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PLANTAE AUSTRO-AMERICANAE VIII

DE PLANTIS PRINCIPALITER VALLIS AMAZONICIS NOVIS VEL
CRITICIS NOTAE DIVERSAE

BY
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STUDIES which have been carried on during the past two or three years have disclosed in recent plant collections from South America a number of species which are new to science or otherwise noteworthy. This article is a continuation of a series dedicated to the widening of our understanding of the flora of northern South America, with special reference to the Amazon basin.

It is with pleasure that I acknowledge the collaboration of Mr. Jason R. Swallen (*Gramineae*); Dr. Harold N. Moldenke (*Eriocaulaceae*); and Mr. Emery C. Leonard (*Acanthaceae*).

GRAMINEAE

***Panicum molliculmum* Swallen sp. nov.**

Annuum (?); culmi tenuissimi, decumbentes, 5–15 cm. longi, glabri; vaginae internodiis $\frac{1}{2}$ breviores, pilosae; ligula brevissima, ciliata; laminae 5–10 mm. longae, 2–4 mm. latae, obtusae, basi subtruncatae, hirtellae; paniculae terminales et axillares, simplicissimae, pedunculis

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filiformibus, spiculis 1-5 breviter pedicellatis; spiculae 1.2-1.5 mm. longae; gluma prima minuta; gluma secunda et lemma sterile aequales, fructu paulo longiora, acuta, pilosa; fructus minute rugosus.

Swallen states: "This species is not closely related to any known species of the genus *Panicum*. It is unusual in having few to several axillary inflorescences from the upper nodes, these long exserted on long filiform peduncles."

COLOMBIA: Comisaría del Caquetá, Cerro de El Castillo, Río Apaporis. Damp sandstone ledge with mosses and *Selaginellas*. January 16, 1942, *Gabriel Gutiérrez & Richard Evans Schultes 616* (TYPE in U.S. Nat. Herb.).

CYPERACEAE

Cephalocarpus Dracaenula *Nees* in Martius Fl. Bras. 2, pt. 1 (1842) 162, t. 18.

The collection which is cited below establishes the occurrence of this curious epiphytic cyperaceous plant far to the north of its only other known locality, the Cerro de La Pedrera on the Río Caquetá at the Colombian-Brazilian boundary (Schultes in Bot. Mus. Leaf. Harvard Univ. 13 (1949) 293).

Additional material and more exact knowledge of this genus may indicate that *Schultes & López 10066* represents a variety of *Cephalocarpus Dracaenula*, but it seems to match this species as delineated by Gilly (in Bull. Torr. Bot. Club 69 (1942) 290).

COLOMBIA: Comisaría del Vaupés, Río Guainía basin, Río Naquieni, vicinity of Cerro Monachí. "Common epiphyte on rocks amidst mosses and lichens and on trunks. Flowers very small, white. On summit of mountain." June 1948, *Richard Evans Schultes & Francisco López 10066*.

CYCLANTHACEAE

Carludovica aurantiaca *R. E. Schultes sp. nov.*

Planta caulescens, terrestris, in rivulorum saxis colonice

crescens. Caulis comparate robustus, sublignosus, usque ad 10 cm. longus vel longior, 1.7 cm. in diametro, asperiter fibroso-squamosus. Petioli tenuissimi, usque ad 50 cm. longi, basi dilatati, vaginis linearibus inclusi. Foliorum laminae usque ad 35 cm. longae, $\frac{5}{6}$ longitudinaliter bipartitae; segmenta anguste linearia (saepissime longitudinaliter lacerata), apice filiformia, basi plusminusve 6 mm. lata. Pedunculi magnopere tenuissimi, usque ad 40 cm. longi, plerumque 2 mm. in diametro, fortiter fibrosi. Spathae hyalinae, vivo triangulares, apice acutae, usque ad 4 cm. longae, 2.5 cm. latae, superior lineari-triangularis, apice longissime attenuata, basi 2–3 cm. lata, 6.5–10 cm. longa. Spadix cylindricus, apice rotundatus, 16 mm. longus, usque ad (sed saepissime multo brevior) 7–11 mm. in diametro. Flores pistillati parvi, 2 mm. in diametro, subconcrecentes, perianthio quadri-lobato; stigmatibus carnosus, in apicem ovarii confluentibus, cruciformibus, in circuitu oblongis, 1.3 mm. longis, 0.3 mm. latis. Flores staminiferi conspicui, 1–1.5 mm. in diametro; pedicellis valde complanatis, 1.5 mm. longis, perianthii lobis liberis suborbicularibus, apice rotundatis, 1.5 mm. longis, circiter 1 mm. latis; staminibus numerosissimis (usque ad sexaginta), filamentis brevibus, antheris in circuitu suborbicularibus, 0.4 mm. in diametro, bilocularibus; staminodia conspicuissima, caduca, filiformia, usque ad 7 vel 10 cm. longa, splendide aurantiaca.

This new species of *Carludovica* is a beautiful and graceful plant which grows in dense and extensive colonies. It can be distinguished from all other described members of the genus by its rich orange-colored staminodes. It approaches in some respects *Carludovica pygmaea* Gleason, but can be separated from this species by its much longer and more narrowly linear leaves and its larger floral bracts.

COLOMBIA: Comisaría del Vaupés, Río Guainía basin, Río Naquieni, vicinity of Cerro Monachí. "Epiphyte on rocks in rapids. Flowers

white, excessively fragrant of narcissus. Stamnodes bright orange. In caatinga forest at base of mountain." June 1948, *Richard Evans Schultes & Francisco López 10085* (TYPE in Herb. Gray).

ARACEAE

Anthurium atropurpureum *Schultes & Maguire*
sp. nov.

Herba terrestris, parva, in silva non densa arenosa humida crescens. Caudiculus magnopere abbreviatus, robustus, internodiis brevissimis. Folia rigide erecta, cum petiolis strictis, vivo aliquid complanatis, striatis, basi usque ad 5 mm. in diametro; lamina valde chartacea, clare viridis, glabra, lanceolato-elliptica, apice longe acuminata (acumine quam 2 cm. longiore), basi attenuata, leviter marginata, nervis secundariis plusminusve novem, arcuatis, confluentibus, subtus prominenter elevatis, supra paulo elevatis. Inflorescentia erecta, pedunculo aliquid carnosulo ut videtur, vivo probabiliter subcomplanato, plusminusve 1 mm. in diametro, purpureo. Spatha membranacea, atropurpurea, lanceolata, apice acutissima, 2.5 cm. longa, 5 mm. lata, petiolum cingens. Spadix erectus, cylindricus, 2.5 cm. longus, 3 mm. in diametro, atropurpureus. Flores valde regulares, quadrangulares.

Anthurium atropurpureum would seem to be set apart from other small Amazonian species of the genus by the combination of its unusual leaf shape and the deep, rich purple color of the fertile parts. Although it was collected in the same locality as the following species, the two concepts are not closely related.

COLOMBIA: Comisaría del Amazonas, trapecio amazónico, "Varial perto da Quebrada Agua Prêta. Epiphyta no chão." November 8, 1946, *George A. Black & Richard Evans Schultes 46-375* (TYPE in Herb. Gray).

Anthurium fontoides *R. E. Schultes* *sp. nov.*

Herba epiphytica, parva, gracillima. Caudiculus cras-

sus internodiis abbreviatis. Folia coriacea, petiolis strictis, crassis teretibusque, sulcatis, basi latiuscule dilatatis, usque ad 2 cm. longis, 1.5–2 mm. in diametro; lamina pallide viridis, glabra, lineari-lanceolata, apice longissime acuminata, basi longe cuneata et decurrens, margine leviter revoluta, subtus minute tessellato-squamulosa, 18–26 cm. longa, 1.2–1.4 cm. lata, nervis crassis, utrinque prominentibus, secundariis duobus nervo centrali parallelis. Inflorescentia brevis, gracilis, pedunculo usque ad 6 cm. longo, leviter complanato. Spatha firme membranacea, lineari-lanceolata, apice acuta, usque ad 3 cm. longa, 2 mm. lata, vivo reflexa, ut videtur rubens vel purpurea. Spadix sessilis, cylindricus, apicem versus non attenuatus, 6–7 cm. longus, plusminusve 3 mm. in diametro, probabiliter flavus.

Anthurium fontoides is very closely related to *A. gracile* (Rudge) Engl., a widespread tropical American species of which several varieties have been recognized. Later studies and collections may indicate that the concept here described as a species is deserving only of varietal rank. *Anthurium fontoides* can be separated from *A. gracile* on first sight by its narrower leaves which are basally decurrent, by the more closely packed basal bracts, by its much shorter petioles, and by its smaller spathe. Perhaps the greatest difference is to be found in its having an inflorescence which, instead of being subequal to the leaves, is less than half as long.

The specific epithet was suggested by the graceful habit of the leaves.

COLOMBIA: Comisaría del Amazonas, trapecio amazónico, Loretoyacu River. Alt. about 100 m. "Epiphytic." September 1946, *Richard Evans Schultes & George A. Black 8399* (TYPE in Herb. Gray).

Anthurium nemoricola *Schultes & Maguire sp. nov.*

Herba terrestris, humillima, in silva non densa arenosa

humida crescens. Caudiculus abbreviatus, erectus, internodiis magnopere brevissimis. Folia rigide erecta, cum petiolis strictis usque ad 8 cm. longis, basi teretibus, apice aliquid canaliculatis; lamina valde coriacea, glabra, subtus tessellata, subsagittata (ad basim leviter lobata), 7–9 cm. longa, basi 2.8–3.2 cm. lata, apice acuminata, basi rotundata, margine integra, valde revoluta, nervis secundariis duobus nervo centrali subparallelis, adscendentibus, tertianis decem vel duodecim, subtus nervis prominenter elevatis supra conspicue canaliculato-depressis. Inflorescentia erecta, pedunculo 11 cm. longo, cylindrico. Spatha vivo reflexa, anguste lanceolata, acuta, extus pulverulenta, 2.5 cm. longa, 6 mm. lata, sanguinea. Spadix erectus, albus, 2 cm. longus, cylindricus, tenuis (2 mm. in diametro), ad apicem attenuatus. Flores quadrangulares, regulares.

The minute stature of *Anthurium nemoricola*, combined with the unusual shape, venation and texture of the leaves, serve to set this concept apart from other Amazonian species of the genus. It is highly adapted to the xerophytic conditions which obtain, in spite of ample rainfall, because of high acidity. The habitat, as indicated by the specific epithet, is a light savanna-forest of small treelets and abundant light.

COLOMBIA: Comisaría del Amazonas, trapecio amazónico, interior regions of trapecio between Amazon and Putumayo watersheds. Altitude above 100 m. "In sandy savanna-forests or *varial*." November 1945, *Richard Evans Schultes 6900A* (TYPE in Herb. Gray).

***Anthurium pluviaticum* R. E. Schultes sp. nov.**

Herba epiphytica, parva. Caudiculus abbreviatus, satis robustus, internodiis brevibus. Folia tenuiter papyracea, erecta, cum petiolis gracillimis vivo ut videtur teretibus, obscurissime striatis, basi usque ad 2.2 mm. in diametro, 4.5–6 cm. longis; lamina pallide viridis, glabra, regulariter hastata, apice breviter acuminata, basi valde cordata,

omnino magnopere minutissime tessellato-squamulosa, 7.5–10 cm. longa, 6–7.5 cm. lata (parte centrali); nervo centrali robusto, nervis secundariis valde arcuatis, tertianis angulatim 45° patentibus, nervis omnibus supra inconspicuis sed subtus prominentioribus. Inflorescentia erecta, gracillima, pedunculo usque ad 16 cm. longo, cylindrico. Spatha viridis, vivo valde reflexa, membranacea et hyalina, oculo armato minutissime squamulosa, nervulis prominentibus, lanceolato-elliptica, apice acutissima, 4.5 cm. longa, 7.5–8 mm. lata. Spadix erectus, albidus, usque ad 5 cm. longus, cylindricus, comparate tenuis (3 mm. in diametro, ad apicem non attenuatus), stipite 1.5 cm. longo suffultus. Flores valde regulares, subquadrangulares.

