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TABLE OF CONTENTS

	PAGE
1. Two New Species of Palms from Nicaragua. By S. F. Glassman	1
2. Tropical American Plants, VI. By Louis O. Williams	11
3. Agriculture, Tehuacan Valley. By C. Earle Smith, Jr.	49
4. Flora, Tehuacan Valley. By C. Earle Smith, Jr.	101
5. Preliminary Studies in the Palm Genus <i>Syagrus</i> Mart. and Its Allies. By S. F. Glassman	145
6. Tropical American Plants, VII. By Louis O. Williams	165
7. Supplement to Orchids of Guatemala. By Donovan S. Correll	175
8. Preliminary Notes on Scrophulariaceae of Peru. By Gabriel Edwin	223
9. New Species in the Palm Genus <i>Syagrus</i> Mart. By S. F. Glassman	233
10. Tropical American Plants, VIII. By Louis O. Williams	247
11. Notes on the Flora of Costa Rica, I. By William C. Burger	273
12. A New <i>Eurystyles</i> from Nicaragua. By Alfonso H. Heller	279
13. New Species in the Palm Genus <i>Syagrus</i> Mart. By S. F. Glassman	285
14. A Revision of the Family Geastraceae. By Patricio Ponce de Leon	303
15. Studies in American Plants. By Dorothy N. Gibson	353
16. Two New Nicaraguan Juglandaceae. By Antonio Molino R.	357
17. Studies in the Palm Genus <i>Syagrus</i> Mart. By S. F. Glassman	363
18. Tropical American Plants, IX. By Louis O. Williams	401

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TWO NEW SPECIES
OF PALMS FROM NICARAGUA

12 1965
S. F. GLASSMAN

and

TROPICAL AMERICAN PLANTS, VI

LOUIS O. WILLIAMS

UNIVERSITY OF ILL.

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FIELDIANA: BOTANY

VOLUME 31, NUMBERS 1 AND 2

Published by

CHICAGO NATURAL HISTORY MUSEUM

NOVEMBER 25, 1964

TROPICAL AMERICAN PLANTS, VI

LOUIS O. WILLIAMS

Chief Curator, Botany

FIELDIANA: BOTANY

VOLUME 31, NUMBER 2

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CONTENTS

Families Included in Volume 31, Number 2

	PAGE
Alismataceae	17
Apocynaceae	18
Araliaceae	18
Bombacaceae	21
Boraginaceae	21
Caryocaraceae	22
Celastraceae	23
Chloranthaceae	25
Compositae	25
Flacourtiaceae	28
Hydrophyllaceae	29
Lecythidaceae	30
Leguminosae	32
Melastomaceae	33
Monimiaceae	36
Myristicaceae	38
Orchidaceae	39
Rubiaceae	44
Rutaceae	45
Umbelliferae	46

LIST OF ILLUSTRATIONS

	PAGE
3. <i>Oreopanax lacnocephalus</i>	19
4. <i>Alomia pinetorum</i>	26
5. <i>Lecythis peruviana</i>	31
6. <i>Mollinedia ruae</i>	37
7. <i>Kegeliella atropilosa</i>	40
8. <i>Pleurothallis lappiformis</i>	43
9. <i>Arracacia annulata</i>	47

Tropical American Plants, VI

The notes which make up this short paper result from material sent for determination, study of a small portion of our own material collected in Central America during 1962–1963, and revision of the Umbelliflorae for a forthcoming part of the Flora of Guatemala.

One of the finest collections to come to the Museum in many years is a small but carefully prepared set of specimens received from the Forest Products Laboratory at Madison, Wisconsin. These specimens serve as vouchers for a Peruvian study which Dr. B. Francis Kukachka is initiating in cooperation with the Peruvian Forest Service. It is anticipated that considerable benefit will accrue in providing basic information on the properties of Peruvian woods. The specimens come from marked trees and in each case there is a flowering and a fruiting specimen. There were some fine new things in the collection, as was to be expected. In addition, the flowering and fruiting specimens sometimes permit the correlation of species previously described from either flowering or fruiting material—*Matisia bicolor*, discussed below, is a case in point. The first set of this material will remain in Chicago Natural History Museum, the second set is to go to the U. S. National Herbarium, the third set to Conservatoire et Jardin Botaniques in Geneva. Other sets of this material will go to the University of Wisconsin Herbarium, the U. S. Forest Service, Institute of Tropical Forestry in Puerto Rico, the New York Botanical Garden, and to one or two other herbaria.

Travel to other herbaria, and field work in Guatemala, Honduras, Nicaragua and Costa Rica have been made possible by grants from the National Science Foundation.

ALISMATACEAE

Echinodorus andrieuxii (H. & A.) Small, North Am. Fl. 17: 46. 1909.

COSTA RICA: In drying bog in closed savanna about 5 km. south of La Cruz, province of Guanacaste, alt. 200 m., Feb. 12, 1963, *Williams & Williams 24498*.

The range of this lowland species is extended southeastward into Costa Rica. Previously known from Mexico to Nicaragua.

APOCYNACEAE

Aspidosperma cylindrocarpon Muell.-Arg. in Mart. Fl. Bras. 6, pt. 1:54. 1860; Woodson, Ann. Mo. Bot. Gard. 38: 160. 1951.

PERU: "Puca-Quiro or pucaquiru," bosque seco tropical, carretera a Tournavista, depto. Huanuco, pcia. Pano, dist. Pachitea, 13 setiembre 1962, *Rafael Lao Magin 29*.

The species is distributed from Minas Gerais to Rio de Janeiro and Paraná, westward to Paraguay and Bolivia then northward to Amazonian Peru. This is the first collection from the basin of the Amazon.

Aspidosperma macrocarpon Mart. Nov. Gen. & Sp. 1: 59. 1824; Woodson, Ann. Mo. Bot. Gard. 38: 138, f. 4. 1951.

PERU: "Pumaquivu," vivero forestal km. 4, bosque seco tropical, Depto. Loreto, pcia. Cnel. Portillo, distrito Calleria, 17 set. 1963, *Rafael Lao Magin 81*; same locality from same tree (No. 28P), frutos grandes voluminosos y chatos, 26 marzo 1963, *Lao 48*.

This is the first report of the species from Peru although it was to be expected there. Mr. Lao reports that the wood is very hard and is used to make lumber suitable for bridge construction. *Lao 81* is leafless, with flowers; *48* has mature leaves and nearly mature fruits.

ARALIACEAE

Oreopanax lacnocephalus Standl. Carn. Inst. Wash. Publ. 461: 77. 1935.

Originally described from British Honduras and now known from Guatemala and Honduras. The species is closely related to *O. peltatus* Linden and sterile material may be difficult to distinguish. Sterile material from Guatemala and from Honduras determined as *O. peltatus* may be *O. lacnocephalus*. I have seen no undoubted *O. peltatus* so far south as Honduras.

A closely related species is *O. geminatus* Marchal, known from the Segovias of Nicaragua. I have seen no authentic material but



FIG. 3. *Oreopanax lacnocephalus*. Flowering branch; $\times \frac{1}{3}$.

rather suspect that it may include *O. lacnocephalus*. The distribution would indicate this possibility also.

Fertile material of *O. lacnocephalus* which I have seen, collected since Smith's study of the family, is:

GUATEMALA: Dept. Jalapa, *Standley 77322*.

HONDURAS: All Dept. Morázan; *Molina 7555*; *Standley & Williams 786*; *Williams & Molina 10731*; *Valerio 1867, 2014*.

Oreopanax obtusifolius L. Wms. sp. nov.

Arbuscula vel arbores usque ad 20 m. alta. Folia late obovata ad late ovata vel suborbiculari-ovata, apice rotundata vel obtusa; inflorescentia paniculata, rachis stellato-pubescent; capitula ovoidea; calyx truncatus; petala anguste oblonga.

Large epiphytic shrubs or occasionally trees to 20 m. with a trunk to 10 cm. in diameter, glabrous except the young branches and inflorescences, with thick terete branches. Leaves broadly obovate to broadly ovate or suborbicular-ovate, broadly round or obtuse at the apex, rounded to obtuse or subcordate at the base, chartaceous to subcoriaceous, the blade 8-20 (-35) cm. long and 3-18 (-25) cm. broad, the nerves conspicuous, with 3-5 prominent ones arising at the base, secondary nerves few; inflorescence paniculate, to 25 cm. long and as broad, rachis stellate-pubescent, becoming glabrescent, subtending bracts deltoid, 2-8 mm. long, puberulent, the peduncles 2-10 mm. long, the flower heads ovoid, 6-8 mm. across; calyx-limb truncate; petals narrowly oblong, 1.5-2 mm. long; fruits few in each head, 5-6 mm. in diameter, creamy-white.

MEXICO: Boca Cerro, Tenosique, Tabasco, July 1-5, 1939, *Martínez-Calderón 3551* (F); Chiltepec and vicinity, Oaxaca, *Martínez-Calderón 223* (US).

BRITISH HONDURAS: Flowers cream, occasional epiphyte on Cohune [palm], to 30 feet tall and 5 inches in diameter, near Forest Home, alt. 30 feet, Sept. 6th (no year), *Schipp 1031* (type Chicago Natural History Museum); Río Privación, February 28, 1931, *Bartlett 11860*; epiphytic shrub, Vaca, El Cayo District, February 22, 1930, *Gentle 2211*; woody hemi-epiphyte in advanced forest, Valentín-Retiro road, June-Aug. 1936, *Lundell 6306*; woody hemi-epiphyte, height 20 m., in high secondary forest, Cohune Ridge, El Cayo district, June-Aug. 1936, *Lundell 6471* (US); tree 7 m., San Agustín, Mountain Pine Ridge, El Cayo district, July-August 1936, *Lundell 6704* (US); Vaca Falls region, 1926, *Record* s.n. (US).

GUATEMALA: Jungle, Vaxactun, March 19, 1931, *Bartlett 12203* (F, US); District of Petén, 1933, *Lundell 2906, 2965, 3135, 3465*; "Toneja River Golfte," 1918, *Rowlee & Rowlee 324* (US); Department of Izabal, 1940, *Steyermark 39360* (F); Cubilguitz, Alta Verapaz, alt. 350 m., 1901, *Tuerckheim 7883* (US); "Vera Paz & Chiquimula," *Watson 262* (US).

HONDURAS: Río Termejo [near San Pedro Sula?], Aug. 23, 1888, *Thieme 5252* (US).

HORTICULTURAL: "hort. bot. Berol.," a specimen labelled "Aralia guatemalensis V. Houtte." (F, photograph no. 3510.)

