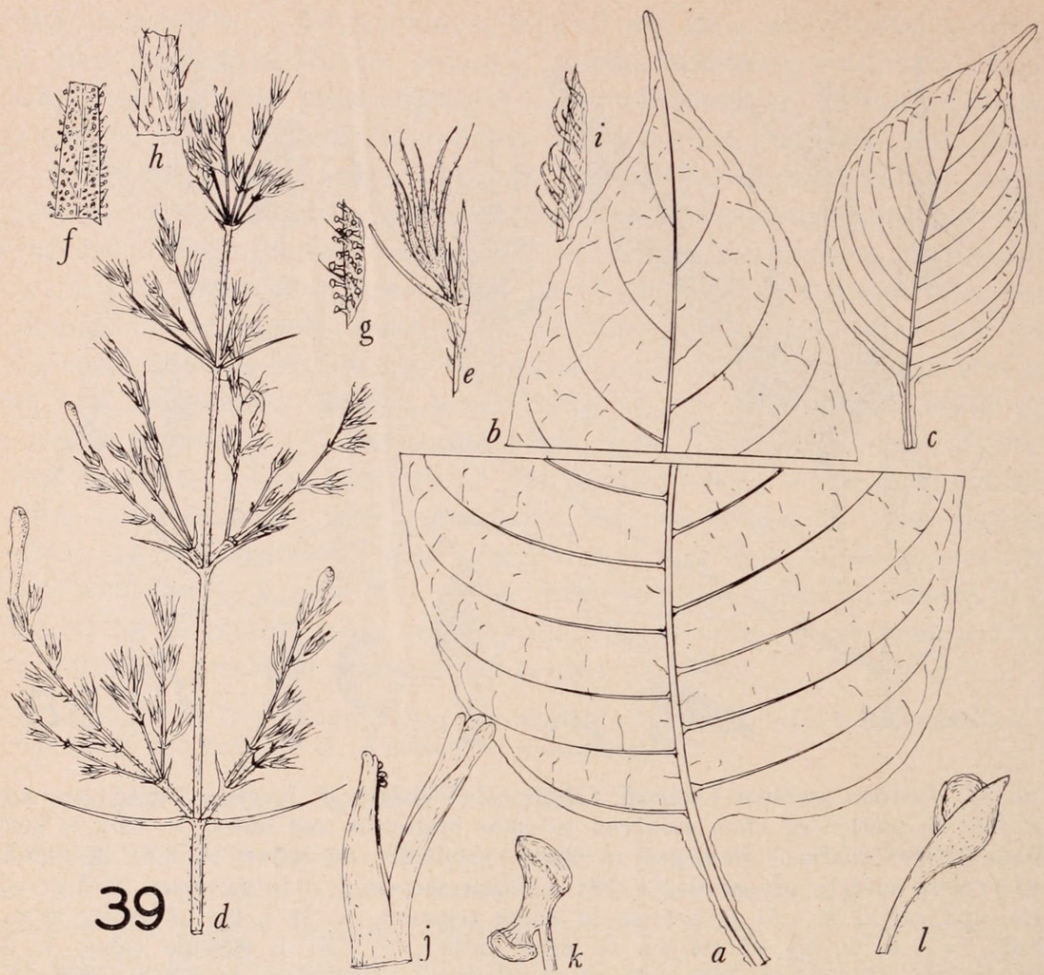

FIG. 39. *Justicia wurdackii* Leonard (*Maguire, Wurdack & Bunting 36811*). a, basal portion of leaf, × 0.5; b, tip of same, × 0.5; c, leaf much reduced to show shape, × 0.15; d, inflorescence, × 0.5; e, bract, bractlet, and calyx, × 3.3; f, portion of calyx segment (outer surface) enlarged to show pubescence, × 5; g, small portion of same more enlarged to show glandular hairs, × ca. 60; h, same portion (inner surface), × 3.3; i, portion of rachis enlarged to show pubescence, × ca. 20; j, tip of corolla, × 1; k, anther, × 6.5; l, valve of capsule, × 2.

bracteolae triangulares, 1–2 mm longae et 1 mm latae; calycis segmenta lanceolata, 7 mm longa, 0.75–1 mm lata, graciliter acuminata, intus minute hirtella, extus etiam papillosa et parce hirtella; corolla purpureo-punicea, glabra vel parce et subtiliter pubescens, 3.5 cm longa, tubo basi 3 mm lato, ad os 7 mm lato, labio superiore erecto, ovato, 15 mm longo, basi 8 mm lato, apice bilobato, lobis rotundatis, 0.5 mm longis et 0.75 mm latis, labio inferiore aliquanto patulo, oblongo, circa 20 mm longo et 8 mm lato, trilobato, lobis rotundatis, 4 mm longis et latis; stamina exserta, labio superiore corollae aequalia declinata, lobis antherarum obliquis, superpositis, connectivo 1 mm longo et 0.5 mm lato, filamentis planis glabris; capsulae clavatae 7 mm longae, 4 mm latae, 3.5 mm crassae, apice obtusae, minute puberulae; semina orbiculata, plana, 3 mm lata et longa, glabra; retinacula 2.5 mm longa, curvata, apice laciniata.

VENEZUELA: Amazonas: Cerro de la Neblina, Río Yatua, occasional in *Clusia* moss-forest just south of Camp 3, alt. 650–700 m; herb 1–2 m, flowers rich purple-pink; 23 Dec 1953, *Bassett Maguire, John J. Wurdack & George S. Bunting 36811* (type, US; isotype, NY); frequent in *Clusia* scrub forest just south of Camp 3, alt. 700 m; herb to 1.5 m; 14–16 Nov 1957, *Maguire, Wurdack & Maguire 42058* (paratype).

Odontonema venezuelense Leonard, sp. nov. Fig. 40.

Frutex vel herba suffrutescens usque ad 2.5 m altam, caulibus subquadrangularibus, glabris vel sursum parce antrorse hirsutis, pilis 0.5–1 mm longis; lamina foliorum oblongo-ovata, usque ad 33 cm longam, et 11 cm latam, breviter acuminata (apice ipso subacuto vel obtuso), basi angusta, integra vel leviter crenulata, firma, supra glabra, cystolithis minutis, usque ad 0.16 mm longos, subtus glabra, costa et venis parce hirtellis pilis usque ad 0.8 mm longos patulis vel ascendentibus exceptis, subtus costa et venis lateralibus (8–10 paribus) et venulis crasse reticulatis prominentibus, supra obscure venosa, cystolithis nullis; petioli crassi, usque ad 2 cm longos, parce hirtelli; panicula terminalis, densa, angusta, usque ad 14 cm longam et 3 cm latam, pedunculis 2 ad 2.5 cm longos et rhachibus plus minusve hirtellis; bracteae subulatae, carinatae, 1 cm longae vel minores, hirtellae; pedicelli 1 ad 2 mm longos, crassi, minute puberuli; calycis segmenta triangularia, 2 mm longa, 1.5 mm lata, acuta, minute puberula; corolla rubra, e 2.5 ad 3 cm longam, parce et minute puberula, tubo basi 2.5 mm lato, supra basim 1.5 mm lato, ad os 4 mm lato, labiis subaequalibus, 8–12 mm longis, labio superiore bilobato, lobis ovatis, 4–5 mm longis, 3–4.5 mm latis, apice rotundatis, labio inferiore ad basim trilobato, lobis oblongis, 2–4 mm latis apice obtusis; stamina vix exserta filamentis complanatis, glabris antheris oblongis, usque ad 5 mm longas et 1 mm latas, lateribus adaxialibus puberulis; staminodia usque ad 5 mm longa, apice antheris inchoatis; capsulae clavatae, glabra, 2.5 cm longae, 6 mm latae, stipitatae; semina plana, 5 mm longa, 4 mm lata basi obliqua, alveolata, cana.

VENEZUELA: Bolívar: Río Parguaza, locally frequent along river at Raudal Maraca (about 110 river km from mouth), alt. 115 m; shrub 1.5 m; flowers red; 31 Dec 1955, *J. J. Wurdack & J. V. Monachino, 41054* (type, US). Amazonas: Caño Guaviarito, Río Manapiare, Río Ventuari, in dry secondary woodland between Camp Verada and Camp Tigre, alt. 200–900 m; virgate subshrub or shrub to 2 m; flowers red; 5 Feb. 1951, *Bassett Maguire, Kathleen D. Phelps, Charles B. Hitchcock & Gerald Budowsky 31780* (paratype, NY). Cerro Huachamacari, Río Cunucunuma, rain forest between Culebra and Camp I, alt. 400 m; flowers red; 21 Dec 1950, *Bassett Maguire, R. S. Cowan & John J. Wurdack 29972* (paratype, US); Serranía Parú, Río Parú, Caño Asísa, Río Ventuari, in tree-fall clearing in slope forest, locally frequent; alt. 800 m; woody herb, unbranched, 1–2.5 m; flowers red; 13 Feb 1951, *R. S. Cowan & John J. Wurdack 31441* (paratype, US); 11 Feb 1949, *Kathleen D. Phelps & Charles B. Hitchcock s.n.* (paratype, NY).

Pseuderanthemum maguirei Leonard, sp. nov. Fig. 41.

Frutex gracilis, caulibus subquadrangularibus, glabris; lamina foliorum elliptica vel oblongo-obovata, usque ad 16 cm longam et 5 cm latam, graciliter acuminata, basi angustata, aliquando firma, integra, utrinque glabra vel parce et minute hirsuta, costa et venis (6–8 paribus) subtus aliquanto prominentibus, supra obscuris, cystolithis nullis; petioli graciles glabri vel parce hirtelli; racemi terminales, usque ad 7 cm longos, rhache hirtella, pilis ascendentibus, albis, usque at 0.6 mm longos; bracteae rigidae, basi 1.25 mm latae, sursum subulatae, subulata, basi 0.75 mm lata, hirtella, pilis eglandulosis, patulis vel ascendentibus, usque ad 0.16 mm longos, pilis glandulosis, patulis, usque ad 0.66 mm longos; corolla 15 mm longa, alba, lobo medio labii inferioris purpureo-maculato, tubo 1 cm longo, basi 1.25 mm lato glabro, sursum dense puberulo, pilis glandulosis et eglandulosis intermixtis, ca. 0.03 mm longis, ad os 3 mm lato, labio superiore bilobato, lobis anguste ovatis, 4 mm longis, 2 mm latis, apice obtusis, labio inferiore trilobato, lobis obovatis 4 mm longis, 2 mm latis, apice rotundatis,

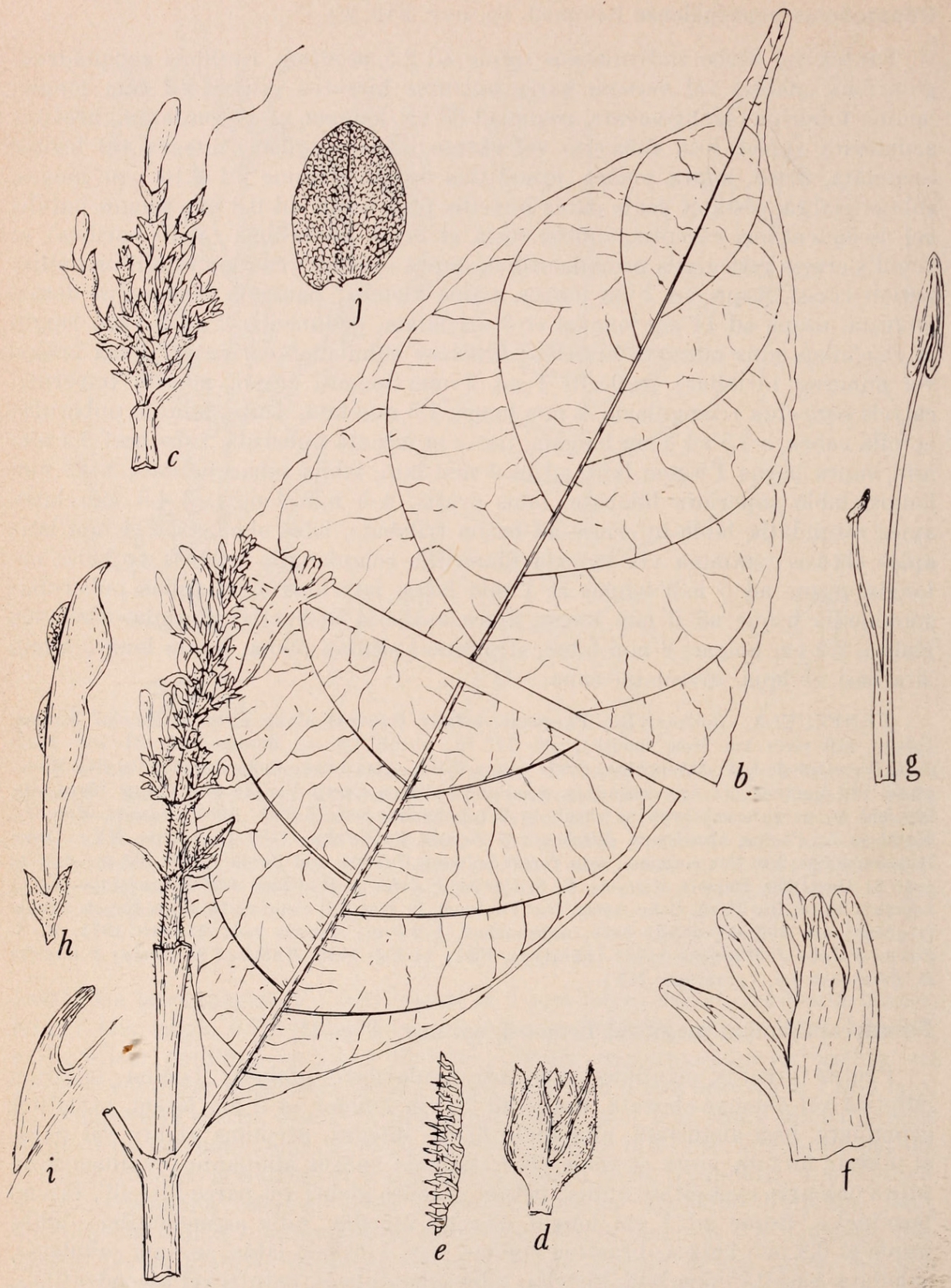

FIG. 40. *Odontonema venezuelense* Leonard (a, b, f, g, *Wurdack & Monachino 41054;* c-e, *Maguire, Kathleen D. Phelps, Hitchcock & Budowsky 31780;* h–j, *Kathleen D. Phelps & Hitchcock s. n.,* 11 Feb 1949). a, tip of plant showing lower portion of leaf (lower surface) and inflorescence, × 0.5; b, upper part of leaf blade (upper surface), × 0.5; c, portion of inflorescence, × 3; d, calyx, × 6; e, portion of inflorescence, × 20; f, tip of corolla, × 1.5; g, stamen and staminode, × 4; h, one of the valves of a capsule, × 1.5; i, retinaculum, × 5.7; j, seed, × 4.

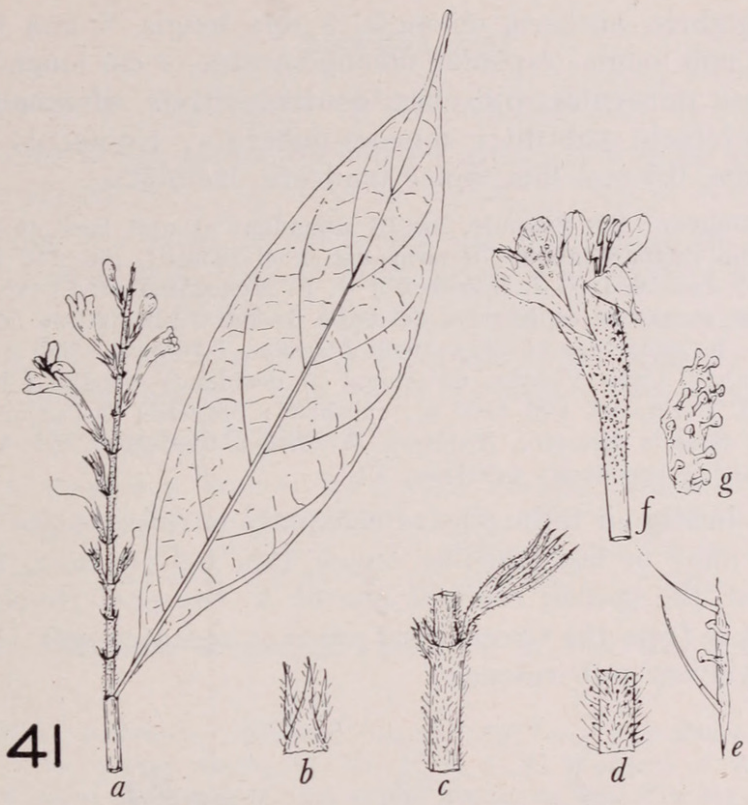

FIG. 41. *Pseuderanthemum maguirei* Leonard (*Maguire & Politi 27941*). a, tip of plant, × 0.5; b, bract and bractlets, × 5; c, portion of inflorescence enlarged to show pubescence, × 4; d, section of calyx segment enlarged to show pubescence, × 8; e, portion of calyx enlarged still further to show hairs, × 20; f, corolla, × 2; g, portion of corolla tube enlarged to show glandular hairs, × 50.

minute et graciliter pubescentibus; stamina vix exserta, filamentis 6.5 mm longis, basi minute pilosa, sursum glabris, antheris 2 mm longis, glabris; staminodia 0.75 mm longa, subulata; ovarium glabrum; capsulae ignotae; stylus 19 mm longus, basi minute hirtellus, sursum glaber; stigma minutum, bilobatum.

