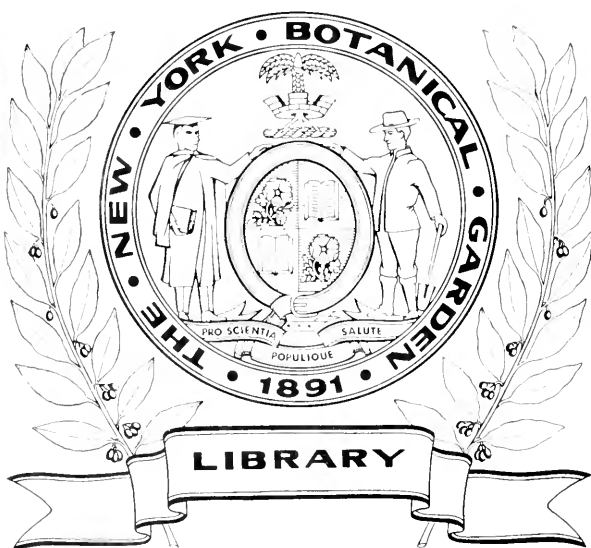


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CONTRIBUTIONS FROM THE NEW YORK BOTANICAL
GARDEN—No. 108

STUDIES OF WEST INDIAN
PLANTS—I

By NATHANIEL LORD BRITTON

NEW YORK

1908

[Reprinted, without change of paging, from the BULLETIN OF THE TORREY BOTANICAL
CLUB 35 : 337-345. 1908.]

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Studies of West Indian plants — I

NATHANIEL LORD BRITTON

I. THE JAMAICAN SPECIES OF *HERNANDIA*

On March 20, 1908, while exploring a wooded hill near Dolphin Head Mountain, parish of Hanover, in the western part of Jamaica, in company with Mr. William Harris, we observed large trees which were unknown to us from the character of their trunks, and too high to enable us to determine the character of their foliage without a pair of field glasses, which we did not have along that day. While sitting at lunch in a relatively open place in the forest, we observed the top of one of these trees, some 30 meters high and at least a meter in diameter, against the sky line, and saw that it was covered with round fruits, some of which we found on the ground under this tree, and realized that we had found a very interesting species. Our negro guide felled a somewhat smaller tree with his machete, and thus enabled us to obtain excellent fruiting herbarium and museum specimens of the Jamaican species of *Hernandia*.

Up to this time the tree does not appear to have been definitely known to botanists in the island of Jamaica. Patrick Browne (Civil and Natural History of Jamaica, 373, 1756), admits the genus and remarks: "This tree is pretty common in Barbadoes and Mountserat, and grows to a considerable size in those islands; but I have not seen any in Jamaica, though I have been credibly informed that it was frequent in the parish of Portland. The cups that sustain and partly envelop the nuts are very large, and, as they move in the wind, keep a whistling noise, which is often frightful to unwary travellers. The seeds are very oily." Browne cites Jack-in-a-Box as a common name.

In Flora of the British West Indian Islands, page 285, published in 1860, Grisebach does not attribute the tree to Jamaica at all, thus indicating that no specimens of it were extant at that time, but Meissner, in DeCandolle's Prodrômus (15¹: 263. 1864),

does credit it to Jamaica, and cites P. Browne, although, as he omits an exclamation mark, it is evident that he did not see a specimen, nor does his herbarium, now at the New York Botanical Garden, contain any *Hernandia* from Jamaica; Meissner refers the record of P. Browne to the species *Hernandia sonora* L., native of the Windward Islands and Porto Rico, and perhaps also of the East Indies.

Hernandia sonora is readily distinguishable from the other species by its peltate, long-pointed leaves, and the only other West Indian species known is the Cuban *Hernandia cubensis* Griseb., which has narrow long-acuminate leaves. Under *H. sonora*, Meissner (DC. Prodr. 264) notes a variety *guadeloupensis* from Guadeloupe Island, which has leaves rounded at the apex and base, or slightly cordate. It is possible but not probable that this is the same as the Jamaican tree, but the description is insufficient to make this certain. In any event, the Jamaican tree is evidently specifically distinct from either *H. sonora*, or *H. cubensis*. There is a species of *Hernandia*, *H. guianensis*, in French Guiana, but not much is known of it other than the plate of Aublet, Pl. Guian. *pl.* 329, which shows that this must be quite different from the plant here to be described.

***Hernandia jamaicensis* Britton & Harris**

A tree 30 m. high or less, with spreading and ascending stout branches, the trunk becoming at least a meter in diameter, the young twigs more or less flattened and angled. Leaves subcoriaceous, sometimes 2.5 dm. long; petioles stout, somewhat shorter than the blade, but sometimes 1 dm. in length, the blades elliptic to elliptic-obovate, obtuse at the apex, obtuse or subcuneate at the base, 3-nerved or faintly 5-nerved, not at all peltate; inflorescence as long as the leaves or longer, racemose or racemose-paniculate; calyx of the pistillate flowers turbinate, about 5 mm. long, its margin truncate; fruiting calyx subglobose, yellow, fleshy, 3-4 cm. long and about as thick as long, its wall about 1 mm. thick, its orifice 1.5-2 cm. wide with a slightly raised margin; drupe ovoid, nearly 2 cm. long, 1.5 cm. in diameter, rounded at the base, bluntly pointed, bluntly 8-ribbed and rugose between the ribs.

On wooded hill, at about 400 meters altitude, near Dolphin Head, Jamaica (*Britton 2321*, type; *Harris 10312*); Woodstock, Westmoreland, Jamaica (*Harris 9835*).

2. THE GENUS CASSIPOUREA IN JAMAICA

Cassipourea was proposed by Aublet (Hist. Pl. Guian. 1: 528) in 1775 for a tree of French Guiana, his *Cassipourea guianensis* being the type of the genus. Swartz (Prodr. 84) published the generic name *Legnotis*, including in it two species, *L. elliptica* from Jamaica and *L. Cassipourea*, based on Aublet's *Cassipourea guianensis*; he assigns no reason why his name thus published in 1788 should replace Aublet's *Cassipourea* of 1775. Poiret (Lam. Encycl. Suppl. 2: 131) properly adopted the older generic name and transferred the *Legnotis elliptica* of Swartz to it. A number of additional species from tropical America and Africa have since been added by several authors, including *Cassipourea alba* Griseb. from the island of Dominica. That *Cassipourea* Aublet and *Legnotis* Swartz are the same genus seems evident from an examination of specimens.

Cassipourea elliptica (Sw.) Poir. is a shrub or small tree, sometimes reaching 6 meters in height, and grows in Jamaica on rocky wooded hillsides. Its elliptic long-pointed leaves are as brilliantly shining as those of any plant known to me, and individuals seen in contrast to the duller luster of other trees and shrubs stand out as most striking elements in the landscape. Mr. Harris, Dr. Hollick, and I, while botanizing near Kempshot, at an altitude of about 500 meters in the parish of St. James, western Jamaica, on March 23, 1908, had our first opportunity of studying this wonderfully beautiful plant in the field, and were fortunate enough to see its bright white flowers with strikingly lacinate petals, and it was an experience long to be remembered. The lustrous leaves and pediceled flowers distinguish *Cassipourea elliptica* from the two species to be described below. A remarkable feature of an individual tree found by us near Kempshot on March 24, 1908, is the development of the lower branches, which droop and bear leaves not more than one half the size of those on the flowering branches above, the twigs of these drooping branches being very slender and repeatedly forked. We preserved herbarium specimens of this curious bud-sport; if cuttings from such a branch could be propagated, they would doubtless yield a weeping *Cassipourea*.

The distinguishing characters of the three Jamaica species are indicated by the following key:

- Pedicels as long as the calyx or longer; leaves brilliantly shining. 1. *C. elliptica*.
 Pedicels much shorter than the calyx, or scarcely at all developed;
 leaves dull or faintly shining.
 Leaves elliptic-lanceolate, narrowed at the base, the petioles
 about as long as the calyx. 2. *C. subsessilis*.
 Leaves ovate, subcordate at the base, petioles only half as long
 as the calyx. 3. *C. subcordata*.

1. *CASSIPOUREA ELLIPTICA* (Sw.) Poiret

On rocky wooded hills, Kempshot and vicinity (*Britton* 2397 and 2423; *Harris* 10330, 10340); collected also in Jamaica by Swartz and by Purdie.

2. *Cassipourea subsessilis* sp. nov.

A tree about 6 m. high with slender spreading branches. Leaves elliptic-lanceolate, 6–9 cm. long, 3.5 cm. wide or less, acuminate at the apex, narrowed at the base, entire-margined, dull green on both sides, or faintly shining above, the midvein prominent beneath, the petioles 4–7 mm. long; flowers solitary in the axils, nearly or quite sessile; calyx campanulate, its tube 3 mm. long, its lobes ovate to ovate-lanceolate, about as long as the tube; ovary appressed-pubescent; capsule subfusiform, appressed-pubescent, about 1.3 mm. long, 2.5 mm. in diameter, surmounted by the persistent appressed-pubescent style.

On wooded hill near Dolphin Head, parish of Hanover, Jamaica, at about 400 meters altitude (*Britton* 2316; *Harris* 10307).

3. *Cassipourea subcordata* sp. nov.

A tree 4 m. high, the twigs rather stout, the branches ascending. Leaves ovate, bright green on both sides but not strongly shining, 5–7 cm. long, 5.5 cm. wide or less, short-acuminate at the apex, subcordate at the base, the midvein prominent beneath, the petioles rather stout, 2–3 mm. long; flowers 1 or 2 together in the axils, very nearly sessile; calyx tube obconic, 2.5 mm. long, the lobes ovate, obtusish, about as long as the tube, petals white, fimbriate.

Along a brook, Troy, Jamaica (*Britton* 488, type); collected also by Mr. Harris at the same place (*no.* 9466).

3. THE GENUS *TEREBINTHUS* P. BR. IN THE WEST INDIES

The type species of *Terebinthus* P. Br. is *Pistacia Simaruba* L., commonly known as the West Indian birch. A subsequent name for the genus is *Bursera* Jacq. but, as shown by Dr. J. N. Rose (Contr. U. S. Nat. Herb. 10: 118), this name is unavailable, because *Terebinthus* has priority. Seven species are known to me from the West Indies, two of them here to be described as new; the Mexican species have been listed by Dr. Rose.

Leaflets broad, ovate, elliptic, or obovate.

Leaflets 3-11, ovate, acuminate or acute.

Leaflets thin; bark exfoliating in thin layers.

Leaflets coriaceous; bark close.

Leaflets only 1, obovate to elliptic, obtuse.

Leaflets narrow, oblong to lanceolate or oblanceolate.

Leaflets obtuse at the base.

Leaflets acute at the base.

Inflorescence elongated, sometimes as long as the leaves.

Leaflets 5-11, linear-oblong to linear-lanceolate.

Leaflets 3-5, oblong to oblanceolate.

Inflorescence short, compact, in fruit not longer than the petioles; leaflets 1-3.

1. *T. Simaruba*.

2. *T. Hollickii*.

3. *T. simplicifolia*.

4. *T. glauca*.

5. *T. angustata*.

6. *T. inaguensis*.

7. *T. Nashii*.

1. *TEREBINTHUS SIMARUBA* (L.) W. F. Wight, Contr. U. S. Nat. Herb. 10: 122. 1906.

Pistacia Simaruba L. Sp. Pl. 1026. 1753.

Bursera gummicfera L. Sp. Pl. ed. 2, 471. 1762.

Bursera gummicfera glabra Griseb. Fl. Br. W. I. 173. 1859.

Bursera gummicfera pubescens Engler, in DC. Mon. Phan. 4: 40. 1883.

Florida; Bahamas; Cuba; Jamaica; Haiti; Porto Rico; St. Thomas to Grenada; Mexico to Colombia and Venezuela.

Most of the Jamaica trees have pubescent twigs and leaf-rachises; this hairy race is evidently the typical one, based by Linnaeus on Sloane, *pl.* 199.

2. *Terebinthus Hollickii* sp. nov

A tree 6 m. high, with trunk 2.5 dm. in diameter, its bark about 8 mm. thick, reddish-gray outside, red inside, close, not peeling off in papery layers. Young twigs stout, pubescent; leaves 8-12

cm. long, clustered at the ends of the twigs; rachis pubescent with spreading hairs; leaflets 3-7, coriaceous, ovate 3-6 cm. long, 1.5-3 cm. wide, entire-margined, obliquely rounded at the base, short-acuminate at the apex, glabrous or very nearly so when old, very inconspicuously veined above, rather prominently veined beneath; petiolules stout, 3-5 mm. long; fruiting inflorescence 4-7 cm. long, the raceme simple or slightly compound, its axis pubescent; fruits 8-10 mm. long, about 7 mm. thick, bluntly triangular, on stout pedicels 4 or 5 mm. long; seed sharply 3-angled.

Dry rocky hillside, Fort Henderson, Kingston Harbor, Jamaica (*N. L. Britton & Arthur Hollick*, March 2, 1908, *no. 1816*).

3. *Terebinthus simplicifolia* (DC.)

Bursera simplicifolia DC. Prodr. 2: 78. 1825.

Frequent on dry hillsides near the southern coast of Jamaica, becoming at least 13 meters high.

4. *Terebinthus glauca* (Griseb.)

Bursera glauca Griseb. Cat. Pl. Cuba 66. 1866.

Cuba.

5. *Terebinthus angustata* (Griseb.)

Bursera angustata Griseb. Cat. Pl. Cuba 65. 1866.

Cuba.

6. *Terebinthus inaguensis* (Britton)

Bursera inaguensis Britton, Bull. N. Y. Bot. Gard. 3: 443. 1905.

Bahama Islands, from Eleuthera and Great Guana Cay to Inagua.

Combs 454, from Calicita, Santa Clara Province, Cuba, resembles this very closely, more closely than it does *T. angustata*.

7. *Terebinthus Nashii* sp. nov.

A tree about 3 m. high with nearly smooth terete twigs, glabrous throughout. Leaves 1-3-foliolate, the slender petiole 5-15 mm. long, somewhat glaucous; leaflets linear-oblong, narrowed at the base, obtuse or acutish and mucronulate at the apex, 3-5 cm. long, 1-1.5 cm. wide, pale green, very indistinctly veined on both sides, chartaceous; fruiting inflorescence short, few-fruited, 2 cm. long or less; fruits 6-7 mm. long, nearly as thick as long, borne on short stalks, 2-5 mm. long, the calyx persistent at their bases.

Gonaives to La Hotte Rochée on road to Terre Neuve (*Geo. W. Nash & Norman Taylor*, August 12, 1905, no. 1559).

4. PASSIFLORA CILIATA Ait.

This species was described in 1789 (Hort. Kew. 1: 310) from plants cultivated by Mrs. Norman, who introduced it into England from Jamaica in that year. In the Botanical Magazine, plate 288, published January 1st, 1795, Curtis remarks that he saw it during the latter part of the preceding summer with great profusion of flowers in several collections, and the figure given by him at this place was made from a plant in the collection of Mr. Vere.

This beautiful passion-flower seems to have been much misunderstood by subsequent botanists. It appears to be confined naturally to the island of Jamaica, where Mrs. Britton found it in March, 1908, in quantities along roadsides through the hills near Bulstrode, parish of Westmoreland, growing with *P. foetida*.

The plant has been supposed to be a variety of *P. foetida*, and has been so ranked by a number of authors. Grisebach, in Flora of the British West Indies, however, regarded it as specifically distinct, but apparently erred in attributing it to the Bahamas as well as to Jamaica. It has not been found in the Bahamas during any of our extensive explorations of that archipelago. So far as one can see, Grisebach was quite justified in maintaining it as a species distinct from *P. foetida*.

5. BIDENS PILOSA L.

This species was founded by Linnaeus (Sp. Pl. 832) in 1753 on the "*Bidens latifolia* hirsutior semine angustiore radiato" of Dillenius Hort. Eltham. 51. pl. 43. f. 51. The name has since been used by many authors for a very common and well-known tropical weed and often with the remark that it is not pilose. Dr. Gray surmised that the figure of Dillenius might really have been made from a plant of *B. frondosa*. During repeated trips to the West Indies I have looked closely at a great many individuals of this weedy plant but never could find any pilose ones until this spring; the species is usually almost or quite without trichomes. But at Moneague, Parish of St. Ann's, Jamaica, in April, 1908, I noticed

with great interest a roadside ditch full of these plants, some densely pilose all over, some essentially glabrous. I could not see at the time of collecting nor have I been able to see from further study of the dried specimens, any other difference whatever in the two races. Both are rayless, have identical achenes varying from 2 to 4, with awns relatively of the same length, leaves of the same shape and texture and involucre scales alike. From the environment and occurrence there was nothing to prevent one coming from the seeds of the other. The plants as here observed are not as stout nor as large-leaved as the figure of *Dillenius*. The typical race of *Bidens pilosa* L. is then well named, but it is apparently rare.

Bidens leucantha (L.) Willd. published by Linnaeus as *Corcopsis leucantha* (Sp. Pl. ed. 2. 1282), also a very common tropical weed, has sometimes been regarded as a variety of *B. pilosa*. It has white rays often 1.5 cm. long, and in life appears very different, but herbarium specimens from which the rays have fallen are often difficult to place. It commonly grows with the glabrous *B. pilosa*, but perhaps more frequently in separate patches and in the West Indies one frequently sees large areas inhabited by the one to the exclusion of the other. At Kempshot, near Montego Bay, Jamaica, they grew together in a small garden and I was able to study them side by side; here *B. leucantha* had the involucre scales spreading at flowering time, while those of the glabrous *B. pilosa* were erect. I am inclined to regard *leucantha* as a distinct species. There is a race with undivided leaves.

6. THE GENUS MALACHE B. VOGEL.

Malache scabra was proposed by B. Vogel (Trew, Pl. Select. 50. pl. 90. 1772) as the name of a mangrove-swamp shrub common nearly throughout the West Indian region, subsequently called by Cavanilles (Diss. 3: 136. pl. 46. f. 1. 1787) *Paronia spicata*, and by Swartz (Fl. Ind. Occ. 2: 1215. 1800) *Paronia racemosa*. Trew cites pre-Linnaean names for the plant, and gives a detailed description and a beautiful illustration of it, especially referring to Sloane, Hist. Jam. 221. pl. 139. f. 2; Sloane's description and illustration are unmistakable for the species. Linnaeus does not appear to have had any name for it.

Pavonia Cav. has as its type species *P. spinifer* Cav. After studying quantities of this and of *Malache scabra*, both in the field and in the herbarium, I am confident that they should not be included in the same genus, inasmuch as they differ too widely in the floral and fruit-structure and in habit; only the most artificial classification can retain them as congeneric.

Malache scabra is a typical shrub of coastal swamps from Florida southward through the Caribbean region to Central America, Colombia, Trinidad, and Brazil, and is recorded as growing as far south as Peru on the western side of South America.

Having seen much of this species along mangrove swamps, nearly or quite always within the tidal influence at high water, I was surprised and interested while exploring the high rocky "Cockpit Country" of Jamaica with Mr. William Harris in September, 1907, to find a similar plant on hills in wet woods in the vicinity of Troy, reaching altitudes of at least 600 meters. Mr. Harris had collected fruiting specimens of it the year before, and had noticed its resemblance to the coastal shrub; Professor Urban has recently described it from these specimens (*Harris* 9457), as *Pavonia racemosa* var. *troyana* (Symb. Ant. 5: 530. 1908). I obtained additional specimens both in flower and fruit in 1907 (*Britton* 515) and from field studies made then in comparison with *Malache scabra* I am convinced that this "Cockpit Country" plant is specifically distinct, and to be called **Malache troyana**; it has broader involucre bracts, much broader and differently shaped carpels, the anther-bearing part of the stamen-column proportionately shorter, and the fruiting peduncles are shorter and stouter. The plant is tall and slender and sometimes approaches the form of a small tree up to 4 or 5 meters high.

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PLANTS—II

BY NATHANIEL LORD BRITTON

NEW YORK

1908

Reprinted, without change of paging, from BULLETIN OF THE TORREY BOTANICAL CLUB 35:
561-569. 2 Ja 1909.

Studies of West Indian plants — II

NATHANIEL LORD BRITTON

7. HARRISIA, A NEW GENUS OF CACTACEAE

Night-flowering cacti with slender upright branched cylindric stems, the branches fluted, with from 8 to 11 rounded ribs, separated by shallow grooves and bearing areoles at frequent intervals, each areole with several acicular spines. Flowers borne singly, at areoles near the ends of the branches, funnelform, large, with a cylindric scaly but spineless tube as long as the limb or longer; buds globose, ovoid or obovoid, densely scaled, the scales bearing long or short woolly hairs; sepals pink or greenish, linear-lanceolate; petals white; stamens shorter than the petals, style somewhat longer than the stamens; fruit globose to ovoid-globose, green to yellow, spineless but with deciduous scales, the corolla withering-persistent; seeds very numerous, small.

The genus is named in honor of William Harris, Superintendent of Public Gardens and Plantations of Jamaica, distinguished for his contributions to the knowledge of the flora of that island. The descriptions are drawn up mainly from field observations and from living plants in the collections of the New York Botanical Garden.

Bud-scales densely covered with hairs 1-1.5 cm. long.

Hairs bright white; areoles 2.5-3 cm. apart; spines 6-9, the longer 2.5-3 cm. long.

1. *H. eriophorus*.

Hairs tawny; areoles 2-2.5 cm. apart; spines 8-11, the longer 1 cm. long.

2. *H. Fernowii*.

Bud-scales loosely covered with hairs 3-10 mm. long.

Buds rounded-truncate.

3. *H. portoricensis*.

Buds pointed.

Plant dark green; hairs of the bud-scales straight.

4. *H. gracilis*.

Plants light green; hairs of the bud scales curled.

- Spines 3-6, the longer 1.5 mm. long; buds obovoid, very short pointed. 5. *H. Nashii*.
 Spines 9-15; buds ovoid to subglobose.
 Areoles 1 cm. apart; spines 1 cm. long. 6. *H. undata*.
 Areoles 2-3 cm. apart; longer spines 2-5 cm. long.
 Buds ovoid, long-pointed; longer spines 2.5 cm. long. 7. *H. Brookii*.
 Buds subglobose, short-pointed; longer spines 4-5 cm. 8. *H. Taylora*.

1. *Harrisia eriophora* (Pfeiff.)

Cereus cubensis Zucc.; Seitz, Allg. Gartenz. 2: 244. 1834.
 [Hyponym.]

Cereus eriophorus Pfeiff. Enum. 94. 1837.

Plant rather light green, the main stem 4 cm. in diameter or more, the branches nearly as thick, erect-ascending, 8-ribbed or 9-ribbed, the ribs prominent, the depressions between them rather deep. Areoles 3-4 cm. apart; spines 6-9, the longer ones 2.5-4 cm. long, light brown with nearly black tips; buds ovoid, sharp-pointed, their scales densely covered with bright white woolly hairs 1-1.5 cm. long; flower about 18 cm. long; scales of the tube lanceolate, acuminate, appressed, 1-1.5 cm. long, bearing long white hairs; sepals pale pink outside, the outer greenish; petals pure white, tipped with a hair-like cusp 5 mm. long; filaments white; anthers oblong, yellow; pistil cream-colored.

Description from N. Y. B. G. no. 28933, collected by C. F. Baker at Cajimar, Cuba, in 1907.

TYPE LOCALITY: Cuba.

DISTRIBUTION: Cuba.

ILLUSTRATION: Pfeiff. & Otto, Abb. u. Beschr. Cact. pl. 22.

2. *Harrisia Fernowii* sp. nov.

Plant 2.5-3 m. high; branches slender, about 2.5 cm. thick, light green, 9-ribbed, the ribs not prominent, the depressions between them shallow. Areoles about 2 cm. apart; spines 8-11, light brown with blackish tips, the longer ones 1 cm. long; bud subglobose-ovoid, its scales rather densely covered with tawny curled woolly hairs 1 cm. long; flower nearly 2 dm. long.

Cereus pellucidus Griseb. Cat. Pl. Cub. 116. 1866. Not *C. pellucidus* Otto. 1837.

Description mainly from N. Y. B. G. no. 25766, collected by Norman Taylor (no. 254), between Rio Grande and Rio Ubero, in

eastern Cuba in company with Prof. B. E. Fernow, in 1906; collected also by C. Wright, near Guantanamo.

3. *Harrisia portoricensis* sp. nov.

Plant slender, 2-3 m. high, little branched, the branches 3-4 cm. thick, 11-ribbed, the ribs rounded, the depressions between them shallow. Areoles 1.5-2 cm. apart; spines 13-17, grayish white to brown with dark tips, the longer ones 2.5-3 cm. long; bud obovoid, depressed-truncate, its scales with many curled white hairs 6 mm. long or less; flower about 1.5 dm. long; sepals pinkish green inside; scales of the corolla-tube lanceolate, appressed, 1.5 cm. long, loosely hairy, the hair completely deciduous in flakes; fruit ovoid, yellow, tubercled, acuminate at the apex, rounded at the base, 4 cm. long, 3 cm. in diameter.

Description from N. Y. B. G. no. 24653, collected by N. L. Britton and John F. Cowell, near Ponce, Porto Rico (no. 1324), in 1906.

4. *Harrisia gracilis* (Mill.)

Cercus gracilis Mill. Gard. Dict. ed. 8, no. 8. 1768.

Cercus repandus Haw. Syn. Pl. Succ. 183. 1812. Not *Cercus repandus* L.

? *Cercus subrepandus* Haw. Suppl. Pl. Succ. 78. 1819.

Plant much branched, often 7 m. high, dark green, its branches rather slender, somewhat divergent, 9-11-ribbed, the ribs rounded, the depression between them rather shallow. Areoles 1.5-2 cm. apart; spines 10-16, whitish with black tips, the longer 2-2.5 cm. long; bud oblong-ovoid, short pointed, its scales with a few straight white hairs 8-12 mm. long; corolla 2 dm. long, the scales of its tube greenish brown, narrowly lanceolate, abruptly bent upward near the base, acuminate, about 2 cm. long, having a few hairs, the sepals pale brown, the petals white; fruit depressed globose, yellow, about 5 cm. long, 6-7 cm. thick, the base flat, the top bluntly pointed, strongly tubercled when young, the tubercles low-conic, about 4 mm. high, about 1.5 cm. from tip to tip, bearing a deciduous triangular-lanceolate scale 6-8 mm. long, becoming confluent, the fruit finally smooth or nearly so.

Description from N. Y. B. G. no. 21902, collected in Jamaica by Mr. John F. Cowell in 1904, and from Britton 1255, Great Pedro Bay, Jamaica. This plant has been observed by me in great quantities in the arid districts of the southern part of Jamaica, and is represented in our collections by living specimens from six localities. I designate this species as the type of the genus.

TYPE LOCALITY : British Islands of America.

DISTRIBUTION : Jamaica.

Harrisia gracilis has been illustrated as follows : Trew, Pl. Select. *pl.* 14 ; Bot. Reg. *pl.* 336, as *Cactus repandus* ; DC. Mém. Mus. Paris 17 : *pl.* 3, as *Cercus repandus*.

5. *Harrisia Nashii* sp. nov.

Branches widely divergent, light green, 3-4 cm. thick, 9-11-ribbed, the ribs rounded. Areoles 2-2.5 cm. apart ; spines only 3-6, gray, the longer ones 15 mm. long ; bud narrowly obovoid, obtuse, very short-pointed, its scales with many curled white hairs 6 mm. long or less ; corolla 1.6 dm. long ; scales of the corolla-tube linear, acuminate, 1.5 cm. long, bearing a few hairs ; fruit ellipsoid, 6-8 cm. long. 4-5 cm. thick, very strongly tubercled, the conic tubercles 6-8 mm. high.

Description from N. Y. B. G. *no.* 24089, collected between Gonaives and Plaisance in Haiti by G. V. Nash and Norman Taylor (*no.* 1765), in 1905.

ILLUSTRATION : ?Descour. Fl. Med. Ant. 1 : *pl.* 66, as *Cactus divaricatus*.

6. *Harrisia undata* (Pfeiff.)

Cercus undatus Pfeiff. Enum. Cact. 94. 1837.

Plant branched, about 2 m. high, the older branches light green, 10-ribbed, the ribs rounded, the depressions between them shallow ; young branches dark green, only about 2 cm. thick. Areoles only 1 cm. apart ; spines 12-15, gray, the longer ones only 1 cm. long ; bud small, ovoid, short-pointed, its scales with few somewhat curled hairs 4-6 mm. long ; flower (according to Pfeiffer and Otto) about 1.5 dm. long, the tube green, covered with acute loosely woolly scales, the petals white, denticulate.

Description from N. Y. B. G. *no.* 19263, obtained by N. L. Britton from the Havana Botanic Garden in 1903 (*no.* 502), and determined as *Cercus undatus* Pfeiff. by the description.

DISTRIBUTION : Cuba.

ILLUSTRATION : Pfeiff. & Otto, Abb. u. Besch. Cact. *pl.* 23, which shows the areoles farther apart than they are in our living plants.

7. *Harrisia Brookii* sp. nov.

Plant 5 m. high, much branched, light green ; branches 3-4 cm. thick, 10-ribbed, the ribs very prominent, with deep depressions between them. Areoles about 2 cm. apart ; spines 9-12,

the longer ones 2-2.5 cm. long; bud ovoid, prominently long-pointed, its scales with few curled white hairs 7-10 mm. long; fruit yellowish, ellipsoid, about 8 cm. long, 5-6 cm. thick, rounded at both ends, the tubercles very low, with tips only 1.5 mm. high.

Description from N. Y. B. G. *no.* 2614, collected at Georgetown, Long Island, Bahamas, by N. L. Britton and C. F. Millspaugh, in 1907 (*no.* 6337). Named in honor of Hon. Herbert A. Brook, Registrar of the Bahamas, in recognition of his valuable aid in our exploration of these islands.

The plant of Florida, of which I do not yet know the buds or the flowers, more closely resembles this Bahamian species in its spines and areoles than it does any of the others here described. Our living plant, N. Y. B. G. *no.* 19900, was collected by Prof. P. H. Rolfs on islands east of Malabar and brought to the Garden by Dr. J. K. Small in 1903. As shown by an herbarium specimen, prepared by Dr. Small at that time (*no.* 78), the fruit of this species is nearly globular, about 5 cm. in diameter, and apparently smooth or nearly so. We also have an excellent photograph, taken by Mr. C. L. Pollard on Key Largo; and Curtiss' N. A. Plants *no.* 963, from a locality between the Indian River and the ocean, is this same species, which is described in Chapman's Southern Flora, at least in so far as the flower is concerned, under the name *Cereus monoclonos*, but it is not *C. monoclonos* of De Candolle.

8. *Harrisia Taylora* sp. nov.

Plant light green, branched above, 1.5-2 m. high, the branches divaricate-ascending, rather stout, 4 or 5 cm. thick, 9-ribbed, the ribs rounded, the depressions between them rather deep. Areoles 2-3 cm. apart; spines 9-12, the longer 3-5 cm. long, ascending; bud globose-ovoid, short-pointed, its scales with sparse curled grayish-white wool 3-6 mm. long.

Description from N. Y. B. G. *no.* 25767, collected by Norman Taylor on the sea-beach between Rio Grande and Rio Uvero, in eastern Cuba, in 1906 (*no.* 253).

9? *CEREUS DIVARICATUS* Lam. Encycl. 1: 540. 1783.

Cereus divergens Pfeiff. Enum. 95. 1837.

Pilocereus divaricatus Lemaire, Rev. Hort. 1862: 427. 1862.

TYPE LOCALITY: Santo Domingo.

DISTRIBUTION: Santo Domingo and Haiti.

ILLUSTRATION: Plumier, Pl. Amer. ed. Burmann, *pl.* 193.

Known only from Plumier's description and illustration; it may belong to the genus *Harrisia*, — although the long-exserted style seems to preclude it.

10? *CEREUS ERECTUS* Karw.; Pfeiff. Enum. 95. 1837.

TYPE LOCALITY: Mexico.

Referred in synonymy by Schumann to *Cercus repandus*, that is to say, presumably a *Harrisia*. Known only from the description.

Cercus repandus L., originally from Curaçao, is, from the description, presumably a *Cephalocereus*.

8. POTOMORPHE PELTATA (L.) MIQ.

POTOMORPHE PELTATA (L.) Miq. Comm. Phyt. 37. 1838.

Piper peltatum L. Sp. Pl. 30. 1753.

Piper umbellatum L. Sp. Pl. 30. 1753.

Potomorphe umbellata Miq. Comm. Phyt. 31. 1838.

Field observations in Jamaica demonstrate that the two supposed species of *Potomorphe* are not distinct. The difference of peltate and non-peltate leaves depended upon by Linnaeus and most subsequent authors who have had occasion to describe these plants, including M. Casimir de Candolle (in Urban, Symb. Ant. 3: 208–211), is worthless, because individual plants bear both kinds of leaves. I had long suspected this to be the case, and while discussing the matter with Mr. William Harris on the road from Bath to Cuna Cuna Gap last September, where specimens of both supposed species were abundant, he almost immediately detected a plant which bore peltate leaves at its upper nodes and non-peltate leaves at the lower ones, and we found a plenty of such specimens afterwards (*Britton* 3513). The relative number of spikes, which also has been supposed to differentiate the species, I had previously found to be quite inconstant, and the character of pubescence used in the descriptions by M. de Candolle is also inconstant, as evidenced by his proposing a hairy variety of *P. peltata* (*loc. cit.* 210, as *Piper peltatum hirtellum* C. DC.).

M. de Candolle includes the species in the genus *Piper*, and describes them as shrubs up to 4 meters high. As a matter of fact, the plant is not properly a shrub, its stems being soft, not

appreciably woody; his principal character to distinguish *Piper* from *Peperomia* is that *Piper* consists of shrubs and trees and *Peperomia* of herbs; *P. peltata* should then be excluded from *Piper*, and as it has distinct habital characteristics, differing widely from any true *Pipers* or *Peperomias*, I think it better regarded as a distinct genus under Miquel's name *Potomorphe*. Kunth, and also A. Dietrich, allowed it in *Peperomia*.

9. THE GENUS *STEGNOSPERMA* BENTH.

Stegnospërma was established by Benthäm (Bot. Voy. Sulphur 17. pl. 12. 1844) with the single species *S. halimifolium* Benth. from Cape St. Lucas, Lower California. The next year, A. Richard (Ess. Fl. Cub. 632. 1845) proposed an additional species, *S. cubense* A. Rich. from Cuba. Moquin (in DC. Prodr. 13²: 36. 1849) makes no mention of the Cuban plant, though recording it from Guatemala, but in Benthäm and Hooker (Genera Plantarum 3: 86. 1880) the two supposed species are regarded as one, and its range extended to Santo Domingo.

The range is now extended to Jamaica, where the plant was found by us in the Healthshire Hills, an exceedingly dry region at about 100 meters elevation, south of Spanish Town (*Britton & Harris 10522*; *Britton 3062*); here it is a woody vine 8 m. long, climbing to the tops of low trees; its reddish fleshy fruits are 3-grooved, borne in short terminal racemes. The Mexican and Central American plant seems to me to be specifically identical with that of the West Indies, as maintained by Benthäm and also by Heimerl in "Die natürlichen Pflanzenfamilien."

10. UNDESCRIBED SPECIES FROM JAMAICA

Dorstenia jamaicensis Britton, sp. nov.

Rootstock erect, about 2 cm. long, 5 mm. thick, simple or branched, scarred by leaf-bases. Leaves 5-13; petioles flat, densely short-pubescent, 2-11 cm. long, about 1.5 mm. wide, erect or ascending, mostly longer than the blades; blades ovate to ovate-orbicular, rather firm in texture, 3-4.5 cm. long, 1.5-3.5 cm. wide, peltate below the middle, repand-dentate or nearly entire, papillose-scabrous above, short-pubescent beneath, especially on the 7-9 veins, which are slightly elevated and rather prominent; scape pubescent, about 2 cm. long, much shorter than the peti-

oles; receptacle peltate, purplish, puberulent, 8–10 mm. broad, saucer-shaped, its margin with about 20 triangular-subulate teeth 0.5 mm. long; flowers dark purple.

On vertical limestone cliffs, Somerset, Parish of Manchester, Jamaica, Sept. 22, 1908 (*Britton 3737*, type; *Harris & Britton 10607*). An interesting addition to the West Indian peltate-leaved *Dorstenias*, three being known from Cuba and one from Santo Domingo.

***Trichilia Harrisii* sp. nov.**

A tree about 7 m. high, the twigs and leaves glabrous. Leaves 2–3 dm. long; petiole 1.5–2.5 cm. long; leaflets 5–9, flat, thin, oblong-lanceolate to ovate-elliptic, faintly pinnately veined with about 15 veins on each side of the midrib, narrowed or rounded and somewhat oblique at the base, rather long-acuminate at the apex, the larger ones 10–16 cm. long, 4–7.5 cm. wide; petioles 5–8 mm. long; fruiting panicles 15 cm. long or less, its branches finely appressed-pubescent; fruiting pedicels stout, 2–3 mm. long; capsule globose to oval, 1–2.5 cm. long, blunt or pointed, rugose, densely velutinous, tardily dehiscent.

In woods near summit of Dolphin Head Mountain, Hanover, Jamaica, March 18, 1908 (*Britton 2263*, type; *2269*; *Harris 10282*, *10286*).

II. ADDITIONS TO THE LIST OF JAMAICA SEDGES

In 1907 I contributed an enumeration of the sedges of Jamaica to the Bulletin of the Jamaica Department of Agriculture (5: Supplement 1). Further exploration of that island in the autumn of 1907 and in the spring and autumn of 1908 has disclosed the occurrence of some additional species and the habitat of others which were recorded by me from the statements of other botanists.

KYLLINGA INTERMEDIA R. Br. Prodr. 219. 1810.

Pasture, Cornwall near Lacovia (*Britton 1499*). Distribution: Cuba; Australia.

KYLLINGA PERUVIANA Lam. Encyl. 3: 366. 1789.

Not uncommon in swamps along the coasts.

CYPERUS HUMILIS Kunth, Enum. 2: 23. 1837.

East of Port Antonio (*Wight 54*); rocky thicket, Salem (*Britton 2542*); edge of water-hole, Lucea (*Britton 2906*). Distribution: Cuba; Martinique; Central America.

CYPERUS BROMOIDES Humb.; Link, Jahrb. 3: 85. 1820.

Marsh west of Black River (*Britton 1353*). Distribution: Cuba; Haiti; California to Mexico and Paraguay.

CYPERUS OXYLEPIS Nees; Steud. Syn. Pl. Cyp. 25. 1855.

Ditches near Salt Ponds, south of Spanish Town (*Britton 3032*). Previously collected in Jamaica only by Alexander. Distribution: northern South America.

CYPERUS ESCULENTUS L. Sp. Pl. 45. 1753.

Ditch near Flat Bridge, Rio Cobre (*Britton 3092*). West Indian distribution: Bermuda; Cuba; Martinique; Guadeloupe.

CYPERUS DIGITATUS Roxb. Hort. Bengal. 81. 1813.

Border of Black River, Lacovia (*Britton 1482*). Distribution: tropical and subtropical regions of the Old World and the New.

CYPERUS ANCEPS Liebm. Mex. Halvgr. 25. 1850.

In my paper in the Jamaica Bulletin, I followed Mr. C. B. Clarke, in Urban, Symb. Ant. 2: 44, in recording the continental North American *Cyperus tetragonus* Ell. from Jamaica, and in referring *C. anceps* to it as a synonym, but abundant material now convinces me that the species are distinct. This sedge is plentiful on grassy hillsides and banks in the parish of Manchester (*Britton 1024, 3161*); also at Woodstock near Newmarket, in Westmoreland (*Britton 1567*). Distribution: Cuba.

CYPERUS GRANULARIS (Desf.) Britton, Bull. Jam. Dept. Agric. 5: Suppl. 1, 9. 1907.

Dry soil, Longacre Point (*Britton 1383*). Distribution: Haiti to St. Croix.

ELEOCHARIS CAPILLACEA Kunth, Enum. 2: 137. 1837.

In mud, marsh west of Black River (*Britton 1354*). Distribution: southern United States; Cuba; South America.

FIMBRISTYLIS AUTUMNALIS (L.) R. & S. Syst. 2: 97. 1817.

Border of pond, Cornwall, Lacovia (*Britton 1493*). Distribution: United States; Cuba.

RYNCHOSPORA JUBATA Liebm. Vidensk. Selsk. Skr. V. 2: 254. 1851.

Marsh west of Black River (*Britton 1356*); border of Great Morass, Negril (*Britton 2116*). Distribution: Bahamas; Cuba; Mexico to Paraguay.

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GARDEN—No. 135

STUDIES OF WEST INDIAN
PLANTS—III

By NATHANIEL LORD BRITTON

NEW YORK
1910

Reprinted, without change of paging, from the BULLETIN OF THE TORREY BOTANICAL
CLUB 37: 345-363. 29 J1 1910

Studies of West Indian plants — III

NATHANIEL LORD BRITTON

12. THE WEST INDIAN SPECIES OF COMOCLADIA P. BR.

COMOCLADIA* P. Br.; L. Syst. ed. 10, 861. 1759

Type species: *Comocladia pinnatifida* L.

1. Leaves entire or undulate.

A. Glabrous species.

a. Lateral leaflets distinctly stalked.

1. COMOCLADIA PINNATIFIDA L. Syst. ed. 10, 861. 1759

Comocladia integrifolia Jacq. Enum. Pl. Carib. 12. 1760.

TYPE LOCALITY: Jamaica.

Both names are based wholly on P. Browne, Hist. Jam. 124, where the generic name is printed *Comocladia*. Browne refers to Sloane's description and figure of "Prunus racemosa, caudice non ramosa" (Hist. Jam. 2: 131. pl. 222. f. 1); the illustration there given is not wholly satisfactory for the plant which has been taken for this species, but which is here accepted as usually interpreted.

DISTRIBUTION: Moist woodlands at middle and lower elevations throughout Jamaica; Haiti and Santo Domingo.

*The spelling of the generic name was changed by Linnaeus to *Comocladia*, but this form is here regarded as a typographical error, although it was continued by Linnaeus, in the second edition of Species Plantarum, and in successive editions of the Systema, but was changed back to the original by Gmelin (Syst. ed. 13. 1791). The original spelling was accepted by Jacquin, by Swartz, and by most subsequent authors.

2. *Comocladia Hollickii* sp. nov.

Low, flowering when not more than 1 m. high, the tallest plants seen not more than 3 m. high. Leaves 3-4 dm. long, glabrous; leaflets 17-21, distinctly petioluled, subcoriaceous in texture, undulate-dentate with acutish teeth, acuminate at the apex, obtuse or truncate at the base; lower leaflets ovate, 3-5 cm. long, middle leaflets (5 or 6 pairs) ovate-lanceolate to oblong, 6-9 cm. long, terminal leaflet broadly lanceolate, long-petioluled, 6-8 cm. long; petiolules of the lateral leaflets 1.5-3 mm. long; petioles 3-6 cm. long; inflorescence glabrous, short, about 8 cm. long, sparingly branched, narrow; pedicels 1 mm. long or less; corolla-buds 0.5 mm. in diameter, purple; sepals and petals obtuse, rounded; filaments twice as long as the anthers.

Rocky hillside, Bluefields Mountain, Jamaica, at 500 m. altitude (*Britton & Hollick 2000*, March, 1908, type); wooded hill, Potsdam, Santa Cruz Mountains, Jamaica (*Britton 1271*).

3. *Comocladia grandidentata* sp. nov.

A slender tree, up to 10 m. high. Leaves glabrous, about 8 dm. long; leaflets about 29, petioluled, thin in texture, coarsely irregularly dentate with obtuse or acutish teeth, acute or abruptly acuminate at the apex, obtuse or subtruncate and more or less oblique at the base, the lower 4 or 5 pairs ovate, 3.5-6 cm. long, the others oblong, oblong-lanceolate or somewhat oblong-oblan-ceolate, 7-11 cm. long, 2.5-4 cm. wide; lateral petiolules 2-3 mm. long; flowers and fruit unknown.

Hopeton, Westmoreland (*Harris 9944*, Sept. 19, 1907).

4. *COMOCLADIA EHRENBURGII* Engler, Bot. Jahrb. 1: 420. 1881

TYPE LOCALITY: Santo Domingo.

DISTRIBUTION: Santo Domingo.

Note.—Known to me only from the description. A glabrous species, its leaves with only two pairs of entire ovate short-petioluled leaflets.

b. Lateral leaflets sessile or subsessile.

5. *Comocladia parvifoliola* sp. nov.

A tree, up to 10 meters high, glabrous throughout. Leaves 1-2 dm. long; leaflets 7-11, coriaceous, entire, sessile, or on petiolules 1 mm. long or less, rounded or subcordate at the base, acute or bluntly short-acuminate at the apex, the lowest pair ovate,

2-4 cm. long, the others oblong or oblong-lanceolate, 4-7 cm. long; panicles very slender, as long as the leaves or longer; flowers minute; sepals broadly ovate, obtuse; petals twice as long as the sepals, oval-orbicular, rounded; stamens a little shorter than the petals.

Woodlands, Dolphin Head Mountain, Jamaica (*Britton* 2473, March, 1908, type; *Harris* 10,207).

6. *COMOCLADIA CORDATA* N. L. Britton, *Torrey* 7: 6. 1907

TYPE LOCALITY: Troy, Jamaica.

DISTRIBUTION: Known only from the type locality.

B. Pubescent species.

a. Lateral leaflets distinctly stalked.

7. *COMOCLADIA PUBESCENS* Engler, *Bot. Jahrb.* 1: 420. 1881

TYPE LOCALITY: Jamaica.

DISTRIBUTION: Jamaica, in woodlands at lower and middle elevations in relatively moist districts.

8. *Comocladia jamaicensis* sp. nov.

Low, about 2 meters high. Leaves 3-4.5 dm. long, the rachis loosely pilose; leaflets about 21, thin in texture, distinctly petioluled, obtuse or subtruncate at the base, acute to acuminate at the apex, glabrous above, sparingly pubescent on the veins beneath, undulate-dentate or some of them nearly entire; lateral petiolules 2-3 mm. long; lower two or three pairs of leaflets ovate, 3-5 cm. long, the others lanceolate, ovate-lanceolate or oblong, 5-10 cm. long, 1.5-4 cm. wide; inflorescence puberulent, shorter than the leaves, about 3 dm. long, its branches short and slender; sepals and petals obtuse; young stamens with filaments not longer than the anthers.

On dry rocky hill, Green Island, Jamaica (*Britton & Hollick* 2132, March, 1908, type; *Harris* 10,250).

b. Lateral leaflets sessile or subsessile.

9. *COMOCLADIA VELUTINA* N. L. Britton, *Torrey* 7: 6. 1907

TYPE LOCALITY: Great Goat Island, Jamaica.

DISTRIBUTION: Jamaica, on very dry rocky hillsides and sand dunes near the southern coast, Healthshire Hills to Great Pedro Bay.

Note.—Recorded by Grisebach from Jamaica as *C. propinqua*, which it little resembles.

10. *Comocladia pilosa* sp. nov.

A tree, 6 meters high, the young twigs, leaves, and inflorescence densely pilose-pubescent. Leaves about 7 dm. long; leaflets about 19, chartaceous, dark green above, paler beneath, entire-margined, the lateral ones sessile, or on petiolules about 1 mm. long, cordate or subtruncate at the base, obtuse, acutish or abruptly short-acuminate at the apex; lowest pair of leaflets suborbicular, 4–5 cm. long; second and third pairs ovate-orbicular, 5–8 cm. long, the others oblong or ovate-oblong, 9–14 cm. long, 4–5 cm. wide; terminal leaflet long-stalked; panicles several, shorter than the leaves, 2.5 dm. long or less, the branches rather stout; calyx with a few scattered hairs, the sepals rounded; petals a little longer than the sepals, rounded; filaments twice as long as the anthers.

Wooded hill, Union Hill, near Moneague, Parish of St. Ann's, Jamaica (*Britton & Hollick 2762*, April, 1908).

11. *COMOCLADIA UNDULATA* Urban, *Symb. Ant.* 5: 401. 1908

TYPE LOCALITY: Martinique.

DISTRIBUTION: Known only from Martinique.

2. Teeth of the leaves bristle-tipped.

A. Glabrous species.

12. *COMOCLADIA PLATYPHYLLA* A. Rich.; Griseb. *Cat. Pl. Cub.* 68. 1866

TYPE LOCALITY: Cuba [*Rugel 277*, the type specimen, is from Matanzas].

DISTRIBUTION: Cuba, at lower altitudes, provinces of Oriente, Camagüey, Santa Clara, Matanzas, and Havana.

Note.—Lower leaflets ovate, the others mostly oblong. Engler (*DC. Mon. Phan.* 6: 365) describes a specimen with all the leaflets ovate, long-stalked, and with only 3 or 4 teeth on each margin. The number of teeth is often 9 on each margin. The species consists of a number of races, differing in width of leaflets, length of petiolules and number of teeth on the leaf-margins, the extremes appearing quite different from each other.

A. Richard (in *Sagra, Hist. Cub.* 10: 155. 1850) remarks

as follows concerning this species, which was subsequently described by Grisebach:

"I have observed an example of this tree, but without flowers, which, it seems to me, could form, if not a distinct species, which I am not far from believing, at least a very notable variety. The leaflets are almost as large as the leaves of the 'castaño,' are also rough on both faces, dentate and spine-like in their contour; and, in short, recall in all their shape the leaflets of *Comocladia dentata*, but are much larger and rougher. If the opportunity comes to see this plant with flower and fruit it will perhaps be possible to form a distinct species to which the name *Comocladia platyphila** will apply perfectly."

13. *COMOCLADIA INTERMEDIA* C. Wright; Engler in DC.

Mon. Phan. 4: 366. 1883

TYPE LOCALITY: Cuba. [Wright's specimen in the Kew Herbarium is from Trinidad, Cuba.]

DISTRIBUTION: Southern coast of Santa Clara Provincé, Cuba, in dry districts.

14. *Comocladia acuminata* sp. nov.

Leaves about 1 m. long, glabrous. Leaflets about 31, chartaceous, short-petioluled, the lowest ovate to ovate-lanceolate, 5-6 cm. long, the others oblong-lanceolate, 10-14 cm. long, 3-4 cm. wide; slenderly acuminate at the apex, broadly cuneate at the base, serrate with about 8 bristle-tipped teeth on each margin, the veins prominent on the underside, diverging nearly at right angles from the slender midvein, the under surface paler green than the upper; panicles 4 dm. long, glabrous, slender, their branches widely diverging, 8-12 cm. long; flowers 4-parted, about 1.5 mm. broad.

Santo Domingo (*Wright, Parry & Brummel* 192, in United States National Herbarium).

B. Pubescent species.

15. *COMOCLADIA GLABRA* Spreng. Syst. 1: 176. 1825

TYPE LOCALITY: Porto Rico.

DISTRIBUTION: Porto Rico, at lower and middle elevations

*Doubtless a misprint for *platyphylla*.

in moist and wet districts. Recorded by Engler from Santo Domingo and from Cuba.

The inflorescence, leaf-rachis, and venation of this species are sparingly pubescent. The races differ greatly in the length of the spiny tips of the teeth of the leaflets.

16. *COMOCLADIA DENTATA* Jacq. Enum. Pl. Carib. 12. 1760

Comocladia propinqua H. B. K. Nov. Gen. 7: 16. 1824.

Comocladia dentata propinqua Engler, in DC. Mon. Phan. 4: 364. 1883.

TYPE LOCALITY: Near Havana, Cuba (according to Jacq. Stirp. Am. 13. *pl.* 173).

DISTRIBUTION: Woodlands at lower elevations, provinces of Camagüey, Havana, Matanzas, and Santa Clara, Cuba, ascending to 420 meters on the Trinidad Mountains; Santo Domingo.

Field observations indicate that *Comocladia dentata* and *C. propinqua* can not be held as distinct species; the leaflets vary from narrowly lanceolate to broadly ovate, and from sharply spinulose-dentate to nearly or quite entire. The tree becomes 6 meters high in Santa Clara, Cuba.

Note.—*Comocladia dentata brevifolia* Engler, in DC. Mon. Phan. 4: 364. 1883.

I have not seen this plant, described as from "Domingo" it may be the same as the following species.

17. *Comocladia domingensis* sp. nov.

Twigs densely short-pubescent. Leaves about 2 dm. long, the rachis densely short-pilose; leaflets 17–19, ovate to ovate-elliptic, sessile, chartaceous, obtuse at the apex, rounded or subtruncate at the base, glabrous and rather dark green above, pilose on the prominent veins and light green beneath, the lower ones 1.5–2.5 cm. long, the others 4–5 cm. long, 2–3 cm. wide, serrate with 7 or 8 spinulose-tipped teeth on each margin and spinulose at the apex; panicles narrow, slender, loosely pilose, about 13 cm. long; flowers 4-parted; sepals orbicular, 0.5 mm. long; petals ovate, obtuse, 1 mm. long; stamens much shorter than the petals.

Santo Domingo (Wright, Parry & Brummell 190, in United States National Herbarium).

18. *Comocladia Dodonaea* (L.)

Ilex Dodonaea L., Sp. Pl. 125. 1753.

Comocladia tricuspidata Lam. Mém. Acad. Sci. Paris 1784: 347. 1787.

Comocladia ilicifolia Sw. Prodr. 17. 1788.

TYPE LOCALITY: "America meridionalis."

Plumier's *plate 118, f. 1*, identifies this species beyond doubt.

DISTRIBUTION: Santo Domingo (according to Engler); Porto Rico, at low elevations in dry districts; Culebra; St. Thomas; St. Croix; Montserrat; Antigua; Guadeloupe; Mustique Island, Grenadines.

Note.—This species is the monotype of the genus *Dodonaea* (Plum.) Adans. 1763.

13. THE GENUS *VIBURNUM* IN JAMAICA1. *Viburnum villosum* Sw. Prodr. 54. 1788

Hillsides and woodlands in moist and wet districts, at middle and higher altitudes, ascending to 2300 meters in the Blue Mountains.

The species apparently consists of numerous races, differing in the amount of stellate pubescence, in the shape of the fruit, and in the length of the stamens. Very densely tomentose bushes grow in proximity to slightly pubescent ones about Cinchona.

2. *Viburnum arboreum* sp. nov.

A tree, 15 m. high, with a straight trunk and spreading branches. Leaves chartaceous, entire, oval-elliptic, dull green, glabrous or sparingly stellate-pubescent above, loosely stellate-pubescent beneath, 8–12 cm. long, 5–6.5 cm. wide, short-acuminate at the apex, unequally narrowed or obtuse at the base, the veins about 6 on each side of the midvein, the stout petioles stellate-pubescent, 1–2 cm. long, inflorescence stellate-pubescent, 8–12 cm. broad; fruiting pedicels 3 mm. long or less; fruit oblong, 9–10 mm. long and 3 mm. thick when dry, narrowed at both ends, crowned by the ovate acute ciliate calyx-lobes and tipped by the base of the style.

Wooded rocky hill, Tyre, Cockpit Country (Britton, Sept. 13–18, 1906, no. 553, type; Harris 9475). Harris 9403 from the same region, a shrub with white flowers, is probably this species.

3. *VIBURNUM ALPINUM* Macf. Fl. Jam. 2: 201. 1850

Hillsides and woodlands at middle and higher elevations in both relatively dry and wet districts, ascending to at least 1800 meters in the Blue Mountains. Erroneously regarded by Grisebach as identical with *V. glabratum* H.B.K. of Mexico and South America.

14. HITHERTO UNDESCRIBED SPECIES OF JAMAICA

***Thrinax Rex* Britton & Harris, sp. nov.**

Trunk up to 20 meters high, cylindric, 2–2.5 dm. in diameter, sometimes swollen at the base. Leaf-blades of middle-sized trees 3 m. broad, silvery beneath, those of young plants sometimes 4 m. broad; leaf-segments 40–50, united to about one half, 3–5 cm. wide, notched at the apex into rigid acuminate narrow lobes 1–3 cm. long, revolute-margined, the midrib prominent on the under side; petioles very stout, compressed, 2-edged, as long as the blades or longer; ligule triangular, acute, 2–2.5 cm. long; inflorescence glabrous, much shorter than the leaves; bracts oblong, puberulent, with a triangular-acute apex; ultimate branches of the inflorescence rather stout, 10–12 cm. long; pedicels stout, 1.5–2 mm. long, about twice as long as the triangular acuminate bractlets; calyx hemispheric-campanulate, minutely toothed; fruit subglobose, 6–7 mm. in diameter; seeds brown, globular, shining, very nearly smooth, 5 mm. in diameter.

Eastern slopes of the John Crow Mountains at 450 to 600 meters altitude (*Britton 4151; Harris & Britton 10,759*).

***Chamaecrista fasciata* sp. nov.**

Herbaceous, the roots apparently annual, the stems slender, erect, little-branched, 5–10 dm. high, more or less pubescent with long curled hairs. Leaves 8 cm. long or less, short-petioled; leaflets 20–40, linear-lanceolate, inequilateral, rounded at the base, acute and aristulate at the apex, strongly veined, ciliate, but otherwise nearly glabrous, 10–12 mm. long, 1.5–2 mm. wide; stipules lanceolate-attenuate, strongly veined, 8–10 mm. long; gland scutellate, sessile, 0.5 mm. wide, borne on the petiole below the lowest pair of leaflets; peduncles a little shorter than the petioles, villous, the bracts ovate-acuminate, about 4 mm. long; sepals lanceolate, acuminate, villous on the back, about one half as long as the petals; flowers 1.5 cm. broad; ovary and young pod densely long-villous; mature pod linear, a little curved, some-

what narrowed toward the base, 4-5 cm. long, 5-6 mm. wide, obliquely short-beaked, loosely villous, black-banded over the spaces between the seeds and along both margins.

Bank, between Bath and Cuna-Cuna Gap, at 300 m. altitude (*Britton 3500*, September, 1908).

***Meibomia umbrosa* sp. nov.**

Stem trailing, sometimes 1 m. long, densely villous to the base. Leaflets ovate to ovate-lanceolate, 6-10 cm. long, acute or acuminate at the apex, the lateral ones short-stalked, obliquely obtuse at the base, the middle one narrowed or blunt at the base and longer-stalked, all finely and rather densely pubescent beneath, sparingly pubescent above; petioles about as long as the leaflets, densely villous; stipules lance-subulate, about 1 cm. long; peduncles arising in the lower axils, as long as the leaves or longer, slender, pubescent, bearing a few distant lance-subulate bracts; flowers purple; fruiting racemes 1 dm. long or longer, the filiform pedicels spreading, about 2 cm. long; loment 1-3-jointed, the upper suture undulate; loment-joints obliquely oblong, nearly separated, uncinat, about 8 mm. long and 5 mm. high.

Shaded grassy hillside, Troy, Jamaica (*Britton 444*, Sept. 13-18, 1906, type); woodlands near Newport, Manchester (*Britton 3209*); nearest to *M. axillaris* (Sw.) Kuntze, which is nearly glabrous, with blunt leaflets.

***Cissus* (?) *cucurbitacea* Britton, sp. nov.**

A woody, high-climbing vine, the stem up to 7.5 cm. thick at the base, the twigs and leaves fleshy. Leaves triangular-ovate, 6-10 cm. long, cordate at the base with a widely open sinus, 5-nerved and pinnately veined, remotely dentate with apiculate teeth, scabrous on both sides with short stiff hairs or when old papillose, the petioles 2-3 cm. long; tendrils slender, 1-2 dm. long.

Dry rocky hillside, Fort Henderson, Jamaica (*Britton & Hollick 1812*, March 2, 1908, type); base of Healthshire Hills (*Harris & Britton 10,512*).

An interesting xerophytic vine, of which we do not yet know either flowers or fruit.

***Xylophylla contorta* sp. nov.**

A much branched shrub about 1 m. high, the main branches terete, the twigs flat and 2-edged. Phyllodes pale green, linear,

5-7 mm. wide at the middle, 6-10 cm. long, narrowed to both ends, acutish, many of them curved or falcate, finely and closely striate, the upper ones floriferous to below the middle, the crenatures 1-flowered, distant; stipules triangular-lanceolate, 2 mm. long or less; pedicels of pistillate flowers 3.5-4.5 mm. long, very slender, thickened above, sepals broadly ovate, obtusish, about 1 mm. long; fruit depressed, 3-lobed, obscurely reticulated, 3.5 mm. wide, nearly 2 mm. high; seed obovoid, 1.5 mm. long, minutely black-dotted.

Dry hillside, St. Ann's Bay (*Britton 2515*, March, 1908).

***Tricera macrophylla* sp. nov.**

An erect virgate simple or sparingly branched shrub 1-2 meters high, with rough bark. Leaves narrowly elliptic or lanceolate-elliptic, very large for the genus, flat, 15-24 cm. long, 5-8 cm. wide, subcoriaceous, acute at both ends, the midvein stout, prominent beneath, impressed above, the veins numerous, slender, diverging nearly at right angles from the midvein and connected at 2-3 mm. from the margin, the ultimate venation finely and strongly reticulated, the stout petiole 1-1.5 cm. long; capsules brown, finely pubescent, 7-8 mm. long, woody, their recurved beaks 2 mm. long; inflorescence very short-stalked, lateral and supra-axillary; seeds linear-oblong, shining, 5 mm. long.

Woodlands, eastern and southeastern slopes of the John Crow Mountains at 500 meters altitude (*Harris & Britton 10,770*, March 11, 1909, type; *Britton 4173, 4193*).

***Clusia silvicola* sp. nov.**

A tree, 12 m. high. Leaves firm, obovate, 13 cm. long, 7-8 cm. wide, firm, thick, dull, inconspicuously veined, rounded at the apex, cuneate-narrowed at the base, the midvein rather prominent beneath, the stout petiole 1 cm. long; fruit ovoid, white, 7 cm. long, about 5 cm. thick; sepals 4, broad; bracts much smaller than the sepals; stigmas 8, sessile, oblong-obovate, 8 mm. long, 4-5 mm. wide, with a slight depression near the base.

Wooded hill near Dolphin Head, Hanover, 400 m. altitude (*Britton 2330*, March 18-20, 1908).

***Homalium integrifolium* sp. nov.**

A tree, about 15 m. high, the foliage glabrous. Leaves oblong-lanceolate, 10-15 cm. long, 4 or 5 cm. wide, entire-margined or with a few low crenatures, chartaceous, attenuate-acuminate at

the apex, obtuse or somewhat narrowed at the base, the midvein impressed above, rather prominent beneath, the primary veins about 12 on each side, the ultimate venation reticulated; petioles 6–8 mm. long; raceme 8–10 cm. long, its axis puberulent; pedicels 2–4 mm. long; hypanthium, sepals, and petals puberulent; sepals linear, acutish, 2.5 mm. long; petals ovate with a bluntish point, nearly 3 mm. long; stamens numerous; glands of the disk nearly contiguous; ovary depressed-globose.

Woodlands, eastern slopes of the southern end of the John Crow Mountains (*Harris & Britton 10,741*, March 10, 1909).

Ananomis grandis sp. nov.

A tree up to 13 meters high, the bark smooth, reddish, the branches gray, the young twigs sparingly pubescent. Leaves thin in texture, the blades pale green on both sides, not shining, copiously punctate, rather prominently veined, obovate, 4–6 cm. long, 2–4 cm. wide, obtuse or sometimes emarginate at the apex, narrowed or cuneate at the base, the midvein sparingly pubescent, impressed above, rather prominent beneath, the pubescent petioles 7–10 mm. long; peduncles slender, pubescent, 3–4 cm. long; cyme 3-flowered, the central flower sessile, the lateral ones on pubescent diverging pedicels 6 mm. long; hypanthium subglobose, appressed-pubescent; sepals concave, 2.5 mm. broad, rather broader than long, punctate, ciliate.

Dry rocky woodlands, Great Goat Island (*Harris 9307*).

Differs from *A. fragrans* (Sw.) Willd., of the Jamaica mountains, which has coriaceous, elliptic, shining, short-petioled leaves, and nearly erect pedicels.

Petesioides subverticillatum sp. nov.

A woodland shrub, 1–2 m. high, with slender branches. Leaves subopposite or subverticillate, sessile, oblong-elliptic to ovate-oblong, 5–14 cm. long, 6 cm. wide or less, cordate-clasping at the base with rounded auricles, acute or obtusish at the apex, indistinctly pinnately veined and slightly reticulated, punctate, the margins low-crenulate or entire; inflorescence bipinnate-paniculate, terminal, 4–6 cm. wide; pedicels rather stout, 1.5–3 mm. long; flowers 4-merous; calyx and corolla epunctate; staminate calyx 2.5 mm. long, its lobes semiorbicular-ovate, rounded, about one third as long as the tube; corolla as long as the calyx and similarly lobed; stamens nearly twice as long as the corolla; pistillate calyx 1 mm. long, the corolla a little shorter; staminodia half as long as the corolla; ovary ovoid; style short and stout;

fruit subglobose, red, 2.5 mm. in diameter, apiculate with the base of the style.

Woodlands, southeastern slopes of the John Crow Mountains, 350–600 m. altitude (*Harris & Britton 10,694*, type; *Britton 3937*; *Harris & Britton 10,701*); slopes, Cuna-Cuna Gap, *Britton 4049*)

***Plumiera jamaicensis* sp. nov.**

An irregularly branched tree 8–10 m. high, the trunk up to 3 dm. in diameter. Leaves firm in texture, the blade elliptic, 12–15 cm. long, 5–7 cm. wide, rounded or emarginate at the apex, narrowed at the base, glabrous on both sides, or minutely puberulent on the veins beneath, the upper surface dark green with the veins somewhat impressed, the under surface lighter green with the broad nerves very prominent, diverging nearly at right angles from the strong elevated midvein, the ultimate venation strongly reticulated; petiole stout, 3–4.5 cm. long; peduncle stout, 18 cm. long or less; flowers numerous; bracts broadly ovate, acutish, 1.5 mm. long; pedicels 8–13 mm. long; calyx nearly truncate, with 5 short teeth; corolla white with a yellowish blotch at the base of each lobe, the tube 1 cm. long, the lobes 2–2.5 cm. long, oblong-obovate, obtuse; pods 15–22 cm. long, 1.5–2 cm. in diameter.

Coastal hillsides and thickets, parish of Portland. Wheelerfield, March 13, 1909 (*Britton 4123*, type); near Port Antonio, Sept. 25, 1906 (*Britton 870*). Near *P. emarginata* Griseb., of Cuba.

***Valerianoides jamaicensis* × *mutabilis*.**

Hybrids are not often seen in the West Indian flora, but the one here recorded seems to be genuine. I found it growing near its parents on a roadside between Mandeville and Brown's Town, Manchester, with characters of foliage and flowers exactly intermediate.

***Lantana jamaicensis* sp. nov.**

A vine, climbing on trees, up to 7 meters long, or shrubby and 1 meter high, or less, the branches long, slender, terete, densely puberulent. Leaves lanceolate to ovate, 2.5–9 cm. long, rather firm in texture, acute or acuminate at the apex, narrowed or rounded at the base, crenulate, sparingly pubescent above, densely puberulent and rather prominently veined beneath, or becoming glabrate, the petioles 1 cm. long or less; peduncles puberulent, 2–4 cm. long; heads involucrate, subglobose in flower, 1–1.5 cm.

in diameter, somewhat elongating in fruit; involucre bracts ovate to lanceolate, acutish, puberulent; corolla 6.5-10 mm. long, white or pale pink with a yellowish eye, puberulent, its lobes irregularly rounded; calyx-limb undulate, ciliate; stamens borne near the middle of the corolla-tube.

Banks and woodlands, Manchester and St. Elizabeth. Type from between Malvern and Stanmore Hill, Santa Cruz Mountains (*Britton 1097*, Sept. 3, 1907).

Apparently recorded by Grisebach as *Lantana stricta lilacina*, but it is not *Lantana lilacina* of South America. Certainly distinct from *Lantana stricta*.

***Lantana arida* sp. nov.**

A widely branched shrub 1 meter high, or less, pubescent with long simple hairs and short glandular hairs intermixed; branches slender, 4-angled. Leaves ovate to oval, 1-2 cm. long, obtuse at both ends, or acutish at the apex, densely pubescent on both sides, rather firm in texture, crenate-dentate, the venation impressed above, prominent beneath, about 4 veins on each side of the midvein; petioles 2-3 mm. long; peduncles slender, longer than the leaves; inflorescence capitate; fruit oblong, 3-4 mm. long.

Dry rocky hillside, Salt Pond Hills, Kingston Harbor, in old fruit March 2, 1908 (*Britton & Hollick 1824*).

***Rondeletia elegans* sp. nov.**

A tree, 5 m. high, the twigs densely appressed-pubescent. Leaves rather firm in texture, elliptic, the blades 11-16 cm. long, 9 cm. wide or less, glabrous above, sparingly pubescent on the veins beneath when old, quite densely pubescent beneath when young, acuminate at the apex, narrowed at the base, the midvein prominent beneath, with about 7 veins on each side, the stout pubescent petioles 2-4 cm. long; cymes axillary, pubescent, the peduncles about as long as the petioles; flowers all pedicelled; hypanthium hemispheric, pubescent, 1.5 cm. long; sepals narrowly lanceolate, pubescent, about as long as the hypanthium; corolla salverform, 10-14 mm. long, the cylindric crimson tube about twice as long as the 5 tawny-yellow obovate-orbicular undulate lobes; stamens sessile near the top of the corolla-tube; style 3 mm. long, pubescent below; fruit about 7 mm. long.

Woodlands, eastern slopes of the John Crow Mountains at 520 m. altitude (*Britton 4143*, March, 1909, type; *Harris & Britton 10,744*).

Rondeletia pallida sp. nov.

A tree, 10 m. high, the young foliage sparingly pubescent. Leaves thin, bright green, oblong-lanceolate to elliptic, 18 cm. long or less, 2-7 cm. wide, glabrous or with a few scattered hairs beneath and on the slender petioles when old, sharply acuminate at the apex, cuneate-narrowed at the base, the narrow midrib rather prominent on both sides with 4 or 5 pairs of veins on each side, the petioles 1-2 cm. long; cymes axillary; peduncles slender, a little shorter than the petioles; bractlets linear-lanceolate, pubescent, 2-3 mm. long; flowers in threes on the branches of the cyme, all on slender glabrous pedicels 3-5 mm. long; hypanthium hemispheric-campanulate, 1.5-2 mm. high; sepals triangular-lanceolate, acuminate, nearly as long as the hypanthium; corolla white or yellowish, fading brownish, 12-15 mm. long, salverform, glabrous or puberulent, the cylindric tube twice to three times as long as the 5 suborbicular rounded, spreading lobes; stamens borne near the top of the corolla-tube, the filaments shorter than the anthers; style about 3 mm. long, pubescent below; stigma 2-lobed; fruit about 6 mm. long.

Woodlands, southeastern foothills of the John Crow Mountains, 350 m. altitude (*Britton 3902*, March, 1909, type; *3940*; *4146*; *Harris & Britton, 10,680, 10,724*).

Guettarda constricta sp. nov.

A tree about 7 m. high, the twigs terete. Leaves broadly ovate; blades 17 cm. long or less, about two thirds as wide as long, rather firm in texture, glabrous and bright green above or puberulent on the veins, pale green or whitish and densely puberulent beneath, short-acuminate at the apex, obtuse or subtruncate and sometimes strongly inequilateral at the base, with 8 or 9 pairs of veins on each side of the prominent midvein; petioles stout, puberulent, 6 cm. long or less; peduncles axillary, somewhat angled, puberulent, as long as the petioles or longer; cymes several-flowered; fruit sessile, oval, finely puberulent, 10-12 mm. long, 8 or 9 mm. thick, obtuse at the apex, narrowed at the unequal base, distinctly constricted at the middle.

Wooded hillside, Grove Place, Manchester (*Britton 3769*, September, 1908). The fruit of *G. argentea* is globular.

Psychotria subcordata sp. nov.

A slender tree, 5 m. tall, the twigs and leaves glabrous. Leaves lanceolate to oblong-lanceolate, thin in texture, 7-10 cm. long,

2.5–3.5 cm. wide, sessile, subcordate at the base, acuminate at the apex, dark green above, paler beneath, the midvein rather prominent on both sides, the veins about 10 on each side of the midvein, diverging from it nearly at right angles, curving upward and united 2 or 3 mm. from the margins; stipules apparently distinct, deciduous; cyme sessile, 3-rayed, the rays slender, glabrous, 2.5–3 cm. long, the 2 or 3 raylets 1–1.5 cm. long; fruiting pedicels 2–5 mm. long; fruit globose-oblong, red, nearly 1 cm. long; pyrenae oblong, 8 mm. long, 4 mm. wide, strongly 3-crested longitudinally, with two shallow grooves on the nearly flat commissural side.

Woodlands, eastern slopes of the John Crow Mountains at 520 m. altitude (*Britton 4144*). Related to the Cuban *P. auriculata* C. Wright.

***Lobelia grandifolia* sp. nov.**

Stem stout, somewhat pubescent, about 9 dm. high. Leaves flaccid, large, about 3 dm. long, 10–12 cm. wide, abruptly acuminate at the apex, cuneate at the base, crenulate all around, glabrous and dull green above, rather bright green beneath and pubescent on the veins, the broad flat midvein prominent, the numerous lateral veins arching upward; peduncles stout, pubescent, about 1.5 dm. long; raceme densely many-flowered, 1–1.5 dm. long; bracts linear-lanceolate, acuminate, glandular-serrate, nearly as long as the pedicels; pedicels about 2 cm. long; hypanthium campanulate, glabrous, 1 cm. long; sepals linear-lanceolate, glandular-serrate, 12–15 mm. long, 2 mm. wide; corolla yellowish white, greenish yellow, or brownish, glabrous, strongly curved, about 2.5 cm. long; andræcium stout, pubescent, 1.5–2 cm. long; anthers 9 mm. long, loosely pubescent, two of them bearded at the tip.

Woodlands, eastern slopes of the John Crow Mountains at about 400 meters elevation (*Britton 4194*, type; 4197; *Harris & Britton 10,725*). Related to *L. Fawcettii* Urban, in which the leaf-blade is decurrent on the petiole nearly or quite to the base, the sepals narrower and longer, the foliage glabrous or very nearly so.