This name merely replaces a series of invalid ones based on *Aralia guatimalensis* Hort., a name which Lemaire cited in synonymy with-

out providing a name for it which he intended to accept. Hemsley (in Biol. Cent. Am. Bot. 5: 573. 1881), took up for the plant the name "*Oreopanax guatemalense* Dene. et Planch. in Rev. Hort. 1854, p. 108." (which is a *nomen*) and gave as basionym "*Sciadophyllum guatemalense* Lem. Fl. des Serres, iii. p. 262, Misc. 44.", a name which Lemaire did not publish and apparently had no intention of using. It is thought better to provide a new name rather than to validate one long misused.

This species is one of several very closely allied ones which Dr. A. C. Smith knew when he provided the account of the family for the North American Flora. We now have many more specimens than Dr. Smith saw and while the species is admittedly very close to *Oreopanax capitatus* (Jacq.) Dene. & Pl. the characters which he used still seem to hold.

BOMBACACEAE

Matisia bicolor Ducke, Orch. Jard. Bot. Río Jan. 3: 210. 1922; *Matisia rhombifolia* Cuatr. Phytologia 4: 478. 1954; *Quararibea rhombifolia* Macbride, Field Mus. Bot. 13, pt. 3A, no. 2: 620. 1956.

PERU: "Machín zapote," arbol de 35–40 m. y 0.7 m. DBH., Chicosá, Dept. Loreto, Oct. 24, 1962, *Rafael Lao M. 32*; from same tree, in fruit, Dec. 14, 1962, *Lao 38*.

I have seen a photograph of Ducke's type (FM neg. 9557) from Altamira along the Xingu, and the type of *M. rhombifolia* from Peru. The species possibly will be found to extend through the Amazon basin.

BORAGINACEAE

Cordia cicatricosa L. Wms. sp. nov.

Arbores. Rami apices incrassati, cicatricosi. Folia late elliptica vel elliptico-ovata, obtusa vel breviter acuta, sparse strigosa; inflorescentia paniculata, multiramosa; calyx subglobosus, membranaceus, apice strigosus; corolla quinquelobata, lobi oblongi, obtusi; fructus baccatus, anguste ovatus.

Tree 30 m. tall. Branches rather thick and stout (to ± 1 cm.) and covered with the prominent, round leaf scars of the previous year, the apex with several strigose bracts ± 1 cm. long, the new leaves crowded on the new terminal growth; leaves broadly elliptic or elliptic-obovate, obtuse or shortly acute, sparsely strigose on both surfaces, the blade 10–18 cm. long and 5–8 cm. broad, petioles on mature leaves 3–5 cm. long; inflorescence a much branched terminal panicle to 20 cm. long or more, short strigose throughout; flowers white, pentamerous, hardly more than 3–4 mm. long (usually less) when mature; calyx subglobose in bud,

strigose at the apex, membranaceous, rupturing equally or usually unequally, marcescent, 3–4 mm. long; corolla deeply 5-lobed, with ocellate inclusions, about 3 mm. long, the lobes oblong, obtuse; style bifid and each lobe again divided; ovary very small, glabrous except the apex; fruits narrowly ovate, baccate, 1.2–2 cm. long and 0.8–1.2 cm. in diameter.

PERU: "Huarmicaspi," bosque húmedo tropical, Fundo "La Libertad," Río Mazán, Depto. Loreto, provincia Maynas, distrito Mazán, alt. 130 m., 15 febreto 1962, *Antonio Arostegui V. 74* (type F, G, US, others); same data, same tree, 18 enero 1963, *Arostegui 86* (fruits only).

This species is not related to any other that I am able to find—the nearest seem to be *C. laevior* Johnston and *C. ripicola* Johnston. It is distinctive by reason of the large petiolar scars on the thick twigs, by the leaves crowded at the end of the twigs, by the membranaceous calyx which becomes marcescent. There is an unnamed species from the department of Boyaca in Colombia which has some of the characters of this one. Dr. Killip put an herbarium name on that specimen years ago.

The description was written from all the material available (six sheets). The tree is said to be useful for firewood and to make charcoal.

CARYOCARACEAE

Anthodiscus gutierrezii L. Wms. sp. nov.

Arbor usque ad 30 m. Folia trifoliata, glabra, foliolis oblongo-obovata vel obovata, obtusa, crenulata; inflorescentia racemosa, \pm ve 15-flora; calyx subtrotatus, obscure quinquelobatus; corolla calyptriforme; fructus oblatius.

Tall forest trees to 30 m. or more and 0.60 m. in diameter breast high. Leaves trifoliolate with the leaflets approximately equal, or one sometimes smaller, petioles 2.5–4 cm. long, the leaflets petiolulate, the petiolule of the central leaflet 1–1.5 cm. long, those of the laterals about 0.5 cm. long, blade oblong-obovate to obovate, obtuse, crenulate to near the base, glabrous or nearly so, 5.5–9.5 cm. long and 3–5 cm. broad, lateral nerves 6–8 pairs evenly spaced (3–9 mm. apart), with a small tuft of hair in the axils; inflorescence racemose, terminal, about 15-flowered toward the apex, flower yellow, pedicellate, the pedicel about 1 cm. long; calyx subtrotate, obscurely 5-lobate, about 3–4 mm. broad and 2–2.5 mm. high, obscurely puberulous; corolla calyptriform, the petals coherent at the apex and falling away together, oblong, 4–5 mm. long; stamens numerous, \pm 100; styles 10, about 2 mm. long; fruits oblate spheroids approximately 1.5 cm. broad and 0.7–1 cm. deep.

PERU: "Chamisa amarilla," tree about 30 m. tall and 0.6 m. DBH, Hacienda Delicias, Marona Alta, departamento de Huánuco, provincia de Leoncio Prado, alt. 800 m., 1962, *Abelardo Gutiérrez*

R. 14 (type Chicago Natural History Museum; US; G; Wis; Herbario Servicio Forestal (Peru); Forest Products Laboratory, Madison); *Gutiérrez 15* is fruit from the same tree.

The collector states that the wood is very hard and is used for sleepers and planks.

This species is most closely related to *Anthodiscus peruanus* of the relatively few species of this little known genus. We have no authentic material of that species but do have a photograph of the type and a fragment of Ruiz & Pavón 31/36 which is certainly the same. However, collections of Ducke from Brazil annotated as *A. peruanus* are not that species.

CELASTRACEAE

Celastrus molinae L. Wms. sp. nov.

Arbor usque ad 6 m.; folia elliptica vel elliptico-oblancoolata, acuminata; inflorescentia pauciflora, cymoso-paniculata; capsula trivalvata; semina ± 3 .

Small trees to about 6 m.; twigs glabrous, provided with raised elongated lenticels about 1 mm. long; leaves alternate, elliptic to elliptic-oblancoolate, serrulate, acuminate, acute to the base, with 8–12 pairs of lateral nerves these prominent below, glabrous above, often or usually in the axils of the lateral veins below, otherwise glabrous, 8–12 cm. long and 2–3.5 cm. broad; petioles short, 3–8 mm. long; inflorescence lateral, much shorter than the leaves, few-flowered, in cymose panicles; flowers unknown; capsules nearly ovoid, leathery, bright orange, 3-valvate, about 9–14 mm. long and 6–10 mm. in diameter; seeds usually 3, about 6–8 mm. long, covered with a red, somewhat fimbriated aril.

NICARAGUA: Fruits yellow, aril red, tree 6 m. in cloud forest area, Sta. María de Ostuma, Cordillera Central de Nicaragua between Matagalpa and Jinotega, Dept. Matagalpa, alt. 1500 m., January 9, 1963, *Williams, Molina & Williams 23415* (type in Chicago Natural History Museum; EAP; G; US; LL).

A quite typical *Celastrus* but one quite distinct and easily distinguished from the other species of the genus known in tropical North America by the relatively long narrow leaves. The species is apparently most closely allied to the Colombian *C. caseariifolius* Lundell.

Crossopetalum subsessile L. Wms. sp. nov.

Arbor parva usque ad 8 m. alta. Folia opposita, aequalia vel inaequalia, elliptica, oblonga vel anguste obovata, serrulata vel integra, apice obtusa vel rotundata; inflorescentia breviter cymosa, tri-vel pauciflora; calyx parvus, lobis 4 rotundatis vel truncatis; petala 4, ovato-oblonga, obtusa, reflexa; fructus siccus.

Small trees to 8 m. tall. Twigs slightly angled, soon terete, glabrous; leaves opposite, those of a pair equal or often very unequal in size, elliptic to oblong or narrowly obovate, usually obtuse or rounded, serrulate to nearly entire, coriaceous, short petiolate, the blade 3–7 cm. long and 1.5–3.5 cm. broad, the veins prominent below, the petiole 2–6 mm. long, the stipules lanceolate, fimbriate, soon caducous; inflorescence a very short axillary cyme, 3–few-flowered, mostly (or always) less than 5 mm. long, the peduncle \pm 2 mm. long; staminate flowers unknown; pistilate flowers: calyx small, lobes rounded or truncate, ciliolate, \pm 0.5 mm. long, petals 4, ovate-oblong, obtuse, reflexed in anthesis, 2.5–3 mm. long and \pm 1.5 mm. broad; ovary shorter than the petals; style sessile, 2-parted; fruits dry, oval or oblong-ovate, 8–10 mm. long and 4–6 mm. in diameter, the endosperm osseous.

GUATEMALA: Tree to 8 m. in thickets and forest in deep canyon of a tributary of Río Blanco about 5 km. west of Aguacatán, department of Huehuetenango, alt. 2000 m., December 4, 1962, *Williams, Molina & Williams 22348* (type F, EAP, G, LL).

The species is easily distinguished from other Central American species by the very short inflorescence and in fruit these seem to be nearly sessile.

Euonymus costaricensis Standl. *Field Mus. Bot.* 18, pt. 2: 631. 1937.

NICARAGUA: Arils red, tree 3–4 m. in cloud forest area, Sta. María de Ostuma, Cordillera Central de Nicaragua between Matagalpa and Jinotega, Department of Matagalpa, alt. 1300–1500 m., January 8–15, 1963, *Williams, Molina & Williams 23451* (F, G, EAP, LL, others); arils red, shrub 3 m., same data as above, *Williams, Molina & Williams 23649* (F, EAP, G, LL); flowers greenish, tree 10 m. tall in oak forest-cloud forest area above and east of Jinotega, department of Jinotega, alt. 1400–1600 m., February 20, 1963, *Williams, Molina & Williams 24758* (F, EAP, G, LL).

These are the first known collections of *Euonymus* from Nicaragua and ample collections of a relatively rare species previously known only from Costa Rica.

Zinowiewia inaequifolia L. Wms. sp. nov.