VENEZUELA: Amazonas: Cerro Sipapo (Paráque), vicinity of Base Camp; slender shrub with white flowers; 25 Dec 1948, *Bassett Maguire & Louis Politi 27941* (type, NY; fragment of type, US).

Ruellia malaca Leonard, sp. nov. Fig. 42.

Suffrutex, caulibus erectis, simplicibus vel ramosis, usque ad 2 m altos, molliter tomentosis, canescentibus, subteretibus; lamina foliorum oblongo-ovatis, usque ad 30 cm longam et 12 cm latam, apice acuminata, basi angustata, aliquanto firma, integra vel undulata, supra molliter puberula vel subglabra, subtus dense et molliter puberula, pilis plus minusve patulis, rectis vel curvatis, usque ad 0.32 mm longos, costis et venis (11 vel 12 paribus) aliquanto prominentibus; petioli usque ad 4.5 cm longos, dense tomentosi vel minute puberuli; paniculae terminales, usque ad 13 cm longas et 10 cm latas, dense et molliter pilosae vel subtomentosae, pilis plus minusve glandulosae; bracteae caducae, oblongae, usque ad 2 cm longas, 4 mm latas, puberulae; flores caduci; calycis segmenta submembranacea, lineari-lanceolata, usque ad 3 cm longa, 4 mm lata, acuminata, dense et molliter puberula, costa et venis obscuris; corolla pubescens, flava, 5 vel 6 cm longa, tubo curvato, basi 8 mm lato, prope os 2 cm lato, limbo obliquo 4 cm lato, lobis rotundatis, 1.5 cm latis; stamina exserta, usque ad 10 cm

longa, filamentis glabris, antheris oblongis, 9 mm longis, 4 mm latis, glabris, lobis basilaribus 4 mm longis; capsulae oblongo-ovatae, 3 cm longae, 1 cm latae, apice obtusae, dense puberulae, pilis basi conicis, vitreis, semina plana, 5 mm longa et lata, madefacta subtiliter mucoso-puberula; retinacula subcarinata, curvata, 7 mm longa, 0.5 mm lata, apice truncata, laciniata.

VENEZUELA: Bolívar: Río Suapure, locally abundant at east base of Cerro Pijiguao (north end of Serranía Suapure about 70 river km from mouth), alt. 110 m; herb 2 m; flowers pale yellow; 19 Jan 1956, *J. J. Wurdack & J. V. Monachino 41287* (type, US). Entre rocas en las riberas de un arroyo en la selva del Salte de Para, alt. 300 m; arbusto delgado, hasta de 3 m de alto; fls. amarillas; 3 May 1939, *Llewelyn Williams 11383* (paratype, US). Amazonas: Cerro Guanay, Caño Verada, occasional in deciduous woodland between Campo Verada and Campo M. Pérez, alt. 900–1100 m; subshrub; branches herbaceous; flowers pale yellow; 30 Jan 1951, *Bassett Maguire, Kathleen D. Phelps, Charles B. Hitchcock & Gerald Budowsky 31667* (fruiting specimen; paratype, US).

The flowers and bracts on falling leave conspicuous raised scars (up to about 20) crowded on a more or less conelike rachis, this 1–4 cm long. Although not very closely related, the species reminds one of *R. bourgaei* Hemsl. of Mexico. The specific epithet is from the Greek word μαλακός, meaning soft (Latin mollis) in allusion to the velvety puberulence.

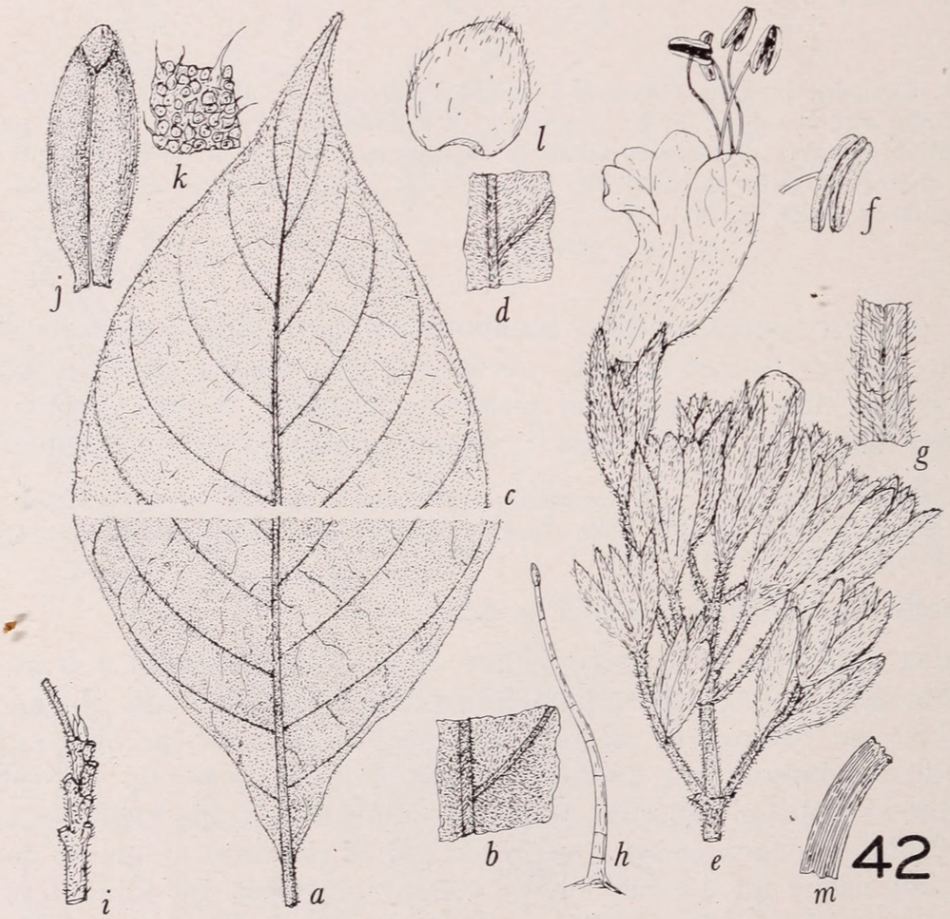

FIG. 42. *Ruellia malaca* Leonard (a–h, *Wurdack & Monachino 41287;* i–m, *Maguire, Hitchcock & Budowsky 31667*). a, basal portion of leaf blade (lower surface), × 0.5; b, part of lower surface of leaf blade enlarged to show pubescence, × ca. 2; c, upper portion of leaf blade (upper surface), × 0.5; d, part of upper surface enlarged to show pubescence and cystoliths, × ca. 2; e, inflorescence, × 0.5; f, anther, × 1; g, section of calyx lobe enlarged to show pubescence, × 1; h, hair from pedicel, × 110; i, rhachis of inflorescence, × 1; j, capsule, × 1; k, portion of capsule enlarged to show bulbous bases of the hairs, × 15; l, seed, ×5; m, tip of retinaculum, × 3.3.

APOCYNACEAE[5]

Ambelania oleaefolia var. **riparia** Monachino, var. nov.

Haec varietas a var. *oleaefolia* statura altiore 3–6 m alta et foliis latioribus 2–4.5 cm latis recedit.

Differs from the savanna var. *oleaefolia* Monachino in its greater height, 3–6 m (instead of 0.2–0.8; "2 m" in *Maguire et al. 30553*), and broader leaves, 2–4.5 cm wide (instead of 0.7–3 cm). The corollas in our specimens are larger, the tube being 2.5–3 cm long, the lobes about 3 cm long, 8–12 mm wide. The stamens are inserted about 7 mm from the base of the tube, the anthers are 5.8 mm long. The habitat is riparian.

VENEZUELA: Amazonas: frequent along Caño Pimichín between Río Guainía and Pimichín, alt. 30–140 m; tree 3–6 m, flowers white; 2 Jul 1959, *J. J. Wurdack & L. S. Adderley 43279* (holotype, NY). Occasional along Caño Yapacana, alt.–125 m; shrub 3–5 m, flowers white, fruit green; 17 Jun 1959, *Wurdack & Adderley 43021* (paratype, NY).

Aspidosperma exalatum Monachino, Mem. N. Y. Bot. Gard. **10**:120. 1959. Fig. 43 A–D.

VENEZUELA: Amazonas: frequent along Caño Temi just above Yavita, alt. 130 m; shrubby tree 2–5 m, flowers white; 11 Jun 1959, *J. J. Wurdack & L. S. Adderley 42935*. Locally frequent along Río Guainía just below Banderita, alt. 110 m; shrub 2–5 m, flowers white; 26 Jun 1959, *Wurdack & Adderley 43195*.

This species was originally described from fruiting material. Flowering specimens have now been collected. *A. exalatum* belongs in the series *Nobiles* in Woodson's revision (1951). It has no very close relative, although its cymose inflorescence suggests *A. album* (Vahl) R. Ben. ex M. Pichon. Inflorescence cymose, ample, the flowers crowded; calyx closely sordid-ashy to brownish-tomentellous without, the sepals ovate, unequal in size, obtusish, 1.8–2.2 mm long; corolla carnose, completely glabrous outside, the tube cylindric, angulate, 5 mm long, papillate within, the lobes spiral-contorted to the right in aestivation, dolabriform, 4.5 mm long, 1.5 mm wide, acutish at the apex; stamens inserted near the middle of the corolla tube, the anthers about 1 mm long; ovary glabrous, narrowed to the style at the apex.

Aspidosperma verruculosum var. **laeve** Monachino, var. nov.

Haec varietas a var. *verruculoso* foliis supra levibus, venis non prominulis, et indumento inflorescentiae ferrugineo recedit.

Differs from var. *verruculosum* Muell.-Arg. in its leaves smooth above, the veins not prominulous or verruculose-elevated. The leaves, rather, are like those of *A. spruceanum* Benth. ex Muell.-Arg. or forms of *A. album* (Vahl) R. Ben. ex M. Pichon. The indumentum in the young inflorescence is ferruginous instead of gray. The corolla-lobes are 1.5 mm long (flowers not fully expanded); the anthers 0.7 mm long.

VENEZUELA: Amazonas: locally frequent along Caño Pimichín between Río Guainía and Pimichín, alt. 130–140 m; tree 5–8 m, buds cream; *J. J. Wurdack & L. S. Adderley 43280* (holotype, NY); Río Guainía, along Caño Pimichín, alt. 125–135 m; slender tree 10 m, fruit brown; 14 Apr 1953, *Maguire & Wurdack 35663* (paratype, NY).

The fruit (*M. & W. 35663*) was described under questionably determined *A. album* in Mem. N. Y. Bot. Gard. **10**: 119 (1958). The flowers now prove the

[5]By Joseph Monachino.

FIG. 43. A–D, *Aspidosperma exalatum* (*Wurdack & Adderley 43195*). A, habit, × 0.2. B, bud, × 5. C, ovary, style, & stigma, × 15. D, corolla, open view, × 5. E–L, *Prestonia arborescens* (*Wurdack & Adderley 43232*). E, habit, × 1/5. F, bud, × 3. G, calyx, × 5. H, sepal & squamellae, × 7.5. J, anther, lateral view, × 7.5. K, anther, dorsal view, × 7.5 L, nectaries & ovary, × 10; M, stigma, × 15.

proper affinity. It is possible, however, that the differences are more than varietal and this taxon deserves the rank of a distinct species.

Lacmellea pygmaea var. **latifolia** Monachino, var. nov.

Haec varietas a var. *pygmaea* foliis lanceolatis vel oblongis latioribus 1–3 cm latis recedit.

Differs from var *pygmaea* Monachino in its lanceolate or oblong, much broader leaves, 1–3 cm wide (instead of less than 0.5 cm). The flowers in our specimens are somewhat larger; corolla-tube 13 mm long, anthers 4.6 mm and style 2 mm long.

VENEZUELA: Amazonas: locally abundant in Sabana Cumare on right bank of Caño Cumara, Río Atabapo, 20 km above San Fernando de Atabapo, alt. 125 m; shrub 0.2–1 m, with abundant milky latex, flowers white, fruit green; 3 Jun 1959, *J. J. Wurdack & L. S. Adderley 42757* (holotype, NY). Occasional in Sabana El Venado, left bank of Caño Pimichín above Pimichín, alt. 140 m; shrub 0.2–0.4 m, flowers cream; 2 Jul 1959, *Wurdack & Adderley 43291* (paratype, NY).

A. pygmaea is known from only the Alto Río Orinoco. The typical variety with very narrow leaves was found in March, a drier month than June-July when var. *latifolia* was collected. It is unknown what the seasonal or local ecological effects on the gross morphology of the plant may have been. Such qualms are also entertained regarding the new variety proposed in the beginning of the present treatment of the Apocynaceae, *Ambelania oleaefolia* var. *riparia*, which is likewise distinguished chiefly on size differences.

Mandevilla obtusifolia Monachino, sp. nov. Fig. 44 A–G.

Fruticulus scandens, caulibus subteretibus hispidulis; foliis oppositis, petiolis 4–5 mm longis; laminis subcoriaceis glabris oblongis 2.5–5 cm longis, 1.2–2 cm latis, ad apicem rotundatis vel obtusis, ad basim rotundato-subcordatis, subtus pallidis; venis lateralibus rectis, 7–10 jugis indistinctis; inflorescentiis lateralibus racemoideis paucifloris; pedicellis 3 mm longis puberulis; lobis calycis deltoideo-lanceolatis, 2.5 mm longis, 1.3 mm latis, ciliatis puberulis; squamellis oppositisepalibus; corolla infundibulariforme, tubo infrastaminali 3 cm longo, intus piloso, gula 2.5 cm longa, lobis 3 cm longis, paene 3 cm latis; antheris 4.3 mm longis glabris 2 mm latis; ovario glabro; nectario annulari sub-5-lobulato 0.7 mm alto.

Woody vine, the stems brownish, slender, subterete, puberulent-hispulous. Leaves opposite; petioles 4–5 mm long; blades subcoriaceous, green and shining above, pallid beneath, essentially glabrous, glanduliferous along the midrib on the upper surface, oblong, generally broadest slightly above the middle, 2.5–5 cm long, 1.2–2 cm broad, rounded or broadly obtuse and minutely apiculate at the apex, rounded-subcordate at the base, becoming revolute at the margins, the lateral veins straightish, lightly ascending, submarginally connected, 7–10 pairs, faint beneath, slightly more prominent above, reticulation manifest by transmitted light, open. Inflorescences appearing axillary, racemoid, few-flowered, with 3–6 flowers; pedicels 3 mm long, faintly puberulent, the bracts deciduous, probably squamose; calyx-lobes deltoid-lanceolate, acutish at the apex, membranous at the margins, 2.5 mm long, 1.3 mm broad, ciliate, puberulent dorsally, the squamellae oppositisepalous, broadly deltoid, denticulate to lacerate, 0.7 mm high. Corolla bright yellow, showy, large, glabrous without, infundibuliform; infrastaminal tube 3 cm long, 3 mm wide (pressed), densely pilose within below the anthers, the hairs appressed, reflexed; throat 2.5 cm long, 1.5 cm wide