***Bidens Shrevei* sp. nov.**

Glabrous; stems woody, diffusely branched, reclining or straggling, 3–6 dm. long, the twigs striate. Leaves simple, ovate to lanceolate, 5–10 cm. long, acuminate at the apex, obtuse or subtruncate at the base, sharply serrulate, the slender petioles

one third to one half as long as the blades, the finely reticulate venation much darker in color than the parenchyma; heads several or numerous; peduncles 6 cm. long or less; involucre oblong-cylindric, about 1 cm. high, its bracts linear, spreading at anthesis, acutish and puberulent at the apex; rays oval to oblong, bluntish or emarginate, 1.5–2 cm. long, strongly veined; disk-corollas tubular-cylindric, narrowed below, 7–10 mm. long, with acute triangular-ovate teeth; anthers and style-branches slightly exerted; achenes linear, 12–16 mm. long, about 1 mm. thick, sparingly pubescent on the angles, the two yellowish awns 3–5 mm. long, downwardly barbed.

Banks at higher altitudes in the Blue Mountains; type collected by Forrest Shreve at Cinchona, November, 1905.

Chaenocephalus propinquus sp. nov.

A shrub, 2 m. high. Leaves firm in texture, oblanceolate, 5–9 cm. long, acute at the apex, cuneately tapering from above the middle to a sessile entire base, sharply and rather coarsely dentate above the middle, smooth on both sides or minutely scabrate-puberulent beneath, the pinnate venation not very prominent; inflorescence corymbose, 5–8 cm. broad; peduncles appressed-pubescent, 2–4 cm. long, nearly erect, or narrowly ascending; heads numerous, turbinate-campanulate, 6–7 mm. high; involucre bracts pubescent, the outer narrowly oblong to lanceolate, obtuse, 5.5 mm. long, the inner broadly oblanceolate, sharply acute, 5 mm. long, 2 mm. wide; corolla 3.5 mm. long, nearly cylindric above the narrowed base, its lobes triangular-ovate, acute; pappus-bristles about one half as long as the corolla; achene cuneate-oblanceolate, 4 mm. long, 1.5 mm. wide at the top, scabrous-pubescent, the wings nearly 1 mm. wide above.

In rocky soil, Lover's Leap, Yardley Chase, Santa Cruz Mountains, at 530 meters altitude (*Britton 1144*, Sept. 4, 1907; type; *Harris 9672*). Nearly related to *C. venosus* Urban, from wet woodlands on the summit of John Crow Peak, at 2000 meters altitude. (See Urban, *Symb. Ant.* 5: 526.)

15. THE GENUS *BADIERA* DC.

BADIERA DC. Prodr. 1: 334. 1824

Type species: *Badiera Penaea* (L.) DC.

Leaves obovate to oblong, 1–4 cm. long, obtuse or emarginate.

Leaves obovate.

Pubescent; leaves 2–2.5 cm. long, papillose-scabrous. 1. *B. Penaea*.

Puberulent, leaves 1.5 cm. long or less.	2. <i>B. virgata</i> .
Leaves oblong.	3. <i>B. oblongata</i> .
Leaves ovate, oval or ovate-lanceolate, 2.5-9 cm. long.	
Leaves bluntly acuminate, or bluntly acute at the apex.	
Leaves 2-3 times as long as wide.	4. <i>B. diversifolia</i> .
Leaves less than twice as long as wide.	5. <i>B. cubensis</i> .
Leaves rounded or emarginate at the apex.	6. <i>B. montana</i> .
Unknown to me, except from description.	7. <i>B. Berteriana</i> .

1. *BADIERA* *PENAEA* (L.) DC. Prodr. 1: 335. 1824

Polygala Penaea L. Sp. Pl. 703. 1753.

Polygala domingensis Jacq. Stirp. Am. ed. min. 252. 1788.

Badiera domingensis DC. Prodr. 1: 335. 1824.

Mountains of Haiti and Santo Domingo. This plant is represented in the herbarium of the New York Botanical Garden by the following specimens: "In montibus, Hispaniola (Jacquemont); Sierra del Palo Quemado, Santo Domingo, at 500 meters (*Eggers* 1897); pineland, Marmelade, Haiti, at 900 to 1100 meters (*Nash* 719; *Nash & Taylor* 1312).

Professor Chodat ignores *Badiera Penaea* in his monograph, and describes *Eggers* no. 1897 as *Polygala domingensis*, not recognizing the genus *Badiera*. Mr. Nash's no. 719, which is in young fruit, so closely resembles the original figure of *Polygala Penaea* L. (Plumier, ed. Burmann, *pl.* 214. *f.* 1) that it appears to me the two supposed species must be one; the character cited by De Candolle (Prodr. 1: 335) of flowers solitary in *B. Penaea* and flowers racemose in *B. domingensis* is doubtful; the Plumier figure shows the plant in fruit, and in this as in other species of the genus often only one flower of the cluster produces fruit.

2. *Badiera virgata* sp. nov.

A shrub or small tree up to 4 meters high, the branches nearly erect, densely leafy, the twigs finely puberulent. Leaves obovate, or obovate-oblongate, rigid, 10 mm. long or less, 4-8 mm. wide, puberulent or minutely papillose-puberulent, or becoming nearly or quite glabrous when old, rounded at the apex, or some of them slightly emarginate, narrowed at the base, the petioles pubescent, 1-1.5 mm. long, the midvein slightly elevated beneath, the lateral venation wholly obscure; flowers several in the axillary clusters or solitary, yellow-green, 2 mm. long; fruiting pedicels 1.5 mm. long; fruit 5 mm. long, the lobes narrowly winged (only imperfect ones with one lobe developed seen).

Thickets in dry soil, Oriente, Camagüey, and Santa Clara, Cuba. (Type, *Britton 2086*, from United States Naval Station, Guantanamo Bay, March 17 30, 1909.)

3. *BADIERA OBLONGATA* N. L. Britton, Bull. N. Y. Bot. Gard. 5: 314. 1907

DISTRIBUTION: Bahama Islands: Andros, New Providence, Cat Island, Acklin's Island, Crooked Island, Watling's Island, Caicos Islands; Cayo Sabinal and mainland of Camagüey, Cuba (*Shafer 878 1085, 077*; also collected in Cuba by Wright, *no. 115* in part).

The Cuban specimens here referred have leaves mostly more obtuse at the base than those of the typical Bahamian plant, but a specimen from Andros Island (*Small & Carter 8681*) seems to be identical with them.

A plant from the palm barren at Santa Clara, Cuba (*Britton & Wilson 6066*), has shorter emarginate leaves 12–20 mm. long, with the midvein deeply impressed above; it is tentatively referred to this species.

4. *BADIERA DIVERSIFOLIA* (L.) DC. Prodr. 1: 334. 1824

Polygala diversifolia L. Sp. Pl. 703. 1753.

Polygala jamaicensis Chodat, Mém. Soc. Phys. Genève 31²: 11. 1893.

Jamaica, in hillside thickets and woodlands in relatively dry districts from sea level up to 1100 meters elevation.

5. *Badiera cubensis* sp. nov.

Polygala diversifolia Chodat, Mém. Soc. Phys. Genève 31²: 10. 1893. Not L.

Leaves ovate to elliptic, 2.5–6 cm. long, 1.5–3.5 cm. wide, bluntly acuminate or acute at the apex, cuneate-narrowed or acute at the base; fruit 7.5–8.5 mm. long, 10 mm. wide, lobed to about one third, the lobes rounded.

Cuban woodlands; type, *Wright, no. 1913* from "La loma pelada, Dec. 27," in herb. N. Y. Bot. Gard.; also collected by Wright at "La Sabanilla" and distributed under this same number; Wright's *no. 3496* belongs to this species, and also part of his *115*, collected in eastern Cuba.

Professor Chodat indicates this Cuban species as occurring also in Jamaica, but this I take to be an error.

6. *Badiera montana* sp. nov.

A shrub, 3 m. high, the twigs densely puberulent. Leaves broadly oval, 4-5 cm. long, 2.5-3.5 cm. wide, firm in texture, quite densely puberulent when unfolding and sparingly puberulent when mature, rounded or slightly emarginate at the apex, acutish at the base, dull dark green, the midvein slightly impressed in the upper surface, elevated on the underside, the lateral veins few, slender, the rather stout puberulent petioles 2-3 mm. long; inflorescence several-flowered; bracts ovate, acute, pubescent, about 0.5 mm. long; fruiting pedicels pubescent, 1.5-2 mm. long; stipe of the fruit 1 mm. long; fruit 8-10 mm. long, 10-12 mm. wide at the top, puberulent, lobed to about one fifth, the lobes rounded-truncate.

Rocky wooded hill, Arroyo Grande, Trinidad Mountains, Cuba, at about 700 meters altitude (*Britton & Wilson* 5461, March 11, 12, 1910).

Differs from *B. cubensis* by its obtuse leaves, larger and longer fruit.

7. *BADIERA BERTERIANA* Spreng. Syst. 3: 172. 1826

Described as with oblong-lanceolate obtuse leaves and recorded as from Hispaniola. Professor Chodat does not refer to this species in his monograph; it was collected by Bertero and called by him *Polygala domingensis*, but Sprengel's description indicates that it is not *Polygala domingensis* of Jacquin, here referred to *Badiera Penaea* (L.) DC.

EXCLUDED SPECIES.

Badiera (?) *acuminata* (Willd.) DC. Prodr. 1: 335 is *POLYGALA ACUMINATA* Willd. Sp. Pl. 3: 887, native of Peru and Chile. Professor Chodat describes it as new in his monograph (p. 46), but the name dates from at least the year 1803.

Badiera (?) *divaricata* DC. Prodr. 1: 335, from Para, South America (presumably Brazil), was not taken up by Mr. A. W. Bennett in the *Flora Brasiliensis*.

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GARDEN—No. 147

STUDIES OF WEST INDIAN PLANTS—IV

By NATHANIEL LORD BRITTON

NEW YORK
1912

Reprinted, without change of paging, from the BULLETIN OF THE TORREY BOTANICAL CLUB
39: 1-14. 10 F 1912

Studies of West Indian plants—IV

NATHANIEL LORD BRITTON

16. DENDROPANAX IN THE WEST INDIES

1. DENDROPANAX ARBOREUM (L.) Dcne. & Planch.

A tree, up to 20 m. high, but usually much smaller and often flowering as a shrub. Leaves chartaceous, from ovate to obovate, mostly acuminate at the apex, narrowed or rounded at the base, often 2 dm. long; inflorescence from shorter than the leaves to equaling them, or longer, the 20 umbels or fewer racemosely arranged and umbellate at the summit, sometimes leafy-bracted, but the bracts usually small, ovate to lanceolate; peduncles of the umbels slender, ascending, up to 3 cm. long in fruit; pedicels $1\frac{1}{2}$ to 3 times as long as the flowers, somewhat elongating in fruit; petals white or greenish; calyx rather sharply toothed, about 2 mm. wide at flowering time; fruit black, strongly lobed, 6-8 mm. thick.

Widely distributed at lower and middle altitudes in moist or wet districts in Jamaica, Cuba, Hispaniola, Porto Rico, and on Signal Hill, St. Thomas. Ascends to 1,600 meters in Jamaica.

2. DENDROPANAX SAMYDIFOLIUM (C. Wright) Seem.

This species is known to me only from the original specimens collected by Wright at S. Felepina near La Grifa, western Cuba; Wright's description calls for a tree up to 13 meters high. The leaf base is decurrent on the petiole. The species seems very closely related to *D. arboreum*, which is abundant in the mountains and hills of western Cuba.

3. **Dendropanax brachypodum** (Urban) Britton nom. nov.
Gilibertia brachypoda Urban, Symb. Ant. 5: 452. 1908.

A short-petioled and long-pedicelled Haitian mountain species, related to *D. arboreum*, known to me only from Professor Urban's description.

4. **DENDROPANAX LAURIFOLIUM** (E. March.) R. C. Schneider
A detailed description of this endemic Porto Rico mountain tree is published by Professor Urban in *Symbolae Antillanae* 1: 203.

5. **DENDROPANAX CUNEIFOLIUM** (C. Wright) Seem.

A shrub or tree up to 6 m. high, the branches slender, often drooping. Leaves spatulate to oblong-ob lanceolate, 2 dm. long or less, 1.5-6 cm. wide, obtuse, or bluntly acute at the apex, cuneate at the base, the petiole $1/6$ to $1/4$ the length of the blade; peduncle slender, straight, as long as the leaves or longer; umbel 7-20-flowered; pedicels 1.5-2 cm. long; petals green, acute; flowering calyx about 4 mm. broad; fruit globose to globose-oblong, black, 6-8 mm. thick, the persistent style about half its length.

Banks of streams and wooded bogs at lower and middle elevations, Pinar del Rio and Isle of Pines, Cuba.

6. **DENDROPANAX NUTANS** (Sw.) Dcne. & Planch.

A shrub with stout gray branches. Leaves ovate to ovate-elliptic, coriaceous, 10 cm. long or less, acute or short-acuminate at the apex, narrowed or rounded at the base, the veins rather prominent on the under side, the stout petioles very unequal in length, sometimes two thirds as long as the blade; peduncle stout, 5-7 cm. long, bracted at or near the base; umbels many-flowered, inclined or nodding; pedicels 2-3 cm. long; flowering calyx 5 mm. broad.

Known only from Blue Mountain Peak, Jamaica, where it is reported as abundant. Professor Urban (*Symb. Ant.* 1: 200) characterizes the umbel as strictly erect, but it is inclined or nodding in all specimens seen by me.

7. **DENDROPANAX PENDULUM** (Sw.) Dcne. & Planch.

A shrub about 4 m. high. Leaves chartaceous in texture, ovate, acute or bluntish at the apex, rounded or subcordate at the base, triplinerved and rather prominently pinnately veined,

the blades 12 cm. long or less, nearly twice as long as wide; petioles rather stout, one half to two thirds as long as the blades; peduncle much longer than the leaves, pendulous, 2 dm. long or less, bracted and jointed a little below the middle; umbel many-flowered; pedicels slender, 15-18 mm. long; flowering calyx broadly turbinate, 3.5 mm. broad; petals oblong-lanceolate, about as long as the calyx.

Cockpit Country, Jamaica, *Harris 9188*, from Lapland, near Catadupa; this specimen agrees with the type specimen of *Hedera nutans* Sw., in the herbarium of the British Museum of Natural History. The species is also recorded by Marchand from Catharine's Peak, collected by *Eggers, 3651*, which I have not seen.

8. *Dendropanax grandiflorum* sp. nov.

A tree, about 8 m. high. Leaves chartaceous, obovate, 5-10 cm. long, 5 cm. wide or less, bluntly pointed at the apex, cuneate-narrowed at the base, rather strongly pinnately veined, the margins slightly revolute, the stout petioles about 1 cm. long or less; inflorescence of simple, terminal, few-flowered umbels, or rarely a secondary umbel borne halfway up on the peduncle; peduncle rather stout, 3-5 cm. long, bracted and jointed just above the base; flowers 8 or fewer in the umbels; pedicels rather stout, nearly erect, 1.5-2 cm. long; flowering calyx 8 mm. high, narrowly campanulate, its mouth 6-7 mm. broad; corolla 5 mm. long just before expanding, the bud rounded; anthers in the unopen bud about as long as the filaments; fruit oblong, 1 cm. long, 7 mm. thick, the persistent style 6-7 mm. long.

Peckham woods, Upper Clarendon, Jamaica, July 7, 1911, *Harris 10994*.

9. *Dendropanax elongatum* sp. nov.

A slender tree about 8 m. high. Leaves clustered at the ends of the branches, oblong to oblong-lanceolate, coriaceous, faintly pinnately veined, acute at the apex, narrowed or somewhat rounded at the base, the blade 15 cm. long or less; the petiole one sixth to one third as long as the blade; peduncle shorter than the larger leaves, 8-12 cm. long, bracted somewhat below the middle, the bracts triangular-ovate, apparently nearly erect; very young inflorescence depressed-hemispheric, 8 mm. broad; the flower buds sessile or nearly so.

Peckham woods, Upper Clarendon, Jamaica, at 800 to 900 meters elevation, January 3, 1910, *Harris 10874*.

The very young state of the inflorescence does not enable me to give a description of the flowers of this interesting tree, and its generic position is therefore uncertain. Its jointed and bracted peduncle is similar to that of *Dendropanax pendulum*, but its foliage is altogether different from that species.

10. *Dendropanax grande* sp. nov.

A tree up to 16 m. high. Leaves clustered at the ends of the branches, ovate to ovate-elliptic, coriaceous in texture, rather prominently pinnately veined, obtuse at both ends, the blade 15 cm. long or less, the stout petioles as long as the blades, or shorter; peduncle much shorter than the leaves, erect, stout, about 4 cm. long, bracted at the base; pedicels numerous, about 50, rather stout, 2 cm. long; flowering calyx subhemispheric, 5 mm. broad; petals lanceolate, about as long as the calyx; filaments rather stout, somewhat longer than the petals.

Moneague, Jamaica, *Alexander Prior*, May 1850.

11. *Dendropanax blakeanum* sp. nov.

A slender tree about 8 m. high. Leaves clustered near the ends of the branches, elliptic, or somewhat obovate-elliptic, rather coriaceous in texture, faintly pinnately veined, sharply acute at the apex, cuneate at the base, 10 cm. long or less; the petiole one fifth to one third as long as the blade; peduncle erect, as long as the leaves or twice as long, bracted at the base; umbels 8-16-flowered; pedicels slender, 2 cm. long in fruit; flower buds ovoid-hemispheric, obtuse, 3 mm. long just before the petals unfold; calyx in young fruit turbinate, 4 mm. broad; fruit subglobose, 5 mm. in diameter; the conic persistent style 2.5 mm. long.

John Crow or Blake Mountains, Jamaica, at 550 meters elevation, *Harris & Britton 10761*, collected March 10, 1909.

Differs from *Dendropanax nutans* in the longer, strictly erect, few-flowered peduncles, and in the venation, texture, and shape of the leaves.

12. *Dendropanax cordifolium* sp. nov.

A tree about 6 m. high. Leaves clustered at the ends of the branches, chartaceous in texture, broadly ovate, prominently pinnately veined, obtuse, or short-acuminate at the apex, cordate, or subcordate at the base, the blades 2 dm. long or less, about two thirds as wide as long, the stout petioles about one half as long as

the blades, or shorter; peduncle stout, bracted at and very near the base, inclined, longer than the petioles, 12-15 cm. long; umbels many-flowered; pedicels rather slender, 2.5 cm. long; flowering calyx broadly turbinate, 4-5 mm. broad; petals white, about as long as the calyx; filaments somewhat longer than the petals; persistent style of the young fruit very broadly conic, 2 mm. long or less.

Woodlands, summit of Dolphin Head, Jamaica, March 17, 1908, *Britton & Hollick 2856*.

17. THE GENUS CAMERARIA (PLUMIER) L.

The genus was accepted by Linnaeus from Plumier, *C. latifolia* being the type species, and *C. angustifolia* L. also appearing in the original publication of the genus, which is wholly West Indian in distribution, so far as I am aware.

1. CAMERARIA LATIFOLIA L. Sp. Pl. 210. 1753

This is a shrub or tree up to 15 m. high, as observed by me at the United States Naval Station, Guantanamo Bay, Cuba. It has characteristic ovate-elliptic acuminate leaves. Its fruit is about 6 cm. long. The species seems to be widely distributed in Cuba; occurring in the provinces of Oriente, Matanzas, and Havana. In Jamaica it is apparently rare, the only specimen seen by me being one collected by Dr. A. Hollick and myself (2045) in rocky woods at Negril, the extreme western end of that island. It is recorded from Haiti but I have seen no specimens from Hispaniola, which is presumably the type locality.

2. CAMERARIA ANGUSTIFOLIA L. Sp. Pl. 210. 1753

My knowledge of this species rests wholly on Plumier's description and *plate 72, figure 2*, where it is illustrated as having linear-acuminate leaves and fruit 2.5 cm. long. According to Miller, cited by Grisebach, *Fl. Br. W. I.* 410, it was found in Jamaica, but it is unknown to us from that island.

3. CAMERARIA RETUSA Griseb. *Fl. Br. W. I.* 410. 1861 (*C. angustifolia* Griseb. loc. cit. not L.)

This is wholly a Cuban species, so far as it is represented in our collections, occurring in the provinces of Santa Clara, Havana,

Pinar del Rio, and on the Isle of Pines. It has lanceolate to oblong leaves, which are obtuse and emarginate at the apex. Its fruit is about 2 cm. long, the narrowly linear terminal wing about as long as the ovoid body. Its flowers are only about 1 cm. long, the corolla limb about 1.5 cm. wide.

I take as the type of this species the specimen from "West Indies," collected by *Lane*, and preserved in the Kew Herbarium.

4. *Cameraria oblongifolia* sp. nov.

A tree 4-6 m. high with slender twigs. Leaves oblong to oblong-lanceolate, acutish to obtuse or minutely emarginate at the apex, narrowed at the base, 2-3.5 cm. long, 14 mm. wide or less, the slender petiole about 2 mm. long; corolla about 17 mm. broad; fruit compressed, lanceolate, 2-3 cm. long, about 1 cm. wide, grooved at the base on one side, the terminal wing oblong-triangular, obtuse, about as long as the body.

In wet woods near Tiffin, Camagüey, November 1-5, 1909, *Shafer* 2877; also represented by part of Wright's Cuban *no.* 2950, collected at Hanabana.

The other part of Wright's 2950, which has ovate-lanceolate acuminate leaves, may represent another species. It has much more slender and longer petioles than *C. oblongifolia*, but the specimens examined by me are too imperfect to afford a complete description. Combs' *no.* 19, collected in Cieneguita in the province of Santa Clara, appears to be the same as this, but our specimen of that number also is incomplete.

5. *Cameraria microphylla* sp. nov.

A tree up to 5 m. high, intricately branched, the twigs very slender. Leaves oblong to oblong-obovate, 1 cm. long or less, 2-4 mm. wide, emarginate at the apex, narrowed at the base, the margins strongly revolute; fruit 2 cm. long, 4-6 mm. wide, compressed, the wing oblique, sinuate, terminal and lateral, similar to that of *C. latifolia* but very much smaller.

Near the northwestern end of Cayo Coco, Camagüey, October 23-24, 1909, *Shafer* 2709.

18. UNDESCRIBED SPECIES FROM JAMAICA

Acalypha jamaicensis sp. nov.

A shrub, 2-2.7 m. high, the branches slender, the young ones densely pubescent. Leaves oblong-lanceolate to oblong-oblanccolate, thin in texture, rather strongly pinnately veined, 9-15 cm. long, 3-5 cm. wide, sharply serrate all around, long-acuminate at the apex, subcordate at the base, sparingly pubescent above, rather densely pubescent on the veins beneath, the slender pubescent petioles 4 cm. long or less; flowers apparently monoecious; staminate spikes dense, pubescent, slender-stalked, about 3 cm. long, the short narrow bracts ciliate; pistillate spikes 3-6 cm. long, their bracts ciliate and pubescent, especially on the veins, 5-7-cleft to about the middle, the lobes obtuse or acutish; style dissected into filiform segments; fruit compressed, pubescent, 2 mm. broad.

Woodlands, Upper Clarendon, Jamaica. Type, *Harris 10842*, collected at Leicesterfield, January 28, 1910.

Related to *A. pruinosa* Urban, a nearly glabrous species with more deeply cleft pistillate bracts.

Actinostemon jamaicensis sp. nov.

A tree, up to 10 m. high, with slender, somewhat drooping branches, glabrous throughout. Leaves ovate to oblong-lanceolate, thin, 5-7 cm. long, 2-3.5 cm. wide, acuminate at the apex, rounded or narrowed at the base, shining above, pale beneath, pinnately veined, the very slender petioles 1 cm. long or less; staminate inflorescence interruptedly spicate, slender, 4-5 cm. long, flowers opposite the upper leaves; stamens 12, in clusters of 3, the united part and the free part of the filaments about equal in length; fruit depressed-globose, 9-12 mm. broad, 8-9 mm. high, both apex and base slightly sunken; seed globose, 3-3.5 mm. in diameter.

Thickets, Grant's Pen, near Yallah's Bay, Jamaica, May 26, 1911, *Harris 10936*, type; also at the same station, *Harris 10643*, *10818*, and *10826*, *Britton 3470* and *3913*; coastal thickets, Morant Point, *Britton 4103*.

Clusia clarendonensis sp. nov.

A small tree, up to 5 meters high. Leaves thick, rigid, obovate, 10 cm. long or less, 5-7 cm. wide, rounded at the apex, narrowed at the base, finely but rather strongly pinnately veined, the stout

petioles 4-6 mm. long; fruiting peduncles stout, 3 cm. long; inflorescence about 3-flowered; fruiting pedicels about 1 cm. long; bracts triangular-ovate, acute, rigid, 5 mm. long; fruit oblong, obtuse, 2.5 cm. long, 1.5 cm. thick, the persistent sepals broadly triangular-ovate, scarious-margined; stigmas 5.

Peckham woods, Upper Clarendon, Jamaica, in fruit July 7, 1911, *Harris 10992*. Related to *C. venosa* Jacq.

Maytenus clarendonensis sp. nov.

A tree, up to 18 meters high. Leaves broadly elliptic, coriaceous, obtuse at both ends, 8-10 cm. long, 5-7 cm. wide, strongly revolute-margined, shining above, dull, and the veins rather prominent beneath, the stout petioles 1 cm. long or less; fruiting pedicels about 6 mm. long; capsules oblong, pointed at both ends, 15-18 mm. long, 8 mm. thick, roughened with depressed tubercles.

Peckham woods, Upper Clarendon, Jamaica, in fruit July 5, 1911, *Harris 10947*. Related to *M. jamaicensis* Krug & Urban.

Portlandia Harrisii sp. nov.

A small tree up to 6 meters high. Leaves orbicular, coriaceous, sessile, 8-10 cm. long and broad, rounded at the apex, cordate at the base, shining and reticulate-veined on both surfaces; stipules broad, obtuse; flowers 2-5 together in the upper axils, about 5 cm. long; corolla campanulate, the tube apparently about as long as the limb; fruiting pedicels stout, 6-8 mm. long; immature capsules obovoid, obtusely 5-angled, 2 cm. long, 1.5 cm. thick, crowned by the short calyx teeth.

On limestone rocks, Peckham woods, Upper Clarendon, July 6, 1911, *Harris 10975*. Only old withered fallen corollas were obtained.

Rondeletia saxicola sp. nov.

A shrub about 4 meters high, the twigs pilose-pubescent. Leaves thin, oblanceolate to oblong, acute at the apex, narrowed at the base, rather dark green and loosely appressed-pubescent above, paler green and loosely pilose-pubescent at least on the veins beneath, pinnately veined, 7-10 cm. long, 3 cm. wide or less, the pilose petioles about 1 cm. long; flowers in short-stalked globose clusters about 1 cm. in diameter, the rather stout, densely pubescent peduncles 5-8 mm. long; bracts linear, acute, 5-8 mm. long; calyx 4 mm. long, pubescent, lobed to below the middle, the lobes narrowly lanceolate, acute; fruit pubescent, about 5 mm. thick.

Rocky Cliff, Somerset, Manchester, September 23, 1908,
Harris & Britton 10609.

***Bidens clarendonensis* sp. nov.**

Perennial, glabrous, the stem and branches terete, trailing, somewhat woody. Leaves firm in texture, 4-7 cm. long, rhombic-ovate, acute at the apex, rather coarsely serrate, except at the broadly cuneate base, with slightly incurved gland-tipped teeth with revolute margins, the venation rather prominent, the petioles one fourth to one third as long as the blades; heads several together, on stalks 1.5 cm. long or less; involucre nearly hemispheric, many-flowered, its bracts about 1 cm. long, linear, obtuse or with a triangular acutish tip, 1.5-2 mm. wide; ray flowers about 5, 1.5-2 cm. long, the rays oblong, orange yellow, 2-toothed, 6-7 mm. wide, the tube about 3 mm. long; disk flowers 6 mm. long, the cylindric limb acutely 5-toothed; achenes 1 cm. long, less than 0.5 mm. thick, pappus of 1 or 2 subulate awns about 0.5 mm. long at flowering time, becoming 2 mm. long and downwardly barbed at maturity.

Peckham woods, Upper Clarendon, July 7, 1911, *Harris 10987.*

19. UNDESCRIBED SPECIES FROM CUBA

***Mettenia acutifolia* Britton & Wilson sp. nov.**

A slender tree, 3-8 m. high, with hirsutulous twigs and petioles. Leaves ovate, occasionally lanceolate, 2-6 cm. long, 1-3.4 cm. broad, bluntly acuminate at the apex, rounded and equilateral or nearly so at the base, obscurely reticulate-veined and more or less pubescent with blackish hairs along the midrib and lateral veins above, hirsutulous on the midrib and lateral veins beneath, the margin ciliate; flowers unknown; valves of the capsule with crowded conic or subpyramidal tubercles, each tubercle tipped with a hair; seeds (immature) brownish black, lustrous, 4 mm. long, 3 mm. broad.

Camp La Gloria, south of Sierra Moa, Oriente, Cuba, December 30, 1910, *Shafer 8250*. Distinguished from *M. globosa* (Sw.) Griseb. by its spreading pubescence and by its pointed leaves.

***Clerodendron* (?) *calcicola* sp. nov.**

A tree, 8 m. high, the branches smooth, the bark flaky in narrow strips. Leaves opposite, coriaceous, ovate to ovate-elliptic,

distantly low-serrate, 10 cm. long or less, 3-5 cm. wide, glabrous, shining and with the inconspicuous venation somewhat impressed above, pale, strongly reticulate-veined with elevated venation, and rather densely pubescent beneath, the stout nearly terete petioles puberulent, 8-12 mm. long; flowers and fruit unknown.

Apparently related to *C. spinosum* Urban, of Santo Domingo, which has similar leaves with bristle-tipped teeth and villous petioles.

***Pseudocarpidium pungens* sp. nov.**

A tree 8 m. high, the twigs slender. Leaves oblong to oblanceolate, 3-7 cm. long, 3 cm. wide or less, chartaceous, strongly pinnately veined, spinulose-dentate, the apex acuminate, spinulose-tipped, the base obtuse, the upper surface smooth and shining, the under surface dull and puberulent; fruit irregularly 4-lobed, puberulent, depressed, 8 mm. in diameter.

Hillside, near Guantanamo, Oriente, Cuba, March 1909, Britton 1992, type; Sevilla Estate, near Santiago, Oriente, Cuba, Norman Taylor 19.

Related to *P. avicennioides* (A. Rich.) Millsp., which has entire leaves and more deeply lobed fruit.

***Pseudocarpidium rigens* (Griseb.) Britton comb. nov.**, *Vitex rigens* Griseb., has glabrous oblong to oblanceolate shining leaves, spinulose-dentate, at least above the middle, or some of them entire.

***Portlandia nitens* sp. nov.**

A slender shrub, about 3 meters high. Leaves sessile, coriaceous, broadly ovate-elliptic, rounded at the apex, cordate or subcordate at the base, inconspicuously pinnately veined, shining above, dull beneath, 9 cm. long or less, the upper much smaller than the lower; flowers corymbose; pedicels short, viscid; calyx viscid, its lobes linear, about 8 mm. long; corolla pink, campanulate, 2.5 cm. long; capsule obovoid-oblong, 13 mm. long.

Dry thicket, upper valley of the Rio Navas, Oriente, March 22, 1910, Shafer 4450.

***Elaeagia cubensis* sp. nov.**

A shrub, up to 3.2 meters high, the branches rather stout, the young twigs, branches of the inflorescence, and pedicels minutely pubescent. Leaves chartaceous, oblong or oblong-obovate, 7 cm. long or less, 2.5-3 cm. wide, abruptly short-acuminate at the apex,

narrowed at the base, strongly pinnately veined, the petioles 6-9 mm. long; stipules narrow, obtuse, deciduous, 1 cm. long; panicles rather loosely flowered, 7 cm. long or less, minutely bracteolate; pedicels 2-3 mm. long; calyx tube obconic, 2 mm. long, the limb with 5 short rounded lobes; corolla white, 4 mm. long, its narrowly oblong lobes twice as long as the tube; filaments about as long as the corolla, the scale near the base of each with a dense tuft of white hairs; stigmas one fourth as long as the style.

Monte Jiquarito, Sierra Maestra, Oriente, Cuba, at about 1,100 meters altitude, September 18, 1906, *Norman Taylor 515*.

The genus has been hitherto known only from the South American Andes.

20. NOTES ON SPECIES OF SOLANUM

SOLANUM BLODGETTII Chapm.

This species is cited by Mr. O. E. Schulz* as a synonym of *Solanum bahamense subarmatum* (Willd.) O. E. Schulz, but he has wholly misunderstood its type specimens, which show that it is more nearly related to *S. verbascifolium* than to *S. bahamense*; it grows plentifully on Key West, Florida (*Blodgett*, type; *Merrill; Pollard, Collins & Morris 3; Britton 520; Lansing 1969*), in the Florida Everglades (*Britton 237; Small & Wilson 1678, 1962; Small & Carter 2674, 2675, 2936, 3101*), and is to be added to the West Indian Flora, as it occurs on Cat Cay, Bahamas (*Millsbaugh 2341; Brace 3749*).

The varietal name *Solanum bahamense subarmatum*, under which Mr. Schulz groups nearly or quite unarmed specimens of *S. bahamense*, is redundant, for there is every transition from very prickly plants to entirely unarmed ones throughout the range of the species, individual bushes often bearing prickles below and being quite devoid of them above. *Harris 8169*, from Plowden Hill, Jamaica, as represented by our specimen, is unarmed, though the duplicate of it, examined by Mr. Schulz, is referred by him to the typical prickly form.

SOLANUM BOLDOENSE A. DC.

This interesting Cuban vine is apparently of quite local distribution at widely separated stations; about Matanzas it

* Urban, *Symb. Ant.* 6: 223.

grows especially in the famous gorge of the Yumury or Yumuri River (*Rugel 145*). Mr. Schulz (loc. cit. 170) erroneously spells this "Tomory," while Mr. A. H. Moore* also has it wrong as "Sumuri." This gorge is one of the scenic attractions of the northern coast of Cuba; the handwriting of Rugel's labels is somewhat difficult to decipher. In Pinar del Rio it inhabits limestone rocks at San Diego de los Baños (*Britton, Earle & Gager 6674*); C. Wright's specimen 381 was collected in Oriente; the locality of the type specimen is doubtfully cited as Havana.

21. NOTES ON TWO JAMAICA PLANTS

AMPELOCISSUS ALEXANDRI Urban, Symb. Ant. 6: 15. 1909

To the description may be added "berry depressed-globose, black, shining, 1.5 cm. in diameter, the pulp watery; seeds 2 or 3, depressed-obovoid, slightly rugose, rather deeply and broadly grooved, 5 mm. long, 4 mm. wide."

Wooded hillside, Union Hill near Moneague, St. Ann's, Jamaica, at 500 meters altitude, *Britton & Hollick 2767*; this station is within a few miles of the type locality at Mount Diablo.

TABERNAEMONTANA DISCOLOR Sw. Prodr. 52. 1788

Tabernaemontana ochroleuca Urban, Symb. Ant. 6: 34. 1909.

An examination of the type specimen of Swartz' species in the herbarium of the British Museum of Natural History establishes the identity of these species.

22. THE GENUS GINORIA IN CUBA

GINORIA AMERICANA Jacq.

As intimated by Koehne (*Bot. Jahrb.* 3: 349) this species may sometimes bear spines, as observed by me on plants in the palm barren at Santa Clara, in March, 1910 (*Britton & Wilson 6093*). This shrub grows along brooks and streams, attaining a height of 2.5 meters, at lower elevations in all provinces of Cuba, ascending to 160 meters in Oriente.

* *Proc. Am. Acad.* 42: 536.

GINORIA SPINOSA Griseb. Cat. Pl. Cub. 106. 1866

I know this only from *Wright's 2545*, collected in eastern Cuba (not western Cuba, as cited by Koehne). Rugel's 727 from the Rio San Juan at Matanzas, as shown by our specimen, is certainly *G. americana* Jacq. and was so written up by Grisebach, though this number, as studied by Koehne, is by him referred to *G. spinosa*. The true *G. spinosa* Griseb. (*Wright 2545*) is quite a different plant, with much smaller leaves and acicular spines; it is possible, however, that the species are not distinct.

GINORIA GLABRA Griseb. Cat. Pl. Cub. 106. 1866

Known to me from *Wright's 2544*, collected in eastern Cuba; and from *Shafer's 8784*, collected at Farallon de la Perla, Oriente, where it grows on cliffs as a shrub 6 dm. high. It is evidently quite distinct from the other species.

***Ginoria arborea* sp. nov.**

A tree, 8 meters high, the trunk up to 2.5 dm. thick, the bark gray, the branching irregular, the twigs of the season 4-angled with internodes 5-15 mm. apart; nodal spines 4, spreading, recurved, yellowish, 1-1.5 mm. long. Leaves sessile, linear-oblong, 1.5-3 cm. long, 2-5 mm. wide, coriaceous, bright green, shining, obtuse at the apex, narrowed at the base, strongly pinnately veined, the veins prominent on both surfaces; flowers solitary in the axils; pedicels filiform, a little shorter than the leaves; sepals triangular-lanceolate, acute, 4 mm. long.

Thicket, Leeward Point, United States Naval Station, Guantanamo Bay, Cuba, March 1909, *Britton 2217*.

GINORIA CURVISPINA Koehne, loc. cit. 349. 1882

In the palm barren near Santayana, Camagüey, this species is a shrub 1 meter high (*Britton 2368*); near Tiffin, Camagüey, it grows in wet woods and becomes nearly 3 meters high.

***Ginoria ginorioides* (Griseb.) Britton comb. nov.**

Diplusodon ginorioides Griseb. Cat. Pl. Cub. 106. 1866.

Ginoria Diplusodon Koehne, Bot. Jahrb. 3: 350. 1882.

This beautiful shrub or tree inhabits cliffs and rocky hillsides; in the province of Santa Clara it ascends to 560 meters on the

southern slope of the Trinidad Mountains, and at sea level on the southern coast becomes a tree up to 7 meters high; the flowers are rose pink to purple and densely cover leafless branches in March.

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STUDIES OF WEST INDIAN PLANTS—V

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Studies of West Indian plants—V

NATHANIEL LORD BRITTON

23. ADDITIONAL SEDGES FROM JAMAICA*

CYPERUS COMOSUS Poir. in Lam. Encycl. 5: 185. 1817
Shettlewood, Hanover (*Harris 11647*).

DISTRIBUTION: Cuba; continental tropical America.

SCIRPUS CUBENSIS Kunth, Enum. 2: 172. 1837

River Head, near Ewarton (*Underwood 1860*).

DISTRIBUTION: Southern United States; Cuba; Hispaniola;
Trinidad; continental tropical America; tropical Africa.

RYNCHOSPORA CYMOSA (Michx.) Ell. Bot. S. C. and Ga. 1: 58.
1816

Savannah, Upper Clarendon (*Harris 11103*).

DISTRIBUTION: Southeastern United States; Cuba; Hispaniola;
Porto Rico; Martinique; South America.

Rynchospora jamaicensis sp. nov.

Rootstocks short; culms clustered, slender, 6–8 dm. long, reclining. Leaves 2–3 mm. wide, rather stiff, the lower 2–5 cm. long, the middle ones 12–15 cm. long, those subtending the clusters of spikelets 6–10 cm. long; sheaths of all the leaves densely short-pubescent; spikelets loosely paniced in several distant axillary clusters and in a terminal one, short-pedicelled, the axis of the inflorescence loosely pubescent; spikelets narrowly conic, 4–5 mm.

* See Bull. Dept. Agric. Jam. 5: Suppl. 1. 1907. Bull. Torrey Club 35: 568, 569. 1909.

long, maturing 2 achenes; lower empty scales broadly ovate, the others lanceolate, acuminate; bristles none; achenes obovate-orbicular, 1 mm. long, pale brown, shining, finely cancellate; tubercle triangular-lanceolate, acuminate, flat, about one-third longer than the achene, its base nearly truncate.

Rocky banks in the Blue Mountains of Jamaica; *type*, from Hardware Gap, *N. L. Britton* 3322, collected Sept. 9, 1908. Related to *R. elongata* (Boeckl.) Clarke, and to *R. polyphylla* Vahl, but at once distinguished from them by its pubescent sheaths.

24. THE GENUS PITHECOLOBIUM IN CUBA

A. Pods curved or coiled, dehiscent, the valves twisting after separating.

1. Seeds with a fleshy aril; stipules spinescent; pinnae 1 or 2 pairs; leaflets 2-4 pairs.
 - Leaflets 1-6 cm. long (species perhaps confluent).
 - Leaflets spinulose-mucronate. 1. *P. circinale*.
 - Leaflets obtuse or mucronulate.
 - Leaflets chartaceous; petioles of the lower leaves, at least, longer than the petiolules. 2. *P. Unguis-cati*.
 - Leaflets coriaceous; petioles shorter than the petiolules or as long.
 - Petioles and petiolules stout; leaflets large, 2.5-6 cm. long. 3. *P. guadalupense*.
 - Petioles and petiolules slender; leaflets small, 1-3 cm. long. 4. *P. bahamense*.
 - Leaflets only 3-7 mm. long. 5. *P. Hystrix*.
2. Seeds without a fleshy aril; stipules not spinescent; pinnae 2 pairs or more; leaflets 3 pairs or more.
 1. Leaflets obovate to oval, large, 1.5-6 cm. long, 3-6 pairs to each pinna.
 - Calyx subtruncate at base; seeds oblong, about twice as long as wide. 6. *P. savannarum*.
 - Calyx narrowed at base; seeds suborbicular to obovate.
 - Pinnae 3 or 4 pairs; leaflets 4-6 pairs; calyx narrowly campanulate, thin. 7. *P. discolor*.
 - Pinnae 1 or 2 pairs; leaflets 2-4 pairs; calyx broadly campanulate, coriaceous.
 - Calyx truncate, its teeth minute, mucronulate. 8. *P. truncatum*.
 - Calyx teeth large, broadly ovate.
 - Calyx short-campanulate; stamen-tube short; leaflets broadly obovate. 9. *P. obovale*.
 - Calyx long-campanulate; stamen-tube 5-6 mm. long; leaflets oblong to obovate. 10. *P. pinetorum*.

2. Leaflets linear to oblong, small, 5-16 mm. long,
6-many pairs to each pinnule.
Leaflets 2-3 mm. long, oblong, coriaceous. 11. *P. nipense*.
Leaflets 5-16 mm. long, thin, dull.
Leaflets obliquely oblong, narrowed at base. 12. *P. asplenifolium*.
Leaflets linear, linear-lanceolate or oblong,
obtuse, rounded or subcordate at the base.
Leaflets oblong, 5-7 mm. long. 13. *P. trinilense*.
Leaflets linear.
* Pinnae 2 pairs; leaflets acute, strongly
veined; pod compressed. 14. *P. guantanamense*.
Pinnae 3-11 pairs; leaflets obtuse, not
strongly veined; pod swollen. 15. *P. arboreum*.

B. Pods straight, or curved, indehiscent, or dehiscent, the valves not twisting.

Unarmed trees.

- Pod straight or a little curved, compressed, turgid,
fleshy; leaflets oblong to obovate, large. 16. *P. Saman*.
Pod straight, thin, very flat, chartaceous; leaflets
linear, small, very numerous. 17. *P. Berterianum*.

Trees or shrubs, armed with spinescent stipules (*P. tortum*
sometimes unarmed).

- Pod coriaceous, tardily dehiscent; stamens 2 cm. long
or less, the tube short; leaflets many; spines straight. 18. *P. tortum*.
Pod chartaceous, thin and flat, dehiscent; stamens 5-6
cm. long, the tube much exerted; leaflets few;
spines curved. 19. *P. prehensile*.

**1. PITHECOLOBIUM CIRCINALE (L.) Benth. Lond. Journ. Bot.
3: 201. 1844**

Mimosa circinalis L. Sp. Pl. 517. 1753.

Thickets in dry districts at low elevations, southern Oriente;
Hispaniola.

Bentham's record of this species for the Bahamas appears
to refer to *P. mucronatum* Britton, which has quite different
leaves. The Oriente plant differs from the typical one of His-
paniola in having smaller, thicker leaflets, less cuneate at the
base, and is either glabrous or densely pubescent.

**2. PITHECOLOBIUM UNGUIS-CATI (L.) Mart. Hort. Monac. 188.
1829**

Mimosa Unguis-cati L. Sp. Pl. 517. 1753.

Cayo Sabinal, Camagüey (*Shafer* 1063); recorded by Richard
as in various parts of the island, but is apparently rare. West
Indies (except Bermuda); northern South America.

3. *PITHECOLOBIUM GUADALUPENSE* Chapm. Fl. S. U. S. 116.
1860

Cays of Camagüey; Bahamas; Florida Keys.

4. *PITHECOLOBIUM BAHAMENSE* Northrop, Mem. Torrey Club
12: 38. 1909

Cays of Camagüey; Bahamas.

5. *PITHECOLOBIUM HYSTRIX* (A. Rich.) Benth. in Hook. Icon. Pl.
pl. 1168. 1876

Inga Hystrix A. Rich. Ess. Fl. Cub. 1: 471. 1845.

Pithecolobium calliandrifolium C. Wright; Griseb. Cat. Pl. Cub.
83. 1866.

Coastal thickets and hillsides: Camagüey, Santa Clara,
Havana, Pinar del Río; Bahamas.

6. *Pithecolobium savannarum* sp. nov.

A tree up to 7 m. high, with smooth bark, the foliage finely and densely puberulent when young, glabrous or sparingly puberulent when old. Leaves 1.5–2 dm. long, the rather stout petioles 1–2.5 cm. long, the glands somewhat elevated; pinnae about 4 pairs, the petiolules slender, 2 cm. long or less; leaflets 4–6 pairs, obliquely obovate, 1.5–3 cm. long, chartaceous, loosely reticulate-veined, deep green and somewhat shining above, pale and dull beneath, obtuse or retuse at the apex, acute at the base; peduncles axillary, slender, striate, glabrous, 7–9 cm. long; flowers short-racemose, white; pedicels slender, glabrous, 3–6 mm. long; calyx 3–4 mm. long, subtruncate at the base, campanulate, its teeth acute, ovate, often somewhat unequal; corolla funnelform, appressed-pubescent, 8 mm. long, its lobes ovate-oblong; stamens 15 mm. long, united about one-third their length; ovary and young pod densely pubescent; old pods 8–10 cm. long, the valves doubly coiled after dehiscence, moniliform, 4–6 mm. wide across the seed cavities, 2 mm. wide between them; seed cavities oblong, 8–10 mm. long.

Along a water course on barren savannas southeast of Holguín, Oriente, April 7, 1909 (*Shafer 1194*).

7. *Pithecolobium discolor* sp. nov.

A shrub 3 m. high, or a small tree up to 7 m. high, the young twigs and leaves densely puberulent, the old leaves glabrous or

somewhat puberulent, 1-2 dm. long, the stout petioles 2 cm. long or less, the glands on the rachis between the pinnae orbicular, small. Pinnae 3 or 4 pairs; leaflets 4-6 pairs, obovate, chartaceous, 1.5-2.5 cm. long, dark green above, pale beneath, loosely reticulate-veined, obtuse or retuse at the apex, obliquely narrowed at the base; peduncles axillary, puberulent above, 5-11 cm. long; flowers short-racemose; pedicels puberulent, 4-6 mm. long; calyx narrowly campanulate, 4-5 mm. long, narrowed to the base, puberulent, its teeth ovate, 1 mm. long; corolla 7-8 mm. long, campanulate-funnelform, pubescent, its lobes oblong-ovate, ciliate; stamens 1.5-2 cm. long, the filaments united about one-fourth their length; pod coiled, 6-8 cm. long, 8-10 mm. wide, more or less constricted between the seeds; seeds blue and white, shining, orbicular, 4 mm. broad, the funicle slender.

Provinces of Havana, Pinar del Rio and Camagüey. Type from Batabano, April 10, 1903 (*Shafer 161*); apparently the same species at Old Kerr's Point, Abaco, Bahamas (*Brace 2017*).

8. *Pithecolobium truncatum* sp. nov.

A tree up to 12 m. high, the bark rough, the young twigs and leaves brownish-puberulent, the old foliage glabrous. Leaves 15 cm. long or less; petiole stout, 1-2 cm. long; glands oblong-orbicular; pinnae 1 or 2 pairs; leaflets 3 or 4 pairs (on leaves of shoots 1 or 2 pairs), obovate, coriaceous, 1.5-4 cm. long (those of shoots larger and suborbicular), obtuse at the apex, narrowed at the base, pinnately veined; peduncles axillary, 4-9 cm. long; flowers short-racemose; pedicels stout, puberulent, about 2 mm. long; calyx broadly campanulate, puberulent, coriaceous, 3 mm. long, the limb truncate, the teeth minute, mucronate; corolla finely pubescent, its tube 5-6 mm. long, its lobes 3 mm. long, lanceolate, acute; stamens about 2.5 cm. long, the filaments united about one-fourth their length; pod curved to a nearly complete circle, 6 or 7 cm. long, 8-10 mm. wide, scarcely or not at all constricted between the seeds; seeds blue and white, somewhat compressed, obovate, shining, 4 or 5 mm. long.

Southern Oriente. Type from gravelly hills, El Cobre, west of Santiago, March 23, 1912 (*Britton, Cowell & Shafer 12874*).

9. *PITHECOLOBIUM OBOVALE* (A. Rich.) C. Wright; Sauvalle, Anales Acad. Habana 5: 407. 1868

Inga obovalis A. Rich. Ess. Fl. Cub. 1: 472. 1845.

Calliandra revoluta Griseb. Cat. Pl. Cub. 83. 1866.

Leaflets mostly broadly obovate; stamen tube very short; pod flat, curved in a partly complete circle.

Hillsides and river banks. Pinar del Rio and Isle of Pines.

10. *Pithecolobium pinetorum* sp. nov.

A tree up to 10 m. high, the young twigs and leaves puberulent, the old foliage nearly or quite glabrous. Leaves 2 dm. long or less; petioles stout, 1.5–3 cm. long; glands oblong, somewhat elevated; pinnae 1 or 2 pairs; leaflets 3 or 4 pairs, coriaceous, oblong or obovate-oblong, pinnately and loosely reticulate-veined, rounded at the apex, narrowed or obtuse at the base, 3–6 cm. long; peduncles axillary, 3–6 cm. long; calyx coriaceous, campanulate, 5 mm. long, its teeth broadly obovate, rounded, somewhat unequal; corolla pubescent, its tube about 6 mm. long, its lobes 3 mm. long, ovate-lanceolate, acute; stamens 2–2.5 cm. long, united about one-fourth their length; pod curved into a nearly complete circle, about 7 cm. long, 12 mm. wide, flat, not constricted between the seeds; seeds blue and white, shining, orbicular-obovate, 5–6 mm. long.

Mountain pinelands of northern Oriente. Type from south-east of Paso Estancia, May 1–2, 1909 (*Shafer 1725*); fruit and seeds described from *Shafer 3096*, collected in pinelands of Sierra Nipe.

11. *Pithecolobium nipense* sp. nov.

A shrub or a tree up to 10 m. high, the young twigs, petioles and rachises permanently short-pubescent. Leaves 4–6 cm. long; petioles 6 mm. long or less; glands circular, elevated; pinnae 3 or 4 pairs; leaflets 10–16 pairs, oblong, coriaceous, approximate, 2–3 mm. long, 1.5 mm. wide, slightly inequilateral, obtuse at the apex, rounded or subtruncate at base, glabrous, dark green and lustrous above, pale and dull green beneath with the midvein prominent, glabrous or with a few scattered hairs; flowers unknown; pod curved into a partly complete circle, 6–10 cm. long, 7–8 mm. wide, compressed, glabrous, short-stipitate, not constricted between the seeds, or occasionally constricted; seeds blue, shining, oblong-obovate to obovate-orbicular, 6 mm. long.

Mountains of northern Oriente. Type from near Woodfred, Sierra Nipe, 450–550 m. altitude, Dec. 20, 1909 (*Shafer 3220*).

12. *PITHECOLOBIUM ASPLENIFOLIUM* Griseb. Cat. Pl. Cub. 83.

1866

Western Cuba. Known only from the type collection of *C. Wright 2403*.

13. *Pithecolobium trinitense* sp. nov.

A tree up to 10 m. high; young twigs, petioles and rachises densely brown-puberulent. Leaves 10–15 cm. long; glands circular, 1 mm. in diameter; petioles 1.5 cm. long or less; pinnae 6–8 pairs, approximate; leaflets 12–16 pairs on each pinna, oblong, chartaceous, slightly inequilateral, 5–7 mm. long, 3 mm. wide or less, rounded at the apex, obliquely obtuse at the base, glabrous or nearly so and dark green above, pale, and pubescent beneath, at least on the veins, the midvein prominent; peduncles densely puberulent when young, glabrous when old; young flower-heads densely puberulent; flowers unknown, apparently capitate; pod curved into a nearly complete circle, about 6 cm. long and 7 mm. wide, somewhat constricted between the seeds; seeds blue, shining, orbicular-obovoid, somewhat compressed, 5 mm. long.

Hillside, El Porvenir to Aguacate, Trinidad Mountains, Santa Clara, at 700–900 m. altitude, March 10, 1910 (*Britton & Wilson 5346, type*).

14. *Pithecolobium* (?) *guantanamense* sp. nov.

A tree, 10 m. high with flexuous twigs, the foliage sparingly villous-pubescent. Leaves 6–8 cm. long, petioles slender, 1 cm. long or less; glands scutellate, 0.5 mm. in diameter; pinnae 2 pairs; leaflets 20 pairs or fewer, linear, chartaceous, 5–7 mm. long, 1–1.5 mm. wide, inequilateral, pale green but somewhat darker above than beneath, acute at the apex, obliquely obtuse at the base, the few veins prominent beneath; flowers unknown; pod compressed, glabrous, chartaceous, dehiscent, doubly coiled, 6–8 cm. long, 7–8 mm. broad over the seeds, constricted between them, the coils about 2 cm. broad; immature seeds suborbicular, somewhat flattened, 4 mm. in greatest diameter.

Bank of a water course, United States Naval Station, Guantánamo Bay, Oriente, March, 1909 (*Britton 2051*).

15. *PITHECOLOBIUM ARBOREUM* (L.) Urban, Symb. Ant. 2: 259.
1900

Mimosa arborea L. Sp. Pl. 519. 1753.

Pithecolobium filicifolium Benth. in Hook. Lond. Journ. Bot. 3: 205. 1844.

? *Mimosa filicifolia* Lam. Encycl. 1: 13. 1783.

Hillsides, river-banks and woodlands at lower and middle elevations, ascending, in Oriente, to at least 330 m.; all provinces

and Isle of Pines; Hispaniola; Porto Rico; Jamaica; Mexico and Central America.

16. *PITHECOLOBIUM SAMAN* (Jacq.) Benth. Lond. Journ. Bot. 3: 216. 1844

Mimosa Saman Jacq. Fragm. 15. 1809.

Calliandra Saman Griseb. Fl. Br. W. I. 225. 1860.

Hillsides and pastures; all provinces and Isle of Pines; widely distributed in the West Indies. Native of continental tropical America. Not a true *Pithecolobium*. Perhaps referable to *Zygia* [P. Br.] J. St. Hil. Exp. Fam. Nat. 2: 246. 1805. The type of *Zygia*, which has long priority of publication over *Pithecolobium*, is *Z. arborescens* J. St. Hil., which is the same as *Pithecolobium latifolium* (L.) Benth.

17. *PITHECOLOBIUM BERTERIANUM* (Balbis) Benth. Lond. Journ. Bot. 3: 220. 1844

Acacia Berteriana Balbis; DC. Prodr. 2: 470. 1825.

Hillsides and woodlands in dry districts. Oriente, Camagüey, Santa Clara; Hispaniola; Jamaica.

Not a true *Pithecolobium*.

18. *PITHECOLOBIUM TORTUM* Mart. Herb. Fl. Bras. 114. 1837
Pithecolobium vincentis Benth. Lond. Journ. Bot. 3: 222. 1844.
Acacia lentiscifolia A. Rich. Ess. Fl. Cub. 469. 1845.

Sand dunes, sandy river-banks, coastal thickets and hillsides near the coast, Santa Clara, Havana, Pinar del Rio, Isle of Pines; St. Vincent; Martinique; Central and South America.

Not a true *Pithecolobium*.

19. *PITHECOLOBIUM PREHENSILE* (C. Wright) Benth. Trans. Linn. Soc. 30: 593. 1875

Calliandra prehensilis C. Wright; Sauvalle, Anales Acad. Habana 5: 406. 1868.

Rocky river-banks, coastal thickets and saline plains, Oriente; Santa Clara. Endemic.

Perhaps a congener of *P. brevifolium* Benth., the type of the genus *Havardia* Small.

25. FURTHER NOTES ON COMOCLADIA*

1. COMOCLADIA PINNATIFOLIA L. Syst. ed. 10, 861. 1759

Professor Urban has pointed out to me that Linnaeus, who printed the specific name *pinnatif.*, more likely intended this contraction to mean *pinnatifolia* than *pinnatifida*, as I printed it, following the Kew Index.

12. COMOCLADIA PLATYPHYLLA A. Rich.

The species ranges westward in Cuba into the province of Pinar del Rio as far as Corrientes Bay (*Britton & Cowell 9914*).

14. *Comocladia cuneata* nom. nov.

Comocladia acuminata Britton, Bull. Torrey Club 37: 349. 1910.

Not *C. acuminata* Moc. & Sessé; DC. Prodr. 2: 65. 1825.

Known hitherto only from the type specimen, this species has recently been collected by Rose, Fitch and Russell (*4185*) at San Pedro de Macoris, Santo Domingo. The broadly cuneate leaf-bases distinguish it from its relatives.

15. COMOCLADIA GLABRA Spreng.

In Flora Portoricensis, Professor Urban refers to this species, the *C. acuminata* Moc. & Sessé, as a variety, and states that it is Porto Rican, rather than Mexican as supposed by DeCandolle.

18. COMOCLADIA DODONAEA (L.) Urban, Symb. Ant. 4: 360.

15 My 1910; Britton, Bull. Torrey Club 37: 351. 29 Jl 1910

The species extends eastward in the Virgin Islands to Tortola (*Britton & Shafer 902*).

26. ANOTHER WEST INDIAN DENDROPANAX

Dendropanax filipes sp. nov.

A slender, straggling shrub up to 3 m. high. Leaves oblong-ob lanceolate, thin-coriaceous, 12 cm. long or less, 1-3 cm. wide, rather strongly pinnately veined, acutish at the apex, obtuse or acute at the base, the petioles 2-25 mm. long; peduncle very slender, bracted at the base, apparently nodding, 10 cm. long or

* See Bull. Torrey Club 37: 345-363. 1910.

less; umbel about 12-flowered; pedicels filiform, 8–15 mm. long; flowering calyx only 1.5 mm. high and broad, broadly obconic; petals 1.5–2 mm. long, oblong-lanceolate.

Peckham woods, Upper Clarendon, Jamaica, at about 800 meters elevation, May 22, 1912, *Harris 11057*.

Among the species discussed by me in 1912,* this most nearly resembles the Cuban *D. cuneifolium*.

27. THREE UNDESCRIBED BOURRERIAS†

Bourreria mucronata sp. nov.

A divaricately branched shrub 2 m. high, with very slender branches, the young twigs and branches of the inflorescence appressed-pubescent. Leaves elliptic, 1–3 cm. long, 8–15 mm. wide, coriaceous, acute and mucronate at the apex, narrowed at the base, revolute-margined, reticulate-veined, strongly tuberculate-roughened, shining, and when young hispid above, dull and smooth beneath, the midvein impressed above, prominent beneath, the lateral veins about 5 on each side, the petioles 2–3 mm. long, pubescent when young; inflorescence 3–6-flowered; calyx, in bud, oblong, 3 mm. long, glabrous; corolla unknown; fruiting calyx 3 mm. long, its lobes acutish or obtuse; drupe ovoid-spherical, pointed, 5 mm. long.

Limestone cliff, San Diego de los Baños, Pinar del Rio, Cuba, (*Britton, Earle & Gager 6791*), Sept. 1910. Probably nearest related to *B. setoso-hispida* O. E. Schulz.

Bourreria moaensis sp. nov.

A slender shrub or tree up to 3.3 m. high, glabrous throughout. Leaves obovate or broadly oblanceolate, 10 cm. long or less, 2.5–4.5 cm. wide, coriaceous, revolute-margined, acute or acutish, at the apex, narrowed at the base, the midvein impressed above, prominent beneath, the lateral veins about 6 on each side of the midvein, the petiole stout, only 2–4 mm. long; flowers unknown; fruiting inflorescence stalked, 4 cm. broad or less, 6–8 cm. long, its branches stout; fruiting calyx about 13 mm. long, its ovate acute lobes about as long as the tube; fruit subglobose, 12 mm. in diameter.

Camp La Gloria, south of Sierra Moa, Oriente (*Shafer 8182*), Dec. 24–30, 1910.

* Bull. Torrey Club 39: 1–14.

† See O. E. Schulz in Urban, Symb. Ant. 7: 45–71; 349.

Apparently nearest related to *B. grandiflora* (Poir.) Griseb., which has smaller, obtuse leaves with much narrower petioles.

***Bourreria Nashii* sp. nov.**

A shrub, about 1 m. high, the young twigs pilose. Leaves obovate to oblong-obovate, 18 mm. long or less, 4-7 mm. wide, coriaceous, revolute-margined, densely rough-papillose and inconspicuously veined above, canescent, reticulate-veined and the midrib prominent beneath, obtuse, retuse or apiculate at the apex, narrowed at the base, the margin papillose-hispid, the pubescent petiole about 1 mm. long; fruits solitary or 2 together, orange-brown, terminal, subsessile, depressed-globose, about 6 mm. in diameter, persistent calyx-lobes ovate-lanceolate, acute, loosely pubescent.

Foothills, between Marmelade and San Michel, Haiti, Aug. 4, 1905 (*Nash & Taylor 1380*).

Nearest related to the Cuban *B. pauciflora* O. E. Schulz.

28. NOTES ON PSYCHOTRIA*

PSYCHOTRIA LIGUSTRIFOLIA (Northr.) Millsp. Field Col. Mus. 2: 172. 1906

To the range of this species may now be added BERMUDA, where it is locally abundant, and hitherto referred to *P. undata* Jacq.; FLORIDA: Key Largo (*Curtiss 5501*); CUBA; on coral-rock, Madruga (*Britton & Shafer 776*).

PSYCHOTRIA SULZNERI Small, Fl. Miami 176. 26 Ap 1913
Psychotria pulverulenta Urban, Symb. Ant. 7: 456. 15 Au 1913.

29. NOTES ON VARIOUS SPECIES

JUNIPERUS LUCAYANA Britton, N. A. Trees 121. 1908
Juniperus australis Pilger, in Urban, Symb. Ant. 7: 479. 1913.
The types of both are from the Bahamas.

THRINAX MICROCARPA Sargent, Gard. & For. 9: 162. 1896
Western part of Cayo Cruz, Camagüey, Cuba (*Shafer 2800*).
Not heretofore recorded from Cuba:—South Florida; Bahamas.

* See Urban, Symb. Ant. 7: 433-477.

MAYTENUS PHYLLANTHOIDES Benth. Bot. Sulph. 54. 1844

Cayo Coco, Cayo Sabinal and Cayo Romano, Camagüey, Cuba (*Shafer 1062, 2507, 2633, 2678*). Not heretofore recorded from Cuba:—Southern Florida; Mexico and Lower California.

CROTON NUMMULARIAEFOLIUS A. Rich. in Sagra, Hist. Cub. 11: 211. 1850

Rocky coastal thicket, Guanica, Porto Rico (*Britton & Shafer 1911*). New to Porto Rico; Cuba.

ACALYPHA ALOPECUROIDEA Jacq. Obs. 3: 196. 1789

Palo Seco, Porto Rico (*Brother Hioram*, Oct. 1912). New to Porto Rico:—Bahamas, Cuba, Hispaniola, Jamaica, Grenada.

CALLICARPA HITCHCOCKII Millsp. Field Col. Mus. Bot. 2: 312. 1909

Alto del Aji, Cayo Romano, Camagüey (*Shafer 2791*). Not previously recorded from Cuba:—Bahamas.

CLERODENDRON (?) CALCICOLA Britton, Bull. Torrey Club 39: 9. 1912

The habitat of this plant, omitted at the place of publication, is limestone rocks, Corrientes Bay, Cuba (*Britton & Cowell 9871*).

LYCIUM CAROLINIANUM Walt. Fl. Car. 84. 1788

Rio Gavelan, Santa Clara (*Britton, Earle & Wilson 6027*) and on Cayo Romano, Camagüey, Cuba (*Shafer 2632*). Not heretofore recorded from Cuba:—Southeastern United States.

STENOSTOMUM MYRTIFOLIUM Griseb. Fl. Br. W. I. 334. 1860

Western part of Cayo Cruz, Camagüey, Cuba (*Shafer 2798*). Not previously reported from Cuba:—Bahamas.

ERNODEA LITTORALIS Sw. Prodr. 29. 1788

In my discussion, in 1908, of the species and races of the genus *Ernodea* Sw. (Bull. Torrey Club 35: 203–208) I remarked that no species had been found in Cuba, but I can now record the typical race of *E. littoralis* Sw. as occurring between Punta Sol and

Molinas, Nipe Bay, Oriente (*Shafer 1794*), and also on Cayo Romano, Camagüey (*Shafer 2621*).

SPERMACOCE KEYENSE Small, *Flora Florida Keys* 141. 11 Au 1913

Spermacoce floridana Urban, *Symb. Ant.* 7: 550. 15 Au 1913.

From the printed dates of publication, Dr. Small has four days priority.

ACANTHOSPERMUM HISPIDUM DC. *Prodr.* 5: 522. 1836

Island of Culebrita, Porto Rico (*Britton & Wheeler 280*).

30. ASTER IN THE WEST INDIES

Scapose, the scapes monocephalous; leaves rosulate, linear-oblong, pilose.

1. *A. Grisebachii*.

Caulescent, branched, polycephalous.

Rays large, surpassing the involucre.

Leaves, except the basal ones, reduced to small imbricated scales; rootstocks tuberous.

2. *A. adnatus*.

Leaves normal, the upper often small, but distant.

Involucre-bracts densely pubescent, acuminate; inflorescence wand-like; rootstocks tuberous.

3. *A. lucayanus*.

Involucre-bracts glabrous or nearly so, or puberulent; inflorescence paniculate; rootstocks not tuberous.

Not fleshy, or but slightly so, at least the lower leaves flat, linear to spatulate.

Involucre-bracts acuminate, glabrous.

4. *A. bahamensis*.

Involucre-bracts obtuse or merely acutish.

Very densely leafy; involucre-bracts puberulent; rays white.

5. *A. Burgessii*.

Not densely leafy; involucre-bracts glabrous.

6. *A. dumosus*.

Fleshy; leaves all narrowly linear, thick, subterete.

7. *A. Bracci*.

Rays small, little if at all surpassing the involucre.

Stem-leaves lancolate, 6-12 cm. long, 2 cm. wide or less.

8. *A. inconspicuus*.

Stem-leaves linear to linear-oblong.

Stem-leaves elongated-linear; involucre-bracts acuminate.

9. *A. exilis*.

Stem-leaves oblong-linear; involucre-bracts acute.

10. *A. squamatus*.

1. *Aster Grisebachii* Britton, nom. nov.

Haplopappus marginatus Griseb. Cat. Pl. Cub. 149. 1866. Not
Aster marginatus H.B.K.

Sandy and gravelly pine-lands, Pinar del Rio and Isle of Pines,
Cuba.

A species with solitary heads on long, sparingly bracted scapes,
the rootstocks much-branched, the rosulate linear-oblong leaves
pilose, the rays bright white.

2. *ASTER ADNATUS* Nutt. Jour. Acad. Nat. Sci. Phila. 7: 82.
1834

Pine-lands, Great Bahama Island; southeastern United States.

3. *ASTER LUCAYANUS* Britton, Bull. N. Y. Bot. Gard. 4: 143.
1906

Pine-lands, Great Bahama Island.

4. *Aster bahamensis* Britton, sp. nov.

Stout, fibrous-rooted, slightly fleshy, glabrous, 3-20 dm. high.
Lower leaves and those of sterile shoots with sheathing petioles
4-7 cm. long, the blades oblong to linear-oblong or oblong-lanceo-
late, obtuse or acute, 4-8 cm. long, 5-20 mm. wide, sparingly
crenate-dentate or entire, narrowed into the petiole, the midvein
prominent, the lateral veins obscure; upper stem-leaves linear,
entire, 6 cm. long or less, those of the branches nearly subulate,
3-12 mm. long; heads numerous, paniculate; involucre nearly
cylindric, 6-8 mm. high, its bracts linear, acuminate, about 0.7
mm. wide, green with scarious margins, or the inner merely green-
tipped; rays purple, 4-5 mm. long; achenes columnar, 2.5 mm.
long, the angles roughened; pappus brownish, twice as long as the
achene.

Moist grounds and marshes, Great Bahama, Andros, Eleuthera
and Cat Island. Type from Barnett's Point, Great Bahama
(*Britton & Millspaugh 2621*).

5. *Aster Burgessii* Britton, sp. nov.

Rootstock short, thick. Stems clustered or solitary, densely
leafy, often with many short branches, pubescent, at least above,
5 dm. high, or less. Lower and basal leaves oblanceolate or
spatulate, obtuse or acutish, distantly low-serrate, 2-5 cm. long,

6 mm. wide or less, narrowed into slender, ciliate, partly clasping petioles, otherwise glabrous; stem-leaves similar, but narrower and sessile or nearly so, those of the branches 4-10 mm. long; heads numerous, thyrsoïd-corymbose; involucre about 5 mm. high, its bracts in about 4 series, linear, ciliolate or glabrous, obtuse or acutish; rays white, 5-8 mm. long.

Rocky river-banks, Pinar del Rio, Cuba. Type collected on Rio Portales, near Guane, March, 1911 (*Britton, Britton & Cowell 9751*). Erroneously recorded by Grisebach as *Aster carneus* Nees.

6. *ASTER DUMOSUS* L. Sp. Pl. 873. 1753

Pinelands, high mountains of Santo Domingo; eastern United States.

7. *ASTER BRACEI* Britton; Small, Fl. Miami 190. 1913

Brackish marshes and savannas, southern Florida, Bahamas, Cuba.

8. *ASTER INCONSPICUUS* Less. Linnaea 5: 143. 1830

Erigeron expansus Poepp.; Spreng. Syst. 3: 518. 1826. Not *Aster expansus* Nees.

Marshes, ditches and roadsides at lower and middle elevations: Cuba; Jamaica; South Florida; Mexico.

9. *ASTER EXILIS* Ell. Bot. S. C. & Ga. 2: 344. 1824

Wet grounds, provinces of Santa Clara, Havana and Pinar del Rio, Cuba; Andros Island, Bahamas; southeastern and southern United States.

10. *ASTER SQUAMATUS* (Spreng.) Hieron. Bot. Jahrb. 29: 19. 1901

Conyza squamata Spreng. Syst. 3: 515. 1826.

Naturalized along roadsides, especially on Ireland Island and Boaz Island, Bermuda. The plant erroneously listed by Lefroy as *Aster Trifolium* L., was probably this species, misprinted for *A. tripolium* L. Native of southern South America.

31. UNDESCRIBED SPECIES OF JAMAICA

Lasiocroton Harrisii sp. nov.

A tree, about 8 m. high, the stout twigs densely brown-tomentose when young, bearing prominent leaf-scars. Leaves oblong-elliptic, rather firm in texture, 8-15 cm. long, 7 cm. wide or less, sharply acuminate at the apex, narrowed at the base, sparingly pubescent above, densely pubescent beneath, yellowish-green, somewhat paler beneath than above, pinnately veined, with about 5 veins on each side of the midvein, the margin entire or slightly undulate, the stout, tomentose petioles 10-16 mm. long; fruiting racemes slender, tomentose, equalling the leaves or longer, the slender tomentose pedicels 10-15 mm. long; fruiting calyx tomentose, 4 mm. broad, the sepals ovate, acute; capsule obtusely 3-lobed, 7 mm. broad, 3-4 mm. high, densely brown-tomentose; styles 2 mm. long; stigmas fimbriate; seeds subglobose, 2.5 mm. in diameter.

Peckham woods, Upper Clarendon, Jamaica, September 9, 1912 (*Harris 11192*).

L. Fawcettii Urban, of Dolphin Head Mountain, Jamaica, differs in having nearly glabrous long-petioled leaves.

Varronia clarendonensis sp. nov.

A slender shrub with weak straggling branches, the twigs loosely pilose. Leaves broadly ovate-elliptic, 5-10 cm. long, 3-7 cm. wide, firm-chartaceous in texture, rather strongly pinnately veined, coarsely and sharply dentate, obtuse at the apex, obtuse or subtruncate at the base, loosely pilose beneath, scabrous-pubescent and papillose above, the loosely villous petioles 1.5 cm. long or less; peduncles slender, pilose, 5-8 cm. long; heads globose, densely many-flowered, 2 cm. in diameter; calyx brown-pilose above, its tube about 4 mm. long, its lobes triangular-ovate with linear, pilose, curled tips 5-6 mm. long; corolla about 9 mm. long, its lobes short and broad; stamens about equalling the corolla; filaments filiform; anthers oblong.

Peckham woods, Upper Clarendon, Jamaica, July 7, 1911 (*Harris 10995*).

Jacobinia (?) *jamaicensis* sp. nov.

Stem stout, 3-6 dm. high, densely long-villous. Leaves lanceolate to ovate-lanceolate, 6-10 cm. long, 1.5-3 cm. wide, rather firm in texture, densely villous-pubescent on both sides, acuminate at the apex, narrowed to an obtuse base, with villous

petioles 2-4 mm. long; spike terminal, few-flowered; bracts lanceolate, acuminate, villous, about 1.5 cm. long; calyx-teeth narrowly lanceolate, loosely villous; corolla rose-colored, 3.5 cm. long, loosely villous, 2-lipped, the teeth of the lobes short and rounded; filaments slender, nearly as long as the corolla, glabrous; anthers 2.5 mm. long.