Arbor parva usque ad 6 m. alta. Folia opposita, inaequalia, lanceolata vel elliptico-lanceolata, acuminata; inflorescentia dichasia vel cyma pauciflora; calyx quinquelobatus; petala oblonga vel oblongo-ovata, obtusa; fructus alatus, ala anguste oblonga.

Small trees to 6–8 m. Twigs slightly flattened and angled, becoming terete with age; leaves opposite, those of a pair usually slightly unequal in size and each usually bilaterally unequal, lanceolate to elliptic-lanceolate, acuminate, those on terminal growths much larger than those on small lateral branchlets, the blades 4–7 cm. long and 2–3 cm. broad, graduating into smaller leaves mostly 2–3 cm.

long and 0.8–1.5 cm. broad, attenuated into petioles 0.3–0.8 cm. long; inflorescences axillary dichasia or helicoid cymes rarely more than 1 cm. long, the bracts cucullate, narrowly triangular, glandular-serrulate, mostly 0.5–0.7 mm. long; calyx shallowly 5-lobed, \pm 0.7 mm. long, the lobes about 0.6 mm. broad and 0.3 mm. high; petals 5, oblong or oblong-ovate, obtuse, \pm 1–1.2 mm. long and 0.5–0.6 mm. broad; stamens alternate with and shorter than the petals, inserted on the edge of the disc; ovary submerged in the fleshy disc; wing of immature fruit narrowly oblong, widest toward the retuse apex, arcuate, about 12 mm. long and 4 mm. broad.

NICARAGUA: Tree 6–8 m. tall, along the road to La Fundadora, cloud forest area north of Sta. María de Ostuma, Cordillera Central de Nicaragua, Dept. Matagalpa, alt. 1300–1500 m., February 22, 1963, *Williams, Molina & Williams 24869* (F type, EAP, G, LL).

In a genus where the species are not boldly marked this one seems to have adequate characters, especially in the leaves. The leaves of each pair are usually somewhat unequal in size; those toward the apex of new growths are twice or more larger than those below on the same growth; the leaf blades are almost always bilaterally unequal.

CHLORANTHACEAE

Hedyosmum mexicanum Cordemoy, *Adansonia* 3: 307. 1862–63.

NICARAGUA: Cloud forest area, Cordillera Central de Nicaragua, Dept. Matagalpa, alt. 1500 m., January 8, 1963, *Williams, Molina & Williams 23381*.

The species has not been reported from Nicaragua, where it is occasional in the forest in the Cordillera Central.

COMPOSITAE

Alomia HBL.

Some of the most attractive "fall" flowering plants of Central America belong to Compositae-Eupatorieae, and of these *Alomia* is one of the more uncommon,—in comparison with the enormous genus *Eupatorium* or with the very closely allied genus *Ageratum* which often fills old corn fields to overflowing. *Alomia* is not easy to distinguish from *Ageratum*. Even in the field it is necessary to look at an unfamiliar species with a lens to be sure which genus is represented.

Alomia pinetorum L. Wms. sp. nov.

Herba perennis. Folia breviter petiolata, ovata vel ovato-lanceolata, obtuse serrata, acuta, usque ad 2 cm. longa; inflorescencia paniculata vel corymbosa,



FIG. 4. *Alomia pinetorum*. A, Habit; $\times \frac{1}{3}$. B, Capitulum; $\times 3\frac{1}{3}$. C, Involucral bract; $\times 8$. D, A flower showing minute palea, angulate achene with corona, a corolla and styles; $\times 10$.

capitula paucis; involucre campanulatum, bractea biseriata, lanceolata, acuminata; corolla ca. 2.5 mm. longa; pappus nullus.

Slender herbaceous perennials. The stems subdecumbent or decumbent at the base, sparsely branched above, 10–30 (–70) cm. tall, sparsely crisped-pubescent or puberulent above, becoming glabrate below; leaves opposite, short petiolate, the petiole slender, 2–10 mm. long, the blade ovate or ovate-lanceolate, obtusely serrate, acute, sparsely pilose, the blade 0.6–2 cm. long and 0.2–1 cm. broad; inflorescence a simple few-headed panicle; the heads about 5–6 mm. long when fully open, with 60–70 flowers, the involucre campanulate, the bracts subequal, biseriata, narrowly lanceolate, acuminate, about 3 mm. long and 0.7 mm. broad, sparsely pubescent, the receptacle conical, epaleate; corolla about 2–2.5 mm. long, the narrow tube about as long as the expanded portion, the base and apex glandular-atomiferous; the styles exceeding the corolla by 1–1.5 mm.; pappus none but an inconspicuous corona present; achenes prominently 4–5 angled, glabrous or sparsely pubescent.

HONDURAS: Flowers bright blue, on moist open slopes in mixed pine-oak forest area, mountains between Montaña Uyuca and La Montañita, Department of Morazán, alt. 1500 m., Dec. 27, 1962, *Williams, Molina & Williams 23240* (type in Chicago Natural History Museum; EAP; about 25 duplicates to be distributed); Mt. Uyuca, Dept. Morazán, 5500 feet, *Glassman 1637*; El Quebracho, lower slopes of Cerro Uyuca, pine-oak forest, 1450–1500 m., Dept. Morazán, *Standley 21850* (F); San Juan del Rancho, eastern base of Cerro de Uyuca, alt. 1500 m., *Standley 23872* (F); dried bog in pine forest, Piedra Herrada, alt. 1400 m., *Standley 25903* (F); lower slopes of Cerro de Uyuca, Dept. Morazán, 1530–1600 m., *Standley & Molina 4210* (F); San Juan del Rancho, Dept. Morazán, alt. 1350 m., *Williams 17038* (F).

In the half century since Robinson revised this small genus only three species have been added to it,—one in Mexico, one in Central America and one in Venezuela. The present species is closely allied to *Alomia microcarpa* (Benth.) Robinson, a species known in Central America only in the highlands of Costa Rica. The present species is easily distinguished superficially by the much smaller leaves, the decumbent bases of the stems, somewhat smaller heads and bracts. We have seen this species only in the locality from which the type comes and have observed it there for some years. It is quite abundant throughout the pine-oak woods at about 1500 meters but the stands of it are not dense, as often is the case of allied species.

Alomia robinsoniana L. Wms. sp. nov. *Alomia Wendlandii* (Sch.-Bip.) Rob. according to Robinson in Proc. Am. Acad. 42: 452. 1913, based on *Phalacraea Wendlandii* Sch.-Bip. ex Klatt, Leopoldina 20: 74. 1884, in *synon. et sine char., nom. illegit.*

Perennis 3 dm. vel ultra altitudine; caule tereti viridi striatulo pubescenti; internodiis paucis elongatis ca. 1 dm. longitudine; foliis oppositis ovatis tenuibus argute serratis ca. 6 cm. longis ca. 4 cm. latis apice acuminatis basi obtusiusculis supra tenuiter pubescentibus subtus paullo pallidioribus molliter griseo- vel cinereo-tomentosis; petiolo gracili 1-2.8 cm. longo dense pubescenti; corymbis longiuscule pedunculatis trichotomis planiusculis densis multicapitulatis ca. 5 cm. diametro; bracteis filiformibus; pedicellis filiformibus 2-8 mm. longis; capitulis erectis 60-70-floris 6-6.5 mm. altis 6 mm. diametro; involucri ovoideo-turbinati squamis oblanceolatis attenuatis sub-biseriatim imbricatis subaequalibus saepius 2-costatis dorso griseo-puberulis et cum glandulis minutis obscure nigro-punctatis; corollis saltim limbum versus caeruleis 2.7 mm. longis, tubo proprio glanduloso-hispidulo, faucibus subaequilongis parce glanduloso-atomiferis; achaeniis nigrescentibus acute 5-angulatis 1.6 mm. longis saepius curvatis apice cum annulo integro cartilagineo coronatis basi callosis

MEXICO: Gualulu, *Liebmann 147* (Liebm. Pl. Mex. Nr. 9678) (type: Botanical Museum and Herbarium, Copenhagen, F, GH, P); Mt. Ovando, Escuintla, Chiapas, Nov. 4, 1945, *Matuda 16070* (F).

It is curious that Dr. Robinson took up Schultz' name from a specimen of *Liebmann 147* which had been determined by Schultz with his unpublished name;—especially is this so when the plant is Mexican and Wendland, for whom it is named, was never in Mexico. The mystery is perhaps cleared up by a specimen in Paris with the label "Herb. Schultz Bip." which was from Central America and cultivated "in horto Herrenbusano pr. Hannover. . . . 24/3 66 a cl. Wendland." (CNHM neg. no. 37540.) This specimen was mounted on a sheet with *Liebmann 147*, but is probably not the same species.

In naming this plant for Dr. Robinson I have used his description of *Liebmann 147* as he wrote it to validate the name, and have cited the Liebmann specimen in Copenhagen as type, a specimen of which there are duplicates in several herbaria, including that of Chicago Natural History Museum. A photograph of the type is available—CNHM neg. no. 22465.

FLACOURTIACEAE

Hasseltia psittacarum L. Wms. sp. nov.

Arbores. Folia elliptico-ovalia vel elliptico-obovata, obtusa vel breviter acuminata, integra vel obscure dentata, subtriplinervia, bases biglandulosa; inflorescentia cymosa, terminalia; sepala 4, lanceolato-ovata, acuta; petala 4, late ovata, obtusa vel subacuta; stamina plura, fasciculata.

Trees 10-20 m. tall with boles up to 25 cm. or more in diameter; bark light brown, flaking off easily; cambium layer cream-colored streaked dark buff or yellow; branchlets puberulent; leaves thin coriaceous, semi-rigid, shining, venation on upper surface pale yellow, elliptic-oval or elliptic-obovate, obtuse to short acu-

minate, entire or obscurely glandular-dentate, glabrous except along the main nerves below, subtriplinerved from the base and with 3-6 others on each side above, blade with two crateriform glands near the junction of the petiole, 3-16 cm. long and 2.5-9 cm. broad; petiole 1-4 cm. long, puberulent, becoming glabrous; inflorescence a twice-or-thrice-compounded cyme, terminal, about as long as or shorter than the leaves, densely puberulent above, becoming glabrous below, bracts subtending the peduncles small, lanceolate, puberulent, deciduous; flowers white; sepals 4, lance-ovate, acute, joined together at the base, puberulent on both faces, 5-6 mm. long and 2.5-3 mm. broad; petals 4, oval to broadly ovate, obtuse or acute, inserted on the sepals, puberulent on both surfaces, 5.5-6.5 mm. long and 3.2-4 mm. broad; stamens many, perigynous, separated into four groups or fascicles alternating with glandular or staminodial areas, anthers about 0.45 mm. long, nearly round, filaments pilosulose; glands or staminodes on the disc opposite the sepals separating staminal cycle into groups or fascicles; ovary (flower in anthesis) small, glabrous, the surface with irregular vermiform ridges or tubercles, possibly somewhat stipitate; style about as long as the ovary, slender, stigma undivided but trilobulate.