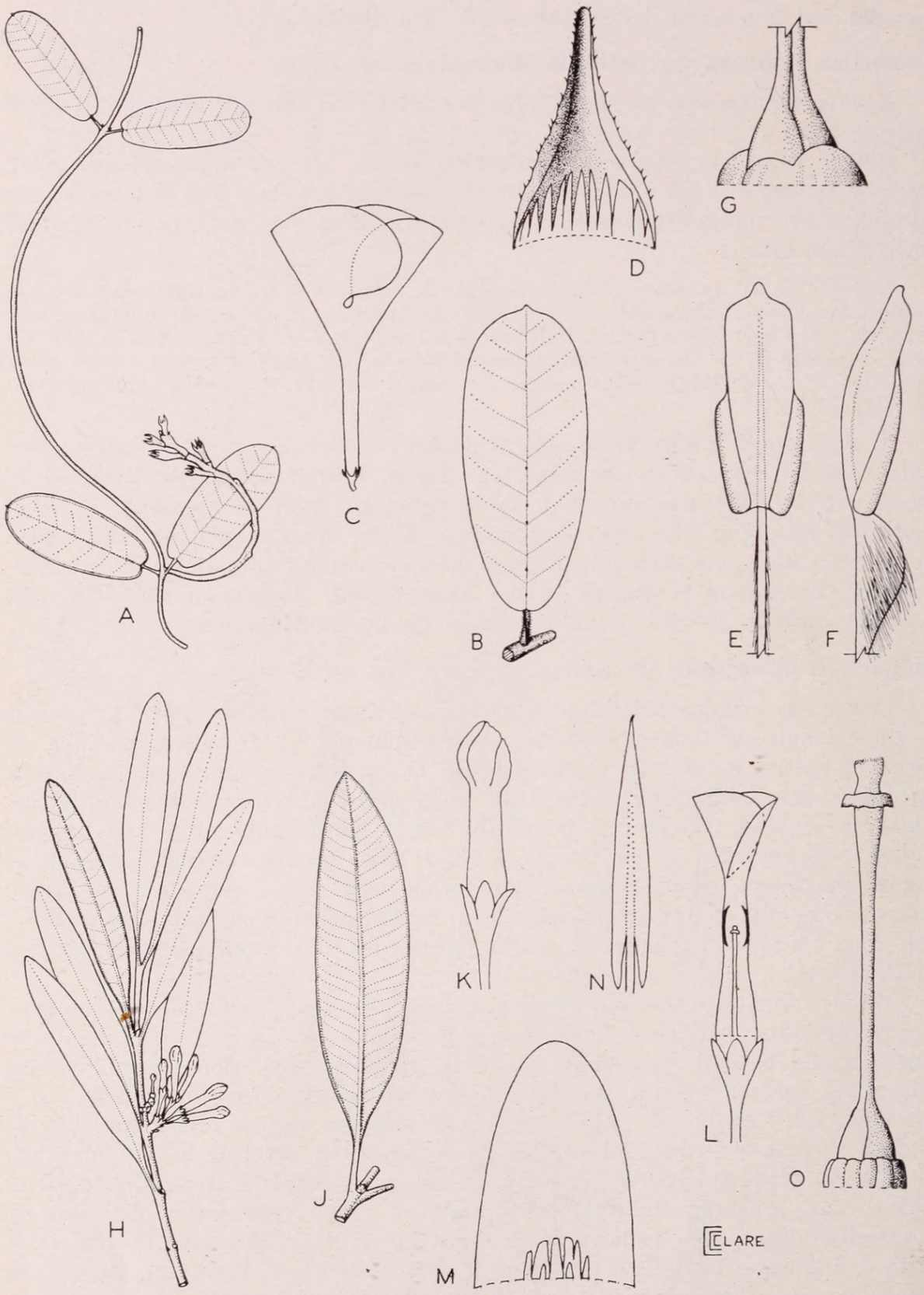

FIG. 44. A–G, *Mandevilla obtusifolia* (*Wurdack & Adderley 42993*). A, habit, × 0.5. B, leaf with glands, × 1. C, flower, × 0.5. D, sepal & squamellae, × 15. E, anther, adaxial view, × 7.5. F, anther, lateral view, × 7.5. G, ovary and nectaries, × 10. H–O, *Tabernaemontana tenuis* (*Wurdack & Adderley 42965* except J). H, habit, × 0.5. J (*Wurdack & Bunting 37612*), leaf, × 0.5 K, bud, × 2. L, flower, × 1.5. M, sepal & squamellae, × 20. N, anther, × 10. O, ovary, stigma, and nectaries, × 10.

(pressed); lobes broadly oval, rounded at the apex, 3 cm long, almost as broad. Anthers agglutinated to the stigma, oblong, sagittate, glabrous, 4.3 mm long, 2 mm wide, apiculate at the apex, the basal lobes blunt. Ovary glabrous, narrowed into the style; nectary annular, lightly 5-lobulate, about half the length of the ovary, 0.7 mm high.

VENEZUELA: Amazonas: along Río Atabapo between Manacal and Guarinume, alt. 125 m; vine climbing 2 m, flowers yellow; 12 Jun 1959, *J. J. Wurdack & L. S. Adderley 42993* (holotype, unicate, NY).

M. obtusifolia belongs in the subgen. *Exothostemon* in Woodson's monograph (1933). It is distinctive in its small, glabrous, apically rounded leaves pale beneath and faintly nerved. The stem is terete and much more slender than that of *M. turgida* Woodson and the habit is definitely climbing. In the field *M. obtusifolia* was confused with *Odontadenia glauca* Woodson, which was collected on the same trip. The two are rather similar in superficial appearance and habit.

Microplumeria anomala var. **parvifolia** Monachino, var. nov.

Haec varietas a var. *anomala* foliis parvioribus 3–7 cm longis 1.5–2.7 cm latis recedit.

Leaves smaller than those of var. *anomala* (Muell.-Arg.) Mgf., 3–7 cm long, 1.5–2.7 cm wide, paler beneath than above, the principal lateral nerves about 12 pairs (6–13); petiole very short. The corolla-tube is longer than those of the few available specimens of the typical variety, about 7 mm long.

VENEZUELA: Bolívar: Ciudad Bolívar, abundante, alrededores laguna de Los Francos, alt. ± 80 m; arbusto de flores verdosas, no llamativas, latex blanco, muy escaso; Apr 1954, *L. Aristeguieta 2162* (holotype, NY).

M. anomala var. *parvifolia* apparently does not differ from the typical variety (also known from Edo. Bolívar) in any essential flower or fruit character.

Prestonia arborescens Monachino, sp. nov. Fig. 43 E–M.

Arbor parva; foliis oppositis subsessilibus glabris valde coriaceis ellipticis useque ad oblanceolatos, 8–12 cm longis, 2–5.5 cm latis, subtus glaucis, ad apicem obtusis, ad basim angustatis; venis lateralibus 5-8 jugis; inflorescentiis subumbellatis, pedunculo 5–10 cm longo, pedicellis 2.5–6 cm longis; sepalibus ovatis, 1.7–3.3 mm longis, 2.3–3 mm latis, ad basim gibbosis; squamellis oppositisepalibus latis, at apicem denticulatis; tubo corollae 1 cm longo, extus glabro, intus piloso; appendicibus epistaminalibus 0.8 mm longis, annulo faucis aequantibus; antheris exsertis pilosis; filamentis prope summum tubi corollae insertis; ovario glabro; nectariis 5 crassis altitudine ovario subaequantibus.

Tree, 5–6 cm tall, the branchlets olivaceous brown, terete, the young parts puberulent-hispidulous, slightly roughish to the touch. Axillary and interpetiolar glands small, deltoid. Leaves opposite, subsessile, the petiole less than 3 mm long; blades becoming thickly coriaceous, glabrous, dull, glaucous-pallid beneath, elliptic to oblanceolate, (5–)8–12 cm long, 2–5.5 cm wide, the base narrowed into the petiole, the apex obtuse or with a short acumen, apiculate, the margins revolute, the principal lateral nerves slightly arcuate, submarginally connected, 5–8 pairs, 1–2 cm apart near the middle of the leaf, the reticulation obscure. Inflorescences soon appearing axillary, subumbellate, many-flowered, usually surpassing the subtending leaf, the peduncles 5–10 cm long, the pedicels slender and long, 2.5–6 cm long, puberulent. Sepals puberulent without, ovate, 1.7–3.3 mm long, 2.3–3 mm wide, gibbous at the base, obtuse at the apex, their

margins membranous; squamellae oppositisepalous, semicircular, 0.7 mm long, faintly toothed at the apex. Corolla hypocrateriform, pink-tinged white with the lobes yellowish at the base; tube 1 cm long, 4.5 mm wide (pressed), glabrous outside, pilose at the upper half within, the epistaminal appendages scale-like, ovate, laterally flattened, about 0.8 mm long and almost as wide, attaining the faucal annulus, the callous faucal annulus papillose; corolla-lobes dextrorsely convolute in aestivation, becoming reflexed, obliquely oval-orbicular subdolabriform, 17 cm long, 13 mm wide, glabrous outside, sparsely ciliate at the apex, finely veined, papillose toward the base within. Anthers agglutinated to the stigma, connivent into an exserted cone, pilose dorsally, lanceolate, 5-6 mm long, acute at the apex, sagittate at the base, the lobes 1 mm long; filaments inserted near the summit of the corolla-tube, laterally flattened, pilose on the lower margin, decurrent as a sharp ridge on the corolla-tube, the free part about 2.3 mm long, 0.8 mm broad. Ovary rounded at the apex, glabrous; style slender, the clavuncle 2 mm long, the stigma apiculi blunt; nectaries 5, thick, about the height of the ovary.

VENEZUELA: Amazonas; Río Guainía, occasional along Caño San Miguel just above Limoncito, 15 km from Río Guainía, alt, 100–140 m; tree 5–6 m, with clear sap, corolla white, pink-tinged, the deflexed lobe-bases yellowish; 28 Jun 1959, *J. J. Wurdack & L. S. Adderley 43232* (holotype, NY).

Dr. Wurdack, who saw this distinctive plant in the field, has confirmed its arborescent, not liana, habit. The species is best placed in sect. *Annulares* in Woodson's treatment (1936), but the calyx-lobes are small and non-foliaceous. It recalls *P. leptoloba* Monachino.

Tabernaemontana tenuis Monachino, sp. nov. Fig. 44 H–O.

Frutex vel arbor parva, ramulis gracilibus; foliis glabris coriaceis concoloribus oblongis usque ad sublanceolata 4–11 cm longis, 0.8–3 cm latis, ad apicem rotundatis vel obtusis, ad basim angustatis; reticulo venarum indistincto, venis lateralibus plusminusve rectis patenti-adscendentibus, 15–25 jugis; inflorescentiis lateralibus brevibus paucifloris glabris; pedicellis 4 mm longis; sepalibus ovatis glabris 2.3 mm longis 1.6 mm latis obtusis; squamellis paucis; tubo corollae 12 mm longo intus medio pubescenti; lobis corollae glabris tubo aequantibus 8 mm latis; staminibus in medio tubi corollae insertis; antheris gracilibus sessilibus glabris 3.7 mm longis, lobis 0.5 mm longis; ovario glabro; nectario crateriformi integro 0.8 mm alto; clavunculo 0.8 mm alto, apiculis brevibus obtusis.

Shrub or small tree, 0.3–4 m tall, the branchlets slender, less than 6 mm thick, greyish. Leaves opposite, completely glabrous, coriaceous, concolor, dull; petioles 1 cm long, faintly verrucose, the axillary glands many, linear, less than 1 mm long; blades oblongish to sublanceolate, 4–11 cm long, 0.8–3 cm broad, narrowed into the petiole at the base, rounded to obtuse at the apex, not acuminate, their margins revolute, brown-puncticulate beneath (constant?), the venation not prominent, the principal lateral nerves faintly raised, straightish, spreading-ascending, 15-25 pairs. Inflorescences quickly appearing lateral, cymose, short, few-flowered, about 8-flowered, essentially glabrous. Pedicels glabrous or microscopically hirtellous, 4 mm long. Sepals almost free, glabrous, thin, broadly ovate, slightly unequal in size, 1–2.3 mm long, 1.6 mm broad, obtuse, the squamellae oppositisepalous, about 5 or 6 in number. Corolla hypocrateriform, white with a yellow throat, glabrous without; tube 11–12 mm long, 2–3.3 mm wide (pressed), slightly constricted at the middle and the orifice, hirtellous to

puberulent within about the middle; lobes becoming reflexed, glabrous, broadly asymmetric-obovate, about equal to the tube in length, 8–11 mm wide, folded in bud, the apex of the bud appearing ovate, obtuse. Stamens inserted at about the middle of the corolla-tube, the anthers attached by their backs for about 1.7 mm, glabrous, sagittate, slender, 3.5–3.7 mm long, the basal lobes 0.5 mm long, obtusish or at least not finely pointed, the apex not exserted, short-filamentous. Ovary glabrous, obtuse at the apex, the nectary crateriform, entire, adnate to the ovary, 0.8 mm high; clavuncle 0.8 mm high, the collar 0.7 mm broad, the apiculi short, blunt.

VENEZUELA: Amazonas: locally frequent in Sabana Manacal, Río Atabapo, 15 km above Guarinume, alt. 125 m; shrub 0.3–1 m, corolla white with yellow throat; 12 Jun 1959, *J. J. Wurdack & L. S. Adderley 42965* (holotype, NY). Río Siapa, Casiquiare, along lower part of Caño Hechimoni, 8 km above mouth of Río Siapa, alt. 100–130 m; small tree, corolla white, the throat yellow; 9 Feb 1954, *Bassett Maguire, J. J. Wurdack & G. S. Bunting 37612* (paratype, NY). Frequent along Caño Temi just above Yavita, alt. 130 m; spare tree 2–4 m, corolla white with yellow throat, "palo de boya"; 11 Jun 1959, *Wurdack & Adderley 42936* (paratype).

The collection *37612* has much broader leaves than those of the type, longer, and sublanceolate rather than oblongish.

The leaf-shape of *T. tenuis* suggests *T. rimulosa* Woodson, and the two species are probably closely related. But the leaves of our plant are much smaller, and the stems and other parts are comparatively very slender.

LEGUMINOSAE—MIMOSOIDEAE[6]

Calliandra resupina Cowan, sp. nov. Fig. 45.

Arbuscula resupina, ramulis dense albo-villosis, stipulis deciduis, 9–10 mm longis, ca. 3 mm latis, lanceolatis, acutis, dense albo-villosis extus, intus glabris. Petiolus 3–5 mm longus, albo-villosus, rhachi (0–)9–10 mm longa, villosa; pinnae (1–)2-jugatae, 5–5.5 cm longae, elliptico-oblongae, foliolis 18–21-jugatis, sessilibus oblongis, rigidis, ad basim truncato-obtusis, ad apicem obtusis, pinnarum medio laminis 8–10 mm longis, ca. 2.5 mm latis, glabris nitidisque supra, infra albo-villosis, marginaliter ciliatis recurvatisque, costa valde excentrica, plana supra, infra salienti, venis obscuris. Inflorescentiae axillares et terminales, capitatae, pedunculo 22-33 mm longo, albo-villoso, bracteis ca. 7 mm longis, albo-villosis extus, intus glabris. Perianthium albo-sericeum extus, rubrum, calycis tubo campanulato, 2 mm longo, lobis triangularibus, 1 mm longis, petalis ca. 5 mm longis, ad apicem obtusis. Filamenta 21 mm longa, glabra. Gynoecium et fructus ignota.

VENEZUELA: Bolívar: occasional on rocky slopes and elevations in drainage of Río Aponguao, alt. 1200 m, Gran Sabana; repent or trailing shrub; fls bright red; 27–28 Mar 1952, *Bassett Maguire 33643* (holotype, US No. 2281820).

C. resupina (resupinus: "lazy," in allusion to the decumbent habit of the plant) is most nearly related to *C. tsugoides* and *C. rigida* from Venezuela and British Guiana respectively; all three species are morphologically quite similar to such south Brazilian species as *C. hirsuticaulis* and *C. calycina.* The new species and its closest (both geographically and morphologically) relative, *C. tsugoides* may be distinguished by the following key:

1. Stipules 5 mm long, 1 mm wide, obtuse; pinnae 2–4-jugate, the leaflets 35–45-jugate, glabrous, ecostate. Filaments 40 mm long. *C. tsugoides.*

[6] By Richard S. Cowan.