Crevices of limestone rocks, Peckham woods, Upper Clarendon, Jamaica (*Harris 10978, type; 11178*).

32. UNDESCRIBED CUBAN SPECIES

***Copernicia rigida* Britton & Wilson, sp. nov.**

A tree up to 6 m. high, with a slender cylindric trunk. Leaf-blades wedge-shape, 13-15 dm. long, deeply grooved below the middle, bright green above, paler beneath and sometimes armed on the margins of the grooves with small, straight or recurved teeth 1-4 mm. long; leaf margins armed mostly below the middle with numerous recurved, straight, ascending, or sometimes hooked teeth 3-7 mm. long; petiole short, stout, 1-1.5 dm. long, 1-1.4 dm. broad, unarmed; ligule rigid, rhombic-ovate, 2.5-3.5 dm. long, 1.7-2 dm. broad, armed on the margin with ascending, recurved, straight or sometimes hooked teeth 3-12 mm. long, coalescent with and decurrent on the short petiole; inflorescence lax, branches slender, the ultimate ones densely clothed with short hairs; spathes of the inflorescence abruptly tapering to a long, slender acuminate tip; flowers unknown; fruit subglobose, 1.5-1.6 mm. long, 1.4-1.6 mm. broad, brown, shining; old calyx persistent beneath the fruit, the lobes triangular; seed subglobose, 9-11 mm. long.

Type collected in the vicinity of Tiffin, Camagüey, Cuba, November 1-5, 1909 (*Shafer 2895*); also collected at Santa Lucea, Camagüey (*Shafer 971*); Province of Santa Clara (*Britton & Wilson 4563; Britton, Cowell & Earle 10299*).

***Copernicia Cowellii* Britton & Wilson, sp. nov.**

A small tree, up to 3 m. high, the head globose, about 1 m. in diameter, very dense, the trunk up to 1.7 dm. thick, strictly cylindric. Leaves many, the blades shining, yellow-green above, covered with a bright white waxy bloom beneath, about 6 dm. long, somewhat wider than long, the younger erect, the older persistent, reflexed; petioles white-waxy, 1 dm. long or less, 3-5 cm. wide, flattened, armed with irregular, curved and somewhat hooked teeth 5-8 mm. long; margins of the leaves with many

recurved teeth 2-3 mm. long, the leaf otherwise unarmed; inflorescence lax, the branches slender, densely clothed with short hairs; spathes of the inflorescence gradually tapering to long acuminate tips; calyx cylindric, 3-3.5 mm. high, the lobes strongly mucronate; corolla 5-6 mm. long, densely clothed with short, mostly appressed hairs on the outer surface, the lobes prominently grooved within below the middle, the grooves hairy on the margin, longitudinally converging and bearded above; dilated portion of the filaments prominently triangular; carpels truncate at the summit, grooved; styles nearly cylindric; fruiting panicles about twice as long as the leaves, pendent, glabrous, much-branched, slender, the stalk about as long as the fruit-bearing part; sheath closely appressed, the lower up to 1 dm. long; fruits close together on the ultimate branches of the panicle, subglobose, obovoid, a little longer than thick, yellow when full-grown but not quite ripe, shining, 14-17 mm. long; old calyx-segments persistent under the fruit, triangular-ovate, acute, 2 mm. long; flesh of old ripe fruit very thin; seed smooth, about 12 mm. long; endosperm bony, grooved.

Seedlings have rough-edged leaves green on both sides.

Type collected in savannas near Camagüey, Cuba, April 2-7, 1912 (*Britton, Britton & Cowell 13187*); also collected in the province of Camagüey (*Shafer 508, 1144, 2917*).

***Anneslia enervis* sp. nov.**

A shrub or small tree 4 m. high, with slender, stiff, somewhat zigzag twigs sparingly pubescent when young, soon glabrous. Leaves very small; pinnae 2, the petiole and petiolules each about 1 mm. long, rather stout; pinnules 2 to each pinna, 2-3 mm. long, obovate, sessile, nerveless, shining, rounded at the apex, oblique at the base; heads nearly sessile in the upper axils, few-flowered; calyx campanulate, 1.5 mm. long, its teeth acute; corolla about 3 mm. long; stamens 6-7 mm. long; legume glabrous, 3-4 cm. long, 5 mm. wide, abruptly tipped at the apex, narrowed from below the middle to the base, the valves subcoriaceous.

Mountains of northern Oriente, Cuba; type from Camp La Gloria, south of Sierra Moa, *Shafer 8274*, December, 1910.

Not closely related to any species known to me, but somewhat resembling *A. colletioides* (Griseb.) Britton [*Calliandra colletioides* Griseb.] of low elevations in dry parts of the same province.

***Belairia parvifoliola* sp. nov.**

A slender tree, up to 10 m. high, the twigs copiously armed with dark brown to black subulate spines 1.5-3 cm. long. Leaves short-petioled, the slender rachis puberulent or short-pubescent; leaflets 7-13, oblong to oblong-lanceolate, shining, nearly equally bright green and rather prominently veined on both sides, 8-13 mm. long, 2-3 mm. wide, the base inequilateral, the apex mucronate, the petiolules 0.5 mm. long; legume narrowly oblong, 10-12 mm. long, 3-4.5 mm. wide, narrowed at base and apex, strongly veined, borne on a filiform pedicel 6 mm. long or more.

Coastal woods, thickets and hillsides, southern Oriente, from Guantanamo Bay to Ensenada de Mora. Type, *Britton, Cowell & Shafer 13037*, Ensenada de Mora, March, 1912.

***Meibomia Cowellii* sp. nov.**

Root thick and woody; stem slender, stiff, erect, hirsute, 3-8 dm. high, simple, or with few nearly erect hirsute branches. Leaves unifoliolate, short-petioled, oblong, linear-oblong or lanceolate, subcoriaceous, 2-10 cm. long, 2.5 cm. wide or less, obtuse and mucronulate at the apex, obtuse at the base, rather strongly reticulate-veined, finely short-pubescent above, villous-pubescent on the veins beneath, nearly equally green on both sides, the rather stout petioles 2-10 mm. long, the stipules lanceolate, striate, acuminate, 2-4 mm. long, the stipels subulate, about 3 mm. long; panicle narrow, nearly simple, long-stalked, 1-3 dm. long; bracts linear-subulate, 2.5-4 mm. long; pedicels filiform, puberulent, 4-7 mm. long; calyx 2.5-3 mm. long, campanulate, pubescent, lobed to about the middle, the lobes lanceolate, acute; corolla purple, 10 mm. broad; loment short-stipitate, 4-6-jointed, 2 cm. long or less, nearly equally constricted on both margins, the joints oval, about 4 mm. long and 2.5 mm. broad, loosely pubescent, indistinctly reticulate-veined.

Savannas and pine-lands, Pinar del Rio and Isle of Pines, Cuba. Type, *Britton, Britton & Cowell 10090*, from between Pinar del Rio and Coloma, March 16, 1911. Related to *M. angustifolia* (H.B.K.) Kuntze.

***Kieseria cubensis* sp. nov.**

A tree, up to 13 m. high, the twigs stout, densely leafy toward the ends. Leaves coriaceous, oblong-obovate, 6-10 cm. long, 3 cm. wide or less, obtuse and rounded or somewhat emarginate at the apex, narrowed to the nearly sessile base; midvein impressed

above, rather prominent beneath, the lateral veins obscure; peduncles solitary in the upper axils, stout, ancipital, 3-5 cm. long, 2-bracted at the top; bracts oblong, obtuse, about 1 cm. long; fruiting pedicels stout, subterete, 1-2.5 cm. long; sepals narrowly oblong, obtuse, 1.5 cm. long, entire; capsule about as long as the sepals, tapering into a stout-subulate beak about 6 mm. long.

Mountains of northern Oriente, Cuba. Type, *Shafer 8121*, from Camp La Gloria, south of Sierra Moa, December 1910. The genus is hitherto known only from South America. The Cuban species most resembles *Bonnetia anceps* Mart., of Brazil. The generic name *Kieseria* Nees, has priority over *Bonnetia* Mart., which is a homonym of *Bonnetia* Schreb.

33. A HYBRID PALM

On the sterile "savannas" north and east of Camagüey, Cuba, palms of two species of *Copernicia* abound. The one, *C. hospita*, has grey-green, thin foliage with spiny-toothed petioles about as long as the blades, and elongated, slender panicles; the other, *C. macroglossa*, has bright green, rigid foliage with very short, broad, unarmed petioles, the blades spiny-toothed on the margins of the outermost segments and on the upper surface of the ribs of the undivided part, the stout panicles not much longer than the leaves and the inflorescence with large bracts.

Of the two, *C. hospita* is the more abundant, *C. macroglossa* growing in colonies, more or less surrounded by it. At many places where the two grow together, plants intermediate in foliage characters occur, their leaves with spiny-toothed petioles of various lengths, the blades with sparingly spiny-toothed margins, otherwise smooth, and in color varying from green to grey, the panicles short and the inflorescence lacking the characteristic large bracts of *C. macroglossa*.

Field observations during four days with Mr. John F. Cowell, led us to the conclusion that these intermediate plants are of hybrid origin rather than a third species, as was first suggested.

34. PORTLANDIA [P. BR.] L., IN THE WEST INDIES

The type species is *Portlandia grandiflora* L.

1. Leaves cordate or subcordate at base, sessile or nearly so.

Capsules 1 cm. long or less.

Leaves orbicular, 2.5 cm. wide or less; corolla yellow;
flowers sessile or very nearly so.

1. *P. sessilifolia*.

Leaves elliptic, 5-10 cm. long; corolla pinkish; flowers
pedicelled.

2. *P. nitens*.

Capsules nearly 2 cm. long.

3. *P. Harrisii*.

2. Leaves narrowed or rounded at the base, petioled.

Leaves rounded or obtuse at the apex.

Leaves elliptic.

4. *P. elliptica*.

Leaves obovate or oblanceolate.

Capsule involucrate by bractlets.

5. *P. involucreta*.

Capsule not involucrate.

6. *P. uliginosa*.

Leaves acute or acuminate at the apex.

Calyx-lobes oblong to ovate.

7. *P. grandiflora*.

Calyx-lobes linear to subulate.

Capsule 1 cm. long or less; leaves 5-8 cm. long.

8. *P. pendula*.

Capsule 1.5-5 cm. long; leaves 6-15 cm. long.

Capsule scarcely angled.

Leaves ovate to elliptic; calyx-lobes linear;
corolla 5-7 cm. long.

9. *P. coccinea*.

Leaves oblong-lanceolate; calyx-lobes long-
subulate; corolla 2-2.5 dm. long.

10. *P. Lindeniana*.

Capsule distinctly angular.

Capsule long-stalked, truncate.

11. *P. daphnoides*.

Capsule short-stalked, narrowed at both ends.

12. *P. domingensis*.

1. *Portlandia sessilifolia* sp. nov.

A branching resinous shrub about 1.3 m. high, the young twigs short-pubescent, angular. Leaves thick-coriaceous, orbicular, 1.5-3 cm. long, sessile, subcordate, shining above, dull beneath, very indistinctly veined, the margins thick and revolute, their bases connected by a stipular sheath; inflorescence terminal, sessile, subcapitate, several-flowered; pedicels very short; calyx about 8 mm. long, very resinous, the linear lobes about as long as the tube; corolla tubular-campanulate, yellow, 1.5 cm. long; capsule oblong-obovoid, 5-6 mm. long.

Wet mountains of northern Oriente, Cuba. Type from Camp La Gloria, south of Sierra Moa, Cuba, December, 1910 (*Shafer 8190*).

A specimen from between Rio Yamanigüey and Camp Toa (*Shafer 4180*) with much larger elliptic leaves, 11 cm. long or less, but otherwise similar, may, perhaps, be referred to this species.

2. *PORTLANDIA NITENS* Britton, Bull. Torrey Club **39**: 10. 1912
Wet mountains of northern Oriente, Cuba.
3. *PORTLANDIA HARRISH* Britton, Bull. Torrey Club **39**: 8. 1912
On limestone rocks, Peckham Woods, Upper Clarendon, Jamaica.

To the original description the following may now be added from Mr. Harris' subsequent collections and observations: Corolla white, tinged with rose, urn-shaped, about 9 cm. long and 3.5 cm. wide at the mouth, fragrant, the tips of its lobes reflexed; pedicels and calyx-lobes usually claret-colored; calyx-lobes oblong, about 1.5 cm. long and 5 mm. wide; filaments pubescent below; anthers narrowly linear, yellow, nearly 2 cm. long, about half as long as the filaments (*Harris 11209*, Sept. 28, 1912).

4. *Portlandia elliptica* sp. nov.

A slender shrub 3.3 m. high, the young twigs, pedicels and calyx finely pubescent. Leaves elliptic, coriaceous, glabrous, or when young, slightly pubescent, 8 cm. long or less, 2-4 cm. wide, obtuse or rounded at the apex, narrowed at the base, dark green and shining above, bright green and rather dull beneath, the midvein prominent, the lateral veins obscure, the stout petioles 1 cm. long or less, the stipular sheath truncate; inflorescence terminal, sessile, few-flowered; pedicels slender, 5-8 mm. long; calyx 10-12 mm. long, its linear-lanceolate lobes longer than the tube; corolla narrowly campanulate, glabrous, ochroleucous, 2 cm. long; capsule obovoid, 12 mm. long.

Thickets on serpentine rocks, between Baracoa and Florida, Oriente, Cuba, March 15, 1910 (*Shafer 4332*).

5. *PORTLANDIA INVOLUCRATA* Wernham, Jour. Bot. **51**: 320. 1913
Wet parts of northern Oriente, Cuba. As remarked by Mr. Wernham, perhaps not of this genus; the corolla is unknown.
6. *PORTLANDIA ULIGINOSA* Wernham, Jour. Bot. **51**: 320. 1913
Between Rio Yamanigüey and Camp Toa, northern Oriente, Cuba.
7. *PORTLANDIA GRANDIFLORA* L. Syst. ed. 10. 928. 1759
Thickets and hillsides at lower and middle altitudes, in moist districts, Jamaica; St. Thomas (native?); cultivated in Grenada, and in St. Croix.

8. *PORTLANDIA PENDULA* C. Wright; Griseb. Cat. Pl. Cub. 126.
1866

Pendent on limestone cliffs, Pinar del Rio, Cuba.

A beautiful species, the pendent habit unusual, the branches sometimes drooping to a length of 2 meters or more; the flowers are fragrant.

9. *PORTLANDIA COCCINEA* Sw. Fl. Ind. Occ. 1: 384. 1797

P. coriacea Sw.; Spreng. Syst. 1: 708. 1825.

Thickets and hillsides at lower elevations in dry districts, southern side of Jamaica.

10. *Portlandia Lindeniana* (A. Rich.) Britton, nom. nov.

Gonianthes Lindeniana A. Rich. in Sagra, Hist. Cub. 11: 10. pl. 49
bis. 1850.

Portlandia gypsophila Macf. Fl. Jam. 2: 216; Griseb. Fl. Br. W. I.
324. 1861.

A tree, up to 8 meters high. Leaves chartaceous, oblong-lanceolate, pinnately veined, sharply acuminate at the apex, narrowed at the base, 12-20 cm. long, the petioles about 8 mm. long; flowers solitary in the axils; peduncles about 2 cm. long; calyx-teeth narrowly linear, 2.5-3.5 cm. long; corolla white, 2-2.5 dm. long, the narrowly campanulate limb much longer than the nearly cylindric tube; capsule oblong-obovoid, 4-5 cm. long, 15-18 mm. thick, smooth, not angled.

Wooded river and stream-banks at lower elevations, province of Oriente, Cuba; Jamaica? Cultivated in Martinique.

11. *PORTLANDIA DAPHNOIDES* R. Graham, Edinb. N. Phil. Jour.
1840-41: 206

Gonianthes Sagraeana A. Rich. in Sagra, Hist. Cub. 11: 11. 1850.

Portlandia longiflora Meisn.; Griseb. Cat. Pl. Cub. 126. 1866.

A shrub, about 1.3 meters high. Leaves thin, oblong, narrowed at both ends, rather dull green, pinnately veined, 7-13 cm. long, the petioles 1 cm. long or less; flowers solitary in the axils; peduncles 1-3 cm. long; calyx-lobes linear, 1.5-2 cm. long; corolla yellowish, about 2 dm. long, the campanulate limb about as long as the slender tube; capsule obpyriform, angled, truncate, 2.5-3 cm. long, slender-peduncled.

On rocks, especially along rivers and brooks, at lower and middle elevations, provinces of Oriente, Matanzas, and Pinar del Rio, Cuba.

The use of the name *P. daphnoides* for this species is taken from Graham's description, which does not agree with our specimens in all respects. I have not seen the type specimen. The shrub is abundant in the limestone hills of Pinar del Rio.

12. **Portlandia domingensis** sp. nov.

Foliage similar to that of the preceding species, but the petioles shorter, about 2 mm. long; flowers unknown; capsules short-peduncled, oblong, 5-angled, apparently somewhat fleshy, 4-4.5 cm. long, narrowed at both ends; calyx lobes linear, somewhat broadened at the base, about 1.5 cm. long.

Near San Pedro de Macoris, Santo Domingo, March 26, 1913
(*Rose, Fitch & Russell 4176*).

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BRONX PARK, NEW YORK CITY

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GARDEN—No. 179

STUDIES OF WEST INDIAN PLANTS—VI

NATHANIEL LORD BRITTON

NEW YORK
1915

Reprinted, without change of paging, from BULLETIN OF THE TORREY BOTANICAL CLUB
42: 365-392. July 29, 1915

Studies of West Indian plants—VI

NATHANIEL LORD BRITTON

35. THE GENUS COCCOLOBIS IN CUBA

- A.* Leaves 2–13 mm. long; inflorescence one- to three-flowered [RHIGIA].
 Leaves spinulose-mucronate. 1. *C. armata*.
 Leaves emarginate at both ends. 2. *C. microphylla*.
- B.* Leaves 2 cm. long or longer; inflorescence many-flowered.
1. Leaves spinulosemucronate.
 Racemes loosely flowered; leaves acute. 3. *C. pilonis*.
 Racemes densely flowered; leaves acuminate. 4. *C. woodfredensis*.
2. Leaves not spinulose-mucronate.
 Leaves very large, suborbicular, deeply cordate; fruit large; halophytic tree or shrub. 5. *C. Uvifera*.
 Leaves smaller, rarely cordate; fruit small; mesophytes.
 Pedicels filiform, in fruit 8–12 mm. long, as long as the fruit or longer.
 Leaves flat, their margins not revolute. 6. *C. coriacea*.
 Leaves bullate, their margins strongly revolute. 7. *C. Cowellii*.
 Pedicels shorter than the fruit.
 Rachis of the raceme glabrous.
 Leaves almost veinless above, few-veined beneath, rounded, or emarginate. 8. *C. nipensis*.
 Leaves reticulate-veined on both sides.
 Fruiting pedicels 2.5–4 mm. long; fruit 8–12 mm. long. 9. *C. laurifolia*.
 Fruiting pedicels 1.5 mm. long or less; fruit smaller.
 Leaves obtuse or emarginate at apex, obtuse at base. 10. *C. retusa*.
 Leaves acuminate or acute.
 Leaves acuminate at both ends. 11. *C. cubensis*.
 Leaves acute at apex, oblique at base. 12. *C. colomensis*.

- Rachis of the raceme puberulent or pubescent
(or glabrous in *C. Wrightii* ?).
- Raceme stout, 8-20 cm. long; leaves 8-17 cm.
long; flowers sessile.
- Leaves loosely reticulate-veined; flowers
white. 13. *C. costata*.
- Leaves densely reticulate-veined; flowers
bright red. 14. *C. Shaferi*.
- Raceme slender, shorter; leaves smaller.
- Leaves not reticulate-veined above.
- Raceme geniculate. 15. *C. geniculata*.
- Raceme not geniculate.
- Fruiting pedicels less than 0.5 mm.
long. 16. *C. rufescens*.
- Fruiting pedicels 1-2 mm. long.
- Leaf-margins reflexed. 17. *C. reflexa*.
- Leaf-margins not reflexed. 18. *C. praecox*.
- Leaves reticulate-veined above.
- Leaves short-acuminate. 19. *C. benitensis*.
- Leaves acute or obtuse.
- Pedicels 0.8 mm. long or less.
- Leaves coriaceous, oblong-
lanceolate, 5 cm. long or less. 20. *C. pallida*.
- Leaves chartaceous, ovate or
elliptic, larger.
- Racemes as long as the
leaves or longer; petioles
5-10 mm. long. 21. *C. diversifolia*.
- Racemes shorter than the
leaves; petioles 3 mm.
long or less. 22. *C. brevipes*.
- Fruiting pedicels 1.5-3 mm. long. 23. *C. Wrightii*.

1. *C. ARMATA* C. Wright; Griseb. Cat. Pl. Cub. 62, 283. 1866

TYPE LOCALITY: Near San Marco.

DISTRIBUTION: Dry, rocky hills, Oriente, Santa Clara. En-
demic.

The plant becomes much larger than the original description
indicates; on the Rio San Juan, Santa Clara, it forms a tree 6 m.
high, and on the United States Naval Station, Guantanamo Bay,
Oriente, trees up to 10 m. high were observed.

2. *C. MICROPHYLLA* C. Wright; Griseb. Cat. Pl. Cub. 62. 1866

TYPE LOCALITY: Western Cuba.

DISTRIBUTION: Coastal thickets, Santa Clara, Pinar del Rio, Endemic.

At Coloma, Pinar del Rio, forms a virgate tree 5 m. high.

3. *C. PILONIS* Urban, Repert. **13**: 445. 1914

TYPE LOCALITY: Loma Pilon, near Holguin, Oriente.

DISTRIBUTION: Barren rocky soil, Oriente, Santa Clara (?), Endemic.

The Santa Clara specimens, collected near the city of Santa Clara (*Britton & Wilson 6189*, *Britton & Cowell 13325*), are in foliage only and thus not determinable with certainty.

Both this species and the following one are related to *C. flaves-cens* Jacq., of Hispaniola. The type is from a shrub 1.6 m. high.

4. *Coccolobis woodfredensis* sp. nov.

Similar to *C. pilonis*, and to *C. flaves-cens* Jacq. (of Hispaniola), the leaves spinulose-mucronate. A shrub, 6 m. high, glabrous throughout, the rather stout branches zig-zag; leaves coriaceous, ovate to ovate-lanceolate, 3-6 cm. long, shining above, dull beneath, inconspicuously veined, the under surface very finely reticulated, the apex spinulose-mucronate, the base rounded, obtuse or subcordate, the stout petioles scarcely 2 mm. long; racemes very narrow, 3-4 cm. long, densely many-flowered; fruiting pedicels about 1 mm. long; old fruit ovoid, acutish, 4 mm. long, 2 mm. thick.

Dry rocky hillside, between Piedra Gorda and Woodfred, Sierra Nipe, Oriente, 400-500 m. alt. (*Shafer 3180*).

5. *C. UVIFERA* (L.) Jacq. Enum. **19**. 1760

TYPE LOCALITY: Shores of the Caribbean Sea.

DISTRIBUTION: Coastal thickets, all provinces and Isle of Pines; occasionally on hillsides back from the coasts: Florida; West Indies; continental tropical America.

6. *C. CORIACEA* A. Rich. in Sagra, Hist. Cub. **11**: 184. 1850

C. calobotrys Meisn. in DC. Prodr. **14**: 157. 1857.

TYPE LOCALITY: Vuelta de Abajo, Cuba.

DISTRIBUTION: Pinar del Rio (?), Havana, mountains of Oriente. Endemic.

Meisner cites Sagra's Nos. 290 and 544, on which he based *C. calobotrys*, from the vicinity of Havana, but the plant is not known to grow in Havana Province. I have not seen the type specimens. A specimen from Ensenada de Mora, Oriente (*Britton, Cowell & Shafer 13003*), is from a slender tree 7 m. high.

7. *Coccolobis Cowellii* sp. nov.

A glabrous shrub, 1.5 m. high, with few, stout, ascending branches. Leaves thick-coriaceous, shining, deeply cordate at the nearly sessile base, bullate, with strongly revolute margins, diversiform, some ovate to ovate-elliptic, 5-9 cm. long, rounded at the apex, some elongated-lanceolate, attenuate-acuminate, 10-18 cm. long; principal venation impressed above, prominent beneath; ultimate venation obscure on both surfaces; racemes terminal, nearly sessile, 1-3 dm. long, the rachis and pedicels glabrous; pedicels filiform, 3-6 mm. long, spreading; bracts scarcely 1 mm. long, ovate, acute, about as long as the nearly truncate ochroleae; flowers bright red, 3 mm. long; perianth-lobes oblong, obtuse; fruit ovoid, acute, 4 mm. long, crowned by the calyx-lobes.

Barren rocky soil, savannas near Camaguey (*Britton & Cowell 13151*).

8. *C. NIPENSIS* Urban, Repert. 13: 445. 1914

TYPE LOCALITY: Pine lands, 500-650 m. alt., Sierra Nipe, near Woodfred, Oriente.

DISTRIBUTION: Mountains of northern Oriente. Endemic.

This species is noted by Dr. Shafer as forming a tree up to 10 m. high.

9. *C. LAURIFOLIA* Jacq. Hort. Schoen. 3: 9. pl. 267. 1798

C. floridana Meisn. in DC. Prodr. 14: 165. 1857.

TYPE LOCALITY: Caracas.

DISTRIBUTION: Thickets and woodlands at lower elevations near the coasts, Oriente, Camaguey, Matanzas, Isle of Pines; Florida; Bahamas; Jamaica; Hispaniola to St. Croix; Venezuela.

10. *C. RETUSA* Griseb. Cat. Pl. Cub. 61. 1866

C. leoganensis parvifolia Griseb. Cat. Pl. Cub. 61. 1866.
Hyponym.

TYPE LOCALITY: Eastern Cuba.

DISTRIBUTION: Thickets and hillsides. Oriente, Santa Clara, Pinar del Rio: Hispaniola (?).

11. *C. CUBENSIS* Meisn. in DC. Prodr. 14: 162. 1857

TYPE LOCALITY: Cuba [near Santiago].

DISTRIBUTION: Oriente. Endemic.

Dr. Shafer's 4229, from rich woods in the alluvial valley of Rio Yamanigüey, northern Oriente, referred to this species from description, is from a tree 5 m. high.

12. *Coccolobis colomensis* sp. nov.

A glabrous shrub, 2 m. high, with slender twigs. Leaves chartaceous, ovate to elliptic, 4-10 cm. long, bluntly acute at the apex, obliquely obtuse at the base, strongly reticulate-veined and shining on both sides, the rather stout petioles 6-10 mm. long; racemes glabrous, terminal, nodding, much shorter than the leaves, 5 cm. long or less; ochreolae less than 0.5 mm. long; pedicels about 1.5 mm. long, spreading; flowers about 1 mm. long, the ovate perianth-lobes as long as the tube; anthers not exserted; young fruit ovoid, about 3.5 mm. long, short-coronate.

Marsh near Coloma, Pinar del Rio (*Britton & Gager 7037*).

13. *C. COSTATA* C. Wright; Sauvalle, Anales Acad. Habana 7: 343.
1870

C. leoganensis cordata Griseb. Cat. Pl. Cub. 61. 1866. Hyponym.

TYPE LOCALITY: Cuba [*C. Wright 1393*, eastern Cuba].

DISTRIBUTION: Mountains of Oriente; Porto Rico.

Dr. Shafer's 3084, which satisfactorily matches *Wright 1393*, is from a tree 8 m. high, at 400-500 m. alt. on the Sierra Nipe, in dry rocky thickets; he noted the flowers as white and the fruit red-black.

14. *Coccolobis Shaferi* sp. nov.

A shrub or small tree up to 4 m. high, the twigs and leaves glabrous. Leaves coriaceous, ovate or ovate-elliptic to lanceolate, 12 cm. long or less, strongly and rather densely reticulate-veined on both sides, obtuse, acute or acuminate at the apex, cordate at the base, the stout petioles about 1 cm. long; spikes dense,

slender, 6–12 cm. long, the rachis, bracts and ochreolae puberulent; flowers bright red, sessile, about 5 long, the short perianth-lobes rounded.

Hillsides and thickets, northern Oriente.

Type, *Shafer 4165*, from between Camp Toa and Camp La Barga, 400–450 m. alt.

15. *C. GENICULATA* Lindau, Bot. Jahrb. 13: 141. 1891

TYPE LOCALITY: Near Puerto Principe, Cuba.

DISTRIBUTION: Known only from the type locality.

Referred by Grisebach to *C. punctata parvifolia* Griseb.

16. *C. RUFESCENS* C. Wright; Sauvalle, Anales Acad. Habana 7: 343. 1870

C. punctata parvifolia Griseb. Mem. Am. Acad. II. 8: 175. 1860.

C. rufescens longifolia Lindau, Bot. Jahrb. 13: 143. 1891.

TYPE LOCALITY: Cuba.

DISTRIBUTION: Mountains of Oriente. Endemic.

17. *C. REFLEXA* Lindau, Bot. Jahrb. 13: 141. 1891

TYPE LOCALITY: Cuba [*Wright 2256*].

DISTRIBUTION: *Britton & Cowell 13115*, from a tree 6 m. high, in savannas near Camaguey, appears to be the same as *Wright 2256*.

18. *C. PRAECOX* C. Wright; Lindau, Bot. Jahrb. 13: 142. 1891

TYPE LOCALITY: Cuba.

DISTRIBUTION: Known only from the type specimens (*Wright 2253*).

19. *Coccolobis benitensis* sp. nov.

A much-branched shrub, up to 2 m. high, the twigs more or less tortuous, glabrous. Leaves coriaceous, ovate, or elliptic-ovate, 1.5–7 cm. long, glabrous, punctate, short-acuminate at the apex, rounded or obtuse at the base, densely prominently reticulate-veined on both sides, the primary veins prominent beneath, the petioles 1.5–4.5 mm. long; spike-like racemes very slender, short-stalked, 4 cm. long or less, the ochreae and rachis puberulent; flowering pedicels scarcely longer than the ochreolae, 0.5 mm. long or less; fruiting pedicels 1–1.5 mm. long; perianth (young) about

0.5 mm. long; fruit ovate-ellipsoid, 5-6 mm. long, about 3 mm. thick, dark red.

Wet mountains of northern Oriente. Type from vicinity of Camp San Benito, 900 m. alt. (*Shafer 4049*).

20. *C. PALLIDA* C. Wright; Griseb. Cat. Pl. Cub. 61. 1866

TYPE LOCALITY: Western Cuba, near San Marco.

DISTRIBUTION: Known only from the type locality [*Wright 2254*].

21. *C. DIVERSIFOLIA* Jacq. Enum. 19. 1760

TYPE LOCALITY: Caribbean Islands.

DISTRIBUTION: Cuba, collected by Read, according to Lindau: Bahamas; Jamaica; Hispaniola; Porto Rico; Vieques; St. Thomas; St. Jan; St. Croix; Saba; Anguilla (?); Antigua; Montserrat; Guadeloupe; Dominica; Martinique; St. Lucia; Barbadoes; Bonaire; Curaçao; Aruba. Planted in Bermuda.

22. *Coccolobis brevipes* sp. nov.

Twigs slender, densely puberulent. Leaves chartaceous, elliptic, 3-7 cm. long, bluntly acute at the apex, obliquely narrowed or rounded at the base, shining above, glaucescent beneath, glabrous and strongly reticulate-veined on both sides, the principal veins prominent beneath; petioles stout, 2-3 mm. long; racemes terminal, about 5 cm. long, densely puberulent; bracts puberulent, acute, scarcely 1 mm. long; ochreolae about as long as the bracts; flowering pedicels 0.5-0.8 mm. long; flowers about 1.5 mm. long, the perianth-lobes ovate.

Cuba (*Wright 2257* in herbarium of the Missouri Botanical Garden). Lindau, in Bot. Jahrb. 13: 152, cites this number as part of *C. Wrightii* Lindau, but the specimen here described is different from *Wright 1395*, the type of *C. Wrightii*.

C. brevipes is similar to *C. rufescens* C. Wright in leaf-form and pubescence, but the venation is quite different.

23. *C. WRIGHTII* Lindau, Bot. Jahrb. 13: 151. 1891

TYPE LOCALITY: Near Monte Verde, Oriente.

DISTRIBUTION: Mountains of northern Oriente.

Referred by Grisebach to *C. tenuifolia* L.

36. ADDITIONAL SPECIES OF *TABEBUIA* GOMEZ

The type species is *Bignonia Tabebuia* Vell., of Brazil, a species with simple leaves. It is not possible to separate the group into two genera, the one with simple, the other with compound leaves, as has been proposed by several authors,* calling the compound-leaved species *Tecomas*, and the true type of *Tecoma* Juss. is *Bignonia stans* L. (*Tecoma stans* HBK., *Stenolobium stans* Seem.). The two-lipped calyx of the type species of *Tabebuia* is not constant through the group.

***Tabebuia Brooksiana* sp. nov.**

A tree, up to 30 m. high. Leaves 4-7-foliolate; petioles 12 cm. long or less; petioles slender, 1-4 cm. long; leaflets oblong, oblong-lanceolate or oblong-oblancheolate, chartaceous, 5-12 cm. long, 4 cm. wide or less, faintly shining above with the veins impressed, dull, mostly finely reticulate-veined when mature, and lepidote beneath, with the midvein and lateral veins prominent, obtuse, acute or retuse at the apex, the base obtuse or acutish; flowers clustered; calyx 2-lipped, 10-15 mm. long; corolla pink, 5-6 cm. long, the tube about 5 mm. long, the narrowly campanulate throat about 3.5 cm. long, the limb about 1.5 cm. long, its undulate lobes ciliolate.

Woodlands, provinces of Oriente and Camaguey, Cuba, from sea-level up to 350 m. altitude. Type from Ensenada de Mora, Oriente (Britton, Cowell & Shafer 12985). Referred by Grisebach to *Tecoma Leucoxydon* Mart. and to *T. Leucoxydon reticularis* Griseb. The species is named in honor of Mr. Theodore Brooks of Guantanamo, who has rendered important aid to scientific exploration. *Tecoma heptaphylla* A. Rich. in Sagra, Hist. Cub. 11: 106 (not Martius), described as with 7-foliolate leaves from Vuelta de Abajo (Pinar del Rio), Cuba, is not known to me; I have seen no species with 7-foliolate leaves from western Cuba.

***Tabebuia Shaferi* sp. nov.**

A tree, up to 10 m. high. Larger leaves 6-8-foliolate; petioles 3-4 cm. long; petiolules 2 cm. long or less; leaflets ovate-oblong to suborbicular, chartaceous, the larger 6 cm. long, 3-5 cm. wide, dark green above, paler beneath, minutely and densely reticulated

* See Urban, Symb. Ant. 7: 377.

on both sides, the midvein impressed above, prominent beneath, the apex rounded or obtuse, the base subcordate; "flowers pinkish"; capsule 12 cm. long; seeds 5 mm. long, 7 mm. wide, the wings 5 mm. wide.

Along a small stream in the Pinales southeast of Paso Estancia, Oriente, Cuba (*Shafer 1710a*). Apparently the same as *C. Wright 3043*, referred by Grisebach to *Tecoma Leucoxydon* Mart., *forma foliolis latioribus*.

***Tabebuia pachyphylla* sp. nov.**

A tree, up to 12 m. high. Petioles stout, 6–8 cm. long; petiololes stout, 4 cm. long or less; leaflets 5–7, oblong to ovate-oblong, coriaceous, 5–12 cm. long, 2.5–6 cm. wide, lustrous above, dull and densely minutely reticulate-veined beneath, the midvein prominent, the lateral veins slender, the apex bluntly acute, the base rounded or subcordate; flowers pink, clustered; calyx 15 mm. long, bluntly lobed; corolla pink, glabrous, about 5 cm. long, its narrow throat about twice as long as the limb, its lobes rounded.

Mountains of northeastern Cuba. Type specimen collected at Arroyo del Medio, Sierra Nipe, Oriente, Cuba, 450–550 m. alt. (*Shafer 3645*).

***Tabebuia trinitensis* sp. nov.**

A tree up to 10 m. high. Leaves 4-foliolate or 5-foliolate; petioles slender, 8–11 cm. long; petiolules slender, 4 cm. long or less; leaflets thin-chartaceous, oblong or oblong-lanceolate, dark green above, paler and lepidote beneath, the larger ones 11–15 cm. long, 3–4 cm. wide, bluntly acute or acuminate at the apex, obtuse at the base, finely reticulate-veined and the primary venation rather prominent on both sides.

Hanabanilla Falls, Trinidad Mountains, province of Santa Clara, Cuba (*Britton, Earle & Wilson 4866*).

The description is from leaf-specimens only but these indicate that the tree is a species distinct from all others of Cuba. The ultimate venation and texture of the leaflets differentiate it from *T. Brooksiana* Britton.

***Tabebuia calcicola* sp. nov.**

A slender tree, up to 6 m. high. Leaves 2–5-foliolate; petioles stout, lepidote, 4–5 cm. long; petiolules lepidote, 1.5 cm. long or less; leaflets coriaceous, light green, ovate to ovate-oblong, 3.5–8

cm. long, 5 cm. wide or less, acute or bluntish at the apex, rounded at the base, finely reticulate veined and densely lepidote on both sides, the primary venation impressed above, prominent beneath; flowers clustered; pedicels stout; calyx 12–14 mm. long, shortly 2-lipped; corolla about 5 cm. long, the tube about 5 mm. long, the campanulate white throat 3 cm. long, the pink limb about 1.5 cm. long, the undulate lobes ciliolate; capsule 10–14 cm. long.

Limestone rocks and cliffs, province of Pinar del Rio, Cuba. Type collected near Guane (*Britton & Cowell 9772*).

***Tabebuia moaensis* sp. nov.**

A shrub, about 1 m. high. Leaves 3–5-foliolate; petioles stout, 2 cm. long or less; petiolules rather stout, 4–15 mm. long; leaflets elliptic to obovate, coriaceous, 3–5 cm. long, 1–2 cm. wide, lustrous above, dull and minutely reticulate-veined beneath, the primary venation not very prominent; calyx 10 mm. long, 2-lipped; corolla pink, about 4 cm. long, its rounded lobes ciliolate.

Camp La Gloria, south of Sierra Moa, Oriente, Cuba (*Shafer 8264*). This is, apparently, the same as *C. Wright 3047*, referred by Grisebach to *Tecoma haemantha*.

***Tabebuia pinetorum* sp. nov.**

A shrub, about 2.6 m. high. Leaves 3-foliolate or 4-foliolate; petioles very stout, only 3 cm. long or less, petiolules stout, 3–8 mm. long; leaflets elliptic or ovate-elliptic, coriaceous, 5–14 cm. long, 2.5–8 cm. wide, shining above, obtuse, rounded or bluntly short-pointed at the apex, obliquely cordate at the base, dull, lepidote and finely reticulate-veined beneath, the primary venation impressed above, prominent beneath; peduncles stout; calyx 12 mm. long, somewhat 2-lipped; "flowers lilac"; pod 11 cm. long, about 1 cm. thick.

Pine woods, Baracoa, Oriente, Cuba (*Underwood & Earle 1362*).

***Tabebuia arimaoensis* sp. nov.**

A small tree with slender, whitish twigs. Leaves 3-foliolate; petioles slender, 1–2.5 cm. long; leaflets subcoriaceous, shining above, with the midvein impressed dull beneath with the midvein prominent, lepidote on both sides, acute, the terminal one with a petiolule 2–5 mm. long, cuneate-oblongate, 4–5 cm. long, 8–12 mm. wide, the lateral ones sessile, narrowly oblong, inequilateral, obliquely narrowed at the base. Flowers and fruit unknown.

Rocky hillside, Rio Arimao, province of Santa Clara, Cuba
(*Britton & Wilson 5797*).

***Tabebuia arenicola* sp. nov.**

A tree 7 m. high. Leaves 3-foliolate; petioles slender, 1-2.5 cm. long; leaflets subcoriaceous, shining, sparingly lepidote, and obscurely veined above, dull, closely lepidote and with prominent midvein and slender lateral veins beneath, inconspicuously reticulate-veined, obtuse or emarginate at the apex, the terminal one oblanceolate, 6-7 cm. long, 1.2-2 cm. wide, acute at the base, with a petiolule 4-6 mm. long, the lateral ones oblong, 4-6 cm. long, sessile by a very oblique base.

Sandy plain, Conde Beach, Guantanamo Bay, Oriente, Cuba
(*Britton 2142*).

***Tabebuia geronensis* sp. nov.**

Twigs stout. Leaves 1-3-foliolate; petioles slender, 1 cm. long or less; in 3-foliolate leaves, the lateral leaflets sessile, the terminal one short-stalked; leaflets oblong to ovate-elliptic or ovate-oblong, subcoriaceous, 3.5-7 cm. long, 3 cm. wide or less, obtuse and rounded or apiculate at the apex, rounded, subcordate, or lateral ones obliquely narrowed at the base, dull on both sides, lepidote above, finely and strongly reticulate-veined and densely lepidote beneath; fruiting calyx densely lepidote, 1 cm. long; capsule 8-9 cm. long, about 8 mm. thick, with a slender tip 6 mm. long.

Nueva Gerona, Isle of Pines, Cuba (*A. H. Curtiss, May, 1904*).

***Tabebuia Curtissii* sp. nov.**

Young twigs, leaves, pedicels and calyx densely lepidote-scurfy. Leaves 3-foliolate, or the upper and lower 1-foliolate; leaflets coriaceous, those of 1-foliolate leaves elliptic, 3-6 cm. long, obtuse at both ends, those of 3-foliolate leaves obovate or oblong-obovate, 8 cm. long or less, abruptly acute at the apex, narrowed at the base, the terminal one short-stalked, the lateral ones sessile, all smooth and shining above, dull, reticulate-veined and densely lepidote beneath; flowers in terminal clusters; pedicels 2 cm. long or less; calyx narrowly campanulate, 1.5 cm. long, its teeth triangular, acute; corolla 5 cm. long, its lobes broad and rounded.

Nueva Gerona, Isle of Pines, Cuba (*A. H. Curtiss, May, 1904*).

***Tabebuia crassifolia* sp. nov.**

A tree, 5 m. high. Leaves simple, oblong-elliptic, coriaceous, 6–12 cm. long, 4.5 cm. wide or less, obtuse or emarginate at the apex, somewhat narrowed at the base, when young densely lepidote and dark green above, pale and more densely lepidote beneath; when old strongly shining, elepidote and with impressed midvein above, remaining densely lustrous-lepidote and with very prominent midvein beneath, the secondary venation slender, neither surface reticulate-veined, the stout lepidote petioles 10–14 mm. long; flower solitary in an upper axil, its slender peduncle 3 cm. long, bearing a linear bractlet 2 mm. long below the middle; calyx densely lepidote, 1 cm. long, lobed but scarcely two-lipped; corolla light purple, about 5 cm. long.

By a spring, barren savannas southeast of Holguin, Oriente, Cuba (*Shafer 1285*).

***Tabebuia angustata* sp. nov.**

A tree up to 12 m. high. Leaflets 3–7-foliolate; petioles slender, 5–13 cm. long; petiolules slender, 5 cm. long or less; leaflets chartaceous, oblong or oblong-lanceolate, 5–18 cm. long, 9 cm. wide or less; dull on both sides, more or less lepidote, at least when young, densely and finely reticulate-veined beneath with a prominent midvein and slender lateral veins, the apex bluntly acuminate or acute, the base obtuse or acute; flowers clustered; calyx 2-lipped, 12–16 mm. long; corolla rosy-white, 5–6 cm. long, its narrow throat somewhat longer than the limb, its lobes ciliate; capsule 10–25 cm. long.

Woodlands and along streams at lower and middle elevations in wet or moist parts of Jamaica. Type collected on the southwestern slope of Dolphin Head (*Harris 9253*). This tree has been referred to *Tecoma platyantha* Griseb.

***Tabebuia jamaicensis* sp. nov.**

A tree up to 12 m. high. Leaves 5-foliolate; petioles stout, 15 cm. long; petiolules stout, 2–9 cm. long; leaflets chartaceous, the three upper obovate, 18–23 cm. long, 9–12 cm. wide, somewhat narrowed at the base, the two lower ovate-elliptic, about 10 cm. long and 6 cm. wide, rounded or subtruncate at the base, all abruptly acuminate at the apex, finely reticulate-veined and loosely lepidote on both sides, the midvein and lateral veins prominent beneath; corolla whitish, glabrous, 5 cm. long, its cylindric tube about 8 mm. long, its campanulate throat 2.5 cm. long, its spreading limb about 1.5 cm. long, its lobes crose.

Hillside, Negril, Jamaica (*Britton 2020*). The description is based on one leaf and one flower.

***Tabebuia actinophylla* (Griseb.)**

Tecoma actinophylla Griseb. Cat. Pl. Cub. 194. 1866.

TYPE LOCALITY: Western Cuba.

DISTRIBUTION: Limestone cliffs, province of Pinar del Rio, Cuba.

***Tabebuia Sauvallei* nom. nov.**

Tecoma sanguinea C. Wright; Sauvalle, Anales Acad. Habana 6: 320. 1870. Not *Tabebuia sanguinea* DC.

TYPE LOCALITY: Border of Rio Carbuni, Manacal, near Trinidad, Cuba.

DISTRIBUTION: Hillsides and river banks, near Trinidad, province of Santa Clara, Cuba.

***Tabebuia Buchii* (Urban)**

Tecoma Buchii Urban, Symb. Ant. 3: 375. 1903.

Known only from the type locality, dry calcareous mountains, Morne La Pierre, Haiti.

***Tabebuia lepidota* (HBK.)**

Bignonia lepidota HBK. Nov. Gen. 3: 139. 1818.

Tecoma lepidota DC. Prodr. 9: 220. 1844.

TYPE LOCALITY: Havana, Cuba.

DISTRIBUTION: Barren soil, provinces of Camaguey, Santa Clara, Matanzas and Havana, Cuba; Bahamas.

Referred by Grisebach to *Tecoma lepidophylla* and to *Tecoma Leucoxylon* and by Combs to *Tabebuia lepidophylla*.

The species consists, apparently, of many races, differing in size, number and form of leaflets and size of flowers.

***Tabebuia Berterii* (DC.)**

Tecoma Berterii DC. Prodr. 9: 220. 1845.

TYPE LOCALITY: Santo Domingo.

DISTRIBUTION: Hispaniola, ascending to 1,200 m. altitude.

Tabebuia domingensis (Urban)

Tecoma domingensis Urban, Symb. Ant. 7: 376. 1912.

TYPE LOCALITY: Near Barahona, Santo Domingo.

DISTRIBUTION: Known only from the type locality.

Tabebuia revoluta (Urban)

Tecoma revoluta Urban, Symb. Ant. 7: 539. 1913.

TYPE LOCALITY: Between La Vega and Jarabacoa, Santo Domingo, at 700 m. alt.

DISTRIBUTION: Known only from the type locality.

Tabebuia acrophylla (Urban)

Tecoma acrophylla Urban, Symb. Ant. 3: 374. 1903.

TYPE LOCALITY: Mountains near Bilboro, Haiti, at 600 m. alt.

DISTRIBUTION: Known only from the type locality.

Tabebuia bibracteolata (Griseb.)

Tecoma bibracteolata Griseb. Cat. Pl. Cub. 193. 1866.

TYPE LOCALITY: Eastern Cuba.

DISTRIBUTION: Known only from the type specimens.

TABEBUIA HETEROPHYLLA (DC.) Britton, Ann. Mo. Bot. Gard. 2: 48. 1915

Rapuntia (?) *heterophylla* DC. Mém. Mus. Paris 9: 153. 1822.

Tabebuia triphylla DC. Prodr. 9: 214. 1845. Not *Bignonia triphylla* L.

Sandy soil and rocky hillsides, Mona, Porto Rico, Vieques, Culebra, St. Thomas, St. Croix, St. Jan, Virgin Gorda, Anagada; recorded from St. Barts and Barbadoes.

Referred by Grisebach to *Tecoma Berterii* DC., and by Urban to *Tecoma Leucoxylon* (L.) Mart.; this is not *Tabebuia leucoxyla* DC. Prodr. 9: 212.

Tabebuia myrtifolia (Griseb.)

Tecoma myrtifolia Griseb. Mem. Am. Acad. II. 8: 524. 1862.

Tecoma lepidota myrtifolia Maza, Anal. Hist. Nat. Madrid 19: 265. 1890.

? *Bignonia microphylla* A. Rich. in Sagra, Hist. Cub. 11: 104. 1850. Not Lam.

TYPE LOCALITY: Matanzas, Cuba.

DISTRIBUTION: Coastal thickets, vicinity of Matanzas, Cuba.

***Tabebuia platyantha* (Griseb.)**

Tecoma platyantha Griseb. Fl. Br. W. I. 447. 1864.

Tecoma Brittonii Urban, Symb. Ant. 5: 496. 1908.

Tecoma Brittonii decussata Urban, loc. cit. 497. 1908.

TYPE LOCALITY: On rocks, St. James, Jamaica.

DISTRIBUTION: Rocky woodlands, central parishes of Jamaica.

***Tabebuia bahamensis* (Northrop)**

Bignonia pentaphylla L. Sp. Pl., ed. 2, 870. 1763 (as to the Bahama plant of Catesby). Not *Tabebuia pentaphylla* (Juss.) Hemsl.

Tecoma bahamensis Northrop, Mem. Torr. Club 12: 65. pl. 15. 1902.

TYPE LOCALITY: Near Nassau, New Providence, Bahamas.

DISTRIBUTION: Bahamas; Cuba.

37. THE GENUS *ANASTRAPHIA* D. Don

Type species: *Anastrophia ilicifolia* D. Don.

Founded on a specimen in the Lambertian Herbarium said to have come from South America; the plant was correctly attributed to Cuba by De Candolle (Prodr. 7: 26. 1838).

1. Involucral bracts straight, erect or nearly so.

Involucre 2.5-3 cm. long.

At least some of the leaves spinulose-dentate.

Involucre campanulate.

All the involucral bracts lanate.

Only the outer bracts lanate, the inner glabrous.

Leaves distinctly reticulate-veined above.

All the involucral bracts linear-lanceolate, acuminate and erect.

Outer involucral bracts lanceolate, merely acute, all somewhat spreading.

Leaves very indistinctly reticulate-veined above, but wrinkled; outer bracts ovate.

Involucre long-attenuate at base, all its many bracts lanate.

1. *A. ilicifolia*.

2. *A. mantuensis*.

3. *A. montana*.

4. *A. Cowellii*.

5. *A. attenuata*.

- None of the leaves spinulose-dentate.
 Involucral bracts tomentose. 6. *A. Picardae*.
 Inner involucral bracts glabrous. 7. *A. crassifolia*.
 Involucre 2 cm. long or less.
 Involucre 1.5-2 cm. long.
 Leaves or some of them 1.5-2 cm. long.
 Inner involucral bracts obtusish or short-pointed. 8. *A. oligantha*.
 Inner involucral bracts acuminate. 9. *A. buhamensis*.
 Leaves 12 mm. long or less.
 Leaves strongly spinulose-dentate. 10. *A. calicicola*.
 Leaves repand-denticulate. 11. *A. parvifolia*.
 Involucre 1.5 cm. long or less.
 Leaves 2-3 times as long as wide.
 Leaves spinulose-denticulate.
 Leaves strongly reticulated beneath. 12. *A. Wilsoni*.
 Leaves not reticulated beneath, or faintly reticulated.
 Achenes short-tomentose; leaves reticulate-veined above. 13. *A. intertexta*.
 Achenes villous; leaves smooth above. 14. *A. Shaferi*.
 Leaves entire-margined. 15. *A. obtusifolia*.
 Leaves not longer than wide, or but little longer.
 Leaves obtuse or truncate at base.
 Involucre 6 mm. long. 16. *A. microcephala*.
 Involucre 10 mm. long. 17. *A. Rosei*.
 Leaves cuneate at base. 18. *A. Buchii*.
 2. Involucral bracts recurved, or with recurved tips.
 Involucral bracts arachnoid. 19. *A. Northropiana*.
 Involucral bracts villous. 20. *A. recurva*.
 3. Involucre known only in a young condition; leaves oblong,
 4 cm. long, 1.8 cm. wide, entire-margined or with a
 tooth near the apex. 21. *A. lomensis*.

1. ANASTRAPHIA ILICIFOLIA D. Don, Trans. Linn. Soc. 16: 296.

1830

Gochnatia ilicifolia Less. Linnæa 5: 261. 1830 (attributed to Guiana doubtfully).

TYPE LOCALITY: South America [in error].

DISTRIBUTION: Limestone cliffs and river-gorges, provinces of Matanzas and Havana, Cuba. A shrub 2-3 m. high, the leaves shining above.

A specimen in Kew Herbarium from rocks on the Rio Canimar, Cuba, 1823, bears the label *Stachelina ilicifolia* Mutis., but that species is a South American *Gynoxys*.

2. *ANASTRAPHIA MANTUENSIS* C. Wright; Griseb. Cat. Pl. Cub.
158. 1866

TYPE LOCALITY: Pine lands near Mantua, Cuba.

DISTRIBUTION: Pine lands and rocky hillsides, near Mantua, Province of Pinar del Rio, Cuba.

3. *Anastraphia montana* sp. nov.

A depressed, spreading or prostrate shrub, the young twigs white-floccose. Leaves oblong, or oblong-ob lanceolate, 2-4 cm. long, 8-16 mm. wide, coriaceous, sharply spinulose-dentate all around, dark green, shining and densely reticulate-veined above, white-floccose beneath, obtuse or acutish at the apex, the floccose petioles 1-2 mm. long; heads solitary at the ends of branches; involucre campanulate about 2.5 cm. high, its bracts rigid, somewhat spreading, in about 8 series, the outer ovate to lanceolate, slightly lanate, acute, the inner linear-lanceolate, acuminate glabrous achenes linear, narrowed at base, densely appressed-pubescent, 6 mm. long; pappus light brown, spreading, about twice as long as the achene.

Top of Sierra Caliente, south of Sumidero, Pinar del Rio, Cuba, August, 1912 (*Shafer 13781*).

4. *Anastraphia Cowellii* sp. nov.

A shrub, 2 m. high, the young twigs lanate-puberulent. Leaves oblong, 1.5-3.5 cm. long, 6-15 mm. wide, coriaceous, sharply spinulose-dentate, green, glabrous, shining and indistinctly veined, but wrinkled above, brownish-floccose beneath, mostly obtuse at the apex, obtuse or narrowed at the base, the petioles 1-4 mm. long; heads solitary or rarely 2 together; involucre narrowly campanulate, about 3 cm. high, its bracts in 7 or 8 series, the outermost ovate, lanate, the middle ones lanceolate, the inner linear-lanceolate, acuminate, glabrous; corollas orange, 2 cm. long; achenes linear, 6-7 mm. long, densely pubescent; pappus brownish, spreading, about 3 times as long as the achene.

Rocky hills, palm barren, city of Santa Clara, Cuba (*Britton & Cowell, 10183, type*); same locality (*Britton & Wilson 6073*); rocky places in savanna, Queen City to Minas, Camaguey, Cuba (*Shafer 2927*); savanna near Camaguey (*Britton & Cowell 13248*).

5. *Anastraphia attenuata* sp. nov.

A shrub about 2.5 cm. high, the young twigs densely lanate. Leaves oblong to oblanceolate, 1.5-5 cm. long, 8-17 mm. wide,

coriaceous, entire or some of them remotely spinulose-dentate, green, glabrous and reticulate-veined above, whitish-lanate beneath, obtuse or acute at the apex, narrowed at the base, the petioles 1–2.5 mm. long; heads solitary at the ends of branches; involucre obconic, long-attenuate at the base, 3–3.5 cm. long, its bracts lanate, imbricated in about 14 series, the lower ovate, the upper lanceolate; corolla yellow, about 1 cm. long; achenes linear, densely pubescent, 6 mm. long; pappus tawny, a little longer than the achene.

Moist thickets, Sierra Nipe, Oriente, Cuba, between Piedra Gorda and Woodfred, at 400–500 meters elevation (*Shafer 3113*).

6. *ANASTRAPHIA PICARDAE* Urban, Symb. Ant. 3: 414. 1903

TYPE LOCALITY: Near Cadets, Haiti, at 1200 m. alt.

DISTRIBUTION: Known only from the type locality.

7. *Anastraphia crassifolia* sp. nov.

A shrub about 1.6 m. high, the young twigs densely tomentose. Leaves oblong, or oblong-ob lanceolate, coriaceous, 4–7 cm. long, 1–2 cm. wide, entire-margined, green, shining, and with impressed veins above, lanate-tomentose and with prominent veins beneath; involucre campanulate, nearly 3 cm. high, its bracts in 7 or 8 series, the outer ovate, lanate, the inner linear-lanceolate, glabrous, long-attenuate.

Near mangroves, mouth of Rio Yamanigüey, Oriente, Cuba (*Shafer 4261*). Only one old involucre was collected.

8. *ANASTRAPHIA OLIGANTHA* Urban, Symb. Ant. 3: 417. 1903

TYPE LOCALITY: Santo Domingo.

DISTRIBUTION: Santo Domingo. Known only from the type specimens collected by Wright, Parry and Brummell in 1871, and from *plate 123, f. 2*, of Plumier, with which they were identified by Professor Urban. Referred to by Hitchcock (Rep. Mo. Bot. Gard. 4: 102) as *A. pauciflosculosa* C. Wright, an unpublished species.

9. *ANASTRAPHIA BAHAMENSIS* Urban, Symb. Ant. 3: 415. 1903

Anastraphia pauciflosculosa Hitchc. Rep. Mo. Bot. Gard. 4: 102. *pl. 12*. 1893. Hyponym.

Anaethaphia cuneifolia Greenm. Publ. N. Y. Bot. Gard. 4: 126, 1905.

TYPE LOCALITY: Andros Island, Bahamas.

DISTRIBUTION: Andros, Eleuthera, Cat Island, Fortune Island, Crooked Island, Acklin's Island, Great Exuma, Caicos Islands, Mariguana, Dellis Cay, Inagua.

I cannot distinguish, specifically, from this species, a plant of the Sierra Nipe, Oriente, Cuba (*Shafer 3185*).

10. *Anaethaphia calcicola* sp. nov.

A shrub, 1-1.5 m. high, the young twigs lanate, the branches stiff. Leaves cuneate-obovate or nearly elliptic, small, 5-10 mm. long, nearly as wide as long, sharply 1-3-toothed on each margin, coriaceous, obtuse or subtruncate at the apex, glabrous and densely reticulate-veined above, white-lanate beneath, the petioles about 1 mm. long; heads solitary on short branchlets; involucre 1.5-2 cm. high, its bracts in about 4 series, loosely and sparingly lanate, the outer ovate, acute, the inner narrowly lanceolate, acuminate; achenes linear, 4 mm. long, densely pubescent; pappus yellowish-brown, about 3 times as long as the achene.

Coral rock hillsides and coastal cliffs, United States Naval Station, Guantanamo Bay, Oriente, Cuba (*Britton 2042, type; 2220*).

11. *Anaethaphia parvifolia* sp. nov.

An upright shrub, 2 m. high, the young twigs lanate. Leaves oblong to oblong-obovate, small, 5-10 mm. long, 4-6 mm. wide, coriaceous, obtuse at the apex, obtuse or narrowed at the base, dark green, smooth and shining above, white-lanate beneath, the margin repand-denticulate, the slender petiole 1-3 mm. long; involucre about 2.4 cm. long, its bracts in 5 or 6 series, the outer ovate to ovate-lanceolate, loosely lanate, acute, the inner linear-lanceolate, acuminate, with lanate tips; corolla orange-yellow, 18 mm. long; achenes linear, densely pubescent, about 3 mm. long; pappus yellowish-brown, about 5 times as long as the achene.

Dense thickets in barren savannas southeast of Holguin, Oriente, Cuba (*Shafer 2938*).

12. *Anaethaphia Wilsoni* sp. nov.

An intricately branched shrub 2 m. high, the young twigs somewhat lanate. Leaves oblong to oblong-obovate, subcoria-

ceous, 1-2.5 cm. long, 1 cm. wide or less, obtuse or acute at the apex, narrowed at the base, green, shining, and densely finely reticulate-veined above, brownish-tomentulose and prominently veined beneath, the margins strongly spinulose-dentate, the slender petioles 1.5-3 mm. long; heads solitary on short branchlets; involucre 1-1.5 cm. high, its bracts in about 8 series, the outer ovate, acute, densely lanate, the inner lanceolate to linear-lanceolate, attenuate, nearly glabrous; corolla 1.5 cm. long; achenes densely pubescent, 5 mm. long; pappus tawny, 3 times as long as the achene.

Rocky bank, Rio Toyaba, near Trinidad, province of Santa Clara, Cuba (*Britton & Wilson 5573*).

13. *ANASTRAPHIA INTERTEXTA* C. Wright; Griseb. Cat. Pl. Cub.
158. 1866

TYPE LOCALITY: Near San Marcos, district of Bahia Honda, Pinar del Rio, Cuba.

DISTRIBUTION: Mountain sides, Pinar del Rio, Cuba.

14. *Anastraphia Shaferi* sp. nov.

An intricately branched shrub 2-2.5 m. high, the young twigs lanate. Leaves oblong to oblong-ob lanceolate, 10-18 mm. long, 8 mm. wide or less, coriaceous, sharply spinulose-dentate, obtuse at the apex, narrowed at the base, green, glabrous and smooth above, whitish-lanate and rather prominently veined beneath, the petioles about 1.5 mm. long; heads solitary or sometimes 2 together at the ends of branchlets; involucre about 1 cm. long, its villous-lanate bracts in about 5 series, the outer ovate, the inner lanceolate, acuminate; corolla "whitish," about 11 mm. long; achenes villous-pubescent, 3 mm. long; pappus tawny, 2-3 times as long as the achene.

Dry cliff, below the falls of Rio Naranja, Oriente, Cuba, 450-550 m. elevation (*Shafer 3865*).

15. *Anastraphia obtusifolia* sp. nov.

An intricately branched shrub, the young twigs lanate-tomentulose. Leaves oblong to oblanceolate, 2.5 cm. long or less, 4-10 mm. wide, coriaceous, entire-margined, dark green and finely densely reticulate-veined above, white-lanate and inconspicuously veined beneath, obtuse at the apex, narrowed at the base, the petioles 1-1.5 mm. long; head (only one old one seen

attached) sessile, lateral; involucre 9-10 mm. long, its bracts in 5 or 6 series, the outer ovate, acute; the inner linear-lanceolate, acuminate.

Camp La Gloria, south of Sierra Moa, Oriente, Cuba (*Shafer 8189*).

16. *ANASTRAPHIA MICROCEPHALA* Griseb. Cat. Pl. Cub. 158. 1866

TYPE LOCALITY: Eastern Cuba.

DISTRIBUTION: Known only from the type specimens collected by Wright.

17. *Anastraphia Rosei* sp. nov.

A shrub with tortuous branches, the young twigs floccose. Leaves broadly elliptic, elliptic-obovate or suborbicular, 10-15 mm. long, 8-13 mm. wide, obtuse or nearly truncate at the apex, obtuse or subtruncate at the base, dark green, loosely floccose or becoming glabrate, and finely reticulate-veined above, densely white-tomentulose and with few rather prominent veins beneath, spiny-toothed, with 2 or 3 teeth on each side, the slender tomentulose petioles 3-5 mm. long; heads solitary and sessile on short spurs, about 10-flowered; involucre narrowly obconic, 10-11 mm. long, its bracts in about 5 series, all appressed-villous, acute, the outer ovate, the inner linear-lanceolate; achenes densely silky, 4 mm. long; pappus yellow-brown, 8 mm. long.

Hillside, Azua, Santo Domingo, March 18, 1913 (*Rose, Fitch & Russell 4023*). Related to *A. Buchii* Urban, of Haiti, which has leaves cuneate at base, smaller heads and less hairy involucre-bracts.

18. *ANASTRAPHIA BUCHII* Urban, Symb. Ant. 5: 527. 1908

TYPE LOCALITY: Dry woods, Poste Coudau, Haiti, at 100 m. elevation.

DISTRIBUTION: Known only from the type locality.

19. *ANASTRAPHIA NORTHROPIANA* Greenm.; Combs, Trans. Acad. Sci. St. Louis 7: 435. *pl. 36*. 1897

Anastraphia Northropiana Combsii Urban, Symb. Ant. 3: 417. 1903.

TYPE LOCALITY: Fresh Creek, Andros, Bahamas.

BAHAMA ISLANDS: Andros, New Providence, Cat Island.

CUBA: On rocky coastal hills, Punta Piedra, Nipe Bay, Oriente (*Britton & Cowell 12459*); harbor of Santiago, Oriente (*Britton 1877*); near Nuevitas, Camaguey (*Shafer 839*); Calicita, Santa Clara (*Combs 521*); Rio San Juan, Santa Clara (*Britton, Earle & Wilson 5839, 5864*); apparently the same species, collected in foliage only, on Cayo Ratones, Bay of Mariel, Pinar del Rio (*Britton & Gager 7678*). I cannot specifically distinguish the Cuban plant from the Bahamian; on the southern coast of Santa Clara Province it forms a tree up to 10 m. high with a trunk 2 dm. in diameter; its bark is very rough.

20. *Anaethaphia recurva* sp. nov.

A much-branched shrub up to about 3 m. high, the young twigs tomentulose. Leaves oblong to elliptic or oblanceolate, coriaceous, 4 cm. long or less, 8–15 mm. wide, green and smooth or somewhat reticulate-veined above, lanate beneath, obtuse or acute at the apex, cuneate-narrowed, acute or obtuse at the base, spinulose-dentate or entire, the petioles 1.5–3 mm. long; heads solitary at the ends of branchlets; involucre broadly campanulate, 1.5–1.8 cm. high, its bracts densely villous, imbricated in 6 or 7 series, recurved-spreading, linear-lanceolate, acuminate; corolla yellow or yellowish, about 1 cm. long; achenes densely whitish-pubescent, about 4 mm. long; pappus tawny, 2–3 times as long as the achene.

Serpentine hills near mouth of Rio Yamanigüey, Oriente, Cuba (*Shafer 4257; type*); between Rio Yamanigüey and Camp Toa, 400 m. alt. (*Shafer 4011*); vicinity of Camp San Benito, 900 m. alt. (*Shafer 4177*); Camp La Gloria, south of Sierra Moa (*Shafer 8187, 8266*); between Camp La Barga and Camp San Benito (*Shafer 4120*).

A species which has wide variation in leaf-forms; the involucre in all specimens seen appears to be the same.

21. *Anaethaphia* (?) *lomensis* sp. nov.

A shrub about 2.5 m. high, the twigs tomentulose. Leaves oblong, coriaceous, about 4 cm. long and 1.8 cm. wide, entire-margined, or rarely with a spinulose tooth near the apex, spinulose-tipped and acute, or rounded at the apex, narrowed or obtuse at the base, faintly reticulate-veined, green and glabrous above, lanate and rather prominently veined beneath, the petioles 2–3.5

mm. long; heads solitary or sometimes 2 together at the ends of twigs; young involucre 1 cm. long, its floccose bracts in about 5 series, acute, the outer ovate, the inner lanceolate.

Rocky mountain side, Loma Mensura, about 800 m. alt., Oriente, Cuba (*Shafer 3811*).

The leaves are similar to those of *A. Picardae* Urban, of Haiti.

38. UNDESCRIBED WEST INDIAN SPECIES

Cyperus calcicola sp. nov.

Perennial by short rootstocks; culms slender, tufted, smooth, 1-2.5 dm. high. Leaves shorter than the culm, 0.5-1 mm. wide; bracts of the involucre 2 or 3, the longer sometimes 4 cm. long, similar to the leaves; head globose, solitary, 5-7 mm. in diameter; spikelets about 3-flowered, 3.5-4.5 mm. long; scales dark brown, the lowest empty ones persistent on the axis after the fall of the rest of the spikelet, lanceolate, the others ovate to ovate-lanceolate, acute, faintly striate-nerved.

Limestone rocks, Cayo Muertos, Porto Rico (*Britton, Cowell & Brown 4976*).

Related to *C. fuliginus* Chapm., in which the scales of the spikelet are more numerous, strongly striate-nerved and mucronate.

Psilocarya portoricensis sp. nov.

Annual, with fibrous roots; culm rather slender, about 4 dm. high. Leaves shorter than the culm, 2-3 mm. wide; umbels several, slender-stalked; spikelets 3-5 in the umbels, ovoid, acutish, 4-6 mm. long, 2 mm. thick; scales ovate, dark brown, sharply acute; style rather deeply 2-cleft; achene oblong, 1 mm. long, transversely wrinkled; tubercle triangular, acute, one third to one half as long as the achene, and distinctly decurrent upon it.

Shore of Laguna Tortuguero, Porto Rico (*Britton, Cowell & Brown 3850*).

Nearest to *P. nitens* (Vahl) A. Wood, of eastern continental North America, the achene of which is smaller, suborbicular and the tubercle scarcely decurrent.

Rynchospora borinquensis sp. nov.

Perennial by short rootstocks; culms slender, trigonous, about 6 dm. high. Leaves flat, about 2 mm. wide, shorter than the culm;

corymbs 2 or 3, distant, filiform-stalked, compound, narrow, 2-7 cm. long; spikelets clustered, fusiform, 5 mm. long, narrowed at both ends, bearing only 1 achene; scales lanceolate or oblong-lanceolate, dark brown, acute; bristles about 6, upwardly barbed, longer than the achene and tubercle; style-branches about one-third as long as the undivided part; achene oblong-obovate, faintly transversely wrinkled, 1.5 mm. long, a little longer than the smooth, conic, acute tubercle.

Open wet places in the forest, Rio Icaco and adjacent hills, Sierra de Naguabo, Porto Rico, 465-720 m. alt. (*Shafer 3515, type*); Sierra Nipe, Oriente, Cuba (*Shafer 3453, 3638*).

Apparently nearest *R. glauca* Vahl, which has shorter, ovoid spikelets, and a shorter tubercle.

***Cassia clarendonensis* sp. nov.**

A finely pubescent shrub about 1.3 m. high. Leaves linear in outline, 10-15 cm. long, bearing an obtusely conic gland 1 mm. high between the lowest pair of leaflets, the slender, pubescent rachis angular; leaflets 10-15 pairs, thin, pubescent on both sides, with very short pubescent petiolules, apiculate, inequilateral, the upper 2 or 3 pairs oblong, 1.5-2 cm. long, 6-7 mm. wide, the others elliptic to obovate-elliptic, shorter and slightly broader; flowers in several short pubescent panicles in the upper axils; pedicels 2-4 mm. long; sepals obliquely elliptic, obtuse, pubescent, 5-6 mm. long; petals yellow, obovate, veiny, about 9 mm. long, rather abruptly short-clawed; sepals 7; larger anthers curved, 7-8 mm. long, the smaller nearly straight, about 5 mm. long; style curved, about 11 mm. long; pods short-stalked in the calyx, linear, many-seeded, densely puberulent, 7-10 cm. long, 6 mm. wide, flat, impressed between the seeds, the margins scarcely thickened; seeds oblong, transverse, pubescent, about 4 mm. long.

Inverness, Clarendon, Jamaica (*Harris 11693*).

***Purdiaea velutina* Britton & Wilson, sp. nov.**

A shrub 3 m. tall, or a small tree; twigs villous. Leaves obovate, 4-10 cm. long, 2-3.3 cm. broad, rounded and emarginate or mucronate at the apex, gradually tapering to a rather broad sessile base, 5-7-ribbed, reticulate-veined, glabrous; bracts oblong-obovate or obovate, 15-24 mm. long, 6-9 mm. broad, velutinous on the back, glabrous within above the middle, below clothed with rather short, appressed silky hairs; peduncles and pedicels villous; one ciliate, the three outer ones unequal, ovate, 9-12 cm. long,

4-6 mm. broad, rounded or acutish and apiculate at the apex, papery, several nerved, the two inner sepals lanceolate, 5-6 mm. long, acuminate; petals lanceolate to narrowly ovate-lanceolate, 5.5-6 mm. long, 2-2.5 mm. broad, acute, glabrous; filaments subulate, glabrous; anthers oblong; ovary subglobose, villous.

Type collected along trail, Rio Yamanigüey to Camp Toa, Oriente, Cuba (*Shafer 4474*); also collected in the vicinity of Camp San Benito, Oriente, Cuba (*Shafer 4092*).

***Purdiaea Shaferi* Britton & Wilson, sp. nov.**

A shrub 2 or 3 m. tall; twigs glabrous or nearly so. Leaves broadly elliptic-obovate, 4.5-9.5 cm. long, 2.5-4.5 cm. broad, rounded and emarginate or mucronate at the apex, sessile, 7-9-ribbed, rather faintly and coarsely reticulate-veined, glabrous; bracts obovate, 12-14 mm. long, 7-8 mm. broad, papillose; peduncles and pedicels villous; sepals 5, ciliate, the three outer sepals very unequal, broadly ovate to ovate-oval, 8-12 mm. long, 4-8 mm. broad, rounded or acute and apiculate at the apex, papery, clothed mostly toward the base with appressed, silky hairs, several-nerved, the two inner sepals lanceolate, 5-6 mm. long, 2 mm. broad, acuminate; petals elliptic, 5 mm. long, 2.5-3.2 mm. broad, mucronate, glabrous; filaments subulate, glabrous; anthers oblong; ovary globose-ovoid, hirsute; style subulate.

Type collected in pinelands, vicinity of Baracoa, Oriente, Cuba (*Shafer 4285*).

***Purdiaea microphylla* Britton & Wilson, sp. nov.**

A shrub 1 or 2 m. tall; young twigs and branches of the inflorescence more or less hirsute. Leaves oblanceolate to obovate, 10-15 mm. long, 5-7 mm. broad, acute at the apex, cuneate at the base, sessile, rigid, faintly 3-ribbed, glabrous; sepals unequal, rigid, the three outer ones ovate to oval, 4 mm. long, 3 mm. broad, acute, the two inner sepals ovate, 3 mm. long, 1.2-1.5 mm. broad, apiculate, ciliate; fruit 5-lobed, the angles keeled, 5-celled, glabrous; style subulate, persistent.