COSTA RICA: Forest tree 20 m. high and base 25 cm. in diameter, upper tropical zone, Caribbean cloud forest, Zapote de San Carlos, province of Alajuela, alt. 2000 m., March 13, 1938, *Austin Smith H445* (type F), *P.C. 278*; tree 10 m. tall and 56 cm. in diameter, flowers white, 12 mm. broad, leaves subcoriaceous, woodlands, upper tropical zone near Zarcero, province of Alajuela, alt. 1650 m., January 22, 1941, *Austin Smith 10119*.

The first two numbers cited (*H445* and *P.C. 278*) are doubtless from the same collection for the field labels are almost identical. Smith comments that (No. H445) "This specimen high-crowned and thick-trunked [tree] was not easily accessible,—fortunately, parrots eating the flower buds dislodged the material herewith preserved." Specimens on both sheets show evidence of having been clipped off by parrots.

This plant is distinguished from the other species of *Hasseltia* by relatively large flowers and by separation of the stamens into groups or fascicles. This separation is due to glandular structures opposite the sepals. This curious character might indicate another genus but I know of none allied to *Hasseltia* with this character. There seem to be no other characters to support generic separation.

HYDROPHYLLACEAE

Nama hispida Gray, Proc. Am. Acad. 5: 339. 1861; Hitchcock, Am. Journ. Bot. 20: 523. 1933.

GUATEMALA: Flowers white, in corn field, in thicket and forest along steep sides of a tributary of Río Blanco about 5 km. west of

Aguacatán, Dept. Huehuetenango, alt. 2000 m., December 4, 1962, *Williams, Molina & Williams 22352*.

The plant has not been reported from Central America and may well have been an introduction where it was collected.

LECYTHIDACEAE

Lecythis peruviana L. Wms. sp. nov.

Arbor altissima, usque ad 25 m. vel ultra. Folia elliptica vel lanceolato-oblonga ad elliptico-oblonga, breviter acuminata, coriacea, subtus glandulosa; inflorescentia paniculata; sepala oblonga vel oblongo-ovata, obtusa, obscure lacerato-ciliata; petala inaequalis, ovata, rhombico-ovata vel elliptico-ovata; pixidium usque ad 9 cm. latum et 6 cm. altum.

Large trees to about 25 m. tall and 0.5 m. in diameter breast high, young branches obscurely lenticellate, glabrous. Leaves elliptic or lanceolate-oblong to elliptic-oblong, somewhat rounded to the base, short acuminate at the apex, coriaceous, glabrous, abundantly glandular below with minute brownish glands, with 10-14 pairs of secondary nerves which anastomose near the margin, petiole thick, 5-8 mm. long, the blade (9-) 12-20 cm. long and (3-) 5-10 cm. broad; inflorescence a simple 10-30-flowered panicle about 10-15 cm. long, the rachis densely puberulent; sepals 6, oblong to oblong-ovate, obtuse, quite unequal in size, obscurely and finely rufous puberulent, the margins lacerate-ciliate, very fleshy, connate toward the base to nearly free and imbricate, in buds and flowers 3-8 mm. long and 2-3 mm. broad; petals white, unequal, in two sets (4 and 2), the smaller pair rhombic-ovate, obtuse, about 2 cm. long and 1.5 cm. broad, inserted opposite the hood of the androphorum, larger petals ovate or elliptic-ovate, obtuse, about 3 cm. long and 2 cm. broad; androphorum surrounding the ovary and developed on one side into a large hooded ligule bearing numerous imbricated appendages or staminodea; stamens on the base of the androphorum numerous, on filaments about 1.5 mm. long; ovary semi-inferior; stigmas very short on the conical apex of the ovary; pixidium depressed globose, hard and woody, the calyx forming a ring above the base of the ovary; fruits 7-9 cm. broad and 5-6 cm. high, rugose above the calycaric zone flaring, the operculum depressed-conic, rugose, thick and woody, as wide as the fruit.

PERU: "Machimango blanco," tree about 25 m. tall and 50 cm. in diameter breast high flowers white, bosque húmedo tropical Qda Valentín, Río Tahuayo, Distrito Fernando Lores, province of Maynas, Dept. Loreto, alt. 120 m., Oct. 31, 1962, *Antonio Aróstegui V. 67* (árbol No. 20 Iquitos) (type in Chicago Natural History Museum; US; Wisc.; G; Servicio Forestal (Peru), Forest Products Laboratory, Madison); same data, fruits from same tree, February 14, 1962, *Aróstegui 33*.

This is the first collection of *Lecythis* made in Peru although it was to be expected and the locality is in the Amazon basin. The species is perhaps not closely allied to any other known from the



FIG. 5. *Lecythis peruviana*. A, Flowering branch; $\times \pm 1/2$. B, Fruit; $\times \pm 1 1/2$. (From same tree).

Amazon basin. The description was made from ample flowering specimens and from mature fruits collected from the same tree which was "No. 20—Iquitos." The collector does not indicate the use that may be made of this tree.

LEGUMINOSAE

Sclerolobium micranthum L. Wms., sp. nov.

Arbor excelsum usque ad 30 m. altum. Folia pinnata, 6-8-jugis; foliola anguste oblonga vel oblongo-obovata, breviter acuminata; stipulae laceratae; inflorescentia paniculata; sepala suborbicularia; petala perparva, anguste obovato-flabellata, obtusa, cucullata; legumenta samaroidea.

Large forest trees to 30 m. tall and 80 cm. in diameter breast high, the lower part of the trunk buttressed. Branchlets velutinous; leaves pinnate, with 6-8 pairs of leaflets, 20-30 cm. long, the petiole and rachis densely ferruginous puberulent, the petiole 3-6 cm. long; leaflets narrowly oblong or oblong-obovate, short acuminate, the second pair from apex usually largest, the lowest pair often quite small, 10-15 pairs of secondary nerves which are quite prominent below, the lower surface pubescent with erect ferruginous hairs especially along the veins and nerves, petiole thickened and subglandular, about 2-4 mm. long, pubescent, upper surface sparsely pubescent except on veins, the blades inaequilateral, upper basal angle largest, 5-13 cm. long and 2.5-5 cm. broad; stipules prominent, lacerate, 1.5-2 cm. long, ferruginous pubescent; inflorescence paniculate, shorter or about as long as the leaves, ultimate branchlets densely flowered and subspicate; flowers yellow, sepals 5 (3 and 2), free or nearly so, suborbicular to transversely rhombic, ciliate but mostly glabrous on the backs, the outer pair smallest, 1.5-2 mm. long and as broad; petals 5 (4), very small, narrowly obovate-flabellate, obtuse, cucullate, glabrous, ± 0.7 mm. long and 0.4 mm. broad; stamens 10, the filaments joined into a cup below, sparsely pilose, the free portion about 3 mm. long; ovary stipitate, pubescent on the sutures; legume samaroid, narrow elliptic, obtuse, indehiscent, one- or rarely 2-seeded, the dark brown exocarp falling away at maturity.

PERU: "Copaiba," arbol hasta 30 m. y 80 cm. de diametro, con aletas en la base del tallo, foresta húmeda, Marona Alta (Hda. Delicias) prov. Leoncio Prado, depto. Huánuco, alt. 800 mm., 9 marzo 1962, *Abelardo Gutiérrez R. 44* (type Chicago Natural History Museum; US; Wisc; Servicio Forestal (Peru); Forest Products Laboratory, Madison); same data, fruiting specimens from type tree, Dec. 14, 1962, *Gutiérrez 96* (same herbaria).

This large forest tree is closely allied to *Sclerolobium tinctorium* Benth. from which it is distinguished in several details: smaller flowers (smallest of genus) that are pedicellate, ovaries pubescent on suture only. Pubescence of filaments very much less, sepals and petals smaller, leaflets relatively broader with the veins more prominent, more numerous and spreading at a greater angle from the

mid-nerve. The description is drawn from all the material that was available of which a type was kept and the rest distributed. One legume, in about 50 seen, was 2-seeded.

MELASTOMACEAE

Blakea florida L. Wms., sp. nov.

Arbuscula epiphytica multiflora usque ad 2 m. alta. Folia ovato-elliptica vel late elliptica, acuminata; inflorescentia uniflora; bractea exteriores ovato-lanceolata, acuminata, interiores elliptica-oblonga, obtusa; bacca globosa; calyx explanatum, 6-lobatum.

Small multiflorous, much branched epiphytic shrub 1-2 m. tall. Branches slender, glabrous or nearly so, light colored; leaves of a pair usually very unequal in size, the blade ovate-elliptic or broadly elliptic, attenuated into a long acuminate tip, 3-7 cm. long and 2-3.5 cm. broad, attenuated at the base into a petiole about 6-10 mm. long, triplinerved, usually with an additional pair of rather obscure marginal nerves, the secondary nerves very close together, below verruculose with whitish excrescences, above with scattered verruculose excrescences, the axils of each lateral vein with small crateriform formicaria below; inflorescences 1-flowered, born in the axils of upper leaves, pedicels 1.5-3 cm. long, shorter than the subtending leaves; bracts subtending each flower of two opposed but unequal pairs, the outer pair slightly connate at the base, ovate-lanceolate, acuminate, about 14-20 mm. long and 9-12 mm. broad, mostly with 5-7 prominent nerves, inner pair of bracts free to the base, elliptic-oblong, obtuse, 9-10 mm. long and 5-6 mm. broad; petals and stamens unknown; fruit globose, 6-8 mm. long; calyx in fruit about 2 mm. high, obscurely 6-lobulate with small external lobules.

COSTA RICA: epiphytic shrub 1-2 m. tall, on mossy trees in former rain forest area in mountains about 5 km. east of Tilarán, above Laguna de Arenal, province of Guanacaste, alt. 900-1000 m., February 13, 1963, *Williams & Williams 25099* (type in Chicago Natural History Museum, EAP, US, G); small tree to 6 m. in edge of rain forest area along Río Sarapiquí, between Cariblanco and San Miguel, province of Heredia, alt. 700 m., April 27, 1956, *Williams 20305* (F, EAP).

Closely allied to *Blakea gracilis* Hemsl., a species not uncommon in the mountains of Costa Rica and recently collected in Nicaragua. *Blakea multiflora* has triplinerved leaves with formicaria in the axils below, the blade broadly elliptic or ovate-elliptic and with minute but prominent verruculose excrescences on the secondary veins below but scattered above; while *B. gracilis* has trinerved leaves without formicaria, the blade broadly obovate-elliptic without verruculose excrescences; the inner pair of subtending bracts are oblanceolate-flabellate rather than elliptic-oblong.