From other species with similar hastate leaves, *Anthurium pluviaticum* can be distinguished by its long-stipitate and unusually slender spadix, by its very abbreviated caudicle and by the small size of all its parts. It would seem to resemble the type of *Anthurium chlorocarpum* Sodiro in some respects, but its leaves are smaller, more acuminate and more nearly membranaceous, and it has an inflorescence which, in addition to the stipitate spadix, shows important morphological differences.

The specific epithet of *Anthurium pluviaticum* recognizes that the plant grows in an area which has one of the world's heaviest rainfalls.

COLOMBIA: Departamento del Valle, Río Calima, Quebrada de La Brea. Alt. 30–40 m. "Epiphyte. Spike white." May 19, 1946, Richard Evans Schultes & Mardoqueo Villarreal 7348 (TYPE in U.S. Nat. Herb.).

***Anthurium tikunorum* R. E. Schultes sp. nov.**

Herba terrestris, usque ad $1\frac{1}{2}$ pedes alta, in silva non dense arenosa, humida crescens. Caudiculus multo abbreviatus, erectus, internodiis brevissimis. Folia rigidissime erecta, cum petiolis strictis, 12–24 (plerumque plus-

minusve 20) cm. longis, basi teretibus, apice canaliculatis, vivo valde complanatis; lamina valde coriacea, glabra, utrinque minutissime tessellata, hastata, 14–16 cm. longa, parte centrali 3–5.5 cm. (vel basi 6.5–10 cm.) lata, apice acuta, basi truncata et abrupte triangulari-cuneata, lobis lateralibus rotundatis, margine integra, valde revoluta, nervis secundariis duobus nervo centrali subparallelis, adscendentibus, tertianis decem vel duodecim, subtus nervis prominenter elevatis supra conspicue canaliculato-depressis. Inflorescentia erecta, pedunculo robusto, cylindrico, conspicue striato-canaliculato, 30–35 cm. longo, 2 mm. in diametro sed basim versus aliquid dilatato. Spatha vivo reflexa, anguste lanceolata, acutissima, extus densius scrobiculata, 5.5 cm. longa, 6 mm. lata, probabiliter atosanguinea vel fusco-rubens. Spadix erectus, non stipitatus, flavus, 5.5 cm. longus, maturitate 8 mm. in diametro. Flores quadrangulares, regulares, tepalis extus dense squamulosis. Baccae carnosae, virides, globosae, densae.

It is at once evident that *Anthurium tikunorum* is very intimately allied to *A. nemoricola* Schultes & Maguire from the same region, but there are differences which would seem to be of sufficient magnitude to warrant a specific, and not a varietal rank, for the concept described above. *Anthurium tikunorum* is very much larger in all its parts than *A. nemoricola*; the leaves of the former species are very definitely hastate with prominent lateral lobes basally whereas those of the latter are subsagittate, albeit with a slight suggestion of lobes which, however, do not develop.

The specific epithet of *Anthurium tikunorum* refers to the Tikuna Indians who inhabit Colombia's trapezio amazónico and adjacent areas of Brazil and Perú and who employ this plant to relieve a condition of pyorrhea which is not uncommon amongst them; the astringent

juice of the fleshy fruits is applied to staunch the flow of pus from the gums.

COLOMBIA: Comisaría del Amazonas, trapecio amazónico, interior regions of trapecio between Amazon and Putumayo watersheds. Alt. above 100 m. "Varial [caatinga] near headwaters of Pamaté. September 1946, *Richard Evans Schultes* 8108 (TYPE in U.S. Nat. Herb.).

ERIOCAULACEAE

***Paepalanthus fasciculatus* (Rottb.) Körnicke** in Martius Fl. Bras. 3, pt. 1 (1863) 357.

A rather abundant though highly localized little plant, *Paepalanthus fasciculatus* seems to occur on the sandy savannas or caatingas of both cretaceous quartzite and cambrian granite origin—one of the relatively few species common to the floras of both of these geological areas in the northwestern Amazon. It is a species of the northwestern Amazon Valley and the upper reaches of the Orinoco.

BRAZIL: Estado do Amazonas, Rio Negro, Jucabí (at mouth of Rio Curicuriarí. September 23–24, 1947, *Richard Evans Schultes* & *Francisco López* 8837.—Estado do Amazonas, Rio Negro basin, Rio Curicuriarí, February 1948, *Richard Evans Schultes* & *Francisco López* 9715.

COLOMBIA: Comisaría del Amazonas, Río Igaraparaná, La Chorrera. "Witoto Indian name: *hō-gō-ně*." June 6, 1942, *Richard Evans Schultes* 3943.

***Paepalanthus Schultesii* Moldenke** *sp. nov.*

Herba gracilis, caulescens; caulibus tenuibus, usque ad 12 cm. longis, foliosis; foliis membranaceis, graminoides, patentibus, 2–3.5 cm. longis, medio 1–2.5 mm. latis, marginibus remote villosis-ciliatis, caeterum minutissime puberulis vel glabrescentibus; pedunculis paucis, 2–9 cm. longis, 4- vel 5-costatis, in juventute pilosis, denique glabris, tortis; vaginis 1.5–2 cm. longis, parce adpresso-pilosis, glabrescentibus, ad apicem 3-lobatis; capitulis griseis, hemisphaericis, 5–8 mm. in diametro.

Slender caulescent herb. Stems very slender, up to

about 12 cm. long, long-pilose when young, glabrescent in age, rather densely leafy. Leaves membranous, uniformly dull green on both surfaces, grass-like, 2–3.5 cm. long, 1–2.5 mm. wide at the mid-point, attenuate-acute at the apex, 4- to 7-veined, but the veins not conspicuous, not fenestrate, rather remotely but very conspicuously villous-ciliate along the margins with stiff, divergent, white hairs about 3 mm. long, otherwise very minutely puberulous-pulverulent or glabrescent on both surfaces. Peduncles few, mostly 1 or 2 per season at the apex of the stem but several of previous seasons persistent farther down, erect, slender, 2–9 cm. long, 4- or 5-costate, twisted, antrorsely white-pilose when young, eventually glabrescent; sheaths slender, 1.5–2 cm. long, sparsely appressed-pilose or eventually glabrescent, conspicuously 3-lobed at the apex, the lobes subhyaline-scarious, lanceolate, about 4 mm. long, attenuate-acute at the apex, glabrous, erect. Heads grey, hemispheric, 5–8 mm. in diameter; involucre bractlets light brownish, ovate, about 3.5 mm. long and 1.9 mm. wide, slightly concave, rounded at the apex, densely short-ciliolate along the margins, otherwise subglabrous or sparsely pilose toward the apex on the back; receptacle long-villous; receptacular bractlets stramineous or light brownish, oblong-elliptic, about 2.8 mm. long and 0.9–1 mm. wide, blunt at the apex, ciliate-pilose toward the apex on the back and barbellate at the apex. Staminate florets: sepals 3, connate only at the base for about 1 mm., brownish, about 2.5 mm. long and 0.7 mm. wide, obtuse and barbate at the apex, otherwise glabrate; petals 3, whitish, connate into an infundibular tube about 2.5 mm. long, the upper free portions subhyaline and about 1 mm. long, glabrous, not glanduliferous; stamens 3, exserted, erect-spreading; filaments about 1.5 mm. long, glabrous; anthers white. Pistillate florets: sepals 3, brown, separate to the base,

hyaline, narrow-elliptic, about 2 mm. long and 1 mm. wide, acute at the apex, rather densely long-pilose with erect white hairs on both surfaces; pistil about 3 mm. long; ovary brown, 3-sulcate, 3-celled, 3-ovulate; style about 0.3 mm. long, glabrous; the 3-stigmas and 3 style-appendages issuing from the apex of the style, erect, about 1.5 mm. long.

COLOMBIA: Departamento de Cundinamarca, Macizo de Bogotá, Quebrada de Chapinero. Alt. about 9000 feet. September 24, 1941, *Richard Evans Schultes 1024* (TYPE in Herb. Britton, N. Y. Bot. Gard.).

MENISPERMACEAE

Abuta rufescens Aublet Hist. Pl. Guian. 1 (1775) 618, t. 250.

This species is widespread from French Guiana south through the Amazon Valley to Minas Geraes. It has been identified as the species which Martius reported to be employed in the preparation of arrow-poison along the Río Caquetá (Japurá) (Krukoff & Moldenke in Brittonia 3 (1938) 67).

BRAZIL: Estado do Amazonas, Rio Negro basin, Rio Curicuriari, near summit of Serra Curicuriari. April 26, 1948, *Richard Evans Schultes & Francisco López 9827A*.

Chondodendron toxicoferum (Wedd.) Krukoff & Moldenke in Brittonia 3 (1939) 338.

Chondodendron toxicoferum, known from the western Amazonia of Perú and Brazil, has apparently not been hitherto reported from such a northwestern locality as the upper reaches of the Apaporis River where *Schultes 5526* was collected.

COLOMBIA: Comisaría del Vaupés, Macaya River, vicinity of Cachivera del Diablo. "Vine. Fruits yellow, bitter." May 1943, *Richard Evans Schultes 5526*.

LEGUMINOSAE

***Hymenaea oblongifolia* Huber** in Bol. Mus. Para. 5 (1909) 386.

Cynometra Zamorana R. E. Schultes in Bot. Mus. Leaflet. Harvard Univ. 13 (1949) 301, t. 34.

The collection *Philipson 1647* has very appreciably extended the known range of this beautiful tree which is known at present from the State of Pará in Brazil (*Ducke 9137, 14982, 16570*) west to the eastern rim of the Macarena Mountains near the Andean Cordillera in Colombia.

Philipson 1647 is apparently the fourth collection from Colombia. In 1912, *Ducke* collected it at the rapids of Cupatí (now called La Pedrera) on the Río Caquetá, at the Colombia-Brazilian boundary. The two other Colombian collections—*Schultes 5424* and *5429*—were made in the upper reaches of the Apaporis basin, half way between the Macarena and the Cupatí localities.

Schultes 5424 and *5429* are in fruit and were described recently as *Cynometra Zamorana* R. E. Schultes. Study of the flowering *Philipson* and *Ducke* collections has indicated the identity of the *Schultes* material with *Huber's Hymenaea oblongifolia*.

It is obvious that *Hymenaea oblongifolia* in eastern Colombia is associated with the ancient cretaceous outliers of the Venezuela-Guiana land mass. As such, it can not be expected to be an abundant element of the general Amazonian forest, although it may be rather common, as in the upper Apaporis basin, in the localized areas where it does occur.

The common name of *Hymenaea oblongifolia* in the State of Pará is *jutaí*. In the Comisaría del Vaupés in Colombia, it is called *coca*.

COLOMBIA: Intendencia del Meta, Río Guapaya, dense humid forest at foot of eastern slopes of Sierra Macarena; alt. 450 m. "Large tree

25 m., leaves coriaceous, shining, dark green above, sepals reddish brown, petals white." November 29, 1949, *W. R. Philipson* 1647.