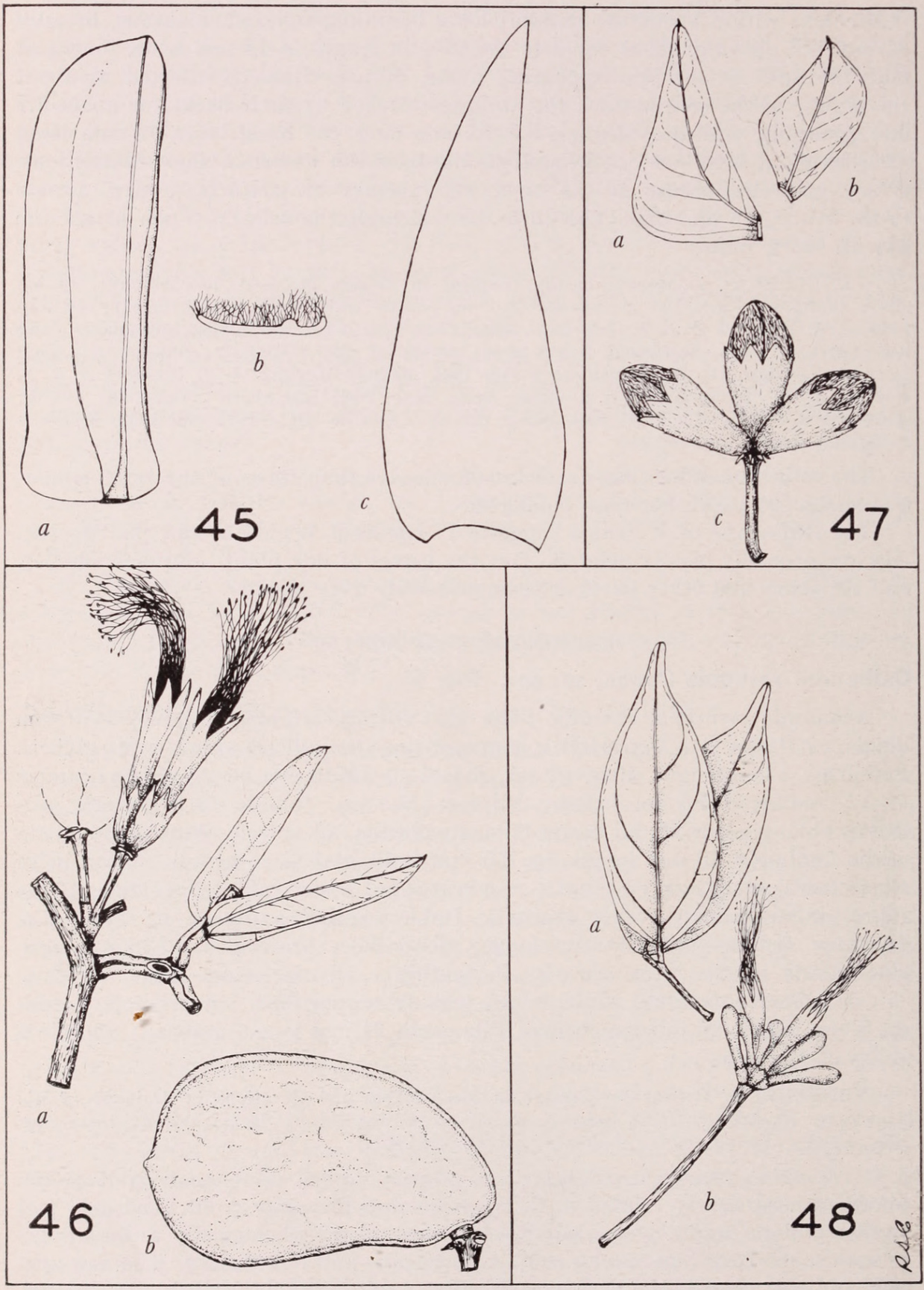

FIG. 45. *Calliandra resupina* (*Maguire 33643*). a, leaflet × ca. 7; b, cross section of leaflet to show pubescence, ca. × 7; c, stipule, ca. × 7. FIG. 46. *Pithecellobium arenicola* (*Maguire et al. 37568*). a, portion of leaf and inflorescence, × 1; b, immature fruit, × 1. FIG. 47. *Pithecellobium consanguineum* (*Maguire et al. 41878*). a, one leaflet of terminal pair, × 1; b, one leaflet of median pair, × 1; c, immature inflorescence, × 1.5. FIG. 48. *Pithecellobium levelii* (*Level 73*). a, one pinna, × 0.5; b, inflorescence, × 1.

1. Stipules 9–10 mm long, 3 mm wide, acute; pinnae 1–2-jugate, the leaflets 18–21-jugate, albo-villose beneath, the costa strongly expressed, excentric. Filaments 21 mm long. *C. resupina.*

Inga gracilifolia Ducke.

VENEZUELA: Amazonas: along Río Cuao, alt. 125 m; tree 12 m tall; fls green with pale yellow filaments; 19 Jan 1949, *Maguire & Politi 28439.*

This is probably a very widespread species in northern South America, at least in the Amazon Basin. It was described on the basis of collections from Belém, one from the Rio Trombetas in northern Brazil, and one from western Brazil on the Rio Solimões. This Venezuelan collection represents a very significant northward extension of range and this is the first report of the species in Venezuela.

Inga racemiflora Ducke.

VENEZUELA: Amazonas: locally frequent along flooded forest edge south and east of Maroa, Río Guainía, alt. 130 m; shrub 3–5 m; corolla greenish-white; filaments white; 4 Jul 1959, *Wurdack & Adderley 43313;* occasional along Río Yatua between mouth and Laja Catipan, alt. 110–120 m; tree 6 m; fls white; 13 Jul 1959, *Wurdack & Adderley 43430.*

The presence of this species in southwestern Venezuela is not unexpected, since it has been known previously from the Rio Negro region of northwestern Brazil. This is the first report for Venezuela, however.

Pithecellobium aquaticum (Pittier) Cowan, comb. nov.

Macrosamanea aquatica Pittier, Bol. Soc. Venez. Ci. 11:15. 1950.

Four recent collections have been referred to this species (*Maguire et al. 36204, 36253; Wurdack & Adderley 42732; Level 70*); all are from the San Fernando de Atabapo region, just up-river from the type locality. Since the generic name under which Pittier published his new species is not generally accepted, it seems advisable to provide the combination under *Pithecellobium.*

Pithecellobium arenicola Cowan, sp. nov. Fig. 46.

Arbor 2–3 m alta vel arbuscula 0.3–1.5 m alta, ramulis puberulis, stipulis caducis, non visis. Petiolus 9–16 mm longus, puberulus, ad apicem glandula ovali 3 mm longa ornatus, rhachi (0–)12–16 mm longa, puberula, pinnis 1–2-jugatis, petiolo secondario ca. 4 mm longo, rhachillis 7.5–16 cm longis, puberulis, petiolulis nullis. Foliola 16–24-jugata, rigida, glabra (puberula costa supra excepta), leviter falcata, lanceolata ad oblongo-lanceolata, 20–30 mm longa, 5–7 mm lata, ad basim inaequilateraliter rotundata, ad apicem acuta et mucronata, costa excentrica venis primariisque leviter impressis supra, infra leviter salientibus. Flores capitati, capitulis in racemis terminalibus dispositis, capitularum pedunculo 5–10 mm longo, dense puberulo, bracteis glandulas conspicuas ferentibus. Calyx minuto-strigulosus, viridis, tubo 6–7.5 mm longo, lobis 2.5–3.5 mm longis, anguste triangularibus, acutis; corolla luteo-gilva, minute strigulosa, tubo 15–17 mm longo, lobis 5.5–6 mm longis, ca. 2 mm latis, triangulari-lanceolatis. Filamenta glabra, ca. 40 mm longa, tubo ca. 20 mm longo; ovarium minute strigulosum, sessile. Fructus immaturus plus minusve oblongus, minute strigulosus, compressus.

VENEZUELA: Amazonas: occasional in savanna on right bank of Río Pacimoni 50 km above mouth, alt. 100–140 m; shrub 0.3–1.5 m tall; fls white; 7 Feb 1954, *Bassett Maguire, John J. Wurdack & George S. Bunting 37568* (holotype, US Nos. 2281823, 2281824); fre-

quent in savanna on left bank of Caño Hechimoni 8 km above mouth, alt. 100–130 m; small tree 2–3 m; calyx green; corolla tan-cream; filaments white, anthers yellow; 9 Feb 1954, *Maguire, Wurdack & Bunting 37624.*

The shape of the leaflets of this savanna species (the specific epithet refers to the sand-inhabiting characteristic) separates it rather easily from its nearest relatives, of which *P. aquaticum* is perhaps as near as any. The latter species is also characterized by very small, insignificant glands on leaves and inflorescences; similarly placed glands are quite conspicuous in *P. arenicola.*

Pithecellobium basijugum Ducke.

VENEZUELA: Amazonas: frequent in flooded forest along uppermost Río Yatua, alt. 100–140 m; small bushy tree; corolla cream; stamens basally white, apically rose; 7–8 Dec 1953, *Maguire, Wurdack & Bunting 36724;* along uppermost Río Yatua, alt. 100–140 m; shrub 2.5 m, cauliflorous; filaments basally white, apically pink; 27 Oct 1957, *Maguire, Wurdack & Maguire 41958.*

Ducke described this species, based on collections from northwestern Brazil, but there are now more gatherings from southeastern Colombia than from Brazil. This first report from Venezuela is from the adjacent region, so the actual extension of range is not great.

Pithecellobium consanguineum Cowan, sp. nov. Fig. 47.

Arbor parva (?), ramulis glabris, conspicue lenticellatis, stipulis persistentibus, late triangularibus, obtusis, 0.5 mm longis. Petiolus 33–40 mm longus, leviter minute puberulus glaucusque, glandula sessili, elliptica, 3 mm longa, 1.5 mm lata, rhachi 5.5–7 cm longa, leviter minuto-puberula et glauca, pinnis 3–4-jugatis, petiolis secondariis 5–10 mm longis, rhachillis 7–9.5 cm longis, minuto-puberulis et glaucis. Foliola sessilia, glabra vel marginaliter sparse minuto-ciliolata, inaequilateralia, oblonga, ad apicem acuta mucronataque, 16–18 mm longa et 8–10 mm lata (foliolis terminalibus exceptis, his oblique lanceolatis, 3–3.5 cm longis, 10–15 mm latis), costa valde excentrica, venis lateralibus inconspicuis. Flores immaturi, sessiles, capitati, capitulis in racemis dispositis, capitularum pedunculo 13–16 mm longo, minuto-striguloso, bracteis glanduliferis. Calyx minute strigulosus, tubo 7–8 mm longo, lobis 2–3 mm longis, ovato-triangularibus, acutis; corolla pallidior quam calyce, dense aureo-strigulosa. Androecium et gynoecium immaturum. Fructus ignotus.

VENEZUELA: Amazonas: Río Guainía, alt. 120–140 m, clearing at Limoncito, left bank of Caño San Miguel 15 km above mouth; 14 Oct 1957, *Bassett Maguire, John J. Wurdack & William M. Keith 41878* (holotype, US No. 2267420).

The nearest relative of this new species is surely *P. spruceanum* and the degree of proximity is emphasized by the choice of specific epithet for it (consanguineus: "related by blood"). Although the flowers of *P. consanguineum* are not fully expanded, it is obvious that they are smaller than those of its near relative and the distribution of pubescence on the perianth is different. The color difference between the calyx and corolla (in the dried material) of the new species is also striking; the calyx is dark brown and the corolla is so densely buff-pubescent as to contrast sharply with the calyx. The two species also differ in number of pinnae and leaflets, and the latter are rather differently shaped.

Pithecellobium ferrugineum Benth.

BRAZIL: Rio Branco: occasional on open slopes of Serra Sabang, alt. 1370 m; small tree 4–8 m; fls bright red; 16–18 Dec 1955, *Maguire & Maguire 40325.*

This collection matches quite well a photograph of *Schomburgk 994* which in most respects represents this species very well. Both collections have more pairs of pinnae and leaflets than are recorded in the original description. However, in the latter, Bentham considers his material as "only small and imperfect"; furthermore, the leaf difference is easily within the range of variation in number of parts. This is the first report of the species since the type collection and the first report for Brazil.

Pithecellobium levelii Cowan, sp. nov. Fig. 48.

Arbor 8–10 m alta, ramulis foliisque glabris, stipulis caducis, non visis. Petiolus (15–)25–34 mm longus, pinnis unijugatis, pinnarum rhachi 18–31 mm longa, foliolis unijugatis, petiolulis 4–6 mm longis, laminis coriaceis, calloso-marginatis, ellipticis ad ovato-ellipticas, 8–9.5 cm longis, 3.5–4.5 cm latis, ad basim acutis, ad apicem obtuse acuminatis, costa venis primariisque faciebus ambobus plus minusve salientibus. Inflorescentiae terminales, racemiformes, capitulis solitariis vel fasciculatis, capitulorum pedunculo 20–37 mm longo, minute striguloso, floribus sessilibus. Calycis tubus 2–2.5 mm longus, minuto-strigulosus, lobis 0.5–0.7 mm longis, triangularibus, minuto-strigulosis; corolla alba, minute strigulosa, tubo 10–11 mm longo, lobis 3–3.5 mm longis, 1–2 mm latis, lanceolatis, acutis. Filamenta glabra, ca. 40 mm longa, tubo haud vel breviter exserto. Ovarium minute strigulosum, style glabro. Fructus ignotus.

VENEZUELA: Amazonas: Caño Cupaven, opposite mouth of Río Atabapo, alt. 150 m; tree 10 m; fls white; 11 May 1954, *J. Silverio Level 73* (holotype, US No. 2281812); occasional along Río Orinoco just about mouth of Río Atabapo, alt. 125 m; tree 8 m; fls white; 1 Jun 1959, *Wurdack & Adderley 42730.*

After so many exploratory parties have passed through this region of Venezuela, it seems proportionately less likely that new species would still be collected along the principal river routes. The collector of the type material, however, is a particularly acute observer, with an unexcelled "eye" for what we generally refer to as specific differences. The several years of association with the expeditions of Maguire et al. have developed him as an outstandingly capable botanical collector. It is, therefore, a pleasure to name this very distinctive new species for him.

The relationships between *P. levelii* and other species of the genus (sensu lato) are not at all clear. It differs from all others either in the number of leaflets and/or the type of inflorescence.

Pithecellobium villiferum Ducke.

VENEZUELA: Amazonas: along Río Guainía between Comunidad and Santa Rita, alt. 120 m; tree 6 m; fls white; 8 Jul 1959, *Wurdack & Adderley 43351.*

The type locality, along the upper Rio Negro of northern Brazil, is in the southern part of the physiographic province in which the above cited collection was made, so it is not an unexpected first report for Venezuela. Since it has also been reported from Tafelberg in the interior of Suriname, it may be a more widely ranging species than earlier suspected.

LEGUMINOSAE—CAESALPINIOIDEAE

Aldina petiolulata Cowan, sp. nov. Fig. 59.

Arbor 40 m alta, 60 cm diametro [DBH], ramulis dense microstrigulosis et lenticellatis, stipulis non visis. Petiolus 4–7 cm longus, gracili-cylindricus, glaber, rhachi 7.5–8.5 cm longa, glabra, gracili-cylindrica; petioluli 15–20 mm longi, glabri, graciles, teretes, laminis ellipticis, 8.5–10 cm longis, 3.5–4.5 cm latis, ad basim acutis usque ad subobtusos, ad apicem obtusis et plerumque rotundatis, glabris nitidisque supra, infra pallidioribus, furfaceo-ceriferis et albo-microstrigulosis, costa impressa et venulis primariis planis supra, infra costa et venulis primariis plus minusve salientibus. Inflorescentiae 15–23 cm longae, paniculatae, axe aureo-sericeo, bracteis bracteolisque persistentibus, triangularibus, pedicello 2.5–3 mm longo, alabastris ca. 13 mm longis. Calyx ca. 11 mm longus, extus aureo-sericeus, lobis 2–3, intus villosulis; petala alba, obovata, valde cucullata ca. 15 mm longa et 10 mm lata, glabra. Filamenta 12 mm longa, antheris 4.5 mm longis, 1 mm latis, anguste oblongis. Stylus 2 mm longus, glaber; ovarium 3 mm longum, 2 mm latum, ovato-oblongum, sericeum, gynophoro 2 mm longo, obcuneato, sericeo. Fructus ignotus.

VENEZUELA: Amazonas: frequent in slope forest near Camp 3, alt. 700–800 m, Cerro de la Neblina, Río Yatua; tree 40 m × 60 cm [DBH]; bark with red clear exudate; petals and filaments white; anthers cream; 30 Dec 1957, *Bassett Maguire, John J. Wurdack & Celia K. Maguire 42555* (holotype, US No. 2267456).

The length of the petiolules is emphasized by the choice of specific epithet for this new species, which is most nearly related to *A. occidentalis*. They are distinguished in the following key, which also includes other species of this genus described since my review of it (Mem. N. Y. Bot. Gard. **8**:103. 1953.)