Blakea litoralis L. Wms., sp. nov.

Arbuscula epiphytica usque ad 4 m. longa. Folia ovalia vel late obovata, acuminata, triplinervia; inflorescentia uniflora; bractea exteriores ovata vel elliptico-ovata, interiores flabellato-oblancoelata, apice rotundata; calyx rotatum, obscure lobulatum; petala late obovata.

Small glabrous epiphytic shrub with branches 3–4 m. long, the branchlets slender (moniliform on the type), the leaves crowded toward the apex; leaves of a pair subequal, the blade broadly oval to broadly obovate, broadest above the middle, attenuated into an acuminate tip, 4–11.5 cm. long, 1.5–4.5 cm. broad including a petiole 0.5–2 cm. long, triplinerved usually with an additional and obscure marginal pair of nerves, very obscurely verruculose on both surfaces; inflorescence 1-flowered from the axils of upper leaves and exceeded by the leaves, pedicels slender, 1.5–2.5 cm. long; bracts subtending each flower of two opposed, unequal pairs, the outer pair slightly connate at the base, ovate or elliptic-ovate, short acuminate, 2–3 cm. long and 1.5–2 cm. broad, the inner pair flabellate-oblancoelate, broadly rounded at the apex, 1.5–2.5 cm. long and 0.5–0.9 cm. broad toward the apex; hypanthium in flowering material 5–6 mm. long, furfureous pubescent becoming glabrous; the calyx rotate, obscurely lobulate, 2–3 mm. long; petals pink, broadly obovate, about 2–5 cm. long and 2 cm. broad; stamens inflexed in bud, anthers laterally compressed, oblong, about 4 mm. long, with a small umbonate callus just above the base dorsally.

COSTA RICA: vicinity of Esquinas Experiment Station, Golfo Dulce area, Canton de Osa, province of Puntarenas, at sea level, September 30, 1949, *Allen 5329* (type in Chicago Natural History Museum); epiphytic shrub, branches 10–12 feet long, flowers pink with yellow stamens, calyx red, very showy and locally common in forest, Esquinas forest, region between Río Esquinas and Palmar Sur de Osa, province of Puntarenas, alt. 75 meters, February 5, 1951, *Allen 5843* (F, EAP, US).

Closely related to *Blakea gracilis* Hemsl. and *B. florida* described above, both mountain species. It is distinguished by the triplinerved leaves, the relatively large and showy bracts (doubtless called calyx by Allen), large petals and in being a coastal species rather than one from the mountains. It must be the showiest species of the group, which are all most attractive in the field.—Mr. Allen writes (July 15, 1963) that “Both collections of your new *Blakea litoralis* came from a massive specimen growing in deep shade on the side of a *Carapa* tree, in more or less permanently flooded swamp forest below my house, at the Esquinas station. This was a very showy epiphytic shrub, with many branches 10–12 ft. in length. I have seen it elsewhere in the area, but this one was easy to get my hands on, in good condition. My notes indicate that it flowers in the rainy fall months, and is in full fruit by the following February.”

Clidemia monantha L. Wms., sp. nov.

Frutex usque ad 3 m. altus. Folia lanceolata vel elliptico-lanceolata, acuminata, integra vel leviter serrulata, utrinque strigosa; inflorescentia uniflora; hypanthium constrictum, strigosum; calyx 4-lobatum, dentes exteriores subulatis; petala 4, anguste oblonga; stamina 8.

Shrubs 2-3 m. tall. Branches terete, grayish or brownish, hirsute with spreading hairs 1-2 mm. long, densely so on younger parts; leaves lanceolate or elliptic-lanceolate, acuminate, entire or obscurely serrulate, strigose pubescent on both sides, evenly so above, more prominent near the nerves below, the blades 5-15 cm. long and 2-5 cm. broad, those of a pair unequal, 5-nerved, the petioles 0.5-2.5 cm. long, densely hirsute, that of smaller leaf of a pair shorter; inflorescence 1-flowered, the flower sessile in the axil of a leaf (apparently usually in axil of smaller leaf of pair); hypanthium constricted above, about 4 mm. long, sparsely to rather densely strigose; calyx lobes 4, rounded, very short (± 0.5 mm.), exterior teeth subulate, strigose, about 1.5-2 mm. long and much exceeding the calyx lobes; petals 4, narrowly oblong and unequally rounded at the apex, about 2.5-3 mm. long and 0.8-1.2 mm. broad, usually with a single dorsal appendage near the apex about 0.5 mm. long; stamens 8, attached at the throat of the hypanthium, the anther about 3 mm. long, the thecae ± 2 mm. long, the unadorned filament about 0.6 mm. long; style about 2.5 mm. long.

NICARAGUA: fruit purple-black, shrub 2-3 m. tall in moist and dense rain forest, 4 miles N.E. of Matagalpa, road to El Tuma, Dept. Matagalpa, alt. 1000 m., Jan. 14, 1963, *Williams, Molina & Williams 23858* (type F, EAP, US, G).

COSTA RICA: near San Ramón, alt. 1050-1150 m., 1925-1926, *Brenes 4803, 5007, 5034*.

This is a part of Gleason's rather diverse concept of *Clidemia costaricensis* (*Brittonia* 3: 125. 1939) according to specimens cited, and those annotated but not cited. These represent perhaps three species of *Clidemia*, and one of *Blakea*. It seems probable that Gleason may have written his description from only the type for it does not include the more diverse elements which he annotated as *C. costaricensis*.

This species is easily distinguished from *Clidemia costaricensis*, a pentamerous species with a several-many-flowered inflorescence. There seem to be no close allies in Central America among the tetramerous species and the inflorescence reduced to one flower is distinctive.

Topobea aeruginosa (Standl.) L. Wms., comb. nov. *Blakea aeruginosa* Standl. Field Mus., Bot. 17, no. 4: 381. 1938.

Standley wrote "The corolla, which I have not seen, is described as pink." This is a curious statement for the type specimen had an attached flower which contained all flower parts, including petals and

stamens which usually fall away very soon after the flower opens. The plant looks more like a *Topobea* than a *Blakea*, an impression which is confirmed by the anther structure,—they are long, acute and linear rather than short, oblong, obtuse and laterally compressed. The original specimen was collected in Honduras. We have the following collections from Nicaragua:

NICARAGUA: epiphytic shrub 3–4 m., Cordillera Central de Nicaragua between Matagalpa and Jinotega, department of Matagalpa, alt. 1500 meters, January 9, 1963, *Williams, Molina & Williams 23450, 23468*; shrub 6 meters, old cloud forest area between Desparate de Potter and Aranjuez, Cordillera Central de Nicaragua, department of Matagalpa, alt. 1300 meters, January 12, 1963, *Williams, Molina & Williams 23685*; tree 4 m., cloud forest area, mountains along road to La Fundadora, Cordillera Central de Nicaragua, department of Matagalpa, alt. 1300–1400 m., February 22, 1963, *Williams, Molina & Williams 24886*.

The species should have been included in my short review of those kinds occurring from Mexico to the San Juan depression in Nicaragua. It was not realized that the plant was a *Topobea* until more ample material was collected in the field. (cf. *Fieldiana, Bot.* 29, no. 10: 581–585. 1963.)

MONIMIACEAE

Mollinedia ruae Williams & Molina, sp. nov.

Arbusculum vel arbor 3–10 m. altum, glaber; folia elliptica, acuminata, integra vel plusminusve dentata, 6–11 cm. longa et 2.5–4 cm. lata; inflorescentia pauciflora, cymosa.

Shrubs or small trees, 3–10 m. tall, completely glabrous or the very young buds pubescent; leaves opposite, the leaves of a pair similar or nearly so, the blades elliptic, acuminate, nearly entire or somewhat dentate on the terminal half, the teeth small and glandular-thickened, the veins prominent below and raised below, 5–10 pairs which anastomose near the margins, about 6–11 cm. long and 2.5–4 cm. broad, the petioles short, somewhat glandular thickened, 0.4–0.6 cm. long; inflorescences axillary, much shorter than the subtending leaf, about 3 cm. long, probably cymose and few-flowered but only one flower maturing fruits; flowers unknown; fruits a group of sessile or subsessile drupes borne near the edge of the expanded and fleshy torus, about 5–8 drupes from each torus; drupes ovoid or narrowly ovoid, somewhat apiculate at the apex (at least when dry); seed 1, the mesocarp thin and parchment-like, purple maculate, the endocarp bony, striate-rugose on one side, nearly smooth on the other.

NICARAGUA: shrub 3 m. in cloud forest area, Sta. María de Ostuma, Cordillera Central de Nicaragua between Matagalpa and Jino-



FIG. 6. *Mollinedia ruae*. A, Branch; $\times \frac{1}{2}$. B, Fruiting inflorescence; $\times 1\frac{1}{2}$.

tega, department of Matagalpa, alt. 1300-1500 m., Jan. 8, 1963, Williams, Molina & Williams 23344; same data, alt. 1500 m., Jan. 9, 1963, Williams, Molina & Williams 23458; cloud forest area, mountains along road to La Fundadora, Cordillera Central de Nicaragua, department of Matagalpa, alt. 1300-1400 m., February 23, 1963, Williams, Molina & Williams 24964 (type Chicago Natural History Museum, EAP, G, US).

There are described from Mexico and Central America eleven species of *Mollinedia*, and there are perhaps one or two others that seem separable from those. The present species is most closely allied to *M. pinchotiana* Perk., a species known only from Costa Rica,—it is separated from the species presently known by being completely glabrous, even the torus, by the relatively small number of fruits borne on each torus, and by the small leaves. The genus is new to Nicaragua but was to be expected there. We are pleased to name the species for our companion of many years in the field.

MYRISTICACEAE

Virola kukachkana L. Wms., sp. nov.

Arbores. Folia elliptico-oblonga, acuta, subtus stellato-pubescentia, supra glabrescentia, nervi laterales 18–38; petioli canaliculati; inflorescentia paniculata vel cymoso-paniculata, multiflora; sepala 3, ovata vel oblongo-ovata, cucullata, obtusa vel acuta; fructi ovoidei vel oblongo-ovoidei.