Type collected at Camp La Gloria, south of Sierra Moa, Oriente, Cuba (*Shafer 8265*).

***Piriqueta cubensis* Britton & Wilson, sp. nov.**

A shrub 1-3 m. tall, the young twigs grooved, velvety-ferruginous with stellate hairs. Leaves oblanceolate or obovate, 4-8 cm.

long, 1-2.2 cm. broad, obtuse or acutish at the apex, cuneate at the base, petioled, above clothed with scattered stellate hairs, beneath velvety ferruginous with stellate hairs and reticulate-veined, the midvein and lateral nerves obscure or impressed above, prominent beneath; calyx-lobes oblong-lanceolate to ovate-lanceolate, 1.2-1.6 cm. long, 6-8 mm. broad, velvety-ferruginous; petals elliptic to somewhat oblanceolate, 1.6-1.8 cm. long, 5-6 mm. broad, glandular-ciliate; filaments filiform, glabrous; anthers oblong-lanceolate; ovary narrowly ovoid, tomentose; styles filiform, 2.5-2.7 cm. long, glabrous; capsule velvety-ferruginous, the valves ovate; seeds pyriform.

Type collected along trail, Rio Yamanigüey to Camp Toa (400 m. alt.), Oriente, Cuba (*Shafer 4190*); also collected on the Sierra Nipe, Oriente (*Shafer 3109*).

***Rheedia Hessii* sp. nov.**

Young branches angled, slender, the older ones terete. Leaves opposite, coriaceous, clustered on short lateral twigs, narrowly lanceolate, 1.5-2.5 cm. long, 6 mm. wide or less, narrowed at the base into stout petioles 2-3 mm. long, spinulose-acuminate at the apex, the midvein prominent beneath, very indistinct above, the lateral venation wholly obscure, the margins thickened; staminate flowers solitary in upper axils on pedicels about 4 mm. long; sepals suborbicular, about 3 mm. broad; petals obovate-elliptic, rounded at the apex, 5 mm. long; stamens numerous, the stout filaments 2-2.5 mm. long; anthers less than 0.5 mm. broad.

Indiera Fria, near Maricao, Porto Rico (*F. L. Stevens & W. E. Hess 3333*). In habit and in leaf-form this somewhat resembles *R. fruticosa* C. Wright, of Cuba.

***Mayepea cubensis* P. Wilson, sp. nov.**

A shrub 6 m. tall, the young twigs glabrous or nearly so. Leaves oblong-oblanceolate, 6-9 cm. long, 1.5-2 cm. broad, rounded and often emarginate at the apex, cuneate at the base, petioled, glabrous, impressed punctate, rigid; midrib more or less impressed above, prominent beneath, the primary veins few and rather inconspicuous; panicles terminal, shorter than the leaves, the branches glabrous; bracts oblong-lanceolate or narrowly lanceolate, hirsutulous; pedicels about 2 mm. long; calyx-lobes triangular, obtuse or acutish, sparingly hirsutulous on the outside, hirsutulous within mostly at or near the apex; petals oblong or somewhat oblong-lanceolate, 5.5-6.5 mm. long, 1.2-2 mm. broad,

glabrous, obtuse, several-nerved; stamens shorter than the petals; filaments 1 mm. long; anthers elliptic-ovate to broadly elliptic; ovary ovoid, glabrous; stigma subsessile, globose-ovoid or subglobose, sometimes slightly emarginate.

Type collected at mouth of the Rio Yamanigüey, Oriente, Cuba (*Shafer 4253*).

Agalinis albida Britton & Pennell, sp. nov.

Annual; plant green, tending to blacken in drying. Stem 4-6 dm. tall, slender, with virgately ascending branches, obscurely striate-4-angled, glabrous; leaves opposite, or somewhat subopposite above, ascending or recurved-spreading, linear-subulate below to linear and longer above, entire, acute, those of the stem 1-2.5 cm. long, 0.5-1 mm. wide; bracts gradually much reduced; leaves thickened, minutely scabrous to scabro-roughened above. axillary fascicles none; racemes elongated, 2-16-flowered; pedicels ascending, slender, clavate, glabrous, in flower 0.5-1 mm. long, in fruit 2-3 mm. long, much shorter than the bracts; calyx-tube 2-2.5 mm. long, depressed-hemispheric, obscurely veined, 1/3-2/5 the length of the capsule, somewhat truncate, its lobes 0.7-1 mm. long, broadly triangular to ovate-triangular, acute to acuminate; apex of tube and lobes within sparingly puberulent; corolla 10-15 mm. long, spreading, 7-10 mm. wide, membranous, its tube 8-12 mm. long, straight to slightly upcurved, its lobes 2-3 mm. long, rounded to truncate, all somewhat spreading, without minutely pubescent, within slightly pubescent about the bases of the filaments, pubescent below sinus and over most of basal portions of posterior lobes; lobes all ciliate, white, at times shaded with violet; posterior filaments 2.5-3.5 mm. long, anterior 5-6.5 mm. long, all somewhat lanose; anther-sacs 1-1.5 mm. long, oblong-lanceolate, acute to mucronate at base, lanose-pubescent with white hairs on the valvular surface, glabrous on the sides; style 4-5 mm. long, filiform, glabrous; stigma 2.5 mm. long; capsule 4 mm. long, depressed-globose, dark-brown; seeds 0.6-0.8 mm. long, lunate-triangular to narrowly quadrangular, slightly less than one-half as broad as long, irregular; testa pale, with reticulations delicate, brown, enclosing elongated angular spaces; intrareticular lines very fine, forming a network.

Wet, grassy pineland, western Cuba, Isle of Pines, and in Jamaica.

Type, *Colpothrinax* savanna, vicinity of Herradura, province of Pinar del Rio, Cuba, collected in flower and fruit August 26-30, 1910 (*Britton, Earle & Gager 6475*).

CUBA. Pinar del Rio: Guane (*Shafer 10662*); Herradura (*Hermann 291, 505*); Laguna Jovero (*Shafer 10937*); Laguna los Indios (*Shafer 10801*); Pinar del Rio (*Wright 2991 p.p.*); San Cristobal (*Wright 2901 p.p.*), Santa Clara: Cieneguita (*Combs 443*), Isle of Pines: Managua (*Palmer & Riley 1102*).

JAMAICA. Shooter's Savanna (*Harris 11160*); Upper Clarendon (*Harris 11100*).

Differs from other species of *Agalinis* bearing short-pedicelled flowers, spreading corolla-lobes and dark brown seeds (*A. purpurea* and near allies) by its leaves strongly ascending, but 1–2.5 cm. long, its corolla much paler, nearly or quite white, and relatively small, and by its seeds which are less than one-half as broad as long.

Jacaranda Cowellii Britton & Wilson, sp. nov.

A shrub 1.5–2 m. tall, the young twigs, pedicels, calyx and corolla more or less glandular-pubescent; leaves once-pinnate, 2.5–6 cm. long, occasionally longer; petioles and rachis narrowly grooved; leaflets 8–15 pairs or more, opposite or subopposite, elliptic to oval or orbicular, 2–5 mm. long, 1.5–3 mm. broad, sessile, rigid, green and lustrous above, paler beneath, the margin strongly involute, the midvein impressed above, prominent beneath; bracts of the inflorescence oblong; calyx-lobes triangular-ovate or ovate, acutish, 2 mm. long; corolla-tube 2–2.5 cm. long, the lobes orbicular; filaments of the fertile stamens subulate, glabrous, the filament of the sterile stamen flattened, bearded below the middle, glabrous above, densely bearded at the apex; anthers oblong-elliptic; ovary ovoid, glabrous; style subulate; fruit elliptic or oblong-elliptic, the apex rounded, or abruptly short-acuminate with the tip acutish or obtuse.

Type collected in palm barrens in the vicinity of the city of Santa Clara, Cuba (*Britton & Cowell 13316*); also collected at the same locality (*Britton & Wilson 6071*; *Britton & Cowell 10174*); dry hill, Holguin, Oriente (*Shafer 12434*); barren savanna south-east of Holguin, Oriente (*Shafer 2940*).

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GARDEN—No. 183

STUDIES OF WEST INDIAN PLANTS—VII

NATHANIEL LORD BRITTON

NEW YORK
1915

Reprinted, without change of paging, from BULLETIN OF THE TORREY BOTANICAL CLUB
42: 487-517. November 5, 1915

Studies of West Indian plants—VII

NATHANIEL LORD BRITTON

39. THE GENUS *SCLERIA* BERG. IN CUBA

The last previous treatment of the Cuban species is that of Mr. C. B. Clarke in Urban, *Symb. Ant.* 2: 8-169. 1900.

A. Hypogynium present.

1. Hypogynium not covered with a white rough crust.

a. Margin of the hypogynium neither ciliate nor fimbriate [see *S. cubensis*].

* Roots fibrous; rootstocks none or very short.

Achene reticulated or irregularly ridged;
plants slender.

1. *S. setacea*.

Achene smooth; plants stout.

2. *S. lacustris*.

** Perennials, with rootstocks. [Rootstock in *S. setuloso-ciliata* short, or perhaps none.]

Achene smooth.

Ligule large, its margin scarious or callous.

Climbing; branched; pilose.

3. *S. secans*.

Erect; simple; glabrous.

4. *S. catalinae*.

Ligule short, small; culms erect or spreading.

Culms slender; leaves relatively smooth.

Panicle red-purple; achene purple to white.

5. *S. melaleuca*.

Panicle brown-green; achene white.

Achene depressed-globose.

6. *S. pterota*.

Achene longer than thick.

Leaves 2-4 mm. wide.

7. *S. Wrightiana*.

Leaves 8-15 mm. wide.

8. *S. setuloso-ciliata*.

Culms stout; leaves very rough.

9. *S. scindens*.

Achene verrucose, reticulated or papillose.

Achene papillose.

10. *S. ciliata*.

- Achene verrucose or reticulated.
 Achene reticulated; hypogynium supporting 3 deeply 3-lobed tubercles. 11. *S. Curtissii*.
 Achene verrucose-reticulated; hypogynium 3-lobed.
 Glabrous or nearly so. 12. *S. stereorrhiza*.
 Leaves and sheaths densely pilose-pubescent. 13. *S. pilosissima*.
- b.* Margin of the hypogynium ciliate, ciliolate or fimbriate [nearly or quite eciliate in *S. cubensis*].
 Margin of the hypogynium ciliate or ciliolate.
 Achene 2 mm. long or less. 14. *S. microcarpa*.
 Achene 2.5-3 mm. long.
 Style-base black, persistent; achene ellipsoid. 15. *S. mitis*.
 Style-base pale, deciduous; achene subglobose.
 Leaves about 3 mm. wide. 16. *S. phylloptera*.
 Leaves 8-16 mm. wide.
 Margin of the hypogynium ciliolate or eciliate. 17. *S. cubensis*.
 Margin of the hypogynium densely long-ciliate. 18. *S. Grisebachii*.
 Margin of the hypogynium 3-lobed, the lobes lacinate or fimbriate. 19. *S. porphyrorrhiza*.
 2. Hypogynium covered with a white rough crust. 20. *S. havanensis*.
- B.* Hypogynium none, or obsolete.
 Annuals with fibrous roots; inflorescence glomerate-spicate.
 Achene smooth. 21. *S. distans*.
 Achene verrucose, reticulated or cancellate.
 Bracts strongly ciliate; achene cancellate. 22. *S. pinetorum*.
 Bracts glabrous; achene verrucose or verrucose-reticulated.
 Inflorescence simply glomerate-spicate. 23. *S. verticillata*.
 Inflorescence branched. 24. *S. Liebmanni*.
- Perennial by rootstocks.
 Inflorescence glomerate-spicate; achene smooth. 25. *S. hirtella*.
 Inflorescence not glomerate-spicate.
 Panicle loose. 26. *S. lithosperma*.
 Inflorescence subcapitate.
 Achene 2-3 mm. long, with 2 pits on each side of the 3-angled base. 27. *S. gracilis*.
 Achene 4 mm. long, without pits. 28. *S. Baldwinii*.

1. *SCLERIA SETACEA* Poir. in Lam. Encycl. 7: 4. 1806

Scleria hemitaphra Steud. Syn. Pl. Cyp. 169. 1855.

Scleria Torreyana Walp. Ann. 3: 696. 1853.

Scleria dictyocarpa Griseb. Cat. Pl. Cub. 259. 1866.

Scleria debilis C. Wright; Sauvalle, Anales Acad. Habana 8: 154. 1872.

S. reticularis pubescens Britton, Ann. Lyc. N. Y. 3: 232. 1885.

Savannas and along streams, Pinar del Rio:—southern United States; Porto Rico; tropical continental America.

2. *SCLERIA LACUSTRIS* C. Wright; Sauvalle, Anales Acad. Habana 8: 152. 1872

Lagoons near Pinar del Rio. Recorded by Clarke from French Guiana and from Java.

3. *SCLERIA SECANS* (L.) Urban, Symb. Ant. 2: 169. 1900

Schoenus secans L. Syst. ed. 10, 865. 1759.

Scleria reflexa HBK. Nov. Gen. 1: 232. 1815.

Mountain woodlands, Oriente:—Haiti to Martinique and Trinidad; Jamaica; tropical continental America.

My examination of the type specimen of *Schoenus secans* L., in the herbarium of the British Museum of Natural History, some years ago, showed that it was the same as *Scleria reflexa* HBK., and not the same as *Scleria Flagellum-nigrorum* Berg.

4. *Scleria catalinae* sp. nov.

Perennial by thick rootstocks; culm stout, sharply 3-angled, roughish on the angles, glabrous, about 1.3 m. high. Leaves glabrous, slightly roughish-margined, 3–5 dm. long, 1–2.3 cm. wide, 3-nerved, attenuate-acuminate, the ligule triangular-ovate to triangular-lanceolate, acute or acuminate, many-striate, narrowly callous-margined, 2 cm. long or less; panicle about 5 dm. long, of few, distant, slender branches, the staminate and pistillate spikelets intermixed; staminate spikelets oblong, 3–4 mm. long; achene ovoid, purplish, smooth, shining, acute, 2 mm. long, the style-base persistent; hypogynium obconic, 1 mm. long, glabrous, its base rounded, its 3 rounded lobes appressed.

Santa Catalina, Pinar del Rio (*Van Hiermann 3272*).

By its very large ligule related to *S. arundinacea* Kunth, but the achene and inflorescence are quite different, resembling those of *S. cubensis* Boeckl.

5. *SCLERIA MELALEUCA* Schl. & Cham. *Linnaea* 6: 29. 1831

Savannas and banks, Camaguey; Havana; Pinar del Rio:—Jamaica; Porto Rico; St. Vincent to Trinidad; continental tropical America. The West Indian specimens here referred are not very different from the following species.

6. *SCLERIA PTEROTA* Presl in Oken, *Isis* 21: 268. 1828

Scleria pratensis Nees in Mart. Fl. Bras. 2¹: 179. 1843.

Scleria Ottonis Boeckl. *Linnaea* 38: 490. 1874.

Woodlands and banks, Santa Clara; Havana; Pinar del Rio; Isle of Pines:—Haiti to St. Thomas and Barbadoes; Jamaica; continental tropical America.

7. *SCLERIA WRIGHTIANA* Boeckl. *Flora* 64: 79. 1881

Scleria elata C. Wright; Sauvalle, *Anales Acad. Habana* 8: 153. 1872. Not Thwaites.

Pine-lands and savannas, Pinar del Rio and Isle of Pines. Endemic.

8. *SCLERIA SETULOSO-CILIATA* Boeckl. *Flora* 65: 30. 1882

Wet situations, Matanzas; Havana; Isle of Pines:—Guatemala.

9. *SCLERIA SCINDENS* Nees, *Linnaea* 9: 303. 1834

Mountain woodlands, Oriente:—Tortola; St. Kitts to St. Vincent.

10. *SCLERIA CILIATA* Michx. Fl. Bor. Am. 2: 167. 1803

Scleria Elliottii Chapm. Fl. S. U. S. 531. 1860.

Barrens and pinelands, Santa Clara; Matanzas; Pinar del Rio; Isle of Pines:—southeastern United States; Santo Domingo.

11. *SCLERIA CURTISSII* Britton; Small, Fl. S. E. U. S. 200, 1328. 1903

? *Scleria pauciflora effusa* Clarke in Urban, *Symb. Ant.* 2: 143. 1900.

Savannas, Pinar del Rio and Isle of Pines:—Florida. Referred by Wright, by Clarke and formerly by me to *S. pauciflora* Muhl.

12. *SCLERIA STEREORRHIZA* C. Wright; Clarke in Urban, Symb.
Ant. 2: 147. 1900

Scleria bracteata Griseb. Cat. Pl. Cub. 249. 1866. Not Cav.

Scleria bracteata angustata Griseb. loc. cit. 1866.

Scleria stereorrhiza major Clarke in Urban, loc. cit. 1900.

Along streams and on hillsides, Santa Clara; Havana; Pinar del Rio. Endemic.

13. *Scleria pilosissima* sp. nov.

Perennial by short, branched rootstocks; culms rather slender, but stiff, sharply 3-angled, loosely pilose, simple, 3-4 dm. high. Leaves roughish-margined, 1-2 dm. long, 2-4 mm. wide, acuminate, stiff, densely pilose, the midvein prominent beneath; clusters of spikelets 1 or 2, pilose, 2-4 cm. long, the staminate and pistillate spikelets intermixed; scales lanceolate, acute, pubescent; achene subglobose, 2-2.5 mm. in diameter, transversely verrucose, pubescent, obtuse, abruptly apiculate; hypogynium with 3 rounded, appressed lobes.

Sunny hillsides among rocks, between Punta Gorda and Woodfred, Oriente, Cuba, 400-500 m. alt. (*Shafer 3099*).

Related to *S. stereorrhiza* C. Wright.

14. *SCLERIA MICROCARPA* Nees, Linnaea 9: 302. 1834

Scleria foliosa C. Wright; Sauvalle, Anales Acad. Habana 8: 154.
1872. Not A. Rich.

Scleria microcarpa foliosa Clarke in Urban, Symb. Ant. 2: 149.
1900.

River banks, Pinar del Rio and Isle of Pines:—Porto Rico; Guadeloupe; Jamaica; Trinidad; continental tropical America.

15. *SCLERIA MITIS* Berg. Vet. Akad. Handl. Stockh. 26: 145.
1865

Scleria Eggersiana Boeckl. Cyp. Nov. 2: 41. 1890.

Pinal de Sta. Ana collected by Eggers, according to Clarke:—Porto Rico; Guadeloupe; Martinique; St. Vincent; Trinidad; continental tropical America.

16. *SCLERIA PHYLLOPTERA* C. Wright; Griseb. Cat. Pl. Cub. 248.
1866

Scleria microcarpa angustifolia Boeckl. Flora 64: 79. 1881.

Moist savannas and borders of lagoons, Santa Clara; Pinar del Rio. Endemic.

17. *SCLERIA CUBENSIS* Boeckl. Cyp. Nov. 2: 42. 1890
Scleria microcarpa subeciliata Clarke in Urban, Symb. Ant. 2:
 149. 1900

Banks and woodlands, mountains of Oriente and Santa Clara:—Hispaniola; Porto Rico; Jamaica.

18. *SCLERIA GRISEBACHII* Clarke in Urban, Symb. Ant. 2: 150.
 1900

Bogs, Santa Clara; Havana:—Hispaniola; Antigua; Dominica; Martinique; Jamaica.

19. *SCLERIA PORPHYRORRHIZA* C. Wright; Sauvalle, Anales Acad.
 Habana 8: 155. 1872

Pinelands, Pinar del Rio. Recorded by Clarke from Brazil.

20. *Scleria havanensis* sp. nov.

Rootstocks stout, horizontal, 3-4 cm. long, about 6 mm. thick. Culms many, slender, trigonous, nearly smooth, about 5 dm. long; leaves nearly smooth, narrow, 1-1.5 mm. wide; inflorescence a single small cluster of intermixed staminate and pistillate spikelets; achene white, ridged-reticulated, globose-oblong, rounded, 2 mm. long; hypogynium low, obscurely 3-lobed, covered with a rough whitish crust.

Coca Hill, Campo Florida, province of Havana (*Brother Leon* 4731).

21. *SCLERIA DISTANS* Poir. in Lam. Encycl. 7: 4. 1806
Scleria tenella Griseb. Cat. Pl. Cub. 249, in part. 1866. Not Kunth.

? *S. hirtella pauciliata* Britton, Ann. N. Y. Acad. Sci. 3: 236. 1885.

Cuba, collected by Wright:—Hispaniola; Porto Rico; St. Thomas; Guadeloupe.

22. *Scleria pinetorum* sp. nov.

Annual, with many finely fibrous roots; culms slender, erect, 2-4 dm. high. Leaves grass-like, pubescent with spreading hairs, 1-2 mm. wide; inflorescence glomerate-spicate, 5-8 cm. long;

bracts linear-lanceolate, ciliate, 6 mm. long or less; achene globular, white, deeply reticulated, about 1.5 mm. in diameter, with a row of pits at its base, the short base 3-angled.

Pine-lands and savannas, Pinar del Rio. Type collected between Candelaria and Artemisa (*Wilson 1724*).

Previously referred by me (*Ann. N. Y. Acad. Sci. 3: 236*) to *S. interrupta* A. Rich., of Guiana, which now seems to me to be distinct.

23. *SCLERIA VERTICILLATA* Muhl.; Willd. Sp. Pl. 4: 317. 1805

Pinelands, Pinar del Rio; Isle of Pines:—eastern United States; New Providence, Bahamas.

24. *SCLERIA LIEBMANNI* Steud. Syn. Pl. Cyp. 179. 1855

Scleria tenella Griseb. Cat. Pl. Cub. 249, in part. 1866. Not Kunth.

Scleria luzulaeformis C. Wright; Sauvalle, *Anales Acad. Habana* 8: 156. 1872.

Savannas near San Juan de Buena Vista, jurisdiction of Bayamo, according to Sauvalle (*Wright 3418*, in part); Mexico to Brazil.

25. *SCLERIA HIRTELLA* Sw. Prodr. 19. 1788

Scleria nutans Kunth, Enum. 2: 352. 1837.

Moist grounds, Oriente; Santa Clara; Pinar del Rio; Isle of Pines,—southern United States; Haiti; Porto Rico; Jamaica; Trinidad; continental tropical America; tropical Africa.

26. *SCLERIA LITHOSPERMA* (L.) Sw. Prodr. 18. 1788

Scirpus lithospermus L. Sp. Pl. 51. 1753.

Scleria filiformis Sw. Prodr. 19. 1788.

S. lithosperma filiformis Britton, *Ann. N. Y. Acad. Sci. 3: 231*. 1885.

Woodlands and thickets, all provinces:—Florida; Bahamas; West Indies; tropical continental America; Old World tropics.

27. *SCLERIA GRACILIS* Ell. Bot. S. C. & Ga. 2: 571. 1824

Moist savannas, Pinar del Rio:—southeastern United States.

28. *SCLERIA BALDWINII* (Torr.) Steud. Syn. Pl. Cyp. 175. 1855
Hypoporum Baldwinii Torr. Ann. Lyc. N. Y. 3: 382. 1836.

Border of lagoon, Laguna Santa Maria, Pinar del Rio:—south-eastern United States.

FURTHER STUDIES OF *BADIERA* DC.

Since the publication of my former paper on this genus (Bull. Torrey Club 37: 360–363. 1910), additional specimens which have come to hand afford the following notes and descriptions.

1. *BADIERA* *PENAEA* (L.) DC.

Professor Urban has informed me that my opinion that this is identical with *Badiera domingensis* (Jacq.) DC. is correct, although he has distributed Santo Domingo specimens under the name *B. domingensis*.

1a. *Badiera portoricensis* sp. nov.

A tree up to 6 m. high, the trunk sometimes 1.5 m. in diameter, the slender branches ascending, the young twigs appressed-pubescent. Leaves subcoriaceous, obovate, 3 cm. long or less, 7–15 mm. wide, bright green and shining above, paler and rather dull green beneath, both surfaces with short, scattered hairs when young, becoming glabrate above, the midvein slightly impressed above, rather prominent beneath, the lateral veins few, distant, obscure, the apex rounded or obtuse, the base narrowed or cuneate, the pubescent petioles 1–2.5 mm. long; inflorescence few-several-flowered, 4–6 mm. long; bracts ovate or ovate-lanceolate, acute, pubescent, 0.5 mm. long; pedicels appressed-pubescent, 1.5–2.5 mm. long; sepals broadly ovate, obtuse, ciliolate, the larger about 1 mm. long; petals white; keel appressed-pubescent, 2 mm. long, narrowed below; fruit about 6 mm. wide, about 5 mm. high, finely pubescent, narrowly margined, notched at the apex, subtruncate at the base, its stipe about 0.6 mm. long.

Rocky slopes and hillsides, western Porto Rico, especially on serpentine, from sea-level to 700 m. altitude. Type collected at Guanajibo, near Mayaguez (Britton, Cowell & Brown 4349). Recorded by Bello from my type locality as *B. domingensis* DC. [*Polygala domingensis* Jacq.; *B. Penaea* (L.) DC.] of Hispaniola, to which species it is nearest related, but which differs in pilose-pubescent twigs, rather densely pubescent leaves, and much more pubescent, shorter-pedicelled flowers.

2. *BADIERA VIRGATA* Britton

The specimen referred to by me under *B. oblongata* Britton (*Britton & Wilson 6066*) from Santa Clara, Cuba, is now, in the light of additional material, put with *B. virgata*, as a broad-leaved race.

4. *BADIERA DIVERSIFOLIA* (L.) DC.

This, the only Jamaican species of the genus, forms a tree up to 6 m. high, as at St. Ann's Bay (*Britton 2498*).

5. *BADIERA CUBENSIS* Britton

In the original description of this species (Bull. Torrey Club 37: 362), I included too many citations of specimens. C. Wright's Cuban 1913 consists, apparently, of three species; it is to the specimen with abruptly acuminate leaves cuneate-narrowed at the base, 4-6 cm. long, that the name should be restricted. As shown by specimens from Bahia Honda, Pinar del Rio (*P. Wilson 9429*) the leaves vary to obovate. The fruit is glabrous when mature, its slender stipe 2 mm. long.

5a. *BADIERA FUERTESII* Urban, Symb. Ant. 7: 244. 1912

A tree of the mountains of Santo Domingo, with glabrous leaves, strongly reticulate-veined on the upper surface.

6. *BADIERA MONTANA* Britton

Described from fruiting specimens collected in the Trinidad Mountains, Santa Clara, Cuba. Flowering specimens with apparently the same foliage and pubescence come from limestone hills in the vicinity of Sumidero, Pinar del Rio (*Shafer 13819*), but flowers from the Trinidad Mountain tree are needed to make the identity wholly satisfactory.

8. *Badiera propinqua* sp. nov.

Twigs slender, densely appressed-pubescent. Leaves ovate to ovate-elliptic, 2-4.5 cm. long, 8-25 mm. wide, bluntly acute or obtuse and emarginate at the apex, narrowed or obtuse at the base, sparingly short-pubescent on both sides or becoming glabrous, the midvein impressed above, prominent beneath, the slender lateral veins 6 to 8 on each side of the midvein, the appressed-pubescent petioles 1.5-3 mm. long; inflorescence few-flowered,

4-5 mm. long; bracts ovate, densely pubescent, scarcely 0.5 mm. long; pedicels slender, appressed-pubescent, 1.5-2.5 mm. long; sepals suborbicular, rounded, pubescent, the larger about 1.3 mm. long; petals white; keel pubescent on the sides, about 2.5 mm. long; fruit (from *Wright 1913, in part*) 10 mm. wide, 7 mm. long, deeply notched, scarcely margined, glabrous, decurrent on its stipe, which is about 2 mm. long.

Cuba. Type collected between Los Palacios and San Juan de Zayas, Pinar del Rio (*Shafer 11818*). The description is drawn to include the part of *Wright 1913*, and *Wright 3496*, previously referred by me to *B. cubensis*. The part of *Wright 115*, included by me in the original description of *B. cubensis*, is perhaps referable here also.

9. *Badiera punctata* sp. nov.

A shrub about 1 m. high, with slender, ascending, or nearly erect branches, the twigs densely appressed-pubescent with short hairs. Leaves ovate to ovate-elliptic, firm in texture, 1.5-2.5 cm. long, 12 mm. wide or less, obtuse or emarginate at the apex, obtuse at the base, the midvein impressed above, prominent beneath, the lateral veins 3 or 4 on each side, the upper surface strongly punctate, shining and glabrous or nearly so, the under surface dull, the petioles about 1.5 mm. long; inflorescence few-flowered; bracts scarcely 0.5 mm. long; fruiting pedicels slender, nearly glabrous, 2-2.5 mm. long; sepals ovate, obtuse, ciliate, about 1 mm. long; fruit (not quite mature) "green and red," 7 mm. wide, about as long as wide, shallowly notched at the apex, obliquely subtruncate at the base, narrowly margined, slightly pubescent, its stipe 1-1.5 mm. long.

Near a stream, Arroyo del Medio above the falls, Oriente, Cuba (*Shafer 3644*). The leaves droop at night, a phenomenon also observed in *B. virgata*.

10. *Badiera heterophylla* sp. nov.

An upright shrub 6 dm. high, the twigs short-pubescent with somewhat spreading hairs. Leaves of two quite different forms, (1) narrowly ovate, 3-4 cm. long, 12-18 mm. wide, bluntly acute at the apex, (2) elliptic, 2-2.5 cm. long, 12-14 mm. wide, rounded or obtuse at the apex; both forms emarginate at the apex, narrowed or obtuse at the base, sparingly short-pubescent and dull on both sides, the midvein impressed above, prominent beneath, the slender lateral veins only 2 or 3 on each side of the midvein,

the appressed-pubescent petioles about 2 mm. long; inflorescence about 5 mm. long; bracts about 0.5 mm. long; pedicels pubescent, 2 mm. long or less; sepals rounded, pubescent, the larger about 1 mm. long; "flowers yellow"; petals slightly pubescent in the bud; fruit 7-8 mm. wide, about 5 mm. high, margined, rather deeply notched, sparingly pubescent when young, glabrous when mature, slightly decurrent on its stipe which is about 1.5 mm. long.

Deciduous woods, Sierra Nipe, near Woodfred, Oriente, at 450-550 m. altitude (*Shafer 3070*).

40. THE GENUS *TRICERA* Sw. IN CUBA

1. Styles coherent, at least at the base.

Leaves oblong to oblong-lanceolate, 2-3 cm. wide; styles coherent below.

1. *T. Muelleriana*.

Leaves broadly ovate to ovate-lanceolate, 5 cm. wide or less; styles coherent nearly throughout.

2. *T. marginalis*.

2. Styles separate and distinct.

* Leaves 4-10 cm. long.

Venation of the leaves manifest.

Leaves broadly ovate, subcordate.

3. *T. cubana*.

Leaves lanceolate to elliptic or obovate, narrowed at the base.

Capsule globose-ellipsoid.

4. *T. acuminata*.

Capsule ovoid, acute.

5. *T. brevipes*.

Venation of the leaves obsolete or indistinct.

Petioles very stout, 10 mm. long or less; leaves very thick.

6. *T. crassifolia*.

Petioles slender, 2-6 mm. long; leaves firm, but not very thick.

Twigs yellow.

7. *T. flaviramca*.

Twigs green.

Capsule-lobes semiovate.

8. *T. retusa*.

Capsule-lobes linear-spatulate.

9. *T. gonoclada*.

** Leaves 1-3.5 cm. long.

Leaves suborbicular to obovate or elliptic, not more than twice as long as wide.

Inflorescence and capsule glabrous.

10. *T. rotundifolia*.

Inflorescence and capsule pubescent.

11. *T. Shaferi*.

Leaves oblong to linear-oblong, 2-5 times as long as wide.

Leaves oblong, 2-3 times as long as wide.

Leaves densely imbricated, less than 1 cm. long, the internodes very short.

12. *T. vaccinoides*.

Leaves not densely imbricated, 1.5-3.5 cm. long.

Staminate flowers sessile or very nearly so.

13. *T. glomerata*.

Staminate flowers manifestly pedicelled.

Leaves 2-3.5 cm. long, the lateral venation obsolete.

14. *T. bahamensis*.

- Leaves 1-1.5 cm. long, the lateral venation wholly obscure. 15. *T. microphylla*.
- Leaves linear-oblancoate or linear-oblong, 4-5 times as long as wide.
- Capsule glabrous. 16. *T. Leoni*.
- Capsule pubescent.
- Leaves strongly revolute-margined, abruptly mucronate. 17. *T. revoluta*.
- Leaves scarcely revolute-margined, acute or obtuse. 18. *T. foliosa*.

1. *Tricera Muelleriana* (Urban)

Buxus Muelleriana Urban, Symb. Ant. 5: 400. 1908.

TYPE LOCALITY: Cuba.

DISTRIBUTION: Known only from the type specimens (C. Wright 1920).

Referred by Grisebach to *Tricera laevigata* Sw., of Jamaica, and by Mueller to *Buxus subcolumnaris* Muell. Arg. = ***Tricera subcolumnaris*** (Muell. Arg.) Britton, of Martinique.

2. *Tricera marginalis* sp. nov.

A glabrous shrub about 3 m. high. Leaves broadly ovate to ovate-lanceolate, subcoriaceous, 4-8 cm. long, 2-5 cm. wide, reticulate-veined on both sides, with 2 distinct veins 1.5-3 mm. from the margins, the midvein impressed above, prominent beneath, the apex acute, the base obtuse or subtruncate, the rather slender petioles 1 cm. long or less; cymes several-flowered, longer than the petioles, glabrous; bracts ovate-lanceolate, acute, 1.5 mm. long; pedicels of the staminate flowers about 4 mm. long, the white calyx about 3 mm. long, its segments oblong, obtuse; stamens about as long as the calyx, the filaments about twice as long as the anthers; ovary ovoid; united styles somewhat longer than the ovary; stigmas recurved, about one-third as long as the styles.

Alluvial valley of Rio Yamanigüey, Oriente (*Shafer 4226*).

3. *TRICERA CUBANA* A. Rich. in Sagra, Hist. Cub. 11: 217. *pl.* 71. 1845

Buxus cubana Baill. Mon. Bux. 71. 1859.

TYPE LOCALITY: Monte Libau, Oriente.

ILLUSTRATION: A. Rich. *loc. cit.*

DISTRIBUTION: Known only from the type locality.

4. **Tricera acuminata** Griseb. Nachr. Gesell. Wiss. Goetting. 1865: 162. 1865

Buxus acuminata Muell. Arg. in DC. Prodr. 16¹: 15. 1869.

TYPE LOCALITY: Cuba.

DISTRIBUTION: Known only from the type specimens (*C. Wright 1919*, in part).

5. **Tricera brevipes** (Muell. Arg.)

Buxus citrifolia brevipes Muell. Arg. in DC. Prodr. 16¹: 15. 1869.

Buxus brevipes Urban, Symb. Ant. 5: 400. 1908.

TYPE LOCALITY: Cuba (*C. Wright 1919*, in part).

DISTRIBUTION: the label with *Wright 1919* in the herbarium of the New York Botanical Garden gives the locality as San Diego de Tapis; the following specimens appear to agree with it: upper valley of the Rio Navas, Oriente (*Shafer 4402*); Rio San Miguel below Mal Paso, Pinar del Rio (*P. Wilson 9309*).

Referred by Grisebach to *T. fasciculata* Griseb., of Jamaica. I am not confident that the species is distinct from *T. acuminata*.

6. **Tricera** (?) **crassifolia** sp. nov.

A glabrous shrub about 3 m. high, the twigs stout. Leaves elliptic-obovate, 6–10 cm. long, 2.5–4 cm. wide, very thick, obtuse or emarginate and mucronulate at the apex, narrowed at the base, the midvein impressed above, prominent beneath, the lateral venation faint and obscure, the stout petioles about 1 cm. long; young inflorescence axillary, about as long as the petioles, both staminate and pistillate flowers apparently sessile, the staminate about 2 mm. long.

Between Camp Toa and Camp La Barga, 400–450 m. alt., mountains of northern Oriente (*Shafer 4163*).

7. **Tricera flaviramea** sp. nov.

A glabrous shrub, 1 m. high, the young twigs and leaves yellowish green, the branches slender, somewhat ridged. Leaves elliptic or elliptic-obovate, coriaceous, revolute-margined, 3–5 cm. long, 1–2 cm. wide, rounded and minutely apiculate or emarginate at the apex, narrowed at the base, the midvein impressed above, rather prominent beneath, the lateral venation obsolete, or faintly discernible on the upper surface, the petioles 1.5–3 mm. long; inflorescence glabrous, about 1 cm. long; bracts ovate, acute, 1.5

mm. long; young staminate flowers about 2 mm. long, on pedicels about as long; capsule ovoid, obtuse, glabrous, 7-8 mm. long, 5-6 mm. thick, the persistent styles somewhat recurved, linear, 5 mm. long, separated from each other about 1 mm. at the base.

Palm-barren, Santa Clara City, Santa Clara (*Britton & Cowell 13324*, type; *Britton & Wilson 6211*).

8. *TRICERA RETUSA* Griseb. Nachr. Ges. Wiss. Goetting. **1865**:
163. 1865

Buxus retusa Muell. Arg. in DC. Prodr. **16**¹: 17. 1869.

TYPE LOCALITY: Monte Verde, Oriente.

DISTRIBUTION: Mountains of northern Oriente.

9. *TRICERA GONOCLADA* C. Wright; Griseb. Cat. Pl. Cub. 282.
1866

Buxus gonoclada Muell. Arg. in DC. Prodr. **16**¹: 16. 1869.

TYPE LOCALITY: Savanna near Guamacaro, western Cuba.

DISTRIBUTION: Known only from the type locality.

10. *Tricera rotundifolia* sp. nov.

A glabrous shrub, 6 dm. high, much branched, the internodes mostly shorter than the leaves. Leaves suborbicular to obovate, coriaceous, 2 cm. long or less, rounded and mucronulate or slightly emarginate at the apex, narrowed at the base, the margins thickened and somewhat revolute, the midvein rather prominent beneath, the lateral venation obsolete, the petioles 1.5-2 mm. long; inflorescence glabrous, few-flowered, in the uppermost axils; pedicels of the staminate flowers about 3 mm. long; bracts ovate, acute, 1 mm. long; staminate flowers 1.5 mm. long, their segments oblong-lanceolate, acute; capsule ovoid, about 6 mm. long, glabrous, the persistent styles contiguous, about 2 mm. long.

Between Camp La Barga and Camp San Benito, about 1,000 m. alt., northern Oriente (*Shafer 4114*).

11. *Tricera Shaferi* sp. nov.

A much-branched shrub up to 3 m. high, the twigs slender, glabrous, the internodes shorter than the leaves. Leaves obovate to elliptic, coriaceous, 1.5-3.5 cm. long, rounded or retuse at the apex and minutely mucronulate, narrowed or obtuse at the base, the midvein impressed above, prominent beneath, the lateral venation wholly obscure, the upper surface shining, dark green,

the under surface dull and pale, the petioles 1-3 mm. long; inflorescence axillary, puberulent, short-stalked, much shorter than the leaves; bracts ovate, acute, about 0.5 mm. long; pedicels of the staminate flowers rather stout, 2-3 mm. long; staminate flowers about 1.5 mm. long; capsule subglobose, densely puberulent, about 4 mm. in diameter, the separated persistent styles about 2 mm. long.

Wet mountains of northern Oriente. Type collected between Camp Toa and Camp La Barga, 400-450 m. alt. (*Shafer 4167*).

12. *Tricera vaccinioides* sp. nov.

A low, glabrous, much-branched shrub, 3-6 dm. high, the branches stout, the twigs erect-ascending, densely leafy, the internodes 3-6 mm. long. Leaves oblong to oblong-obovate, 5-8 mm. long, about twice as long as wide, coriaceous, faintly 3-veined, the secondary venation almost wholly obscure, the apex acute and mucronate, the base narrowed, the stout petioles scarcely 1 mm. long; inflorescence terminal, glabrous, few-several-flowered; pedicels of the staminate flowers rather stout, rigid, about 2 mm. long; bracts lanceolate; staminate flowers about 1 mm. long; capsule globose-ovoid, glabrous, dull, about 6 mm. long, about three times as long as the persistent styles.

Stony pass, between Camp La Barga and Camp San Benito, mountains of northern Oriente, Cuba, about 1000 m. alt. (*Shafer 4122*).

13. *TRICERA GLOMERATA* Griseb. Mem. Am. Acad. II. 8: 157.
1860

Buxus glomerata Muell. Arg. in DC. Prodr. 16¹: 17. 1869.

TYPE LOCALITY: Cuba.

DISTRIBUTION: Dry rocky hillsides, Oriente; Santa Clara. This is a shrub up to 3 m. high, abundant near the mouth of Cienfuegos Bay; I am indebted to Professor Fernald for a comparison of a specimen collected there, at Castillo de Jagua (*Britton, Wilson & Earle 4597*), with the specimen of *C. Wright* in the Gray Herbarium; he pronounced it "a perfect match."

14. *TRICERA BAHAMENSIS* (Baker) Britton, Bull. N. Y. Bot.
Gard. 4: 139. 1906

Buxus bahamensis Baker in Hook. Ic. Pl. *pl.* 1806. 1889.

TYPE LOCALITY: Long Cay, Bahamas.

DISTRIBUTION: Cayo Romano, Camaguey:—Bahamas; Jamaica. Closely related to **Tricera VahlII** (Baill.) Britton [*Buxus VahlII* Baill.] of Porto Rico and St. Croix.

15. **TRICERA MICROPHYLLA** Griseb. Nachr. Ges. Wiss. Goetting.
1865: 163. 1865

Buxus Wrightii Muell. Arg. in DC. Prodr. 61: 17. 1869.

TYPE LOCALITY: Western Cuba.

DISTRIBUTION: Known only from the type specimens collected by Wright.

16. **Tricera Leoni** sp. nov.

A shrub, or small tree, up to 4 m. high, glabrous throughout, the slender twigs densely leafy. Leaves linear to linear-oblong, coriaceous, shining, 2 cm. long or less, 2–4 mm. wide, spinulose-acute at the apex, narrowed at the base, the midvein faintly distinguishable above, rather prominent beneath, the lateral venation wholly obscure, the petioles 1–1.5 mm. long; inflorescence terminal, short-stalked; bracts ovate, acute, about 1 mm. long; pedicels of the staminate flowers 1.5–2 mm. long; staminate perianth-segments oblong-lanceolate, acute, 2–2.5 mm. long, filaments a little longer than the anthers; capsule globose-oblong; glabrous, 3 mm. long, the separated, persistent styles 2 mm. long.

Hill north of Monte Catalina, northeast of San Diego de los Banos, Pinar del Rio (*Brothers Leon & Charles 4874*, type); barren specimens from the southern slope of Monte Cajalbana, Pinar del Rio (*Brothers Leon & Charles 4943*), with narrower leaves than the type, are provisionally referred to the same species.

17. **Tricera revoluta** sp. nov.

A much-branched shrub, 3–10 dm. high, the twigs densely leafy, the internodes only 1–2 mm. long. Leaves linear-oblancoolate, coriaceous, 12–20 mm. long, 3–5 mm. wide, strongly revolute-margined, sharply cuspidate-mucronate at the apex, attenuate at the base, the midvein elevated beneath, the venation otherwise wholly obscure, the petioles about 2 mm. long; inflorescence few-flowered in the upper axils, pubescent; staminate flowers nearly 2 mm. long, and nearly as long as their stout pedicels; capsule subglobose, 5–6 mm. long, pubescent, shorter than the persistent, separated styles.

Dry, rocky situations, serpentine hills near mouth of Rio Yamanigüey, Oriente (*Shafer 4247*, type); between Camp La

Barga and Camp San Benito, about 1,000 m. alt., Oriente (*Shafer 4472*).

18. *Tricera foliosa* sp. nov.

A low, much-branched shrub, the slender twigs densely leafy. Leaves linear-oblanccolate, subcoriaceous, glabrous, 10-15 mm. long, 2 mm. wide or less, obtuse and often minutely mucronulate at the apex, long-attenuate to the base, the midvein impressed above, slightly elevated and channeled beneath, the lateral venation wholly obscure, the margins slightly or scarcely revolute, the petioles 1-2 mm. long; inflorescence axillary, shorter than the leaves; staminate flowers white, about 1.5 mm. long, as long or longer than their pubescent petioles; bracts lanceolate, about 1 mm. long; capsule subglobose, densely and finely pubescent, about 3 mm. in diameter, the separated persistent styles about 2 mm. long.

Among rocks near water, Camp La Gloria, south of Sierra Moa, Oriente (*Shafer 8256*, type); on rocks, vicinity of Camp San Benito, Oriente (*Shafer 4073*).

41. THE GENUS *PLUMIERA* L. IN CUBA

Leaves narrowly linear, 1.7 mm. wide or less.

1. *P. filifolia*.

Leaves oblong to elliptic-oblanccolate or obovate, 1-8 cm. wide.

Leaves densely lanate or pubescent beneath.

Corolla-lobes narrowly obovate.

2. *P. sericifolia*.

Corolla-lobes broadly elliptic-obovate.

3. *P. lanata*.

Leaves glabrous, or sparingly pubescent beneath.

Petioles short, 1 cm. long or less.

Leaves obovate or oblanccolate, the lateral venation obscure.

4. *P. clusioides*.

Leaves narrowly oblong, the lateral venation prominent.

5. *P. nipensis*.

Petioles slender, mostly 2-4 cm. long.

Leaves glabrous beneath, their margins not involute.

Corolla-lobes 2.5-3.5 cm. long, 1-1.5 cm. wide; venation widely spreading.

6. *P. emarginata*.

Corolla-lobes 1.5-2.5 cm. long.

Venation of the leaves ascending, not prominent beneath; corolla-lobes obovate.

7. *P. obtusa*.

Venation of the leaves widely spreading, prominent beneath; corolla-lobes oblong-oblanccolate.

8. *P. venosa*.

Leaves pubescent on the veins beneath, their margins involute.

9. *P. trinilensis*.

1. *PLUMIERA FILIFOLIA* Griseb. Mem. Am. Acad. II. 8: 519.
1862

River cliffs, foothills of the Sierra Maestra, Nouvelle Sophie and Eusenada de Mora, Oriente. Endemic.

2. *PLUMIERA SERICIFOLIA* C. Wright; Griseb. Cat. Pl. Cub. 171.
1866

P. emarginata sericifolia Maza, Anales Soc. Esp. Hist. Nat. 23: 273. 1894.

Coastal thickets, Oriente; Matanzas; Havana; Pinar del Rio:—Inagua.

Perhaps, as suggested by Professor Gomez de la Maza, a pubescent race of *P. emarginata* Griseb., which has a similar distribution in western Cuba, although I have not seen the two growing in close proximity.

3. *Plumiera lanata* sp. nov.

A shrub or small tree up to 3.3 m. high. Leaves broadly elliptic to elliptic-obovate, firm in texture, 10–18 cm. long, 5–9 cm. wide, rounded, emarginate or subtruncate at the apex, narrowed or subtruncate at the base, dark green and glabrous above, densely white-lanate beneath, the midvein channeled above, prominent beneath, the lateral veins widely spreading, averaging 6 or 7 mm. apart, united close to the margin, the stout, somewhat pubescent petioles 1–2.5 cm. long; peduncle 3–11 cm. long, glabrous; cymes many-flowered, dense; pedicels 10 mm. long or less, glabrous or pubescent; calyx subtruncate, 2–3 mm. long; corolla-tube about 1.5 cm. long; corolla-lobes broadly elliptic-obovate, white, rounded, 1.5–2.5 cm. long, 1.2–2 cm. wide; follicles 8–10 cm. long, about 1 cm. thick, short-pointed.

Coastal rocks, vicinity of Baracoa, Oriente (*Underwood & Earle 1442*).

4. *PLUMIERA CLUSIOIDES* Griseb. Cat. Pl. Cub. 171. 1866
? *P. obtusa parvifolia* Griseb. Mem. Am. Acad. II. 8: 519. 1862.
? *P. clusioides parvifolia* Maza, Anales Soc. Esp. Hist. Nat. 23: 273. 1894.

Rocky hillsides and palm-barrens, Oriente; Camaguey; Santa Clara, Havana. Endemic.

Fruiting specimens collected by Dr. Shafer in the gorge of the

Rio Yamuri, Oriente (7800), tentatively referred to this species, have spatulate leaves 12 cm. long.

5. *Plumiera nipensis* sp. nov.

A slender tree, up to about 6 m. in height. Leaves narrowly oblong, 9-12 cm. long, 1.5-2.3 cm. wide, obtuse at the apex, narrowed at the base, glabrous on both sides, shining above, dull beneath, the midvein channeled above, prominent beneath, the lateral venation widely spreading, impressed, but distinct, above, the rather slender petioles 1 cm. long or less; peduncle stout, 6 cm. long; follicles 13-15 cm. long, about 2 cm. thick, acutish; seeds 10 mm. long, 6-7 mm. wide, the wing about 15 mm. long, 8-9 mm. wide.

Rocky thicket, between Piedra Gorda and Woodfred, Sierra Nipe, Oriente, at 500 m. alt. (*Shafer 3089*). Perhaps the same as *P. obtusa laevis* Griseb. (Mem. Am. Acad. II. 8: 519) from Monte Verde, Oriente.

6. *PLUMIERA EMARGINATA* Griseb. Cat. Pl. Cub. 171. 1866

Rocky cliffs and hillsides, Matanzas; Pinar del Rio; Isle of Pines. Endemic.

7. *PLUMIERA OBTUSA* L. Sp. Pl. 210. 1753

Coastal hills, keys and thickets, Oriente; Camaguey; Santa Clara:—Bahamas; Hispaniola; Mona. Attributed to Jamaica, but some specimens which have been so referred represent a distinct species.*

* *Plumiera confusa* sp. nov.

A tree, up to 6 m. high, little branched, glabrous throughout. Leaves narrowly elliptic or oblong, shining, 1-3 dm. long, 7 cm. wide or less, obtuse, emarginate or acute at the apex, narrowed at the base, the midvein channeled above, prominent beneath, the lateral venation widely spreading, the stout petioles 4-8 cm. long; peduncles stout, 7-15 cm. long; cymes large, many-flowered; pedicels rather stout, thickened upward, 9-12 mm. long; calyx nearly truncate, about 3 mm. long; corolla white with a pale yellow eye, its tube 12-15 mm. long, its lobes broadly oblong, rounded, 2.5-3 cm. long, about 1 cm. wide; follicles 8-12 cm. long, 10-12 mm. thick.

Rocky situations, southern side of Jamaica. Type collected on Great Goat Island (*Harris 9309*);

The species more resembles *P. emarginata* than *P. obtusa*. I am unable to determine, from the material available at this time, whether *P. obtusa* occurs on Jamaica or not. Other specimens referable to *P. confusa* are: Healthshire Hills near Salt Island (*Britton 3061*); base of Healthshire Hills near Salt Ponds (*Britton 3036*); Great Goat Island (*Harris 10168*; *Britton 1874*).

The *Plumiera* of Pedro Bluff, a locality about thirty miles west of Great Goat Island, but still within the xerophytic region, may be *P. obtusa*, but the specimen

8. *Plumiera venosa* sp. nov.

A tree up to 6 m. high, glabrous throughout. Leaves oblong-ob lanceolate to narrowly obovate, 7-15 cm. long, 3 cm. wide or less, obtuse or emarginate at the apex, narrowed or cuneate at the base, the midvein impressed above, prominent beneath, the lateral veins numerous, widely spreading, united near the margin, 2-3 mm. apart, prominent beneath; petioles slender, 2-3 cm. long; cymes several-many-flowered; peduncles 6-10 cm. long; pedicels 8-15 mm. long, upwardly somewhat thickened; calyx about 3 mm. long, its teeth very broad and short; corolla-tube about 1.5 cm. long; corolla-lobes narrowly oblong-ob lanceolate, 2-2.7 cm. long; follicles 10-15 cm. long, about 12 mm. thick; seed nearly 1 cm. long, its wing about 1.5 cm. long.

Coastal cliffs and hillsides near the coast, southern Oriente. Type collected in the basin of Rio Guama, Sevilla Estate near Santiago (*Taylor 93*).

Shoots from cut stumps bear nearly linear leaves up to 2 dm. long, 10-15 mm. wide, as seen by me in a coastal thicket near the mouth of Santiago Harbor (*Britton & Cowell 12632*).

9. *Plumiera trinitensis* sp. nov.

A tree 5 m. high. Leaves oblong to oblong-ob lanceolate, 11 cm. long or less, 1.5-3.5 cm. wide, obtuse or emarginate at the apex, gradually narrowed to the base, glabrous above, pubescent on the veins beneath, the midvein broad, channeled above, prominent beneath, the lateral veins rather widely spreading, 2-4 mm. apart, united near the revolute margins; petioles 1.5-2.5 cm. long; follicle slightly curved, pointed, 18 cm. long, about 1.5 cm. thick.

Dry hillside, La Vigia, Trinidad, Santa Clara (*Britton & Wilson 5514*). Similar to *P. jamaicensis* Britton, which is a glabrous species up to 10 m. high, with broader leaves.

(*Harris 9996*) is not complete. In 1895, E. Campbell collected a *Plumiera* at Constant Spring (5973), which may be *P. obtusa*.

Growing with *P. confusa* on Great Goat Island there is a *Plumiera* which has leaves over 3 dm. long, narrowly oblong to linear-oblong, some of them not more than 3 cm. wide, and all long-acuminate at the apex (*Britton 1870*). It was not in flower at the time of my visit, March 4, 1908, but I obtained its fruit, which is much like that of *P. confusa*, and its leaf-venation resembles that of *P. confusa* also; it may be that *P. confusa* is sufficiently heterophyllous to have these narrow, elongated, long-pointed leaves.

42. THE GENUS GUETTARDA L. IN CUBA

- A. Leaves minute, nearly sessile, 6 mm. long or less. 1. *G. Echinodendron*.
- B. Leaves larger, 1.5 cm. long or more.
- a. Leaves spinulose-tipped.
- Leaves ovate to elliptic, strongly reticulate-veined beneath. 2. *G. Coxiana*.
- Leaves oblong, scarcely reticulate-veined beneath. 3. *G. cueroensis*.
- b. Leaves not spinulose-tipped.
- * Leaves small, 3.5 cm. long or less; flowers axillary, mostly solitary.
- Leaves densely silvery-silky beneath. 4. *G. rigida*.
- Leaves glabrous or somewhat pubescent beneath.
- Flowers sessile or nearly so; leaves ovate or oblong.
- Venation inconspicuous on upper leaf-surfaces.
- Corolla nearly 2 cm. long; calyx spathaceous. 5. *G. camagueyensis*.
- Corolla 1-1.5 cm. long.
- Calyx spathaceous; corolla-tube little longer than the limb. 6. *G. clarensis*.
- Calyx truncate or oblique; corolla-tube 3-4 times as long as the limb. 7. *G. undulata*.
- Venation prominent on upper leaf-surfaces. 8. *G. xanthocarpa*.
- Peduncles nearly as long as the fruits; leaves obovate. 9. *G. sciaphila*.
- ** Leaves larger, 3.5-15 cm. long.
- † Inflorescence capitate or clustered or flowers solitary at the ends of twigs, or some flowers also peduncled in the upper axils.
- Inflorescence capitate-clustered.
- Leaves densely pubescent or puberulent beneath.
- Leaves densely puberulent beneath. 10. *G. densiflora*.
- Leaves villous beneath, at least on the veins.
- Fruit 2-3 cm. in diameter. 11. *G. macrocarpa*.
- Fruit 6-15 mm. in diameter.
- Fruit 10-15 mm. in diameter, densely puberulent; leaves densely villous beneath. 12. *G. ferruginea*.
- Fruit about 6 mm. in diameter, villous; leaves villous on the veins beneath. 13. *G. lanuginosa*.
- Leaves pubescent only on the veins beneath. 14. *G. crassipes*.
- Flowers solitary or sometimes 2. 15. *G. zygophlebia*.
- †† Inflorescence axillary, peduncled.
- ‡ Inflorescence 1-several-flowered.

- Leaves cordate at the base; corolla 3-4 cm. long. 16. *G. calyptrata*.
- Leaves not cordate; corolla much smaller.
- Leaves glabrous on both sides, coriaceous.
- Peduncles short, 3-15 mm. long, 1-2-flowered. 17. *G. monocarpa*.
- Peduncles long, 3-8 cm. long, few-several-flowered. 18. *G. Valenzuelana*.
- Leaves thin, pubescent beneath, at least on the veins.
- Leaves appressed-silky beneath, long-acuminate at the apex. 19. *G. calcicola*.
- Pubescence not silky; leaves obtuse to acute or short-acuminate.
- Fruit oblong. 20. *G. Lindeniana*.
- Fruit subglobose.
- Leaves prominently reticulate-veined beneath.
- Leaves setulose above. 21. *G. brevinodis*.
- Leaves not setulose above. 22. *G. inaequipēs*.
- Leaves not prominently reticulate-veined beneath. 23. *G. elliptica*.
- ‡‡ Inflorescence several-many-flowered.
- Leaves thick, scabrous above. 24. *G. scabra*.
- Leaves thin, smooth above. 25. *G. Combsii*.
- C. Species known to me only from the description. 26. *G. retusa*.

I. GUETTARDA ECHINODENDRON C. Wright; Sauvalle, *Anales Acad. Habana* 6: 124. 1869

Stenostomum microphyllum Griseb. *Cat. Pl. Cub.* 133. 1866.

Not *Guettarda microphylla* Bartl.

TYPE LOCALITY: Near San Marcos, western Cuba.

DISTRIBUTION: Known only from the type locality.

2. *Guettarda Coxiana* sp. nov.

A shrub, 2.5 m. high, with short, slender, densely pubescent twigs, the leaf-scars long-persistent. Stipules ovate, acuminate, 2-3 mm. long; leaves ovate or ovate-elliptic, 2 cm. long or less, coriaceous, rigid, the apex acute and spinulose-tipped, the base obtuse, the upper surface smooth, with indistinct venation, the under surface very prominently reticulate-veined and densely pubescent, the stout pubescent petiole 1-2 mm. long; peduncles axillary, 1-flowered or 2-flowered, pubescent, 2.5-3 mm. long; bractlets subulate, 1 mm. long; calyx obconic, truncate, densely puberulent, 2 mm. long; corolla yellowish, densely puberulent,

about 3 mm. long; young fruit narrowly obovoid, puberulent, faintly ribbed, 4 mm. long, the persistent calyx-limb about 1.5 mm. long.

Rocky coastal hill, Daiquiri, Oriente (*Britton & Cowell 12685*). Named in memory of the late Jennings S. Cox, who, as manager of the Spanish American Iron Company, greatly facilitated scientific investigation in eastern Cuba.

3. *Guettarda cueroensis* sp. nov.

A tree 5 m. high, with slender branches, the young twigs appressed-pubescent. Stipules ovate, acute, pubescent, 2-3 mm. long; leaves clustered at the ends of short spurs, oblong to oblong-lanceolate, 3 cm. long or less, 6-12 mm. wide, coriaceous, acute and spinulose-tipped at the apex, obtuse or subtruncate at the base, loosely reticulate-veined on both sides, glabrous and shining above, puberulent beneath, the finely pubescent petiole 1.5-2 mm. long; flowers solitary in the axils; peduncles pubescent, stout, 2 mm. long or less; calyx subspathaceous, densely pubescent, about 3 mm. long; corolla whitish, densely pubescent, about 8 mm. long, the slender tube about 3 times as long as the limb; fruit subglobose, or globose-obovoid, densely puberulent, 8-10 mm. in diameter.

Hill, 150 m. alt., El Cuero, Oriente (*Britton & Cowell 12733*).

4. *GUETTARDA RIGIDA* A. Rich. in Sagra, Hist. Cub. 11: 20. 1850
G. holocarpa Wright; Sauvalle, Anales Acad. Habana 6: 123. 1869.

TYPE LOCALITY: Cuba.

DISTRIBUTION: Thickets and hillsides, near Regla and Guanabacoa, Havana. Endemic.

I have not seen an authentic specimen of *G. rigida*, and am referring *G. holocarpa* to it from the description. It is the only small-leaved species with silky pubescence on the under side of the leaf known to me from Cuba.

5. *Guettarda camagueyensis* sp. nov.

A shrub, 1 m. high, with terete, widely spreading branches, the young twigs brownish-pubescent with appressed hairs. Stipules pubescent, ovate, sharply acute, 3-4 mm. long; leaves ovate, rigid, coriaceous, 1.5-2.5 cm. long, 10-18 mm. wide, rounded and obtuse at the apex, cordate or subcordate at the base, ciliate, at

least when young, smooth, glabrous and inconspicuously veined above, densely reticulate-veined and pubescent beneath the stout petioles about 1 mm. long; flowers solitary and nearly sessile in the axils; calyx spathaceous, appressed-pubescent, 5-6 mm. long, its lobes acute; corolla white, appressed-pubescent with long hairs, about 1.7 cm. long, the limb about one-third as long as the slender tube; fruit nearly sessile, globose, densely brownish-puberulent, about 12 mm. in diameter.

Palm-barren between Camaguey and Santayana (*Britton 2409*, type); Corojo, Camaguey (*Brother Leon 3725*).

6. *Guettarda clarensis* sp. nov.

A shrub with terete branches, the young twigs densely pubescent with long brown, somewhat spreading hairs. Stipules ovate, acute, pubescent, 5 mm. long, deciduous; leaves ovate-oblong, 2.5 cm. long or less, 8-14 mm. wide, obtuse at the apex, subcordate at the base, loosely pubescent with spreading brown hairs and inconspicuously veined above, prominently and densely reticulate-veined and pubescent beneath, the elevated midrib bearing long brown hairs; petioles stout, villous, scarcely 1 mm. long; flowers sessile and solitary in the axils; calyx spathaceous, appressed-pubescent, about 5 mm. long, its broad lobes acutish; corolla about 1 cm. long, its stout tube densely clothed with long appressed, white hairs.

Palm-barren, city of Santa Clara (*Britton & Wilson 6176*).

7. *GUETTARDA UNDULATA* Griseb. Cat. Pl. Cub. 131. 1866

TYPE LOCALITY: Rocky situations near Matanzas.

DISTRIBUTION: Known only from the type locality [near Punta Brava].

8. *Guettarda xanthocarpa* sp. nov.

A much-branched shrub, 1.5 m. high, the short, spur-like twigs terete, leaf-bearing at the ends. Stipules ovate, puberulent, about 1.5 mm. long; leaves oblong to oblong-lanceolate or elliptic, 2 cm. long or less, 6-12 mm. wide, coriaceous, glabrous or nearly so, acute or obtuse at the apex, subcordate at base, loosely and rather prominently reticulate-veined above, densely and finely reticulate-veined beneath, the puberulent, stout petiole 1-1.5 mm. long; fruit subglobose, yellow, densely puberulent, 6-8 mm. in diameter.

Coastal cliffs, near El Morro, Santiago Bay, Oriente (*Britton & Cowell 12538*, type); eastern Cuba (*Wright 2705*).

Grisebach referred Wright's 2705 to *G. undulata* Griseb.,

from which it differs in leaf-venation and pubescence; it also differs from our 12538 by shorter, broader and obtuse leaves, but is otherwise similar; when flowers are obtained it may, perhaps, be shown that they are distinct species.

9. GUETTARDA SCIAPHILA Urban, Symb. Ant. 7: 409. 1912

TYPE LOCALITY: Near the base of Loma Mensura, Oriente.

DISTRIBUTION: Known only from the type locality.

10. GUETTARDA DENSIFLORA Urban, Symb. Ant. 7: 407. 1912

TYPE LOCALITY: Pine-lands near Paso Estancia, Oriente.

DISTRIBUTION: Pine-lands, hillsides and savannas, northern Oriente.

Dr. Shafer's 3794, collected on Loma Mensura, shows its fruit to be subglobose, puberulent, and about 12 mm. in diameter.

11. GUETTARDA MACROCARPA Griseb. Mem. Am. Acad. II. 8: 507.
1862

TYPE LOCALITY: Near Monte Verde, Oriente.

DISTRIBUTION: Known only from the type locality.

12. GUETTARDA FERRUGINEA Griseb. Cat. Pl. Cub. 131. 1866
G. calypttrata ferruginea C. Wright; Sauvalle, Anales Acad. Habana
6: 123. 1869.

TYPE LOCALITY: Pine-lands near Mayari, western Cuba.

DISTRIBUTION: Type locality, and in the mountains of northern Oriente. Endemic.

13. GUETTARDA LANUGINOSA Urban & Britton; Urban, Symb.
Ant. 7: 407. 1912

TYPE LOCALITY: Cayo Romano, Camaguey.

DISTRIBUTION: Known only from the type locality.

14. **Guettarda crassipes** sp. nov.

A shrub 1-1.6 m. high, with stout twigs, the young ones densely appressed-pubescent. Stipules ovate, densely pubescent, about 7 mm. long, deciduous; leaves ovate to ovate-elliptic, 6-9 cm. long, 4-7 cm. wide, coriaceous, shining, glabrous and with impressed primary venation above, dull, with elevated primary venation, and very finely reticulate-veined beneath, sparingly

pubescent on the stronger veins, obtuse at the apex, cordate at the base, the stout, brown petioles 1 cm. long, densely appressed-pubescent; inflorescence terminal, subcapitate, about 9-flowered; bracts lanceolate, densely pubescent; flowers nearly sessile; calyx subtruncate, densely appressed-pubescent, 4 mm. long; corolla white, densely villous-pubescent, in bud about 15 mm. long.

Between Rio Yamanigüey and Camp Toa, northern Oriente, at 400 m. alt. (*Shafer 4193*).

15. GUETTARDA ZYGOPHLEBIA C. Wright; Sauvalle, *Anales Acad. Habana* **6**: 124. 1869

TYPE LOCALITY: Arroyo in the Cafetal Potosi, Monte Toro, Oriente.

DISTRIBUTION: Known only from the type locality.

16. GUETTARDA CALYPTRATA A. Rich. in Sagra, *Hist. Cub.* **11**: 21. 1850

TYPE LOCALITY: Near Canasí, Cuba.

DISTRIBUTION: Woods and thickets, Santa Clara, Matanzas, Havana, Pinar del Rio, Isle of Pines. Endemic.

ILLUSTRATION: A. Rich. in Sagra, *loc. cit.*, *pl.* 46.

17. GUETTARDA MONOCARPA Urban, *Symb. Ant.* **7**: 410. 1912

TYPE LOCALITY: Pine-lands, Sierra Nipe near Woodfred, northern Oriente.

DISTRIBUTION: Woods and thickets, mountains of northern Oriente. Endemic.

18. GUETTARDA VALENZUELANA A. Rich. in Sagra, *Hist. Cub.* **11**: 20. 1850

Guettarda bracteata Griseb. *Mem. Am. Acad.* **II**: 8: 506. 1862.

TYPE LOCALITY: Vuelta de Abajo (Pinar del Rio), Cuba.

DISTRIBUTION: Mountains of Pinar del Rio and of northern Oriente. Endemic.

I am referring Grisebach's species to that of A. Richard with some hesitation, as did Grisebach himself (*Cat. Pl. Cub.* 131. 1866), but specimens from Bahia Honda, Pinar del Rio (*P. Wilson 9441*) do not appear different from several from Oriente, including a co-type (*Wright 261*) from Monte Verde.

19. *Guettarda calcicola* sp. nov.

A tree up to 5 m. high, with slender branches, the young twigs densely appressed-pubescent. Stipules ovate, appressed-pubescent with long hairs, about 4 mm. long; leaves oblong-elliptic to ovate-lanceolate, membranous, 4-8 cm. long, 3.5 cm. long or less, acuminate at the apex, acute or acuminate at the base, shining, prominently pinnately veined, with slender, ascending veins, loosely reticulate-veined and sparingly appressed-pubescent on the veins above, appressed-silky beneath, the slender petioles 3-8 mm. long; inflorescence axillary; peduncles slender, as long as the leaves or shorter, several-flowered; calyx subtruncate, appressed-pubescent, about 1.5 mm. long; young fruit oblong to oblong-obovoid, densely finely appressed-pubescent, about 5 mm. long, crowned by the calyx-limb.

Limestone rocks, near Sumidero, Pinar del Rio (*Shafer 13454, type*).

In leaf-venation and pubescence similar to the Haitian *G. multinervis* Urban, which has globose fruit.

20. *GUETTARDA LINDENIANA* A. Rich. in Sagra, Hist. Cub. II:

20. 1850

TYPE LOCALITY: Near Santiago, Cuba.

DISTRIBUTION: Lower and middle elevations, Oriente. Endemic.

21. *GUETTARDA BREVINODIS* Urban, Symb. Ant. 7: 404. 1912

TYPE LOCALITY: Cuba.

DISTRIBUTION: Rocky limestone hills, Pinar del Rio. Endemic.

This does not appear to me to be certainly distinct from the following.

22. *GUETTARDA INAEQUIPES* Urban, Symb. Ant. 7: 405. 1912

TYPE LOCALITY: Cuba.

DISTRIBUTION: Known only from the type specimens (*Wright 2702*, in part), their exact station not recorded. This and the preceding species were referred by Grisebach to *G. membranacea* Sw., of Hispaniola, and by Wright to *G. Lindeniana* A. Rich.

23. *GUETTARDA ELLIPTICA* Sw. Prodr. 59. 1788

G. reticulata Griseb. Mem. Am. Acad. II. 8: 506. 1862.

TYPE LOCALITY: Jamaica.

DISTRIBUTION: Thickets at low elevations near the coasts, Oriente; Camaguey; Santa Clara; Matanzas; Havana:—Florida; Bahamas; Jamaica; Hispaniola; Porto Rico; Mexico. Referred by A. Richard and by Grisebach to *G. odorata* Lam.

ILLUSTRATION: Sargent, *Sylva N. A.* pl. 229; Man. Trees f. 617; Britton & Shafer, *N. A. Trees* f. 768.

24. GUETTARDA SCABRA (L.) Lam. Tabl. Encycl. 2: 218. 1793
Matthiola scabra L. Sp. Pl. 1192. 1753.

G. rugosa Sw. Prodr. 59. 1788.

G. havanensis DC. Prodr. 4: 455. 1830.

G. ambigua A. Rich. in Sagra, Hist. Cub. 11: 20. 1850. Not DC.

TYPE LOCALITY: "In America."

DISTRIBUTION: Thickets and woodlands at lower elevations, Oriente; Camaguey; Santa Clara; Matanzas:—Florida; Bahamas; Hispaniola to Tortola, Anguilla, Grenada and Margarita; Central America; recorded from Jamaica.

25. GUETTARDA COMBSII Urban, Symb. Ant. 6: 48. 1909

TYPE LOCALITY: Near Cieneguita, Santa Clara, Cuba.

DISTRIBUTION: Savannas and woodlands at lower elevations, Santa Clara; Matanzas; Pinar del Rio. Endemic.

Referred by Grisebach to *G. longiflora* Griseb. of Jamaica.

26. GUETTARDA RETUSA C. Wright; Sauvalle, Anales Acad.
Habana 6: 124. 1869

TYPE LOCALITY: La Loma Pelada, Palacios, Pinar del Rio.

DISTRIBUTION: Known only from the type locality and to me only from the description, which is insufficient to enable me to group the species.

43. UNDESCRIBED WEST INDIAN SPECIES

Coccolobis rumicifolia sp. nov.

A shrub, 3 m. high, with slender branches. Leaves elliptic-lanceolate, membranous, glabrous, 15 cm. long or less, 3-7 cm. wide, acutish to acuminate at the apex, obtuse, subcordate or acute at the base, the midvein nearly flat above, prominent beneath, the primary lateral veins about 12 on each side of the mid-

vein, faint above, rather prominent beneath, the ultimate venation coarsely reticulated, the petioles about 1 cm. long, the ochreae 4-5 mm. long; racemes slender, simple, minutely puberulent, 6-12 cm. long; ochreolae subtruncate, 0.5 mm. long, about as long as the bracts; flowering pedicels spreading, 1-3 at each ochreola, 1 mm. long; perianth about 1.5 mm. long, its lobes obtuse.

Wooded hillside, Tea Gully near Newmarket, Jamaica (*Britton 1592*).

***Portulaca caulerpoides* Britton & Wilson, sp. nov.**

Perennial, prostrate, forming tufts 8-12 cm. in diameter; stems slender, branched, hairy in the axils. Leaves obovoid, 3-5 mm. long, 2-3 mm. broad, not at all flattened, rounded at the apex, narrowed at the base, subsessile, glabrous, shining, with labyrinthine or tortuous mottling; flowers terminal, solitary, sessile; sepals oval; petals pale yellowish-white, broadly obovate, 2.5-3 mm. long, 2-2.5 mm. broad, notched at the apex; seeds reniform, black, 0.5 mm. broad, rugulose.

Limestone rocks, Cayo Muertos, Porto Rico (*Britton, Cowell & Brown 4990*).

The aspect of this species is similar to that of the green alga *Caulerpa clavifera*, which occurs in the adjacent sea.

***Chamaecrista jamaicensis* sp. nov.**

A shrub up to 1.3 m. high, the slender branches appressed-pubescent. Stipules lance-subulate, acuminate, striate, 2-4 mm. long; petioles 6 mm. long or less, bearing a nearly cylindric gland 1-1.5 mm. long near the lowest pair of leaflets; rachis pubescent; leaflets 4-8 pairs, dull, coriaceous, sessile, glabrous, oblong, or the two upper ones oblong-obovate, 13-22 mm. long, 8 mm. wide or less, prominently many-veined, obtuse and mucronate at the apex, rounded at the base, inequilateral; peduncles bracted, pubescent, 1-flowered, shorter than the leaves; bracts lanceolate, long-acuminate, striate, about 4 mm. long; sepals lanceolate, acuminate, about 1 cm. long, broadly scarious-margined, pubescent on the back with scattered, appressed hairs; petals obovate, short-clawed, somewhat unequal, about as long as the sepals; longer anthers 9 mm. long; pod obliquely linear, 3-4 cm. long, about 6 mm. wide, pubescent with scattered hairs.