***Monopteryx Uaucu* Spruce ex Benth** in Martius Fl. Bras. 15, pt. 1 (1862) 307.

This enormous tree, especially abundant on the proterozoic granitic shield of the Rio Negro basin, has been cited by Ducke ("As Leguminosas da Amazonia brasileira" (1939) 109) as occurring also along the lower Rios Iça (Putumayo) and Solimões, as well as in Venezuela and Colombia. I had not seen any specimens from Colombian territory, but the species was certainly to be expected in the Colombian Amazonia along the Brazilian boundary. The collection cited below establishes the occurrence of *Monopteryx Uaucu* far into Colombian territory and near the very headwaters of the Rio Negro. Many collections have been made recently in the Brazilian part of the Rio Negro valley by collectors of the Instituto Agrônômico do Norte which has been much interested in the *uaçu* as an oil-tree. The seeds of *Monopteryx Uaucu* are exceedingly rich in oil and, when roasted or boiled, are edible; the oil is employed as a food as well as a fuel for lamps (La Cointe: "A Amazonia brasileira. III. Árvores e plantas úteis" (1934) 452; Ducke l.c.).

Amongst the Kuripaka Indians of the Río Guainía, *Monopteryx Uaucu* is called *ka-pět-oó-hě*.

COLOMBIA: Comisaría del Vaupés, Río Guainía basin, Río Naquieni, at base of Cerro Monachí. "Enormous tree with buttress roots." June 1948, *Richard Evans Schultes & Francisco López* 10125.

EUPHORBIACEAE

***Nealchornia japurensis* Huber** in Bol. Mus. Goeldi 7 (1913) 298.

The type of *Nealchornia japurensis* was collected in Colombia at Puerto Córdova (above La Pedrera) on the

Río Caquetá (Japurá). *Black & Schultes 46-257* represents apparently the second record of this rare plant from Colombia. It has been found several times in the adjacent parts of the Amazon in Brazil.

A specimen of *Ule 6292* was found amongst the unidentified *Euphorbiaceae* during my recent work at Kew. It also is referable to *Nealchornia japurensis*, a species which hitherto apparently has not been reported from Perú. It will be noted that the *Ule* collection was made at an earlier date than the type, but it has been overlooked.

COLOMBIA: Comisaría del Amazonas, Río Loretoyacu. "Árvore 15 m. Flor verde com cheiro de citrus." October 31, 1946, *G. A. Black & R. E. Schultes 46-257*.

PERU: Departamento de Loreto, Yurimaguas. "Baum 5-10 m. Bl. gelb. in Walde bei Yurimaguas." August 1902, *E. Ule 6292*.

***Sagotia racemosa* Baillon** in *Adansonia* 1 (1860-1861) 54.

Sagotia racemosa Baillon var. *brachysepala* Mueller-Argoviensis in *Fl. Ratisb.* 47 (1864) 516.

Sagotia racemosa Baillon var. *genuina* Mueller-Argoviensis *ibid* 516.

Sagotia racemosa Baillon var. *ligularis* Mueller-Argoviensis *ibid* 516.

Sagotia racemosa Baillon var. *macrocarpa* Mueller-Argoviensis *ibid* 516.

When Mueller published the descriptions of the varietal concepts of *Sagotia racemosa*, he had available a very limited number of collections; the differences which they exhibited seemed to be significant. A study of the material now available and a comparison of the newer with the older collections shows that all of the characters upon which Mueller had based his varietal concepts are either manifestations due to age or seasonal influences or else to individual idiosyncrasies. Therefore, I am reducing the varietal epithets to synonymy under *Sagotia racemosa*.

BRAZIL: Estado do Pará, Lago Salgado, Rio Trombetas. Forest, August 23, 1910, *A. Ducke* 11067.—Estado do Pará, Belém. March 12, 1901, *A. Ducke* 2001.—Estado do Pará, Peixeboi, chemin de fer de Bragança. “Arataciú.” August 13, 1907, *R. Siqueira* 8277.—Estado do Pará. Igarapé-assú, chemin de fer de Bragança. “Arataciú.” February 6, 1903, *R. Siqueira* 3343.—Estado do Pará, Serra de Parintins. September 15, 1907, *A. Ducke* 8724.—Estado do Pará, Belém. December 11, 1914, *A. Ducke* 15549.—Estado do Pará. Distrito Acará, Thomé Assú, up Rio Acará 6 km. on river bank in forest. “Arborescent 6 m. high; white flower, *Murascaca*.” August 5, 1931, *Y. Mexia* 6051.—Estado do Pará, Belém. “Shrub 2 ft. Roots fragrant, scraped in water and used to scent clothing.” December 18, 1942, *W. A. Archer* 7999.—Estado do Pará, Belém. “Tree. Root aromatic, sold in local market as perfume for bath.” January 11, 1943, *W. A. Archer* 8146.—Estado do Pará, Belém. Entroncamento. “Arataciú.” September 26, 1944, *A. Ducke* 1635.—Estado do Amazonas, Rio Uaupés. Ipanoré [Panuré]. “Small bushy tree, 15–20 feet. Flowers white. Caatinga.”—Estado do Amazonas, Municipality São Paulo de Olivença, near Palmares. “Tree 50 feet high; trunk 4 inches diam. Terra firma; high lands.” September 11–October 26, 1936, *B. A. Krukoff's* 7th Exped. Brazil. Amazon. 8189.—Estado do Amazonas, Rio Negro, Santa Izabel. November 10, 1936, *A. Ducke* 341.

BRITISH GUIANA: River Quitaro. “Tree. Flowers yellow.” 1838. *Schomburgk* 569.—Tributary of Habu Creek (New River). “Creek bank. Moist clay soil. A tree 40 feet high and 8 inches in diameter. (Wood preserved separately.) Small flowers in spray, both red and white on the same spray. (The white had turned to red by the time the specimens reached camp: 6 hours).” November 10, 1937, *Beddington* 31.—Basin of Kuyuvini River (Essequibo tributary), about 150 miles from mouth; dense forest. “Tree 20 m. high.” November 21–26, 1937, *A. C. Smith* 2539.—Northern slope of Akarai Mountains, in drainage of Shodikar Creek (Essequibo tributary); dense forest. Alt. 300–600 m. “Tree 35 m. high.” January 10–20, 1938, *A. C. Smith* 2905.—Moraballi Creek, River Essequibo. “30' undergrowth tree in mixed forest, rather ropy on rock slope, bark grey, smooth; slash similar to *Sandwithia guyanensis*. ♂ flowers paired on long stalks, calyx green, glabrous; corolla white, stamens ^{oo} white; ♀ flowers green perianth, leaf-like ovary trigonal; stigma 6-partite, rayed.” October 14, 1939, Field No. (Forest Dept. Brit. Guian.) *F.* 273, *Record* No. 3009.

DUTCH GUIANA: No precise locality, no date. *Hostmann* 1156.—No precise locality. “*Cacaoballi*,” May 1945, *Zanderij* 311.

FRENCH GUIANA: No precise locality, no date. *Martin* 27.—No precise locality. 1840, *H. F. Talbot* s.n.—“Environs de Godebert.” December 20, 1920, *Wachenheim* s.n.

VENEZUELA: Territorio del Amazonas. "In ripis fl. Pacimoni. Arbor subramosa, tenuis, 15-20 pedalis. Monoica. Flores ♂ albi, odorati. Fls. ♀ virides." February 1854, *R. Spruce* 3342.

***Senefeldera contracta* R. E. Schultes sp. nov.**

Arbor usque ad sexaginta pedes alta, in sylvis crescens. Truncus robustus. Ramuli glabri ut videtur, cortice rufo obtecti. Folia valde coriacea, elliptica, petiolata (petiolis robustis, 3.5-8 cm. longis, usque ad 0.5 cm. in diametro), apice obtusa vel obscure acuta, basi rotundata, obscure biglandulosa, leviter marginata, glabra, sicco stramineo-fusca, nervo centrali robusto subtus valde elevato supra non conspicuo, nervis secundariis quattuor-vel quindecim, 23-31 cm. longa, 9.5-12.5 cm. lata. Inflorescentiae stamineae erectae, subpaniculatim ramosae, 19-27 cm. longae, axibus centralibus omnino glabris, bracteis ovato-ellipticis, magnis, 10 mm. longis. Flores flavi, tres staminiferi in axilla bracteolae parvae, atroviridis, suborbicularis vel subtriangularis, irregularis cum margine eroso-hyalino, circiter 1.7 mm. longae, 2 mm. latae (sed bracteolae inter se multo variabiles), perianthio 0.5 mm. longo, obtuse trilobato, glabro, staminibus quindecim minoribus, filamentis 0.1-0.2 mm. longis, liberis, antheris flavis, subglobosis, 0.25 mm. altis, 0.30 mm. latis. Fructus adhuc ignotus.

Senefeldera contracta may be distinguished from other species by the very large size of the leaves, their coriaceousness and high lustre on both surfaces; by the unusually stout petioles; by the large number of stamens; and especially by the extremely contracted (not loose and much-branched) inflorescence. In the size of the leaves, *Senefeldera contracta* resembles *S. macrophylla* Ducke, but the latter differs obviously from the former in the shape and dullness of the leaves, in the more slender petioles and in having a long, lax and much-branched inflorescence. Like *Senefeldera contracta*, *S. nitida* Croizat is

very lustrous, but its leaves are very much smaller and its inflorescence is very dissimilar. The flowers of *Senefeldera nitida* are unknown, so it is not possible to evaluate the relationship of this species with *S. contracta*; it is not unlikely that these two are rather closely allied. *Senefeldera contracta*, with fifteen stamens, is approached by *S. dodecandra* with twelve; but a number of vegetative and floral characters indicate that no relationship exists between the two.

COLOMBIA: Comisaría del Amazonas, entre Leticia y El Marco. "Virgin Forest. Tree 30 meters; trunk stout; flowers small." August 20, 1946, *George A. Black & Richard Evans Schultes* 46-36 (TYPE in U.S. Nat. Herb.).

***Senefeldera inclinata* Mueller-Argoviensis ex Martius** Fl. Bras. 11, pt. 2 (1874) 530.

The collection cited below appears vegetatively to match rather closely the type of *Senefeldera inclinata* which is a fruiting specimen from the region of the Casiquiare. This species has apparently not hitherto been reported as an element of the flora of Colombia.

COLOMBIA: Comisaría del Amazonas, Río Amazonas, Leticia. "Bush, 3½ m.; Flowers greenish-white." August 16, 1946, *George A. Black & Richard Evans Schultes* 46-4.

SAPINDACEAE

***Paullinia Yoco* R. E. Schultes & Killip ex Schultes** in Bot. Mus. Leaf. Harvard Univ. 10 (1942) 302, t. 27.

In 1942, world conditions prevented my consulting the specimens of yoco which were collected in Colombia in 1923 by the Belgian botanist Florent Claes. Mention was made (Schultes l.c. 309) of this material and the fact that De Wildeman (in Compt. Rend. 183 (1926) 1350) had identified yoco as *Paullinia scarlatina* Radl. from this material.

When I visited Belgium in 1950, I was fortunate in being able to examine Claes' material, preserved in the

herbarium in Brussels. Claes made several collections of the plant from which the Indians prepare yoco. Of these, one (*Claes 30*) is in excellent flower, one (*Claes 24*) has partly disintegrated remains of flowers, and two are sterile. There is an appreciable variation in leaf size, but all of the collections may be referred without hesitation to *Paullinia Yoco*. The flowering specimen (*Claes 30*) has the smallest leaves and is the specimen which De Wilde-man has annotated as representing *Paullinia scarlatina*. It has the same characteristic short, stiff inflorescence as the type. *Claes 24* has much longer inflorescences, but the same woody tendrils as the type. The other specimens had no determinations, but I have annotated all the material as *Paullinia Yoco*.