Diocious trees, the bark secreting a substance which turns maroon on drying. Branches densely fulvous pubescent with stipitate stellate hairs, becoming glabrous with age (2nd year); leaves elliptic-oblong, acute, the base cuneate to obscurely cordate, lower surface persistently and densely fulvous stellate pubescent with stipitate hairs, upper surface becoming glabrous except along the impressed mid-nerve, the blades 7–15 cm. long and 2–4 cm. broad; lateral nerves 18–38 on a side (about 3 per cm.), prominulous below, impressed above, petiole canaliculate, pubescent, 5–10 mm. long; pistillate inflorescences axillary, paniculate or cymose-paniculate, many-flowered, stellate-furfuraceous; pistillate flowers in terminal clusters of 3–10 flowers, sepals 3, ovate or oblong-ovate, cucullate, obtuse or acute, glabrous inside, pubescent outside, about 2 mm. long and 1.5 mm. broad; ovary subglobose, sparsely pubescent, about 0.75 mm. long; mature fruit ovoid, or oblong-ovoid, 2-valved, 30–35 mm. long and 20–25 mm. in diameter, glabrous or essentially so; pericarp 2–4 mm. thick; mature seeds ovoid, about 20–22 mm. long and 12–15 mm. in diameter; aril laciniate, dissected nearly to base of seed, fleshy, apparently red; staminate flowers unknown.

PERU: “Cumala blanca,” bosque húmedo tropical, Fundo “La Libertad,” Río Mazán, Depto. Loreto, provincia Maynas, distrito Mazán, alt. 130 m., 8 ago. 1963, *Antonio Arostegui V. 115* (type F, G, US, to be distributed to others); same data, fruits only, 8 marzo 1962, *Arostegui 37* (F, G, US, others).

The two collections cited are from the same tree, which bears tree number 28-I. The collector says that the wood is useful for firewood and to make charcoal. Like many other species of the genus it secretes sap which turns red on exposure to the air. An additional common name “caupuri” is given on the fruiting material.

The nearest relative is *V. officinalis* Warb. known from eastern Brazil. It belongs in the species group "rugulosae" of Smith's excellent revision (Brittonia 2: 456. 1937) of *The American Species of Myristicaceae*.

Dr. B. Francis Kukachka, for whom this species is named, is in charge of wood identification research at Forest Products Laboratories, U. S. Forest Service at Madison, Wisconsin. The project from which these, and other excellent voucher specimens come is his.

ORCHIDACEAE

Epidendrum longicaule L. Wms. comb. nov. *Ionopsis longicaulis* L. Wms. in Brittonia 14: 443, t. 1962.

This is one of the most curious species of *Epidendrum* and one which I placed, in error, far from where it belongs. This species resembles in many ways plants of *Epidendrum* sec. *Barkeria*, but Mr. Thien, who is revising the group, as a genus, advises that he thinks it does not belong there.

Kegeliella atropilosa Williams & Heller, sp. nov.

Herbae epiphyticae repentes ueque ad 10–12 cm. altae. Pseudobulbi ovati vel suborbiculari, trifoliati; folia obovata, breviter acuminata; inflorescentia racemosa, pauciflora; sepal linearilanceolata, breviter acuminata, dorso atrohispida; labelum trilobatum, subcordatum.

Small repent epiphytic herbs to 10–12 cm. tall. Stem repent, densely crowded with pseudobulbs; the pseudobulbs ovoid to suborbicular, sometimes somewhat laterally compressed, smooth, trifoliolate at the apex, subtended by two lanceolate, acuminate maculate bracts, 1.5–2.5 cm. long and mostly about 1.5 cm. thick; leaves ovate, shortly acuminate, with 5 prominent carinate nerves and 2–(4) less prominent ones, 7–9 cm. long and 3.5–5 cm. broad, contracted at the base into a short (± 1 cm.) conduplicate petiole; inflorescence a simple 1–few-flowered raceme, lateral, pendent; the rachis slender and covered with clumped purplish-black pilose pubescence, the bracts sparsely pilose, narrowly lanceolate, acute, the lower non-floriferous one sheathing, flowers greenish-white, the sepals and petals with transverse red bars, the lip yellow with red spots on either side of the callus, column dark green; dorsal sepal ± 17 mm. long and 3 mm. broad, linear-lanceolate, short acuminate, blackish hispid dorsally; lateral sepals similar to the dorsal, free to the bases; petals ± 12 mm. long, and 1–1.5 mm. broad, linear or linear-oblanceolate, acute; lip about 8 mm. long and as broad across the lateral lobes, subcordate in outline, the base short unguiculate, 3-lobed, the laterals suberect, rounded, about 4 mm. long, the apical lobe subcordate, nearly as broad as long, the sinus closed when the lip is spread, the disc with a narrow sulcate, puberulent callus from near the base of the claw to beyond the middle of the lip, about 6 mm. long and erect and 2.5 mm. high near its apex; column about 12 mm. long with a broad thin wing (about 4–5 mm. across) gradually contracted toward the narrow base of the col-

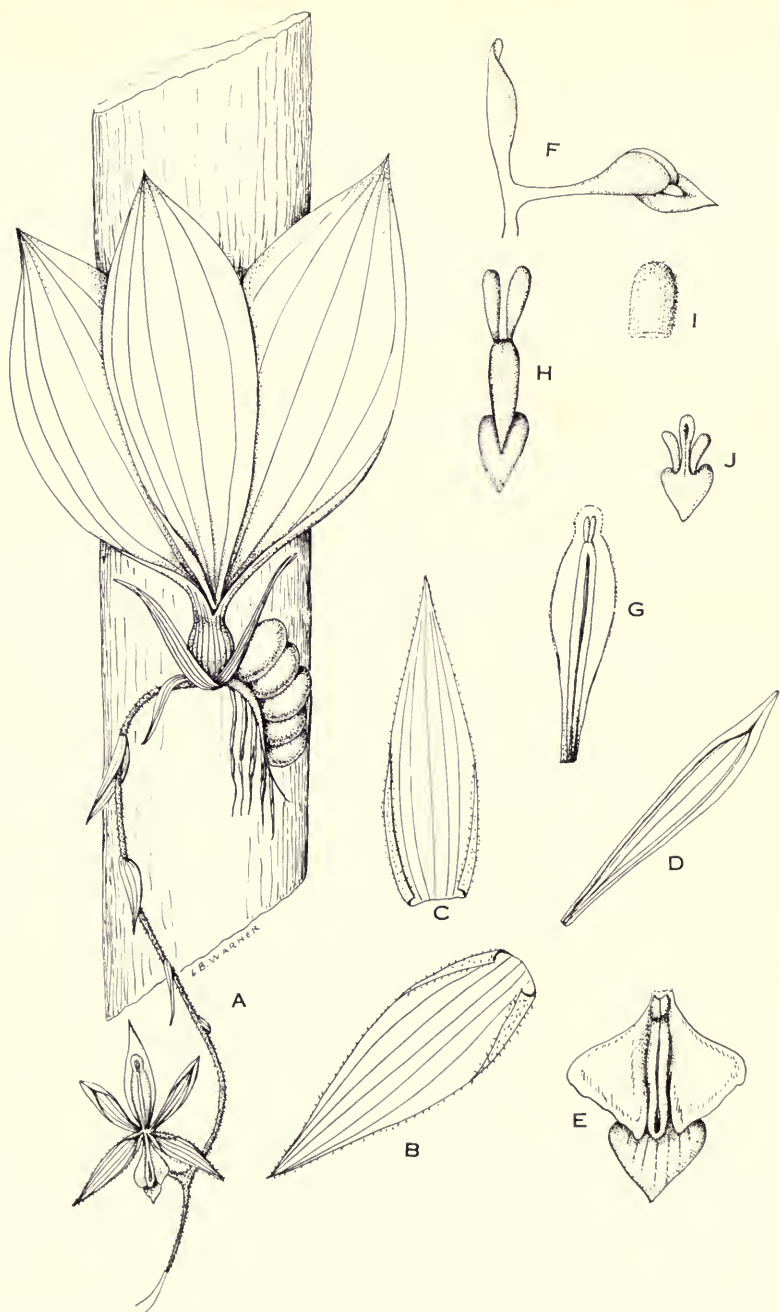


FIG. 7. *Kegeliella atropilosa*. A, Habit; about $\times \frac{3}{4}$. B, Lateral sepal; $\times 2\frac{1}{2}$. C, Dorsal sepal; $\times 2\frac{1}{2}$. D, Petal; $\times 2\frac{1}{2}$. E, Lip spread out; $\times 2\frac{1}{2}$. F, Lip and column from the side; $\times 2\frac{1}{2}$. G, Column from below; $\times 2\frac{1}{2}$. H, Pollinia, stipe and disc; $\times 5$. I, Anther cap; $\times 5$. J, Lip seen from front; $\times 2\frac{1}{2}$.

umn; anther helmet-like, about 3 mm. long; pollinia 2, 2–2.5 mm. long and each 0.6 mm. broad, caudicle about 2 mm. long, the viscid disc ± 1.5 mm. long; the ovary shorter than the subtending bract, densely purple-black pilose.

NICARAGUA: epiphyte in forest on Pistacho Peak near Babilonia mine, province of Chontales, alt. 570 m., September 1962, *Heller 6511* (type in Chicago Natural History Museum).

The genus *Kegeliella* is one of the rarest in Panama and Central America. The two previously known species have been found but few times. *Kegeliella atropilosa* is most closely allied to *K. houtteana* (Reichb. f.) L. Wms.

Lacaena nicaraguensis L. Wms. sp., nov.

Planta epiphytica usque ad 35 cm. alta; pseudobulbi trifoliati, ovoidei, sulcati; inflorescentia pendula, racemosa, 18–23-flora; folia elliptica, acuta vel acuminata; sepala late elliptica vel oblongo-elliptica, acuta, cucullata, carnosa; petala oblongo-ovata, obtusa; labellum trilobatum, lobi laterales obovati, erecti; lobus terminalis unguiculatus, quadrato-ovatus.

Large epiphytic plants to 35 cm. tall with a long pendant inflorescence to 50 cm. long. Pseudobulbs laterally compressed, ovoid, sulcate and ribbed, trifoliate at the apex, to about 7 cm. long and 4.5 cm. broad near the base; leaves 3 from apex of pseudobulb, elliptic, the inner one narrowest, acute or acuminate, many nerved but with 3 principal nerves, 25–30 cm. long and 4–5.5 cm. broad; inflorescence lateral, pendant, racemose, with 18–23 flowers, lower bracts enfolding the rachis, fertile bracts elliptic-lanceolate, acute or acuminate, cucullate, 1.5–2.5 cm. long; flowers white, the sepals pale lavender near the apices, the petals pale lavender along the nerves and with red, scurfy dots near the base, callus with minute red dots; sepals broadly elliptic or oblong-elliptic, acute, many-nerved, somewhat cucullate and fleshy, 2.3–3 cm. long and about 1–1.5 cm. broad; petals oblong-ovate, obtuse, connate at the base with the column, about 2 cm. long and 1 cm. broad; lip 3-lobed, fleshy, somewhat truncate at the narrow base and obscurely auriculate on either side, articulate, about 2–2.5 cm. long and to about 1 cm. broad, the disc with a prominent puberulent callus extending from near the base to the isthmus, free at the apex and somewhat retuse, bulbous at apex, lateral lobes of lip somewhat obovate, rounded, erect and surrounding the callus, mid-lobe unguiculate, the blade broadly quadrate-ovate, about 10 mm. long and nearly as broad, the claw narrow, somewhat canaliculate below, puberulent, 3–4.5 mm. long, column somewhat arcuate, prominently winged toward the apex, about 2 cm. long; anther bidentate in front; pollinia 2, about 2.5 mm. long and on an oblong caudicle about 4 mm. long.