Dry soil near the southern coast of Jamaica. Type from the south slope of Long Mountain (*Britton 811*).

Referred by Grisebach to *Cassia polyadena* DC., originally from

Guadaloupe; I studied the type specimen of *C. polyadena* in the Candolleian herbarium at Geneva a number of years ago; it is, in my opinion, specifically distinct from the Jamaica plant.

Rhamnidium ellipticum Britton & Wilson, sp. nov.

A glabrous tree 8 m. high; leaves narrowly to broadly elliptic, occasionally somewhat obovate, 3.5–6.5 cm. long, 1.3–3 cm. broad, obtuse or rounded and usually emarginate at the apex, rounded or obtuse at the base, coriaceous, entire, above lustrous, the midvein and primary veins indistinct, pale beneath, the midvein and primary veins prominent; margin revolute; petioles 5–6 mm. long, channeled; peduncles 1.5–3 cm. long, few-flowered; pedicels 5 mm. long; calyx-lobes triangular-ovate; fruit obovoid, 1 cm. long, 6 mm. broad, glabrous.

Rocky hillside along trail, Rio Yamanigüey to Camp Toa, Oriente, Cuba (*Shafer 4005*).

Rhamnidium Shaferi Britton & Wilson, sp. nov.

A glabrous tree 3 m. high; leaves oblong-oval to oval, occasionally ovate-oval, 5–6.5 cm. long, 3–3.8 cm. broad, rounded and emarginate at the apex, cordate at the base, lustrous above and indistinctly reticulate-veined, beneath paler, the midvein and primary veins prominent; petioles 9–15 mm. long, narrowly grooved; peduncles 7–10 mm. long, few-flowered; pedicels 3 mm. long; buds ovoid.

Camp La Gloria, south of Sierra Moa, Oriente, Cuba (*Shafer 8192*).

Rhamnidium (?) **cubensis** Britton & Wilson, sp. nov.

A shrub 3 m. tall, with grayish bark and puberulent twigs. Leaves oblong-elliptic to narrowly oblong-ovate or oblong-obovate, 2–4 cm. long, 1–1.6 cm. broad, rounded and emarginate at the apex, obtuse at the base, entire, lustrous above, the primary veins prominent, reticulate-veined and paler beneath, rigid, glabrous, black-dotted, the petioles 2–3.5 mm. long, puberulent above and shallowly channeled; flower-clusters lateral, axillary; sepals triangular-ovate, acuminate, glabrous, with a conspicuous row of black glands paralleling the margin; petals hooded, broadly triangular-obovate; filaments subulate, glabrous; anthers ovate; ovary ovoid, glabrous; ovules one in each cavity.

Rocky coastal hills, vicinity of El Morro, Santiago Bay, Oriente, Cuba (*Britton & Cowell 12554*).

Nashia cayensis sp. nov.

A densely branched, aromatic shrub, the slender pendent branches finely rough-pubescent. Leaves ovate to elliptic, 15 mm. long or less, 5-9 mm. wide, obtuse or acutish at the apex, mostly rounded at the base, scabrous above, pubescent and glandular beneath, strongly few-veined with the venation impressed above, prominent beneath, the petioles about 1 mm. long; heads solitary in the axils, nearly sessile, globular and about 5 mm. in diameter when in flower, oblong-cylindric and 10-15 mm. long in fruit, densely many-flowered; bracts broadly ovate to obovate, pubescent and ciliate, about 3 mm. long; calyx of 2 narrowly spatulate sepals nearly as long as the corolla; corolla greenish, scarcely longer than the bracts, the somewhat irregular limb about as long as the campanulate tube; filaments very short; fruit orange-red, about 2 mm. in diameter.

Near Pueblo Romano, Cayo Romano, Camaguey, Cuba (*Shafer 2450*). Similar to *Lippia myrtifolia* Griseb., and clearly congeneric with the generic type, *N. inaguensis* Millsp.

Exostema stenophyllum sp. nov.

A shrub, up to 2 m. high, glabrous throughout, the slender twigs rather densely leafy. Leaves linear to linear-ob lanceolate, 6 cm. long or less, 4-6 mm. wide, subcoriaceous, obtusish or acute at the apex, narrowed to the sessile base, revolute-margined, the midvein impressed above, prominent beneath, the lateral venation wholly obscure; stipules semicircular or short-ovate, obtuse, mucronulate, about 2 mm. long; flowers terminal, solitary; peduncle 1-1.5 cm. long; calyx narrowly campanulate, 8-10 mm. long, its ovate-lanceolate acute teeth about one-third as long as the tube; corolla white; corolla-tube about 14 cm. long, 1.5 mm. thick; lobes of the corolla-limb linear, 2-3 cm. long; anthers narrowly linear, about 18 mm. long and about as long as the filaments; capsule oblong, 1.5-2.2 cm. long, about 8 mm. in diameter.

Among rocks at the water's edge, Rio Guayabo above the falls, 450-550 m. alt., Oriente (*Shafer 3623*).

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STUDIES OF WEST INDIAN PLANTS—VIII

NATHANIEL LORD BRITTON

NEW YORK
1916

Studies of West Indian plants—VIII

NATHANIEL LORD BRITTON

44. FURTHER RECORDS OF JAMAICA SEDGES *

CYPERUS FUGAX Liebm. Vid. Selks. Skr. V. 2: 196. 1851

Savanna, Belle Vue, near Spanish Town (*Harris 12183*).

DISTRIBUTION: Mexico and Guatemala.

CYPERUS CYPEROIDES (L.) Kuntze, Rev. Gen. Pl. 3²: 333. 1898

Scirpus cyperoides L. Mant. 181. 1771.

Mariscus Sieberianus Nees, Linnæa 9: 286. 1834.

Maviscus cyperoides Urban, Symb. Ant. 2: 164. 1900. Not *M. cyperoides* A. Dietr.

Belle Vue, near Spanish Town, in wet hollows in pastures (*Harris 12045*); previously collected in Jamaica by Hart and by Wulschlaegel.

DISTRIBUTION: Trinidad. Native of the Old World tropics.

CYPERUS NANUS Willd.

In Bull. Dept. Agric. Jamaica 5: Suppl. 1, 9, I noted Mr. C. B. Clarke's record of this species from Jamaica, as based on the same specimen (*March 13*) as his record of *Mariscus gracilis* Vahl (*Cyperus granularis* [Desf.] Britton), and I subsequently ascertained that this specimen preserved in the Kew herbarium is

* Bull. Dept. Agric. Jamaica 5: Suppl. 1. 1907. Bull. Torrey Club 35: 568, 569. 1909. *Ibid.* 41: 1, 2. 1914.

C. granularis. It would therefore appear that *C. nanus* was entered as Jamaican by Mr. Clarke in error. *C. granularis* on the other hand is now known to me to inhabit dry soil at Long Acre Point near Black River (*Britton 1383*).

***Cyperus ignotus* sp. nov.**

Perennial, glabrous; culm rather stout, smooth, bluntly 3-angled, about 5 dm. high. Basal leaves as long as the culm or longer, smooth, 2.5-4 mm. wide, those of the involucre similar, much longer than the inflorescence, sometimes 3 dm. long; umbel compound, its primary rays 8 cm. long or less; spikelets compressed, capitate, 6-8-flowered, the heads numerous, 8-10 mm. in diameter; rachis wingless; scales ovate-lanceolate, mucronulate, very faintly nerved, closely appressed and overlapping, 2 mm. long; style 3-cleft; achene oblong, trigonous, 1.3 mm. long, about twice as long as thick, narrowed at both ends.

In damp, shaded places, near Vinegar Hill, St. George, at about 1,100 m. alt. (*Harris 12350*). Plant with the habit of *C. elegans* L., but with flat leaves and quite different spikelets.

ELEOCHARIS NODULOSA (Roth) Schultes; R. & S. Mant. 2: 87.

1824

Scirpus nodulosus Roth, Nov. Pl. Sp. 29. 1821.

Swamp, Belle Vue near Spanish Town (*Harris 12179*).

DISTRIBUTION: Southern United States; Cuba; Hispaniola; Porto Rico; Antigua; Guadeloupe; continental tropical America.

ELEOCHARIS MICROCARPA Torr. (*E. minima* Kunth), was recorded by Mr. Clarke as collected in Jamaica by Purdie, but his determination of the specimen from the interior of Manchester preserved in the Kew herbarium was subsequently doubted by Mr. Clarke, and we have no other knowledge of the existence of this species in Jamaica.

***Stenophyllus junciformis* (HBK.)**

Isolepis junciformis HBK. Nov. Gen. 1: 222. 1815.

Scirpus juncoides Willd.; Griseb. Fl. Br. W. I. 572. 1864.

Summit of Bull Head Mountain (*Underwood 3364*); Liguanea Ridge, St. Andrew (*Harris 12219, 12345*).

DISTRIBUTION: Cuba; South America.

Owing to two different species having been distributed as *Scirpus juncooides* under C. Wright's Cuban No. 1533, I formerly misidentified Professor Underwood's No. 3364 and recorded it* as *Stenophyllus subaphyllus* (Clarke) Britton, a species apparently restricted to eastern Cuba.

FIMBRISTYLIS MILIACEA (L.) Vahl, Enum. 2: 287. 1806

Savannas and swamps, Belle Vue, near Spanish Town (*Harris 12182, 12188*).

DISTRIBUTION: Southern United States; Cuba; Porto Rico; continental tropical America and Old World tropics.

RYNCHOSPORA OLIGANTHA A. Gray, Ann. Lyc. N. Y. 3: 212. 1835.

Hollis savanna, Upper Clarendon (*Harris 12249*).

DISTRIBUTION: Southeastern United States. Not yet detected in Cuban savannas.

RYNCHOSPORA PUSILLA Chapm.; Curtis, Am. Jour. Sci. II. 7: 409. 1849

Rynchospora intermixta C. Wright; Sauvalle, Anales Acad. Habana 8: 88. 1872

Bull Head Mountain, along roadside in wet places (*Harris 12261*).

DISTRIBUTION: Southeastern United States; Santa Clara, Pinar del Rio and Isle of Pines, Cuba.

SCLERIA GRACILIS Ell. Bot. S. C. & Ga. 2: 571. 1824

Bull Head Mountain, 800-900 m. alt., forming small patches on exposed hillside (*Harris 12262*).

DISTRIBUTION: Southeastern United States; Pinar del Rio and Isle of Pines, Cuba.

45. STENOPHYLLUS RAF. IN THE WEST INDIES

Type species: *Scirpus Stenophyllus* Ell. The generic name dates from 1825 (Neog. 4). The name *Bulbostylis*, taken up by Mr. C. B. Clarke for the genus in 1893 (Hook. f. Fl. Brit. India) and subsequently, was first published by Kunth, under *Isolepis*, in 1837 (Enum. 2: 205).

* Bull. Dept. Agric. Jamaica 5: Suppl. 1, 12. 1907.

A. Spikelet solitary.

Spikelet terminal, not subtended by a bract.

Caudex stout, 2-15 cm. high, densely clothed with persistent leaf-bases.

1. *S. paradoxus*.

Caudex none.

Leaves elongated; spikelet straw-color.

2. *S. leucostachys*.

Leaves short; spikelet dark brown.

3. *S. conifera*.

Spikelet apparently lateral, subtended by a bract.

Achene smooth.

4. *S. floccosus*.

Achene papillose-reticulated.

Achene twice as long as thick.

5. *S. portoricensis*.

Achene scarcely longer than thick.

6. *S. curassavicus*.

B. Spikelets (except in depauperate plants) several or numerous.

a. Spikelets in a single capitate cluster.

Plants leafless or nearly so, or leaves 1-3 cm. long.

Spikelets few, 6 mm. long or less.

Leaf-blade 6 mm. long or less.

7. *S. subaphyllus*.

Leaf-blade 1-3 cm. long.

8. *S. alpestris*.

Spikelets several, 6-20 mm. long.

Scales loosely pubescent.

9. *S. Wilsoni*.

Scales glabrous or ciliolate.

10. *S. Tuerckheimii*.

Leaves about one half as long as the culm.

11. *S. fimbriatus*.

b. Spikelets in a simple or compound umbel, or sometimes compact or capitate.

Spikelets clustered in umbelled heads or spikes, or head sometimes solitary.

Culm pilose above.

12. *S. vestitus*.

Culm glabrous.

Scales mucronate by the excurrent midvein.

13. *S. junciformis*.

Scales acute, the midvein not excurrent; achene papillose.

14. *S. antillanus*.

Spikelets not clustered in the umbels, or somewhat clustered.

Achene 0.5 mm. long, gray, densely pitted; scales suborbicular.

15. *S. coarctatus*.

Achene 0.7-1 mm. long, white, transversely undulate; scales ovate.

16. *S. capillaris*.

I. STENOPHYLLUS PARADOXUS (Spreng.) Standley, Contr. U. S. Nat. Herb. 18: 88. 1916

Schoenus paradoxus Spreng. Syst. 1: 190. 1825.*Bulbostylis paradoxa* Linden; Regnell, Cyp. 17. 1900.

TYPE LOCALITY: Mt. Silla de Cacaes, near El Pexual, Venezuela.

DISTRIBUTION: Isle of Pines, Cuba: continental tropical America.

One of the noteworthy elements in the vegetation of sandy pine-lands on the Isle of Pines, sometimes occupying areas many acres in extent.

2. *Stenophyllus leucostachyus* (HBK.)

Isolepis leucostachya HBK. Nov. Gen. 1: 220. 1815.

Bulbostylis leucostachya Kunth; Clarke in Urban, Symb. Ant. 2: 85. 1900.

TYPE LOCALITY: Wet woods of the Orinoco at Maypuri.

DISTRIBUTION: West Indies (*Swartz*, according to Clarke): northern South America. Unknown to me from the West Indies.

3. *Stenophyllus coniferus* (Kunth)

Isolepis conifera Kunth, Enum. 2: 206. 1837.

TYPE LOCALITY: Surinam.

DISTRIBUTION: Recorded by Clarke as doubtfully collected by Mayerhoff in Hispaniola: northern South America.

4. *STENOPHYLLUS FLOCCOSUS* (Griseb.) Britton, *Torrey* 13: 216. 1913

Scirpus floccosus Griseb. Cat. Pl. Cub. 241. 1866.

Bulbostylis floccosa Clarke; Urban, Symb. Ant. 2: 86. 1900.

TYPE LOCALITY: Eastern Cuba.

DISTRIBUTION: Known only from the type locality.

5. *STENOPHYLLUS PORTORICENSIS* Britton, *Torrey* 13: 216. 1913

TYPE LOCALITY: Rocky coastal thicket near Guanica, Porto Rico.

DISTRIBUTION: Coastal thickets, southwestern Porto Rico.

6. *Stenophyllus curassavicus* Britton, nom. nov.

Bulbostylis floccosa var.(?) *pumilio* Clarke; Urban, Symb. Ant. 5: 290. 1907.

TYPE LOCALITY: Curaçao.

DISTRIBUTION: Banks and limestone rocks, Bonaire and Curaçao.

The spikelets of this species are much compressed. The

varietal name published by Mr. Clarke is not taken up because the plant attains a greater size than his description indicates. The plant is abundant about Willamsted, Curaçao (*Britton & Shafer 2946*).

7. *STENOPHYLLUS SUBAPHYLLUS* (Clarke) Britton, Bull. Dept. Agric. Jamaica **5**: Suppl. 1, 12. 1907

Bulbostylis subaphylla Clarke; Urban, Symb. Ant. **2**: 86. 1900.

TYPE LOCALITY: Eastern Cuba.

DISTRIBUTION: Eastern Cuba; formerly erroneously attributed by me (*loc. cit.*) to Jamaica (see page 443).

8. *Stenophyllus alpestris* (Urban)

Bulbostylis alpestris Urban, Symb. Ant. **7**: 168. 1912.

TYPE LOCALITY: Near Constanza, Santo Domingo, in pine-lands, 2,500 m. alt.

DISTRIBUTION: Known only from the type locality.

9. *STENOPHYLLUS WILSONI* Britton, Torreya **13**: 215. 1913

TYPE LOCALITY: Castle Island, Bahamas.

DISTRIBUTION: Castle Island and Little Inagua, Bahamas.

10. *Stenophyllus Tuerckheimii* (Urban)

Bulbostylis Tuerckheimii Urban, Symb. Ant. **7**: 169. 1912.

TYPE LOCALITY: Near Constanza, Santo Domingo, in pine-lands, 1,250 m. alt.

DISTRIBUTION: Known only from the type locality.

11. *Stenophyllus fimbriatus* (Nees)

Oncostylis fimbriata Nees; Martius, Fl. Bras. **2**: 88, 1843.

Scirpus Dussii Boeckl. Cyp. Nov. **2**: 38. 1890.

Bulbostylis fimbriata Clarke; Urban, Symb. Ant. **2**: 87. 1900.

TYPE LOCALITY: River-banks at Villa Rica, Brazil.

DISTRIBUTION: Martinique; Peru; Brazil.

12. *Stenophyllus vestitus* (Kunth)

Isolepis vestita Kunth, Enum. **2**: 210. 1837.

Oncostylis vestita Nees; Martius, Fl. Bras. **2**: 88. 1843.

Scirpus hirtus Griseb. Cat. Pl. Cub. 241. 1866.

TYPE LOCALITY: Surinam.

DISTRIBUTION: Province of Pinar del Rio, Cuba; western Porto Rico: continental tropical America. The Porto Rico plant was referred by Clarke to *Bulbostylis Langsdorffiana*.

13. *STENOPHYLLUS JUNCIFORMIS* (HBK.) Britton, Bull. Torrey Club 43: 442. 1916

Isolepis junciformis HBK. Nov. Gen. 1: 222. 1815.

Scirpus juncoides Willd.; Griseb. Fl. Br. W. I. 572. 1864.

TYPE LOCALITY: Near the Guachari cavern, 500 feet alt.

DISTRIBUTION: Savannas and pine-lands, province of Pinar del Rio, Cuba; Hispaniola; Jamaica; Trinidad: continental tropical America.

14. *Stenophyllus antillanus* sp. nov.

Culms tufted, nearly filiform, 2-4.5 dm. long, minutely rough-ciliolate or smooth. Leaves filiform, similar to the culm and one half to two thirds its length, rough-ciliolate or smooth, their sheaths pilose. Umbel compact or subcapitate; spikelets few or several, linear, 6-12 mm. long, 1.5 mm. wide, 8-12-flowered; scales ovate, known with a strong, whitish keel, acute, 1.5 mm. long; achene obovoid, nearly white, sharply trigonous, 0.7 mm. long, papillose, tipped by a minute, conic tubercle.

Dominica and Martinique. Type from Grand Savanna, Dominica (*F. E. Lloyd* 822).

Referred by Clarke (in Urban, Symb. Ant. 2: 89. 1900) to *S. capillaris*.

15. *STENOPHYLLUS COARCTATUS* (Ell.) Britton; Small, Fl. SE. U. S. 189. 1903

Scirpus coarctatus Ell. Bot. S. C. & Ga. 1: 83. 1816.

TYPE LOCALITY: Beaufort, South Carolina.

DISTRIBUTION: On a sand pile in Santiago Harbor, Oriente, Cuba, March, 1909; southeastern United States.

16. *STENOPHYLLUS CAPILLARIS* (L.) Britton, Bull. Torrey Club 21: 30. 1894

Scirpus capillaris L. Sp. Pl. 49. 1753.

Bulbostylis capillaris Clarke; Hook. f. Fl. Brit. India 6: 652. 1893.

TYPE LOCALITY: Virginia.

- Calyx-lobes shorter than the tube. 10. *G. brachyodon*.
 Leaflets nearly equally short-stalked.
 Leaflets densely or loosely pubescent beneath.
 Leaflets obovate, strongly reticulate-veined,
 loosely pubescent on both sides. 11. *G. Jenningsii*.
 Leaflets linear-oblong, narrowed at both
 ends, densely silky beneath. 12. *G. revoluta*.
 Leaflets glabrous, or with only some scattered
 hairs beneath.
 Flowering pedicels 1-2 mm. long; pod short-
 pilose, its pedicel 3 mm. long. 13. *G. galactioides*.
 Flowering pedicels 0.5 mm. long; pod long-
 pilose, its pedicel 1.5 mm. long or less. 14. *G. savannarum*.
b. Erect shrub; leaflets 3. 15. *G. Jussiaeana*.

1. GALACTIA RUDOLPHIOIDES (Griseb.) Benth. & Hook.; Sauvalle,
 Anales Acad. Habana 5: 337. 1869

Dioclea rudolphioides Griseb. Mem. Am. Acad. II. 8: 178. 1860.

Galactia Odonia Griseb. Cat. Pl. Cub. 75. 1866.

Pinelands, thickets and hillsides, Oriente, Matanzas: Bahamas.

2. GALACTIA MINUTIFOLIA Urban, Symb. Ant. 2: 325. 1900

Dry soil, Oriente. Endemic. Referred by Grisebach to
G. parvifolia A. Rich.

3. GALACTIA PARVIFOLIA A. Rich. Ess. Fl. Cub. 414. 1845

Galactia stenophylla Urban, Symb. Ant. 2: 313. 1900. Not H. &
 A.

Galactia parvifolia triphylla Urban, loc. cit. 314. 1900.

Galactia parvifolia heterophylla Urban, loc. cit. 315. 1900.

Galactia parvifolia monophylla Urban, loc. cit. 315. 1900.

Galactia Grisebachii Urban, Symb. Ant. 5: 372. 1908.

Grassy fields and banks at lower elevations, all provinces and
 Isle of Pines: South Florida; Hispaniola. Consists of races differ-
 ing in number, form and size of leaflets.

4. GALACTIA MONOPHYLLA Griseb. Cat. Pl. Cub. 75. 1866

Grassy places, Oriente, Havana; Bahamas.

5. *Galactia suberecta* sp. nov.

A somewhat woody trailing vine, with slender, villous, erect or ascending branches 1-2.5 dm. high. Stipules lanceolate, acute, 2-3 mm. long; petioles slender, villous, 1-2 cm. long; leaflets 3, oblong to oblong-oblancheolate or oval, 1-3 cm. long, mostly obtuse or rounded at the apex, appressed-pubescent on both sides, strongly reticulate-veined beneath, the lateral ones nearly sessile, obtuse or rounded at the base, the terminal one narrowed at the base, on a petiolule 3-4 mm. long; peduncles 1-flowered, shorter than the petioles; calyx villous, 6 mm. long, its lanceolate lobes longer than the tube; corolla purple, 1 cm. long.

Savanna near San Juan, Isle of Pines, Cuba (*Britton & Wilson 14973*).

6. *GALACTIA COMBSII* Urban, *Symb. Ant.* 2: 219. 1900

Grassy places, Santa Clara, Pinar del Rio. Endemic. Referred by Combs to *G. angustifolia* HBK.

7. *GALACTIA STRIATA* (Jacq.) Urban, *Symb. Ant.* 2: 320. 1900

Glycine striata Jacq. Hort. Vind. 1: 32. pl. 76. 1770.

Galactia cubensis HBK. Nov. Gen. 6: 429. 1823.

Galactia Berteriana DC. Prodr. 2: 238. 1825.

Galactia striata cubensis Urban, *Symb. Ant.* 2: 322. 1900.

Galactia striata Berteriana Urban, *loc. cit.* 1900.

Thickets and hillsides at lower elevations, all provinces and Isle of Pines: Jamaica; Hispaniola; Porto Rico; continental tropical America. Recorded by Grisebach and by Wright as *G. filiformis* Benth. Some Cuban specimens with short-peduncled inflorescence are only with difficulty separable from the following species. Races differ in pubescence.

8. *GALACTIA SPICIFORMIS* T. & G. Fl. N. A. 1: 288. 1838

Thickets, Cays of Camaguey: southern Florida; Bahamas.

9. *Galactia Earlei* sp. nov.

Stem slender, somewhat woody, twining, finely appressed-pubescent 5 dm. long or longer. Stipules lanceolate-subulate, about 2 mm. long; petioles slender, sparingly pubescent, 3 cm. long or less; leaflets 3, oblong or elliptic, 1.5-3 cm. long, 8-15 mm. wide, glabrous and shining with the midvein impressed above,

sparingly appressed-pubescent beneath, revolute-margined, obtuse or slightly emarginate at the apex, rounded at the base, the terminal one with a petiolule 4-8 mm. long, the lateral ones nearly sessile; inflorescence stalked, slender, many-flowered, 6-12 cm. long, densely brownish-pubescent; flowers clustered, almost sessile; calyx 6-7 mm. long, densely brownish appressed-pubescent, its teeth longer than the tube, the upper one ovate, the others lanceolate; standard clawed, nearly orbicular, 7 mm. long.

Pine woods, Baracoa, Oriente (*Underwood & Earle 1342*).

11. *Galactia Jenningsii* sp. nov.

A very slender, slightly woody vine, the branches 1.5-3.5 dm. long, loosely pilose or glabrate. Stipules subulate, striate, about 1 mm. long; petioles slender, pilose, 3-10 mm. long; leaflets 3, nearly equally short-petioluled, obovate, oblong or oblong-obovate, subchartaceous, 6-20 mm. long, rounded or emarginate at the apex, rounded or narrowed at the base, pubescent on both sides, strongly reticulate-veined above; peduncles axillary, 1- to few-flowered, as long as the petioles or shorter; calyx pilose, about 6 mm. long, its lanceolate acuminate lobes about as long as the tube or a little longer; flowers purple; standard suborbicular, clawed, 7-8 mm. long; wings narrowly oblong, about as long as the standard; pod linear, short-beaked, appressed-pubescent, sessile in the calyx, 2.5 cm. long, 5 mm. wide.

White-sand pine-barrens, Isle of Pines, scarce and local (*Britton & Wilson 14,186*, type; *O. E. Jennings 350*).

10. *GALACTIA BRACHYODON* Griseb. Mem. Am. Acad. II. 8: 178. 1860

Near Monte Verde, Oriente. Endemic.

12. *GALACTIA REVOLUTA* Urban, Symb. Ant. 2: 333. 1900 Dry hillsides, northern Oriente. Endemic.

13. *GALACTIA GALACTIOIDES* (Griseb.) Hitchc. Rep. Mo. Bot. Gard. 4: 77. 1893

Dioclea galactioides Griseb. Cat. Pl. Cub. 76. 1866.

Galactia impressa C. Wright; Sauvalle, Anales Acad. Habana 5: 337. 1869. .

Near Bahia Honda, Pinar del Rio, collected only by Wright. Endemic. Erroneously recorded from the Bahamas.

14. *Galactia savannarum* sp. nov.

A slender, somewhat woody vine, 6 dm. long or longer, rather densely pubescent with brownish reflexed hairs, or the older parts glabrate. Stipules lanceolate, acuminate, 1-2 mm. long; petioles slender, 5-10 mm. long; leaflets 1 or 3, oblong, oblong-lanceolate, or the terminal one oblong-oblanccolate, subcoriaceous, revolute-margined, 1-3 cm. long, 6-12 mm. wide, glabrous on both sides or with some scattered hairs beneath, obtuse or emarginate at the apex, rounded at the base, the pubescent petiolules equal, about 1.5 mm. long; inflorescence interruptedly spicate, slender, 5-12 cm. long, densely appressed-pubescent; flowering pedicels 0.5 mm. long or less; calyx 4-5 mm. long, appressed-pubescent, its lobes about equalling the tube; flowers blue-purple, about 8 mm. long; standard suborbicular, clawed, about 6.5 mm. broad; wings and keel nearly equal in length; pod borne on a pedicel about 1.5 mm. long, linear, acute, densely villous, 2.5-3 cm. long, 7 mm. wide.

Barren savannas, Oriente, Camaguey, Santa Clara. Type from savanna southeast of Holguin, Oriente (*Shafer 1237*).

15. GALACTIA JUSSIAEANA Kunth, Mimos. 196. 1824

Clitoria glomerata Griseb. Cat. Pl. Cub. 74. 1866.

Pine-lands and plains, Pinar del Rio and Isle of Pines; Jamaica; Hispaniola; tropical South America. Common in pine-lands on the Isle of Pines, attaining a height of 6 dm.

47. THE GENUS MACHAONIA H. & B. IN CUBA

Type species: *Machaonia acuminata* H. & B.

Fruit essentially glabrous.

Fruit constricted below the middle.

1. *M. pauciflora*.

Fruit gradually narrowed to the base.

2. *M. littoralis*.

Fruit pubescent.

Fruit sparingly pubescent, the persistent calyx-lobes long.

3. *M. trifurcata*.

Fruit densely pubescent, the persistent calyx-lobes short.

Fruit broadly obpyramidal, 2.5 mm. long.

4. *M. microphylla*.

Fruit narrowly obpyramidal, 3-4 mm. long.

5. *M. calcicola*.

1. MACHAONIA PAUCIFLORA Urban, Symb. Ant. 5: 512. 1908

The species is based on part of *C. Wright's 433*, collected, presumably, in Oriente, and has not been found by us.

2. *Machaonia littoralis* sp. nov.

A shrub, about 2 m. high, with slender branches, the young twigs short-pilose, leafy to their tips. Leaves rhombic-ovate to

elliptic, 6-10 mm. long, subcoriaceous, entire, 7 mm. wide or less, abruptly acute, obtuse, or some of them rounded at the apex, narrowed at the base, glabrous, pinnately few-veined, the glabrous or somewhat pubescent petioles 0.5-1 mm. long; inflorescence corymbose-cymose, several-flowered; pedicels very slender, sparingly pubescent, 1-2 mm. long; fruit narrowly obpyramidal, sparingly papillose or glabrous, 2 mm. long, 1 mm. thick at the top, evenly gradually narrowed to the rounded base, the persistent calyx-lobes ovate or ovate-lanceolate, about 0.5 mm. long.

Coastal thickets, vicinity of Siguanea, Isle of Pines, Cuba (*Britton & Wilson 14942.*)

3. *MACHAONIA TRIFURCATA* Urban, Symb. Ant. 5: 512. 1908

Cuba (*C. Wright 2760*). Referred by Grisebach to the Jamaican *M. cymosa* Griseb., but clearly different from that species. Not found by us. A part of *C. Wright 433* in the herbarium of the New York Botanical Garden has the characters of this species.

4. *MACHAONIA MICROPHYLLA* Griseb. Mem. Am. Acad. II. 8: 510. 1862

Rocky hills at lower elevations in dry districts, province of Oriente.

A barren specimen, collected in the palm barren near the city of Santa Clara, Santa Clara province (*Britton & Wilson 6130*) is doubtfully referred to this species.

5. *Machaonia calcicola* sp. nov.

?*Spermacoce spinosa* Jacq. Stirp. Am. 21. 1763. Not L. 1762.

Not *Machaeonia spinosa* C. & S.

?*Spermacoce havanensis* Jacq.; Gmel. Syst. 234. 1796.

A much-branched shrub or small tree up to 3 m. high, the slender twigs densely puberulent, bristle-tipped. Leaves ovate or rhombic-ovate to elliptic or oblong-lanceolate, 6-15 mm. long, acute, short-acuminate, or some of them obtuse at the apex, narrowed or obtuse at the base, glabrous, pinnately few-veined, the short petioles puberulent; inflorescence corymbose-cymose, several-to many-flowered; pedicels slender, pubescent, 1-2 mm. long, calyx densely pubescent, its ovate or ovate-lanceolate lobes as long as the tube or somewhat shorter; corolla white or yellowish, about 1 mm. long, its ovate-oblong obtuse lobes about as long as the

tube; stamens shorter than the corolla; fruit obpyramidal, 3-4 mm. long, 1.5 mm. thick at the top, tapering gradually to the base, densely pubescent, the persistent calyx-lobes about 0.5 mm. long.

Limestone rocks, northern parts of Havanna and Pinar de Rio. Type from coastal hillside, Bay of Mariel, Pinar del Rio (*Britton & Earle 7619*).

A barren specimen from limestone rocks at Cape Corrientes (*Britton & Cowell 9894*) is doubtfully referred to this species.

48. THE GENUS HEPTANTHUS GRISEB.

A Cuban genus, of which three species were described at the place of original publication (*Cat. Pl. Cub. 148. 1866*); all were from western Cuba, *H. cochlearifolius* Griseb. being typical, and none have since been added to the genus. I now propose three others, all from eastern Cuba.

Leaf-blades glabrous above or merely puberulent.

Peduncles longer than the leaves.

1. *H. cochlearifolius*.

Peduncles shorter than the leaves.

Leaf-blades orbicular-ovate, 1-2 cm. long; petioles densely villous.

2. *H. cordifolius*.

Leaf-blades triangular-ovate, 4-6 mm. long; petioles sparingly villous.

3. *H. Shaferi*.

Leaf-blades pubescent on both surfaces.

Leaf-blades repand-dentate; peduncles much shorter than the petioles.

4. *H. brevipes*.

Leaf blades incised-serrate or lobed; peduncles as long as the leaves or longer.

Leaf-blades 12 mm. long or less, incised-serrate.

5. *H. ranunculoides*.

Leaf-blades 1-2.5 cm. long, deeply 3-lobed, the lobes coarsely few-toothed.

6. *H. lobatus*.

1. HEPTANTHUS COCHLEARIFOLIUS Griseb. *Cat. Pl. Cub. 148. 1866*

TYPE LOCALITY: Western Cuba.

DISTRIBUTION: Pine-lands and savannas, Pinar del Rio.

The upper leaf-surfaces are glabrous or nearly so.

A plant related in leaf-form, but with the upper leaf-surfaces densely puberulent is common in pine-lands and white sand in the central districts of the Isle of Pines, but could not be found in flower during our visit to this region in February and March, 1916 (*Britton & Wilson 14163*); it is therefore referred to this species with doubt.

2. *Heptanthus cordifolius* sp. nov.

In habit and aspect similar to *H. cochlearifolius*, forming cushion-like tufts 1-1.5 dm. broad. Petioles densely villous, 8 cm. long or less; leaf-blades orbicular-ovate, 1-2 cm. long, nearly or quite as wide as long, repand-dentate, rounded or obtuse at the apex, cordate at the base, distinctly punctate, glabrous above, villous on the few veins beneath; peduncles filiform, sparingly villous, shorter than the petioles; involucre campanulate, about 5-flowered; flowers white.

In damp soil among stones at edge of low thicket in deciduous woods near the base of Loma Mensura, Oriente, about 680 m. alt. (*Shafer 3786*).

3. *Heptanthus Shaferi* sp. nov.

Forming small tufts 4-6 cm. broad. Petioles filiform, loosely villous, 4 cm. long or less; leaf-blades triangular ovate, 4-6 mm. long, rather sharply few-dentate, bluntly acute at the apex, cordate at the base, distinctly punctate, glabrous on both sides or with a few hairs on the veins beneath; peduncle filiform, loosely villous, about 2.5 cm. long; involucre narrowly companulate, 4-flowered, about 1.5 mm. long.

On bank of a stream, Camp La Gloria, south of Sierra Moa, Oriente (*Shafer 8217*).

4. *HEPTANTHUS BREVIPES* Griseb. Cat. Pl. Cub. 148. 1866

TYPE LOCALITY: Low riparian woods near Toscano [Pinar del Rio].

DISTRIBUTION: Known only from the type locality and from the original collection (*Wright 2821*).

5. *HEPTANTHUS RANUNCULOIDES* Griseb. Cat. Pl. Cub. 148. 1866

TYPE LOCALITY: Western Cuba.

DISTRIBUTION: Known only from the original specimens (*Wright 2820*).

6. *Heptanthus lobatus* sp. nov.

Densely tufted, the tufts 1-1.5 dm. broad. Petioles densely villous, 7.5 cm. long or less; leaf-blades broadly ovate or orbicular-ovate in outline, pubescent with long hairs on both surfaces, 1-2.5 cm. long, deeply 3-lobed, the lobes coarsely few-toothed, the middle one obovate-cuneate, obtuse; peduncles filiform, loosely

villous, as long as the petioles or longer; involucre narrowly campanulate, about 3 mm. long, several-flowered; flowers white.

Sandy bank, alluvial valley of Rio Yamanigüey, Oriente (*Shafer 4201*).

49. UNDESCRIBED SPECIES FROM PORTO RICO

Malpighia Shaferi Britton & Wilson, sp. nov.

A shrub 2-2.5 m. tall, with grayish-brown twigs. Leaves oblong-elliptic to elliptic or somewhat oblong-lanceolate, 13-17 cm. long, 4.5-8.5 cm. broad, acute, or rounded and mucronate, or occasionally retuse at the apex, more or less inequilateral and acute or rounded at the base, reticulate-veined above, armed beneath with closely-appressed stinging hairs, the margin somewhat revolute; petioles stout, 8-12 mm. long; cymes nearly sessile; pedicels 8-18 mm. long; sepals elliptic to broadly ovate, 2-3 mm. long, 1.2-1.5 mm. broad; glands fully one half the length of the sepals; larger petals 10-11 mm. long, the blades 6 mm. broad, pink, prominently keeled on the back; stamens unequal; anthers cordate; styles unequal, the anterior one slightly shorter than the posterior ones; fruit red.

Type collected in the vicinity of Isabel Segunda, Vieques Island (*Shafer 2448*).

Byrsonima ophiticola Small, sp. nov.

Tree up to 8 m. tall, the twigs with dark gray bark, the young tips with dark red pubescence. Leaves clustered at the ends of the twigs, 3-6.5 cm. long, the blades spatulate to narrowly obovate, rounded or obtuse at the apex, closely and finely pubescent when young, sparingly pubescent when full-grown, dull, paler green beneath than above, acute or acuminate at the base, rather long-petioled; panicles 5-9 cm. long, the bracts less than 3 mm. long; pedicels closely pubescent, at least in anthesis; sepals ovate or oblong-ovate, 2.5-3 mm. long, obtuse or acutish, the glands mostly less than one half as long as the sepal-body; petals yellow, turning to scarlet, 8-10 mm. long, the blade broadly reniform or orbicular-reniform, 7-8 mm. wide, the claw shorter than the blades; drupes not seen.

Serpentine slopes, Guanajibo near Mayaguez (*Britton, Cowell, & Brown 4350*). Related to *Byrsonima lucida* DC., from which it differs in the longer petioles, larger panicles, and larger flowers. The petals besides unfolding yellow and turning scarlet, have relatively shorter claws and more broadly reniform blades than in *B. lucida*, and are of very firm texture and more persistent.

Chamaesyce Cowellii Millspaugh, sp. nov.

A small, prostrate, glabrous annual, many-stemmed from the rootstalk; stems short; branches filiform, 2-3 cm. long; nodes swollen and prominent. Inflorescence solitary in the upper axils. Leaves thick, succulent, ovate, entire, blunt, $2-3.5 \times 1.5-2$ mm., strongly inequilateral at the oblique and but slightly cordate base, petiolate; stipules various, those of the upper surface mostly quadrilateral and often bilobed, others triangular, all lacerate; those of the under surface of the branches formless in laceration. Involucres turbinate; short-pedunculate, glabrous without, densely woolly within; lobes triangular, aristate, densely ciliate; sulcus shallow, inconspicuous, flanked by two minute lobes similar in form to the others; glands green, flattened parallel to the walls of the involucre; appendages narrow, greenish, crenate, about half the width of the glands. Capsule glabrous, deeply sulcate; seeds pink, ovate-quadrangular, the dorsal angle most prominent, 1×0.6 mm., the facets finely and anastomosingly transverse-ridged in a central longitudinal line. Allied to *Chamaesyce serpens* (HBK.) Small.

Collected from the crevices of limestone rocks at Cayo Muertos (Britton, Cowell & Brown 5007). Type, sheet No. 427101, in the herbarium of the Field Columbian Museum.

Sebesten brachycalyx (Urban)

Cordia Sebestena brachycalyx Urban, Symb. Ant. 1: 389. 1899.

This tree, first made known from the southern and eastern coasts of Porto Rico, appears to differ specifically from the related *Sebesten Sebestena* (L.) Britton (*Cordia Sebestena* L.) of wide distribution in the West Indies, Florida and tropical continental America, and there much planted for ornament. *S. brachycalyx* has much rougher upper leaf-surfaces and a much smoother calyx than *S. Sebestena* (often glabrous), and its yellow or orange fruit is shorter-beaked than the white fruit of that species; the corolla of *S. brachycalyx* has a narrower limb than that of *S. Sebestena*. The species inhabits Porto Rico, Vieques, Culebra, and Buck Island, St. Thomas.

Crescentia portoricensis sp. nov.

A vine-like, glabrous shrub, with long, slender branches, the bark light gray. Leaves elliptic-obovate, fascicled at the nodes, 15 cm. long or less, 2-8 cm. wide, coriaceous, shining above, dull beneath, strongly reticulate-veined on both sides, abruptly short-

acuminate at the apex, cuneate at the base, the slender petioles 6–12 mm. long; peduncle 1–2 cm. long, slender in flower, much thickened in fruit; calyx 2 cm. long, deeply 2-lobed; corolla subcampanulate, 4 cm. long, yellowish white, reticulate-veined, its broadly ovate, entire, acute or blunt lobes about one fourth as long as the tube; fruit narrowly oblong, 10 cm. long, 3.5 cm. in diameter, terete, pointed at the apex, truncate at the base.

River-valley forests, mountains of western Porto Rico. Type from Rio de Maricao, 500–600 m. alt. (*Britton, Stevens & Hess 2455*).

***Mikania Stevensiana* sp. nov.**

Climbing to a height of 5 m., the branches glabrous, striate, nearly terete, the twigs angular, sparingly pubescent. Leaves triangular-ovate in outline, firm in texture, brittle when dry, 5 cm. long or less, very scabrous and sparingly short-hispid above, pubescent on the elevated veins beneath, 5-nerved, sharply 3-lobed, the middle lobe triangular-lanceolate, long-acuminate, dentate, 3 or 4 times as long as the acute, entire or sparingly toothed, lateral ones; petioles sparingly pubescent, 1–2 cm. long; inflorescence corymbose-paniculate; heads peduncled; bracts of the involucre linear, acute, 7 mm. long; achenes angled, glabrous, 5 mm. long; pappus-bristles about 40; corolla 7 mm. long, as long as the pappus, its lobes acute.

Wooded valley, Maricao River, above Maricao (*Britton & Cowell 4225*, type; *Britton, Stevens & Hess 2439*).

50. UNDESCRIBED SPECIES FROM CUBA

***Schoepfia cubensis* Britton & Wilson, sp. nov.**

A slender, glabrous shrub, 2.5–4 m. tall, the young twigs compressed, longitudinally ridged, often flexuose, glabrous. Leaves elliptic to oval, 2–3.4 cm. long, 1.5–2.8 cm. broad, short-petioled, entire, glabrous, rounded at the apex, equilateral and rounded or occasionally subcordate at the base, lustrous and rather indistinctly veined on both surfaces; principal veins 5 or 6 on each side of the midvein, strongly divergent; peduncles 0.8–1.2 cm. long; fruit sessile, ellipsoid, 8 mm. long, 7 mm. wide.

Camp La Gloria, Oriente (*Shafer 8278*).

***Cassia scleroxyla* sp. nov.**

A slender tree, about 8 m. high, with smooth bark and exceedingly hard wood, the young twigs loosely appressed-pubescent.

Leaves glandular, 8–10 cm. long; petiole and rachis grooved above, sparingly appressed-pubescent; petiole 1–2 cm. long; leaflets 6–8 pairs, linear-lanceolate, chartaceous, 2–4 cm. long, acute and mucronate at the apex, rounded or narrowed at the base, rather dark green and glabrous above, pale green and sparingly pubescent beneath, the pubescent petiolules about 2 mm. long; flowers loosely corymbose; pedicels slender, puberulent, about 1 cm. long; sepals very unequal, sparingly pubescent, ciliate, the larger ones 4–5 mm. long; petals bright yellow, the larger 6–7 mm. long; perfect anthers 7, about 3 mm. long; pod linear, glabrous, 3–4.5 cm. long, 6–7 mm. wide, reticulate-veined, abruptly acute, septate between the seeds.

Hillside, Berraco, near Daiquiri, Oriente (*Britton & Cowell 12664*).

Among West Indian species, perhaps most nearly related to *C. domingensis* Spreng.

***Cassia Shaferi* Britton & Wilson, sp. nov.**

Shrub 1 m. tall; twigs, petioles, rachis, and branches of the inflorescence hirsutulous. Leaves 6.5–10 cm. long, glandular, the gland slender, 1.5–2 mm. high, acutish or obtuse, situated either between the leaflets of the lowest pair or below on the petiole; petioles and rachis grooved; stipules narrowly oblong-lanceolate, 6–7 mm. long, acuminate; leaflets 4–6 pairs, oblong to elliptic, 1.5–3 cm. long, 7–12 mm. broad, rounded and mucronulate at the apex, rounded and very inequilateral at the base, sparingly hirsutulous on the midrib above, hirsutulous beneath, the hairs scattered and mostly appressed, short-petiолuled; margin thickened, ciliate; pedicels hirsutulous; buds subglobose; sepals densely hirsutulous; pod flat, 11 cm. long, 9 mm. broad; seeds 3.5–4.5 mm. long.

Pine-lands near the base of Loma Mensura, Oriente (*Shafer 3770*); also collected in open places at base of Loma Mensura (*Shafer 3803*).

Apparently closely related to *Cassia bahamensis* Mill.

***Pachyanthus reticulatus* Britton & Wilson, sp. nov.**

A shrub 1–1.5 m. tall; young twigs compressed, more or less grooved, ferruginous, stellately scabrous-puberulent. Leaves ovate, 9–12 cm. long, 5–7 cm. broad, obtuse at the apex, cordate at the base, above densely ferruginously stellate-puberulent when young, glabrescent, lustrous and dark green in age, the venation strongly impressed, below pale brown, reticulate-veined and

densely stellate-canescens, prominently 5-nerved; petioles 1.5–2.5 cm. long; flowers sessile, calyx campanulate, densely stellate-tomentulose, the lobes 5, deltoid at the base, linear above, 5–6 mm. long.

Low dry thickets, pine-lands, Sierra Nipe, near Woodfred, Oriente (*Shafer 2967*).

***Labatia aristata* Britton & Wilson, sp. nov.**

A much-branched shrub, 2–3 m. high, the branches rigid, gray, the young twigs appressed-pubescent. Leaves broadly ovate to suborbicular, 2–3.5 cm. long, coriaceous, glabrous, strongly pinnately and reticulate-veined, dark green and shining above, dull green beneath, aristate at the apex, rounded or subcordate at the base, the yellowish green, rather stout petioles 5–10 mm. long; pedicels solitary or several together, slender, glabrous, 5–8 mm. long; calyx sparingly pubescent, 2.5–3 mm. long, deeply 4- to 5-lobed, the lobes lanceolate or oblong-lanceolate, acutish, scarcely imbricated; corolla green, about 2.5 mm. long, 4–5-lobed to about the middle, the lobes rounded, slightly imbricated; anthers oblong, a little longer than the filaments; staminodia obovate, somewhat longer than the filaments; drupe oval, dark purple, 2.5 cm. long, its flesh very thin; seeds 2, oblong.

Coastal hills and thickets, provinces of Oriente, Santa Clara and Havana, Cuba; type collected between the Rio Chorrera and Marianao, Havana (*Brother Leon 6230*).

***Tournefortia Earlei* sp. nov.**

A shrub, 1–2 m. high, with long, slender branches, or vine-like and 3 m. long, the branches densely pubescent with short, soft, appressed hairs. Leaves narrowly linear, or linear-lanceolate, 3–7 cm. long, 2–6 mm. wide, acute or bluntish at the apex, densely appressed-pubescent above, densely white-tomentulose beneath, the petioles 1.5–3 mm. long; cymes short-peduncled, their few, very slender branches 2–4 cm. long; calyx 1 mm. long, appressed-pubescent, its lanceolate or ovate-lanceolate lobes acute; corolla-tube about 2 mm. long, the narrowly lanceolate lobes about as long; fruit depressed, 4 mm. broad, about one half as high as broad, glabrous.

Hillsides, Guantanamo Bay and Santiago Bay, Oriente. Type from Guantanamo Bay (*F. S. Earle 82*). Related to *T. incana* Lam. and *T. stenophylla* Urban.

***Cestrum pinetorum* sp. nov.**

A glabrous shrub, about 1 m. high, with slender branches. Leaves narrowly oblong to oblong-lanceolate, 7 cm. long or less, 6-16 mm. wide, rather thin in texture, faintly shining, bluntly acute at the apex, narrowed at the base, the midvein slender above, prominent beneath, the lateral veins few, obscure, the slender petioles 3-5 mm. long; clusters axillary, few- to several-flowered; fruiting pedicels very short; fruiting calyx obconic-campanulate, about 5 mm. long, its triangular-ovate teeth acutish, about one third as long as the tube; berry globose-ovoid, purplish, about 7 mm. long.

Open pine-woods Sierra Nipe near Woodfred, Oriente, 500-650 m. alt. (*Shafer 3031*, type; *3591*).

***Casasia parvifolia* sp. nov.**

A much-branched shrub, about 2 m. high, the twigs slender, puberulent when young. Stipules lanceolate, acute, about 3 mm. long. Leaves glabrous, oblong-spatulate, 3 cm. long or less, 5-8 mm. wide, obtuse or acutish at the apex, narrowed or cuneate at the base, coriaceous, clustered at the ends of the twigs, pinnately few-veined, shining and with impressed midvein above, the midvein very prominent beneath, the petioles about 1 mm. long; fruit terminal, solitary, sessile, globose, warty, about 10 mm. in diameter.

Rocky river-banks, mountains of northern Oriente; type collected between Camp La Barga and Camp San Benito, 450-900 m. alt. (*Shafer 4100*).

***Baccharis Shaferi* sp. nov.**

A glabrous shrub, 6 dm. high or less, with slender ascending branches, the twigs angled. Leaves triangular-cuneate, 6-12 mm. long, 7 mm. wide or less at the truncate or subtruncate apex, bright green and shining above, dull and whitish-papillose beneath, the slender midvein slightly elevated on both sides, the lateral veins 1-3; heads sessile, solitary or 2 or 3 together at the ends of short twigs, or in the axils; young involucre about 4 mm. long, the ovate, acute bracts imbricated in about 4 series.

Dry pine woods, Arroyo del Medio above the falls, 450-550 m. alt., Oriente (*Shafer 3257*, type); specimens from Camp La Gloria, south of Sierra Moa, Oriente (*Shafer 8213*), have longer leaves than the type specimens.

51. UNDESCRIBED SPECIES FROM THE ISLE OF PINES,
CUBA*Zamia silicea* sp. nov.

Caudex slender, completely buried in sand, 2 dm. long or longer. Basal scales lanceolate, villous, 1-2 cm. long; leaves glabrous or the base of the petiole villous, spreading or ascending, 1-4 dm. long; leaflets 30 or fewer, coriaceous, shining, many-veined, obovate-oblongate, 3-6 cm. long, 2 cm. wide or less, rounded or obliquely subtruncate and callously denticulate at the apex, narrowed at the base; peduncles densely short-pubescent, 2-4 cm. long; male cone cylindric, about 3 cm. long and 1.3 cm. thick, its scales densely pubescent, hexagonal, the upper and lower ones about as wide as high, the middle ones nearly twice as wide as high; ripe pistillate cones ellipsoid, short-tipped, 5-6 cm. long, about 2.5 cm. thick, the hexagonal scales puberulent, seeds red, about 12 mm. long, broadly grooved on the inner side, rounded on the back, obliquely and obtusely umbonate at the apex.

Frequent in pine-lands and in white silicious sand. Type from near Los Indios (*Britton & Wilson 14166*).

Cyperus pinetorum sp. nov.

Perennial by short rootstocks; culms tufted, stiff and wiry, compressed, 1.5-2.5 cm. high. Basal sheaths striate-veined, acute, 2-4 cm. long; involucre leaves 1 or 2, nearly subulate, 0.5-3 cm. long; spikelets linear, 10-22 mm. long, 1.5 mm. wide, digitate, one cluster subtended by the involucre leaves with usually a similar one on a slender ray 4 cm. long or less; scales elliptic, obtuse, mucronulate, yellowish-brown, 1.5 mm. long; achene sharply trigonous, about 0.6 mm. long, nearly as thick as long, often persistent on the rachis after the scales have fallen away.

White sand pine barrens. Type from the vicinity of Los Indios (*Britton and Wilson 14170*).

Related to *C. Haspan* L., differing in broader spikelets, broader scales and proliferous inflorescence.

Xyris longibracteata Britton & Wilson, sp. nov.

Annual(?); leaves erect, linear, 8-10 cm. long, 1-1.5 mm. broad, occasionally somewhat spirally twisted, the margin rough; scapes several, erect, glabrous, 15-18 cm. tall, terete or nearly so; involucre subtending the spike composed of several bracts of unequal length, each tapering abruptly into a long, linear tip, the longest bract often exceeding the spike; spikes ellipsoid to ovoid, 7-9 mm.

long, 4–6 mm. broad; bracts ovate to orbicular-ovate, 4–5 mm. long, 3.5–4 mm. broad, acute at the apex; lateral sepals included; keel toothed from the apex to below the middle; petals broadly obovate, 5 mm. long, 3.5–4 mm. broad.

White sand, vicinity of Los Indios, Isle of Pines (*Britton, Britton & Wilson 14215*).

***Chamaecrista micrantha* sp. nov.**

Stems several from a woody root, ascending or suberect, few-branched or simple, slender, villous, 2–3 dm. long. Stipules lanceolate acuminate, 2.5–4 mm. long; leaves 8–18 mm. long; petiolar gland short-stalked; rachis villous; leaflets 10–24, oblong, villous, 3–3.5 mm. long, mucronulate, the midvein very excentric; peduncles very slender, villous, 6–15 mm. long; sepals lanceolate, acute, villous, about 4 mm. long; petals rounded, 5 mm. long; pod linear, finely pubescent, 2–3 cm. long, 3–4 mm. wide.

Pine-lands and savannas, Pinar del Rio and Isle of Pines, Cuba. Type collected near San Pedro, Isle of Pines (*Britton & Wilson 14294*). Referred by Grisebach to *Cassia pygmaea* DC., and taken up by Bentham under *Cassia procumbens* L., but the type of *C. procumbens* is the same as *C. nictitans* L.

***Chamaecrista savannarum* sp. nov.**

Stems several from a deep woody root, slender, ascending or erect, short-pubescent, 2–4 dm. high, simple or little-branched. Stipules lanceolate or ovate-lanceolate, 2–4 mm. long, acuminate, strongly veined; leaves 2.5 cm. long or less, the rachis pubescent; petioles 2–4 mm. long, bearing a scutellate, sessile or very short-stalked gland; leaflets 3–13 pairs, appressed-pubescent or glabrate, oblong or linear-oblong, 3–7 mm. long, somewhat oblique, aristulate, the midvein very excentric; peduncles slender or nearly filiform, 8–20 mm. long; sepals lanceolate, acuminate, slightly pubescent, 4–5 mm. long; petals 7–8 mm. long; pod linear, sparingly pubescent, 3–4 cm. long, 4 mm. wide.

Savannas and pine-lands, Pinar del Rio and Isle of Pines, Cuba. Type collected near Siguanca, Isle of Pines (*Britton & Wilson 14379*).

***Bauhinia Jenningsii* P. Wilson, sp. nov.**

A slender shrub or tree, sometimes 5 m. high; young twigs, branches of the inflorescence, under surface of the leaves and pods finely puberulent with minute, mostly appressed hairs; petioles

1.5–2 cm. long; leaves lanceolate-ovate to oblong-ovate or ovate, 7–14 cm. long, 2.5–5 cm. broad, acute at the apex, subtruncate or rounded at the base, 5-nerved, finely reticulate-veined and glabrous above, reticulate-veined and minutely papillose beneath; inflorescence corymbose; flowers long-pedicelled; calyx scarlet, puberulent with appressed hairs; petals lanceolate or occasionally somewhat oblanceolate, 1.2–1.6 cm. long, 2–2.7 mm. broad; sterile stamens 9, half as long as the fertile stamen; ovary stipitate; pods oblong, 5–9 cm. long, 0.8–1.5 cm. broad, brown; seeds oblong-elliptic to elliptic, 7–8 mm. long, 5–5.5 mm. broad, brownish black.

Wooded limestone plain, Coe's Camp, Ensenada de Sigüanea (*Britton & Wilson 14851*, type); coastal plain, San Juan (*Britton & Wilson 15544*); coral soil, north of Caleta Grande (*O. E. Jennings 480*).

***Savia per lucens* sp. nov.**

A shrub, about 2 m. high, the slender branches terete, grey. Stipules ovate, acute; leaves obovate or elliptic-obovate, coriaceous entire, 9 cm. long or less, acute or acuminate at the apex, obtuse or acute at the base, bright green and strongly shining above, dull green beneath, the midvein prominent above and beneath, both surfaces reticulate-veined; flower-clusters supra-axillary, depressed, about 3 mm. broad, puberulent.

Limestone plain, Caleta Grande (*Britton, Wilson & Leon 15330*).

***Phyllanthus nanus* Millspaugh, sp. nov.**

A low, spreading, glabrous perennial, about 5 cm. in extent, with thick, strongly imbricated leaves. Root thick, branching, giving off a mass of thread-like rootlets. Stems many, springing from the rootstalk, very short (1–1.5 cm.); branches diffuse, rather thick and striate, 1–2 cm. long. Inflorescence dioecious, biflorate, in the axils of the apical leaves of the short branchlets. Leaves thick, glabrous, ovate, cordate, acute, entire, 1.3×1–2.3×1.75 mm.; petioles very short; stipules entire, aristate from a deltoid base, the upper half withered to a dark brown color. Flowers sessile or nearly so; sepals 5, equal, ovate, acute, strongly striate-keeled; glands 5, verrucoid, minute; staminal column twice the length of the anthers; anthers 2, transversely connate in an apical ring; female calyx as in the male but nearly twice the size; ovary 3-carpelled, 6-celled, nearly sessile; styles 3, short, bifid to half their length, the stigmatic apices cleaveate; capsule depressed-globose, glabrous; seeds dark brown, sharply angled, 0.9×0.75 mm. dorsal facet minutely and closely transverse anastomose-wrinkled.

In white sand in the vicinity of Los Indios (*Britton & Wilson*

14192). Type sheet in the herbarium of the Field Columbian Museum.

***Chamaesyce Jenningsii* Millspaugh, sp. nov.**

Prostrate, spreading from a low rootstock; stems many, divaricately branching, internodes about 1.5–3 cm.; branches 2 to many at each swollen node, wiry, divergently forking; leaves oval to ovate, 5×3 – 8×4 mm., glabrous above, finely long silvery-pubescent beneath, obliquely cordate, blunt, shallowly but sharply serrate throughout the margins. Inflorescence solitary in the terminal forks and axils; involucre long-turbinate, glabrous without, hairy within; pedicels about twice the length of the tube; lobes triangular; sulcus large, deep, triangular, the fundus unoccupied; glands nearly circular, flattened to the walls of the involucre; appendages none, or rarely merely a marginal line of the same color and texture as the glands; bracteoles as many as the stamens, ligulate, transparent. Capsule glabrous, ovoid; carpels strongly keeled; seeds ovate-quadrangular, 1.2×1 mm., angles sharp, facets sharply and anastomosingly transverse ridged including deep, quadrangular pits.

Vivijagua (*O. E. Jennings 621*); type in the herbarium of the Carnegie Museum, Pittsburgh, Pennsylvania. Also in coastal sands at the same place (*Britton & Wilson 14690*).

***Tapura obovata* Britton & Wilson, sp. nov.**

A tree 10 m. tall; young twigs and petioles minutely strigillose; leaves obovate, 3.5–7 cm. long, 1.5–4.4 cm. broad, rounded at the apex, cuneate to rounded-cuneate at the base, dull above, lustrous beneath and reticulate-veined, glabrous, short-petioled; flowers short-pedicelled; calyx-lobes 5, ciliate, sparingly appressed-pilose on the outside, the two outer lobes smaller than the three inner ones, broadly oblong-elliptic to oval, 2.5–3.2 mm. long, 2–2.2 mm. broad, the three inner lobes oval to suborbicular, 3.4–3.8 mm. long, 3–3.3 mm. broad; corolla-lobes 5, unequal, the three smaller lobes spatulate-obovate, 4–4.6 mm. long, 1.2 mm. broad, the two larger lobes spatulate, 4.6–5 mm. long, 2.2–2.5 mm. broad; filaments lanceolate-oblong to oblong; ovary pilose; style filiform, pilose, 3-lobed.

Savanna, Vivijagua (*Britton & Wilson 15607*, type); coastal plain, San Juan (*Britton & Wilson 15524*).

***Calyptanthus pinetorum* Britton & Wilson, sp. nov.**

A depressed, glabrous, much-branched shrub 6 dm. high or less, 3–10 dm. broad, the twigs stout, gray, terete or nearly so. Leaves

opposite, thick-coriaceous, ovate to orbicular, flat, 1-3.5 cm. long, rounded or obtuse at the apex, cordate or subcordate at the base, bright green and shining above, pale green and dull beneath, densely punctate, the midvein prominent, the lateral veins faint, the stout petioles 1-2 mm. long; peduncles rather stout, somewhat longer than the leaves; inflorescence cymose, few- to several-flowered; young fruit sessile, subglobose, 2 mm. in diameter, the calyx-limb 2 mm. broad.

Pine-lands, central districts. Type from north of Los Indios (*O. E. Jennings* 390).

Related to *C. nummularia* Berg. of Hispaniola, *C. Maxoni* Britton & Urban of Jamaica, and *C. Boldinghi* Urban of St. Martin.

***Evolvulus arenicola* Britton & Wilson, sp. nov.**

A diminutive perennial, with a slender, woody root, the few or solitary, simple or few-branched stems slender, appressed-pubescent, 2-5 cm. long, ascending or nearly prostrate. Leaves ovate to elliptic, 9-15 mm. long, puberulent or glabrate above, appressed-pubescent beneath, mostly obtuse or rounded at both ends, the midvein faint, the lateral veins wholly obscure, the pubescent petioles 1-2 mm. long; flowers 1 or 2 at the ends of the stems or branches; pedicels 5-8 mm. long, pubescent; sepals linear-lanceolate, acuminate, villous, 5 mm. long; corolla white, rotate, 9-12 mm. broad; obscurely lobed; stamens about one-half as long as the corolla; styles deeply 2-cleft; capsule subglobose, shorter than the sepals.

White sand, vicinity of Los Indios (*Britton & Wilson* 14190).

***Gerardia pinetorum* Britton & Wilson, sp. nov.**

Acaulescent; leaves elliptic-ovate to elliptic, 1.5-2 cm. long, 5-8 mm. broad, rounded at the apex, cuneate or somewhat rounded at the base, hispidulous above and below with jointed hairs; petioles 1-1.5 cm. long, densely hispidulous; scape erect, 4-8 cm. high, more or less hispidulous with jointed hairs, the spikes few-flowered, 1-2 cm. high, the bracts lanceolate, 4-5 mm. long, ciliolate, long-acuminate; calyx-lobes subequal, narrowly lanceolate, 4-4.5 mm. long, 0.5-0.8 mm. broad, ciliolate; corolla rose-pink, glabrous, the tube cylindric, 5-5.5 mm. long, the limb subequally 5-lobed, the lobes broadly obovate to somewhat oval-obovate, 4.5-8 mm. long, 2.5-5 mm. broad.

Along the Los Indios River above Los Indios (*O. E. Jennings* 456).

Rondeletia calcicola sp. nov.

A glabrous shrub about 2 m. high, the twigs slender. Leaves coriaceous, narrowly oblong to oblong-oblancoate, 5-13 cm. long, 8-18 mm. wide, shining above, dull beneath, acute at the apex, attenuate at the base into petioles about 1 cm. long or less, loosely reticulate-veined with the midvein prominent on the under surface; inflorescence terminal, few-flowered; fruiting pedicels rather stout, 3-7 mm. long; capsule oblong or oblong-obovoid, glabrous, 1 cm. long, about twice as long as thick; fruiting calyxlobes ovate-lanceolate, acute, 1-1.5 mm. long.

Wooded limestone plain, Coe's Camp, Ensenada de Siguanea (*Britton & Wilson 14842*).

Diodia ciliata Britton & Wilson, sp. nov.

Stems perennial, prostrate, 4-6 dm. or more in length, rooting and partly buried in sand, densely pilose with whitish hairs on the younger growth; leaves elliptic to somewhat elliptic-obovate, 1.5-3 cm. long, 7-14 mm. broad, acute at the apex, cuneate to broadly cuneate at the base, the margin conspicuously and densely ciliate with rather stiff white hairs, yellowish green and glabrous above, the midvein and lateral veins inconspicuous, whitish-pilose beneath, especially on the midvein, sessile; stipules ciliate; ovary 2-celled; fruit elliptic-obovoid, 3 mm. high, glabrous, or with few scattered appressed hairs on the back.

In white sand, vicinity of Los Indios (*Britton & Wilson 15347*).

Diodia arenicola Britton & Wilson, sp. nov.

Perennial; stems ascending, 1-1.5 dm. high, glabrous; leaves lanceolate, 6-14 mm. long, 2-3 mm. broad, acute at the apex, rounded or somewhat acutish at the base, glabrous or with few, stout, scattered, mostly appressed hairs above, glabrous beneath, sessile; stipules linear-lanceolate, 2 mm. long; calyxlobes triangular-ovate, ciliate; corolla 5 mm. high, the lobes ovate, obtuse; anthers ovate-lanceolate; style 3-lobed; fruit ellipsoid, 2.5 mm. high, 1.2 mm. broad, glabrous.

Along arroyo, Los Indios, Isle of Pines (*O. E. Jennings 355* in part, type); vicinity of Los Indios (*Britton & Wilson 15812*).

Mitracarpum depauperatum Britton & Wilson, sp. nov.

A diminutive, woody perennial, 2-5 cm. high, forming small tufts, the stems few-branched or simple, the internodes very short. Leaves narrowly linear, 6-15 mm. long, less than 1 mm. wide,

densely clustered, acute, sessile, glabrous; stipules deeply laciniate, about one-third as long as the leaves; calyx very small; corolla salverform, white, its tube cylindric, 2.5 cm. long, its limb spreading, 4-lobed, the lobes ovate, acute, nearly 1 mm. long.

Dry white sand, central districts; type from near Los Indios (*Britton & Wilson 14197*).

***Palicourea elongata* Britton & Wilson, sp. nov.**

A shrub 2 m. or more high; twigs, branches of the inflorescence, and pedicels minutely hispidulous with brownish hairs; leaves in whorls of threes, lanceolate or occasionally broadly oblanceolate, 12-19 cm. long, 4-6 cm. broad, acuminate at the apex, cuneate to somewhat rounded cuneate at the base, puberulent above on the midvein when young, puberulent beneath, especially on the midvein and lateral veins; stipules linear-lanceolate, 8-12 mm. long, ciliate; panicle elongate, 7-19 cm. high; calyx-lobes deltoid-ovate, ciliate; corolla puberulent, 7-10 mm. long, the lobes triangular-ovate; fruit broadly ovoid, 4-5 mm. long, 4-4.5 mm. broad, flattened.

Arroyo, Las Tunas (*Britton & Wilson 14749*, type); Arroyo, vicinity of San Pedro (*Britton & Wilson 15785*); Los Indios (*O. E. Jennings 332*).

***Elephantopus arenarius* Britton & Wilson, sp. nov.**

Plant 6-8 cm. high, the stem branching from the base; leaves cauline, linear, 2-4 cm. long, 1 mm. broad, involute, conspicuously ciliate at the broadened, clasping base with long hairs, entire; peduncles loosely hirsutulous, 2-3.5 cm. long; glomerules 5-6 mm. high; bracts broadly ovate to ovate-orbicular, cordate at the base with a linear, ligulate tip, 0.5-1 cm. long, reticulate-veined on the back, glabrous; scales acuminate, glabrous; achenes (immature) 2 mm. long; pappus-scales triangular to lanceolate, ciliate.

White sand, vicinity of Los Indios (*Britton & Wilson 14206*).

Closely related to *Elephantopus pratensis* C. Wright, but differing in the narrow involute leaves and linear ligulate tipped bracts.

***Erigeron purpuripes* Britton & Wilson, sp. nov.**

A low, scapose perennial. Leaves tufted, erect, the blades elliptic to oblong-obovate, 1-2 cm. long, pinnately few-veined, obtuse at the apex, narrowed at the base, ciliolate, puberulent or glabrate; petioles very slender, purple, 2 to 4 times as long as the blades; scapes nearly filiform, erect, appressed-pubescent, about

twice as long as the leaves; involucre 4 mm. high, subcylindric, its bracts in 2 or 3 series, linear, puberulent, the outer shorter than the inner; ligules white; disk-flowers tubular, 5-lobed, the lobes obtuse; achenes flattened, oblong or somewhat oblong-elliptic, minutely hispidulous; pappus-bristles in 1 series, barbellate.

In white sand, vicinity of Los Indios (*Britton & Wilson 14207*).

***Helenium scaposum* sp. nov.**

A low, pubescent, scapose perennial. Leaves several or many, densely tufted, short-petioled, oblong to spatulate, punctate, 1.5–3 cm. long, 6–10 mm. wide, rather strongly 5- to 7-nerved, entire or repand-dentate, obtuse or acute at the apex, narrowed or cuneate at the base; scapes rather stout, 5–11 cm. high; involucre about 5 mm. high; its bracts ovate-lanceolate, acute, appressed or little spreading; rays 10 to 12, bright yellow, obovate, 3-toothed, 5–8 mm. long; disk yellowish, depressed-globose, 8–12 mm. in diameter, its corollas 5-lobed, the lobes triangular-ovate; pappus scales of ray-flowers and disk-flowers alike, elliptic to obovate, lacerate, not aristate.

White sand pine-lands, west-central districts. Type from near Siguanea (*Britton & Wilson 14346*).

A plant with quite the floral structure of *Helenium*, but its scapose habit is aberrant, resembling that of some *Tetraneuris* species.

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STUDIES OF WEST INDIAN PLANTS—IX

NATHANIEL LORD BRITTON

NEW YORK
1917

Studies of West Indian plants—IX

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52. CLEOME PROCUMBENS JACQ. AND ITS RELATIVES

The small, simple-leaved Cleomes of the West Indies, form an interesting and peculiar group of the genus, very different in habit and aspect from the large, typical, compound-leaved ones. Seven species appear to be represented.

Annuals or biennials.

Pedicels filiform.

Leaves linear-oblong; pod subterete.

1. *C. Sloanei*.

Leaves filiform; pod compressed.

2. *C. guianensis*.

Pedicels very short; leaves very narrowly linear.

3. *C. stenophylla*.

Perennials with woody roots.

Pod acute or acuminate; leaves linear to oblong, acute or acuminate.

Leaves acuminate; pedicels half as long as the pods.

4. *C. procumbens*.

Leaves acute; pedicels as long as the pods or longer.

Petals about 4 mm. long; leaves oblong to oblong-lanceolate.

5. *C. Wrightii*.

Petals 8-10 mm. long; leaves narrowly linear.

6. *C. macrorhiza*.

Pod obtuse; leaves ovate or elliptic, obtuse or rounded.

7. *C. obtusa*.

1. CLEOME SLOANEI Urban, Symb. Ant. 5: 347. 1907

Grassy and sandy places, at low elevations, southern side of Jamaica.

This species is referred by Fawcett and Rendle, as previously by other authors, to *C. procumbens* Jacq., which is, apparently, confined to Hispaniola.

2. *CLEOME GUIANENSIS* Aubl. Pl. Guian. 2: 675. 1775

Sandy pine lands, Pinar del Rio, Cuba; northern South America.

3. *CLEOME STENOPHYLLA* Klotzsch; Urban, Symb. Ant. 4: 251. 1905

Plains at low elevations, southern and southwestern Porto Rico; St. Bart's; Bonaire; hillsides, Curaçao; Guiana.

4. *CLEOME PROCUMBENS* Jacq. Stirp. Am. 189. *pl.* 120. 1763

Hispaniola. Erroneously recorded from Cuba, and, apparently also erroneously referred to Jamaica, as Jacquin's figure of the type would seem to represent a well-marked species, not collected since its original discovery.

5. *CLEOME WRIGHTII* Urban, Symb. Ant. 5: 346. 1907

Sandy soil, Pinar del Rio and Isle of Pines, Cuba.

6. *CLEOME MACRORHIZA* Wright; Sauvalle, Anales Acad. Habana 5: 199. 1868

Pine-lands, Pinar del Rio, Cuba.

7. *Cleome obtusa* sp. nov.

Perennial by a slender woody root, glabrous; stems numerous, prostrate, simple or few-branched, slender, 5–15 cm. long. Leaves ovate or elliptic, 4–6 mm. long, rounded or obtuse at the apex, rounded at the base, the midvein prominent, the lateral venation obscure, the petioles 1–2 mm. long; peduncles slender or filiform, 4–8 mm. long; sepals obtuse, 2–2.5 mm. long; petals yellow, oblong or oblong-obovate, obtuse or acutish, 3–4 mm. long; stamens about two-thirds as long as the petals; filaments filiform; style about 1 mm. long; capsule elliptic, elliptic-obovate or oblong, compressed, 3–6 mm. long, 2–2.5 mm. wide, obtuse at the apex, somewhat narrowed at the base, few-several-seeded.

Dry and rocky soil in palm-barrens and savannas, Camaguey and Santa Clara, and in sand on Cayo Guayaba, Cuba. Type from savannas near Camaguey (*Britton & Cowell 13165*). Hitherto included in *C. Wrightii* Urban.

53. CHAMAECRISTA MOENCH IN THE WEST INDIES

Type species: *Chamaecrista nictitans* (L.) Moench.