1. Leaflets completely glabrous on the lower surface as well as on the upper. 2.
1. Leaflets pubescent on the lower surface, sometimes obviously so but often minutely. 3.
2. Mature buds 7–8 mm long, petals 7–9 mm long; stipe of the ovary as long as or shorter than the ovary; leaflets broadly ovate to lanceolate; inflorescence much branched 10. *A. heterophylla.*
2. Mature buds 15 mm long, petals 15–20 mm long; stipe of the ovary 2-3 times as long as the ovary; leaflets oblong, oblong-oval, or oblong-ovate; inflorescence racemose or lax and sparsely branched. 4a. *A. latifolia var. latifolia.*
3. All parts except the upper leaf surface fuscous-velvety. Calyx usually split into two parts 3. *A. kunhardtiana.*
3. Pubescence where present minute, densely and closely appressed (at least on dried specimens). Calyx split into 3–5 irregular parts. 4.
4. Leaves mostly 7–11-foliolate. 5.
4. Leaves usually not over 5-foliolate (to 7-foliolate in *A. aurea* and *A. occidentalis*). 6.
5. Leaflets 3–4 cm wide, lanceolate-oblong, the apices long-acuminate; mature buds about 1.5 cm long; petals oblong, 2 cm long, 0.8 cm wide; filaments about 1.5 cm long; ovary 5 mm long with a stipe up to 10 mm long. 2. *A. polyphylla.*
5. Leaflets (5.5–) 7.5–11 cm wide, oblong or oblong-oval, the apex abruptly short-acuminate or acute; mature buds 2–2.5 cm long; petals obovate-orbicular with a cuneate base, 3–4.5 cm long, 2.5–3.5 cm wide; filaments 2.5–3.5 cm long; ovary 7–8 mm long (sometimes two ovaries produced per flower), the stipe 1.5–1.8 cm long. 1a. *A. insignis* var. *insignis.*
6. Hairs on lower leaflet surface strictly appressed, directed toward the apex and the margin of the leaflet, the apex of the leaflets not retuse or rotund. 8.
6. Hairs on lower leaflet surface at first erect or suberect, collapsed and more or less decumbent on drying, the apex of the leaflets rotund and retuse. 7.
7. Leaflets 10–13 cm long, 5.5–6.5 cm wide, the lower leaflet surface evenly glaucous; mature buds about 2.5 cm long; petals 3.5–4.5 cm long; stipe densely pubescent, 6–9 mm long; style sparsely gray-sericeous. 1b. *A. insignis* var. *retusa.*

7. Leaflets 7–8.5 cm long, 3.5–4.5 cm wide, the lower leaflet surface obscurely pruinose-lepidote; mature buds about 1 cm long; petals 2 cm or less in length; stipe of the ovary glabrous, about 1 mm long; style glabrous. 9. *A. occidentalis.*
8. Ovary glabrous or subglabrous. 8. *A. macrophylla.*
8. Ovary densely pubescent. 9.
9. Stipe of the glabrescent ovary about 10 mm long, twice or more times as long as the ovary. 4b. *A. latifolia* var. *pubescens.*
9. Stipe of the persistently pubescent ovary 2.5 mm long or shorter, never longer than the ovary at anthesis. 10.
10. Venation strongly salient, conspicuous on both surfaces of the leaflets. 5. *A. reticulata.*
10. Venation never conspicuous, usually obscure on the upper surface of the leaflets. 11.
11. Leaflets acute to acuminate apically, the upper and lower surfaces markedly discolorous. 12.
11. Leaflets obtuse to rounded-obtuse, the upper and lower surfaces not markedly discolorous. 13.
12. Leaflets tesselate and appressed-puberulous beneath. 6. *A. discolor.*
12. Leaflets aureo-pubescent and not at all tesselate on the under surface. 6′. *A. aurea.*
13. Leaf axis appressed-puberulous, the petiolules 5–7 mm long. 6″. *A. elliptica.*
13. Leaf axis glabrous, the petiolules 15–20 mm long. 6‴. *A. petiolulata.*

Bauhinia chalkos Cowan, sp. nov. Fig. 49.

Frutex scandens 5 m altus, ramulis dense pilosulis, stipulis caducis, non visis. Petiolus 6–6.5 cm longus, dense pilosulus, lamina breviter bilobata, lobis 20–23 mm longis, triangularibus, obtusis ad subacutis, suborbiculari ad oblatam, 13–13.5 cm longa, 14–16 cm lata, ad basim valde cordata, 11-nervia, nerviis leviter impressis supra, infra salientibus, venulis subobscuris, faciebus superioribus glabris, inferioribus nitido-cupreis. Inflorescentiae racemosae, plerumque terminales, 11–21.5 cm longae, axe dense pilosulo, bracteis bracteolisque deciduis, 2.5–3 mm longis, oblanceolatis, acutis, pedicello 3–5 mm longo, dense pilosulo. Calyx cupreo-strigulosus, late campanulato-ovoideus, valde alato-costatus, tubo 4 mm longo, lobis 6.5 mm longis, 5.5 mm latis, ovato-oblongis, apice reflexo, suborbiculari, ca. 2 mm diametro. Corolla gilva, cupreo-sericea extus, intus glabra, petalorum unguiculo ca. 7 mm longo, lamina orbiculari, 13–16 mm diametro, ad apicem rotundata. Filamenta parce villosa, ca. 11 mm longa; stylus glaber; ovarium dense cupreo-sericeum. Fructus ignotus.

VENEZUELA: Amazonas: along Río Casiquiare just above Piedra Guanare, alt. 110 m; woody vine climbing 5 m; fls cream; 25 Jun 1959, *John J. Wurdack & L. S. Adderley 43174* (holotype, US No. 2281798).

The coppery color of the under surfaces of the leaves in this new species is the basis for the specific epithet (χαλκός: "of copper"). In this respect *B. chalkos* is quite similar to *B. cupreonitens*, to which it is surely rather closely related. The new species has much larger flowers; the reflexed tips of the calyx lobes are much smaller; the leaves are larger, differently shaped, and with 2–4 fewer principal veins; and finally, the geographic range of the two species is disjunct.

Campsiandra angustifolia Spruce ex Benth.

VENEZUELA: Amazonas: along Río Orinoco just below mouth of Caño Yapacana, alt. 125 m; tree 15 m; corolla white, rose-flushed; stamens red; 18 Jun 1959, *Wurdack & Adderley 43029;* infrequent along Río Casiquiare just below Capihuara, alt. 130 m; tree 12 m; petals white, red-flushed outside; stamens deep red; 26 Jul 1959, *Wurdack & Adderley 43636.*

These two collections are the first reported in Venezuela but the range extension is not great, since the species occurs in nearby parts of Colombia and Brazil.

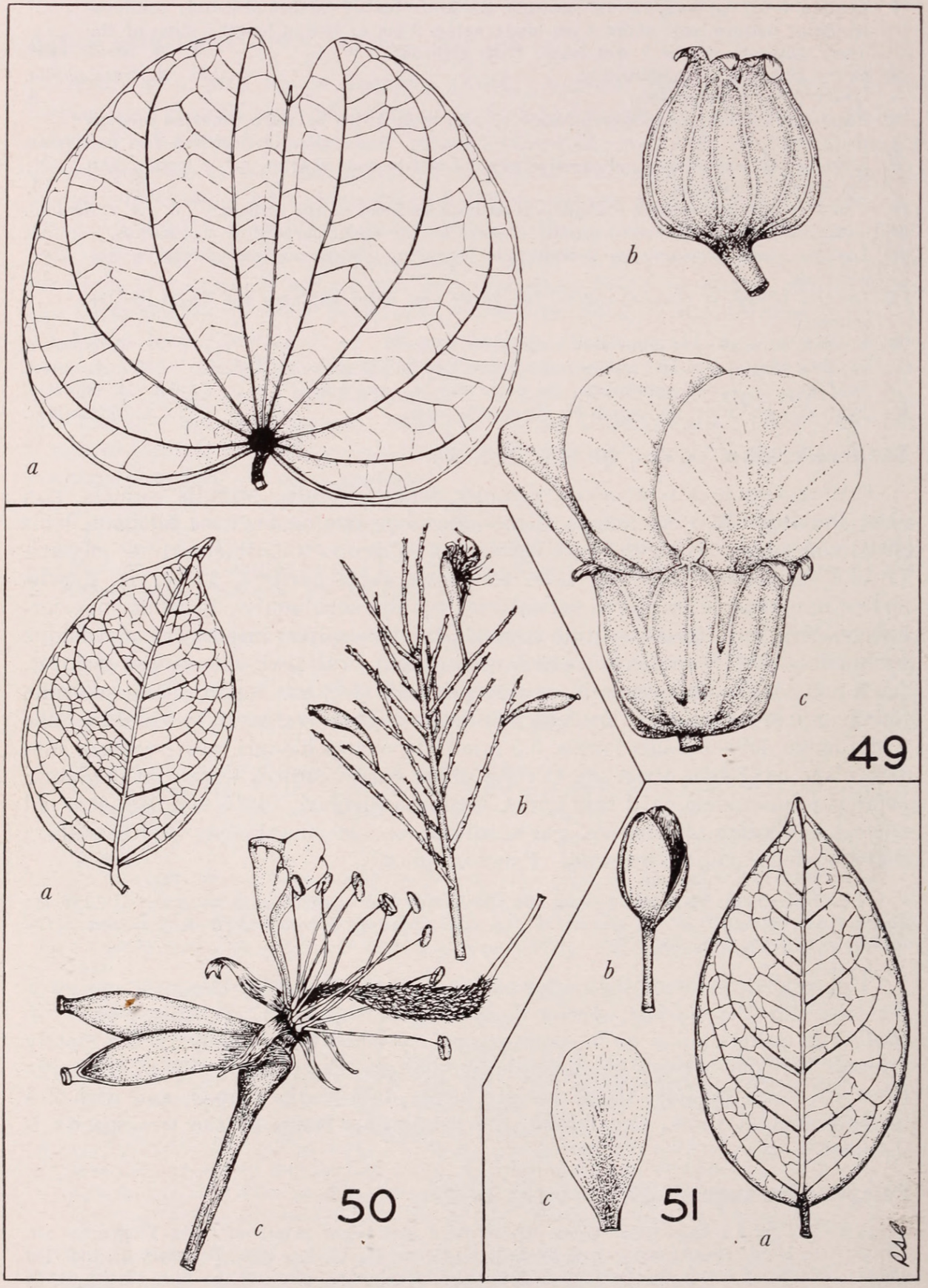

FIG. 49. *Bauhinia chalkos* (*Wurdack & Adderley 43174*). a, leaf, × 0.5; b, mature bud, × 2; c, flower, × 2. FIG. 50. *Dicymbe neblinensis* (*Maguire, Wurdack & Maguire 42568*). a, one leaflet, × 0.5; b, inflorescence, × 0.5; c, open flower, × 2. FIG. 51. *Dicymbe pharangophila* (*Maguire, Wurdack & Maguire 42503*). a, one leaflet, × 0.5; b, mature bud, × 0.5; c, petal, × 0.5.

Campsiandra macrocarpa Cowan.

VENEZUELA: Amazonas: infrequent along Río Yatua for 30 km above Piedra Arauicaua, alt. 100–140 m; tree 15 m; petals white; stamens red; 20 Oct 1957, *Maguire, Wurdack & Maguire 41932.*

When I described this species (Mem. N. Y. Bot. Gard. **10**:147. 1958) only leaves and immature fruits were available for study, but it seemed so distinct that this appeared to be a prudent course. The above-cited collection now furnishes additional characteristics that strongly support that action. These distinguishing features are presented in the following supplementary description: Inflorescence a terminal panicle of racemes 15 cm long, the axes densely puberulous; bracts and bracteoles very minute, the pedicels ascending at anthesis but soon recurved, 14–17 mm long, densely puberulous, the hypanthium obconic, 7 mm long, ca. 5 mm in diameter, strigulose. Sepals 3.5–4 mm long, 3.5–4.5 mm wide, very broadly ovate, rounded-obtuse, strigulose externally, glabrous within; petals 15.5 mm long, 8 mm wide, obovate, rounded-obtuse, glabrous except densely ciliolate marginally. Filaments 50–65 mm long, glabrous, the anthers oval, 2 mm long, 1 mm wide, villose. Gynoecium glabrous, the style ca. 35 mm long, the ovary narrowly oblong, ca. 5 mm long.

In my key (Mem. N. Y. Bot. Gard. **8**:111. 1953) this species will key out near *C. comosa* var. *laurifolia*, but it is distinct from all other taxa in the genus by the size of the flower parts, in addition to the leaf and fruit characters; most of these, especially the perianth, are considerably larger than in any of the other taxa.

Elizabetha leiogyne Ducke.

VENEZUELA: Amazonas: frequent along uppermost Río Yatua, alt. 100–140 m; tree 15–30 m; calyx pale green, petals white; 25–26 Oct 1957, *Maguire, Wurdack & Maguire 41952;* locally frequent along stream in slope forest just beyond Camp 2, Cerro de la Neblina, alt. 200 m; tree 25 m; bracts pinkish, petals white, apically pink-tinged; 2 Nov 1957, *Maguire, Wurdack & Maguire 41986.*

In his review of the genus Ducke (Trop. Woods **37**:21. 1934) gives the range of this species as upper Rio Negro region of Amazonas, Brazil, so its presence is not unexpected in the forests of adjacent Venezuela. These are the first collections reported from the latter country.

Dicymbe Spruce ex Bentham.

Since the preliminary review of this genus in 1957 (Mem. N. Y. Bot. Gard. **9**:337–343. 1957), I have described two additional new species and now still two more new ones require such treatment. Keys are presented below to associate the new taxa with their nearest relatives and to distinguish from each other the members of assemblages that include new species.

In the paper referred to above, the genus was divided into several sections; in a recent paper Fasbender (Lloydia **22**:139. 1959) mentions these sections as having been "invalidated by subsequent findings (Cowan, 1958)." It is necessary to correct the author's misinterpretation of the additional information presented in the latter reference. In the first place, the original treatment was specifically described as "preliminary;" it was a tentative arrangement of subgeneric taxa and nothing more. It is therefore not at all surprising that there is no support in the pollen morphology for my alignment. The fact is that some of the characteristics used in the preliminary key have since been

found to be less precise than was originally thought, but this does not *invalidate* the subgeneric structure erected initially; the basic groups are, for the most part, just as recognizable now as then. Certainly, I do not intend to make any major modifications in my earlier treatment until the genus is much better known; new species are being added to it with every expedition to the Guayana region and a re-evaluation is not justified at this time. The genus is not so confused and complex as Fasbender states; rather it is a genus so poorly known in its component parts that it may tend to confuse the non-taxonomist.

Dicymbe neblinensis Cowan, sp. nov. Fig. 50.

Arbor 12 m alta, 15 cm diametro [DBH], ramulis novellis pilosulis, glabratis, stipulis caducis. Petiolus 17–20 mm longus, pilosulus, rhachi (2.5–)6–8 cm longa, pilosula, foliolis (2–)3-jugatis, petiolulis 5–6 mm longis, pilosulis, laminis inaequilateralibus, falcato-ovatis, 7–10 (–13) cm longis, 3–6 cm latis, ad basim obtusis (vel uno latere acuto), ad apicem acuminatis, glabris supra, infra parce pilosulis ad costam et ad venas primarias, costa et venis primariis planis supra, infra plus minusve salientibus. Inflorescentiae paniculatae, terminales, 12–15 cm longae, sericeae, bracteis caducis, triangularibus, 1–1.5 mm longis, extus sericeis, pedicello 9–12 mm longo, sericeo, bracteolis 11–15 mm longis, 3–3.5 mm latis, oblongo-lanceolatis, ad apicem stipitato-glandularibus, stipite ca. 1 mm longo, sericeis faciebus ambobus. Hypanthium ca. 5 mm longum, inaequilaterale, cylindricum; sepala 5–5.5 mm longa, 0.7–0.9 mm lata, duobus adaxialibus paene omnino connatis; petalum adaxiale expletum, pallido-flavum, glabrum intus, extus ad costam villoso-sericeum, unguiculo 5 mm longo, lamina oblata, 6 mm longa, 8.5 mm lata, petalo abaxiali ca. 3 mm longo, lineari, petalis ceteris ligulato-oblanceolatis, 8 mm longis, 1 mm latis. Filamenta 9–12 mm longa pilosula parce ad basim, antheris 1.7 mm longis, 0.8 mm latis, ovalibus, glabris Stylus glaber, ovario sericeo, ca. 5 mm longo, 2 mm lato, compresso-ellipsoideo gynophoro (in parte libera) ca. 1.5 mm longo, sericeo, in parte basali ad hypanthium adnato. Fructus ignotus.

VENEZUELA: Amazonas: in slope forest just north of Camp 3, Cerro de la Neblina, alt. 650–700 m; tree 12 m × 15 cm DBH; petal 1, pale yellow, turning bright yellow with age; stamens cream; 1 Jan 1958, *Bassett Maguire, John J. Wurdack & Celia K. Maguire 42568* (holotype, US No. 2267459).

This new species shares a number of characteristics with *D. stipitata* but is clearly distinct on the basis of the differences presented in the following key in which I have included all the known species of this section.

Key to the Species of *Dicymbe* sect. *Eremopetala*

1. Leaflets 1–2-jugate, the apex rounded, obtuse, or emarginate. 2.
1. Leaflets 3-jugate, infrequently 2-jugate, the apex acute to acuminate. 3.
2. Leaflets 2-jugate, 3–6.5 cm long, 2–3.5 cm wide, more or less emarginate. Petals and filaments sparingly strigulose, the stipe of the one complete petal 4 mm long, attenuate basally. 7. *D. yutajensis.*
2. Leaflets unijugate, 8–10 cm long, 5–5.5 cm wide, the apex rounded and entire. Petals and filaments villose; stipe of the one complete petal 2 mm long, cordate basally. 8. *D. froesii.*
3. Leaf axis and costa of the lower surface of the leaflets pubescent, the petiolules 5–6 mm long. Pedicels 9–12 mm long. Sepals 5–5.5 mm long; petals centrally pubescent, the blade of the complete petal oblate on a claw 5 mm long. Ovary densely sericeous. 8′. *D. neblinensis.*
3. Leaves glabrous, the petiolules 7–8 mm long. Pedicels 6–7 mm long. Sepals 7.5 mm long; petals glabrous, the blade of the complete petal cordiform on a claw 6–8 mm long. Ovary glabrous except for the strigose abaxial suture. 8″. *D. stipitata.*

Dicymbe pharangophila Cowan, sp. nov. Fig. 51.