NICARAGUA: from near the base of Peña Blanca, Cordillera Central de Nicaragua, alt. 3500 feet, May 1962, *Heller 7312* (type in Chicago Natural History Museum).

Closely related to *Lacaena bicolor* Lindl., illustrated in Bot. Reg. 30: t. 50. 1844, from which it is easily distinguished by detail of the flowers—the puberulent callus of the disc, the long slender claw of the mid-lobe, the rounded mid-lobe.

Pleurothallis helleriana L. Wms., nom. nov. *Cryptophoranthus pectinatus* Schltr. Fedde Rep. Beih. **19**: 277. 1923, non *Pleurothallis pectinata* Lindl. Bot. Reg. **25**: misc. 1. 1839.

NICARAGUA: repent on tree in cloud forest area, Sta. Fé finca about 8 km. east of Matagalpa, Dept. Matagalpa, alt. ± 1000 m., June 1962, flowered in Heller's collection February 18, 1963, *Williams & Heller 25086*.

This species which was originally described as a *Cryptophoranthus* is a *Pleurothallis* closely related to *P. testaefolia* (Sw.) Lindl., with which it has been confused, and to *P. lappiformis* described below. This species was originally described from material collected near San Ramón in Costa Rica, a locality now almost devoid of original vegetation.

Pleurothallis lappiformis Heller & Williams, sp. nov.

Caules secundariis breves, 2-3 mm. longes; folia anguste elliptica, subcoriacea, longe petiolata; inflorescentia uniflora; flores sessiles, lappiformes, pubescentes; sepalum dorsale anguste triangulare, acutum; sepala lateralia adnata, oblonga vel oblongo-ovata, obtusa; petala anguste lanceolata, acuta; labellum oblongo-ovatum, trilobatum.

Repent epiphytic herbs from a creeping rhizome. Rhizomes flexuose, covered with sheaths which soon disintegrate, the internodes short, 2-3 mm. long; secondary stems short and inconspicuous, up to 8 mm. long at maturity; leaves narrowly elliptic, erect or spreading, subcoriaceous, long petiolate, the petiole to about 2.5 cm. long and canaliculate above, the blade 7-11 cm. long and 1.5-3.2 cm. broad, the apex obscurely retuse with an apicule in the sinus; inflorescence 1-flowered, the flower borne at the apex of the secondary stem or from a node on the rhizome; flowers burr-like, vinaceous red, the perianth densely pubescent with coarse, appressed, sometimes flattened hairs which are bi-trifurcate toward the tip; dorsal sepal narrowly triangular, obscurely papillose within, acute, pubescent dorsally, about 11 mm. long and 3 mm. broad at the base, adnate to the laterals at the base only; lateral sepals adnate, oblong or oblong-ovate, obtuse, obscurely papillose within and pubescent outside, navicular, about 14 mm. long and 7 mm. broad; petals narrowly lanceolate, acute, inside with transverse verrucose ribs, glabrous, about 7 mm. long and 1.5 mm. broad at the base; lip oblong-ovate, 3-lobed, fleshy, the disc with transverse verrucose calluses, about 5 mm. long and 2 mm. broad, or 4 mm. broad when lateral lobes are spread, lateral lobes small, obtuse, extending to below middle of lip, the mid-lobe obtuse; column narrowly winged, arcuate, about 5 mm. long, the column-foot flat, about 4 mm. long; anther ovate, pollinia 2.

NICARAGUA: epiphyte, Pistacho Peak near Babilonia Mine, Dept. Chontales, alt. 650 m., July 1962, *Heller 6620* (type in Chicago Natural History Museum, includes sketches made from living material).

The species appears, on first sight to belong to *Cryptophoranthus* but the dorsal sepal is free from the laterals, except in the young

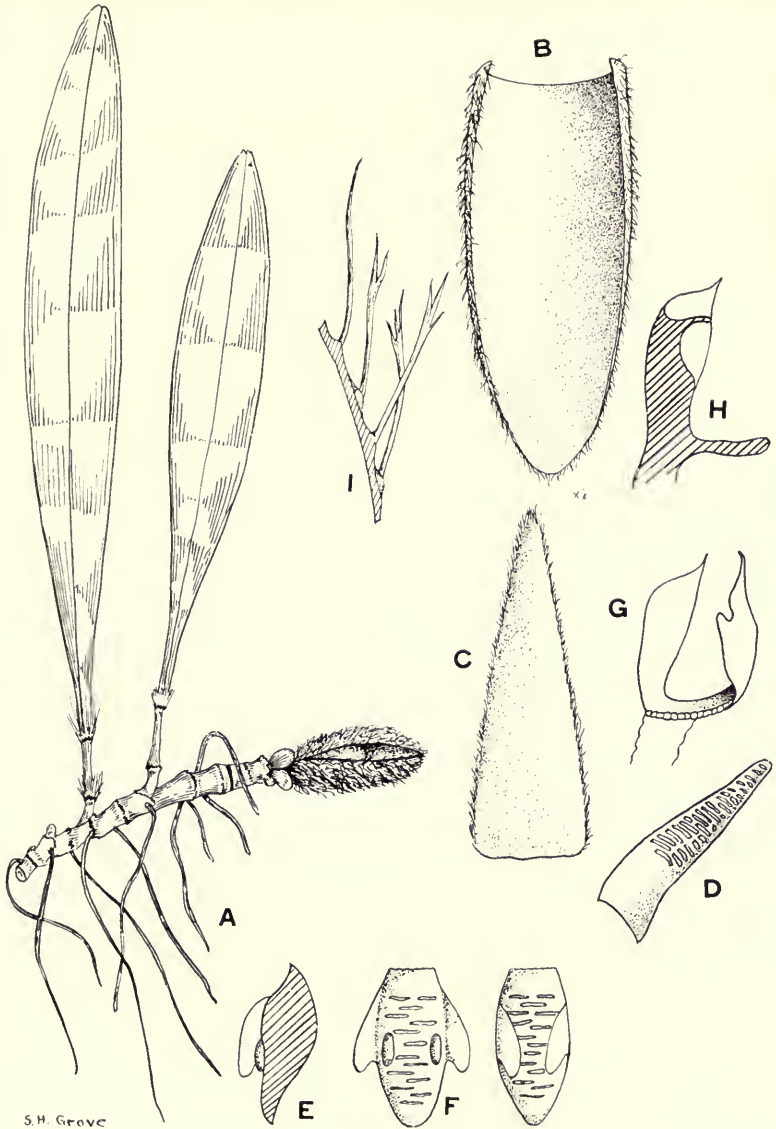


FIG. 8. *Pleurothallis lappiformis*. A, Habit; $\times 1$. B, Lateral sepals; $\times 4$. C, Dorsal sepal; $\times 4$. D, Petal; $\times 4$. E, Lip, longitudinal section; $\times 4$. F, Lip spread out (left) and in natural position; $\times 4$. G, Outline of column and lip in natural position; $\times 4$. H, Diagram in longitudinal section of column and foot; $\times 4$. I, Trichome from a sepal; $\times 15$. Illustration from the type and from Heller's diagnoses of fresh flowers.

flowers connate briefly at the apex with the laterals. It is perhaps most closely allied to *Pleurothallis helleriana* L. Wms.

The description was drawn from living material, material in liquid and from dried specimens.

***Spiranthes bicaudata* Ames, Orch. 7: 126. 1922.**

NICARAGUA: *Williams, Molina & Williams 24817, 25017, 25021.*

The three collections, all from the Cordillera Central de Nicaragua, seem to reinforce the separation of this species from the closely allied *S. costaricensis* Reichb. f.

RUBIACEAE

***Bathysa multiflora* L. Wms., sp. nov.**

Arbores. Folia elliptica vel elliptico-ovalia, acuta, 10–19 nervia; inflorescentia dichasia multiflora; calyx 5-lobatus; corolla infundibularis tubo brevi, fauce villosa, 5-lobata, lobi oblongi vel oblongo-ovati; capsula parva, orbicularia, bilocularis.

Trees to 25 m. tall. Branches at first somewhat flattened, soon becoming terete. Leaves opposite, broadly elliptic or elliptic-oval, acute, with 10–19 lateral nerves on each side, minutely and obscurely puberulent below or glabrate, glabrous above, the blade (mature) 9–27 cm. long and 5–14 cm. broad, petiole relatively short and thick, 8–25 mm. long; inflorescence a terminal aggregate dichasium with the flowers in the ultimate divisions closely and densely arranged in head-like groups, extremely floriferous, puberulent; flowers apparently white, very small; ovary at anthesis inferior or nearly so, puberulent, 1 mm. or less long; calyx 5-lobed, sparsely puberulent outside, about 1 mm. long at anthesis, the lobes ovate or oblong-ovate, obtuse, about 0.5 mm. long; corolla funnelform, about 3 mm. long, the tube about 1.5 mm. long, densely villous within at the throat, the lobes 5, oblong or oblong-ovate, obtuse, about 1.5 mm. long; anthers 5, exserted, alternate with the lobes, the filaments 3–4 mm. long, villous at the base and with small appendage on the inner side about 1 mm. from the base; the style about 3 mm. long, thickened upward and bifid at the apex, the stigmas on the inner faces of the branches; fruits loculicidal capsules, orbicular, bilocular, about 2 mm. in diameter, with the persistent calyx lobes above the middle.

PERU: "Silata." Granja, Reserva Forestal, Satipo, Depto. Junín, Pcia. Jauja, alt. 800 m., 25 febrero 1963, *César Bazán Vásquez 07* (type F, US, G, others); same data, 18 mayo 1963, *Bazán 18.*

This genus is an uncommon one with most of the species from eastern Brazil. There are two other species in Peru, *B. obovata* (Ruíz) Schum. and *B. peruviana* Krause, neither of which is closely allied to the present one. *Bathysa australis* (St. Hil.) Hook. f., a much more pubescent species from eastern Brazil, seems to be the closest ally, but there are many small differences in flowers and leaves.