There apparently is no information on the Claes specimens relative to the different "kinds of yoco" to which Zerda Bayon, Klug and Schultes have referred (cf. Schultes l.c. 311).

Through the kindness of Professor W. Robyns, director of the Brussels Herbarium, I was able to obtain an excellent biographical article on the life and work of the late Florent Claes. Claes, it would seem, carried out rather extensive explorations for plant introduction. The vast amount of work which he did has certainly not received merited notice. For this reason, I am calling attention to the article which appeared in a publication not widely circulated, at least in the New World: L. Pynaert: "Florent Claes: Botanist belge, explorateur," Publication de botanique d'Agrément, Bulletin mensuel de documentation de botanique horticole et d'horticulture pratique (Régions tempérées et tropicales) (1937) Bruxelles. Pynaert's article reviews in some detail much of the work which Claes accomplished during his several trips to Colombia and considers the discovery of yoco at length (l.c. 44-46).

COLOMBIA : [Comisaría del Caquetá, Río Orteguaza], 1923, *Claes* 12, 23, 24, 30.

BOMBACACEAE

***Bombax sordidum* R. E. Schultes sp. nov.**

Arbuscula parva, usque ad tres pedes alta, a *Bombace coriaceo* foliis coriaceoribus, majoribus, margine magno-pere revolutis, infra densissime et sordide pulveraceis cum pilis fulvis et fructibus aliquid majoribus differt. Flores adhuc ignoti.

The collection *Schultes & López 9342*, first identified as *Bombax coriaceum* Mart. & Zucc., but shown by later studies to be distinct, represents one of the most curious species of the genus. Most closely allied to *Bombax coriaceum*, which it resembles in its diminutive bushy habit, *B. sordidum* can be distinguished by its larger and much more coriaceous and more marginate leaves, which are densely clothed beneath with a very dark brown, dust-like indumentum, and by its larger capsules.

The distribution of *Bombax coriaceum* as given by Schultes (in Bot. Mus. Leaflet. Harvard Univ. 13 (1949) 303) must be slightly modified to accord with this new disposition of the collection cited below. *Bombax coriaceum* is, so far as we now know, confined to cretaceous quartzitic areas in Amazonian Colombia and apparently does not occur, as does *B. sordidum*, on the proterozoic granitic shield. The two species are, however, very closely allied.

COLOMBIA : Comisaría del Vaupés, Río Negro, El Castillo or San Felipe, near confluence of Ríos Guainía and Casiquiare. Caatinga. "Low shrub, 3 feet tall. Leaves very coriaceous." December 12, 1947, *Richard Evans Schultes & Francisco López 9342*.

STERCULIACEAE

***Herrania albiflora* Goudot** in Ann. Sci. Nat., sér. 3, 2 (1844) 230, t. 5, figs. 1-10.

In June 1950, when I visited the Jardín Botánico de Madrid, it was my exceedingly great pleasure to see the famous Mutis water-colors of Colombian plants, made by the artists of the Expedición Botánica which investigated the flora of Colombia under the direction of Celestino Mutis from 1783 to 1808.

Amongst the six thousand plates, there are several extraordinarily artistic and accurate illustrations representing species of *Herrania*. These plates, labelled simply "Theobroma" by the artists, are all included in Volume No. 28 under number 5333. They were determined as the several concepts of *Herrania* by Triana who annotated each plate in his own hand in pencil and signed his annotations. It is of great interest to recall that these plates were made about half a century before the genus *Herrania*, and the three species so beautifully represented by the Mutis plates, were described by Goudot in 1844.

One of the plates represents a fruiting and flowering branch of *Herrania albiflora*. Not only are ripe and unripe fruits shown in excellent detail, but a large number of flowers are depicted so painstakingly that it is clear that Mutis was able, so long ago, to differentiate between the patelliform calyx of *Herrania albiflora* and the subcymbiform calyx of the other species illustrated. No foliage is drawn on the plate of *Herrania albiflora*. Triana correctly annotated this plate as "*Herrania albiflora* Goudot."

In the Mutis collection of plants in Madrid, there is a sterile collection of leaves, misidentified as "*Theobroma Mariae*," which also represent *Herrania albiflora*. They undoubtedly belong to the plant the flowers and fruits of which are portrayed on the Mutis plate of *Herrania albiflora*.

COLOMBIA: *Exped. Bot. Mutisii Novae-Granat.* (1783-1808) 3759.

We have always presumed that the type of *Herrania albiflora*, the type-species of the genus, was preserved in the herbarium at Paris. In June 1950, however, I found Goudot material at Geneva which may very well be the type of *Herrania albiflora*.

In Geneva, there are three sheets representing the Goudot collection of this species, all labelled, in Goudot's handwriting, "C. N. 1 *Herrania albiflora* mihi. Annales Sc. nat. 1844. Muzo." One sheet has several very young and membranaceous leaves and an envelope in which there are fragments of a fruit belonging possibly to an annonaceous plant and which, by some error, have been associated with the *Herrania* collection. Another sheet has a complete and mature leaf. The third sheet has three envelopes: one contains several seeds of *Herrania albiflora*; another has a few flowers and a very young capsule; the third has a flower completely dissected with the parts glued flat to the envelope.

An examination of these floral parts and of Goudot's description and drawing of *Herrania albiflora* lead me to the conclusion that, at least for the flowers and fruit, the Geneva material is the type of the species and genus.

How has it been possible for Goudot type material to find its way to Geneva? There are, of course, many Goudot collections in the Delessert Herbarium (cf. A. Lasègne: "Musée Botanique de M. Benjamin Delessert" (1845) 471).

It may be of interest to note that a comparison of the Goudot floral dissection with the description of *Herrania albiflora* has uncovered several minor discrepancies or omissions. The sepals, described as glabrous within, have a very minute and sparse puberulence on the lower portion of the inner surface; and the petals are extremely muricate-granulose externally, as are also the very short ligules in the basal portion near their junction with the petal.

COLOMBIA: Departamento de Cundinamarca, Muzo, 1825, *J. Goudot sine num.*

Herrania breviligulata *R. E. Schultes* in *Caldasia* (1942) 19.

Herrania breviligulata was described from flowering material collected in the Putumayo of Colombia in 1941. Hitherto, no additional material has been available for study. In July 1950, I found the collection *Mexia* 7328 in the Riksmuseet in Stockholm. Although, unfortunately, it is nearly sterile (having only a few loose seeds), the collection can be referred, on the basis of very specific vegetative characters, to *Herrania breviligulata*. The Provincia de Napo-Pastaza is adjacent to the Colombian Comisaría del Putumayo, but the known distribution of the species is extended to include an additional drainage-area.

ECUADOR: Provincia de Napo-Pastaza, near Archidona. Alt. 650 m. "Dense forest. Erect shrub, 2-5 m. high. Fruit green, deeply ribbed." No date. *Ynes Mexia* 7328.

Herrania kanukuensis *R. E. Schultes* in *Caldasia* 2 (1943) 11; in *Bot. Mus. Leaflet* Harvard Univ. 13 (1949) 227; *ibid* 14 (1950) 126, t. XXXIII.

Theobroma Mariae (Mart.) Decaisne ex Goudot var. *lobata* Pulle in *Rec. Trav. Bot. Néerl.* 9 (1912) 151.

In 1943, I described *Herrania kanukuensis*—extraordinarily distinct in the form of its fruit—from a collection from southern British Guiana. Recently, a sterile collection referable to this species was reported from an adjacent part of the Territorio do Rio Branco in Amazonian Brazil (in *Bot. Mus. Leaflet* Harvard Univ. 14 (1950) 126). In May 1950, while engaged in taxonomic studies in the Botanisch Museum en Laboratorium at the University of Utrecht, Holland, a large series of collections representing this species was kindly made available to me for examination.

In 1932, Uittien (in Pulle: Fl. Surin. 3 (1932) 44) reduced *Theobroma Mariae* var. *lobata* to synonymy under *Th. Mariae*, identifying all of the then available material from Dutch Guiana as representing this Amazonian concept. In 1943, it appeared to me that the Surinam *Theobroma Mariae* var. *lobata* represented the concept described by Schomburgk from nearby British Guiana as *Lightia lemniscata*, and I placed it in synonymy under *Herrania lemniscata* (Schultes in Caldasia 2 (1943) 13), a species with remarkably lobate leaflets. During the war, the Utrecht material was unavailable, but my recent studies have convinced me that *Theobroma Mariae* var. *lobata* and *Herrania kanukuensis* represent the same concept.

From the numerous collections, for the most part from Surinam, it is now obvious that *Herrania kanukuensis* is both a widespread and, at least locally, an abundant element of the flora of Surinam, eastern British Guiana and the adjacent rim of northern Brazil.

DUTCH GUIANA: Am oberen Corantijne-fluss. December 27, 1910, J. F. Hulk 26 (TYPE of *Theobroma Mariae* var. *lobata* in Herb. Utrecht); River Coppename, "Maripoele kakaoeleo. Herrania. Vrucht eetbaar. Eerste doorsteek," November 6, 1916, J. W. Gonggrijp 2565; River Corantijn, Kaurikreek. "Onvertaktboompje 3-5 m. hoog met armdikken stam en cauliflore vruchten," June 20, 1916, J. W. Gonggrijp 2111; River Corantijn, Kaurikreek, "Maipoelie doron doron (Kar.). Boompje 5 m. hoog onvertakt Blm. donker purperrood." November 22, 1916, Stahel & Gonggrijp 3015; Placer L'Aiva, October 31, 1918, J. W. Gonggrijp 4126; Flum. Marowijne, November 20, 1918, J. W. Gonggrijp 4101; River Tapanahonie, Jaikreek. November 17, 1918, J. W. Gonggrijp 4117; River Marowijne, hill forest near Amerikan Kondre. "Boompje; groen op stam. Boscacao." February 21, 1949, J. Lanjour & J. C. Lindeman 2304.

***Herrania laciniifolia* Goudot ex Triana & Planchon** Fl. Novo-Granat. (1862) 209, *nomen subnudum*; García-Barriga in Caldasia 1, No. 2 (1941) 55, t. 1, 4.

In the collection of Mutis plates preserved in Madrid,

there are several illustrations representing *Herrania laciniifolia*. These are all in black and white, not in color. One plate has a leaf with one complete leaflet and a length of stem with several flowers and buds; another plate has analytical drawings of the flowers and fruits; a third has analyses only of the floral parts.

The Mutis specimen in Madrid (cited below) is sterile, but it is undoubtedly from the tree from which the plate was made. In view of the scarcity of collections of *Herrania laciniifolia*, it is unfortunate that a definite locality for the Mutis collection is not available. Both the specimen and the plates agree perfectly with the type and later material of this remarkable species.

COLOMBIA: *Exped. Bot. Mutisii Novae-Granat.* (1783-1808) 937.

Herrania nitida (Poepp.) R. E. Schultes in *Caldasia* 2 (1943) 16, t. p. 17.

Herrania atrorubens Huber in *Bull. Soc. Bot. Genève*, sér. 2, 6 (1914) 187.

Early in my study of the genus *Herrania*, I published (in *Caldasia* 2 (1944) 329) a note pointing out that without an examination of the type of Huber's *H. atrorubens*, it was not possible to evaluate the validity of the concept and that "the colour character alone would hardly suffice for the creation of a new specific concept."