Arbor 6–12 m alta, ramulis foliisque glabris, stipulis caducis. Petiolus 13–18 mm longus, cylindricus, rhachi 22–38 mm longa, cylindrica, foliolis 1½–2-jugatis, petiolulis 7–10 mm longis, laminis rigidis, ellipticis ad ovatos, 10–12.5 cm longis, 5–6 cm latis, marginaliter revolutis, ad basim rotundo-obtusis, ad apicem obtuse acutis, infra nigro-punctatis, venulis planis faciebus ambobus, costa leviter salienti supra, infra valde salienti. Inflorescentiae usque ad 9 cm longas, axe microstriguloso, bracteolis crasso-coriaceis, 3 cm longis, 2 cm latis, ovalibus, microstrigulosis extus, intus glabris, pedicello 25 mm longo, dense microstriguloso. Hypanthium cupulare, 6–7 mm longum, ca. 10 mm diametro, microstrigulosum; sepala 4, glabra, duobus exterioribus ovato-oblongis, obtusis, 25 mm longis, 17–20 mm latis, duobus interioribus 28 mm longis, 7 mm latis, obtusis, anguste ellipticis; petala 5, alba, obtusa apiculataque, glabra intus, extus aureo-sericea, inaequalia, 4–5.5 cm longa, 1–2.5 cm lata, anguste elliptica ad obovata. Filamenta subulata, 6 cm longa, basilariter villosa, antheris 10 mm longis, 3 mm latis, anguste ellipticis, connectivo dorsualiter villoso. Stigma capitellatum, stylo 6 cm longo, glabro; ovarium oblongum, aureo-sericeum, 12 mm longum, 3 mm latum, sutura adaxiali valde dilata, gynophoro 5 mm longo, ad basim glabro, apicaliter sericeo. Fructus ignotus.

VENEZUELA: Amazonas: occasional in bottom of Cañon Grande SSW of Cumbre Camp, Cerro de la Neblina, alt. 1050–1100 m; tree 6–12 m; flowers white; 25 Dec 1957, *Bassett Maguire, John J. Wurdack & Celia K. Maguire 42503* (holotype, US No. 2267450).

Dicymbe pharangophila (the specific epithet refers to the habitat of the species: φάραγξ: "valley"; φιλέω: "to love") is related to *D. altsoni*, *D. corymbosa*, and another new species described since my preliminary review, *D. bernardii*. The four taxa are readily distinguished by the following key:

1. Leaflets 2-jugate, punctate on the lower surface. 2.
1. Leaflets 3-6-jugate, not punctate beneath. 3.
2. Leaflet acute basally. Inflorescence velutinous; bracteoles 18 mm long, 10 mm wide, ovate; hypanthium 3 mm deep, 5 mm in diameter; filaments ca. 25 mm long. 3. *D. corymbosa.*
2. Leaflets rounded-obtuse. Inflorescence microstrigulose; bracteoles 30 mm long, 20 mm wide; hypanthium 6–7 mm long, 10 mm diameter; filaments 60 mm long. 3′. *D. pharangophila.*
3. Leaflets 5–6-jugate, microstrigulose on the lower surface. Pedicels 10–25 mm long, the bracteoles 15–18 mm long; ovary densely pilose. 2. *D. altsoni.*
3. Leaflets 3-jugate, glabrous. Pedicels 30–32 mm long, the bracteoles 25 mm long; ovary strigose and strigulose. 2′. *D. bernardii.*

Macrolobium Schreb.

More than a dozen new taxa have been added to this genus since I published a revisional study of it in 1953. To facilitate the placement of these taxa, as well as ones to be described later, in the taxonomic sequence established in my earlier study, I have recast the single key to the species. In the following pages, keys are presented to several series; the term is not intended to have any taxonomic status or phylogenetic significance but is used solely as a mechanical device to make possible future "updating" without extensive republication of keys. Each new taxon has been assigned a number that will serve to align it with its nearest relatives.

Key to the Series of Section 1, *Vouapa*

1. Leaflets 2–45-jugate or, if unijugate, with distinct petiolules. (Series 1.) 2.
1. Leaflets unijugate or unifoliolate (some leaves with the leaflets bijugate in *M. palustre* and very rarely in *M. punctatum*). (Series 2.) 5.
2. Leaflets with distinct petiolules 2.5–6 mm long. Bracts 5.5–17 mm long. Series 1a.
2. Leaflets sessile. Bracts smaller. 3.
3. Leaflets 2–6-jugate. Series 1b.
3. Leaflets 6–45-jugate. 4.
4. Leaflets (4–)6–10-jugate. Series 1c.
4. Leaflets 10–45-jugate. Series 1d.
5. Leaflets with a well-developed intramarginal nerve. Series 2a.
5. Leaflets without a well-developed intramarginal nerve. 6.
6. Ovary pubescent throughout or only marginally. Leaves always more than unifoliolate. 7.
6. Ovary glabrous or the leaves unifoliolate. 8.
7. Ovary pubescent on all surfaces. Series 2b.
7. Ovary pubescent only marginally. Series 2c.
8. Sepals five, free or the adaxial pair more or less united. Series 2d.
8. Sepals four, free. Series 2e.

Key to the Series of Section 2, *Stenosolen*

1. Leaflets 2–30-jugate. Series 3.
1. Leaflets unijugate. Series 4.

Key to the Species of Series 1a

1. Leaflets all or mostly 2–3-jugate. 2.
1. Leaflets all unijugate. 3.
2. Sepals five; bracts not over 12.5 mm long and 4 mm wide. Leaflets not conspicuously venose, the costa impressed on the upper surface. 21. *M. campestre* & vars.
2. Sepals four; bracts 14–17 mm long, 4–7 mm wide. Leaflets conspicuously venose, the costa and venules more or less salient. 21′. *M. spectabile.*
3. Leaflets not at all arcuate, basally equilateral. Bracteoles not fleshy or crassate. 22. *M. arenarium.*
3. Leaflets more or less arcuate, moderately to conspicuously inequilateral at the base. Bracteoles thick, fleshy. 4.
4. Leaflets rounded-obtuse apically, oblong, obovate-oblong, or broadly elliptic. 5.
4. Leaflets acute apically, elliptic to lanceolate-elliptic. 7.
5. Plants pubescent in some parts; leaflets 2–2.5 times as long as wide. Bracteoles about 10 mm long; petal 13–15 mm long. (23. *H. canaliculatum*) 6.
5. Plants glabrous on vegetative parts and on most flower parts; leaflets less than twice as long as wide. Bracteoles 7 mm long; petal about 6.5 mm long. 23′. *M. acrothamnos.*
6. Inflorescence axis strigulose. Leaflets with petiolules to 1 mm long, punctate. 23a. *M. canaliculatum* var. *strigulosum.*
6. Inflorescence axis very minutely puberulous. Leaflets with petiolules 3–10 mm long, not punctate. 23b. *M. canaliculatum* var. *canaliculatum.*
7. Costa of the leaflets strongly salient on their upper surface. Bracteoles 3.5–8 mm long; sepals 4–7.5 mm long; claw of the petal 4–5.5 mm long. 24. *M. punctatum.*
7. Costa of the leaflets strongly impressed on their upper surface. Bracteoles 12–14 mm long; sepals 10–11 mm long; claw of the petal ca. 10 mm long. 24′. *M. rubrum.*

Key to the Species of Series 1b

1. Peduncles 10–55 mm long. 2.
1. Peduncles not more than 6 mm long. 3.
2. Leaflets pilosulose-velutinous on the upper surface, pilose beneath. Inflorescence pilosulose. 13. *M. molle.*
2. Leaflets glabrous or sparsely puberulous basally on the lower surface. Inflorescence glabrous or minutely puberulous. 16. *M. multijugum* & vars.
3. Ovary densely to sparsely pubescent, marginally or on all surfaces. 4.
3. Ovary glabrous. 8.

4. Leaflets oval to oblong-obovate, apically rounded and retuse to emarginate. (17. *M. microcalyx*) 5.
4. Leaflets lanceolate, apically acute. 14. *M. jemmanii.*
5. Ovary villose on all surfaces. 17a. *M. microcalyx* var. *microcalyx.*
5. Ovary villose only marginally, laterally glabrous. 6.
6. Leaflets oval-oblong to oblong-obovate, the apex rounded, the lower surface glaucous; stipules caducous. 7.
6. Leaflets oval to elliptic, the apex attenuate but finally obtuse, the lower surface not glaucous; stipules persistent 20. *M. guianense.*
7. Leaflets mostly 3–5 cm long, 3–7-jugate, the rachis 2.5–10 cm long. 15. *M. discolor* & var.
7. Leaflets always less than 2 cm long, 2–3-jugate, the rachis 0.7–1.7 cm long. 17b. *M. microcalyx* var. *minimum.*
8. Leaflets distinctly punctate on the lower surface, oblong, 2.5–3.5 times as long as wide. Pedicels ca. 12 mm long. Bracteoles 12–17 mm long. 15′. *M. longipes.*
8. Leaflets epunctate, not over 2 times as long as wide, more or less oval to suborbicular. Pedicels 4–7 mm long. Bracteoles 5.5–10 mm long. 9.
9. Leaflets 2–3-jugate. Bracteoles pubescent on one or on both surfaces; filaments 10–20 mm long, villosulose basally or glabrous. 18. *M. montanum* & vars.
9. Leaflets 5–7-jugate. Bracteoles glabrous; filaments 25–35 mm long, strongly villose. 19. *M. urupaense.*

Key to Species of Series 1c

1. Leaflets 10–16-jugate. 2.
1. Leaflets usually less than 10-jugate . 3.
2. Leaflets pubescent beneath, oblong. Ovary pubescent at least marginally; filaments pubescent. 11. *M. flexuosum.*
2. Leaflets glabrous, oval-oblong. Ovary glabrous; filaments glabrous. 12. *M. furcatum.*
3. Leaflets not punctate. 4.
3. Leaflets punctate. 8.
4. Leaflets velvety-pubescent. Inflorescence pilosulose 13. *M. molle.*
4. Leaflets glabrous or at least not velvety. Inflorescence not pilosulose. 5.
5. Ovary pubescent on the margins. Leaflets with the lower surface often glacuous to ceriferous. 6.
5. Ovary glabrous. Leaflets not at all glaucous or ceriferous. 19. *M. urupaense.*
6. Leaflets oblong or oblong-oval to oblong-obovate, 5–35 mm wide, glaucous to ceriferous beneath. 7.
6. Leaflets linear, not over 3.5 mm wide, not glaucous or ceriferous beneath. 2′. *M. cataractarum.*
7. Leaflets oblong, 12–23 mm long, 5–8 mm wide. Pedicels 1–1.5 mm long. 11′. *M. anomalum.*
7. Leaflets usually oblong-oval to oblong-obovate, mostly 45–70 mm long and 10–35 mm wide. Pedicels usually 2–5 mm long. 15. *M. discolor* & vars.
8. Peduncle 2–4 mm long, the pedicels ca. 12 mm long. Leaflets 1–3-jugate. Fruits oblong. 15′. *M. longipes.*
8. Peduncle 10–55 mm long, the pedicels 2–5.5 mm long. Leaflets 3–9-jugate. Fruits oval to suborbicular. 16. *M. multijugum.*

Key to Species of Series 1d

1. Leaflets 10–30-jugate (–40-jugate in one variety of *M. gracile*), plane or nearly so. Hypanthium cupular. 2.
1. Leaflets 35–45-jugate, strongly convex. Hypanthium short-cylindric. 1. *M. taxifolium.*
2. Pedicels averaging 6 mm long (4–8 mm); bracteoles glabrous. Stipules persistent or caducous. 3.
2. Pedicels shorter; bracteoles pubescent on outer surface only or on both inner and outer surfaces. Stipules caducous. 4.
3. Stipules persistent; leaves oblong to lanceolate-oblong in outline, the leaflets rounded apically, entire or subentire. Bracts 3.5–5.5 mm long, 1–1.5 mm wide. 5. *M. huberianum.*
3. Stipules caducous; leaves elliptic or lanceolate in outline, the leaflets truncate apically, retuse to emarginate. Bracts 8 mm long, 2.5 mm wide. 6. *M. longipedicellatum.*
4. Ovary and bracteoles glabrous; peduncle 4–6 mm long. 12. *M. furcatum.*
4. Ovary and bracteoles more or less pubescent; peduncle shorter. 5.

5. Filaments more or less pubescent, sometimes only basally so. 6.
5. Filaments glabrous. 15.
6. Bracteoles pubescent on the inner surfaces (sometimes only sparingly so near the apex). Leaflets 8–40-jugate. 7.
6. Bracteoles glabrous on the inner surfaces. Leaflets 6–7-jugate 11′. *M. anomalum.*
7. Inflorescence less than 2 cm long. 8.
7. Inflorescence longer than 2 cm. 9.
8. Median leaflets four or more times as long as wide, essentially glabrous, 20–30-jugate. 2c. *M. gracile* var. *debile.*
8. Median leaflets three times as long as wide, pubescent on both sides, mostly 15-jugate. 2d. *M. gracile* var. *gracile.*
9. Leaflets obviously emarginate or retuse apically. 10.
9. Leaflets entire apically. 14.
10. Leaves lanceolate to oblong-lanceolate in outline, the leaflets with the costa salient. 11.
10. Leaves oblong in outline, costa salient or not. 12.
11. Inflorescences pilosulose; outer surfaces of the bracteoles pilose and flexuose-pilosulose. 4. *M. brevense.*
11. Inflorescences puberulous; flowers not known. 2b. *M. gracile* var. *machadoense.*
12. Median leaflets about 4 cm long, 1.5 cm wide, the venules prominulous. 11. *M. flexuosum* & var.
12. Median leaflets usually less than 2.5 cm long, 1 cm wide, the venules obscure to subobscure. 13.
13. Upper side of leaflet base angular-auriculate, the apex strongly emarginate. 3. *M. machaerioides.*
13. Upper side of leaflet base obtuse, the apex truncate-obtuse, retuse to emarginate. 10. *M. venulosum.*
14. Leaflets evenulose, the lower surface cano-strigulose. Bracts 5.5–7 mm long, elliptic-lanceolate. 10′. *M. evenulosum.*
14. Leaflets at least faintly venulose, the lower surface glabrous or somewhat pilosulose. Bracts 2.5–3 mm long, triangular-ovate 2a. *M. gracile* var. *confertum.*
15. Bracteoles pubescent on both surfaces. 16.
15. Bracteoles pubescent on outer surface only. 17.
16. Leaf rachis 3–3.5 cm long; leaflets about ten times as long as wide, the apex entire. 2′. *M. cataractarum.*
16. Leaf rachis 9–15 cm long; leaflets 2–3 times as long as wide, the apex retuse. 9. *M. froesii.*
17. Costa of leaflets distinctly salient on both surfaces. Bracteoles and pedicels lanulose-puberulous. Fruit three to four times as long as wide. 7. *M. longeracemosum.*
17. Costa impressed on the upper surface of the leaflets. Bracteoles and pedicels pilosulose. Fruit about one and a half times as long as wide. 8. *M. acaciaefolium.*

Key to the Species of Series 2a

1. Leaflets with the venules closely parallel and prominulous on both surfaces, the intramarginal nerve originating from the base of the costa, the apex strongly emarginate, rounded. 30. *M. retusum.*
1. Leaflets with the venules obscure or, if prominulous, not closely parallel, the intramarginal nerve formed by the anastomosing of primary veins, the apex entire, acute to acuminate. 25. *M. limbatum* & vars.