The striking inflorescence of this genus is called a panicle by Bentham and Hooker in *Genera Plantarum* and a cymose-panicle by Standley in *Flora of Peru*, neither of which it is.

Cosmibuena matudae (Standl.) L. Wms., comb. nov. *Hillia matudae* Standl., Field Mus. Bot. **22**, no. 1: 51. 1940.

MEXICO: *Matuda 2327, 15472*.

GUATEMALA: *Standley 85538; Steyermark 30823, 49471*.

HONDURAS: *Williams 17010*.

It is curious that Standley placed this species in *Hillia* for it is quite closely allied to *Cosmibuena ovalis* Standl., *C. paludicola* Standl., and to *C. grandiflora* (R. & P.) Rusby [South America] all of which Standley must have known well. The calyces of all the species mentioned are soon deciduous, as in *Hillia*, but the other characters including seed structure all point to *Cosmibuena*.

Loretoa peruviana Standl. Field Mus. Bot. **11**, no. 5: 222. 1936.

PERU: "Capirona de altura," bosque húmedo tropical, Varadero-Mazán, depto. Loreto, pcia. Maynas, distrito Mazán, alt. 130 m., 2 febrero 1963, *Antonio Arostegui V. 90*; same data, fruiting specimens from same tree, 22 junio 1963, *Arostegui 107*.

When Standley described this genus he assumed that the fruit was capsular even though the collector said the fruit was edible. The present collections indicate that the genus belongs in the tribe Cinchoneae as Standley had surmised. The seeds are winged all around, essentially narrowly oblong and about 6 by 1.5 mm. These may be the first collections since the original some 30 years ago.

RUTACEAE

Zanthoxylum anison L. Wms., sp. nov.

Arbores parvae usque ad 5 m. altae. Folia imparipinnata; foliola 5-7, elliptico-ovata, obtusa, petioluli elongati; inflorescentia cymosa vel paniculata; sepalia 4, perparva; petala 4, cucullata, carnosae, obtusae.

Small trees 3-5 m. tall; bark dark brown; wood soft and very light yellow. Leaves large, imparipinnate, unarmed, coriaceous, to 30 cm. long or perhaps longer; leaflets 5-7, elliptic-ovate, obtuse, obscurely gland-dotted, glabrous, entire, lateral leaflets unequal at the obtuse or somewhat acute base, the apex rounded and obtuse, when mature the blades 14-18 cm. long and 6-7 cm. broad, the petiolules of the lateral leaflets 1-2.5 cm. long, that of the terminal 4-4.5 cm. long, rachis terete, about 2-3 mm. in diameter; inflorescence cymose or paniculate, shorter than the subtending leaf, many-flowered, glandular punctate; sepals 4,

small and inconspicuous, subtriangular, about 1 mm. long; petals 4, imbricated, fleshy and cucullate, obtuse, glandular punctate, about 3 mm. long and 2 mm. broad; fruit 4-carpellate, the follicles at maturity spreading, each about 6 mm. long and about as broad.

GUATEMALA: "Anisón." Tree 3-5 meters, bark dark brown with whitish patches which may be fungus, wood soft and very light yellow; flowers white with tinge of yellow; not very abundant in underbrush and along river banks, near Chicamán, west of Cobán, department of Alta Verapaz, May 1952, *Merriam A. Jones, J. M. Tarano & Antonio Fuentes* [type (two sheets) in Chicago Natural History Museum].

The rather attractive common name of this plant is used as the specific name. It is doubtless the ampliative of the Spanish *anis*. The species is closely related to *Z. kellermannii* P. Wilson from which it is to be distinguished by the relatively large leaves which have larger, obtuse, longer petiolulate leaflets, apparently also by details of the flowers.

This plant was received for study more than ten years ago, when it was put aside hoping that additional material would come in.

UMBELLIFERAE

Arracacia annulata L. Wms., sp. nov.

Herbae magnae, suffruticosae, usque ad 1.5 m. vel ultra. Folia deltoideo-ovata, ternato-pinnata vel ternato-bipinnata; foliola ovata vel cordato-ovata, acuminata, serrato-dentata; rhachidum et petiolulorum junctionem cum callo annulato ornata; inflorescentia cymosa, umbellata; petala oblonga; sepala late ovata; fructus lanceolatus, ca. 7 mm. longus.

Large, coarse, essentially glabrous suffrutescent perennial herbs to 1.5 m. or more tall. Leaves deltoid-ovate in general outline, ternate-pinnate, or ternate-bipinnate, 10-35 cm. long (excluding petiole) and as broad or broader, petiole to 15 cm. long and sheathing at the base, all junctures of petiolules with rachis and petioles with rugose annulate callus thickenings, usually also at the junction of the petiolule with the leaflet; the uppermost leaves much reduced, occasionally to a sheathing bract; leaflets ovate to cordate-ovate, acuminate, round, truncate or shallowly cordate at the base, serrate-dentate except at the base, 3.5-9 cm. long and 2-4.5 cm. broad (those on upper reduced leaves much smaller), the petiolule on lateral leaflets 0-1 cm. long, that (rachis?) on terminal leaflets to 3.5 cm. long; inflorescence cymosely branched, the umbels few-many; peduncles of fertile mature umbels 3-5 cm. long; involucre of few short, soon deciduous bracts or none, involucre of several linear or filiform bractlets 2-5 mm. long and deciduous with age; fertile rays 2-20, spreading, the pedicels 2-10 mm. long; flowers purple; petals oblong, ± 0.5 mm. long; sepals broadly ovate, ± 1 mm. long; stylopodium narrowly conic, the styles slightly reflexed, the stigmas capitate, the whole 1.5-2.5 mm. long; the fruit narrowly lanceolate, about 7 mm. long and 1.5-2 mm. broad, the ribs prominent, subulate on young fruit.

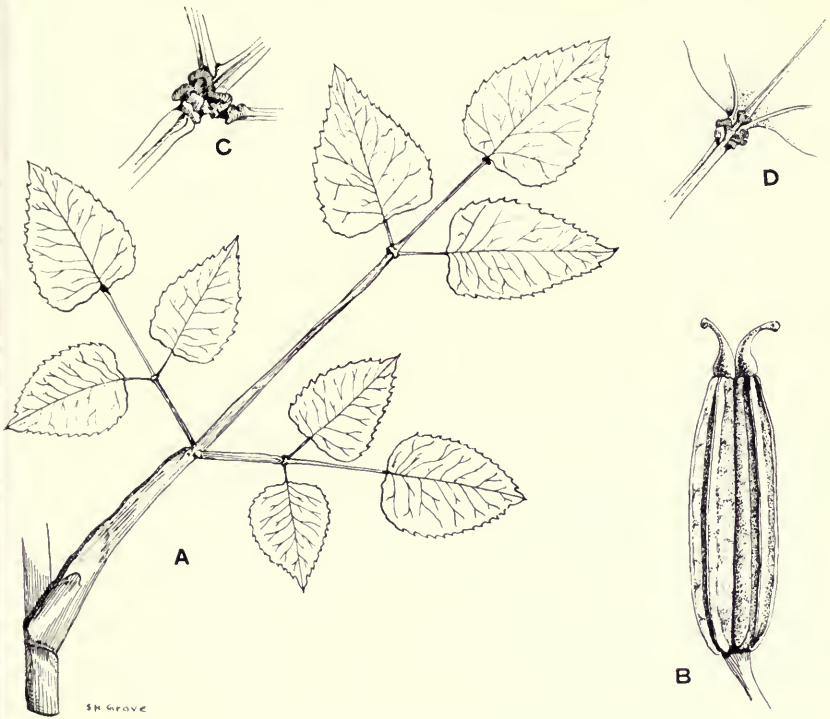


FIG. 9. *Arracacia annulata*. A, Leaf from upper part of stem; $\times \frac{1}{2}$. B, Mature fruit; $\times 5$. C, Annulate callus thickening on petiole; $\times 5$. D, Annulate callus thickening at base of a terminal leaflet; $\times 5$. (Vegetative characters from *Steyermark 48965*; fruit from *Purpus 11187*.)

MEXICO: herb 2–3 feet, stem purple, flowers yellowish green, fragrance like anise, San Felipe, village near Ciudad las Casas (San Cristobal), Mt. Ecatepec 3 miles west of town, Chiapas, alt. 2400 m., March 31, 1949, *Carlson 1629*; pic Orizaba (Vera Cruz or Puebla) alt. 10,000 ft., 1841–43, *Liebmann 12159*; Nogales, Vera Cruz, May 2, 1937, *Matuda 1121*; open forest, Huatusco, Vera Cruz, Sept. 1928, *Purpus 11167*.

GUATEMALA: corolla purple, between San Mateo Ixtatán and Cruz de Limón, Sierra de los Cuchumatanes, Dept. Huehuetenango, alt. 2800–3100 m., July 10, 1942, *Steyermark 48501*; herb 5 feet, stems dull purple, flowers purplish, rachis and petioles purplish, cloud forest between Xoxlac and Nucapuxlac, Sierra de los Cuchumatanes, alt. 1650–2500 m., July 17, 1942, *Steyermark 48965* (type, Chicago Natural History Museum).

Closely related to *A. bracteata* Coult. & Rose, *A. rigida* Coult. & Rose and to *A. donnell-smithii* Coult. & Rose. From all these it is quickly distinguished by the annulate callus thickenings of the rachis and petiolules, by the large leaflets with obtuse, truncate or even somewhat cordate bases. The fruits are also narrower than in the other species. The Matuda specimen (No. 1121) was annotated in 1941 by Mathias and Constance as *A. nelsoni* C. & R. but apparently not used in preparing the description of that species in North American Flora.

Enantiophylla heydeana Coult. & Rose, Bot. Gaz. 18: 56, t. 5. 1893.

A monotypic genus not uncommon in Guatemala, and known also from Mexico and El Salvador.

There are two specimens in the herbarium of Chicago Natural History Museum that may be typical material and one of these is marked "type," probably by Millspaugh. This specimen was distributed on a label from United States National Herbarium as "3352, *Enantiophylla Heydeana* C. & Rose, n. sp., Santa Rosa, Guatemala, J. D. Smith, May 1892." The discussion in the original publication states that the Heyde collection was made along the banks of the Río Esclavo and was in flower. Our specimen consists of a specimen in advanced fruit and fragments in young flower.

The second specimen was part of the herbarium of the University of Chicago and is merely indicated as "Heyde & Lux? Guatemala?" The material is exactly like that of the flowering portion of the specimen previously discussed, in stage of development and in preparation of the specimen.

Publications 982 and 983

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