Now, having completed an extensive study of the classical material of the genus, I have been unable to locate the type of *Herrania atrorubens*. One would expect it to be preserved in the Museu Goeldi in Belém do Pará or in the Herbarium Boissier in Geneva, but a search in these two institutions, as well as in other Brazilian and European herbaria, has not uncovered Huber's material.

From an evaluation of the meager characters given by Huber and from the geographical data given for the type collection, *Herrania atrorubens* may, it would seem, in

the light of experience gained during the study of a wide range of material, safely be referred to *H. nitida*.

Herrania pulcherrima Goudot in Ann. Sci. Nat. sér. 3, 2 (1844) 232, t. 5, figs. 11–12.

In the collection of Mutis plates, there is a most strikingly beautiful and accurate water-color of a section of a stem of *Herrania pulcherrima* in full flower. A number of diagnostic characters of *Herrania pulcherrima* are most clearly shown: the congested, many-flowered inflorescences; the very abbreviated pedicels; and the long and membranaceous ligules with alternate scarlet and whitish bands. Of this colored plate, there are two copies in black and white. No foliage seems to have been drawn.

A search in the Mutis collection of plants in Madrid has failed to produce a specimen of *Herrania pulcherrima*.

Herrania purpurea (Pitt.) R. E. Schultes in Caldasia 2 (1944) 333.

Further collections of *Herrania purpurea* in the Urabá area of Antioquia emphasize the great abundance of this Middle American species in the northwesternmost corner of the South American continent.

COLOMBIA: Departamento de Antioquia, Municipio de Pavarandocito, Villa Arteaga. "Small tree 8 feet tall." December 1948, Richard Evans Schultes & Francisco López 10464.—Departamento de Antioquia, Municipio de Pavarandocito, Pavarandocito and vicinity. October 1950, Gabriel Gutiérrez V. 2000.

DILLENACEAE

Saurauia pruinosa R. E. Schultes *sp. nov.*

Arbor frondosa, usque ad viginti quinque vel triginta pedes alta. Ramuli teretes, brunneo-cinerei, maxime densissime et grossiuscule echinato-setosi (setis ipsis albido-scrobiculatis) atque inter setas densissime pilis minutis roseo-niveis aloeformibus vestiti. Folia valde coriacea, siccitate fragilia, 22–31 cm. longa, 6.5–12 cm.

lata, elliptica, apice longe acuminata, basi rotundata, margine minute et regulariter denticulata, supra atro-viridia et densiore praecipue venas versus aspero-setosa, subtus densissime et molliter praecipue prope venas cinereo-echinato-setulosa et maxime densissime lanato-tomentosa cum pilis roseo-niveis aloeformibus vel dendri-formibus. Petioli robusti, teretes, 2–3.5 cm. longi, 4 mm. in diametro, ramulorum indumento vestiti. Inflorescentiae magnae, foliis subaequales, usque ad 25 cm. longae, 15 cm. latae, ramulorum indumento sed colore cinereo-roseo omnino obtectae; rhachide centrali robustissima, 5–6 mm. in diametro. Bracteae subulatae, usque ad 1 cm. longae, intus brunneo-setulosae, extus rhachidis indumento vestitae. Alabastra globosa, usque ad 1 cm. in diametro, roseo-tomentulosa. Flores numerosiores, maximi (usque ad 3.3 cm. in diametro) et pulcherrimi, valde aromatici, fragrantis. Sepala quinque, rosea et alba, inaequalia, chartacea, ovato-elliptica, apice obtusiuscula; tria majora 10–11 mm. longa, 8–9 mm. lata, extus roseo-albida minute lanato-tomentulosa cum pilis aloeformibus et cum carina centrali setarum roseo-brunnearum armata; duo minora usque ad 10 mm. longa, 7–8 mm. lata, extus omnino setis roseo-brunneis (setis ipsis cum appendicibus setuliformibus dense vestitis); omnia intus magnopere dense tomentulosa pilis albis lanato-aloeformibus, basim versus vulgo glabra sed prope insertionem cum pilis aureis vestita. Petala quinque, alba, aequalia, membranacea, rotundato-obovata, integra vel saepe apice aliquid incisa, utrinque glabra. Stamina plusminusve centum sexaginta, filamentis debilibus, 4 mm. longis, antheris flavis, 1.5 mm. longis. Ovarium perfecte globosum, 5–6 mm. in diametro, glabrum, quinque (rarenter sex) cum stylibus carnosus, usque ad 6 mm. longis, stigmate capitato.

Although *Saurauia pruinosa* resembles *S. brachybotrys* Turcz. and *S. Spraguiana* Busc. in some respects, it can

be distinguished at once from these and all other species by its extraordinary number of stamens. *Saurauia brachybotrys* has about sixty and *S. Spraguiana* from sixty to eighty stamens; *Saurauia pruinosa*, with one hundred and sixty stamens, has the highest number among the American species of the genus. *Saurauia pruinosa* may also be distinguished from most other American species by the peculiar hoary indumentum which has a beautiful rose-pink bloom.

Saurauia pruinosa appears to be most closely allied to *S. roseotincta* R. E. Schultes of Perú. The latter species, like the former, has a very high number (130) of stamens and has a beautiful pink-pruinose indumentum on the under surface of the leaves. It differs in number of stamens; in having an inflorescence subequal to (not shorter than) the leaves; in having flowers only half as large; and in several floral characters.

COLOMBIA: Comisaría del Putumayo, Valley of Sibundoy, Sibundoy. Altitude about 2225–2300 m. *Moquillo*. Flowers excessively narcissus-fragrant. Petals white; hairs on sepals pink. Leaf hairs pink, especially on young leaves. Leaf backs and young branches a tawny ash-brown, giving peculiar characteristic appearance at a distance — the two colours of hair. Fruit ripens red. Flower buds large.” May 29, 1946, *Richard Evans Schultes & Mardoqueo Villarreal 7651* (TYPE in Herb. Gray).

***Saurauia roseotincta* R. E. Schultes sp. nov.**

Arbor gracilis, quindecim ad viginti pedes alta. Folia subcoriacea, elliptica, margine minutissime denticulata, apice subacuta, basi cuneata, 21–34 cm. longa, 7–11 cm. lata, supra bulbata, nervos versus et sparsiore in lamina aspero-setosa, subtus tactu mollia, omnino minutissime albo-stellato-pilosa atque in nervis omnibus densius roseo-stellato-pilosa; petiolus robustus, usque ad 3.5 cm. longus, 4–5 mm. in diametro, grossiuscule rufo-ferrugineo-setosus. Inflorescentiae quam folia breviores, usque ad 20–22 cm. longae, plusminusve viginti-florae, partibus

omnibus rufo-ferrugineo-setulosae. Bracteae setoso-pilosaе, subulatae, usque ad 5 mm. longae. Flores non numerosi, 13–14 mm. in diametro. Sepala quinque; interiora rhomboideo-ovata, apice obtusa, extus setarum carina mediana armata, intus prope apicem dense pulverulenta, basi glabra, 9–10 mm. longa, 9–10 mm. lata; exteriora crassiora, elliptico-ovata, apice subacuta, extus densissime et grossiuscule aureo-setosa, intus pulverulenta sed basi glabra, 9–10 mm. longa, 5–6 mm. lata. Petala membranacea, alba, rotundata, margine subintegra (leviter subundulata ut videtur), 6–7 mm. longa, 5–6 mm. lata. Stamina plusminusve centum triginta, antheris parvis, 0.7 mm. longis, filamentis 23 mm. longis, basi rufo-setosobarbatis. Ovarium globosum, 4 mm. in diametro, glabrum, quinque cum stylibus usque ad 1.5 mm. longis.

Saurauia roseotincta very closely resembles *S. pseudoruiziana* Busc., *S. Ruiziana* Steud., and *S. tomentosa* Spreng., from which concepts it may be immediately distinguished by having 130–140 stamens instead of 80, 30–40 and 40–70 respectively. There are also differences to be noted in the pilosity of the leaves and in the size of the floral parts.

There are a number of notes appended to the type specimen. These were made by Dr. E. P. Killip when he compared the specimen with material at Kew and in Berlin. Killip wrote: “Aff. *tomentosa*, but hairs yellow, not white. Aff. *Ruizana* [sic], but that has long soft, appressed hairs above, and on nerves beneath; flowers very similar. [Notes at Berlin.] Aff. *pseudoruiziana* [sic] but leaves here are more bullate and without long appressed hairs of *pseuoruizana*. [Notes at Kew.] This agrees well with description of *Ruizana* var. *Weberbaueri* Busc. in Monagr.; perhaps, though, it is a distinct species. (Oct. 1925).”

According to the collector's data, the pubescence of

the under surface of the leaves was pink-red in life. In the dried specimen, it has changed to a rich golden rust-color. It is probable that the finest of the stellate hairs (that is, those on the blade itself) were, in life, whitish as they are in the dried material and that the coarser stellate hairs along the primary, secondary and tertiary nerves (now rust-colored, but in places still pinkish) were responsible for the general hue of redness. The specific epithet refers to this beautiful character of the under surface of the leaf.

PERU: Chaglla. Alt. about 9,000 ft. "Slender, open, 15-20 ft. tree; leafy only above. Pubescence lower sides leaves pink-red; flowers white." May 12, 1923, *J. Francis Macbride 3652* (TYPE in U.S. Nat. Herb.).

OCHNACEAE

***Leitgebia colombiana* R. E. Schultes sp. nov.**

Fruticulus usque ad 4-pedalis, parce fastigiato-ramosus. Caules nigri, basi 8-10 mm. in diametro, praeter apicem denudati, foliorum delapsorum cicatricibus 1.8-2.2 mm. distantibus asperati, superne stipulis elongato-triangularibus, 3 mm. longis, 1 mm. latis, pectinato-fimbriatis, extus striatis et subcarinatis, sublignosis, persistentibus, nigrescentibus et irregulariter ferrugineo-setulosis, erecto-amplexantibus. Folia caulem prorsus velantia, coriacea, lanceolato-elliptica, plerumque 10 mm. longa, 3-3.5 mm. lata, apice obtusa sine mucrone glanduloso, basi attenuato-cuneata, margine callosa et valde revoluta, remotissime et obscure subundulato-denticulata (utroque margine cum sex vel septem denticulis glandulosis), supra lucida, nervo medio et sex ad novem nervis secundariis densis obliquis prominentioribus, subtus pallidiora minusque lucida, praeter nervum medium prominulum apparenter avenia. Flores solitarii, inter folia summa subimmersi, 5-6 mm. in diametro, bibracteolati. Pedicellus 1 mm. longus. Bracteolae oppositae, subulatae, margine

omnino irregulariter fimbriolatae, circiter 3 mm. longae sed saepe leviter inaequales. Sepala quinque hyalino-membranacea, omnino glabra, ovato-lanceolata, 3 mm. longa, 1 mm. lata, apice longe acutissima, margine integra, valde concava. Petala quinque, tenuiter membranacea, ovata, circiter 3 mm. longa, basi 1.5 mm. et apice 1 mm. lata, apice rotundata, margine integra, nervis numerosis percursa, basi alba, apicem versus violacea. Staminoidea quinque, petaloidea, membranacea, concavo-oblonga (non spathulata), apice rotundata, circiter 3 mm. longa, 1.5 mm. lata, rosea, nervo medio prominentiore. Stamina quinque, antheris linearibus, flavis, usque ad 1.8 mm. longis, ad basim staminodei filamentum brevissimo coalita. Ovarium subtriangulare-ovoideum, 0.8 mm. longum, stylo filiformi 3 mm. longo, stigmate obtuso coronatum. Fructus adhuc ignotus.