Key to the Species of Series 2b

1. Hairs of pubescence minutely ribbon-like, peg-like, or clavate (sub lente). 2.
1. Hairs of pubescence cylindric, neither clavate, ribbon-like, or peg-like. 4.
2. Hairs ribbon-like. Bracteoles thin, never fleshy. 27. *M. bifolium.*
2. Hairs peg-like or clavate. Bracteoles thick, spongy-fleshy. 3.
3. Hairs clavate. Leaflets to 15 cm long and 7 cm wide. Inflorescence axillary. 28. *M. latifolium.*
3. Hairs peg-like. Leaflets 32–39 cm long and 12–14 cm wide. Inflorescence ramuliflorous. 28′. *M. wurdackii.*
4. Inflorescences axillary to pseudo-terminal; sepals 5. 5.
4. Inflorescences cauliflorous to ramuliflorous; sepals 4. 6.
5. Leaflets strongly cordate at the lower side of the inequilateral base, rigid-coriaceous. Bracts 2.5 mm long, oblong-ovate. 31. *M. duckeanum*

5. Leaflets inequilaterally acute, not rigidly coriaceous. Bracts 1–1.5 mm long, triangular or ovate. 33. *M suaveolens* & vars
6. Leaflets rounded-obtuse on the lower side of the base, strongly salient-venose and thickly coriaceous. Stipules persistent, coriaceous-foliaceous. Bark of branchlets exfoliating. 32′. *M. exfoliatum.*
6. Leaflets acute basally, chartaceous, the venation not strongly salient. Stipules caducous. Bark of branchlets not exfoliating. 32. *M. amplexans.*

Key to the Species of Series 2c

1. Bracts ca. 5 mm long, 3 mm wide, never triangular, the bracteoles strigulose within, densely puberulous to pilosulose externally. Ovary pilosulose marginally. 29. *M. angustifolium.*
1. Bracts 1–1.5 mm long and wide, triangular, the bracteoles glabrous or minutely puberulous externally. Ovary minutely puberulous marginally. 2.
2. Inflorescence minutely puberulous; petal longer than the bracteoles, the blade orbicular to oblate, the claw distinct. Bracteoles oval, elliptic or oblong, 5–6.5 mm long, the hypanthium 1–2 mm long. 33. *M. suaveolens.*
2. Inflorescences glabrous; petal about as long as bracteoles, more or less spatulate, without a distinct claw. Bracteoles oblong to lanceolate, 8–13.5 mm long, the hypanthium 3–4 mm long. 38. *M. stenopetalum.*

Key to the Species of Series 2d

1. Leaflets punctate beneath, acuminate. Bracts caducous; gynophore pilosulose on adaxial surface. 33. *M. suaveolens.*
1. Leaflets epunctate, acute. Bracts persistent and closely imbricate on the basal part of the inflorescence axis; gynophore glabrous. 34. *M. parvifolium.*

Key to the Species of Series 2e

1. Leaves unifoliolate, the leaflets equilateral. Ovary pubescent. (37′. *M. unifoliolatum*) 2.
1. Leaves with unijugate, inequilateral leaflets. Ovary glabrous. 3.
2. Leaflets puberulous on the salient costa on the upper surface. Inflorescence 6.5–12 cm long, the bracts and bracteoles puberulous externally. Pedicels 4–9 mm long, densely puberulous. 37′b. *M. unifoliolatum* var. *schultesii.*
2. Leaflets glabrous, the costa impressed on the upper surface. Inflorescence shorter, the bracts and bracteoles glabrous. Pedicels shorter, glabrous. 37′a. *M. unifoliolatum* var. *unifoliolatum.*
3. Stipules and rachis rudiment persistent; hypanthium strongly zygomorphic. Leaflets often punctate. Belém and the Amazon Delta Region to southern Amazonas, Brazil. 37. *M. pendulum.*
3. Stipules and rachis rudiment caducous; hypanthium symmetric to asymmetric. Leaflets epunctate. Eastern Peru, upper Rio Negro and southwestern Venezuela. 4.
4. Filaments glabrous. Petioles 1.5–4 mm long; leaflets 1.5–5.5 cm long, 1–2.5 cm. wide, the lower side of the base rounded. 36. *M. savannarum.*
4. Filaments pubescent toward the base. Petioles 7–18 mm long; leaflets larger, the base cuneate. 5.
5. Leaflets always unijugate, 11.5–17 cm long, narrowly elliptic, the petioles 7–9 mm long. Inflorescence axis microscopically puberulous; pedicels 4–5 mm long; bracteoles 6.5 mm long, 3 mm wide, minutely puberulous externally. Sepals 5–5.5 mm long. Eastern Peru. 26. *M. klugii.*
5. Leaflets sometimes in part bijugate, 6.5–9.5 cm long, elliptic, the petioles 13–18 mm long. Inflorescence axis glabrous, the pedicels 6–8 mm long, the bracteoles 10–11 mm long, 5 mm wide, glabrous. Upper Rio Negro, Brazil. 35. *M. palustre.*

1. **Macrolobium taxifolium** Spruce ex Benth.

VENEZUELA: Amazonas: along Río Guainía between Comunidad and Santa Rita, alt. 120 m, 8 Jul 1959, *Wurdack & Adderley 43350.*

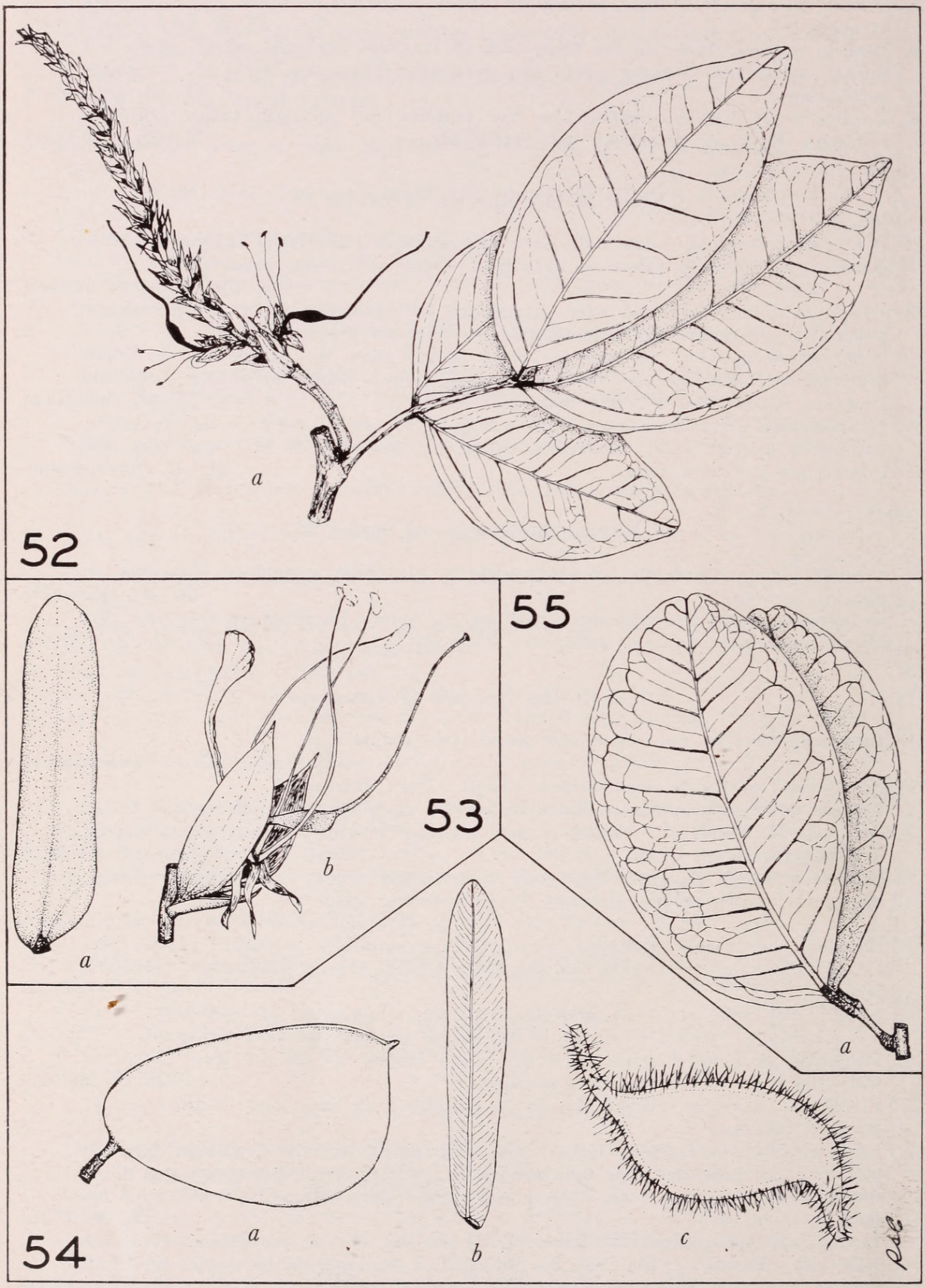

FIG. 52. *Macrolobium spectabile* (*Wurdack & Adderley 43508*). a, habit, × 0.5. FIG. 53. *Macrolobium evenulosum* (*Wurdack & Adderley 42941*). a, leaflet, × 2; b, open flower, × 2. FIG. 54. *Macrolobium cataractarum* (*Maguire & Maguire 35025*). a, fruit, × 1; b, leaflet, × 2; c, portion of gynoecium, × 30. FIG. 55. *Macrolobium acrothamnos* (*Cardona 2176*). a, leaf, × 0.5.

This collection, from the type locality, is the first since the original collection.

21′. Macrolobium spectabile Cowan, sp. nov. Fig. 52.

Arbor dumosa 4–7 m alta, ramulis cano-puberulis, stipulis caducis non visis. Petioli cylindrici apicem versus canaliculati, 18–25 mm longi, puberuli, rhachibus cylindricis sed canaliculatis, puberulis, 28–32 mm longis; foliola glabra, bijugata, petiolulis 1.5–3 mm longis, laminis subcarnosis, discoloratis, conspicue venosis, 8–11.5 cm longis, 4.5–5.5 cm latis, late ellipticis, ad basim inaequilateraliter acutis, ad apicem obtusis, costa venisque plus minusve elevatis in faciebus ambobus. Inflorescentiae axillares, 12–23 cm longae, axe cano-velutino, bracteis perconspicuis, persistentibus, cano-velutinis, 14–17 mm longis, 4–7 mm latis, acuminatis, ovato-lanceolatis ad lanceolatas, pedicello 3.5–4.5 mm longo, cano-puberulo, bracteolis persistentibus, acuminatis, anguste ellipticis, 8–10 mm longis, 3.5–4 mm latis. Hypanthium 2 mm longum, glabrum. Sepala 4, maxima ex parte glabra sed ad apicem ciliolata, oblonga, obtusa ad acuta, 4–4.5 mm longa, 1.5–2.5 mm lata; petalum album, oblanceolatum, 13–15 mm longum, 6.5–7.5 mm latum, extus glabrum (ad basim puberulum), intus villosum. Staminum filamenta rubra, leviter villosa, 19 mm longa, antheris ellipticis, 1.2 mm longis. Stigma punctiforme, stylo filiformi, leviter villoso, 17 mm longo, ovario glabro basim versus marginaliter puberulo excepto, 4 mm longo, 1.5 mm lato, anguste oblongo, gynophoro 4 mm longo, puberulo. Fructus ignotus.

VENEZUELA: Amazonas: frequent on lower slopes of granitic *laja* on right bank of Río Siapa, 8 km below Raudal Gallineta (about 100 river km from mouth), alt. 130–200 m; bushy tree 4–7 m; petal white, filaments red; 20 Jul 1959, *J. J. Wurdack & L. S. Adderley 43508* (holotype, US No. 2281741).

The relationship of this truly spectacular species is with *M. campestre* and *M. arenarium*, species of the eastern end of the Amazon Basin. It is nearest the typical variety of *M. campestre* from which it differs in petiole length, sepal number, size of the petal, size and vestiture of the bracts, etc. It is so completely different from other species of the genus in Venezuela that on first examination one might not recognize its affinities.

23′. Macrolobium acrothamnos Cowan, sp. nov. Fig. 55.

Arbuscula 8 m alta, ramulis glabris, petiolo 12–14 mm longo, glabro, foliolis unijugatis. Petioluli 3–5 mm longi, glabri; laminae late ellipticae, 7–11 cm longae, 4.5–7 cm latae, glabrae, inaequilateraliter acutae ad basim, ad apicem rotundae emarginataeque, haud attenuatae apicem versus, costa plana sed venulis leviter salientibus supra, infra costa et venulis conspicue salientibus. Inflorescentiae 4–10 cm longae, axillares, glabrae, pedunculo 7–21 mm longo, bracteis caducis, triangularibus, acutis, 1.5 mm longis latisque, pedicello 3–5 mm longo, glabro, bracteolis persistentibus, crasso-carnosis, 0.8 mm crassis, glabris, obovato-oblongis, rotundis ad apicem, 7 mm longis, 4.5 mm latis. Hypanthium 2.5 mm longum, glabrum, stipite 1 mm longo, glabro, sepala 4, oblongo-ovata vel oblonga, 4.5–5 mm longa, 2.5–3.5 mm lata, obtusa, glabra; petali stipes 1.5 mm longus, ad basim leviter pilosulus, lamina 5 mm longa, 6 mm lata, suboblata, ad basim villosa intus, extus glabra. Filamenta 7.5–9.5 mm longa, villosa, ad basim breviter connata, antheris 2.5 mm longis, 1 mm latis, oblongis, glabris. Gynoecium glabrum, stylo 7.5 mm longo, ovario elliptico, ca. 2 mm longo, 1 mm lato. Fructus maturus 9 cm longus, ca. 3.5 cm latus, oblongus, ad marginem dorsualem anguste alatus, semina 2.5 cm diametro, lateraliter compressa.

VENEZUELA: Bolívar: cumbre del Cerro Arepuchi, 600 m, Caroní, Guayana; Sep 1947, *F. Cardona 2176* (holotype, US No. 1932164); same locality and collector, Mai 1945, *1136*.

M. acrothamnos, the epithet chosen to emphasize the unusual habitat of the species atop one of the sandstone, tabletop mountains in Guayana (ἄκρον: "summit," θάμνος: "shrub"), is most nearly related to *M. canaliculatum* but differs in a rather large number of details. The present collections of the new species are almost glabrous in both vegetative and fertile parts, the leaflets are relatively wider, and the flowers are smaller.

2′. Macrolobium cataractarum Cowan, sp. nov. Fig. 54.

Arbor fruticosa 3–10 m alta, ramulis pilosulis sed mox glabrescentibus, stipulis linearibus, 6 mm longis, caducis. Petiolum 2–5 mm longum, glabrum, rhachibus 30–37 mm longis, anguste rigido-alatis, glabris, foliolis 8–10-jugatis, glabris, (17–)25–30 mm longis, 2.5–3.5 mm latis, linearibus, ad apicem obtusis et mucronatis, leviter venulosis. Inflorescentiae terminales, 4–4.5 cm longae, axe leviter minuto-puberulo, bracteis caducis, pedicello ca. 0.5–1 mm longo, micropuberulo, bracteolis 5.5 mm longis, 2.5 mm latis, ellipticis, acuminatis, minute pilosulosis intus, extus micropuberulis. Hypanthium cupulare, 1.5 mm longum, glabrum; sepala 5, lanceolata, acuminata, 2–3 mm longa, 0.7–1.5 mm lata, glabra; petali stipes 4 mm longus, ad basim ciliolatus et sparse pilosulus, lamina suborbiculari, ca. 5 mm diametro, glabra. Staminum filamenta glabra, 14 mm longa. Stigma capitellatum, stylo ca. 12 mm longo; ovarium 1.5 mm longum, 0.7 mm latum, ellipticum, marginaliter pilosulum, lateraliter glabrum, gynophoro ca. 0.5 mm longo, pilosulo. Fructus obovatus, compressus, glaber, 37 mm longus, 23 mm latus, stipite 5 mm longo, minute et sparse pilosulo.

VENEZUELA: Amazonas: frequent among rocks and boulders near Salto Coro-Coro, Río Manapiare, alt. 150 m; shrubby tree 3–10 m high; fls pink; 28 Jan 1953, *Bassett Maguire & Celia K. Maguire 35025* (holotype, US No. 2281670).

M. cataractarum (the epithet alludes to the habitat of the plant) is certainly a near relative of *M. gracile*, especially to var. *confertum* of that species. The two taxa differ in shape and number of pairs of leaflets, pedicel length, pubescence type on the gynoecium, and size of the fruit.

10′. Macrolobium evenulosum Cowan, sp. nov. Fig. 53.

Arbuscula 2–4 m alta, ramulis puberulis, stipulis caducis, triangularibus, 2 mm longis, 1 mm latis, acutis, ciliolatis, puberulis extus, intus glabris. Petioli 9–10 mm longi, puberuli, rachibus 9–10.5 cm longis, anguste rigido-alatis, leviter puberulis; laminae anguste oblongae, foliolis 14–19-jugatis, sessilibus, rigidis, 18–22 mm longis, 4–5.5 mm latis, anguste oblongis, ad basim inaequilateraliter obtusis, ad apicem rotundis, glabris supra, infra minute cano-strigulosis, costa venulisque obscuris. Inflorescentiae 4.5–5.5 cm longae, sessiles, axe puberulo, bracteis persistentibus, 5.5–7 mm longis, ca. 3.5 mm latis, elliptico-lanceolatis, acutis ad acuminatas, pilosulis extus, intus glabris, pedicello 2 mm longo, puberulo, bracteolis persistentibus, 12–13 mm longis, ca. 5 mm latis, lanceolatis, acuminatis, pilosis intus, extus pilosulis. Hypanthium 2.5 mm longum, glabrum; sepala 5 (duobus adaxilibus prope omnino connatis), 6–7 mm longa, 2.5–3 mm lata, oblonga, acuta, glabra extus, intus sparse pilosa, ad apicem ciliata; petali stipes 8–9 mm longus, extus glaber, intus villosus, lamina obovata, attenuata

basim versus, 6 mm longa, 4.5 mm lata, glabra. Staminorum filamenta 21 mm longa, ad basim puberula. Stigma minute capitellatum, stylo 16 mm longo, glabro; ovarium oblongum, 4 mm longum, 1.5 mm latum, marginaliter sparse puberulum, gynophoro 2.5 mm longo, puberulo. Fructus ignotus.

VENEZUELA: Amazonas: frequent along Río Atabapo between mouth of Caño Temi and Manacal, alt. 125 m; shrub 2–4 m; bracts and filaments red, petal white; 11 Jun 1959, *J. J. Wurdack & L. S. Adderley 42941* (holotype, US No. 2281708).