- A.** Sepals rigid, scarious, many-nerved (*Diphyllae*). 1. *C. diphylla*.
- B.** Sepals membranous, scarcely nerved.
- a.** Prostrate herbs, the flowers on filiform peduncles.
- Leaflets only 1 pair, obovate; stipules cordate (*Rotundifoliae*). 2. *C. rotundifolia*.
- Leaflets 3-7 pairs, oblong to obovate; stipules lanceolate (*Pilosae*).
- Stems pilose. 3. *C. pilosa*.
- Stems appressed-pubescent. 4. *C. serpens*.
- b.** Erect, ascending or rarely prostrate herbs or shrubs.
1. Midvein of the leaflet central or excentric, not marginal.
- * Shrubs, with coriaceous or subcoriaceous leaves.
- † Leaflets many, 20-50 pairs, linear; stipules large; stem flexuous (*Flexuosae*). 5. *C. flexuosa*.
- †† Leaflets fewer, 2-12 pairs, oblong or obovate; stipules small; stem not flexuous (*Lineatae*).
- ‡ Foliage densely pubescent. 6. *C. grammica*.
- ‡‡ Foliage glabrous or puberulent.
- § Leaflets dull.
- Leaflets obovate or oblanceolate.
- Leaflets 2 or 3 pairs, 5 mm. long or less. 7. *C. obcordata*.
- Leaflets 3-11 pairs, 7-15 mm. long.
- Gland sessile. 8. *C. lineata*.
- Gland stalked. 9. *C. granulata*.
- Leaflets oblong.
- Leaflets acute, cuspidate. 10. *C. pinetorum*.
- Leaflets rounded and mucronulate at apex. 11. *C. jamaicensis*.
- §§ Leaflets shining.
- Leaflets oblong, or the upper obovate, 1.5 cm. long or less, strongly callous-margined.
- Leaflets glabrous; gland large, nearly sessile. 12. *C. portoricensis*.
- Leaflets ciliate; gland small, stalked. 13. *C. Tuerckheimii*.
- Leaflets elliptic to ovate to obovate, 1.5-3 cm. long, not callous-margined.
- Leaflets elliptic, acute. 14. *C. caribaea*.
- Leaflets ovate to obovate, obtuse, retuse, or mucronate.
- Leaflets 1-3 pairs, obovate, mostly retuse. 15. *C. inaguensis*.

- Leaflets 4-9 pairs, ovate to ovate-oblong, mostly obtuse. 16. *C. lucayana*.
- ** Herbs or shrubs, with membranous leaves (*Glandulosae*).
- † Flowers large, 2-4 cm. broad.
- Leaflets villous or pubescent beneath.
- Glands elongated, petiolar and also often between the leaflets; midvein of leaflets nearly central, the lateral veins many. 17. *C. glandulosa*.
- Glands short, sessile, petiolar only; midvein of leaflets excentric, the lateral veins few. 18. *C. Dussii*.
- Leaflets glabrous beneath.
- Leaflets oblong to linear; gland stipitate. 19. *C. Swartzii*.
- Leaflets obovate or oblong; gland sessile or stout-stipitate. 20. *C. polyadena*.
- †† Flowers small, seldom over 1 cm. broad.
- ‡ Petiolar glands sessile, or very short-stalked.
- Prostrate; leaflets 4-6 pairs. 21. *C. pygmaea*.
- Erect or ascending; leaflets 8 pairs or more.
- Plant densely hirsute all over. 22. *C. patellaria*.
- Plants glabrate or more or less villous.
- Pod black-banded and black-margined. 23. *C. fasciata*.
- Pod not black-banded.
- Leaflets 10-15 mm. long, the midvein little excentric. 24. *C. aeschinomene*.
- Leaflets 5-8 mm. long, the midvein very excentric.
- Petals 6 mm. long; plant sparingly short-pubescent. 25. *C. savannarum*.
- Petals 3 mm. long; plant villous. 26. *C. micrantha*.
- †† Petiolar glands distinctly stalked.
- Pod 3.5-4 mm. broad; pubescence widely spreading. 27. *C. riparia*.
- Pod 3 mm. broad or less.
- Petiolar glands often 2; leaflets oblong; plant glabrous, or pubescent only above. 28. *C. mirabilis*.
- Petiolar gland 1; leaflets linear or linear-oblong; plant pubescent or villous. 29. *C. Chamaecrista*.
2. Midvein of the leaflet approximate to its upper margin (*Strigillosae*).
- Petiolar gland small, subsessile.
- Leaves sparingly pubescent. 30. *C. strigillosa*.
- Leaves densely pilose. 31. *C. adenosperma*.

Petiolar gland stalked.

Pod glabrous or nearly so.

32. *C. pedicellaris*.

Pod short-pilose.

33. *C. Buchii*.

1. CHAMAECRISTA DIPHYLLA (L.) Greene, Pittonia 4: 28. 1899

Cassia diphylla L. Sp. Pl. 376. 1753.

TYPE LOCALITY: "In India."

DISTRIBUTION: Provinces of Santa Clara, Pinar del Rio and on Isle of Pines, Cuba; Hispaniola; Porto Rico; recorded by Grisebach from St. Kitts and St. Vincent; continental tropical America.

2. CHAMAECRISTA ROTUNDIFOLIA (Pers.) Greene, Pittonia 4: 31.
1899

Cassia rotundifolia Pers. Syn. 1: 456. 1805.

Cassia bifoliata DC.; Collad. Cass. 120. 1816.

TYPE LOCALITY: South America.

DISTRIBUTION: Provinces of Santa Clara and Pinar del Rio and on Isle of Pines, Cuba; Jamaica; continental tropical America.

ILLUSTRATION: Collad. Cass. pl. 9.

3. CHAMAECRISTA PILOSA (L.) Greene, Pittonia 4: 28. 1899

Cassia pilosa L. Syst. Ed. 10, 1017. 1759.

Cassia Milleri Collad. Cass. 132. 1816.

TYPE LOCALITY: Jamaica (Sp. Pl. Ed. 2, 540).

DISTRIBUTION: Province of Pinar del Rio and Isle of Pines, Cuba; Jamaica; northern South America.

4. CHAMAECRISTA SERPENS (L.) Greene, Pittonia 4: 29. 1899.

Cassia serpens L. Syst. Ed. 10, 1018. 1759.

TYPE LOCALITY: Jamaica (Sp. Pl. Ed. 2, 541).

DISTRIBUTION: Provinces of Havana and Pinar del Rio, Cuba; Jamaica; northern South America.

5. CHAMAECRISTA FLEXUOSA (L.) Greene, Pittonia 4: 27. 1899

Cassia flexuosa L. Sp. Pl. 379. 1753.

Chamaecrista amplistipulata Rose, Contr. Nat. Herb. 12: 267.
1909.

TYPE LOCALITY: Brazil.

DISTRIBUTION: Pinar del Rio and Isle of Pines, Cuba; continental tropical America.

ILLUSTRATION: Breyn, *pl.* 23.

6. CHAMAECRISTA GRAMMICA (Spreng.) Pollard, Field Col. Mus.
Bot. 2: 47. 1900

Cassia grammica Spreng. Neue Entd. 3: 55. 1822.

Cassia lineata brachyloba Griseb. Mem. Am. Acad. II. 8: 179.
1860.

TYPE LOCALITY: Maritime regions, Cuba and Hispaniola.

DISTRIBUTION: Cuba (according to Sprengel) and collected by Wright in Oriente; Hispaniola; Porto Rico; Little St. James Island, St. Jan.

The plant of southern Florida, referred to this species by Chapman and by Small, is distinct, according to the studies of Dr. Pennell.

7. *Chamaecrista obcordata* (Sw.).

Cassia obcordata Sw.; Wikstr. Vetensk. Acad. Handl. 1825: 429.
1826.

TYPE LOCALITY: St. Bart's.

DISTRIBUTION: St. Bart's; I refer, with doubt, Dr. Boldinghs' No. 5288B from St. Martin to this species, which he recorded as *Cassia polyadena* DC. (Fl. Nederl. West Ind. 211); the St. Martin plant is more nearly related to *C. lineata* than to *C. polyadena*. Bentham indicates the same affinity for the plant of St. Bart's (Trans. Linn. Soc. 27: 572). No modern collections have been made on St. Bart's; it lies close to St. Martin.

8. CHAMAECRISTA LINEATA (Sw.) Greene, Pittonia 4: 31. 1899

Cassia lineata Sw. Prodr. 66. 1788.

Cassia cuneata Griseb. Cat. Pl. Cub. 80. 1866. Not *C. cuneata* DC.

TYPE LOCALITY: Jamaica.

DISTRIBUTION: Jamaica; Cuban provinces of Oriente, Camaguey and Santa Clara, and Isle of Pines; Hispaniola; Bahamas. Specimens from the south coast of Santa Clara, Cuba, have puberulent foliage.

9. *CHAMAECRISTA GRANULATA* (Urban) Britton, Ann. Missouri Bot. Gard. 2: 41. 1915

Cassia portoricensis granulata Urban, Symb. Ant. 1: 318. 1899.

Chamaecrista portoricensis granulata Cook & Collins, Contr. Nat. Herb. 8: 113. 1903.

TYPE LOCALITY: Near Salinas de Cabo Rojo, Porto Rico.

DISTRIBUTION: Southwestern Porto Rico; Mona.

10. *Chamaecrista pinetorum* sp. nov.

Shrubby, 4 dm. high, or higher, the branches slender, densely appressed-pubescent with brownish hairs. Stipules linear-lanceolate, striate, long-acuminate, 4-6 mm. long; leaves 3-5 cm. long, the rachis appressed-pubescent; leaflets 9 pairs or fewer, subcoriaceous, linear to linear-oblong, 10-15 mm. long, 2-4 mm. wide, glabrous on both sides, dull, acute and cuspidate at the apex, obliquely rounded at the base, closely pinnately veined, the prominent midvein nearly central, the petiolar gland slender-stalked; peduncles filiform, appressed-pubescent, 2-bracted, about 3 cm. long; sepals lanceolate, acuminate, 10-12 mm. long; petals obovate, somewhat shorter than the sepals or as long; ovary appressed-pubescent.

Pine woods, near Constanza, Santo Domingo, at 1,200 m. alt. (*Tuerckheim* 2887).

11. *CHAMAECRISTA JAMAICENSIS* Britton, Bull. Torrey Club 42: 515. 1915

TYPE LOCALITY: South slope of Long Mountain, Jamaica.

DISTRIBUTION: Southern side of Jamaica.

12. *CHAMAECRISTA PORTORICENSIS* (Urban) Cook & Collins, Contr. Nat. Herb. 8: 113. 1903

Cassia portoricensis Urban, Symb. Ant. 1: 317. 1899.

Cassia portoricensis callosa Urban, Symb. Ant. 1: 317. 1899.

Chamaecrista portoricensis callosa Cook & Collins, Contr. Nat. Herb. 8: 113. 1903.

TYPE LOCALITY: Near Guayanilla, Porto Rico.

DISTRIBUTION: Southern and western Porto Rico.

13. *Chamaecrista Tuerckheimii* sp. nov.

Shrubby, with a deep woody root; stems slender, villous-pubescent, 8-10 cm. long. Stipules obliquely ovate-lanceolate, acuminate, striate, 2-3 mm. long; leaves 2-2.5 cm. long, the rachis villous-pubescent; leaflets 6 or 7 pairs, linear-oblong, to oblong-ob lanceolate, 6-8 mm. long, about 2 mm. wide, ciliate, shining, rounded or subtruncate and mucronulate at the apex, obliquely rounded at the base, pinnately veined with the prominent midvein somewhat excentric, the petiolar gland short-stalked; peduncles slender, villous, about 2 cm. long; sepals lanceolate, acuminate, villous, 7-8 mm. long; petals obovate, about twice as long as the sepals; legume linear, narrowed at both ends, nearly glabrous, 1.8 cm. long.

Near Maniel de Ocoa, Santo Domingo, in fields, 300 m. alt. (*Tuerckheim* 3680).

14. *Chamaecrista caribaea* (Northrop)

Cassia caribaea Northrop, Mem. Torrey Club 12: 39. 1902.

TYPE LOCALITY: Fresh Creek, Andros, Bahamas.

DISTRIBUTION: Andros, New Providence and Cat Island, Bahamas.

ILLUSTRATION: Northrop, *loc. cit.* pl. 6.

15. *Chamaecrista inaguensis* comb. nov.

Cassia inaguensis Britton, Bull. N. Y. Bot. Gard. 3: 443. 1905.

TYPE LOCALITY: Inagua, Bahamas.

DISTRIBUTION: Inagua, South Caicos, Grand Turk, and Ambergris Cay, Bahamas.

16. *Chamaecrista lucayana* comb. nov.

Cassia lucayana Britton, Bull. N. Y. Bot. Gard. 4: 138. 1906.

TYPE LOCALITY: Cay north of Wide Opening, Exuma Chain, Bahamas.

DISTRIBUTION: Great Bahama, Cat Island, Conception, Rum Cay, and Exuma Chain, Bahamas.

17. *CHAMAECRISTA GLANDULOSA* (L.) Greene, Pittonia 4: 28. 1899

Cassia glandulosa L. Syst. Ed. 10, 1017. 1759.

Cassia virgata Sw. Prodr. 66. 1788.

?*Cassia stricta* Schrank, Hort. Monac. 1: *pl.* 34. 1819.

Chamaecrista virgata Greene, Pittonia 4: 31. 1899.

TYPE LOCALITY: Jamaica.

DISTRIBUTION: Jamaica.

ILLUSTRATIONS: Bot. Mag. *pl.* 3435; Schrank, *loc. cit.*

Linnaeus included, in his citations of synonyms of this species, several others, but his description of it, together with his having received a Jamaica specimen from the collection of Patrick Browne, prior to his publication, as I am informed by Dr. B. Daydon Jackson, Secretary of the Linnaean Society of London, show that the name is to be restricted to the Jamaica plant. Subsequent authors have confused it with species from other islands and from continental tropical America. The identity of *Cassia virgata* Sw. was established for me by Mr. William Fawcett at the British Museum of Natural History. *Cassia stricta* Schrank, from the illustration and the Jamaica habitat, appears referable here, but Schrank's description of the plant is not altogether conclusive; he says the root is annual.

18. *Chamaecrista Dussii* sp. nov.

Perennial, villous-pubescent, erect, simple, 5-9 dm. high, somewhat woody. Stipules narrowly lanceolate, strongly striate, 10-12 mm. long; leaves 5-7 cm. long; petiolar gland close to the lowest leaflets, scutelliform, sessile, slightly concave, nearly 1 mm. in diameter; leaflets about 17 pairs, linear, pubescent on both sides, 10-18 mm. long, 2-3 mm. wide, obtuse, mucronate, inequilateral, the midvein excentric, the lateral veins few and distant; peduncles 4-6 mm. long; sepals lanceolate, acuminate, pubescent, about 7 mm. long; petals obovate, 8-10 mm. long; pod linear, slightly curved, villous-pubescent, obliquely short-tipped, 3 cm. long, 5 mm. wide.

Guadeloupe and Martinique. Type from Trou-Vaillant, Parnasse, Martinique (*Père Duss 1121*).

19. *Chamaecrista Swartzii* (Wickstr.)

Cassia Swartzii Wikstr. Vetensk. Acad. Handl. 1825: 430. 1826.

Chamaecrista complexa Pollard, Field Col. Mus. Bot. 2: 47. 1900.

TYPE LOCALITY: St. Bart's.

DISTRIBUTION: Porto Rico; Vieques; Culebra; St. Thomas; St. Jan; Tortola; St. Croix; Saba; St. Bart's; St. Kitt's; Dominica; Guadeloupe; Grenada.

The species has been much confused with the Jamaican *C. glandulosa*.

20. **Chamaecrista polyadena** (DC.)

Cassia polyadena DC. Mém. Soc. Hist. Nat. Gen. 2: 132. 1824.

TYPE LOCALITY: Guadeloupe.

DISTRIBUTION: Guadeloupe; Dominica; Martinique; Barbadoes.

My identification of this species is based on my examination of the type, some years ago, in the Candolleian herbarium at Geneva, Switzerland. Notwithstanding the usually sessile petiolar gland and the relatively broader leaflets, I am not confident that this species is distinct from the preceding one.

21. **Chamaecrista pygmaea** (DC.)

Cassia pygmaea DC. Mém. Soc. Hist. Nat. Gen. 2: 131. 1824.

TYPE LOCALITY: Santo Domingo.

DISTRIBUTION: Hispaniola.

Referred by Bentham to *Cassia procumbens* L., which is a synonym of *C. nictitans* L. of continental North America, as previously indicated by me (Bull. Torrey Club 43: 463).

22. **CHAMAECRISTA PATELLARIA** (DC.) Greene, Pittonia 4: 32.
1899

Cassia patellaria DC.; Collad. Cass. 125. 1816.

TYPE LOCALITY: Cayenne.

DISTRIBUTION: Jamaica; all provinces of Cuba and on the Isle of Pines; continental tropical America.

ILLUSTRATION: Collad. Cass. *pl.* 16.

23. **CHAMAECRISTA FASCIATA** Britton, Bull. Torrey Club 37: 352.
1910

TYPE LOCALITY: Between Bath and Cuna-Cuna Gap, Jamaica.

DISTRIBUTION: Jamaica; Cuban provinces of Oriente, Camaguey, Santa Clara and Havana.

24. **CHAMAECRISTA AESCHINOMENE** (DC.) Greene, Pittonia 4: 32.
1899

Cassia aeschinomene DC.; Collad. Cass. 127. 1816.

Chamaecrista Millspaughii Pollard, Field Col. Mus. Bot. 2: 47.
1900.

Cassia mimosoides aeschynomene Benth. Trans. Linn. Soc. 27: 579. 1871.

TYPE LOCALITY: Santo Domingo.

DISTRIBUTION: Jamaica; all provinces of Cuba; Hispaniola; Porto Rico.

ILLUSTRATION: Collad. Cass. *pl.* 17.

25. CHAMAECRISTA SAVANNARUM Britton, Bull. Torrey Club 43: 463. 1916

TYPE LOCALITY: Near Siguanea, Isle of Pines, Cuba.

DISTRIBUTION: Savannas and pine-lands, Pinar del Rio and Isle of Pines, Cuba.

26. CHAMAECRISTA MICRANTHA Britton, Bull. Torrey Club 43: 463. 1916

TYPE LOCALITY: Near San Pedro, Isle of Pines, Cuba.

DISTRIBUTION: Pine-lands and savannas, Pinar del Rio and Isle of Pines, Cuba. Referred by Grisebach to *Cassia pygmaea* DC.

27. *Chamaecrista riparia* (HBK.)

Cassia riparia HBK. Nov. Gen. 6: 369. 1824.

TYPE LOCALITY: Banks of the Magdalena River near Mompox.

DISTRIBUTION: Jamaica; province of Havana, Cuba; Grand Cayman; Andros, New Providence and Eleuthera, Bahamas; northern South America and recorded from Central America.

The plant of the Bahamas was referred by me with some doubt (Bull. N. Y. Bot. Gard. 3: 443) to *Cassia aspera* Muhl., which it closely resembles, except in the petiolar gland. Cuban and Jamaican specimens differ from the Bahaman in having the gland somewhat longer-stalked.

I have not been able to study an authentic specimen of *C. riparia*. Bentham's record of it as West Indian was based upon a plant collected in Cuba by Liebmann, preserved in the Kew herbarium.

28. CHAMAECRISTA MIRABILIS Pollard, Proc. Biol. Soc. Wash. 15: 19. 1902

Cassia mirabilis Urban, Symb. Ant. 4: 276. 1905.

TYPE LOCALITY: Rio Piedras, Porto Rico.

DISTRIBUTION: Northern coastal plain of Porto Rico.

29. **Chamaecrista Chamaecrista** (L.)

Cassia Chamaecrista L. Sp. Pl. 379. 1753.

Cassia diffusa DC. Mém. Soc. Hist. Nat. Gen. 2: 130. 1824.

Cassia smaragdina Macf. Fl. Jam. 1: 347. 1837.

Chamaecrista diffusa Britton, Ann. Missouri Bot. Gard. 2: 41. 1915.

TYPE LOCALITY: Curaçao.

DISTRIBUTION: Bahamas; Jamaica; Cuba; ? Hispaniola; Porto Rico; St. Jan; St. Croix; St. Kitts; Guadeloupe; Grenada; Curaçao; Margarita.

ILLUSTRATIONS: Breyn, *pl.* 24; Schrank, Hort. Monac. *pl.* 33.

The species has been much confused with the annual *C. nictitans* of eastern continental North America.

The recognition of the plant of Curaçao as typical *Cassia Chamaecrista* brings *C. diffusa* into its synonymy.

30. **Chamaecrista strigillosa** (Benth.)

Cassia strigillosa Benth. Trans. Linn. Soc. 27: 581. 1871.

TYPE LOCALITY: Cuba.

DISTRIBUTION: Province of Oriente, Cuba; Santo Domingo (according to Benthham). Referred by Grisebach to *Cassia serpens* L.

31. **Chamaecrista adenosperma** (Urban)

Cassia adenosperma Urban, Symb. Ant. 5: 362. 1908.

TYPE LOCALITY: Sierra del Palo Quemado, Santo Domingo.

DISTRIBUTION: Known only from the type locality, and, to me, only from the description.

32. **Chamaecrista pedicellaris** (DC.)

Cassia pedicellaris DC. Prodr. 2: 504. 1825.

TYPE LOCALITY: Santo Domingo.

DISTRIBUTION: Hispaniola.

33. **Chamaecrista Buchii** (Urban)

Cassia Buchii Urban, Symb. Ant. 5: 361. 1908.

TYPE LOCALITY: Near Gonaives, Haiti.

DISTRIBUTION: Known only from the type locality and, to me, only from the description.

54. THE GENUS *LEUCOCROTON* GRISEB.

A Cuban genus, of which four species have been described.
L. Wrightii Griseb. is the type species.

A. Leaves pinnately veined.

Leaves chartaceous.

Pistillate inflorescence 1-flowered at the summit; staminate flowers racemose.

1. *L. Wrightii*.

Pistillate flowers racemose, the staminate glomerate-spicate.

2. *L. flavicans*.

Leaves coriaceous, linear-oblong or linear.

Leaves densely whitish-scurfy beneath.

Leaves strongly revolute-margined, not reticulate-veined beneath, coarsely reticulate-veined above.

3. *L. revolutus*.

Leaves slightly revolute-margined, strongly reticulate-veined beneath, finely reticulate-veined above.

4. *L. saxicola*.

Leaves glabrous on both sides.

Leaves mostly rounded and mucronulate at the apex, dull, 6-10 mm. wide.

5. *L. angustifolius*.

Leaves emarginate, shining, 3-5 mm. wide.

6. *L. linearifolius*.

B. Leaves palmately 5-veined.

7. *L. viensis*.

1. *LEUCOCROTON WRIGHTII* Griseb. Abh. Kön. Gesell. Wiss. Götting. 9: 21. 1860

Woodlands and banks of streams, Oriente; Pinar del Rio.

2. *LEUCOCROTON FLAVICANS* Muell. Arg. in DC. Prodr. 15²: 757. 1866

L. flavicans latifolius Muell. Arg. loc. cit. 1866.

L. flavicans angustifolius Muell. Arg. loc. cit. 1866.

Serpentine hillsides, Matanzas, Havana. The locality of C. Wright's no. 1994 is not recorded.

3. *LEUCOCROTON REVOLUTUS* Wright; Sauvalle, Anales Acad. Habana 7: 154. 1870

Known only from the type locality between La Mulata and La Palme, Pinar del Rio.

4. *Leucocroton saxicola* sp. nov.

A shrub, 1-3.3 m. high, much branched, the twigs short and stout. Leaves coriaceous or subcoriaceous, narrowly oblong or oblanceolate, 3-11 cm. long, 2 cm. wide or less, rounded or emarginate and apiculate at the apex, narrowed at the base, finely

reticulate-veined, glabrous, and with impressed midvein above, strongly reticulate-veined, minutely scurfy and with prominent midvein beneath, the petioles 3–6 mm. long; staminate flowers racemose-spicate in the upper axils, the inflorescence 2–3 cm. long; bracts lanceolate, acute, about 1.5 mm. long; pedicels 1–2 mm. long; buds subglobose, lepidote, 1 mm. in diameter.

Rocky banks and hillsides, mountains of northern Oriente. Type collected at Arroyo del Medio, above the falls, 450–550 m. alt. (*Shafer 3466*).

Similar to *L. revolutus*, but the venation of the leaves is quite different. In *L. revolutus* only the pistillate inflorescence is known; in *L. saxicola* only the staminate.

5. *Leucocroton angustifolius* sp. nov.

A much-branched, spreading shrub, about 6 dm. high, the twigs bearing distant leaf-scars. Leaves scattered, coriaceous, glabrous, linear or linear-oblong, 5–10 cm. long, 13 mm. wide or less, revolute-margined, rounded and mucronulate or emarginate at the apex, narrowed at the base, the midvein impressed above, prominent beneath, the primary lateral veins numerous, diverging at nearly right angles from the midvein, both surfaces reticulate-veined, the petioles 4–6 mm. long; pistillate flowers solitary at the ends of clustered, terminal, slender, scaly, bracted peduncles 2–3 cm. long; bracts lanceolate, numerous, acute, ascending, 1.5 mm. long; calyx-segments lanceolate, similar to the bracts; ovary depressed-globose, obtusely 3-lobed, lepidote; styles stout, recurved.

Rio Guayabo, above the falls, Oriente, 450–550 m. alt. (*Shafer 3626*).

6. *Leucocroton* (?) *linearifolius* sp. nov.

A much-branched shrub about 6 dm. high, the twigs short, stiff, covered by leaf-scars. Leaves densely clustered at the ends of the twigs, coriaceous, glabrous, linear, 3–6 cm. long, 3–5 mm. wide, shining on both sides, emarginate at the apex, gradually narrowed to the base, short-petioled, the midvein impressed above, prominent beneath, the lateral veins very numerous and close together, prominent on both surfaces, diverging nearly at right angles to the midvein, simple, or forked; staminate flowers few, in short, solitary slender-peduncled racemes shorter than the leaves, the pedicels filiform, 2 mm. long, the bractlets linear-lanceolate; bud of the staminate flower globose, 1 mm. in diameter.

Rocky bank of river at Camp La Barga, Oriente, 450 m. alt. (*Shafer 4144*).

7. *LEUCOCROTON VIRENS* Griseb. Nachr. Gesell. Wiss. Götting.
1865: 175

Mountain woodlands, Oriente. The foliage of this species is very different from that of the others.

55. *PASSIFLORA* IN CUBA

Type species: *Passiflora incarnata* L.

- A. Flowers subtended by 3 large foliaceous bracts [GRANDILLA].
Bracts united below the middle; leaves ovate, entire, membranous. 1. *P. maliformis*.
Bracts distinct to the base.
Branches sharply 4-angled; leaves ovate, entire, membranous. 2. *P. quadrangularis*.
Branches not 4-angled.
Leaves entire, subcoriaceous, glabrous. 3. *P. laurifolia*.
Leaves lobed or parted.
Leaves pedately parted, membranous, pubescent, the segments serrate. 4. *P. pedata*.
Leaves obtusely 3-lobed, glabrous, the lobes entire. 5. *P. pallens*.
- B. Flowers subtended by small or pectinate-pinnatifid bracts, or bractless.
1. Flower-tube cylindric or cylindric-campanulate; corona not plicate [MURUCUJA].
Leaves entire, ovate to elliptic. 6. *P. cuprea*.
Leaves lobed or subtruncate.
Leaves 2-lobed or subtruncate.
Leaves membranous, not reticulate-veined, deeply 2-lobed, the lobes acute. 7. *P. nipensis*.
Leaves coriaceous, reticulate-veined, the lobes obtuse or rounded, or apex subtruncate. 8. *P. cubensis*.
Leaves 3-lobed at the apex. 9. *P. Shaferi*.
2. Flower-tube short or none; corona longitudinally plicate [PLECTROSTEMMA].
- A. Petals none.
Leaves 3-divided, the segments stalked, 3-cleft. 10. *P. Berteriana*.
Leaves lobed or entire. 11. *P. pallida*.
- B. Petals present.
- a. Flowers subtended by pinnatifid bracts.
Leaves membranous, flaccid. 12. *P. foetida*.
Leaves chartaceous.
Plant densely velvety-pubescent. 13. *P. gossypifolia*.
Plants glabrous, usually with some stalked glands. 14. *P. pseudociliata*.
- b. Bracts small, not pectinate-pinnatifid.
* Peduncles elongated, 1-flowered, longer than the leaves. 15. *P. penduliflora*.

- ** Peduncles much shorter than the leaves.
 Leaves 2-lobed, mostly broader than long.
 Flowers solitary, slender-peduncled, 3-4 cm. broad; fruit 3-5 cm. in diameter. 16. *P. rubra*.
 Flowers clustered in the axils, 1.5-2 cm. broad, very short-peduncled, the pedicels slender; fruit about 8 mm. in diameter. 17. *P. sexflora*.
 Leaves entire or bluntly 3-lobed, longer than broad.
 Leaves oblong or oblong-lanceolate, entire, rounded at the base. 18. *P. multiflora*.
 Leaves broadly ovate, obtusely 3-lobed, mostly cordate at the base. 19. *P. holosericea*.
 C. Published species not grouped.
 Leaves ovate to elliptic, dentate. 20. *P. dasyadenia*.
 D. Known only from foliage. Leaves deeply 3-lobed, the lobes dentate. 21. A plant of the Isle of Pines.

1. PASSIFLORA MALIFORMIS L. Sp. Pl. 956. 1753

TYPE LOCALITY: Near Port de Paix, Santo Domingo.

DISTRIBUTION: Oriente, collected by Wright:—Hispaniola to Barbadoes; Jamaica; South America. Perhaps not indigenous in Cuba.

2. PASSIFLORA QUADRANGULARIS L. Syst. Ed. 10, 1248. 1759

TYPE LOCALITY: Jamaica.

DISTRIBUTION: Uncommon at Santiago de las Vegas (*Van Hermann 616*):—Native of Nicaragua; widely cultivated in tropical America, and locally spontaneous.

3. PASSIFLORA LAURIFOLIA L. Sp. Pl. 956. 1753

TYPE LOCALITY: Surinam.

DISTRIBUTION: Thicket, upper valley of the Rio Navas, Oriente (*Shafer 4411*):—native from St. Thomas and St. Jan to Trinidad and South America. Spontaneous after cultivation in Hispaniola and Jamaica.

4. PASSIFLORA PEDATA L. Sp. Pl. 960. 1753

TYPE LOCALITY: Santo Domingo.

DISTRIBUTION: Woods and thickets, Santa Clara, Pinar del Rio:—Hispaniola; northern South America.

5. *PASSIFLORA PALLENS* Poepp.; Masters in Mart. Fl. Bras. 13¹:
567. *pl.* 128, *f.* 4. 1872

TYPE LOCALITY: Cuba.

DISTRIBUTION: Thickets, Havana, Pinar del Rio:—Florida; Venezuela.

Recorded by Grisebach and by Sauvalle as *P. stipulata* Aubl.

6. *PASSIFLORA CUPREA* L. Sp. Pl. 955. 1753

TYPE LOCALITY: New Providence, Bahamas.

DISTRIBUTION: Near Baracoa, Oriente; cays of northern Camaguey:—Bahamas.

7. *Passiflora nipensis* sp. nov.

Glabrous, glandless, slender, 8 dm. long or longer. Leaves cuneate, 2-lobed to the middle or beyond, 1.5–3 cm. long, rather strongly 3-nerved, the nerves impressed above, prominent beneath, excurrent, the secondary venation sparse and slender, the lobes lanceolate, acute, the slender petioles 2.5–5 mm. long; tendrils filiform, 2–4 cm. long; peduncles solitary or geminate in the axils, 10–14 mm. long; fruit globose, dark blue, about 1.5 cm. in diameter; seeds oblong, transversely ridged, about 3 mm. long.

Open dry situations in pine lands, Sierra Nipe near Woodfred, Oriente, 500–650 m. alt. (*Shafer 3554*).

8. *PASSIFLORA CUBENSIS* Urban, Symb. Ant. 3: 326. 1902

Passiflora coriacea A. Rich. in Sagra, Hist. Cub. 10: 288. 1845.
Not Juss.

TYPE LOCALITY: Cuba.

DISTRIBUTION: Serpentine barrens, savannas and coastal thickets, Oriente, Camaguey, Santa Clara, Havana. Endemic.

Referred by Grisebach to *P. murucuja* L. and to *P. oblongata* Sw. The species is variable in leaf-form.

9. *Passiflora Shaferi* sp. nov.

A glabrous vine, about 2 m. long. Leaves thin, elliptic-ovate, 4–5 cm. long, bluntly and shallowly 3-lobed at the apex, rounded or obtuse at the base, strongly 3-nerved, each nerve extending to a lobe and scarcely, if at all, excurrent, with 2 weaker short basal nerves, both surfaces reticulate-veined, the upper

surface somewhat shining, the lower dull, the glandless petioles 4-7 mm. long; peduncles mostly 2 together in the axils, 1-2 cm. long; bractlets subulate, 1.5-2 mm. long; flowers about 3 cm. long, red, the tube cylindric, 1-1.5 cm. long; fruit subglobose, about 1 cm. in diameter.

Between Navas and Camp Buena Vista, Oriente, at 650 m. alt. (*Shafer 4466*).

10. *PASSIFLORA BERTERIANA* Balb.; DC. Prodr. 3: 325. 1828

TYPE LOCALITY: Santo Domingo.

DISTRIBUTION: Recorded by Grisebach as collected in Cuba by Wright:—Santo Domingo.

11. *PASSIFLORA PALLIDA* L. Sp. Pl. 955. 1753

Passiflora minima L. Sp. Pl. 959. 1753.

Passiflora suberosa L. Sp. Pl. 958. 1753.

Passiflora hirsuta L. Sp. Pl. 958. 1753.

Passiflora angustifolia Sw. Prodr. 97. 1788.

Passiflora hederacea Cav. Diss. 10: 448. 1790.

TYPE LOCALITY: Santo Domingo.

DISTRIBUTION: Banks, thickets and hillsides, all provinces and Isle of Pines:—Florida; Bermuda; West Indies and tropical continental America. The many races differ in leaf-form and pubescence.

12. *PASSIFLORA FOETIDA* L. Sp. Pl. 959. 1753

TYPE LOCALITY: Dominica.

DISTRIBUTION: Thickets and roadsides, Oriente, Havana, Pinar del Rio, Isle of Pines:—West Indies; continental tropical America; Old World tropics.

13. *PASSIFLORA GOSSYPIFOLIA* Desv. in Hamilt. Prodr. Pl. Ind. Occ. 48: 1825

P. foetida gossypifolia Masters in Mart. Fl. Bras. 13¹: 582. 1872.

TYPE LOCALITY: Not cited, presumably West Indian.

DISTRIBUTION: Dry hillsides, southern Oriente:—continental tropical America.

14. *Passiflora pseudociliata* sp. nov.

? *Passiflora ciliata polyadena* Griseb. Cat. Pl. Cub. 285. 1866.

Herbaceous, glabrous, 2 m. long or less. Leaves membranous, but not flaccid, variously 3-lobed, or sometimes 5-lobed, 2-8 cm. broad, bearing few or many slender-stalked glands, or glandless, the lobes oblong, acute or obtuse, few-toothed or entire, the slender petioles 1-5 cm. long; peduncles solitary in the axils, longer than the petioles, sometimes nearly as long as the leaves; bracts pectinate-pinnatifid; flowers blue, 4-6 cm. broad; petals narrowly oblong, blunt; crown-processes filiform, much shorter than the petals; fruit inflated, bladdery, ellipsoid or subglobose, red, 3-6 cm. long, short-stipitate, longer than the bracts.

Barren hillsides and coastal thickets, Camaguey, Santa Clara, Matanzas, Havana, Pinar del Rio.

Type from rocky soil in savanna near Camaguey (*Britton & Cowell 13155*).

Referred by Grisebach to *P. ciliata* Ait., and by Combs to *P. foetida* L.

Specimens from the Sierra Nipe, Oriente, with large leaves and fruit (*Shafer 3081, 3618*) are doubtfully referred to *P. ciliata* Ait., but they do not show the bracts, which, in *P. ciliata* of Jamaica, are as long as the fruit or longer.

15. *PASSIFLORA PENDULIFLORA* Bert.; DC. Prodr. 3: 326. 1828

* TYPE LOCALITY: Jamaica.

DISTRIBUTION: Coastal woods and thickets, Oriente, Camaguey:—Jamaica.

16. *PASSIFLORA RUBRA* L. Sp. Pl. 956. 1753

TYPE LOCALITY: Martinique.

DISTRIBUTION: Banks and thickets at lower and middle elevations, Oriente, Camaguey, Santa Clara, Matanzas, Havana:—West Indies; continental tropical America.

The *Passiflora pubescens* HBK., recorded as Cuban by A. Richard, is, presumably, this species.

17. *PASSIFLORA SEXFLORA* Juss. Ann. Mus. Paris 6: 110. pl. 37, f. 1. 1805

TYPE LOCALITY: Santo Domingo.

DISTRIBUTION: Thickets and hillsides, Oriente, Santa Clara:—

Florida; Jamaica; Hispaniola; Porto Rico; recorded from St. Kitts; Mexico and Central America.

18. *PASSIFLORA MULTIFLORA* L. Sp. Pl. 956. 1753

TYPE LOCALITY: Near Port de Paix, Santo Domingo.

DISTRIBUTION: Rocky banks and coastal thickets, Oriente, Camaguey, Santa Clara, Pinar del Rio, Isle of Pines:—Florida, Bahamas; Hispaniola to Tortola; recorded from Costa Rica.

19. *PASSIFLORA HOLOSERICEA* L. Sp. Pl. 958. 1753

Passiflora reticulata C. Wright; Sauvalle, Anales Acad. Habana 6: 96. 1869.

TYPE LOCALITY: Vera Cruz [Mexico].

DISTRIBUTION: Rocky hillsides and coastal thickets, Matanzas, Pinar del Rio:—Mexico.

20. *PASSIFLORA DASYADENIA* Urban, Symb. Ant. 3: 328. 1902

TYPE LOCALITY: Near El Aji [Oriente].

DISTRIBUTION: Type locality and collected also on the Sierra de Anafe, Pinar del Rio (*Wilson & Leon 11534*); flowers of both the Oriente and the Pinar del Rio plant are unknown.

21. *PASSIFLORA*

A high climbing, sparingly pubescent vine. Petioles slender, 2-4 cm. long, bearing 2 small glands below the middle; leaves subchartaceous, deeply 3-lobed, subtruncate at base, 10 cm. long or less, the oblong lobes 1-3 cm. wide, acute, dentate, loosely reticulate-veined.

Coastal plain, San Juan, Isle of Pines (*Britton & Wilson 15476*).

Passiflora incarnata L. of eastern continental North America is recorded by A. Richard (Sagra, Hist. Cub. 10: 289) as having been found in Cuba, but I have no other evidence of its occurrence there.

56. *RONDELETIA* IN CUBA

Type species: *Rondeletia americana* L.

A. Capsule globose to globose-pyriform.

1. Inflorescence terminal or terminal and axillary.

a. Twigs strigose.

Cymes several-many-flowered; leaves elliptic to ovate-elliptic, 3-8 cm. long.

1. *R. odorata*.

Peduncles 1-3-flowered; leaves oblong, 5-20 mm. long.

2. *R. microphylla*.

b. Twigs glabrous or puberulent.

* Pedicels very slender or filiform.

† Leaves small, 1-2.5 cm. long; peduncles 1- to few-flowered.

Calyx-lobes dilated above.

Leaves ovate, rounded or subcordate at the base; calyx-lobes little dilated.

3. *R. Shaferi*.

Leaves oblong, oval or obovate, narrowed or obtuse at the base; calyx-lobes much dilated.

Wholly glabrous; petioles 1-2 mm. long.

4. *R. peduncularis*.

Petioles ciliate, 4-7 mm. long.

5. *R. pachyphylla*.

Calyx-lobes linear or subulate, not dilated.

Foliage puberulent.

6. *R. pedicellaris*.

Foliage glabrous.

7. *R. alaternoides*.

†† Leaves up to 7 cm. long; inflorescence several- to many-flowered.

8. *R. subglabra*.

** Pedicels stout, short.

† Leaves petioled.

Capsule subglobose or short-pyriform.

Corolla densely silky-pubescent.

9. *R. brachycarpis*.

Corolla glabrous or with a few scattered hairs.

Calyx-teeth deltoid, minute.

10. *R. stellata*.

Calyx-teeth ovate or oblong.

Petioles slender; capsule subglobose.

11. *R. angustata*.

Petioles stout; capsule subpyriform.

12. *R. canellaefolia*.

Capsule oblong, about twice as long as thick; leaves elongated, petioled.

13. *R. calcicola*.

†† Leaves sessile, oblong-oblancoate; capsule short-pyriform.

14. *R. yamuriensis*.

2. Inflorescence axillary or lateral.

a. Peduncles elongated, often as long as the leaves or longer.

Leaves sessile, cordate, 5-8 cm. long.

15. *R. correifolia*.

Leaves petioled, 3-5 cm. long.

Petioles about 2 mm. long.

16. *R. Lindeniana*.

Petioles 8-12 mm. long.

Stipules triangular, obtuse; leaves obtuse or rounded at the base.

17. *R. nimanimae*.

Stipules linear-subulate, broadened below; leaves rounded at the base.

18. *R. Leoni*.

b. Peduncles short, much shorter than the leaves.

* Leaves membranous to chartaceous; inflorescence mostly few- to several-flowered, rarely 1-flowered.

- † Leaves faintly reticulate-veined beneath or not reticulate-veined.
 Leaves glabrous, or merely puberulent, the venation obscure. 19 *R. chamaebuxifolia*.
 Leaves densely strigose-pubescent beneath, pinnately veined. 20. *R. intermixta*.
- †† Leaves strongly reticulate-veined beneath.
 ‡ Leaves ovate to elliptic.
 Leaves rounded at the apex.
 Calyx-lobes triangular; leaves 4 cm. long or less, the petioles stout. 21. *R. lomensis*.
 Calyx-lobes ovate-oblong; leaves 2 cm. long or less, the petioles slender. 22. *R. baracoensis*.
 Leaves acute or acutish at the apex; inflorescence subcapitate.
 Inflorescence subsessile. 23. *R. rigida*.
 Inflorescence manifestly peduncled. 24. *R. nipensis*.
- ‡‡ Leaves oblong.
 Calyx-lobes linear, linear-lanceolate or ovate, acute or acutish.
 Leaves 1 cm. long or less. 25. *R. Rugelii*.
 Leaves 1.5-6 cm. long. 26. *R. Combsii*.
 Calyx-lobes broadly ovate, rounded or obtuse.
 Leaves tomentulose beneath. 27. *R. camarioca*.
 Leaves strigose on the veins beneath. 28. *R. insularis*.
- ** Leaves coriaceous, mostly small; peduncles mostly 1-flowered.
 Leaves elliptic to orbicular, obtuse or rounded.
 Leaves silvery-puberulent beneath. 29. *R. savannarum*.
 Leaves tomentose beneath.
 Leaves elliptic, 1.5-2 cm. long; calyx-lobes linear-lanceolate, acuminate. 30. *R. venosa*.
 Leaves oval or orbicular, 5-15 mm. long; calyx-lobes oblong, obtuse. 31. *R. hypoleuca*.
 Leaves oblong, acute or acutish.
 Leaves glabrous, green both sides. 32. *R. vacciniifolia*.
 Leaves white-tomentulose beneath, dark-green and glabrous above. 33. *R. bicolor*.
B. Capsule linear-oblong, 2 cm. long; inflorescence terminal. 34. *R. tinifolia*.
C. Species not grouped. 35. *R. camagueyensis*.

1. RONDELETIA ODORATA Jacq. Enum. Pl. Carib. 16. 1760

R. speciosa Lodd. Bot. Cab. 19: *pl.* 1893. 1832.

TYPE LOCALITY: Coastal thickets, Havana [Jacquin, Sel. Stirp. 59].

DISTRIBUTION: Hillsides and thickets at lower and middle elevations, Santa Clara, Matanzas, Havana, Pinar del Rio. Recorded by Richard from Oriente. Recorded from Mexico. Cultivated for ornament.

2. *RONDELETIA MICROPHYLLA* Griseb. Cat. Pl. Cub. 127. 1866

TYPE LOCALITY: Western Cuba.

DISTRIBUTION: River-banks, Pinar del Rio. Endemic.

The leaves are sometimes larger than those of the type specimens, attaining a length of 3 cm.

3. *RONDELETIA SHAFERI* Urban & Britton; Urban, Symb. Ant. 7: 398. 1912

TYPE LOCALITY: Barren savannas near Holguin, Oriente.

DISTRIBUTION: Known only from the type locality.

Dr. Shafer's notes indicate that the plant grows along water-courses.

4. *RONDELETIA PEDUNCULARIS* A. Rich. in Sagra, Hist. Cub. 11: 14. 1850

TYPE LOCALITY: Vuelta de Abajo.

DISTRIBUTION: Rocky banks and beds of streams, Oriente, Pinar del Rio. Endemic.

5. *RONDELETIA PACHYPHYLLA* Krug & Urban; Urban, Symb. Ant. 1: 419. 1899

TYPE LOCALITY: Cuba.

DISTRIBUTION: Rocky stream-beds, mountains of northern Oriente. Endemic.

Recorded by Grisebach as *R. alaternoides* A. Rich. The inflorescence is both terminal and axillary.

6. *RONDELETIA PEDICELLARIS* C. Wright; Sauvalle, Anales Acad. Habana 6: 102, 121. 1869

TYPE LOCALITY: Vicinity of Trinidad.

DISTRIBUTION: Cliffs and rocky hillsides, southern Santa Clara. Endemic.

7. RONDELETIA ALATERNOIDES A. Rich. in Sagra, Hist. Cub. 11: 13. 1850

TYPE LOCALITY: Mountains near Santiago [Oriente].

DISTRIBUTION: Known only from the type locality.

Urban states (Symb. Ant. 1: 419) that the inflorescence of this species is terminal, not axillary as first described.

8. RONDELETIA SUBGLABRA Krug & Urban; Urban, Symb. Ant. 1: 418. 1899

TYPE LOCALITY: Near Santiago, at 1,400 m. elevation [Oriente].

DISTRIBUTION: Mountains of Oriente. Endemic.

9. RONDELETIA BRACHYCARPA (Griseb.) C. Wright; Sauvalle, Anales Acad. Habana 6: 122. 1869

Ferdinandea brachycarpa Griseb. Mem. Am. Acad. II. 8: 505. 1862.

TYPE LOCALITY: Thickets near Santa Catalina [Oriente].

DISTRIBUTION: Thickets and hillsides, Oriente, Camaguey, Santa Clara, Havana, Pinar del Rio:—Hispaniola.

Referred by Combs to *R. trifolia* Jacq.

10. RONDELETIA STELLATA (Griseb.) C. Wright; Sauvalle, Anales Acad. Habana. 6: 122. 1869

Ferdinandea stellata Griseb. Mem. Am. Acad. II. 8: 505. 1862.

TYPE LOCALITY: Pine-lands near Monte Verde [Oriente].

DISTRIBUTION: Mountains of northern Oriente. Endemic.

11. RONDELETIA ANGUSTATA C. Wright; Sauvalle, Anales Acad. Habana 6: 122. 1869

Ferdinandea angustata C. Wright; Griseb. Cat. Pl. Cub. 127. 1866.

TYPE LOCALITY: In bogs near Toscano.

DISTRIBUTION: Arroyos and barrens, Santa Clara, Matanzas, Pinar del Rio. Endemic.

12. *Rondeletia canellaefolia* sp. nov.

A glabrous shrub about 2.5 m. high, the twigs rather stout. Leaves coriaceous, elliptic-obovate or elliptic-oblongate, oppo-

site or verticillate, 10 cm. long or less, 1.5–3 cm. wide, dark green, shining above, dull beneath, obtuse or acute at the apex, cuneate at the base, the midvein prominent, the lateral veins few, distant, slender, the petioles 5–15 mm. long; inflorescence terminal and in the upper axils, few–several-flowered; peduncles 1.5–5 cm. long; pedicels short and stout; bracts triangular, minute; calyx 3–4 mm. long, its lobes foliaceous, ovate, obtuse, 1–1.5 mm. long; corolla glabrous, about 4 mm. long (immature); capsule pyriform, 1–1.5 cm. long.

Woods and on cliffs, Sierra Nipe, near Woodfred, Oriente, 450–550 m. alt. Type, *Shafer 3297*. In foliage and capsules similar to *R. stellata*, but that has minute calyx-lobes.

13. RONDELETIA CALCICOLA Britton, Bull. Torrey Club 43: 467.
1916

TYPE LOCALITY: Coe's Camp, Ensenada de Siguanea, Isle of Pines.

DISTRIBUTION: Known only from the type locality.

14. *Rondeletia yamuriensis* sp. nov.

A small tree, about 4 m. high, glabrous throughout. Leaves coriaceous, narrowly oblong-ob lanceolate, 6–9 cm. long, 1–2 cm. wide, sessile, acute or obtuse at the apex, narrowed at the base, opposite or verticillate in 3's, the midvein rather prominent, the lateral veins few and slender; inflorescence terminal and also in the uppermost axils; peduncles rather slender, 6 cm. long or less; fruiting pedicels 5–10 mm. long; capsule globose-pyriform, about 1 cm. long.

Between Yamuri Arriba and Bermejál, Oriente (*Shafer 8439*).

15. RONDELETIA CORREIFOLIA Griseb. Cat. Pl. Cub. 129. 1866

TYPE LOCALITY: Western Cuba.

DISTRIBUTION: Pine-lands and savannas, Pinar del Rio and Isle of Pines. Endemic. A virgate shrub, up to 2 m. high, the large white flowers fragrant.

16. RONDELETIA LINDENIANA A. Rich. in Sagra, Hist. Cub. 11:
13. 1850

TYPE LOCALITY: Mountains near Santiago [Oriente].

DISTRIBUTION: Mountains of Oriente. Endemic. Recorded by Grisebach as *R. buxifolia* Vahl, and, doubtfully, by Sauvalle, as *R. umbellulata* Sw.

17. *RONDELETIA NIMANIMAE* Krug & Urban; Urban, Synb. Ant.
1: 418. 1899

TYPE LOCALITY: Near Nimanima, at 800 m. alt. [Oriente].

DISTRIBUTION: Known only from the type locality.

18. *Rondeletia Leoni* sp. nov.

A shrub or small tree up to 3 m. high, the slender young twigs, the petioles and the inflorescence appressed-pubescent with short, whitish hairs. Leaves elliptic to obovate, 3-8 cm. long, subcoriaceous, acute, short-acuminate, or some of them obtuse at the apex, narrowed or cuneate at the base, flat, or the margins somewhat revolute when old, densely pubescent with appressed hairs when young, glabrous, or sparingly pubescent on the veins beneath when old, inconspicuously reticulate-veined, the slender petioles 12 mm. long or less; stipules linear-subulate with a broadened base, pubescent, 3-4 mm. long; inflorescence axillary or lateral, 4-6 cm. long, 1-few-flowered, sometimes with a pair of small, leaf-like bracts; pedicels nearly filiform, 1-2 cm. long; bractlets linear-subulate; calyx ovoid-campanulate, densely canescent, its lobes linear or linear-spatulate, 3-4 mm. long; corolla densely white-pubescent without, its tube slender, 10-12 mm. long, cylindric, slightly expanded above, its lobes oblong-orbicular, rounded, deep purple above, 2.5-3 mm. long; capsule subglobose, 4-5 mm. in diameter.

Sancti Spiritus Mountains, Santa Clara; type from Sierra del Caballete (*Leon & Clement 6560*).

19. *RONDELETIA CHAMAEBUXIFOLIA* Griseb. Cat. Pl. Cub. 128.
1866

Rondeletia avenia C. Wright; Sauvalle, Anales Acad. Habana 6:
121. 1869.

TYPE LOCALITY: Western Cuba.

DISTRIBUTION: Known only from the type locality, this not definitely recorded.

20. *Rondeletia intermixta* sp. nov.

A shrub, 1.6 m. high, the young twigs densely strigose-pubescent. Stipules triangular-ovate, pubescent, acute, persistent, spreading, about 2 mm. long; leaves oblong, chartaceous, 3-6 cm. long, acute at both ends, dark green and glabrous above, pale green and densely pubescent beneath, the midvein rather promi-

ment, the lateral veins few, the slender petioles 8–15 mm. long; inflorescence axillary, short-peduncled, few-several-flowered, densely pubescent; bractlets ovate, acute, about 1 mm. long; calyx-teeth ovate, short; capsule globose, about 3 mm. in diameter, pubescent.

Gran Piedra, Oriente, at about 1,500 m. alt. (*Shafer 9039*). Apparently the same as a part of *C. Wright 1266*, recorded by Griesbach as *Rondeletia Poitaei* Griseb., but that name (Griseb. Fl. Br. W. I. 328) is a synonym of *Stevensia buxifolia* Poit., a plant known only from Hispaniola.

21. *RONDELETIA LOMENSIS* Urban, Symb. Ant. 7: 394. 1912

TYPE LOCALITY: Dry serpentine hill, Loma Santa Teresa, near El Yunque, Oriente.

DISTRIBUTION: Known only from the type locality.

Dr. Shafer's notes describe this as a shrub about 2.6 m. high with white flowers; the corollas are not shown in the specimens.

22. *Rondeletia baracoensis* sp. nov.

Twigs slender, densely whitish-pubescent when young. Stipules triangular-ovate, acute, pubescent, about 2 mm. long; leaves chartaceous, elliptic, 2 cm. long or less, rounded or obtuse at the apex, narrowed or obtuse at the base, glabrous and obscurely veined above, whitish-tomentulose and reticulate-veined beneath with the primary venation prominent, the petioles 3–5 mm. long; peduncles opposite, rather stout, 1–3-flowered, 3–13 mm. long; bractlets lanceolate, pubescent, somewhat shorter than the calyx; calyx 3 mm. long, its lobes ovate or ovate-oblong, obtuse, one half as long as the tube; corolla-bud densely white-pubescent.

Vicinity of Baracoa (*Pollard, Palmer & Palmer 245*).

23. *RONDELETIA RIGIDA* Griseb. Mem. Am. Acad. II. 8: 505.
1862

TYPE LOCALITY: La Madelina [Oriente].

DISTRIBUTION: Known only from the type locality.

24. *RONDELETIA NIPENSIS* Urban, Symb. Ant. 7: 393. 1912.

TYPE LOCALITY: Sierra Nipe, near Woodfred, Oriente, in pine-lands, 500–650 m. alt.

DISTRIBUTION: Pine-lands and deciduous woods of the Sierra Nipe, Oriente.

Dr. Shafer's notes show this to be a shrub about 1.3 m. high, with white flowers.

25. RONDELETIA RUGELII Urban, Symb. Ant. 7: 397. 1912
Rondeletia Poitaei microphylla Griseb. Cat. Pl. Cub. 128. 1866.

TYPE LOCALITY: near Matanzas.

DISTRIBUTION: Known definitely only from the type locality.

Rugel's label indicates that this is a shrub growing in rocks. The species is related to the following one. Grisebach considered the plant to be the same as *R. Berteriana* A. Rich. (not DC.), which was collected at La Cabana, Havana. *R. Berteriana* DC., of Hispaniola, is clearly different.

26. RONDELETIA COMBSII Greenm. Trans. Acad. St. Louis 7: 427,
pl. 34. 1897

TYPE LOCALITY: Calicita [Santa Clara].

DISTRIBUTION: Hillsides, cliffs and rocky shores, Santa Clara; Havana. Endemic.

Plants with identical foliage have calyx-lobes ovate or lanceolate; Dr. Greenman's original description indicates that they may even be linear. A fruiting specimen from Bahia Honda, Pinar del Rio (*Wilson 9409*), is doubtfully referred to this species.

27. RONDELETIA CAMARIOCA C. Wright; Sauvalle, Anales. Acad.
Habana 6: 102. 1869

TYPE LOCALITY: Savannas of Camarioca [Matanzas].

DISTRIBUTION: Serpentine barrens and savannas, in dry soil, Camaguey; Santa Clara; Matanzas. Endemic.

28. *Rondeletia insularis* sp. nov.

A much-branched shrub, about 2 m. high, the twigs densely appressed-pubescent. Stipules triangular-ovate, connate, pubescent, persistent, 2-3 mm. long; leaves gray-green, oblong or oblong-obovate, chartaceous, 3 cm. long or less, 7-10 mm. wide, glabrous and very obscurely veined above, delicately reticulate-veined and strigillose beneath, the stout petioles about 1.5 mm. long; peduncles solitary in the axils, stout, about as long as the petioles, 1-flowered, pubescent; bractlets ovate, acute, 1 mm. long; capsule globose, densely puberulent, 4-5 mm. in diameter; calyx-lobes ovate-oblong, obtuse, 1 mm. long.

Vicinity of Pueblo Romano, Cayo Romano, Camaguey (*Shafer 2444*).

29. *Rondeletia savannarum* sp. nov.

A shrub, about 2 m. high, the twigs densely appressed-pubescent. Stipules triangular, acute, finely pubescent, 1–1.5 mm. long; leaves oblong to oblong-elliptic, 2 cm. long or less, 6–10 mm. wide, coriaceous, obtuse at the apex, narrowed at the base, glabrous, dark green and obscurely veined above, silvery-puberulent beneath with the few veins rather prominent, the petioles about 1.5 mm. long; flowers solitary in the axils; peduncles stout, 2–3 mm. long; calyx-teeth linear with the base broadened, 3 mm. long, about as long as the calyx-tube; corolla-bud densely pubescent; capsule globose, densely puberulent, 4 mm. in diameter.

Barren savannas, southeast of Holguin, Oriente (*Shafer 1230*, type; *2933*).

30. *RONDELETIA VENOSA* Griseb. Cat. Pl. Cub. 128. 1866

TYPE LOCALITY: Near San Marcos, Bahia Honda [Pinar del Rio].

DISTRIBUTION: Known only from the type locality.

31. *RONDELETIA HYPOLEUCA* Griseb. Cat. Pl. Cub. 128. 1866

TYPE LOCALITY: Eastern Cuba, near Baracoa.

DISTRIBUTION: Rocky situations, Oriente. Endemic.

A plant with orbicular leaves 5–7 mm. long, collected in a rocky thicket between Camp La Barga and Camp San Benito at about 1,000 m. alt. (*Shafer 4121*), is referred to this species with hesitation.

32. *Rondeletia vacciniifolia* sp. nov.

A much-branched shrub 0.3–1.3 m. high, the young twigs densely appressed-pubescent. Stipules triangular, acute, connate, pubescent, 1.5–2 mm. long; leaves oblong, coriaceous, 6–12 mm. long, acute at both ends, or the apex obtuse and mucronate, glabrous on both sides or sparingly pubescent on the midvein beneath, the lateral venation obscure, the stout, pubescent petioles 1.5–3 mm. long; flowers solitary in the upper axils, the stout, pubescent peduncles about as long as the petioles; bractlets triangular-ovate, acute; calyx-teeth linear, 2–3 mm. long; capsule globose, pubescent, 5 mm. in diameter, reddish.

Rocky situations, mountains of northern Oriente. Type from rocky bank of river, vicinity of Camp San Benito at 900 m. alt. (*Shafer 4090*).

33. *Rondeletia bicolor* sp. nov.

A shrub about 1.7 m. high, the twigs ascending, slender, densely short-pubescent when young. Stipules triangular-lanceolate, rather abruptly attenuate from a broad base, short-pubescent, about 3 mm. long; leaves oblong or oblong-ob lanceolate, coriaceous, 2-3 cm. long, acute or some of them obtuse at the apex, narrowed at the base, dark green, glabrous and very obscurely veined above, white tomentulose and prominently veined beneath, the pubescent petioles 2-4 mm. long; peduncles axillary, pubescent, in fruit about 3 mm. long; fruits solitary, globose, pubescent, about 3 mm. in diameter.

Loma de Ponciano, Sancti Spiritus Mountains, Santa Clara (*Leon and Clement 6717*).

34. *Rondeletia* (?) *tinifolia* Griseb. Cat. Pl. Cub. 129. 1866

TYPE LOCALITY: Western Cuba.

DISTRIBUTION: Sancti Spiritus Mountains, Santa Clara; pine-lands and arroyos, Pinar del Rio. Endemic.

35. *Rondeletia* (?) *camagueyensis* sp. nov.

A shrub about 3 m. high, the young shoots densely appressed-pubescent. Stipules triangular, acute, about 3 mm. long; leaves ovate or elliptic-ovate, 3-4 cm. long, 3 cm. wide or less, membranous, acute at the apex, narrowed or obtuse at the base, sparingly short-pubescent and indistinctly veined above, loosely strigose-pubescent, especially on the prominent veins beneath, the stout, pubescent petioles 2-3 mm. long; capsule subglobose, 4-6 mm. in diameter.

Arroyo, savanna near Camaguey (*Britton & Cowell 13206*).

Imperfect material only was collected at the time of our visit to the locality in April, 1912.

OTHER SPECIES ATTRIBUTED TO CUBA

Rondeletia microdon DC. Prodr. 4: 408. 1830

Havana, collected by Ossa, according to De Candolle. Described as a glabrous species, with oval-oblong, short-petioled

leaves acute at both ends, bipartite, persistent, obtuse stipules; corymbose peduncled flowers, the calyx truncate, with five short teeth. The genus of this plant was questioned by A. Richard (in Sagra, Hist. Cub. 11: 13), and I do not know any species which answers to the description.

Rondeletia americana L. Sp. Pl. 172. 1753

This, the type of the genus, is also recorded by De Candolle as found at Havana by Ossa, and Grisebach (Fl. Br. W. I. 327) mentions it as Cuban. I know the plant only from St. Vincent and Jamaica.

Rondeletia laevigata Ait. Hort. Kew. ed. 2, 1: 366. 1810

De Candolle mentions this also as found at Havana, but no species answering to the description is known to me from Cuba; Grisebach (Fl. Br. W. I. 328) indicates that it is from the island of Trinidad.

Rondeletia leptacantha DC. Prodr. 4: 410. 1830

Collected by Ossa, near Havana, according to De Candolle. Described as a plant with opposite spines, broadly oval, subacute leaves, the twigs and leaves subpilose when young, the slender peduncle as long as the leaves or longer, three- to five-flowered at the apex. No species of *Rondeletia* known to me answers the description. Grisebach (Cat. Pl. Cub. 133) refers the plant to *Chomelia fasciculata* Sw. [*Anisomeris fasciculata* (Sw.) Schum.], but this disposal of it is not satisfactory.

57. THREE ERIOCAULONS FROM THE ISLE OF PINES

Eriocaulon arenicola Britton & Small, sp. nov.

Plants 4-26 cm. tall, the scapes solitary or usually several together; leaves ascending or spreading, 1-8 cm. long, linear-attenuate, convex beneath, slightly concave above, glabrous; scapes slender, mostly 6-angled, slightly spirally twisted, each subtended by an obliquely opened sheath which is shorter than the leaves; heads dense, at first depressed-globose, later subglobose or ovoid-globose, becoming about 5 mm. in diameter, pubescent, whitish-gray; bracts of the involucre cuneate to obovate, the outer ones about 1.5 mm. long; flowers numerous,

crowded; bracts very broadly cuneate, fully 1.5 mm. long, short-hairy at and near the apex; sepals of the staminate flowers concave, cuneate to obovate, about 1.5 mm. long, exceeding the corolla, pubescent at the apex; corolla-lobes minute, ovate to oblong-ovate, obtuse; anthers about 0.25 mm. long; sepals of the pistillate flowers about 1.5 mm. long, boat-like, keeled, pubescent near the top; petals oblong to oblong-spatulate, fully 1 mm. long; capsule reniform-didymous, fully 0.5 mm. wide: seeds oval, barely 0.5 mm. long.

White sand, vicinity of Los Indios (*Britton & Wilson 14179*).

This plant is related to *Eriocaulon sigmoideum* C. Wright. It differs from it in the larger size, the more compact heads, the more copiously pale-pubescent and longer bracts, the smaller staminate flowers, and the sepals of the pistillate flowers which are wider below the middle, instead of at the top.

***Eriocaulon fusiforme* Britton & Small, sp. nov.**

Plants 3–6.5 cm. tall, the scapes tufted, usually densely so; leaves ascending or recurved, subulate-lanceolate, 1–2.5 cm. long, thinnish, concave, glabrous; scapes relatively slender, spirally twisted, prominently 5-angled, each subtended by an obliquely opened sheath which is shorter than the longer leaves; heads dense, fusiform, becoming 7–8.5 mm. long, acute, glabrous, brownish; bracts of the involucre ovate to oblong, obtuse, chartaceous, 2–3 mm. long; flowers numerous; bracts rhombic-ovate or rhombic-cuneate, mostly 2 mm. long, acute or short-acuminate, scarious, glabrous, or obscurely fine-pubescent; sepals of the staminate flowers spatulate to oblong-spatulate, about 1 mm. long, sometimes lacinate at the apex, about equalling the corolla or exceeding it; corolla-lobes ovate; anthers about 0.15 mm. long; sepals of the pistillate flowers about 1.5 mm. long, boat-shaped, strongly keeled and crested above the middle, acuminate; petals linear-elliptic to linear-spatulate, 1.5–2 mm. long; capsule suborbicular or orbicular-ovoid, about 0.5 mm. wide: seeds narrowly oval, about 0.5 mm. long.

Pinelands, Siguanea (*Britton & Wilson 14951*).

This differs from all described Cuban species of *Eriocaulon*. Its short stiff scapes and fusiform glabrous or nearly glabrous heads are particularly diagnostic.

***Eriocaulon ovoideum* Britton & Small, sp. nov.**

Plants 6–11 cm. tall, the scapes tufted, usually densely so; leaves erect or ascending, narrowly linear-lanceolate to linear-

attenuate, 1-3 cm. long, concave, thinnish, glabrous; scapes stoutish, spirally-twisted, sharply 5-angled, each subtended by an obliquely opened sheath which is as long as the leaves or shorter; heads very dense, ovoid or globose-ovoid, becoming 6-8 mm. long, obtuse, tan-colored; bracts of the involucre ovate to oblong, 1.5-3 mm. long, obtuse, glabrous, chartaceous; flowers numerous; bracts subreniform, mostly wider than long, broadly rounded at the apex, scarious, minutely pubescent; sepals of the staminate flowers obovate to cuneate, concave, fully 1 mm. long, erose at the apex, mostly exceeding the corolla; anthers ovoid, about 0.1 mm. long; sepals of the pistillate flowers boat-shaped, fully 1 mm. long, keel-winged and crested on the back, abruptly pointed; petals spatulate, about 1.5 mm. long, often erose at the apex; capsule reniform, about 1 mm. wide; seeds broadly oval, fully 0.5 mm. long.

White sand, vicinity of Los Indios (*Britton & Wilson 14220*).

Related to *Eriocaulon fusiforme*, differing in stouter habit, the short and broad heads, and in the broad and rounded bracts.

58. UNDESCRIBED CUBAN SPECIES

Dupatya montana sp. nov.

Stem simple, elongate, stout, densely leafy. Leaves broadly linear, 8-14 cm. long, 6-15 mm. broad at the base, narrowed to the acute apex, rigid, glabrous, striate-nerved; peduncles erect, 15-30 cm. high, often numerous, axillary, loosely pubescent with long, soft, white hairs, or glabrous; sheaths shorter than the leaves, acuminate; heads solitary on the peduncles, hemispheric, 7-8 mm. broad; outer involucre bracts ovate, the inner ones broadly oval to orbicular, rigid, acute, glabrous; receptacle pilose, the bracts membranaceous, obovate-cuneate, 1.8-2 mm. long, 0.6-0.8 mm. broad, with a tuft of short hairs on the back at the apex; staminate flowers dimerous; sepals spatulate-obovate, about 1.9 mm. long, concave, ciliate at the apex; pistillate flowers dimerous; sepals elliptic, concave; stigmas 2; ovary globose-ovate.

Collected on compact red iron ore along trail from Rio Yamanigüey to Camp Toa, Oriente, at 400 m. alt. (*J. A. Shafer 4473*, type); also collected along trail from Camp La Barga to Camp San Benito (*Shafer 4104*) and at Camp La Gloria, south of Sierra Moa (*Shafer 8045, 8251*).

Apparently closely related to *Dupatya pungens* (Griseb.) Britton (*Paepalanthus pungens* Griseb.), another Cuban species.

Pilea Cowellii sp. nov.

Glabrous, perennial, monoecious, about 4 dm. tall; stem becoming more or less grooved and compressed in drying, clothed with numerous, small, elliptic raphides; leaves elliptic to ovate, or the uppermost oblong-obovate, 1-3 cm. long, 0.7-1.1 cm. broad, acute or obtuse at the apex, rounded and more or less cordate at the base, 3-nerved, green and lustrous above, paler beneath, with prominent, scattered, elevated callosities when fresh which become depressed in drying, entire; raphides of the upper surface linear, those of the lower surface punctiform; petioles 1-2 mm. long; inflorescence axillary, 1-2 cm. long, equalling or shorter than the leaves; staminate and pistillate flowers intermixed; staminate flowers: pedicels 0.5 mm. long, perianth glabrous, 1 mm. long, the lobes triangular-ovate; stamens 4; pistillate flowers short-pedicelled or sessile.

Type collected on cliffs, Ensenada de Mora, Oriente (*Britton, Cowell & Shafer 12977*).

Ichthyomethia havanensis Britton & Wilson, sp. nov.

A shrub 2 m. tall, with finely pubescent twigs; leaves odd-pinnate, 1-1.4 dm. long, the petioles, rachis and petiolules velvety-ferruginous when young; leaflets 9-13, elliptic to somewhat elliptic-obovate, 2.3-4.5 cm. long, 1.3-1.7 cm. broad, acute to rounded and often apiculate at the apex, rounded at base, short-petioluled, densely clothed with short, appressed, silky hairs when young, in age glabrous or nearly so above, finely pubescent and reticulate-veined beneath; calyx campanulate, pubescent with short, appressed brownish hairs; pods broadly 4-winged, puberulent with appressed hairs, 2-3.5 cm. long, 2-2.8 cm. broad, stipitate, the margin more or less undulate; seeds oblong, 5 mm. long, 2.5-3 mm. broad.

Related to *I. piscipula* (L.) A. S. Hitchc., but differing in the much smaller and more coarsely reticulate leaflets, and smaller fruit.

Thickets not far from Cojimar, Province of Havana (*Brother Leon & Father M. Roca 6194*, type); also collected on a hill west of Chorrera, Province of Havana (*Brother Leon 5192*).

Castelaria calcicola Britton & Small, sp. nov.

A much-branched shrub up to 2.5 m. tall, with stout thorns which are branched when well developed, the twigs closely fine-

pubescent; leaf-blades obovate, varying to oval or ovate, mostly 1.5-4 cm. long, rounded or retuse and mucronulate at the apex, entire, slightly revolute and reticulate in age, bright green above, paler beneath, somewhat shining, minutely pubescent, especially on the midrib and veins beneath, short-petioled; flowers several in each cluster, short-pedicelled, the pedicels densely pubescent; sepals triangular-ovate, about 1 mm. long, green, acutish, copiously pubescent; petals ovate or oval, concave, cymbiform, 3.5-4 mm. long, red, sparingly pubescent on the back; filaments subulate, nearly 2 mm. long, villous-tomentose; anthers slightly longer than the filaments, oblong, or nearly so; drupes flat, fully 1.5 cm. long, nearly as wide, about 6 mm. thick, bright-red, the flesh thin, with a fibrous-reticulate network which is impressed into the putamen.

Limestone hills, vicinity of Sumidero, Pinar del Rio (*Shafer 13434*).

This shrub is related to *Castelaria jacquinifolia*. It differs from that species in the pubescent leaves, the triangular-ovate sepals, the pubescent petals, and the narrower and longer anthers.

***Stenostomum obovatum* sp. nov.**

A straggling tree, the slender twigs glabrous. Leaves coriaceous, obovate, 6 cm. long or less, rounded at the apex, narrowed at the base, revolute-margined, faintly shining, the midvein impressed above, prominent beneath, the lateral venation slender and obscure, the stout petioles 3-5 mm. long; inflorescence terminal; fruits in pairs, sessile, oblong, black, fleshy, 10-12 mm. long, 5-7 mm. thick.

Camp La Gloria, south of Sierra Moa, Oriente (*Shafer 8169*).

***Stenostomum aristatum* sp. nov.**

A rough-barked tree about 6 m. high, with widely spreading branches, the slender young twigs resinous. Stipules broadly ovate, obtuse, 3 mm. long, caducous; leaves elliptic or ovate-elliptic, coriaceous, 2.5 cm. long or less, acute and aristate at the apex, mostly obtuse at the base, shining and strongly reticulate-veined on both surfaces, especially above, the margins slightly revolute, the petioles 1-2 mm. long; peduncles solitary in the uppermost axils, about one-half as long as the leaves, 1- to 3-flowered at the apex; flowers fragrant; calyx narrowly campanulate, 5 mm. long, 5-lobed, the lobes oblong or oblong-obovate, 1.5-2 mm. long, rounded; corolla white, its tube narrowly cylindric, about 2 cm. long, 1 mm. thick, its limb spreading, 5-lobed, about 1 cm.

broad, the lobes rounded; stamens 5; anthers linear, 2 mm. long; ovary 6-celled.

Rocky hill, savanna near Camaguey (*Britton & Cowell 13241*).

59. NOTES ON VARIOUS SPECIES

Evolvulus siliceus Britton & Wilson, nom. nov.

Evolvulus arenicola Britton & Wilson, Bull. Torrey Club **43**: 466. 1916. Not *E. arenicola* Johnston, 1905.

PERSICARIA HIRSUTA (Walt.) Small

Marsh near Ferry River, Jamaica (*Britton 394*). Hitherto unrecorded from Jamaica.

PHENAX SONNERATHI (Poir.) Wedd.

Gravelly soil, Jamaica (*Alex. E. Wright 193*). Hitherto unrecorded from Jamaica.

PHYLLANTHUS NUMMULARIAEFOLIUS Poir.

Shady places, Hope Grounds, Jamaica (*Harris 12123, 12157, 12208*). Hitherto unrecorded from Jamaica.

VERONICA TOURNEFORTII Gmelin

Waste and shaded grounds, near Mandeville (*Crawford 683*) and near Cinchona, Jamaica (*Harris 12417*).

JACQUINIA KEYENSIS Mez.

Northern coast of Camaguey and Matanzas provinces, Cuba (*Shafer 689, 2593, 2712; Britton & Wilson 14043*); Little Goat Island, Jamaica (*Britton 1852*); Albion Mountain, Jamaica (*Harris 11678, 12199*). Heretofore recorded from the Bahamas and Florida.