Leitgebia, a genus hitherto unknown from Colombia, is characteristic of the isolated mountains of the Venezuelan-Guianan land-mass.

The type and, until very recently, the only known species was *Leitgebia guianensis* Eichler, from Mount Roraima and from Mount Duida. Oliver described a concept from British Guiana as *Leitgebia Imthurniana*. Later, Gleason made this the type of a new genus: *Roraimanthus*. Recently it has been placed in the genus *Sauvagesia* by Dwyer.

In 1945, Lasser (in Bol. Acad. Ciénc. Fís. Matem. Nat. Caracas (1945) 246, fig. p. 247), described *Leitgebia Gleasoniana* from Mount Duida and Mount Paraque in southern Venezuela; this species is at once distinguished from *Leitgebia guianensis* by its leaves which, measuring 18–20 mm. by 2 mm., are twice as long as those of the earlier species.

Leitgebia colombiana appears to approach most closely to *L. guianensis*, from which it can be distinguished at

once by having the leaves much less dense and much less closely appressed around the stems; where the leaves have fallen, the scars are less conspicuous and are more distinctly placed on the stem. The former has the stipules much less conspicuous and spreading than the latter; and it has flowers which are only half as large; slightly larger leaves which are more nearly lanceolate-elliptic (not oblanceolate) and remotely and obscurely subundulate-denticulate along the entire margin (instead of closely and definitely sharp-dentate along the upper half of the margin only); petals which are apparently non-deciduous, ovate or broader at the base than at the apex (instead of conspicuously obovate); and sepals which are entire (not serrulate) near the apex.

The fruit of none of the three species of *Leitgebia* is known. *Leitgebia colombiana* flowers on Mount Chiribiquete in May and sets fruit probably from October to December. I collected at this locality in May, July, and January and was unable to find fruiting material of this curious shrub.

COLOMBIA: Comisaría del Vaupés, Macaya-Ajaju River confluence, Mount Chiribiquete. Quartzite base. Summit 800-1200 feet above forest floor; 1700-2100 feet above sea-level. "Small shrub. Flowers pinkish." May 15-16, 1943, *Richard Evans Schultes 5479* (TYPE in Herb. Gray).

COMBRETACEAE

Combretum laxum *Jacquin* Enum. Pl. Carib. 19 (1760) 115.

Black & Schultes 46-293 represents the same variant of the widespread and variable *Combretum laxum* which occurs in adjacent parts of Amazonian Perú and which was recently reported from the Río Igaraparaná in Amazonian Colombia (*Schultes in Bot. Mus. Leaflet. Harvard Univ.* 14 (1949) 40).

COLOMBIA: Comisaría del Amazonas, Río Loretoyacu. "Trepadeira.

Flores brancas, cheirosas," November 2, 1946, G. A. Black & R. E. Schultes 46-293.

Combretum rotundifolium L. C. Richard in Act. Soc. Hist. Nat. Paris 1 (1792) 108.

One of the most common riverine lianas in Amazonian Colombia, *Combretum rotundifolium* has not been frequently collected there; *Schultes* 3984 is apparently but the second collection reported in the literature. The first (*Schultes* in Bot. Mus. Leaflet. Harvard Univ. 14 (1950) 135) was from the distant Apaporis River basin.

COLOMBIA: Comisaría del Amazonas, Río Igaraparaná, between Quebrada Menaje and Río Putumayo. Alt. 150-170 m. "Fruit fiery red. Bush." June 15-17, 1942, Richard Evans Schultes 3984.

Combretum Wandurraganum R. E. Schultes sp. nov.

Frutex scandens, extensus, robusto cum trunco et ramis glabris laevibus teretibusque et ramulis fusco-lepidotis. Folia chartacea, elliptica vel subovata, apice abrupte acuminata, basi rotundata, integra, statu adulto 7-17 cm. longa, 4-8 cm. lata, supra nitidula, subtus vivo aureo-lepidota, venis secundariis plerumque novem subtus aliquid conspicuis. Paniculae axillares, apparenter densiflorae, plerumque usque ad 24 cm. longae, rhachidibus robustioribus 4 mm. in diametro, dense fusco-lepidotis. Flores adhuc ignoti. Samarae pulchrae, atrosanguineae, quadrialatae, orbiculares, plerumque 2.2-2.4 cm. latae (alis computatis), plusminusve 2-2.2 cm. altae, longe et graciliter stipitatae (stipitibus 10-12 mm. longis, dense lepidotis), omnino sparsissime lepidotae.

Combretum Wandurraganum resembles most closely perhaps *C. rotundifolium* Rich., from which it can be distinguished by differences in the size and shape of the leaves; in the color and density of the lepidote indumentum on the under surface of the leaves; and, most

strikingly, by the peculiar round shape of the long-stipitate samara.

COLOMBIA: Comisaría del Amazonas, trapecio amazónico, Loretoyacu River. Alt. about 100 m. "Extensive vine. Fruit red." September–November 1944, *Richard Evans Schultes* 6070 (TYPE in Herb. Gray).

STYRACACEAE

***Styrax Tessmannii* Perkins** in *Notizbl.* 10 (1928) 459.

This species, described from material collected along the Río Ucuyali in the Departamento de Loreto, Perú, has hitherto not been reported from Colombia. *Schultes* 7144 has larger leaves than those described from the type, but all other reported characters appear to agree.

COLOMBIA: Comisaría del Amazonas, trapecio amazónico, Amazon River watershed, Loretoyacu River. Alt. about 100 m. "Small tree on highland," March 1946, *Richard Evans Schultes* 7144.

APOCYNACEAE

***Couma utilis* (Mart.) Mueller-Argoviensis** in *Martius Fl. Bras.* 6, pt. 1 (1860) 19, t. 5.

The collections cited below are apparently the second and third known from the Comisaría del Vaupés in Colombia (J. Monachino in *Lloydia* 6 (1943) 237, *ibid* 9 (1946) 301). It would seem that this species is associated only with the granitic "Brazilian shield" portion of eastern Colombia. It is known also from the Amazon of Brazil (especially the Rio Negro and Rio Madeira basins) and Venezuela.

COLOMBIA: Comisaría del Vaupés, Río Negro, Cocuí. "*Sorva*. Columnar tree, $2\frac{1}{2}$ feet in diameter, 75 feet tall. In flood-bank. Bark very thick, smooth but checked outside, grey and black, soft, reddish inside. Latex extremely thick, abundant, white, very sticky. Leaves dark green above, pale beneath. Flowers fragrant, pinkish to white." December 26, 1947, *Richard Evans Schultes* & *Francisco López* 9467.— Same locality and date. "Small columnar tree, $1\frac{1}{2}$ ft. diameter, 50 feet tall. Crown wide. Flowers pink, fragrant. Latex very abundant, thick, white. Bark smooth, black-grey." *Schultes* & *López* 9485.

Malouetia Tamaquarina (*Aubl.*) *A. de Candolle*
Prodr. 8 (1844) 378.

Malouetia Tamaquarina, widespread in Amazonian Brazil and in the Guianas, occurs in heavy densities in the trapezio amazónico of Colombia. It inhabits the low flood-land or *rebalsa* accompanying *Hevea brasiliensis* (Willd. ex Juss.) Muell.-Arg. It has an extremely abundant white latex which, according to persistent reports, was formerly used as an adulterant of *Hevea* rubber. The Peruvian name *cuchara-caspi* ("spoon-tree") is used by the inhabitants of the trapezio; the name refers to the custom of making spoons and other utensils from the soft, white wood of the treelet.

The ripe fruit of *Malouetia Tamaquarina* forms, in season, a major part of the diet of the *pajúil*, a bird native to the region. There is a widely accepted belief in the upper Amazon that the bones of the *pajúil*, at the time of abundant fruiting of the *cuchara-caspi*, are highly poisonous to dogs who may obtain and eat them. The poisoning agent is held to be the fruit. Such a generally accepted belief is, indeed, worthy of phytochemical investigation.

COLOMBIA: Comisaría del Amazonas, trapezio amazónico, Loretoyacu River. Alt. about 100 m. "Small tree. Flowers white. *Cuchara-caspi*." September–November 1944, *Richard Evans Schultes* 6083.

VERBENACEAE

Citharexylum Ulei *Moldenke* in Fedde Repert. Sp. Nov. 37 (1934) 237.

This collection provides the first record of the Brazilian *Citharexylum Ulei* from Colombia. It is shown, through the collection cited below, to occur right up to the base of the Andes in Colombia.

COLOMBIA: Comisaría del Putumayo, Río Putumayo, Puerto Asís. March 9–10, 1942, *Richard Evans Schultes* 3388.

SOLANACEAE

***Datura suaveolens* Humboldt & Bonpland** in Willdenow Hort. Berol. (1809) 227.

This species, native apparently in southeastern Brazil, is widely cultivated in the New World tropics. Amongst the Kofán Indians on the Colombian-Ecuadorian border, an infusion of the leaves is said to be taken occasionally as a narcotic. It is known to the Kofánes as *ku-a-vá-u*, which, translated, signifies "pink *Datura*." The *Datura arborea* L., which has large white flowers but which the Kofánes apparently do not like to use as a narcotic because "it is too poisonous," is called *tu-to-a-vá-u*, literally "white *Datura*."

ECUADOR: Río San Miguel o Sucumbíos, entre el Río Putumayo y la Quebrada Teteyé. Alt. 260 m. "From Inga Indian garden. A narcotic. Kofán name: *ku-a-vá-u*," March 29, 1942, *Richard Evans Schultes* 3472.

BIGNONIACEAE

***Arrabidaea Fanshawei* Sandwith** in Bull. Torr. Bot. Club 75 (1948) 662.

Schultes 5394 represents, according to Sandwith, a form of the British Guianan *Arrabidaea Fanshawei* "with leaflets persistently tomentellous beneath." Its presence in eastern Colombia once more emphasizes the relationship of the flora of the upper Apaporis basin with that of the Venezuelan-Guianan area.

COLOMBIA: Comisaría del Vaupés, Río Macaya, between Río Apaporis and Cachivera del Diablo. "Extensive vine. Flowers purple, covered with an ashy puberulence (?). Basal diameter of vine 4 inches. Bark rough, brown at base. Leaves pale ashy green beneath, glossy dark green above." May 15-16, 1943, *Richard Evans Schultes* 5394.

***Arrabidaea xanthophylla* Burret & K. Schumann** in Martius Fl. Bras. 8, pt. 2 (1896) 70.

The yellowish leaves of this vine, which is rather common in the trapezio amazónico of Colombia, are made

into an infusion and used by the Tikuna Indians as an eye-wash in the treatment of the severe conjunctivitis which often spreads throughout the area in epidemic form. The Tikunas call the plant *káh-pě-ree*. This species is especially well represented in herbaria from eastern Perú.

COLOMBIA: Comisaría del Amazonas, Río Loretoyacu (Lago de Socó). "Vine. Flowers yellow." November 1945, *Richard Evans Schultes* 6798.

***Paragonia pyramidata* (Rich.) Burret** in Vidensk. Meddel. 1893 (1893) 104.

Paragonia pyramidata, rather widespread in tropical America, is a conspicuous element of the flora of the upper Apaporis basin.

COLOMBIA: Comisaría del Vaupés, Río Macaya, vicinity of Cachivera del Diablo and mouth of river. "Vine. Flowers purple." May 1943, *Richard Evans Schultes* 5498.