M. evenulosum differs from both its near relatives, *M. venulosum* and *M. flexuosum*, in several respects: (1) Its leaflets are differently shaped and lack any obvious venation (hence the specific epithet), although the position of the costa is apparent by a slight depression on the upper surface of the leaflets; (2) the bracts and bracteoles are several times longer; and (3) the petal differs in the size and shape of its parts. In sepal number the new species approaches more nearly *M. flexuosum*, in which species the adaxial pair are free from each other or only slightly united basally.

24. Macrolobium punctatum Spruce ex Benth.

VENEZUELA: Amazonas: Sabana Jivoa, right bank of Río Orinoco about 30 km above mouth of Río Atabapo (opposite Minicio), alt. 125 m, 1 Aug 1959, *Wurdack & Adderley 43721*.

This is the first record of this species in Venezuela, although it is known by collections from northwestern Brazil and in Colombia on the Río Guainía.

33a. Macrolobium suaveolens Spruce ex Benth. var. **pakarimense** Cowan.

VENEZUELA: Amazonas: *Clusia*-scrub forest on lower slopes of Cerro de la Neblina, alt. 700 m; 14–16 Nov 1957 and 31 Dec 1957, *Maguire, Wurdack & Maguire 42074, 42560*.

These collections represent the first report of this species in Venezuela and a considerable extension of range for this British Guiana variety. The new material differs in having nearly glabrous bracteoles, whereas those of the original collections were definitely puberulous.

38. Macrolobium stenopetalum Amshoff.

Wurdack & Adderley 42849 (unicate), from near San Fernando de Atabapo, is fruiting but it matches very well the material of this species, except that the fruit is shorter than in the original description. Since it has been known previously only from Tafelberg in Suriname, this Venezuelan collection represents a considerable extension of range and a new record for Venezuela.

Sclerolobium dwyeri Cowan, sp. nov. Fig. 58.

Arbor 10–20 m alta, ramulis minute puberulis vel strigulosis, stipulis 12 mm longis, pinnatis, segmentis lineari-subulatis. Petiolus 3.5–5 cm longus, apicem versus valde 7–9 mm diametro inflatus, minute strigulosus, rhachi 8.5–12 cm longa, minute strigulosa, foliolis 5-jugatis, petiolulis 4.5–5.5 mm longis, teretibus, minuto-strigulosis. Laminae inaequilaterales, (paribus inferioribus minoribus, ovatis, 6.5–7.5 cm longis, 3–4 cm latis), aliis 8.5–13 cm longis, 4–5.5 cm latis, ovato-ellipticis ad ellipticas, ad basim rotundatis ad leviter cordatas, ad apicem acuminatis vel breviter acuminatis, parce strigulosis et glabrescentibus in faciebus ambobus (costa strigulosa excepta), costa et venis primariis venulisque conspicue

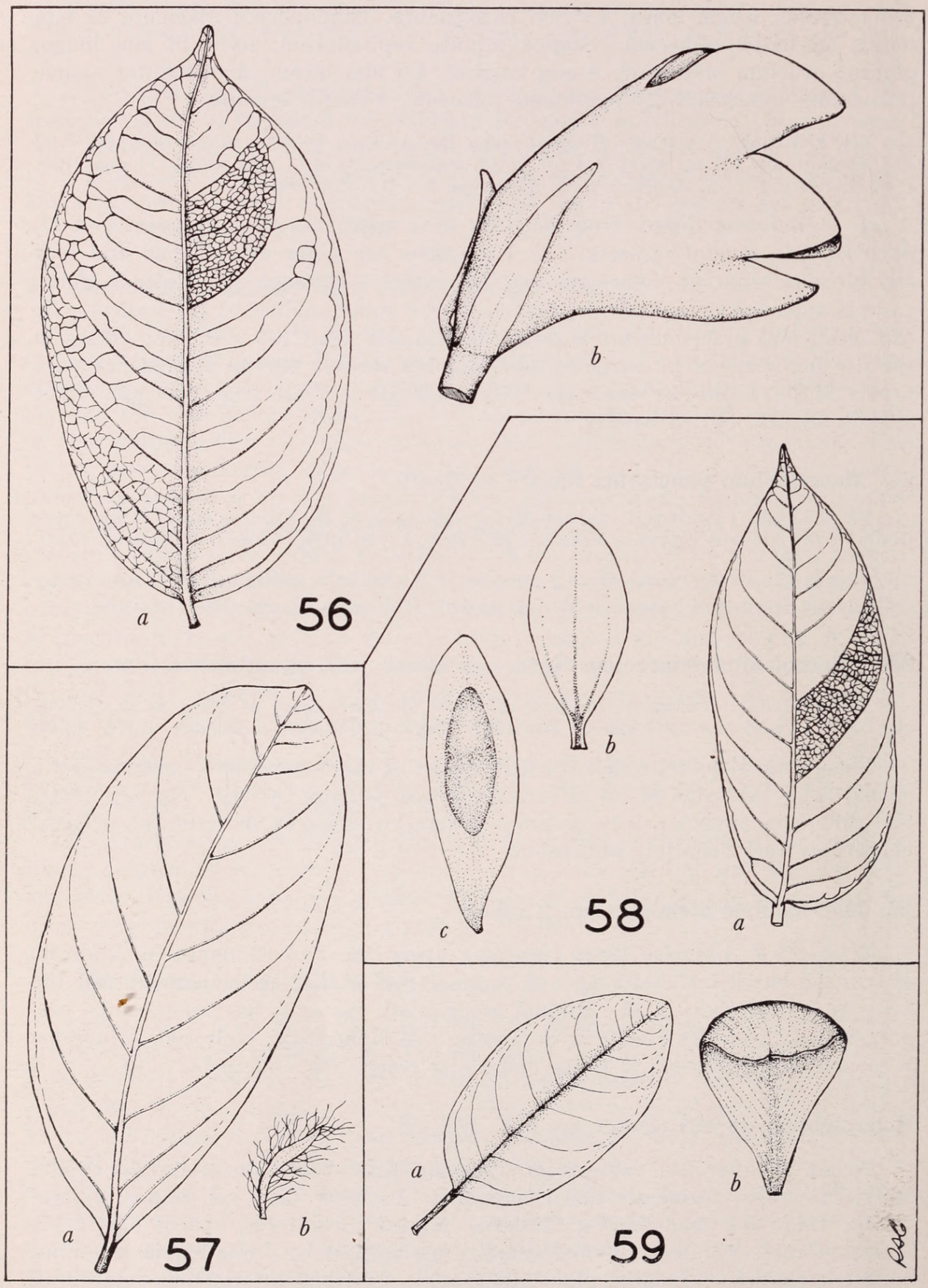

FIG. 56. *Pterocarpus grandis* (*Maguire et al. 41944*). a, one leaflet, × 0.5; b, calyx with bracteoles, × ca. 7.5 FIG. 57. *Sclerolobium pimichinensis* (*Maguire et al. 41830*). a, one leaflet, × 0.5; b, one petal, × ca. 7.5. FIG. 58. *Sclerolobium dwyeri* (*Maguire et al. 41831*). a, one leaflet, × 0.5; b, one petal, × 10; c, one fruit, × 1 (*Williams 14734*). FIG. 59. *Aldina petiolulata* (*Maguire et al. 42555*). a, one leaflet, × 0.5; b, petal, × 2.

plus minusve salientibus. Inflorescentiae 15–25 cm longae, axillares et terminales, paniculatae, ramulis racemiformibus, axe minute striguloso, pedunculo 0–10.5 cm longo, bracteis et bracteolis caducis, bracteolis anguste lanceolatis, acutis, 1.5–2 mm longis, externe minuto-strigulosis, pedicello 2–3 mm longo, sericeo. Hypanthium ca. 1 mm profundo, campanulatum, externe sericeum. Sepala cucullata, 2 mm longa, ovalia, ciliata, sericea. Petala lutea, elliptica, cuneata, 2.5–3 mm longa, obtusa, ad basim sericea. Filamenta 3.5–4.5 mm longa, aureo-pilosa. Ovarium hispido-pilosum, pubibus suberectis, aureis, stylo glabro, ca. 1.2 mm longo. Fructus glaber, oblongo-ellipticus, 35–45 mm longus, 12 mm latus.

VENEZUELA: Amazonas: occasional along Caño Pimichín below Pimichín, alt. 120–140 m; tree 12–15 m; fls bright yellow; "canache"; 10 Oct 1957, *Bassett Maguire, John J. Wurdack & William M. Keith 41831* (holotype, US No. 2267418); locally frequent at edges of sabanita on right bank of Río Pacimoni 12 km below mouth of Río Yatua, alt. 100–140 m; tree 10–20 m; fls bright yellow; 2 Oct 1957, *Maguire, Wurdack & Maguire 41652*; en la selva alta, frondosa de tierra firme, Solano, Bajo Casiquiare, alt. 100 m; arbol de tamaño mediano (18 m), con copa abierta de forma irregular; tronco 25 cm de diam, algo redondo, no derecho, libre de ramas por las ¾ partes de la altura; corteza morenisca, algo fissurada y el liber colorado obscuro; la albura es de color claro, y el duramen más obscuro; "N.V.: Canasti (Baré)"; 11 Mar 1942, *L. Williams 14734*.

The pectinate stipules are similar to those of *S. guianensis* but *S. dwyeri* has much shorter bracteoles and pedicels, obovate rather than linear petals, and leaflets with prominent secondary-tertiary vein-reticulum. The new species is named for John D. Dwyer, the most recent student of this group, in recognition of his contributions to the knowledge of tropical American Leguminosae.

Sclerolobium pimichinensis Cowan, sp. nov. Fig. 57.

Arbor 15–30 m alta, ramulis dense minuto-strigulosis, stipulis caducis. Petiolus 4.5–5 cm longus, dense minuto-strigulosus, teres, rhachi 12–13 cm longa, minuto-strigulosa, tereti, foliolis 4-jugatis, petiolulis 6–9 mm longis, dense minuto-strigulosis, laminis 10.5–17 cm longis, 5.5–8.5 cm latis, ovalibus ad ellipticas, ad basim acutis ad subobtusas, ad apicem rotundis, puberulis ad costam supra, infra aureo-sericeis, costa salienti, 5–7 venis primariis planis supra, infra salientibus. Inflorescentiae paniculato-racemosae, ad 20 cm longae, axe dense minuto-striguloso, pedunculo 38–60 mm longo, bracteis caducis, subulato-linearibus, 4.5 mm longis, dense minuto-strigulosis, pedicello 1.3–1.5 mm longo, minuto-striguloso. Hypanthium campanulatum, ca. 1.5 mm profundo, dense minuto-strigulosum, calycis segmentis 2 mm longis, 1.5–1.8 mm latis, rotundis, dense strigulosis extus, intus parce villoso-sericeis, petalis 2 mm longis, 0.2 mm latis, linearibus, villosis. Filamenta 2.5–3.5 mm longa, dense aureo-villosa. Ovarium 1.5 mm longum, anguste ellipticum, rufo-strigosum, stylo glabro, 0.8 mm longo. Fructus ignotus.

VENEZUELA: Amazonas: occasional along Caño Pimichín, below Pimichín, Río Guainía, alt. 120–140 m; tree 15–30 m; fls pale yellow; 10 Oct 1957, *Bassett Maguire, John J. Wurdack & William M. Keith 41830* (holotype, US No. 2267417).

In Dwyer's treatment of this genus (Lloydia **20**:67. 1957.) this collection should key-out near *S. eriopetalum*, to which it bears considerable resemblance. The latter has the leaflets acuminate and the base obtusely inequilateral; its petals are larger, and its bracts are often persistent.

LEGUMINOSAE—LOTOIDEAE

Cyclolobium amazonicum Ducke.

VENEZUELA: Amazonas: along Río Orinoco just below mouth of Caño Yapacana, alt. 125 m; tree 6 m; petals deep maroon; 30 Jul 1959, *Wurdack & Adderley 43675.*

This is the first collection reported from Venezuela of a species better known in the upper Rio Negro drainage of adjacent Brazil.

Dalbergia riedelii (Radlk.) Sandw.

VENEZUELA: Amazonas: frequent along Río Casiquiare just above Capihuara, alt. 130 m; woody vine climbing 3–7 m; fls white; 24 Jun 1959, *Wurdack & Adderley 43164;* along Río Casiquiare just above Piedra Guanare, alt. 110 m; woody vine climbing 3 m; fls white, 25 Jun 1959, *Wurdack & Adderley 43180.*

This predominantly British Guiana species is also known from the State of Pará in Brazil, from the southeastern corner of Colombia, and from the upper Rio Negro in Brazil; the present collections are the first to be reported from the adjacent region in Venezuela.

Diplotropis racemosa (Hoehne) Amshoff.

VENEZUELA: Amazonas: occasional along Río Casiquiare just above Piedra Guanare, alt. 110 m; bushy tree 10 m; fls white, pink-flushed; 25 Jun 1959, *Wurdack & Adderley 43181.*

The range of the typical form of this species, with this first report from Venezuela, extends from north-central Matto Grosso (the type locality), to the mouth of the Amazon River, to the upper Rio Negro drainage and the southwestern extremity of Venezuela.

Lonchocarpus paniculatus Ducke.

VENEZUELA: Amazonas: forest edge at San Fernando de Atabapo, alt. 125 m; tree 30 m tall, 1 m DBH; fls purple; 6 Jun 1959, *Wurdack & Adderley 42843.*

COLOMBIA: along left bank of Río Orinoco just below mouth of Río Atabapo, alt. 125 m; tree 8 m; fruit green; 6 Aug 1959, *Wurdack & Adderley 43775.*

These collections represent the first report of this species in Venezuela; in both, the leaflets and fruits are a little larger than typical, but in most respects this material is very near *L. paniculatus.* The inflorescence and infrutescence are unnaturally congested as a result of disease on the living plant.

Machaerium floribundum Benth.

VENEZUELA: Amazonas: along river between Cerro Yapacana and Santa Barbara, alt. 125 m; woody vine climbing 8 mm in trees, inner bark with abundant dark red exudate; corolla white, the banner apically with red-purple blotch; 17 Jan 1958, *Maguire, Wurdack & Keith 42652.*

This is the first report of this wide-ranging species in Venezuela; it has also been collected in eastern Colombia, British Guiana, and northern Brazil.

Pterocarpus grandis Cowan, sp. nov. Fig. 56.

Arbor parva, strigulosa sed mox glabrescens, stipulis caducis, lanceolatis, 6 mm longis, 3 mm latis. Folia 5–6-foliolata, petiolo 7 cm longo, sparse striguloso, tereti, rhachi plus minusve tereti, sparse strigulosa, 8.5–10 cm longa, foliolis alternis, petiolulis 6–9 mm longis, sparse puberulis supra profunde canaliculatis, laminis 14–20 cm longis, 8–10.5 cm latis, foliorum ad basim illis lato-ovatis,

aliis late ellipticis, ovalibus vel ovato-ellipticis, ad basim laminis rotundis truncatisque vel solum rotundis, ad apicem abrupte obtuso-acuminatis, valde salienti-venosis, plus minusve coriaceis. Inflorescentiae axillares, paniculatae, 8.5–21 cm longae, pedunculo 2–4 cm longo, axe striguloso, bracteis bracteolisque sublinearibus, 3–4 mm longis, ca. 0.5 mm latis, strigulosis extus, intus glabris, pedicello 3–3.5 mm longo, striguloso. Calycis tubus campanulatus, ca. 5 mm longus, dense strigulosus, lobis acutis, 2–2.5 mm latis, triangularibus vel triangulari-oblongis, dense strigulosis. Corolla glabra, obscuro-aurantiaca, vexillo reflexo, unguiculo 4 mm longo, lamina oblata, 8 mm longa, 10 mm lata, ad apicem emarginata, alis oblongo-obovatis, unguiculo 3 mm longo, laminis 10 mm longis, 5 mm latis, obtusis, petalis carinalibus apicem versus cohaerentibus, unguiculo 4.5 mm longo, lamina ad basim unilateraliter auriculata, falcato-obovata, obtusa, 9 mm longa, 5 mm lata. Stamina glabra, filamentis 6 mm connatis, 10–12 mm longis. Ovarium lanceolatum, sessile, dense sericeum, 3.5 mm longum, 1.5 mm latum, stylo 10 mm longo, parte basilari sericeo. Fructus 1–2-seminatus, brevi-velutinus, obovatus vel suborbicularis, 6–8 cm longus, 5.5–6.5 cm latus, valde venosus.

VENEZUELA: Amazonas: along uppermost Río Yatua, alt. 100–140 m; low tree; fls dull orange, the keel [banner] with a basal purple-brown spot; 25–26 Oct 1957, *Bassett Maguire, John J. Wurdack & Celia K. Maguire 41944* (holotype, US No. 2267428); same locality, 7–8 Dec 1953, *Maguire, Wurdack & Bunting 36731.*

The resemblance between this species and *P. rohrii* is obvious, but they are easily distinguished by the size of the leaflets, bracts, and bracteoles; the pubescence of the inflorescence and flower parts is also of a different type in the two species.