CYRILLA BREVIFOLIA N. E. Brown

Mountains of northern Oriente, Cuba (*Shafer 4060, 4054, 4109, 4140, 4181, 8032*). Apparently identical with the plant of Mt. Roraima, British Guiana (Trans. Linn. Soc. II. **6**: 22. *pl. 1, f. 7-16*).

STEMODIA PARVIFLORA Ait.

Rio Piedras, Porto Rico (*Stevenson 2178*). Hitherto unrecorded from Porto Rico.

DITTA MYRICOIDES Griseb.

Sierra de Naguabo, Porto Rico (*Shafer 3603*). Hitherto unrecorded from Porto Rico.

SIDA EGGERSII E. G. Baker

Island of Culebra, Porto Rico, 1906 (*Britton & Wheeler 178*). Hitherto known only from Tortola, where Dr. Shafer made a second collection of it in 1913. A tree, 6-8 m. high, very different from typical species of *Sida*.

OSSAEA DOMINGENSIS Cogn.

Alto de la Bandera, Porto Rico (*F. L. Stevens 8717*). Hitherto known only from Santo Domingo.

LESCAILLEA EQUISETIFORMIS Griseb.

This monotypic genus of Compositae was rediscovered on the southern slope of Cajalbana in the province of Pinar del Rio, Cuba, by Brothers Leon and Charles on April 6, 1915. The genus has hitherto been imperfectly known, as it was represented in this country only by a fragment at the Gray Herbarium, collected by Charles Wright in western Cuba. *Lascaillea* is a woody vine related to *Porophyllum*. The leaves are reduced to small scales, the plant resembling certain species of *Ephedra* much more closely than it does any *Equisetum*.

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NEW YORK

1922

Studies of West Indian plants—X

NATHANIEL LORD BRITTON

60. UNDESCRIBED SPECIES FROM TRINIDAD

Eleocharis savannarum sp. nov.

Rootstocks very slender, elongated; culms filiform, weak, smooth, 6-15 cm. long, the upper sheath membranous, its mouth oblique; spikelet ovoid, 3-4 mm. long; scales oblong or ovate-oblong, about 2 mm. long, obtuse, nearly white with a greenish midvein; achene trigonous, obovoid, about 0.5 mm. long, truncate; tubercle low, nearly flat, apiculate; bristles none.

Moist hole on the O'Meara Savanna, Trinidad (*Britton 2491*).

Eleocharis oropuchensis sp. nov.

Roots fibrous, finely filiform; culms finely filiform, densely tufted, weak, 5 cm. long or less, the upper sheath membranous, oblique at the summit. Spikelets terminating culms, and sessile at the base of the plant; compressed, 2-3 mm. long, ovate, about 6-flowered; their scales ovate-oblong, pale or brown with pale margins and keel, subdistichous, blunt, 1.5 mm. long; style 3-cleft; achene trigonous, smooth, pale, about 0.5 mm. long, about as long as the 3 or 4 bristles; tubercle conic, one fourth as long as the achene.

In mud in sunny, grassy situations, Trinidad; type from Oropuche Lagoon (*Britton, Hazen and Freeman 1155*, March 29, 1920).

I am indebted to Mr. N. E. Brown for comparing this little plant with West Indian and South American species in the Kew Herbarium, where he was unable to match it. He remarks upon its unusual character of having both terminal and basal spikelets, and compares it with *Chaetocyperus Jamesoni* Steud. from Guayaquil, Ecuador (*Jameson 369*), pointing out important differences, however.

Rynchospora aripoensis sp. nov.

Perennial by short horizontal rootstocks; culms filiform, tufted, smooth, erect, 2-4 dm. high, longer than the filiform leaves. Spikelets few, 2 mm. long, ovoid, acute, 1-fruited, sessile in 1 or 2 small clusters subtended by a filiform bract 1-3 cm. long; scales

ovate, brown, acute; bristles none; achene obovate-elliptic, 1 mm. long, smooth, light brown; tubercle compressed-conic, acute, one third to one half as long as the achene.

Grassy plain, Aripo Savanna, Trinidad (*Britton 2934*). Perhaps most nearly related to *R. Chapmani* M. A. Curtis of the eastern United States.

***Bromelia aurea* sp. nov.**

Leaves numerous, rigid, linear, long-attenuate, 6–8 dm. long, about 3 cm. wide, armed with distant curved prickles 4–5 mm. long. Scape rather slender, shorter than the basal leaves, bearing several prickly-armed small leaves; inflorescence brownish-floccose, about 3 dm. long; bracts lanceolate, membranous, acuminate, 2–4 cm. long; bractlets ovate, membranous, strongly nerved, mucronate, about 1 cm. long; flowers 2 to several together, the clusters 2–3 cm. apart; sepals similar to the bractlets, about 1 cm. long; petals linear, bright yellow, about 3 cm. long and 2 mm. wide.

Wooded hillside, near western end of Monos Island, Trinidad (*Britton, Britton and Brown 2736*). In flower April 4, 1921. Related to *B. chrysantha* Jacq. of Venezuela.

***Aechmea porteoides* sp. nov.**

Leaves firm in texture, linear with a somewhat broadened base, about 8 dm. long, 4–7 cm. wide, sharply acute, the margins armed with very numerous, approximate, nearly black, slightly curved spinules 4 mm. long or less; inflorescence paniculate, as long as the leaves or longer, its ultimate branches spreading, about 6 cm. long, stellate-pubescent, slender, few-flowered; bracteoles subulate-acicular, 4–6 mm. long; flowers blue, about 20 mm. long; sepals striate, about 1 cm. long, with a terminal spinule 2–3 mm. long; ovary about 1 cm. long, oblong.

On the ground in mountain forests, Trinidad. Type from Mount Tucuche (*Britton, Hazen and Mendelson 1342*). In flower April 5, 1920. Related to *A. Fendleri* of Venezuela.

***Tillandsia viscidula* sp. nov.**

Basal leaves tufted, linear, 2.5–3.5 dm. long, flat, gradually narrowed upward, abruptly contracted at the apex and short-acuminate, the base expanded and dark-blotched. Stem 3–5 dm. high, erect, bearing leaves similar to the basal ones, but smaller, the upper ones 7 cm. long or less; panicle 3–5 dm. long, few- to several-branched, viscid; flowers yellow, distant, sessile, about 2

cm. long, at first appressed, later spreading, about as long as the bracts.

On trees, Trinidad. Type from Moruga (*Britton and Broadway 2430*). Related to *T. alojolia* Hook.

***Alpinia silvicola* sp. nov.**

Rootstocks rather stout, scaly. Sterile stem 2-3 m. high; leafy; leaves oblong, thin, glabrous, closely many-veined, 3-5 dm. long, 6-10 cm. wide, the apex acuminate, the base narrowed, the petioles 1-2.5 cm. long, the sheaths striate; lower leaves reduced to thin sheathing scales. Fertile stems about 3 dm. high, pubescent above, with a few, narrow scales 3-4 cm. long; spike dense, several- to many-flowered, 7-10 cm. long; bracts 1-flowered, shorter than the flowers; calyx about 1.5 mm. long, pubescent, its lobes broad; corolla yellow, about 2 cm. long; fruit oblong, about 3 cm. long, its juice blue-black.

Forests of the northern mountain range, Trinidad. Type from Mount Tocuche (*Britton, Hazen and Mendelson 1301*).

***Calathea trinitensis* sp. nov.**

Leaves erect, oblong to oblong-lanceolate, glabrous, the blade up to 1 m. long and 3 dm. wide, rather shorter than the slender petiole, rather abruptly narrowed at the base, the apex abruptly tipped, the midvein prominent, the innumerable lateral veins close together. Scape glabrous, about 7 dm. high; spike dense, about 2 dm. long; bracts oblique, many-veined, 3-4 cm. long, their spreading tips acute; flowers yellow, about 3 cm. long, the segments linear, parallel-veined, acute.

Forest, heights of Aripo, Trinidad (*Britton and Freeman 2360*). In flower March 16, 1921.

***Ficus ierensis* sp. nov.**

A tree up to 10 m. high or higher, glabrous. Leaves broadly elliptic or elliptic-orbicular, subcoriaceous, pinnately 5- to 9-veined on each side of the rather prominent midvein, rounded at the apex, cordate at the base, 10-20 cm. long, the stout petiole one fourth to one third as long as the blade; fruiting peduncles slender, about 1 cm. long; fruit globose, 12-18 mm. in diameter; bracts 2 or 3, broad, rounded, nearly as long as the fruit; ostium sunken, about 2 mm. in diameter.

Hillsides in relatively dry districts, Trinidad. Type from North Post Road (*Britton, Hazen and Mendelson 774*). Similar

to *F. crassinervia* of Hispaniola, to which species it has been referred, and also related to *F. Urbaniana* Warburg, of the Lesser Antilles.

***Ficus arimensis* sp. nov.**

Twigs stout. Leaf-blades firm in texture, obovate, about 2 dm. long and twice as long as wide, distantly pinnately veined, the base subcuneate, the apex rounded and short-cuspidate; fruit subglobose, sessile, about 8 mm. in diameter (immature).

Arima, Trinidad (*J. Danhouse*). Collected in 1905.

***Ficus Mendelsonii* sp. nov.**

A tree up to 16 m. high. Leaves elliptic to obovate-elliptic, the blade thin, smooth, 10–15 cm. long, about twice as long as wide, distantly pinnately veined, triple-veined just above the base, the base rounded or obtuse, the apex abruptly short-acuminate; petioles slender, 2–6 cm. long; peduncles slender, 1–2 cm. long; fruit globose, pale, 10–15 mm. in diameter, the ostium deeply concave; basal bracts 2, triangular-ovate, about 2 mm. long.

Forests in moist or wet districts, Trinidad. Type from the northern hills between North Post and Maqueripe (*Britton, Hazen and Mendelson 879*).

***Phoradendron chaguaramasanum* Trelease sp. nov.**

Scarcely forked, the moderate branches with basal cataphyls only, androgynous?. Internodes short (2×10 –30 mm.), at first papillately roughened, quadrangular and somewhat 4-winged, little flattened. Cataphyls a single pair, nearly basal, deeply notched. Leaves spatulate-oblong, obtuse to subtruncate, scarcely 1×2.5 cm., cuneately subpetioled for 5 mm., fleshy, drying yellow, 1- or obscurely 3-nerved from the base. Spikes solitary, very short (about 5 mm.), with 2 or 3 very short characteristically 4-flowered joints; peduncle about 1 mm. long; scales ciliate. Immature fruit subglobose, scarcely 2 mm. in diameter, reddish, verrucose; sepals yellow, erect, not meeting.

Chaguaramas, Trinidad (*Britton 2718*, the type, April 4, 1921).

***Phoradendron caerulescens* Trelease sp. nov.**

Pseudodichotomous, the moderate branches with basal cataphyls only, androgynous?. Internodes short (2 – 3×10 –20 mm.), smooth, glossy, quadrate, the upper apically dilated to a width of 4 mm. below the nodes. Cataphyls a single pair, basal, glossy brown, tubular-bifid. Leaves round-elliptical, submucronately

acuminate, $1.5 \times 2-2.5$ cm., cuneately subpetioled for about 5 mm., cartilaginous-margined, about 5-nerved, at first delicately blue-glaucous. Spikes solitary, short (scarcely 15 mm.) with 3 or 4 short 4-flowered joints; peduncle 1 mm. long; scales slightly ciliolate. Fruit (immature) small, globose, deeply immersed, verrucose: sepals inflexed.

Chacachacare Island, Trinidad (*Britton and Hazen 1726*, April 13, 1920), the type; also from the same locality, on *Capparis* (*Britton, Freeman and Watts 2701, 2708*, 1921).

Of the *Emarginatae*, but with inflexed sepals, and in this, as well as in its flattened twigs, related to *P. Ottonis* Eichler of Venezuela.

***Seguiera ierensis* sp. nov.**

A climber with slender twigs and branches, the prickles 2-25 mm. long. Leaves oblong or oblong-lanceolate, 6-16 cm. long, acute or acuminate at the apex, narrowed or obtuse at the base, or the upper ones smaller and obtuse, the petioles 2-7 mm. long; panicles many-flowered, 5-9 cm. long, puberulent; pedicels 2-3 mm. long; perianth-segments unequal, elliptic to obovate, 3-3.6 mm. long, rounded, concave; stamens about 20 with filiform filaments and linear anthers.

McBean Estate, Carapachaima, Trinidad, April 30, 1918 (type). Forest, Ortoire River, Guayaguayare Road (*Britton, Freeman and Nowell 2527*, barren).

***Seguiera cordata* sp. nov.**

Twigs slender; prickles stiff, nearly straight, about 8 mm. long. Leaves broadly ovate, subcoriaceous, glabrous, 14 cm. long or less, cordate or subcordate at the base, acute at the apex, or small ones obtuse at both ends, the venation prominent beneath, impressed above, the stout petioles 6-8 mm. long; panicles many-flowered, about 6 cm. long; bractlets ovate, 1 mm. long, about as long as the pedicels or a little shorter; sepals 1-1.5 mm. long.

Lobajos near Erin, Trinidad (*Trinidad Herbarium 9122*, W. E. Broadway, May 14, 1920).

***Chrysobalanus savannarum* sp. nov.**

An irregularly branching shrub 0.5-4 m. high, the glabrous twigs slender. Leaves obovate to elliptic-obovate, 1.5-3.5 cm. long, strongly reticulate-veined above, faintly veined beneath, obtuse or acutish at the apex, narrowed at the base, the petioles 1.5-2

mm. long; flowers few, in small axillary clusters not longer than the leaves, or these terminating short leafy twigs; pedicels short, puberulent; calyx silky-pubescent, its lobes short, broad, obtuse; petals cuneate-spatulate, rounded at the apex, 3-3.5 mm. long; drupe oblong or narrowly oblong-obovoid, obtuse, about 8 mm. long and 4 mm. in diameter.

Grassy plain, Aripo Savanna, Trinidad (*Britton, Hazen and Freeman 2005*, April 21, 1920).

***Acacia quadricostata* sp. nov.**

A woody vine, up to 8 m. long, the old stems 4-ribbed or 4-flanged, about 8 cm. thick near the base, the twigs 4-angled, armed with recurved prickles about 3 mm. long. Leaves 2-pinnate, 6-17 cm. long; stipules wanting; petiole slender, bearing a sessile, circular gland; rachis glabrous, sometimes bearing a few minute prickles; rachilla very slender, angular; leaflets 35 pairs or fewer, sessile, linear-lanceolate, acutish, 6-8 mm. long, about 1 mm. wide, truncately inequilateral at the base, the midvein somewhat eccentric, the lateral veins few, glabrous, except for a characteristic line of yellowish hairs on the underside of the midvein near the base; legume linear-oblong, flat, densely puberulent, 5-9 cm. long, nearly 2 cm. wide, narrowed at the base with a short stipe, acute and short-tipped; seeds orbicular, dark brown, about 7 mm. in diameter.

Hillside, Chacachacare Island, Trinidad (*Britton, Freeman and Watts 2685*), in fruit April 3, 1921. The prickles are persistent upon the old stems and branches.

***Erythrina pallida* Britton and Rose sp. nov.**

A small tree, 4 meters high; young growth puberulent; second year growth glabrate with shining gray bark; spines at base of leaves stout, reflexed, 6-8 mm. long; leaves large; rachis 2 cm. long or more, glabrous; leaflets 3, broadly ovate, sometimes obliquely so, acuminate, 12-15 cm. long, green above, very pale beneath, glabrous on both sides at least when mature; inflorescence subsessile, paniculate, 1-2 dm. long; pedicels stout, about 1 cm. long; calyx 1.5 cm. long, nearly truncate, except a small protuberance on the lower side; corolla salmon-colored, narrow, 7 cm. long; fruit with a long slender stipe 3 cm. long; tipped with a rigid persistent style, 2 cm. long, moniliform, 8-10-seeded; seed 8 mm. long, 6 mm. broad.

Hillsides and roadsides, Trinidad. Type from roadside near Carenage (*Britton 2656*), April 4, 1921. Commonly planted as a fence tree in Trinidad.

Elaphrium trinitensis Rose sp. nov.

A gnarled tree, 5 meters high, fragrant; branches glabrous, often short and spur-like, with brownish bark; leaves simple, borne at the end of stubby branches, the petiole not winged, 12 mm. long or less, the blade broadly ovate, 2.5 cm. long or less, entire, glabrous; flowers solitary or in small panicles sometimes only 3- or 4-flowered; pedicels 3 to 5 mm. long, glabrous; fruit 3-angled, glabrous, 8 to 10 mm. long; nutlet white, 3-angled.

Western end of Monos Island, Trinidad (*Britton, Britton and Brown 2739*), April 4, 1921.

Phyllanthus graminicola sp. nov.

Annual, with fibrous roots, glabrous; stem slender, erect, becoming much branched, 1-3 dm. high, the branches almost filiform. Leaves oblong-elliptic, thin, faintly pinnately veined, 4-10 mm. long, the apex obtuse, the base more or less narrowed, the petiole about 1 mm. long; stipules minute; flowers nearly sessile; calyx of the pistillate flowers deeply 6-parted, the linear segments at length about 1 mm. long; fruit depressed, 1.5 mm. in diameter; seeds about 0.6 mm. long.

Moist grassy situations at low elevations, Trinidad. Type from grassy roadside, Carenage (*Britton and Hazen 12*). In fruit February 25, 1920. Related to *P. carolinensis* Walt. of the eastern United States, which has larger fruit and seeds and broader pistillate calyx-segments.

Clusia tocuchensis sp. nov.

A tree about 18 m. high, the twigs rather stout. Leaves borne at the ends of the twigs, obovate, coriaceous, glabrous, about 10 cm. long, 4-5 cm. wide, rounded at the apex, cuneate at the base, rather finely pinnately veined, the short stout petiole only about 5 mm. long; fruit globose, 10-15 mm. in diameter; carpels about 7; styles stout, 3-4 mm. long; stigmas flat, obliquely oblong, the center depressed.

Forest, Mount Tocuche, Trinidad (*Britton, Hazen and Mendelson 1247*). In fruit April 3-5, 1920.

Terminalia nyssaefolia sp. nov.

A tree up to 20 m. high, the slender twigs glabrous. Leaves chartaceous, obovate, 7-12 cm. long, 4-6 cm. wide, entire, abruptly short-acuminate at the apex, cuneate at the base, strongly

reticulate-veined, glabrous and bright green above, pale green, dull and strigose-pubescent on the veins beneath, the strigose and ciliate petioles 5–10 mm. long; fruit compressed, 2-winged, broader than long, 2–3.5 cm. broad, 1.5–2.5 cm. long, notched at the apex, at base abruptly contracted into a stalk about 2 mm. long, the thin striate wings about one half as wide as the seed-bearing part.

Coastal woods, Manzanilla, Trinidad (*Britton 2177*). In fruit (fruit fallen) March 9, 1921.

***Combretum trinitense* sp. nov.**

Vine-like, woody, the stems up to 6 m. long, the branches long and slender, the twigs glandular. Leaves elliptic or elliptic-lanceolate, chartaceous, 8–12 cm. long, 5 cm. wide or less, the midvein prominent beneath, impressed above, the lateral veins about 7 on each side of the midvein, slender, curved upwardly, the upper surface glabrous, reticulate-veined, the under surface impressed-glandular, the glandular petioles 6–7 mm. long; fruiting racemes 6–10 cm. long; fruit oblong, 10–15 mm. long, the four thin wings glandular, the pedicels about 2 mm. long.

Hillside thicket, Chacachacare Island, Trinidad (*Britton, Freeman and Watts 2699*). In fruit April 3, 1921.

***Myrcia arimensis* sp. nov.**

A small tree, the slender young twigs rather densely strigose. Leaves elliptic to elliptic-ovate, chartaceous, 4–6 cm. long, reticulate-veined, punctate, dark green and shining above, pale green beneath, the apex acute, the base narrowed, the strigose or glabrate petioles 3–5 mm. long; panicles several- to many-flowered, 5–7 cm. long, their slender branches spreading; flowers nearly or quite sessile; calyx-lobes rounded; immature fruit globose, about 5 mm. in diameter.

Arima, Trinidad (*J. Danouse*, Feb. 10, 1905).

***Eugenia Baileyi* sp. nov.**

A tree up to 12 m. high or higher, the twigs terete, rather slender. Leaves coriaceous, glabrous, broadly elliptic, 12–16 cm. long, 9–12 cm. wide, rounded at the apex, obtuse at the base, strongly pinnately veined, abundantly punctate, the stout petioles 1–1.5 cm. long; fruit lateral, oblong or ovoid-oblong, about 2 cm. long and 1 cm. thick, pale, puberulent, nearly sessile.

Forest, Morne Bleu, Trinidad (*Britton, Freeman and Bailey 2246*). In fruit March 13, 1921.

Hydrocotyle Hazenii Rose sp. nov.

A delicate creeping plant, rooting at the nodes; petioles slender, 2 to 5 cm. long, pubescent and more pronounced just below the blade; blade nearly orbicular, 2.5 cm. in diameter or less, glabrous and paler beneath, somewhat hairy or glabrate above, the sinus usually narrow, the margins doubly crenate, the crenations low and broad; peduncle slender, hairy above, longer than the petiole; flowers in a small compact umbel; pedicels 1 to 2 mm. long.

Among wet rocks, Maracas Waterfall, Trinidad (*Britton, Hazen and Mendelson* 1660, April 10, 1920).

Psammisia recurvata sp. nov.

Stems branched, about 5 m. long. Leaves coriaceous, glabrous, elliptic-ovate, 10–20 cm. long, 7–10 cm. wide, pinnately 7-veined from near the base, with numerous curved transverse veinlets, the venation impressed above, prominent beneath, the apex acute, the base narrowed, the stout petiole 1–2 cm. long; flowers several in short axillary racemes; bractlets ovate, acute, about 2 mm. long; pedicels stout, recurved, glabrous, 2–3 cm. long; ovary subglobose, glabrous; calyx subcampanulate, persistent, about 6 mm. long in fruit, its lobes rounded, apiculate, their margins thickened; corolla-tube about 4 cm. long, red, the short limb white; fruit globose, about 1 cm. in diameter, many-seeded.

Forest bank, near summit of Mount Tocuche, Trinidad (*Britton, Hazen and Mendelson* 1294).

Specimens of this plant were mixed by Grisebach with those of another and the complex described by him (Fl. Br. W. I. 143) as *Thibaudia latifolia* Griseb., subsequently referred by Bentham and Hooker to *Vaccinium*; it would appear that the name *latifolia* should go with this other species, which, however, is not a good *Vaccinium*.

Sophoclesia trinitensis sp. nov.

Pendent from forest trees; stem slender, sparingly branched, short-villous when young, 1–4 m. long. Leaves subcoriaceous, glabrous or nearly so, ovate or some of them ovate-lanceolate, 1.5–3.5 cm. long, from about one half to two thirds as wide as long, triplinerved with a pair of delicate veins at the base, this venation rather distinct beneath, obscure above, the apex bluntly pointed, the base rounded or subtruncate, the villous petiole about 2 mm. long; peduncles filiform, glabrous, somewhat shorter than the leaves; ovary globose, glabrous or with a few hairs; corolla white,

glabrous, about 5 mm. long; fruit blue or mauve, glabrous, about 5 mm. in diameter.

Forests, in wet districts, Trinidad. Type from Mount Tocuche (Britton, Hazen and Mendelson 1316). In flower and fruit April 3, 1920.

Sophoclesia major (Grisb.) Benth. & Hook., also of Trinidad, differs in its ovate-orbicular rounded, subcordate leaves and densely pilose ovary.

Cavendishia Urichiana sp. nov.

A much-branched, woody vine, up to 6 m. long, glabrous throughout, the branches slender. Leaves oblong-lanceolate to oblong-elliptic, somewhat fleshy, dark green above, bright green beneath, chartaceous in drying, triple-nerved, 10–15 cm. long, 3–5 cm. wide, the nerves rather prominent beneath, slightly impressed above, the apex acuminate, the base narrowed, the petiole 8–10 mm. long, rather stout; flowers fascicled on the twigs or in the leaf-axils, bracteolate, the bractlets ovate, acute, 2–3 mm. long; pedicels slender, 8–20 mm. long; calyx-limb with 5 short acute teeth, expanded above the ovary; corolla-tube subcylindric, about 2 cm. long, scarlet, the limb 4 mm. long, white, with 5 ovate-lanceolate teeth; stamens shorter than the corolla; style slender, exserted; immature fruit subglobose, crowned by the calyx-limb.

Climbing on forest trees, Heights of Aripo, Trinidad (Britton and Freeman 2364, March 16, 1921). Specimens were brought from the same place a few days earlier by Mr. F. W. Urich, Entomologist of the Trinidad Department of Agriculture, and he guided us to it. The plant from which the type specimens were taken is wonderfully elegant when in bloom, displaying long wands of the scarlet, white-tipped flowers, and is locally called "clove-plant."

Diospyros ierensis sp. nov.

A tree, 12 m. high or higher, the twigs and leaves glabrous. Leaves chartaceous, oblong to elliptic, 10–15 cm. long, 7 cm. wide or less, bluntly short-acuminate at the apex, narrowed or obtuse at the base, reticulate-veined, the venation prominent beneath, the stout petiole 10–14 mm. long; fruiting calyx 2–2.5 cm. broad, nearly flat, wrinkled, 4-lobed, the lobes broad and short; fruit subglobose, about 4 cm. in diameter (not quite mature); seeds about 8.

Forest near the summit of Mount Tocuche, Trinidad (*Britton, Hazen and Mendelson 1243*). In fruit April 5, 1920.

Specimens collected by J. Dannouse at Guanapo, Trinidad, showing imperfect flowers about 1 cm. wide (*Trinidad Herb. 6415*) are probably referable to this species.

***Chrysophyllum* (?) *minutiflorum* sp. nov.**

A tree about 15 m. high, the young leaf-buds puberulent, otherwise glabrous. Leaves thin-chartaceous, oblong-lanceolate, 13 cm. long or less, 2.5–5 cm. wide, long-acuminate at the apex, narrowed at the base, delicately pinnately and reticulate-veined, the rather slender petioles 10–15 mm. long; flowers green, several to many in sessile axillary fascicles; bractlets minute; pedicels very slender, thickened upward, 5–8 mm. long; calyx about 1.5 mm. long, its 3 or 4 lobes rounded; corolla-segments 3 or 4, minute; stamens 3 or 4.

Forest, Arima, Trinidad (*Britton, Britton and Brown 2403*). In young flower March 18, 1921.

The flowers are too young to enable the generic status of this tree to be certainly determined. Mr. N. E. Brown has identified specimens as the same as Crueger's *no. 247* in the Kew Herbarium, from Trinidad, which is a leafy branch and a detached fruit. The leaves are also the same as those of Trinidad Herbarium *no. 1454*, also leafy shoots with the remains of a fruit which was, apparently, about 2 cm. long, attached, and with some flowers even younger than those of our *2403*.

***Evolvulus bocasanus* sp. nov.**

Perennial, shrubby, branched, 3–4 dm. high, the branches nearly erect or ascending, strigose. Leaves lanceolate to oblong, 2–5 cm. long, 5–15 mm. wide, strigose on both sides, acute or obtuse at apex, obtuse at base, pinnately few-veined, the veins nearly parallel, the petiole 1–2 mm. long; peduncles filiform, axillary, 3 cm. long or less, 1–few-flowered; bracts lanceolate, acuminate, 2–3 mm. long; pedicels 2–10 mm. long; calyx strigose, 3–4 mm. long, 5-lobed to about the middle, the lobes lanceolate, acute; corolla rotate, bright blue, 8–15 mm. broad.

Hillsides, Bocas Islands, Trinidad; type from Chacachacare (*Britton, Freeman and Watts 2674*). In flower April 3, 1921. This is the species recorded from Trinidad by Grisebach as *Evolvulus alsinoides* L., at least in part.

***Solanum ierense* sp. nov.**

A shrub about 2 m. high, the slender unarmed branches divergent, glabrous, the young twigs stellate-pubescent. Leaves thin, ovate or elliptic-ovate, 5 cm. long or less, delicately pinnately few-veined, sparingly stellate-pubescent above, densely stellate-pubescent beneath, the apex acute or obtuse, the base obtuse or narrowed, the slender petioles 4-10 mm. long; flowers solitary or geminate (rarely 3) in the axils on nearly filiform pubescent peduncles 2.5 cm. long or less; calyx stellate-pubescent, 5-7-cleft, the lobes linear-lanceolate, acuminate; corolla white, 5-6-cleft, its lobes linear-lanceolate, acuminate, 10 mm. long; stamens 5 or 6, all alike, the anthers somewhat attenuate, 8 mm. long, the filaments 1-2 mm. long; immature berry globose, about 7 mm. in diameter.

Hillside, Chacachacare, Trinidad (*Britton, Freeman and Watts 2706*). In flower and young fruit April 3, 1921.

***Solanum Hazenii* sp. nov.**

A tree up to about 5 m. high with a woody trunk about 1.5 dm. in diameter. Leaves broadly elliptic, rather thin and flaccid, 10-20 cm. long, 8-15 cm. wide, strongly pinnately veined on the under side, the apex short-acuminate, the base obtuse, the upper surface finely stellate when young, glabrous when old, the under surface persistently stellate-tomentulose, the stout, stellate-tomentulose petioles 3 or 4 cm. long; inflorescence stalked, about equalling the leaves, many-flowered, tomentulose; pedicels short; flower-buds subglobose, rounded, tomentulose; calyx tomentulose, deeply lobed, 5 mm. long, the lobes obtuse; corolla white, 20 mm. broad, 5-lobed to below the middle, the lobes broadly ovate, acute; stamens all alike, the anthers 3 mm. long, about twice as long as the filaments; berry globose, black, about 8 mm. in diameter.

Hillsides, northwestern parts of Trinidad mainland and on the adjacent Bocas Islands. Type from Saddle Road (*Britton and Hazen 156*).

***Solanum capillipes* sp. nov.**

A shrub, about 2 m. high, the slender young branches pilose, the older branches glabrous. Leaves oblong-elliptic to elliptic-lanceolate, membranous, all alike, pinnately veined, glabrous, somewhat darker green above than beneath, 10-15 cm. long, 3-6 cm. wide, acuminate, the slightly inequilateral base narrowed, the petioles about 1 cm. long; racemes lateral, few-flowered,

glabrous; peduncles very slender, 2.5 cm. long or less; pedicels filiform, spreading, 1-3 cm. long; calyx obconic, about 5 mm. long; corolla white, deeply lobed, 5-6 mm. broad; stamens all alike, the oblong anthers obtuse, 1.5 mm. long, nearly sessile; fruit globose, 6-7 mm. in diameter.

Forests in wet districts, southern Trinidad. Type from forest, Ortoire River, Guayaguayare Road (*Britton, Freeman & Nowell 2521*).

Codonanthe (?) triplinervia sp. nov.

A somewhat fleshy, epiphytic woody vine, 1-2 m. long, the young twigs sparingly pubescent. Leaves ovate or ovate-lanceolate, 8 cm. long or less, 2-3.5 cm. wide, glabrous, rather thin, triplinerved, the apex acuminate, the base narrowed or obtuse, the slender, sparingly pubescent petioles 6-12 mm. long; flowers solitary or 2-4 together at the nodes; bractlets linear, pubescent, acute, 6 mm. long or less; pedicels slender, pubescent, about as long as the bractlets; calyx 10-12 mm. long, sparingly pubescent below, deeply cleft, its segments linear-oblong, acute; corolla 3-3.5 cm. long, white, the throat yellow within, its tube slightly bent just above the gibbous base, about 1 cm. long, the subcampanulate throat about 1.5 cm. long, the somewhat spreading limb with rounded, translucent lobes.

On forest trees, Trinidad; type from Ortoire River, Guayaguayare Road (*Britton, Freeman and Nowell 2543*). In flower March 25, 1921.

Sabicea trinitensis Standl. sp. nov.

Vine, the stems about 2 m. long, pubescent with dense short ascending rufescent hairs; stipules 5-6 mm. long, rounded-ovate, obtuse or subacute, finely ciliolate but otherwise glabrous; petioles 8-14 mm. long, densely hirtellous with ascending hairs; leaf-blades elliptic or oblong-elliptic, 9-10.5 cm. long, 4.5-6 cm. wide, acute or subacute, abruptly contracted at base, hispidulous above along the costa, elsewhere scaberulous, appressed-pilose beneath along the veins, glabrate elsewhere; flowers few, sessile in the leaf-axils, subtended by two green bracts similar to the stipules; hypanthium about 3 mm. long; glabrous or with a few appressed white hairs; calyx-lobes linear, 2-3 mm. long, green, plane, obscurely ciliolate; corolla appressed-hirsute, the tube 6-7 mm. long, the lobes lanceolate, acuminate, 3 mm. long.

Type in the U. S. National Herbarium, No. 1,059,334, collected in a thicket of the O'Meara Savanna, Trinidad, March 22, 1921 (*Britton 2489*).

The proposed species is most nearly related to *S. hirsuta adpressa* Wernham, which has been reported from Trinidad. It differs essentially, however, in the short narrow calyx-lobes and in the short scant pubescence of the upper leaf-surface.

61. UNDESCRIBED SPECIES FROM JAMAICA

***Pilea Maxoni* sp. nov.**

Stem trailing, freely rooting at the nodes, 3–6 dm. long or longer, rather densely pubescent, the pubescent branches erect, 6–12 cm. high or higher. Stipules ovate-orbicular, rounded, submembranous, 3–6 mm. long, sometimes broader than long; leaf-pairs nearly equal; leaves ovate, regularly crenate, 1–3 cm. long, acute, acuminate, or some of the smaller ones obtuse at the apex, obliquely obtuse or rounded at the base, 3-nerved from above the base, sparingly pubescent and reticulate-veined beneath, the upper surface nearly veinless, with long, flat scattered hairs and some short ones, the linear glochides largely marginal only; petioles slender, pubescent, as long as the blades or shorter; pistillate inflorescence paniculate, slender-peduncled, about 6 cm. long, the staminate shorter; sepals lanceolate or oblong-lanceolate.

Rocky woods in the Cockpit Country, Jamaica. Type, *Maxon & Killip 1555*, from near Mocho, above Catadupa, April 3, 1920; previously collected near Troy, June 28, 1904 (*Maxon 2834*), our specimen of this number barren.

***Zanthoxylum Harrisii* P. Wilson sp. nov.**

An unarmed tree 15–18 m. high, with grayish-brown branches. Leaves equally pinnate, 2–3.5 dm. long, the petioles and rachis terete, glabrous or nearly so; leaflets 8–12, alternate or sometimes opposite, short-petioluled, elliptic-lanceolate to elliptic, 7–15 cm. long, 4–5 cm. broad, coriaceous, acuminate at the apex, inequilateral at the base, entire, lustrous above, the midvein impressed, paler beneath, the midvein prominent; inflorescence terminal or lateral in the axils of the upper leaves, the branches densely puberulent; staminate flowers: calyx lobes 5, triangular-ovate; petals 5, lanceolate, 3 mm. long, 1.5 mm. broad, stamens 5, exserted.

St. George's, Portland, Jamaica, March 30, 1918 (*Harris 12878*).

***Salvia clarendonensis* sp. nov.**

A spreading shrub with weak stems and branches 2–3 m. long, the twigs, petioles and inflorescence puberulent. Leaves slender-

petioled, membranous, oblong-lanceolate, serrulate, glabrous above, puberulent beneath, acuminate at the apex, narrowed or obtuse at the base, 5-15 cm. long; racemes slender, 7-10 cm. long; bracts linear-lanceolate, the lower ones sometimes 1 cm. long; pedicels very short; calyx about 5 mm. long, its ovate cuspidate teeth shorter than the tube; corolla rose-purple, 1-1.2 cm. long.

Peckham woods, Upper Clarendon, Jamaica (*Harris 12787*).

***Gesneria jamaicensis* sp. nov.**

A glabrous shrub, up to 3.3 m. high, the young twigs and leaves resiniferous, the branches terete. Leaves oblong to elliptic, subcoriaceous, 7-12 cm. long, 2.5-5 cm. wide, acute or acuminate at the apex, closely serrate except near the entire, acute or acutish base, pinnately veined, the rather stout petioles 5-10 mm. long; peduncles axillary, slender, 1-flowered, about as long as the leaves; calyx-tube obconic or turbinate, 6-8 mm. long; calyx-lobes linear-lanceolate, bluntish, 8-10 mm. long, 1 mm. wide; corolla crimson or rose-pink, its tube subcylindric, 8-10 mm. long, its spreading lobes orbicular, strongly veined, crose, about 4 mm. broad; stamens included; filaments distinct, about 8 mm. long; anthers nodding; staminodium a little shorter than the filaments; style glabrous, 2-lobed; capsule broadly turbinate, about 8 mm. long.

Ipswich, St. Elizabeth, Jamaica (*Harris 12509*, type); Mulgrave, St. Elizabeth, Jamaica (*Harris 12374*).

Nearest related to *G. Harrisii* Urban, which has a sulphur-yellow corolla with oval lobes, the calyx-lobes filiform, the leaves crenate-dentate.

62. UNDESCRIBED SPECIES FROM CUBA

***Scleria motemboensis* sp. nov.**

Annual with fibrous roots; culms solitary or few together, slender, erect, villous, about 3 dm. high. Leaves narrowly linear, villous, 1-1.5 mm. wide; inflorescence glomerate-spicate; glomerules of 2 or 3 sessile spikelets; bracts linear, long-ciliate, 3-4 mm. long; achene white, shining, 1.5 mm. in diameter, apiculate, faintly longitudinally striate, with 4 pores at each side of the subtriginous base.

Small lagoon, Sabana de Motembo, Santa Clara, Cuba (*Léon and Loustalot 9405*). Nearest to *S. Lindleyana* Clarke of South America.

***Ouratea savannarum* Britton & Wilson sp. nov.**

A glabrous shrub 5 m. high, the slender twigs grayish-brown, often somewhat flexuose. Leaves coriaceous, elliptic-lanceolate to elliptic-ovate, 4–8 cm. long, 2–3.8 cm. broad, acuminate at the apex, rounded at the base, faintly pinnately nerved, the margin spinose-serrate; petioles short, stout, 3–4 mm. long; inflorescence terminal, 6–11 cm. long; pedicels slender, 1–1.5 cm. long; buds ovoid; sepals oblong-lanceolate to oblong-elliptic, 7–7.5 mm. long, 3.2–3.5 mm. broad, obtuse at the apex; petals obovate, 9 mm. long, 7 mm. broad, crenulate; anthers oblong-lanceolate or oblong, 2.5 mm. long, subsessile; style 6–7 mm. long; fruit unknown.

Sabana de San Marcos, Santa Clara, Cuba (*Léon 9205*).

***Banara Brittonii* Roig sp. nov.**

A slender shrub about 4 m. high, the young twigs densely pubescent. Leaves oblong to oblong-lanceolate or ovate-lanceolate, 4–7 cm. long, 1.5–3 cm. wide, acute at the apex, more or less inequilateral and rounded at the base, glabrous and shining above, reticulate-veined and densely pubescent beneath with short, whitish, mostly appressed hairs, the margin revolute, serrulate; petioles 5–8 mm. long, slender, with one or two orbicular glands at the summit; inflorescence terminal, inclined or pendulous, 5–7 cm. long, the branches puberulent, pedicels slender, 3–5 mm. long; sepals oblong-elliptic to oblong-ovate, 2.5 mm. long, obtuse at the apex, the margin ciliate; petals oval to suborbicular, about as long as the sepals, yellow; stamens indefinite; anthers rounded; style 1.5 mm. long; fruit globose (immature?), 4 mm. in diameter, becoming black in drying.

Rocky limestone soil, Cayo Mono, inside the swamp near San Pedro, Isle of Pines (*M. Cremata*, May 17, 1920).

***Psidium Loustalotii* Britton & Wilson sp. nov.**

A small shrub, with short, grayish, often spine-like twigs. Leaves elliptic to oval, 2–4 mm. long, 1.5–3 mm. broad, rounded at both ends, dark green and more or less minutely hispidulous above, paler and strigillose beneath, coriaceous, the short petiole 0.5 mm. long or less; pedicels axillary, solitary, 2 mm. long; young fruit ellipsoid, 5 mm. long, 4 mm. in diameter, black.

Sabana de Motembo, Santa Clara, Cuba (*Léon & Loustalot 9394*).

***Jacquinia Roigii* P. Wilson sp. nov.**

Shrub or tree?; twigs and branches glabrous. Leaves obovate, 4–8 cm. long, 1.4–2.7 cm. broad, strongly spine-tipped at the apex,

cuneate at the base, 3-nerved, in whorls of 4 or more with distinct internodes between the whorls; pedicels 3.5 cm. long; sepals long-ciliate; fruit ellipsoid, 1.7 cm. long, 1.1 cm. broad.

Cañete, Oriente, Cuba (*J. T. Roig 69*).

***Tabebuia saxicola* sp. nov.**

A much-branched shrub, about 3 m. high, the short, stiff twigs white-lepidote. Leaves simple, entire, oblong or oblong-lanceolate, 2–4 cm. long, 5–11 mm. wide, acute at the apex, narrowed at the base, the upper surface pale green, loosely lepidote and with very obscure venation, the under-surface reticulate-veined and densely white-lepidote, the petioles 1–3 mm. long; flowers solitary or 2 together at the ends of short twigs; peduncles 1 cm. long or less; calyx narrowly campanulate, lepidote, persistent, about 7 mm. long, irregularly toothed; corolla 2–2.5 cm. long; capsule 4–5 cm. long, about 8 mm. thick.

Rocky top of highest mogote near Sagua la Grande, Santa Clara, Cuba (*Léon and Loustalot 9477*). In both flower and fruit August 12, 1920.

63. A NEW TOURNEFORTIA

***Tournefortia barbadensis* N. E. Brown**

Stem probably scrambling, with the young parts minutely adpressed-puberulous. Leaves very spreading; petiole about 3 lines long; blade $1\frac{1}{2}$ – $2\frac{3}{4}$ in. long and 6–10 lines broad, lanceolate, gradually tapering from about the middle to an acute apex, subacute or slightly rounded at the base, glabrous above, thinly and microscopically puberulous beneath. Cymes lateral below the ends of the branches, 2– $3\frac{1}{2}$ in. in diameter, on peduncles 3–5 lines long, lax, with the primary and sometimes the secondary forkings subhorizontally diverging, then branching in a zigzag manner, minutely adpressed-puberulous; branches about 3 lines apart and $\frac{1}{3}$ in. long, very slender, variously curved, with the small slender flowers about 1 line apart. Pedicels $\frac{1}{4}$ – $\frac{1}{2}$ line long. Calyx very small, about $\frac{1}{2}$ line long, lobed almost to the base; lobes subulate or deltoid-subulate. Corolla minutely puberulous outside, with a rather slender tube about $1\frac{1}{4}$ line long, swollen at the upper part, and filiform lobes 1 line long. Ovary and style glabrous.

Barbados: Middle School, Christ Church, *Bovell & Freeman 404*, and without precise locality, *Lane 428* (in *Herb. Kew*), type

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NEW YORK BOTANICAL GARDEN

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BOTANICAL GARDEN—No. 238

STUDIES OF WEST INDIAN PLANTS—XI

NATHANIEL LORD BRITTON

NEW YORK

1923

Reprinted, without change of paging, from BULLETIN OF THE TORREY BOTANICAL
CLUB 50: 35-56. January, 1923.

Studies of West Indian plants---XI

NATHANIEL LORD BRITTON

64. UNDESCRIBED SPECIES FROM CUBA

***Juniperus saxicola* Britton & Wilson, sp. nov.**

A densely branched small tree, 3-8 m. high. Leaves all subulate-acicular, subimbricate, somewhat spreading, 4-7 mm. long, about 1 mm. broad at the base, lustrous; fruit blue, broadly ellipsoid or subglobose, 5 mm. long, 3-4 mm. in diameter.

On rocks, crest of Sierra Maestra, Oriente (*Léon 10798*, type); also collected on Farallones de Regino, Estribo Turquino (*Léon 11024*).

***Myrica cacuminis* Britton & Wilson, sp. nov.**

A shrub, 3-4 m. high, much branched, the slender twigs densely pilose. Leaves elliptic to suborbicular, 7-18 mm. long, short-petioled, sharply few-toothed or entire, coriaceous, pinnately few-veined, pubescent on both sides, the apex rounded, the base rounded or obtuse; flowers and fruit not seen.

Pico Turquino, Oriente (*Léon 10973*, type; *Bucher 19*).

***Pilea ovalifolia* Britton & Wilson, sp. nov.**

Stems creeping, rather stout, rooting at the nodes. Leaves chartaceous, elliptic, obtuse or rounded at the apex, rather coarsely crenate, pinnately 3-nerved, glabrous, those of each pair often unequal in size; larger leaves up to 5.5 cm. long, 3.4 cm. wide, with petioles 1.5-3 cm. long; smaller leaves 2.5-4 cm. long, 1.5-2.6 cm. wide, the petioles 1-2 cm. long; upper leaf-surface densely covered with minute linear raphides, the lower surface papillose; pistillate inflorescence longer than the leaves, peduncled, its branches spreading; achenes ovate, about 0.9 mm. long.

Sierra Maestra, Oriente (*Léon 10767*).

***Pilea membranacea* Britton & Wilson, sp. nov.**

Stem slender, puberulent. Leaves membranous, lanceolate to ovate, acuminate, coarsely toothed, 3-nerved, glabrous, those of each pair unequal in size; larger leaves up to 5 cm. long, 1.8 cm. wide, with slender petioles 0.7-1 cm. long; smaller leaves 1-2 cm. long, 0.6-1 cm. wide, the petioles 2-4 mm. long; upper leaf-surfaces covered with minute white linear raphids, those of

the lower surface rather inconspicuous; pistillate inflorescence slender, longer than the leaves; achenes elliptic, 1 mm. long.

Sierra Maestra, Oriente (*Léon 10815*).

***Pilea micromeriaefolia* Britton & Wilson, sp. nov.**

Stems elongate, woody, procumbent, the branches erect or ascending, 4-angled, scaly encrusted. Leaves in whorls of 3's or 4's, lanceolate, 0.8–1 cm. long, about 2 mm. wide, acute at the apex, obtuse at the base, glabrous, the petioles 1 mm. long or less; upper leaf-surfaces covered with linear raphides, those on the lower surface coarser; inflorescence not seen.

Brecha de Regino, Estribo Turquino, Oriente (*Léon 11008*).

***Pilea yarensis* Britton & Wilson, sp. nov.**

An erect monoecious herb, 2–3.5 dm. high. Leaves membranous, broadly elliptic, acuminate at the apex, acute at the base, crenate-dentate, 3-nerved, glabrous above, often slightly pubescent on the midvein beneath, those of each pair unequal in size; larger leaves up to 15 cm. long, 6 cm. wide, with slender petioles sometimes 3.5 cm. long; smaller leaves up to 11 cm. long, 5 cm. wide, with petioles 1–2 cm. long; upper leaf-surface papillose, densely covered with linear raphides, those of the lower surface often indistinct; staminate inflorescence equalling or longer than the leaves, the peduncles sometimes 1 dm. long, the branches spreading, the perianth about 1.5 mm. long; pistillate inflorescence equalling or shorter than the leaves; achenes elliptic, 0.8 mm. long.

Bank of the Yara River, Sierra Maestra, Oriente (*Léon 10736*).

***Pilea ermitensis* Britton, sp. nov.**

Stems slender, densely covered with linear raphides. Leaves oblong, oblong-lanceolate or elliptic, membranous, acute, entire, 3-nerved, glabrous, those of each pair unequal in size; larger leaves up to 3 cm. long, 6–7 mm. wide, with petioles 3 mm. long; smaller leaves 1–1.7 cm. long, 4–5 mm. wide, the petioles short; raphides of the upper leaf-surface minute, linear-filiform, those of the lower surface scattered, more conspicuous and stouter; inflorescence often shorter than the petioles, the flowers borne in globose heads 1.5–2 mm. in diameter; achenes elliptic-ovate, about 0.5 mm. long.

La Ermita, Oriente (*Hioram 4921*).

***Pilea crenata* Britton & Wilson, sp. nov.**

Stem creeping, often rooting at the nodes, the branches erect or ascending, pilose. Leaves chartaceous, oval to suborbicular,

rounded at the apex, rounded or acute at the base, crenulate, 3-nerved, glabrous above, pilose on the nerves beneath, those of each pair often unequal in size; larger leaves up to 3 cm. long, 2.5 cm. wide, with slender petioles 1.5–2 cm. long; smaller leaves 1–2 cm. long, 1–2 cm. wide, the petioles 0.7–1 cm. long; upper and lower leaf-surfaces densely covered with linear raphides; pistillate inflorescence as long as or shorter than the leaves; achenes about 0.6 mm. long.

Sierra Maestra, Oriente (*Léon 10766*, type; *Léon, Clement and Roca 9872*).

***Coccolobis monticola* Britton, sp. nov.**

Branches slender, glabrous; young twigs pubescent. Ocreae cylindric, 1 cm. long or less; leaves coriaceous, light green, 3–6 cm. long, reticulate-veined on both sides, shining above, dull and black-dotted beneath, the apex acute, the base obliquely obtuse, the petioles about 2 mm. long; racemes very slender, glabrous, densely many-flowered; ocreolae subtruncate, about 0.5 mm. long; pedicels glabrous, about 1 mm. long; calyx about 1 mm. long.

Sierra Maestra, Oriente (*Léon 10713*).

***Coccolobis saxicola* Britton, sp. nov.**

A shrub about 3 m. high, glabrous throughout, the twigs short, stout, more or less tortuous. Ocreae subtruncate, 4–6 mm. long; leaves coriaceous, elliptic to obovate, 9 cm. long or less, the veins somewhat impressed above, prominent beneath, reticulate-veined on both sides, the apex abruptly short-acuminate, the base narrowed or obtuse, the petioles 5–15 mm. long; fruiting racemes slender, solitary, 6–9 cm. long; pedicels numerous, about 1.5 mm. long; ocreolae truncate, less than 1 mm. long, subpapillose, the sepals ovate.

On rocky crest in woods, Loma del Gato, Cobre Range of Sierra Maestra, Oriente (*Léon, Clement and Roca 10167*).

***Talauma* (?) *orbiculata* Britton & Wilson, sp. nov.**

Tree 6–8 m. tall, with glabrous branches. Leaves orbicular, 8–12 cm. in diameter, rounded or subtruncate at the apex, rounded or truncate at the base, glabrous and prominently reticulate-veined on both sides, the midrib flat above, prominent beneath, the petioles rather slender, 3–6 cm. long, flat or shallowly grooved above, glabrous; sepals broadly elliptic, 2.6 cm. long, 2–2.3 cm. broad; petals thick, oblong or elliptic, about 2 cm. long, 0.8–1 cm. wide; carpels tomentulose.

Loma de Quintín, Nagua, Oriente (*Léon 10955*).

***Persea anomala* Britton & Wilson, sp. nov.**

A shrub or tree, sometimes 10 m. tall, with appressed-pubescent twigs. Leaves lanceolate to ovate or elliptic, 4–10 cm. long or less, 1.8–5.5 cm. broad, rounded, obtuse, or acutish at the apex, rounded or somewhat acutish at the base, glabrous and reticulate-veined on both sides, the petioles slender, 1–1.8 cm. long; branches of the inflorescence pubescent with appressed hairs; calyx pubescent, greenish, its lobes unequal, the outer broadly ovate, about 1 mm. long, 0.7 mm. broad, the inner elliptic or broadly ovate, 1.7–2 mm. long, 1.5–1.7 mm. broad; berry subglobose, 11 mm. long, black.

Sierra Maestra, Oriente (*Léon* 10707, type; 10975; 10976; 11079; 11057).

***Persea similis* Britton & Wilson, sp. nov.**

Twigs appressed-pubescent. Leaves elliptic, 4–7 cm. long, acute or short-acuminate at the apex, acute at the base, dark green and glabrous above, the midvein impressed, paler beneath and pubescent with short appressed hairs, the lateral veins rather indistinct on both sides; petioles 3–4 mm. long; inflorescence pubescent with appressed brownish hairs; calyx-lobes elliptic to oval, 1.8 mm. long, about 1 mm. broad, appressed-pubescent.

Sierra Maestra, Oriente (*Léon* 11058).

***Nectandra reticularis* Britton & Wilson, sp. nov.**

A shrub with pubescent twigs. Leaves elliptic-lanceolate, 3.5–6.8 cm. long, 1–2.3 cm. broad, acute to acuminate at the apex, acute at the base, glabrous, dark green, shining and reticulate-veined above, paler and reticulate-veined beneath; petioles 7 mm. long or less; inflorescence long-peduncled, the peduncle puberulent; flowers short-pedicelled; calyx white, its lobes elliptic, 1.5 mm. long, about 1 mm. broad, puberulent; drupe ellipsoid, about 1.1 cm. long, 6 mm. in diameter.

Sierra Maestra, Oriente (*Léon* 10746, type; 10958).

***Rubus turquinensis* Rydberg, sp. nov.**

Stem terete, 1–2 m. high, densely fuscous, villous-tomentose and with numerous stalked glands, armed with somewhat compressed curved pubescent prickles 4–8 mm. long; leaves of the branches 3-foliolate, those of the main stem not seen; petiole and ribs of the leaflets villous-tomentose, glandular, and slightly prickly; petiolule of the terminal leaflet 7–15 mm. long, those of the lateral leaflets 1–4 mm. long; leaflets lanceolate, long-acuminate, mostly rounded at the base, finely and closely serrate,

3-10 cm. long, dark-green, sparingly pubescent and somewhat glandular-granuliferous above, paler and somewhat fuscous and densely short-villous, almost subvelutinous, beneath; racemes 3-6 cm. long, 5-10-flowered; peduncles and pedicels densely pubescent and glandular, slightly prickly; sepals lanceolate, acuminate, 5-6 mm. long, glandular and pubescent without, grayish-tomentose within; berry about 1 cm. long and 7-9 mm. thick; drupelets many, glabrous.

Type collected on the top of Pico Turquino, Oriente, Cuba, July 23, 1922, *Léon 10755* (New York Botanical Garden); also at an altitude of 1600 m. on the same mountain, *10756*.

R. turquinensis is a member of the *Adenotrichi*, differing from *R. costaricanus* and *R. adenotrichos* in the narrower lanceolate long-acuminate, instead of broadly ovate, abruptly acuminate leaflets; from *R. Vera-Crucis* in the more dense pubescence and the texture of the leaves. It is more closely related to *R. irasuensis* and *R. miser*. In habit, leaf-form, and pubescence it resembles the former, but the inflorescence is mostly simple, the sepals narrower, and the drupelets perfectly glabrous; neither have any 5-foliolate leaves been seen. From *R. miser* it differs in the shorter sepals and the thicker leaflets, with shorter petioles, more numerous and more prominent lateral veins, and much closer serrations.

***Polygala scabridula* Blake, sp. nov.**

Virgate leafy shrub 2-3 m. high, the branches erect, hispidulous. Petioles hispidulous, 2 mm. long; leaf blades obovate, 1.3-1.8 cm. long, 9-12 mm. wide, broadly rounded at apex, rounded or cuneate-rounded at base, coriaceous, scabrid-hispidulous above with persistent ascending hairs, similarly pubescent beneath; racemes axillary, the axis few-flowered, about 1 mm. long, the peduncle obsolescent; pedicels glabrous, 1.2 mm. long; flowers immature; sepals deltoid-ovate, ciliolate, obtuse, 1.1 mm. long; wings similar, 1.4 mm. long and wide; keel ciliate, otherwise subglabrous, 2.5 mm. long; capsule subquadrate, rather broadly margined, slightly wider at the apex, ciliolate, otherwise glabrous, 6 mm. long, 8.5 mm. wide, lobed for about $1/3$ its length; seed ellipsoid, sparsely pubescent, 4 mm. long; aril orange, 1.8 mm. deep, with repand lateral margin, the dorsal lobe 1 mm. long.

Sabana de Motembo, Santa Clara, August 9-10, 1920 (*Léon and Loustalot 9333*).

This species is related to *Polygala portoricensis* (Britton) Blake, of Porto Rico, which has larger emarginulate leaves, and a smaller, less deeply lobed capsule.

***Polygala rhynchosperma* Blake, sp. nov.**

Slender erect annual, 14–25 cm. high, simple or few-branched above, evenly but not densely puberulous with short, thickish, incurved or subappressed eglandular hairs. Leaves alternate except for 1 or 2 basal whorls, rather crowded, short-petioled, the blades linear, 6–14 mm. long, 0.5–1.3 mm. wide, acute, cuspidulate, 1-nerved, sparsely puberulous like the stem, erect; peduncles 5–15 mm. long; racemes slender, cylindric, gradually narrowed to an obtuse apex, loose below, 2–9 cm. long, the axis becoming 10.5 cm. long and more, puberulous like the stem; bracts oval or obovate, caducous, 1.5 mm. long, puberulous at base, with rather short abrupt caudate purplish tips; pedicels glabrous, 1 mm. long, clavellate; sepals pinkish white with greenish center, glabrous, the upper oval-ovate, obtuse, 1.5 mm. long, the 2 lower oblong, obtuse, 1.2–1.5 mm. long, sometimes obscurely 1-denticulate on each side near apex; wings pinkish (when dried), obovate, 3 mm. long, 1.5 mm. wide, rounded or obtuse, scarcely clawed, 3-nerved; upper petals slightly shorter than keel, the free portion obliquely ovate, obtuse, 3-nerved; keel 3–3.2 mm. long, slightly surpassing the wings, the crest on each side of a deeply trifid lamella and a 2- or 3-fid or 2-parted lobe with linear segments; capsule pendulous at maturity, slightly surpassing the wings, elliptic-oblong, emarginate, 3.3 mm. long, 1.5 mm. wide; seeds subcylindric, 2.2 mm. long, densely short-pilose, distinctly rostrate at base (beak conic, 0.4 mm. long); aril fastened to upper half of beak, 0.7 mm. long, the 2 lobes rhombic, acute or obtuse, appressed; stigma with short blunt retrorse lower lobe and substipitate penicillate upper lobe.

Sabana del Cerro, near Zarzal, Oriente, July, 1922 (*Léon 10990*; type No. 1,049,981, U. S. National Herbarium).

Among North American species *Polygala rhynchosperma* is nearest *P. paniculata* L., which is densely stipitate-glandular and has shorter wings and an erostrate seed. The Venezuelan *P. Funkii* Chod., known to me only from Chodat's description and figures, is evidently closely related, having similar bracts, seed, and stigma. It is described as glabrous, with acute lance-elliptic sepals, acute wings, and a crest composed on each side of an acute triangular entire lamina and an undivided linear lobe.

***Polygala ambigens* Blake, sp. nov.**

Stems usually solitary from a slender but evidently perennial root, simple or sparsely branched, 3.5–6 dm. high, very slender, glabrous throughout or sparsely incurved-puberulous on the

younger parts; leaves alternate, linear or linear-filiform, 9–25 mm. long, 0.5–1.5 mm. wide, cuspidulate, short-petioled, 1-nerved, the margins often inflexed; peduncles 5–10 mm. long; racemes loosely many-flowered, the axis sometimes becoming 25 cm. long; bracts subulate, 1.5 mm. long, caducous; pedicels glabrous, 1.5–2 mm. long; sepals bearing 3–6 pairs of stipitate glands, sometimes also ciliolate with eglandular hairs toward apex, the upper sepal 2 mm. long, the lower sepals (connate nearly to apex) 1.5 mm. long; wings magenta-purple, broadly and obliquely cuneate-obovate, 3.8–4.5 mm. long, 2.8–3.2 mm. wide, subsessile or short-clawed, emarginate at apex, glabrous, about 5-veined, the veins loosely anastomosing, not at all prominent; upper petals magenta-purple; keel yellow-tipped, becoming 4 mm. long; capsule 3.8 mm. long, 2.4 mm. wide, slightly shorter than the mature wings; seed densely pilose, 2.8 mm. long; aril sparsely pubescent on the sides, 0.8 mm. high.

Sabana del Cerro, near Cerro Pelado, between Zarzal and Nagua, Oriente, July, 1922 (*Léon 10860*; type No. 1,049,889, U. S. National Herbarium).

Nearly related to *Polygala cubensis* Chod., which is an annual with shorter sepals (1.1–1.3 mm. long), and somewhat smaller wings shorter than the capsule. In its slender but evidently perennial root resembling *P. Wrightii* Chod., which is densely incurved-puberulous and has the sepals ciliate with eglandular hairs. Much more material of the Cuban representatives of this group (section *Adenotricha* of subgenus *Hebeclada*) must be accumulated before the specific characters can be established satisfactorily.

***Maytenus saxicola* Britton & Wilson, sp. nov.**

A glabrous shrub, 4 m. high, with rather stiff, somewhat flexuose twigs. Leaves elliptic to elliptic-ovate, rigid-coriaceous, 3–6 cm. long, 1.5–3.3 cm. broad, obtuse or rounded at the apex, acute at the base, dark green above, paler beneath, the midvein elevated on both sides, the lateral veins often rather indistinct, the margin minutely crenulate; petioles 5 mm. long or less; pedicels slender, up to 7 mm. long; capsule globose-obovoid, 8 mm. long, 7–8 mm. in diameter.

On rocks, Sierra Maestra, Oriente (*Léon, Clement and Roca 10221*).

***Rhamnidium bicolor* Britton & Wilson, sp. nov.**

A shrub, with slender puberulent twigs. Leaves opposite, elliptic or ovate-elliptic, 8 cm. long or less, repand-crenate, mem-

branous, the apex acuminate, the base rounded or subtruncate, the venation ascending, densely and finely reticulate-veined on both sides, the upper surface green and glabrate, the under side whitish puberulent, the petioles 6–10 mm. long; stipules obliquely linear-lanceolate, nearly as long as the petioles; inflorescence axillary, glabrous; peduncles nearly as long as the petioles; flowers subglomerate; pedicels very short; sepals triangular-ovate, 2.5 mm. long, acute, glandular-dotted; petals orbicular-obovate, 1.5 mm. long, about 1.5 mm. broad.

High Sierra Maestra, Oriente (*Léon 11025*). Other specimens from the Sierra Maestra (*Léon 10952*), in foliage only, have entire leaves, somewhat larger, and may represent another species.

***Ouratea xolismaefolia* Britton & Wilson, sp. nov.**

A glabrous shrub, with slender terete twigs. Leaves oblong, elliptic, or elliptic-obovate, coriaceous, 3 cm. long or less, the midvein prominent, the lateral venation delicate and nearly obscure, the apex rounded or emarginate, the base narrowed or cuneate, the petioles 1–2 mm. long; pedicels slender, 5–6 mm. long, sepals elliptic to oval, 3 mm. long; petals obovate, 4–4.5 mm. long, 3 mm. broad, rounded or truncate at the apex; anthers 3 mm. long.

High Sierra Maestra, Oriente (*Léon 10911*).

***Taonabo monticola* Britton & Wilson, sp. nov.**

A glabrous shrub, 1 m. or more tall, with light brown twigs. Leaves elliptic-obovate, rigid-coriaceous, 2–5 cm. long, 1.3–2.5 cm. broad, rounded at the apex, acute at the base, indistinctly veined, the midvein impressed above; petioles 4 mm. long; peduncles 2–3 cm. long; sepals 5, the outer oval to suborbicular, 5.5–6 mm. long, 5–5.5 mm. broad, glandular-ciliate, the inner 4.5–5 mm. broad, rigidly and sharply acute, without marginal cilia; fruit (immature?) ovoid, 9.5 mm. in diameter.

Sierra Maestra, Oriente (*Léon 10839*, type; *10837*; *11193*).

***Taonabo Leonis* Britton & Wilson, sp. nov.**

A glabrous shrub, with light-gray twigs. Leaves obovate, 2.5–5 cm. long, 1.4–2.7 cm. broad, rounded or truncate and often slightly emarginate at the apex, acute at the base, indistinctly veined, dark green above, paler beneath, the petioles 2–3 mm. long; peduncles 3–7 mm. long, reflexed; sepals 5, the outer oval, 4.7–5 mm. long, 4 mm. broad, rounded at the apex, glandular-ciliate, the inner elliptic, 3–3.5 mm. long, acute, without glandular cilia.

Vicinity of Pico Turquino, Oriente (*Léon 10910*).

Haemocharis angustifolia Britton & Wilson, sp. nov.

A tree 20–30 m. tall, with slender grayish brown twigs, pubescent with strigillose hairs. Leaves oblong or oblong-obovate, 2–5.5 cm. long, 0.5–1.3 cm. broad, obtuse or rounded at the apex, acute at the base, light green and glabrous above, paler beneath and pubescent; flowers about 3 cm. in diameter; sepals oval or suborbicular, 4.5–6 mm. long, 4–6 mm. broad, pubescent on the back with appressed hairs; petals obovate, 1.2–1.3 cm. long, 6–7 mm. broad, rounded at the apex, pubescent; filaments filiform, glabrous; ovary villous.

Sierra Maestra, Oriente (*Léon*, 11072).

Begonia lomensis Britton & Wilson, sp. nov.

Suffruticose, the stems 3–4.5 dm. high, rusty pilose. Leaves obliquely cordate-ovate to obliquely suborbicular, 1.5–4 cm. long, 1–2.7 cm. wide, acute, glabrous above at maturity, rusty pilose or nearly glabrous beneath, coarsely toothed, the petioles 4–20 mm. long, pilose; stipules lanceolate, acuminate, entire, 4–6 mm. long, 1.5–2 mm. broad; inflorescence long-peduncled; staminate flowers; pedicels slender, up to 7.5 mm. long, glabrous; sepals 2, orbicular, 7–8 mm. long, 8–9 mm. wide; petals 2, obovate, 4 mm. long, 3 mm. wide; stamens 20 or more; capsule long-pedicelled, the body 8–9 mm. long, 5–6 mm. wide, the wing about 9 mm. broad, obtuse or acutish.

Farallones de la Loma Regino, Oriente (*Léon* 10731).

Ginoria montana Britton & Wilson, sp. nov.

A glabrous unarmed shrub, with slender ascending branches. Leaves lanceolate, coriaceous, 2.5–4.3 cm. long, 0.7–1.7 cm. broad, obtuse at the apex, acute at the base, faintly reticulate-veined; petioles slender, 2 mm. long; cymes sessile or nearly so; flowers immature, long-pedicelled; calyx-lobes spreading, appendaged below the sinuses; stamens about 20.

Sierra Maestra, Oriente (*Léon* 11009).

Psidium (?) **cacuminis** Britton & Wilson, sp. nov.

Glabrous, with straight slender twigs. Leaves oblong, thick-coriaceous, 4–7 cm. long, reticulate-veined, sparingly punctate, bright green and shining above, pale green beneath, the apex rounded or obtuse, the base narrowed, the stout petioles about 6 mm. long; fruit oblong, solitary and nearly sessile in upper axils, nearly 2 cm. long.

Pico Turquino, Oriente (*Léon* 10749).

***Calyptranthes montana* Britton & Wilson, sp. nov.**

A much-branched shrub, with slender glabrous branches, the twigs rusty-brown and somewhat pubescent when young. Leaves lanceolate, coriaceous, 9–30 mm. long, 6–11 mm. broad, obtusely acuminate at the apex, acute at the base, rusty brown and pubescent when young, glabrous at maturity, the lateral veins rather prominent on both sides; petioles 0.9 mm. long or less; inflorescence 1–3-flowered, the peduncles filiform, 7 mm. long or less; buds globose-ovoid, 1.5 mm. in diameter.

Sierra Maestra, Oriente (*Léon 10805*).

***Eugenia cati* Britton & Wilson, sp. nov.**

A glabrous shrub or small tree, the twigs slender. Leaves elliptic to elliptic-obovate, chartaceous, 7 cm. long or less, rather sparingly punctate, dark green above, pale beneath, not very conspicuously veined, the apex rounded or obtuse, the base mostly narrowed, the petioles 3–7 mm. long; flowers glomerate in the axils; calyx-lobes suborbicular, about 3 mm. broad.

In woods, Loma del Gato, Cobre Range of Sierra Maestra, Oriente (*Léon, Clement and Roca 10045*, type; *10588*).

***Eugenia ginoriaefolia* Britton & Wilson, sp. nov.**

Glabrous; twigs slender. Leaves ovate to elliptic, chartaceous, 3–7 cm. long, dark green and shining above, rather prominently veined, pale beneath, densely punctate, the apex obtuse, the base obtuse or narrowed, the petioles only 3 mm. long or less; flowers glomerate at the nodes of twigs, sessile; calyx-lobes about 2 mm. broad, densely glandular, glabrous; petals elliptic to oval, about 3 mm. long, 1.8–2.2 mm. broad, obtuse or acutish at the apex; filaments filiform, glabrous, the anthers elliptic.

Sierra Maestra, Oriente (*Léon 10812*).

***Eugenia lomensis* Britton & Wilson, sp. nov.**

Shrub 2–3 m. high, with slender pubescent twigs. Leaves lanceolate or elliptic, coriaceous, 3.5–7 cm. long, 1.7–3 cm. broad, acuminate at the apex, acute at the base, glabrous or nearly so above, the midrib and lateral veins impressed, pubescent beneath, the midvein prominent; petioles 2.5 mm. long or less; fruit subglobose, 9 mm. in diameter, black, slender-peduncled, solitary or clustered in the axils of the leaves.

Foothills of the Sierra Maestra, Oriente (*Léon 10794*, type; *10962*).

Eugenia brevipetiolata Britton & Wilson, sp. nov.

A glabrous shrub, with rather thick brownish gray twigs. Leaves oval to suborbicular, 5–8 cm. long, 4–6.5 cm. broad, rounded at both ends, dark yellowish green above, paler beneath, the midrib impressed above, prominent beneath, the lateral veins slender, slightly elevated on both surfaces; petioles stout, 2–3 mm. long; buds subglobose, 6 mm. in diameter, solitary or few together in the axils of the leaves, glabrous.

Sierra Maestra, Oriente (*Léon 11046*).

Eugenia rigidula Britton & Wilson, sp. nov.

Shrub 1 m. tall, with slender brownish pubescent twigs. Leaves lanceolate to ovate-lanceolate, rigid-coriaceous, 1–2.8 cm. long, 4–11 mm. broad, acute at the apex, rounded at the base, sparingly pubescent on both sides when young, glabrous at maturity, the petioles 1 mm. long or less; young fruits subglobose, 4–5 mm. in diameter, pubescent with appressed whitish hairs.

Edge of woods, Sierra Maestra, Oriente (*Léon, Clement and Roca 10634*).

Ananomis reticulata Britton & Wilson, sp. nov.

Shrub or tree, the young twigs slender, brown, puberulent, the branches gray. Leaves obovate, coriaceous, 3–4.5 cm. long, 1–2.5 cm. broad, rounded at the apex, cuneate at the base, yellowish-green above, paler beneath, sparingly pubescent on both sides when young with short appressed hairs, glabrous at maturity, reticulate-veined; branches of the inflorescence appressed-pubescent; flowers undeveloped.

Sierra Maestra, Oriente (*Léon 10968*).

Graffenrieda rufescens Britton & Wilson, sp. nov.

Shrub 3 m. tall, the branches, twigs, calyx and under surface of the leaves densely scurfy with brownish scales. Leaves elliptic, 4.5–10 cm. long, 2.4–4 cm. wide, acuminate at the apex, acute at the base, 3-nerved, dark green and glabrous above, the petioles 1–2 cm. long; inflorescence much-branched; flowers short-pedicelled; calyx-tube 3–3.5 mm. long, 8-ribbed, its lobes semiorbicular, 1 mm. long or less; petals suborbicular or orbicular-obovoid, 3.5 mm. long, 3–3.5 mm. wide, yellow.

Sierra Maestra, Oriente (*Léon 11047*).

Miconia plumieriaefolia Britton & Wilson, sp. nov.

Shrub, the twigs, petioles and branches of the inflorescence clothed with a dense brownish white stellate scurf. Leaves

3-nerved, oblong or oblong-lanceolate, coriaceous, 10.5–15 cm. long, 2.5–3.8 cm. broad, green and glabrous or nearly so above, densely ferruginous-pubescent beneath with short stellate hairs, reticulate-veined, the lateral veins 2–3 mm. distant, nearly at right angles to the midrib, the petioles 1.5–2 cm. long; branches of the inflorescence loosely articulate; pedicels 2–4.5 mm. long; flowers undeveloped; calyx-lobes shortly triangular-ovate.

Sierra Maestra, Oriente (*Léon 10925*).

Rapanea microphylla Britton & Wilson, sp. nov.

A glabrous shrub, with short and slender twigs. Leaves obovate or oblong-obovate, coriaceous, 8–20 mm. long, pinnately few-veined, punctate, the apex rounded, the base connate, the petioles 2–3 mm. long; fruits nearly sessile, subglobose, shining, about 3 mm. in diameter.

Pico Turquino, Sierra Maestra, Oriente (*Léon 10714*).

Symplocos Leonis Britton & Wilson, sp. nov.

Shrub, the twigs dark brown, strigillose. Leaves elliptic, subcoriaceous, 4–8.5 cm. long, 2–4 cm. broad, rounded or obtusely acute at the apex, acute at the base, dark green, glabrous and indistinctly reticulate-veined above, the midrib impressed, paler, reticulate-veined and pubescent with appressed hairs especially on the midvein beneath, or nearly glabrous; petioles about 5 mm. long; inflorescence pubescent with ferruginous hairs; calyx-lobes elliptic, 1.4 mm. long, 0.9 mm. broad; petals 5, broadly oval, 3–3.5 mm. long, 2.5 mm. broad, glabrous; filaments distinct nearly to the base; fruit ellipsoid, 8.5 mm. long, 5.5 mm. in diameter, pubescent with scattered appressed hairs.

Sierra Maestra, Oriente (*Léon 10738*, type; *10907*).

Plumiera montana Britton & Wilson, sp. nov.

A tree up to 10 m. high or higher, glabrous throughout. Leaves oblanceolate, 15 cm. long or less, membranous when dry, the lateral venation rather widely spreading, the apex rounded, the base cuneate, the slender petioles 1–3 cm. long; flowers several or numerous; pedicels rather stout, 1.5 cm. long or less; calyx about 5 mm. long; corolla (white?) its slender tube about 2 cm. long, about one-half as long as the narrowly oblanceolate, rounded lobes; pod about 12 cm. long.