ACANTHACEAE

***Mendoncia lasiophyta* Leonard** *sp. nov.*

Suffrutex volubilis, grandis, caulibus subquadrangularibus, sursum dense pilosis, pilis fulvis adscendentibus usque ad 4 mm. longis, deorsum glabratis vel strigosis, sursum incurvo-adpressis; lamina foliorum orbicularis vel ovata, usque ad 24 cm. longa et 13 cm. lata, abrupte subacuta, basi rotundata, chartacea, integra vel undulata, recurvata, supra rugosa, glabra vel strigosa, pilis in costa et venis positis, venis (circa 5-paribus) et venulis valde et crasse reticulatis, profunde impressis, subtus pilosa, pilis cinereis, circa 2 mm. longis, patulis, curvatis, costa et venis prominentibus; folia novella utrinque dense fulvo-pilosa; petioli crassi, usque ad 3 cm. longi, plusminusve strigosi, saepe curvati; flores solitarii vel pauci, in calcaribus axillaribus compressis dispositi; pedicelli crassi, 3.5 cm. longi, dense tomentosi, pilis fulvis usque ad 5 mm.

longis; bracteae lanceolatae, 3.5–4 cm. longae, 1.5 cm. latae, leviter falcatae, dense tomentosae, pilis fulvis usque ad 5 mm. longis; calyx glaber vel parce pilosus; corolla 4.5 cm. longa, rubra, glabra, minute papillosa, tubo cylindrico, basi 7 mm. lato, usque ad 15 mm. supra basim 3.5 mm. lato, prope oram 6 mm. lato, lobis suborbicularibus, 4 mm. longis, 3 mm. latis, emarginatis; stamina inclusa, ad medium tubi corallae affixa, antheris sagittatis, 15 mm. longis, basi 2.5 mm. latis, apice acutis, lobis apice barbatis; stylus 3.5 cm. longus, glaber; stigma bilobatum, lobis aequalibus, cupuliformibus; ovarium glabrum.

In connection with his description of this new species, Leonard writes:

The leaf blades of Ducke's material are more ovate and less rounded at the base than are those of the type.

The type plant, Schultes informs us, is a rampant liana clambering over grasses or low shrubs. Only one plant was observed. The specific epithet is derived from *λάστος*, shaggy, and *φυτον*, plant, and alludes to the densely fulvous-tomentose inflorescence, young leaves, and stem tips.

This new species resembles and is probably closely related to *Mendoncia gigas* Lindau. The size and shape of the bracts and the nature of the pubescence covering them and the peduncles are much the same for the two species. The leaf blades, however, of *Mendoncia gigas* are generally smaller, not exceeding 13 cm. in length and 7 cm. in width, and no mention is made of the suborbicular type of leaf sometimes subtending the inflorescence. Again the calyx of Lindau's species is described as puberulous, whereas in *Mendoncia lasiophyta* it varies from glabrous to sparingly long-pilose. The corolla lobes of *Mendoncia gigas* are larger, 6 to 7 mm. in diameter instead of 4 mm. long and 3 mm. wide, and their tips are rounded instead of emarginate. Finally, the ovary, pronouncedly puberulous in *Mendoncia gigas*, is definitely glabrous in *M. lasiophyta*.

A photograph of *Ule 9800*, the type of *Mendoncia gigas*, is in the U.S. National Herbarium. The type was collected at Seringal Auristella, along the Río Acre in Perú.

BRAZIL: Estado do Amazonas, Esperança, at mouth of Rio Javari, October 18, 1945, *A. Ducke 1851*.

COLOMBIA: Comisaría del Amazonas, vicinity of Leticia, Rio Ama-

zonas. November 1948, *Richard Evans Schultes & Francisco López 10400K* (TYPE in U.S. Nat. Herb.).

***Sanchezia thinophila* Leonard sp. nov.**

Frutex, caulibus subquadrangularibus, hirtellis, pilis usque ad 1 mm. longis, patulis vel adscendentibus; lamina foliorum elongato-lanceolata, acuminata (apice ipso obtuso), basi angustata, in petiolum decurrens, subcoriacea, marginibus leviter crenatis, supra glabra, minute aspera, cystolithis obscuris, costa et venis lateralibus (15–20 paribus) utrinque prominentibus, subtus hirsuta, cum pilis brunneo-gilvis, patulis vel adscendentibus, rectis vel leviter curvatis, usque ad 1.5 mm. longis; petioli circa 2 cm. longi, canales glabri, subtus hirtelli; paniculae terminales, parce ramosae, 22 cm. longae, rhachi et pedunculo (5.5 cm. longo) hirtello; bracteae rubrae, ovatae vel lanceolatae (apice ipso obtuso) pari infimo 7 cm. longo, 4 cm. lato, aliis deinceps minoribus, glabris vel basi hirtellis, ciliatis, fasciculi multiflori (floribus 10 vel pluribus); bracteolae ovatae, maximae et infimae 3 cm. longae, 1.8 cm. latae, apice rotundatae, glabrae vel sursum hirtellae; calycis segmenta subligulata, usque ad 2.5 cm. longa, sursum 4–7 mm. lata, obtusa vel rotundata, basi angustata, glabra vel apice pubescentia, pilis circa 0.25 mm. longis; corolla 4 cm. longa, flava, deorsum glabra, sursum hirsuta, pilis retrorse adpressis, albis, circa 0.5 mm. longis, tubo cylindrico, basi 3 mm. lato, prope oram 7 mm. lato, lobis ovalibus, circa 3 mm. longis et latis, emarginatis; stamina circa 4 cm. longa, filamentis planis, parce pilosis cum pilis patulis, usque ad 2 mm. longis, antheris 6 mm. longis, 2.5 mm. latis, dorso glabro, ventre puberulo, calcaribus basalibus 0.75 mm. longis; ovarium glabrum; stigma bilobatum, lobis inaequalibus.

Leonard states further:

Schultes 6937, collected in the vicinity from whence the type of *Sanchezia thinophila* was taken, has the same general appearance, but

differs in being essentially glabrous. The specimen is very immature, the corollas being barely formed. Until mature collections are available, it cannot be determined definitely whether *Schultes 6937* is only a glabrous form of *Sanchezia thinophila* or a new species.

The type plant, Schultes states, was growing on a sandy beach at the mouth of the Río Loretoyacu, hence the specific epithet *thinophila* (*θῆς* [*θηγο-*], beach, and *φιλέω*, loving).

COLOMBIA: Comisaría del Amazonas, bank of Loretoyacu River, 100 meters altitude. October 20–30, 1945, *Richard Evans Schultes 6607* (TYPE in U.S. Nat. Herb.).

COMPOSITAE

Gongylolepis maroana *Badillo* in Bot. Soc. Venez. Ciénc. Nat. 8 (1943) 237.

Recently, a number of collections of this curious composite have been reported from eastern Colombia (Schultes in Bot. Mus. Leaflet. Harvard Univ. 13 (1949) 310, 14 (1949) 47). The two additional collections from the Comisaría del Vaupés indicate that *Gongylolepis maroana* is, indeed, one of the most widespread as well as dominant shrubs on the isolated quartzite areas in Amazonian Colombia.

COLOMBIA: Comisaría del Vaupés, Macaya River, Mount Chiribiquete. “Bush”. July 24, 1943, *Richard Evans Schultes 5742*.—Comisaría del Vaupés, Río Vaupés, Caño Pacú. Sandy savanna. “Bush; 15 feet.” March 6, 1944, *Richard Evans Schultes 5816*.

EXPLANATION OF THE ILLUSTRATION

PLATE VII. *CARLUDOVICA AURANTIACA* *R.E.Schultes*.

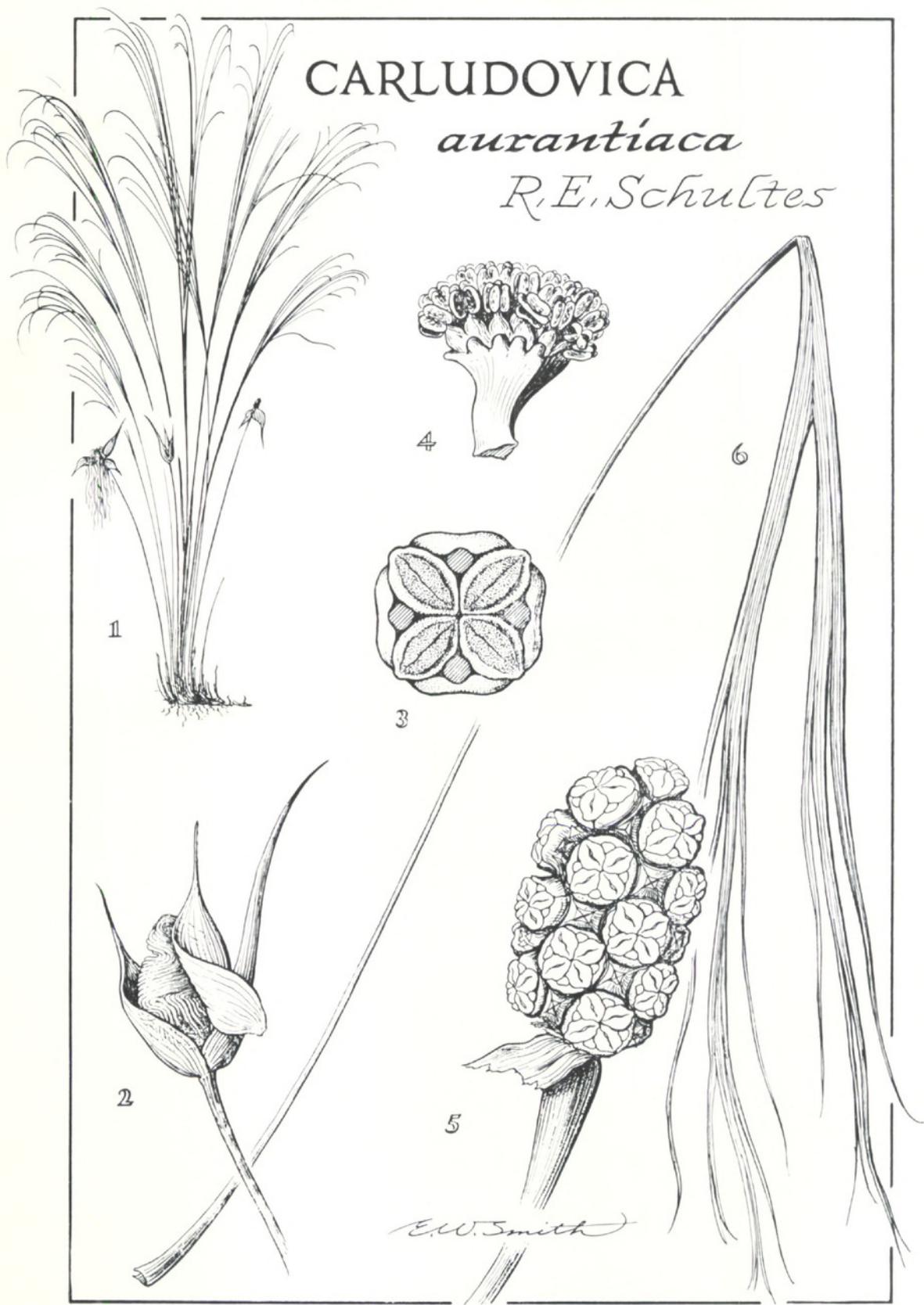
1, habit of plant, about one tenth natural size. 2, early stage of inflorescence, showing spadix with staminodes still wrapped in translucent spathes. One spathe is detached at base to show spadix and coiled mass of staminodes within. About one half natural size. 3, female flower from above; areas shaded with diagonal lines indicate scars left by the caducous staminodes. About ten times natural size. 4, male flower, lateral aspect. About ten times natural size. 5, spadix with young fruits. About three times natural size. 6, leaf, about one third natural size.

Drawn by ELMER W. SMITH

CARLUDOVICA

aurantiaca

R. E. Schultes



EXPLANATION OF THE ILLUSTRATION

PLATE VIII. CARLUDOVICA AURANTIACA. A photograph of the colony from which the type collection was taken.

Photograph by RICHARD EVANS SCHULTES

PLATE VIII



EXPLANATION OF THE ILLUSTRATION

PLATE IX. 1, ANTHURIUM FONTOIDES *R. E. Schultes*.
2, ANTHURIUM PLUVIATICUM *R. E. Schultes*. Habit
drawing of plants, three eighths natural size.

Drawn by DOROTHY H. MARSH

ANTHURIUM
pluviaticum

R. E. Schultes

2

1

ANTHURIUM

fontoides

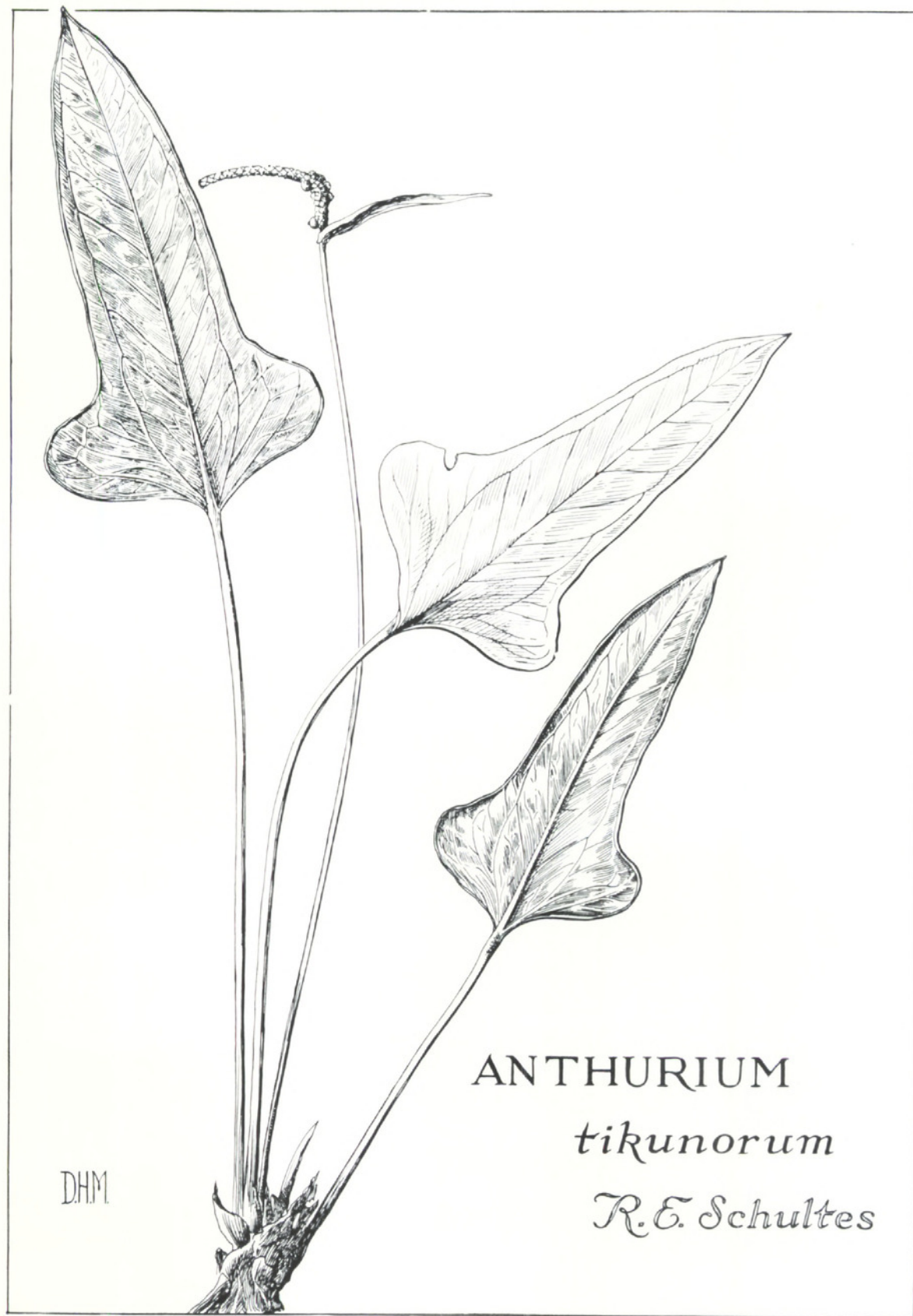
R. E. Schultes

D.H.M.

EXPLANATION OF THE ILLUSTRATION

PLATE X. ANTHURIUM TIKUNORUM *R. E. Schultes.*
Habit drawing of plant, three eighths natural size.

Drawn by DOROTHY H. MARSH



ANTHURIUM

tikunorum

R.E. Schultes

EXPLANATION OF THE ILLUSTRATION

PLATE XI. *PAEPALANTHUS FASCICULATUS* (*Rottb.*) *Körn.*
in sandy spot at La Chorrera, Río Igaraparaná, Co-
lombia.

Photograph by RICHARD EVANS SCHULTES

PLATE XI



EXPLANATION OF THE ILLUSTRATION

PLATE XII. *HERRANIA BREVILIGULATA* *R. E. Schultes*.
1, leaf, about one third natural size. 2, flower,
about one half natural size. 3, petal, twice natu-
ral size. 4, staminode and anthers, twice natural
size. 5, ovary and style, four times natural size.

Drawn by ELMER W. SMITH

HERRANIA
breviligulata
R.E. Schultes



EXPLANATION OF THE ILLUSTRATION

PLATE XIII. *HERRANIA PURPUREA* (*Pittier*) *R. E. Schultes*. 1, leaf, about one third natural size. 2, flower, about one half natural size. 3, petal, twice natural size. 4, staminode and anthers, twice natural size. 5, fruit, one half natural size.

Drawn by ELMER W. SMITH

HERRANIA *purpurea*
(Pittier) R.E. Schultes



EXPLANATION OF THE ILLUSTRATION

PLATE XIV. COMBRETUM WANDURRAGANUM *R. E.*
Schulles. Fruiting branch of the type plant.

Photograph by RICHARD EVANS SCHULTES

PLATE XIV

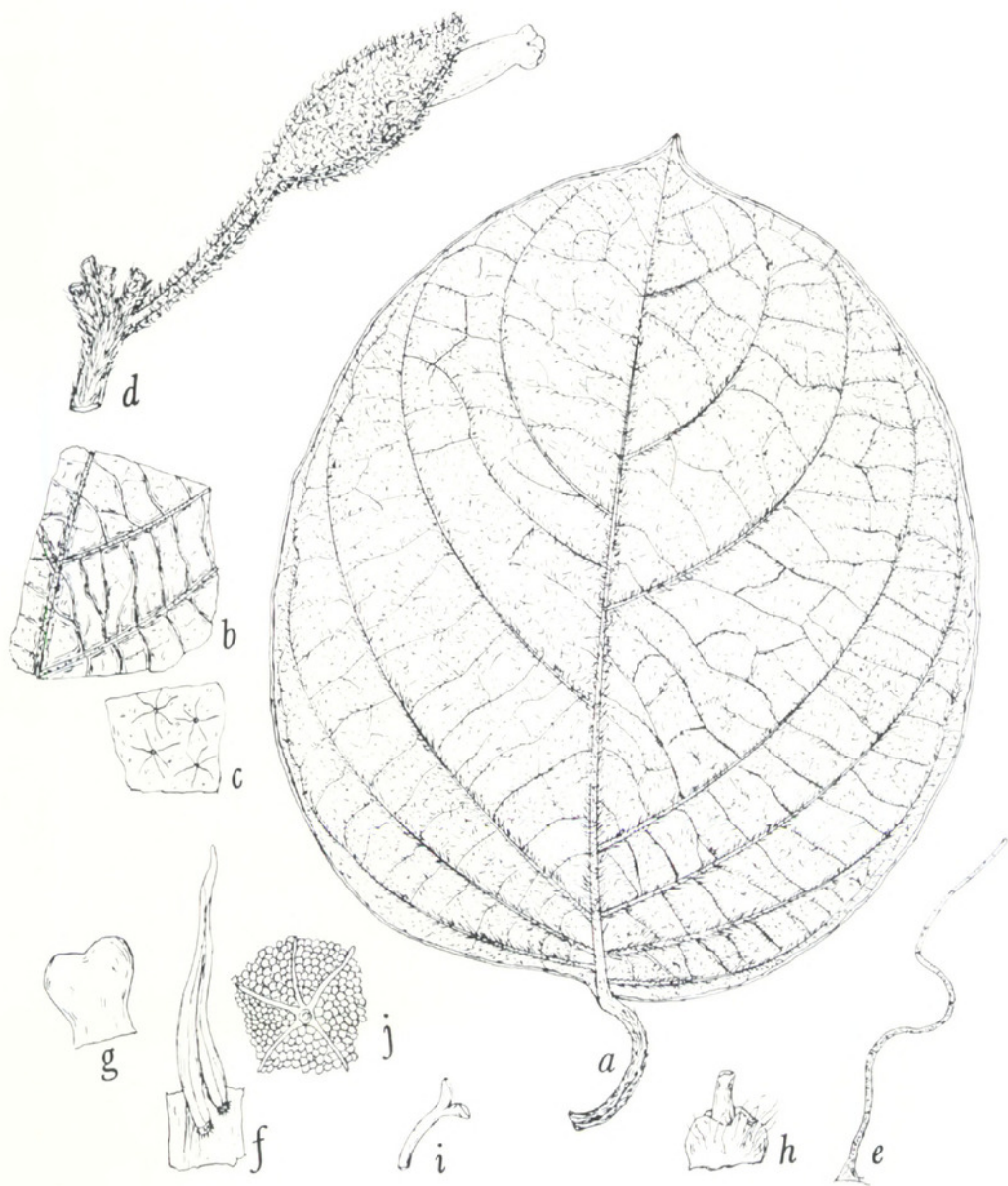


EXPLANATION OF THE ILLUSTRATION

PLATE XV. *MENDONCIA LASIOPHYTA* *Leonard*. a, leaf blade, one half natural size. b, portion of leaf blade (upper surface), one half natural size. c, portion of leaf blade (upper surface enlarged to show stelliform cystoliths), three and one half times natural size. d, part of inflorescence, one half natural size. e, hair from bract, six times natural size. f, stamens, twice natural size. g, corolla lobe, twice natural size. h, calyx, one and one half times natural size. i, stigma, three times natural size. j, a cystolith shown in detail, about eleven times natural size.

Drawn from the type specimen *Schulles & López* 10400K.

PLATE XV



EXPLANATION OF THE ILLUSTRATION

PLATE XVI. *SANCHEZIA THINOPHILA* *Leonard*. a, basal portion of inflorescence, one half natural size. b, bract, one half natural size. c, leaf, one half natural size. d, calyx, natural size. e, stigma, about three times natural size. f, corolla, natural size. g, anther (dorsal view), about twice natural size. h, anther, (ventral view), about twice natural size.

Drawn from the type specimen *Schultes 6607*.

PLATE XVI





Schultes, Richard Evans. 1953. "Plantae Austro-Americanae VIII: De Plantis Principaliter Vallis Amazonicis Novis Vel Criticis Notae Diversae." *Botanical Museum leaflets, Harvard University* 16(4), 57–95.

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