Sierra Maestra, Oriente. Type from banks of Yara River (*Léon 11060*).

Marsdenia bicolor Britton & Wilson, sp. nov.

A slender vine, with puberulent stems. Leaves oblong-elliptic to elliptic, 5–6.5 cm. long, 1.5–3.2 cm. broad, green above, whitish beneath, glabrous on both surfaces, the lateral veins indistinct; calyx-lobes ovate, 4 mm. long, about 2 mm. broad, acute or acuminate, slightly pubescent; corolla 1.5 cm. long, 1.5–1.8 cm. wide, glabrous, its lobes triangular, 6 mm. long, 5.5–6 mm. wide.

Sierra Maestra, Oriente (*Léon* 10787, type; 10788).

Sebasten Leonis Britton & Wilson, sp. nov.

A tree up to 15 m. high, the young twigs sparingly pubescent, soon glabrous and gray. Leaves thick-coriaceous, glabrous or the short and stout petioles sparingly pubescent, shining, elliptic, oblong or obovate-elliptic, 5–9 cm. long, the venation impressed above, prominent beneath, the apex rounded, the base obtuse or rounded, the petioles only 8 mm. long or less, the upper surface dark green, the under surface light green; flowers several in terminal clusters; calyx subcylindric, nearly 2 cm. long, densely puberulent, its teeth very short and broad; corolla funnelform, its tube about 3 cm. long, enlarged upward, the widely spreading limb about 4 cm. broad, about 6-lobed; fruit ovoid, about 2 cm. long, its summit beaked.

Loma de Naranjo, Sierra Maestra, Oriente, at 600 m. elevation (*Léon* 11021).

Varronia longipedunculata Britton & Wilson, sp. nov.

A shrub with slender branches, the young twigs puberulent. Leaves elliptic or oblong, chartaceous, 7 cm. long or less, scabrate above, puberulent on the veins beneath, entire or sparingly repand, the apex obtuse or acute, the base mostly narrowed, the puberulent petioles 6–12 mm. long; peduncles solitary, slender, puberulent, longer than the leaves; flowers several in a terminal globose head about 1.5 cm. in diameter; calyx-lobes triangular, 1.5 mm. long, acute; corolla-lobes broadly obovate, 7.5 mm. long, 4.5 mm. broad.

Sierra Maestra, Oriente (*Léon* 10964).

Salvia scopulorum Britton & Wilson, sp. nov.

A shrub, about 3 m. high, the branches densely pubescent with short spreading hairs. Leaves ovate, coriaceous, crenulate, 3–5 cm. long, 1.5–3 cm. broad, acute to abruptly short-acuminate at the apex, rounded and often more or less subcordate at the base, dark green above, paler beneath, pubescent on both sides, the

petioles 12 mm. long or less; calyx 10–11 mm. long, finely pubescent; corolla red, 1.8 cm. long or more, pubescent.

Farallones de Regino, Estribo Turquino, Oriente, 1600 m. alt. (*Léon 11010*).

***Rondeletia naguensis* Britton & Wilson, sp. nov.**

A shrub about 2 m. high, the young twigs and inflorescence densely strigose. Leaves elliptic, subcoriaceous, 4–10 cm. long, sparingly strigose on the veins beneath when young, soon glabrous, the apex obtuse or acute, the base obtuse or narrowed, the venation inconspicuous, the strigose petioles 6–12 mm. long; flowers in peduncled heads, the peduncles 2–4 cm. long; bractlets obovate, about 3 mm. long; calyx-lobes oblanceolate, 3.5–4 mm. long, densely pubescent with appressed hairs; capsule subglobose, 5.5 mm. in diameter, appressed-pilose.

Banks of a stream, Loma de Quintin, Nagua, Oriente (*Léon 10971*).

***Rondeletia calophylla* Standley, sp. nov.**

Branchlets slender, pilose-strigose; stipules deltoid-acuminate, 1.5 to 2.5 mm. long, erect, persistent; petioles stout, 2 mm. long, strigillose; leaf blades ovate, sometimes broadly so, 2 to 3.5 cm. long, 1 to 2.5 cm. wide, acute or sometimes obtuse, broadly rounded or subcordate at base, thick-coriaceous, dark green above, lustrous, scaberulous or glabrate, the venation prominulose-reticulate, much paler beneath and brownish, glabrate or scaberulous along the nerves, the costa prominent, the lateral nerves few and distant; inflorescence terminal on the main branches and on leafy lateral twigs, few-flowered, lax, the flowers pedicellate; calyx globose, densely whitish-strigillose; calyx lobes 5, oblong or linear-oblong, 2 mm. long, obtuse, glabrate, suberect; corolla densely white-strigillose outside, the tube 4 mm. long, the 5 lobes rounded, 2 mm. long; capsule subglobose, 3–4 mm. broad, glabrate; seeds broadly winged.

Type (in the U. S. National Herbarium) collected in the Sierra Maestra, Oriente, July, 1922, (*Léon 10741*).

In the key to the species of *Rondeletia* in the North American Flora, this plant runs at once to the group *Odoratae*, but it is not closely related to any of the species placed there, or to any other Cuban species previously known to the writer.

***Guettarda cryptantha* Standley, sp. nov.**

Shrub, the branches grayish, the branchlets slender, densely pilose with subappressed fulvous hairs; stipules 8–10 mm. long,

oblong-lanceolate, long-acuminate, appressed-pilose; leaves opposite, the petioles stout, 2–3 mm. long, appressed-pilose, the blades elliptic or ovate-elliptic, 2.5–6 cm. long, 1.2–3 cm. wide, rounded at base, obtuse or rounded at apex, coriaceous, dark-green above, lustrous, at first pilose with very slender whitish appressed hairs but later glabrate, the venation depressed, paler and brownish beneath, thinly scaberulous-pilosulous and with longer subappressed hairs along the veins, the costa stout and prominent, the lateral veins 5–7 pairs, subarcuate, anastomosing, remote from the revolute margin; inflorescence few-flowered, closely sessile, terminal and axillary, subtended by large, densely pilose, oval bracts; hypanthium densely sericeous-pilose with long whitish hairs, the calyx 5–7 mm. long, cleft into 3 or 4 spatulate-obovate, obtuse, densely sericeous lobes; corolla brownish-red, the tube stout, 10–12 mm. long, densely pilose with long whitish ascending hairs, the 4 lobes rounded-oval, 4 mm. long, glabrous within.

Type collected on Loma del Gato, Cobre Range of Sierra Maestra, Oriente, altitude 900–1000 meters (*Léon, Clement and Roca 10301*; herbarium of the New York Botanical Garden).

***Guettarda cobrensis* Standley, sp. nov.**

Shrub 3 meters high, the branches dark reddish brown, the branchlets thick, densely covered with minute appressed fulvous hairs, the internodes short; stipules oblong-ovate, 4 mm. long or more, acuminate, thin, brown, pubescent like the branchlets and with few long subappressed hairs; leaves opposite, the petioles stout, 4–6 mm. long, minutely and densely appressed-pilose, the blades oval or broadly oval, 3–6 cm. long, 2–4.5 cm. wide, rounded at apex, deeply cordate at base, thick-coriaceous, yellowish-green, concolorous, often somewhat bullate, glabrous above, the venation depressed, beneath bearing a few short appressed hairs along the coarse prominent costa, but elsewhere glabrous, the lateral veins stout and prominent, 5 or 6 on each side, subarcuate, ascending at an angle of 45–60°, the intermediate veins inconspicuous, the margin subrevolute; peduncles about 1 cm. long, pubescent like the branchlets, the flowers usually 3, sessile; fruit globose, 1 cm. in diameter, minutely tomentulose.

Type collected at edge of woods, Loma del Gato, Cobre Range of Sierra Maestra, Oriente, altitude 800 meters (*Léon, Clement and Roca 10271*; herbarium of the New York Botanical Garden).

Related to *G. crassipes* Britton, in which the leaves are densely long-pilose beneath along the costa.

Stenostomum apiculatum Britton & Standley, sp. nov.

Branchlets thick, resinous, densely leafy, sericeous-strigose; stipules united, persistent, the sheath 5 mm. long, densely strigose; petioles stout, 5–12 mm. long, densely strigillose; leaf blades elliptic, 4.5–7 cm. long, 2.5–4 cm. wide, obtuse or acute at base, obtuse at apex and apiculate-acuminate, coriaceous, green above, lustrous, glabrous, the costa depressed, paler beneath and brownish, sparsely strigillose, the veins prominent, the lateral ones about 9 pairs, arcuate, distant, the margin plane or subrevolute; peduncles slender, about 3 cm. long, the 2 branches 2–2.5 cm. long, 10–12-flowered; calyx and hypanthium 1–1.5 mm. long, glabrate, the calyx with very short, obtuse teeth; corolla 7 mm. long, densely strigillose outside; filaments very short, the anthers oblong-linear, equaling the corolla tube; stigma 4-lobate.

Type (in the U. S. National Herbarium) collected in the Sierra Maestra, Oriente, July, 1922 (*Léon*, 10806.)

Psychotria Leonis Britton & Wilson, sp. nov.

Shrub, the twigs and branches of the inflorescence puberulent. Leaves elliptic to oval, 3–5 cm. long, 1.5–3 cm. broad, acute to short-acuminate at the apex, acute at the base, glabrous above, pubescent beneath when young with short appressed hairs, the primary veins indistinct above, prominent beneath; petioles 1.3–1.5 cm. long, puberulent; panicles few-flowered; calyx funnel-shaped, shallowly toothed, the teeth triangular, acute; buds narrowly ellipsoid, puberulent; mature flowers and fruits not seen.

Sierra Maestra, Oriente (*Léon* 10789).

Lobelia cacuminis Britton & Wilson, sp. nov.

Suffrutescent, the stems 3–4 m. high, nearly glabrous. Leaves chartaceous, oblanceolate, 7–13 cm. long, 2.5–4.5 cm. wide, acuminate at the apex, cuneate at the base, rather coarsely dentate, the petioles 1.5–3 cm. long; midrib flat above, prominent beneath, the lateral veins ascending; inflorescence many-flowered; pedicels slender, 10–12 mm. long, pubescent; calyx-lobes narrowly lanceolate, 3–4 mm. long; mature corolla not seen; young fruits 1 cm. in diameter.

Pico Turquino, Oriente (*Léon* 10862).

Senecio Leonis Britton & Wilson, sp. nov.

Vine, the slender stems glabrous. Leaves ovate, triangular-ovate or occasionally lanceolate, 1.5–4.5 cm. long, 0.9–2.7 cm. wide, often with one or more prominent teeth at or above the

base, palmately-veined, glabrous on both sides; petioles 0.5–1.5 cm. long; heads long-peduncled, the peduncles pubescent; involucre subcylindric-campanulate, 5–6 mm. high, its bracts oblong, glabrous, their tips acute or acuminate; pappus white, 4 mm. long; achene about 1 mm. long.

Climbing on shrubs, Loma del Sabicu, Oriente (*Léon 10751*).

Chaptalia montana Britton, sp. nov.

Leaves oblanceolate-spatulate, thin, 4–7 cm. long, lyrate-pinnatifid, the terminal lobe large, elliptic-obovate, obtuse, apiculate, the lateral ones few, small, rounded, the upper surface green and glabrate, the under grayish-lanate; scape filiform, 1.5–2.5 dm. long; head erect; involucre subcampanulate, its bracts linear, acuminate, lanate below, the inner ones about 7 mm. long; achenes fusiform, 5.5–6 mm. long, the slender beak longer than the body; pappus white.

Sierra Maestra, Oriente (*Léon 10802*).

65. UNDESCRIBED SPECIES FROM TRINIDAD

Bactris savannarum Britton, sp. nov.

Trunk slender, up to 10 m. high, erect, copiously armed, like the leaf-rachis, with nearly white, deflexed spines 1–5 cm. long, which turn darker in age. Leaves about 1 m. long or longer, petioled, the numerous, unarmed segments 2–4 dm. long, about 4 cm. wide or less, light green, paler beneath than above, the base attenuate, the apex acuminate or acute, some of the upper ones of young leaves confluent; spathe narrowly oblong, 2–3 dm. long-acuminate, densely appressed-bristly, the bristles rather soft; inflorescence about as long as the spathe, its axis and slender branches densely brown-villous; flowers numerous, nearly white, about 4 mm. long; fruit orange, depressed-globose, small for the genus, about 8 mm. in diameter, vertically striate; fruiting calyx nearly flat, about 5 mm. broad, its lobes rounded, striate.

Aripo Savanna and its forest borders, Trinidad (*Britton, Broadway and Hazen 269*, type; Trinidad Herbarium 9850, *Broadway*); Professor L. H. Bailey has kindly sent us two photographs of this palm taken by him in 1921.

Pilea aripoensis Britton, sp. nov.

Stems filiform, 4–7 cm. long. Leaves membranous, spatulate, entire, 1-nerved, 12 mm. long or less, the apex rounded, the base cuneate, the filiform petiole somewhat shorter than the blade,

the raphides linear, undulate, transverse, prominent upon the upper surface.

Hanging from wet dark banks, Heights of Aripo, Trinidad (Trinidad Herbarium 10,008, *Broadway*).

***Inga ierensis* Britton, sp. nov.**

A tree up to 16 m. high, the petioles, leaf-surfaces and peduncles strigillose. Petioles slender, 2–3 cm. long; rachis-glands suborbicular, semiglobose; leaflets in 2 pairs, ovate-elliptic, chartaceous, shining, 7–10 cm. long, pinnately veined, the apex rather abruptly short-acuminate, the oblique base narrowed or obtuse, the strigulose petiolules 2–3 mm. long; peduncles about 6 cm. long or less; legume broadly linear, compressed, glabrous, shining, up to 10 cm. long, about 2 cm. wide, finely striate, abruptly short-tipped, the margins continuous or deeply constricted.

Forests, northern mountain range, Trinidad. Type from the Maracas Valley (*Britton and Hazen 1627*). In fruit April 10, 1920.

***Serjania ierensis* Britton, sp. nov.**

A vine up to 7 m. long, the branches slender, glabrous. Leaves about 6 cm. long, biternate, the short, slender petioles 1.5 cm. long or less, sparingly pubescent; leaflets coriaceous, glabrous, 4 cm. long or less, serrate, finely reticulate-veined, shining, those of the terminal segment acute or acuminate, those of the lateral segments rounded or obtuse; peduncles about as long as the leaves, glabrous; tendrils very slender, 2–4 cm. long; panicles puberulent nearly as long as the peduncles; samaras glabrous, about 15 mm. long, the wing finely reticulate-veined, about 4 times as long as the body and only partially enclosing it.

Dry thickets, Trinidad. Type from Palo Seco (*Britton and Hazen 1172*). In fruit March 30, 1920.

***Clusia intertexta* Britton, sp. nov.**

Forming impenetrable masses with interlocking aerial roots. Leaves orbicular-obovate, 10–14 cm. long, thick-coriaceous, rounded, the base subcuneate, the lateral veins many, about 4 mm. apart, prominent on the upper surface, the very stout petioles 1 cm. long or less; inflorescence several-flowered, its branches stout; bracts 2–3 cm. long; buds globose, glabrous; fruit (immature) oblong-ovoid, beaked, about 2.5 cm. long; stigmas 6.

Forest, Heights of Aripo, Trinidad (Trinidad Herbarium 9786, *Broadway*), January 10–26, 1922.

***Clusia aripoensis* Britton, sp. nov.**

A tree, with slender twigs. Leaves narrowly obovate, subcoriaceous, 7–8 cm. long, the apex obtuse, the base cuneate, the rather closely pinnate venation prominent on the under side, almost wholly obscure above, the rather slender petioles 1–2 cm. long, stigmas 5; young fruit obovoid, 2.8 cm. long, 2 cm. in diameter.

Forest, Heights of Aripo Trinidad (Trinidad Herbarium 9785, *Broadway*), January 10–26, 1922.

***Stylogyne tenuifolia* Britton, sp. nov.**

A tree up to about 10 m. in height. Leaves elliptic, membranous, 8–20 cm. long, glabrous, the base narrowed, the apex rather abruptly acuminate, the midvein impressed above, prominent beneath, the stout petioles 5–12 mm. long; inflorescence lateral and terminal, 5 cm. long or less, short-paniculate; bractlets oblong-lanceolate, 2–3 mm. long, deciduous; pedicels nearly filiform, 5–10 mm. long; calyx-segments broadly ovate, rounded, about 2 mm. long; corolla about twice as long as the calyx; fruit globular, white, 6–7 mm. in diameter.

Forests at higher elevations in the northern mountain range, Trinidad. Type from Mt. Tocuche (*Britton, Hazen and Mendleson 1341*); collected also by Mr. Broadway on the Heights of Aripo (Trinidad Herbarium, 9837, 9840).

***Prestonia Fendleri* N. E. Brown, sp. nov.**

Stem climbing, the flowering parts with internodes 4.5–12 cm. long, 1–2 mm. thick, thinly puberulous with minute curved hairs on the youngest parts, becoming glabrous and brown with age. Leaves with petioles 6–15 mm. long and blades 5–10 cm. long and 3–7 cm. broad, elliptic, subequally and broadly rounded at both ends, with a small abrupt point 1–2 mm. long at the apex, with about 5 ascending curved primary veins on each side of the midrib, inarching at their tips and forming loops near the margin. Racemes axillary, the axis 1–2 cm. long in the example seen, bearing 15 or more flowers on the upper half, flowerless below, thinly and minutely puberulous. Bracts minute, less than 1 mm. long. Pedicels 12–15 mm. long, slender, puberulous. Sepals 5 mm. long and 1.5–2 mm. broad, lanceolate, acute, thinly puberulous. Corolla pubescent at the top of the tube inside, otherwise glabrous; tube 15–17 mm. long and about 4 mm. in diameter, cylindric, with the mouth, where the lobes pass from it, raised into an erect ring 1 mm. high; inside this ring arise 5 linear erect exerted processes (coronal-lobes) 4 mm. long; lobes

about 12 mm. long and 7 mm. broad, somewhat rhomboid, or obliquely subtruncate. Stamens inserted near the top of the tube, glabrous; filaments 2 mm. long; anthers sagittate, 4.5 mm. long, exserted. Ovary surrounded by an obtusely 5-lobed fleshy disk.

Trinidad, without precise locality, *Fendler 628*.

***Cordia ierensis* Britton, sp. nov.**

A tree up to 10 m. high, with slender, finely appressed-pubescent twigs. Leaf-blades elliptic to ovate, thin, 2 dm. long or less, scabrate-puberulent, the apex abruptly acuminate, the base obliquely obtuse or narrowed, the petioles 2 cm. long or less; panicle about 8 cm. broad, broader than long, many-flowered, its branches slender, densely appressed-pubescent; flowers sessile, the buds obovoid, rounded, densely appressed-pubescent, about 2 mm. long.

Forests, Trinidad. Type from Morne Bleu (*Britton, Freeman and Bailey, 2277*). In bud March 13, 1921. This is, as determined by Mr. N. E. Brown at Kew, the *Cordia panicularis* of Grisebach, not of Rudge.

***Aegiphila trinitensis* Britton, sp. nov.**

A shrub, with slender, glabrous branches, the bark nearly white, the young shoots brown, short, minutely puberulent. Leaves short-petioled, the blades ovate, thin, small for the genus, 4 cm. long or less, the apex acute or acuminate, the base narrowed; panicles small, short-peduncled, strigose, several-many-flowered, 2-3 cm. broad; calyx obconic, truncate, puberulent; corolla white, about 8 mm. long.

Hillsides and thickets in moist districts, Trinidad. Type from St. Ann's (*Mrs. W. E. Broadway*). In flower May 10, 1919. This is the species recorded by Grisebach from Trinidad, as *Aegiphila laevis*.

***Anguria elliptica* Britton, sp. nov.**

A slender, glabrous, high-climbing vine, with very slender tendrils 15 cm. long or less. Petioles about 2 cm. long; leaf-blades simple, oblong-elliptic, thin, entire, about 8 cm. long, pinnately veined, the apex abruptly acute, the base obtuse; peduncles slender, longer than the leaves; staminate flowers scarlet, spicate; spikes about 3 cm. long; calyx-lobes subulate, 1 mm. long; corolla-lobes spatulate-obovate or obovate, 4 mm. long, 2-2.6 mm. broad, rounded or subtruncate and mucronate at the apex, the margin minutely ciliate; anthers 4.5 mm. long, straight.

Forests in wet or moist districts, Trinidad; type from Arima (*Britton 2084*). In flower March 4, 1921.

66. UNDESCRIBED SPECIES FROM PORTO RICO

***Scleria doradoensis* Britton, sp. nov.**

Perennial? Culms slender, rather stiff, glabrous, erect, tufted, 3-4 dm. high. Leaves glabrous, scabrate, shorter than the culm, about 2 mm. wide, the apex attenuate; inflorescence terminal, glomerate-spicate, 5-7 cm. long; glomerules 6-8, few-flowered, not nodding; bracts about 3 mm. long, brown-ciliate; achene white, subglobose-obovoid, very obtusely trigonous, verrucose-tuberculate, 1.5 mm. long, 12-porose underneath just above the trigonous base; hypogynium none.

White sand near Dorado (*Britton, Britton and Brown 7064*).

***Scleria Stevensiana* Britton, sp. nov.**

Perennial? rootstocks short or none; culms very slender, tufted, slightly scabrous above, weak, 4-5 dm. long. Leaves soft, scabrous-margined, 4 mm. wide or less, panicles 2 or 3, axillary, the lower stalked, the upper one nearly sessile, about 3 cm. long; bracts narrowly linear-subulate, 2.5 cm. long or less; spikelets several or numerous; achene depressed-globose, about 1.5 mm. in diameter, apiculate, glabrous, shining, faintly reticulated, nearly white, with 3 vertical brown bands; hypogynium lobes lanceolate, acuminate, glabrous.

Lares (*Stevens and Hess 4944*).

***Lagenocarpus portoricensis* Britton, sp. nov.**

Culm stout, erect, trigonous, glabrous, about 8 dm. high. Leaves 8-12 mm. wide, nearly as long as the culm, smooth, long-attenuate, with numerous transverse veinlets; panicle narrow, puberulent, about 3 dm. long and 5 cm. thick, the lower half of staminate spikelets on nearly erect branches, the upper half of pistillate; bractlets aristate; staminate spikelets about 4 mm. long, short-stalked; scales subtending the achene obovate, subtruncate, ciliolate, mucronate; achene, with its beak, ovoid, 3 mm. long, brown with three darker blotches, the beak about as long as the body.

Wet sandy situations between Manati and Vega Baja (*Underwood and Griggs 946*, type); collected also by Sintenis near Dorado. Recorded by C. B. Clarke and by Urban as *L. tremulus* Nees.

Rynchospora Blauneri Britton, sp. nov.

Perennial by short rootstocks; culms filiform, weak, clustered, glabrous, 3-5 dm. long; leaves filiform, glabrous, shorter than the culms; spikelets narrowly oblong, 3 mm. long, few together in 2 or 3 distant compact clusters subtended by a filiform bract 3-5 cm. long; scales ovate-oblong, acute, light brown; bristles none; achene obovate, light brown with darker brown margins, smooth, about 1 mm. long; tubercle conic, acute, about one-third as long as the achene.

Sierra de Luquillo (*Blauner 247*, in herbarium of Columbia University, collected in 1852-53). Referred by Clarke to *R. divergens*.

Rynchospora luquillensis Britton, sp. nov.

Perennial by rootstocks; culms very slender, smooth, erect, about 2 dm. high. Leaves narrowly linear, about 1 mm. wide, flat, smooth, shorter than the culm; inflorescence a small terminal cluster of few spikelets; spikelets narrowly oblong, about 4 mm. long; scales oblong, brownish, acute; bristles about 6, retrorsely barbed, a little longer than the achene; style elongated; achene narrowly obovate, smooth, brown, about 2 mm. long; tubercle subulate, about as long as the achene.

Sierra de Luquillo (*Brother Hioram 364*.)

67. AN UNDESCRIBED SIPHOCAMPYLUS FROM HAYTI

Siphocampylus pinnatisectus Gleason, sp. nov.

Stem herbaceous, erect, slender, glabrous. Leaves alternate, broadly oblong in general outline, 5-7 cm. long, 3-3.5 cm. wide, narrowed at base into a petiole, glabrous, deeply pinnatisect into a terminal and 5-7 pairs of lateral linear lobes, each lobe and the rhachis about 2 mm. wide, with 2-4 sharp salient teeth or the smaller entire, sharply acute or submucronate, with a single midvein and faint lateral veinlets; flowers in the upper axils, few in number, appearing subcorymbose by the shortened internodes, on minutely puberulent pedicels 1 cm. long; hypanthium obconic, acute at base, 3 mm. high; calyx-lobes narrowly linear-triangular, acuminate, erect, separated by narrow acute sinuse; corolla red, about 25 mm. long, narrowly tubular, somewhat curved ventrally, constricted at base, gradually enlarged upward, 3 mm. in diameter at the throat, its lobes all depressed, 3-4 mm. long.

Type, *Nash and Taylor 1701*, collected on an open sunny hillside, between La Brande and Mt. Balance, Hayti, at altitude of 3150 ft., August 15, 1905.

Siphocampylus pinnatisectus differs from all other West Indian members of the genus in its deeply pinnatisect leaves.

CONTRIBUTIONS FROM THE NEW YORK BOTANICAL
GARDEN—No. 252

STUDIES OF WEST INDIAN PLANTS—XII

NATHANIEL LORD BRITTON

NEW YORK
1924

Reprinted, without change of paging, from BULLETIN OF THE TORREY BOTANICAL
CLUB 51: 1-12. January, 1924.

Studies of West Indian plants—XII

NATHANIEL LORD BRITTON

68. UNDESCRIBED SPECIES FROM CUBA

***Cyperus nagueensis* Britton, sp. nov.**

Culms short, about 8 dm. high, trigonous, smooth. Basal leaves rough-margined, strongly veined, 5-8 mm. wide, shorter than the culm, the apex attenuate, those of the involucre several, similar to the basal ones but shorter; umbel 8-10-rayed, the rays slender, the longer ones 6-10 cm. long; spikelets straw-colored, compressed, about 8-flowered, deciduous, 10-12 mm. long, very numerous in dense oval or subglobose, simple or compound spikes 2-3 cm. long; scales oblong-lanceolate, acute, striate, slightly spreading, 3 mm. long; achene linear, 1.5 m. long, about 3 times as long as thick, sharply pointed, narrowed at base.

Moist place between San Felipe and Nagua, Oriente (*Ekman 14720*). Similar to *C. stenolepis* Torr., but with shorter scales and achenes.

***Reynosia camagueyensis* Britton, sp. nov.**

Twigs slender, leafy. Leaves oblong-obovate, coriaceous, entire, 12-17 mm. long, glabrous, very finely reticulate-veined, the midvein impressed above and prominent beneath, the base narrowed but obtuse, the apex obtuse, rounded or emarginate, tipped with a nearly straight awn about 0.7 mm. long, the petioles about 1 mm. long; fruit globose, rounded, 12-14 mm. in diameter, its peduncle about 5 mm. long.

Hills, Camaguey (*Padre Borrás, 1918*). Resembles *R. latifolia* Griseb., which has strongly reticulate leaves and ellipsoid pointed fruits.

Peperomia Leoclemerocana Trelease, sp. nov.

A rather large assurgent glabrous herb; stem succulent and rather thick (5–8 mm.); leaves alternate, broadly elliptic-obovate, somewhat blunt-acuminate and often emarginulate, cuneate, rather large ($2 \times 5\text{--}4 \times 6.5$ cm.), drying rather coriaceous and dull, pinnately veined from about the middle, the principal ascending branches of the midrib 3 or 4×2 ; petiole scarcely 1 cm. long, winged; spikes terminal, paired or toward the end of a bracted stalk about 6 cm. long, $2 \times 70\text{--}130$ mm.; peduncle about 2 cm. long; bracts round-peltate, about .5 mm. in diameter and 10 to the pseudo-whorl; berries separated by somewhat evident ridges, ellipsoid, somewhat glandular, with stout curved beak; stigma anterior.

Cobre range, Sierra Maestra, Oriente (*Leon, Clement & Roca 10436*—the type at the New York Botanical Garden).

Clidemia Clementiana Britton, sp. nov.

A shrub about 3 m. high, the very slender twigs, the petioles and the under leaf-surfaces puberulent. Leaves narrowly lanceolate, 1-nerved, chartaceous, entire, short-petioled, 2–6 cm. long, glabrous above, the apex acuminate, the base narrowed, the lateral venation faint, spreading; inflorescence 1–3-flowered; pedicels filiform, puberulent, 1–2 cm. long; calyx-lobes 4, linear, 2–3 mm. long; fruit 4-lobed, about 5 mm. in diameter.

Sierra Maestra, Oriente. TYPE from Loma del Gato, (*Leon, Clement and Roca 9830*).

Rondeletia Ekmanii Britton & Standley, sp. nov.

Branchlets brown, puberulent or scaberulous, finally glabrate; stipules deltoid-cuspidate, 2–3 mm. long, erect, persistent; petioles 2–3 mm. long, glabrous or obscurely puberulent; leaf blades broadly elliptic to elliptic-oval, 2–4 cm. long, 1.2–2.5 cm. wide, rounded or very obtuse at apex, rounded at base, coriaceous, dark green above, glabrous, lustrous, with prominulous-reticulate venation, paler beneath and brownish, glabrous, the costa salient, the lateral nerves few, distant, not conspicuous; inflorescence terminating the main branches and on short leafy lateral twigs, few-flowered, open, the flowers slender-pedicellate; rachis of the inflorescence scaberulous, the pedicels 4–5 mm. long; hypanthium globose, densely white-scaberulous; calyx-lobes linear-subulate, scarcely over 1 mm. long, subobtus, brownish, scaberulous; corolla-tube 6 mm. long, dilated above, strigillose-scaberulous with white hairs, the 5 lobes broadly obovate, rounded at apex, tomentulose on the inner surface.

TYPE in the U. S. National Herbarium, No. 1,145,291, collected on banks of the Yara River, Oriente, August 14, 1922 (*E. L. Ekman 14852*).

Related to *R. calophylla* Standley,* but evidently distinct in the small and narrow calyx-lobes.

The type of *R. calophylla* was collected in the Sierra Maestra in July, 1922, by Brother Leon. Dr. Ekman also obtained it in August, 1922, at Arroyo Corojo, Nagua, Oriente (No. 14729).

69. AN UNDESCRIBED SPECIES FROM HISPANIOLA

***Kallstroemia incana* Rydberg, sp. nov.**

Kallstroemia caribaea Urban, Symb. Ant. 8: 319. 1920. Not *K. caribaea* Rydberg, 1910.

A diffusely branched herb, somewhat woody at the base; stems spreading, 2-3 dm. long, with coarser spreading and finer more appressed hairs, tomentose; stipules linear-oblong, 2-3 mm. long, tardily deciduous; leaves 1-1.5 cm. long; petioles 2-3 mm. long; leaflets mostly 3 pairs, obliquely ovate, 3-5 mm. long, hoary on both sides, acutish; peduncles 2-3 mm. long; sepals lance-linear, acute, 3 mm. long; petals elliptic-obovate, light yellow, 3 mm. long; fruit grayish-strigose, about 5 mm. broad, the beak 2 mm. long, conic at the base; carpels cross-ridged on the back and reticulate on the faces.

TYPE collected at Barahona, Santo Domingo, July 1920, *Fuertes 418* (herbarium of the New York Botanical Garden); also collected at Rincon, October 1911, *Fuertes 1352*.

The two numbers cited were determined by Urban as *K. caribaea* and included under that name in his *Flora Domingensis*, but it differs in the hoary pubescence, the small leaflets, the small petals, scarcely half as long as in *K. caribaea*, the short peduncles and short beak on the small fruit. It approaches more *K. curta* Rydberg, from Curaçao, with which it has the following characters in common: small leaflets, short peduncles, small petals and fruit, and short beak; but it is more canescent, more branched, with shorter internodes and smaller leaves, and the beak different, not at all swollen.

* Bull. Torrey Club 50: 48. 1923.

70. UNDESCRIBED SPECIES FROM TRINIDAD

Anthurium aripoense N. E. Brown, sp. nov.

Glabrous in all parts. Petioles about 75 cm. long and (when dried) 4 mm. thick, sheathing for about 7 cm. at their base, apparently more or less flattened above with obtuse edges, rounded on the back; blades about 34 cm. long, 26 cm. broad across the basal lobes and $18\frac{1}{2}$ cm. broad at the constriction, cordate, with the basal lobes slightly constricted into the front lobe at about 11 cm. above the insertion of the petiole; basal sinus about 4 cm. deep, broadly open, rounded; basal lobes semi-orbicular; front lobe ovate, abruptly acute, apiculate; both surfaces green; basal nerves 4 on each side of the midrib, the 3 outer united and denuded at the sinus for about 25 mm., much curved and all excurrent at the margin below the middle of the leaf; the inner one free, ascending and excurrent at the apex, running subparallel with the margin at about 12–15 mm. from it; primary lateral veins about 7 on each side of the midrib, with others similar but less prominent between them, widely spreading, subparallel, nearly straight. Peduncle about 57 cm. long, 4 mm. thick (dried), apparently terete. Spathe 11 cm. long, 12 mm. broad, strap-shaped or broadly linear, with a subulate point about 25 mm. long. Spadix 15 cm. long, 5 mm. thick at the base, much longer than the spathe, on a stipe 5 mm. long, apparently violaceous or dark purple. Flowers diamond-shaped, 4 mm. in their longer and 3 mm. in their shorter diameter.

Heights of Aripo, (*Broadway 9924*).

The venation of the leaf of this species is on the same plan as that of *A. Guildingii* Schott, but in outline the slight constriction above the basal lobes brings it nearer to *A. panduraeforme* Schott.

Piper maravalanum Trelease, sp. nov.

Stem nodose, glabrous; leaves ovate or elliptic-ovate, acuminate, equilaterally rounded at base, rather large ($6-9 \times 15-17$ cm.), pinnately nerved from below the middle, the nerves about 5×2 and sparingly pubescent beneath; petiole rather short (scarcely 10 mm.), not winged; spikes opposite the leaves, as yet comparatively short and thick (2×15 mm.), mucronate; peduncle very short (scarce 5 mm.); bracts lunulate-subpeltate, rusty-ciliate; flowers sessile, perfect; stigmas 3, minute, sessile.

Maraval, December 30, 1914, (*Broadway 7829*, the TYPE in the New York Botanical Garden).

Scarcely to be placed anywhere except in close connection with *P. Schackii* and *P. ovatum*; but pubescent beneath on the veins.

Piper aripoense Trelease, sp. nov.

A shrub, 1 m. tall; flowering internodes moderately slender and short, zig-zag, hirsute; leaves elliptic or oblanceolate-elliptic, acuminate, more or less unequally cordulate, moderately large (5×14 – 9×20 cm.), pinnately nerved from below the upper fourth, the nerves about 9×2 , paler and appressed-hirsute on the nerves beneath; petiole short (scant 5—exceptionally 10 mm.), sometimes covered by the longer side of the base, hairy, winged to the blade; spikes opposite the leaves, rather thick and short (4×25 mm.), blunt; peduncle short (5 mm.), hirsute; bracts concave-incurved, glabrous; flowers sessile, perfect; stigmas 3, sessile; berries subglobose, glabrous.

Heights of Aripo (*Britton and Freeman 2353*, the TYPE at the New York Botanical Garden).

Prestonia Brittoni N. E. Brown, sp. nov.

Stem twining, 3 mm. thick at the flowering parts, glabrous. Leaves opposite, stipulate; petioles in the specimen seen 15 mm. long, glabrous; blade about 16 cm. long and $7\frac{1}{2}$ cm. broad, oblong-elliptic, shortly acute and apiculate at the apex, rounded at the base, glabrous on both sides, with 8–9 primary veins on each side of the midrib inarching and uniting 5 mm. from the margin; stipules formed of a number of small teeth 1 mm. long between the bases of the petioles. Cymes axillary pedunculate, 6–8 cm. in diameter, quite glabrous in all parts; peduncle 3–4 cm. long, nearly 2 mm. thick. Pedicels 15–25 mm. long. Sepals 10 mm. long and 4–5 mm. broad, oblong, obtuse, rather thick; at the base of each sepal, between it and the corolla is a broadly deltoid-ovate obtuse gland about 1 mm. long. Corolla only seen in bud and in that condition the tube is 12 mm. long and 3 mm. in diameter, cylindric, not dilated at any part, surmounted by a truncate-based acute cone 5 mm. long and $6\frac{1}{2}$ mm. in diameter formed by the contorted lobes; mouth of the tube raised within into a distinct rim about 1 mm. high, without processes or other appendages; lobes as unfolded from the bud 5 mm. long and 6 mm. broad, suborbicular, entire. Stamens inserted 5 mm. below the top of the corolla-tube; filaments 1 mm. long; anthers 5 mm. long, not or scarcely exerted. Ovary surrounded by 5 large faintly crenulate or faintly toothed fleshy lobes.

Heights of Aripo (*Broadway 1000g*).

Decastelma trinitense N. E. Brown, sp. nov.

Stem twining, up to 2 mm. thick at the flowering part, with internodes 2–3 cm. long, minutely puberulous, brown. Leaves spreading; petiole 4–6 mm. long, minutely puberulous; blade

2-6 cm. long, 15-30 mm. broad, ovate or oblong-lanceolate, acuminate, rounded at the base, glabrous on both sides to the eye, but with a microscopic scattered pubescence above, where the midrib is also minutely puberulous; primary veins 3-5 on each side of the midrib, distant, inarching and uniting into a submarginal vein 2-3 mm. from the margin, not prominent on either surface. Flowers in small sessile umbellate clusters at the nodes of leafless branches. Bracts very minute. Pedicels 2-2½ mm. long, and together with the flowering branches minutely puberulous. Calyx 5-lobed to the base; lobes about ⅔ mm. long, ovate, obtuse, thinly and very minutely puberulous. Corolla about 3 mm. in diameter; tube about 0.75 mm. long, glabrous; lobes spreading, about 1 mm. long, ovate, subacute, minutely and densely puberulous within; each sinus with a thickening or slight gibbosity, which seems nearly or quite to touch the staminal column so as to form 5 small pocket-like entrances to the tube at the base of the lobes. Staminal column subsessile, about 0.75 mm. long, somewhat conical, truncate at the apex. Corona of 5 lobes arising from the staminal column at the base of the anthers, minute, about ¼ mm. long, pressed close against the back of the anthers and shorter than the latter, ovate, obtuse; they seem to be connected at the base by a minute tooth under the anther-wings, but in the dried flowers this is difficult to determine.

Trinidad (*Dannouse 6419*, TYPE). Collected in 1898.

The genus *Decastelma* is very like *Metastelma* in appearance, but differs by having the staminal column subsessile instead of with a long stipe, and by the corona arising from the staminal column at the base of the anthers instead of at the mouth of the corolla-tube. But the description of the corona of *Decastelma* as given by Schlechter is entirely wrong, unless the flowers on different specimens vary very much. For in the type of the genus, *D. Broadwayi* Schltr. (*Broadway 474*), the flowers that I have examined have a corona consisting of 5 lobes only, which are shorter than the staminal column and pressed close to it; they are broader than long and somewhat truncate at the three-toothed top, the middle tooth being minute.

Probably some species from South America, now placed under the genus *Metastelma*, really belong to *Decastelma*.

71. A NEW GENUS OF MELASTOMACEAE FROM TRINIDAD

NECRAMIUM Britton, gen. nov.

An erect shrub with long branches. Leaves opposite, large, membranous, short-petioled, with a strong midrib and three

pairs of veins, the first pair from near the base, the second pair from a short distance above, the third pair from below the middle, the transverse venation widely spreading. Inflorescence of sessile panicles borne on the branches much below the leaves, the panicle-branches filiform; flowers 2 or 3 together, sessile, subtended by subfoliaceous bractlets; calyx subcampanulate with 4 subulate teeth.

***Necramium gigantophyllum* Britton, sp. nov.**

Stems slender, simple or few-branched, quadrangular, 2 m. high or higher, densely scurfy-puberulent above. Leaves oblong to oblong-ob lanceolate, 2-4 dm. long, 12 cm. wide or less, entire, green on both sides, but paler beneath than above, glabrous above, scurfy-puberulent on the veins beneath, the apex acuminate, the base narrowed, the stout scurfy petioles 1-2 cm. long; panicles densely pubescent, several-flowered, about 4 cm. long; bractlets oblong-lanceolate, concave, acute, pubescent, 3 mm. long; calyx-tube 2 mm. long, its teeth 1 mm. long; petals and stamens unknown.

Forests at high altitudes, northern mountain range; TYPE from Heights of Aripo (*Trinidad Herbarium* 9798, collected by Broadway, January 10-26, 1922); Mount Tocuche (*Britton, Hazen & Mendelson* 1334), April 3-5, 1920.

72. THE GENUS *DORSTENIA* IN THE WEST INDIES

Leaves large, deeply lobed or undulate; receptacle quadrate.

1. *D. Contrajerva*.

Leaves small, dentate, crenate or entire; receptacle suborbicular, discoid or cyathiform.

Leaves not peltate.

Leaves orbicular, deeply cordate.

Leaves crenate; receptacle cyathiform.

2. *D. crenulata*.

Leaves entire or obsoletely repand.

Receptacle pubescent, discoid.

3. *D. tuberosa*.

Receptacle puberulent, about as long as broad

4. *D. Rocana*.

Leaves ovate to oblong or elliptic.

Leaves ovate, deeply cordate.

5. *D. cordifolia*.

Leaves oblong to elliptic, cordate or subcordate, crenulate.

6. *D. tubicina*.

Leaves peltate.

Leaves ovate-oblong, peltate very near the base

7. *D. petraea*.

Leaves ovate to orbicular, peltate at the middle or somewhat below.

Leaves orbicular, pubescent on both sides.

8. *D. peltata*.

Leaves suborbicular to ovate, more or less longer than broad.

- Glabrous throughout; leaves rounded at both ends or the apex very obtuse. 9. *D. crassipes*.
 Pubescent or puberulent; leaves acute or bluntly pointed.
 Leaves suborbicular, very bluntly pointed. 10. *D. erythrandra*.
 Leaves ovate.
 Peduncles and petioles puberulent; leaves 6-8 cm. long. 11. *D. Roigii*.
 Peduncles and petioles tomentulose or pubescent; leaves 3-5 cm. long.
 Receptacle tomentulose, ciliate; peduncle about as long as the petioles. 12. *D. confusa*.
 Receptacle puberulent; peduncle much shorter than the petioles. 13. *D. jamaicensis*.

1. *DORSTENIA CONTRAYERVA* L. Sp. Pl. 121. 1753

Porto Rico; St. Martin; Guadeloupe; Martinique; St. Vincent; Trinidad; Mexico to Colombia and Peru.

2. *DORSTENIA CRENULATA* C. Wright; Griseb. Mem. Ann. Acad. II. 8: 173. 1860

Banks of rivulets, Monte Verde, Cuba, (*Wright 1447*).

3. *DORSTENIA TUBEROSA* C. Wright; Griseb. Mem. Ann. Acad. II. 8: 173. 1860

Mountains of northern Oriente, Cuba.

4. *Dorstenia Rocana* Britton, sp. nov.

Rootstock short. Petioles very slender, tomentulose, 5 cm. long or less; leaf-blades orbicular, membranous, deeply cordate, rounded, entire, or some of them obscurely repand, puberulent on the veins beneath, otherwise glabrate, 10-23 mm. in diameter; peduncle filiform, puberulent, about as long as the petioles; receptacle cyathiform, about 5 mm. long and 4 mm. in diameter, puberulent, narrowed below, purple-margined above.

Shaded rocks on banks of Cupeyales, Banao Mountains, Santa Clara, Cuba (*Brother Leon & Father Roca, 8092*, August 5, 1918).

5. *DORSTENIA CORDIFOLIA* Sw. Prodr. 31. 1788

Central and western Jamaica. Recorded from Haiti.

6. *DORSTENIA TUBUCINA* R. & P. Fl. Per. 1: 65

Arima Savanna, Trinidad, collected by Purdie, according to Grisebach.

7. *DORSTENIA PETRAEA* Griseb. Cat. Pl. Cub. 58. 1866

Mountains of southern Oriente, Cuba.

8. *DORSTENIA PELTATA* Spreng. Neue Entd. 3: 22. 1822

Santo Domingo, near Samana Bay.

9. *DORSTENIA CRASSIPES* C. Wright; Griseb. Cat. Pl. Cub. 58. 1866

Near La Catalina, Oriente, Cuba (*Wright 2224*).

10. *DORSTENIA ERYTHRANDRA* C. Wright; Griseb. Cat. Pl. Cub. 58. 1866

Rocks by the sea, Baracoa, Oriente, Cuba (*Wright 2225*).

11. *Dorstenia Roigii* Britton, sp. nov.

Rootstock stout, 8–10 cm. long, 5–6 mm. thick. Petioles rather stout, densely puberulent, 15 cm. long or less; leaf-blades ovate, peltate below the middle, chartaceous when dry, coarsely undulate-dentate all around, strongly veined, 6–8 cm. long, dark green and scabrous above, paler and densely puberulent beneath, the apex obtuse or acute, the base rounded; peduncle puberulent, 5–7 cm. long; receptacle orbicular, nearly flat, peltate, about 10 mm. in diameter.

On rocks at the foot of Mogote de la Jagua, Consolacion del Norte, Pinar del Rio, Cuba, June 17, 1923 (*Roig 2547*).

12. *Dorstenia confusa* Britton, sp. nov.

Rootstock slender, tuberiferous. Petioles slender, tomentulose, 4–6 cm. long; leaf-blades broadly ovate, membranous, 2.5–3 cm. long, peltate somewhat below the middle, finely pubescent beneath, especially on the veins, repand-crenate, the apex blunt, the base rounded; peduncle tomentulose, about 4 cm. long; receptacle orbicular, nearly discoid, 6 mm. in diameter, tomentulose, ciliate.

Monte Verde, Oriente, Cuba (*Wright 2220*, in Gray Herbarium).

13. *DORSTENIA JAMAICENSIS* Britton, Bull. Torrey Club **35**:
567. 1908

Limestone cliffs, Manchester, Jamaica.

73. UNDESCRIBED SPECIES FROM PORTO RICO

***Maytenus ponceana* Britton, sp. nov.**

A tree about 12 m. high, with slender, somewhat tortuous, glabrous twigs. Leaves oblong, or oblong-obovate, coriaceous, 9 cm. long or less, indistinctly few-veined with the midrib rather prominent on both sides, shining above, dull beneath, the apex bluntly short-acuminate or obtuse, the base subcuneate, the rather slender petioles 6–8 mm. long; fruiting pedicels 3–5 mm. long, solitary or 2 together in the axils; fruit globose, whitish, 6–8 mm. in diameter.

Hillside, Rio Portugues, north of Ponce (*Britton 7818*). In fruit Feb. 12, 1923.

***Eugenia Underwoodii* Britton, sp. nov.**

A shrub, 2.5–3 m. high, much branched, the very slender gray terete twigs puberulent when young, the inflorescence pubescent. Leaves elliptic or elliptic-lanceolate, chartaceous, 2–5 cm. long, slightly paler green beneath than above, somewhat shining, delicately veined and scarcely reticulated, rather coarsely punctate, flat, the apex acuminate, the base narrowed, the puberulent petioles 1.5–2.5 mm. long; flowers in small short-peduncled racemes near the ends of the twigs; pedicels 2–3 mm. long; bracts about 1 mm. long; calyx-tube campanulate, glabrate, about 1.5 mm. long, the lobes a little shorter, puberulent, ciliate, obtuse; petals nearly 2 mm. long; fruit unknown.

Collected at Yauco. (*L. M. Underwood & R. F. Griggs, 639.*)

***Eugenia boqueronensis* Britton, sp. nov.**

A tree about 8 m. high, the slender short twigs gray, densely tomentose when young. Leaves ovate or elliptic-ovate, coriaceous, 2–3.5 cm. long, shining, nearly equally green on both sides, coarsely blackish-punctate, finely pinnately veined and scarcely reticulated, pubescent on the midvein beneath when young, glabrous or very nearly so when mature, the apex abruptly and bluntly acuminate, the base narrowed, the stout pubescent petioles 2–3 mm. long; racemes few-flowered, about 1 cm. long, borne in the uppermost axils, densely tomentose; pedicels about 3 mm. long; bracts oblong, shorter than the pedicels; calyx-lobes broad, rounded or obtuse, about 1.5 mm. long; petals rounded, not longer than the calyx-lobes; fruit unknown.

Base of limestone hill, Salinas de Boqueron, (*Britton, Cowell & Brown, 4627*).

***Eugenia Stewardsonii* Britton, sp. nov.**

A tree, 5–10 m. high, glabrous throughout, the slender twigs gray. Leaves ovate, subchartaceous, very nearly sessile, 4–6 cm. long, bright green and shining on both sides, the venation rather prominent, coarsely reticulated, the apex obtuse or rounded, the base rounded or subcordate, the stout petioles about 1 mm. long; flowers sessile, in lateral clusters below the leaves; larger calyx-lobes obtuse, about 2 mm. long; fruit subglobose or depressed-globose, 5–7 mm. in diameter.

Mountain forests and summits. Central Cordillera of Porto Rico. Type from the summit of Monte Torrecillo (*Britton, Cowell & Stewardson Brown, 5603*). Included by Urban in *Eugenia cordata* (Sw.) DC.

***Eugenia* (?) *corozalensis* Britton, sp. nov.**

A tree about 6 m. high, the rather slender subterete glabrous forking twigs slightly enlarged below the internodes. Leaves oval-orbicular, chartaceous, glabrous, sessile, 4–7 cm. long, green on both sides, densely punctate, the apex rounded, the base cordate, the venation slender, loosely reticulated; flowers and fruit unknown.

Limestone hill, Corozal (*Britton 7832*).

***Eugenia* (?) *xerophytica* Britton, sp. nov.**

A shrub, or a small tree up to about 4 m. high, much branched, the slender terete twigs and the leaves glabrous. Leaves sub-orbicular or some of them a little broader than long, coriaceous, glabrous, shining above, yellow-green and reticulate-veined on both sides, 1.5–5 cm. long, the apex obtuse, rounded or short-tipped, the base subcordate or rounded, the stout petioles 2–4 mm. long; flowers and fruit unknown.

Limestone rocks, Cayo Muertos, Porto Rico, (*Britton, Cowell & Brown, 4982*, TYPE); limestone hill, El Tuque, west of Ponce (*Britton 7915*).

***Calyptanthus portoricensis* Britton, sp. nov.**

A tree or shrub, the twigs and inflorescence densely brown-pubescent. Leaves elliptic or ovate-elliptic, coriaceous, glabrous above, pubescent beneath when young, 3–7 cm. long, very obscurely punctate, the apex rounded or acutish, the base obtuse, the midvein prominent beneath, the lateral venation obscure;

peduncles rather stout, 7 cm. long or shorter; panicles several-flowered, the flowers subglomerate, nearly sessile; calyx densely brown-pubescent, about 2 mm. long, obovoid, rounded; fruit finely pubescent, globose, about 5 mm. in diameter.

Vicinity of Maricao. Type from Monte Alegriño (*Stevens 4718*).

CONTRIBUTIONS FROM THE NEW YORK BOTANICAL
GARDEN—No. 284

STUDIES OF WEST INDIAN PLANTS—XIII

NATHANIEL LORD BRITTON

NEW YORK

1926

Reprinted, without change of paging, from BULLETIN OF THE TORREY
BOTANICAL CLUB 53: 457-471. 30 O 1926.

Studies of West Indian plants—XIII

NATHANIEL LORD BRITTON

74. UNDESCRIBED SPECIES FROM CUBA

***Andropogon virginicus graciliformis* Léon, var. nov.**

Lower sheaths not equitant, rather terete, glabrous; culms slender and cylindrical from the base, usually producing one or two flowering branches, only from the two or three upper nodes; nodes of the inflorescence long pilose; blades at first narrowly involute or conduplicate from base to apex, becoming flat and flexuous in age, only about 1.5 mm. wide, devoid of long hairs towards the base; spathes becoming reddish, the upper ones 6 to 9 cm. long, much longer than the racemes.

Gravelly soil, Sabana de Motembo, Santa Clara, Cuba (*Léon and Loustalot 11343*). This variety may be readily recognized by its basal sheaths not strongly compressed and equitant as those of typical *Andropogon virginicus* and in its long and very slender stems and narrow leaves. The type specimen is preserved in the herbarium of Colegio de la Salle, Vedado, Havana. We are indebted to Prof. A. S. Hitchcock and Mrs. Agnes Chase for suggestions and help.

***Paspalum motembense* Léon, sp. nov.**

Perennial, glabrous, with a rhizome; culm erect or nearly so, glabrous, about 60 cm. high, simple, the nodes glabrous; sheaths much longer than the internodes, glabrous, striate, compressed, the basal ones overlapping; ligule a delicate membrane 1-1.5 mm. long; blades 20 to 30 cm. long, up to 5 mm. wide, glabrous on both surfaces, scaberulous on the border, conduplicate, acuminate at the convolute apex; panicle short exerted, 15 cm. long, the rachis angled; racemes several, ascending, 2 to 5 cm. long, erect or falcate, their rachis about 1 mm. wide, glabrous, scaberulous on the border; spikelets in pairs, elliptic, 2.5 mm. long, 1.2 to 1.4 mm. wide, the pedicels scaberulous, one of them 1 mm. long, the other two-thirds as long; glumes covering the fruit, thin, glabrous, brownish-yellow; second glume 5-nerved, short pointed; sterile lemma faintly 3-nerved, fruit brown, slightly rugose, shining.

Grassy place, Sabana de Motembo, Santa Clara, Cuba (*Léon and Loustalot 9354*). Related to the South American *P. hydrophyllum* Henr., a much more robust plant, and to the Cuban *P. Wrightii*; this is taller and stiffer than *P. motembense*, from

which it differs also in its aquatic habit and wrinkled spikelets. The type specimen is preserved in the Herbarium of the New York Botanical Garden.

***Aristida Pradana* Léon, sp. nov.**

Perennial, culms cespitose, 60 to 80 cm. long, erect, wiry, somewhat flattened, simple and naked, the upper leaves of the culms, if any, reduced to the elongate, strongly adherent and mostly bladeless sheath; ligule a short ciliate membrane less than 0.5 mm. long; blades firm, closely involute from the base, with usually a few hairs on each side of it, scaberulous on the upper surface, glabrous beneath, flexuous, often splitting, up to 60 cm. long or more; panicle 25 to 35 cm. long, the branches few flowered, usually with one branchlet at base, at first stiffly erect, finally divergent or spreading, the lower ones distant, up to 8 cm. long, the axis and branches scabrous; glumes unequal, 10 to 12 mm. long, the first caducous, scabrous on the keel, 1-nerved, awn-tipped, the second glabrous, awn-tipped from a bifid apex; lemma 15 to 17 mm. long, including the short pilose callus about 1 mm. long, and the dark colored scaberulous beak; awns unequal, ascending, the central one slightly recurved, 2 to 3 cm. long, the lateral ones somewhat approximate, one-half as long as the central one or little more.

Arid rocky silicious hillside, Peladeros de Jauco, southwest of Baracoa, Oriente, Cuba (*Léon 12299*).

This species is allied to *A. divaricata* Humb. & Bonpl. of Mexico, but may be distinguished by its much longer and closely involute leaves. It is named in honor of Sr. Enrique Prada of Jauco, who helped very efficiently in collecting work. The type specimen is preserved in Colegio de la Salle Herbarium, Vedado, Havana.

***Chloris Morales-Coelloi* Léon, sp. nov.**

Perennial, glaucous; culms cespitose, erect, glabrous, compressed, freely branching from the lower nodes, 50 to 80 cm. tall; sheaths keeled, often longer than the internodes, glabrous, the basal ones overlapping; ligule a short ciliate membrane about 0.5 mm. long, with a few hairs behind on each side; blades flat or conduplicate, glabrous on both surfaces, abruptly pointed at apex, 8 to 20 cm. long, 2 to 4 mm. wide; inflorescence finally long exserted; spikes 5 to 11, mostly 6 or 7, ascending, finally divergent or spreading, straight or recurved, sometimes flexuous, 6 to 9 cm. long; axis of inflorescence 1 cm. long or less, the rachis of the spikes scabrous and densely pubescent at base; spikelets, exclusive of the awns, mostly 3 to 3.4 mm. long, appressed, im-

bricate; glumes unequal, acuminate or awn-tipped, scaberulous on the nerve, the second 3 mm. long, the first more than one-half as long; fertile lemma pale, five times as long as wide, wider in the middle, 3-nerved, villous on the callus, short villous on the marginal nerves from base to apex, and often on the keel, from above the base to the middle, the awn 8 to 12 mm. long; sterile lemma 1 to 2.2 mm. long, wider below the apex than at base, acute at apex, its awn 6 to 10 mm. long; some of the lower spikelets include sometimes a second awned sterile floret.

In sandy ground, at Cajobabo, not far from the mouth of Jójó River, Oriente, Cuba (*Léon 12320*). Named in honor of Colonel Morales Coello of the Cuban Navy, in recognition of his effective help. This species is of *Chloris Sagracana* relationship, but a much taller plant; it also differs in its longer and broader leaves and more leafy stems. The type specimen is preserved in Colegio de la Salle Herbarium, Vedado, Havana.

Peperomia Roigana Trelease, sp. nov.

A puberulent suberect fleshy herb; stem slender (2 mm.); leaves in crowded whorls above, more separated below, about 4 at a node, somewhat angularly suborbicular or slightly ovate or obovate, obtuse, sessile, rather small (10×12 – 14×15 mm.), drying opaque, obscurely 3-nerved by transmitted light and finely pellucid-punctulate; inflorescence unknown.

Mogote de la Bandera, Sierra de Viñales, Pinar del Rio, Cuba, (*Roig & Azcuy 2902*).

Torrubia Leonis Standley, sp. nov.

Shrub 2 m. high, the branches grayish, the branchlets densely brownish-tomentose or in age merely puberulent, evenly leafy, with short internodes; petioles slender, 6–15 mm. long, brownish-tomentose; leaf blades oblong-elliptic or narrowly elliptic, 4–7 cm. long, 1.7–3.3 cm. wide, rounded or very obtuse at apex, obtuse or rounded at base or sometimes acute, subcoriaceous, above deep green, lustrous, with obsolete venation, densely short-villous when young but in age only sparsely short-villous or glabrate, beneath slightly paler, copiously villous even in age with short slender spreading hairs, the lateral nerves very slender and irregular; pistillate peduncles slender, 1–2 cm. long, thinly brownish-tomentose, the inflorescence cymose, few or many-flowered, the flowers sessile; pistillate perianth tubular, 1.5–2 mm. long, with spreading limb, glabrous or nearly so; style exserted.

Type in the herbarium of the New York Botanical Garden, collected on limestone rocks at the top of the Sierra de Anafe, Province of Havana, Cuba, May 6, 1924. (*Brother Léon 11622*.)

There are only a few species of *Torrubia* that have pubescent foliage. The present plant is related to *T. cuspidata*, of Grenada and Trinidad, but differs conspicuously in leaf characters.

***Tounatea cubensis* Britton & Wilson, sp. nov.**

A small tree, the young twigs, petioles, and rachis more or less densely pubescent with dark brown hairs. Leaves odd-pinnate, 1.5–2.6 dm. long, the leaflets 13 or 15, elliptic-lanceolate to elliptic-oblongate, 5–9.5 cm. long, 2–3 cm. broad, short-petioled, the base obtuse, the apex acuminate, finely reticulate-veined on both surfaces; pod ellipsoid, about 4.6 cm. long.

Valley of the San Juan, Pinar del Rio, Cuba (*J. T. Roig 3162*, April 5, 1924, foliage, type; fruit sent by Dr. Roig from Pinar del Rio, June 1925). This is the first record of the genus *Tounatea* in Cuba. In leaf form it approaches *Tounatea caribaea* (Griseb.) Taub. of the Lesser Antilles.

***Bunchosia linearifolia* P. Wilson, sp. nov.**

Shrub about 3 m. tall, with grayish branches. Leaves linear or somewhat linear-obovate, 3–6 cm. long, 2.5–5 mm. wide, rounded at the apex, acute at the base, lustrous above, dull and faintly nerved beneath, the petioles 2–3 mm. long; drupes subglobose, 10–12 mm. in diameter, apiculate.

Type collected in thickets between Jauco and Cajobabo, Oriente, Cuba (*Brother Léon 12062*). Related to *Bunchosia Leonis* Britton & Wilson, of Cuba, but differing in its linear-obovate leaves.

***Byrsonima motembensis* Britton & Small, sp. nov.**

A shrub 2 m. tall or less, with warty-rugose gray bark and red-strigillose twigs. Leaves mainly on the twigs, early deciduous from the branches, the blades cuneate to obovate-cuneate, 2–6 cm. long, obtuse or abruptly short-pointed, grayish-green, somewhat lustrous and with minute scattered hairs above, paler, dull, somewhat reticulate, and with minute scattered hairs beneath, at least during anthesis, short-petioled, the petioles hairy like the twigs when young; panicles raceme-like, peduncled, rather few-flowered, the peduncle and pedicels pubescent like the twigs, but the hairs often early deciduous from the peduncle; bracts shorter than the pedicels, lanceolate; sepals ovate to orbicular-ovate, 3–3.5 mm. long, obtuse, red-pubescent, corolla 12–15 mm. wide; petals 7–9 mm. long, with orbicular-reniform claws, the blade of one smaller and the claw stouter than in the others; filaments clavate, 2–2.5 mm. long; anthers fullv

2 mm. long, blunt or notched at the apex, acute at the base; styles subulate, curved at the apex; fruits not seen.

In thickets of Sabana de Motembo, Santa Clara, Cuba, August 28, 1922 (*Brother Léon and A. Loustalot 11370*).

***Leucocroton pallidus* Britton & Wilson, sp. nov.**

A scurfy-pubescent shrub with slender light brown twigs. Leaves coriaceous, oblong-linear, 5-12 cm. long, 5-10 mm. wide, pale green above, grayish green beneath, mucronate at the apex, obtuse or acute at the base, short-petioled, the midvein impressed above, prominent beneath, the lateral veins rather prominent on both sides, diverging at right angles to the midvein; flowers and fruit unknown.

Forest on Mesa de Prada, Oriente, Cuba (*Brother Léon 11960*). Similar to *Leucocroton saxicola* Britton, but with longer and narrower leaves.

***Pachyanthus Lunana* Britton & Wilson, sp. nov.**

A shrub with ferruginous twigs. Leaves ovate, 5-5.7 cm. long, 2-3.2 cm. broad, glabrous above, pubescent beneath with mostly scattered stellate ferruginous hairs, acute at the apex, subcordate at the base, coriaceous, petioled, 5-nerved, the veins and lateral nerves prominent beneath, slightly impressed above; inflorescence short peduncled; calyx about 4 mm. long, 4 mm. broad, pubescent with shaggy hairs, its lobes oblong, 2 mm. long.

Lomas de Banao, Santa Clara, Cuba (*Antonio Luna 8*). Related to *Pachyanthus Clementis* P. Wilson, of Cuba, from which it differs in its short-ovate leaves.

***Icacorea baracoensis* Britton & Wilson, sp. nov.**

A small tree 5-6 m. high, the twigs and branches glabrous. Leaves oblanceolate, 5-11 cm. long, 1.8-4 cm. broad, obtuse at the apex, cuneate at the base, indistinctly veined, glabrous, the margin entire, short-petioled; branches of the inflorescence corymbiform, the lower pedicels elongated; sepals 5, triangular, acuminate, 0.9 mm. long, 0.8 mm. broad; petals 5, elliptic-ovate or elliptic, 3 mm. long, 2 mm. broad, obtuse at the apex.

On rocks, Sierra de Imias, Oriente, Cuba (*Brother Léon 12256*). This plant differs from nearly all of the Cuban species of *Icacorea* in its corymbiform inflorescence.

***Bumelia Roigii* Britton and Small, sp. nov.**

Tree with gray branches and sparingly pubescent twigs, the shoots sometimes with axillary subulate thorns: leaves persistent;

blades coriaceous, obovate, rhombic-obovate or somewhat cuneate, 3-7 cm. long, rounded at the apex, smooth, glabrous, and shining above, closely tawny-pubescent beneath when young with the hairs fading or deciduous in age, acuminate at the base, short-petioled: flowers not seen: fruit large, apparently about 1.5 in diameter.

Between Cape San Antonio and Morro de Piedras, Pinar del Rio, Cuba, April 13, 1924, (*Roig* 3256, type, and 3257.)

The specimens indicate, by the leaves, a relationship between this species and *Bumelia loranthifolia*; the fruit of *B. Roigii*, however, is much larger than any heretofore found in the former species.

Maba Leonis Britton & Wilson, sp. nov.

A shrub with grayish brown strigose-pubescent twigs. Leaves elliptic to oval, occasionally somewhat ovate, 1.5-3.5 cm. long, 0.8-2.2 cm. broad, spinulose-apiculate at the apex, rounded or obtuse at the base, finely reticulate veined on both surfaces, pubescent beneath with appressed hairs or glabrous; petioles 2-2.5 mm. long; young fruiting calyx lobes suborbicular, 6-7 mm. broad, densely strigose pubescent on the back; ovary strigose-pubescent.

Thickets near Cojimar, Havana, Cuba (*Brother Léon* 6269, type; 5609). Related to *Maba Grisebachii* Hiern, of Cuba, from which it differs in its elliptic or oval leaves which are finely reticulate-veined.

Necbracea angustifolia Britton, sp. nov.

A shrub or small tree, with slender branches, the leafy twigs densely short-pilose. Leaves linear-oblong, subchartaceous, 4-7 cm. long, 8-10 mm. wide, densely tomentose, the venation rather prominent beneath, the apex obtuse, the base narrowed, the petioles 2-3 mm. long; inflorescence few-flowered, peduncled, shorter than the leaves, pilose; calyx-segments lanceolate, acuminate, pilose, about 3 mm. long; corolla purplish, about 1 cm. long.

Rocky soil between Santa Cruz and Los Coyuelos, Pinar del Rio, Cuba (*Roig* 3227). In general appearance this plant is similar to *Necbracea bahamensis* Britton, of Cuba and the Bahamas, but differs in its much smaller corolla and narrower leaves.

Tournefortia Roigii Britton, sp. nov.

Shrubby, the twigs and inflorescence sparingly pubescent with short white appressed hairs. Leaves oblong to oblong-

elliptic, 4-7 cm. long, dark green above, pale green beneath, sparingly pubescent with short white hairs on both sides, the venation prominent beneath, the apex acuminate, the base cuneate, the petioles short; branches of the slender-peduncled cymes many-flowered, 6-9 cm. long; sepals linear-lanceolate, acuminate, 3 mm. long; corolla-tube nearly glabrous, 4 mm. long, its lobes ovate, about 1 mm. long; anthers ovoid, 1 mm. long; berries globose, about 6 mm. in diameter.

Open places, El Gato, Pinar del Rio, Cuba (*Roig 3208*). Related to *Tournefortia bicolor* Sw., of the West Indies and continental tropical America, but differing in the prominent venation of its lower leaf surface.

***Tournefortia Leonis* Britton & Wilson, sp. nov.**

A vine 3 m. or more long, the young twigs densely pubescent with appressed brownish hairs. Leaves narrowly oblong or oblong-elliptic, 2-4.3 cm. long, 4-10 mm. wide, acute at the apex, nearly glabrous above or with short scattered appressed hairs on both sides, the petioles 2-3 mm. long; cymes short-peduncled; calyx about 1 mm. long, appressed-pubescent, its narrowly lanceolate lobes acute; corolla-tube 2 mm. long, the linear lobes 2.5 mm. long; fruit depressed, about 4 mm. broad, glabrous.

Type from coastal thickets, Jauco Abajo, Oriente, Cuba (*Brother Léon 12383*); also collected between Sabana and Maisi (*Shafer 7910*). Related to *Tournefortia volubilis* L., from which it may be distinguished by its much narrower leaves.

***Callicarpa Roigii* Britton, sp. nov.**

A shrub, the stout branches, petioles, inflorescence and lower leaf-surfaces densely grayish-floccose, becoming glabrate when old. Leaves broadly ovate, submembranous, 6-10 cm. long, strongly pinnately veined, serrulate, the apex acute or acuminate, the base obtuse or rounded, the stout petioles 8-15 mm. long; cymes stout-peduncled, densely many-flowered, shorter than the leaves, 4-7 cm. broad; pedicels very short; calyx campanulate, subtruncate, 1 mm. long; corolla white, about 3 mm. broad, its lobes rounded; fruit apparently black, about 4 mm. in diameter.

Rocky places, Bolondron, Pinar del Rio, Cuba (*Roig 3220* type, in flower April, 1924); Punta de la Jaulu (*C. Wright 3169*, in fruit, Dec. 22). Referred by Grisebach to *C. acuminata* Kunth. Related to *Callicarpa acuminata* H.B.K. of Mexico and Central America.

***Solanum lomensis* Britton & Wilson, sp. nov.**

A tree 6-8 m. high, the twigs and branches armed with brownish prickles 2-4 mm. long, densely hispid with ferruginous, long-stalked, stellate hairs. Leaves broadly elliptic, 7-14 cm. long, 4.5-8.5 cm. broad, acute to short-acuminate at the apex, rounded at the base, coarsely sinuate undulate, rather dull and with few slender prickles above, the midvein and primary veins impressed, densely hispid beneath with stalked stellate hairs, the midvein and primary veins often rather prominent; petioles 7-15 mm. long; inflorescence 5-10 cm. long; calyx about 2 cm. in diameter; corolla 3.8 cm. in diameter; anthers 6-6.5 mm. long, attenuate at the apex.

Loma San Juan near Loma del Gato, Oriente, Cuba (*Brother Léon* 2520, type; 12353). Similar to *Solanum Gundlachii* Urban, of Cuba, but differing in its indumentum.

***Rondeletia myrtacea* Standley, sp. nov.**

Shrub 3-4 m. high, the branches terete, reddish brown or grayish, with short or elongate internodes, glabrous or when young sparsely puberulent; stipules broadly triangular, 1.5-2 mm. long, subulate-acuminate, sparsely short-pilose near the apex; leaves opposite, the petioles 2-10 mm. long, glabrous; leaf-blades very variable, ovate-elliptic to oval or oblong-elliptic, 2-6.5 cm. long, 1-3 cm. wide, rounded or obtuse at apex, rounded to cuneate at base, coriaceous, glabrous, lustrous above, the venation prominulous, beneath dull, the costa slender, salient, the lateral nerves about 6 on each side, straight, arcuately anastomosing remote from the more or less revolute margin; inflorescences terminal, few or many-flowered, 3-6 cm. long, cymose-paniculate, the pedicels slender, mostly 3-10 mm. long, glabrous or with a few minute appressed hairs; lower bracts leaf-like, 3-7 mm. long, elliptic or broadly ovate, the upper linear or lance-subulate; bractlets subulate, 1-1.5 mm. long; hypanthium glabrous or with a few minute appressed hairs; calyx-lobes 5, 1.5-2 mm. long, oblong-spatulate, contracted below, rounded or obtuse at apex; corolla-tube 5-6 mm. long, ampliate above, pilose with minute whitish erect-patent hairs, the 5 lobes orbicular, 2-2.5 mm. long; capsule subglobose, 3-5 mm. long, glabrous or glabrate; seeds 1-1.5 mm. long, compressed, yellow-brown, coarsely reticulate, attenuate at each end.

Type in the herbarium of the New York Botanical Garden, collected in gravelly soil near Jauco, Mesa de Prada, southern Baracoa region, Cuba, July 17 to August 4, 1924 (*Brother Léon* 11966). The following collections, from the same region, also belong here: Mesa de Prada, *Léon* 11946; Jauco Arriba, *Léon* 12016.

In general appearance this is very similar to *R. Ekmanii* Britton & Standley, but that species differs in having narrow calyx-lobes which are broadest at base.

***Rondeletia ingrata* Standley, sp. nov.**

Shrub 4 m. high or less, the branches stout, terete, blackish or gray, the branchlets densely pilose with short ascending hairs, the internodes 2-4 mm. long; stipules triangular or broadly triangular, 1.5-2 mm. long, acute, erect, sericeous; leaves opposite, the petioles stout, 1.5-3 mm. long, minutely grayish-pilose; leaf-blades oblong-elliptic, 6-15 mm. long, 3-7 mm. wide, obtuse or rounded-obtuse at apex, obtuse at base, thick-coriaceous, with revolute or subrevolute, much thickened margins, green above, the venation obsolete, when young densely pilose with minute appressed hairs, in age glabrate, beneath covered with a very dense, minute, grayish tomentum, along the nerves sericeous with longer hairs, the costa and lateral nerves elevated, the veins prominently reticulate; inflorescences axillary, usually 3-flowered, sometimes 1-flowered, the peduncles stout, 2-3 mm. long, the flowers sessile; bracts and bractlets deltoid; hypanthium densely tomentose; calyx-lobes usually 5, sometimes 4, oblong-ovate, obtuse, 1.5 mm. long; corolla not seen; capsule globose, 3 mm. in diameter, densely tomentose; seeds minute, compressed, brown, exalate.

Type in the herbarium of the New York Botanical Garden, collected on dry gravelly hills, at Cajobabo, valley of the Río Jójó, southern Baracoa region, Cuba, July 17 to August 4, 1924, (*Brother Léon 12415*). Also collected in the same region, at Jauco Arriba (*Brother Léon 11865*).

Related to *R. camarioca* Wright and, according to description, to *R. Norlindii* Urban. The former differs in the velvety pubescence of the upper leaf surface; the latter in its 1-flowered peduncles and smaller leaves, glabrous on the upper surface.

***Rondeletia gaultherioides* Standley, sp. nov.**

Shrub, the stout branches terete, dark red-brown, with elongate internodes, when young densely pilose with long ochraceous erect-patent hairs; stipules lance-ovate, 5-8 mm. long, acuminate, persistent, densely appressed-pilose; leaves opposite, the petioles stout, 3-5 mm. long, pilose with subappressed hairs; leaf-blades ovate-oval to oblong-elliptic, 3-10 cm. long, 1.7-5.5 cm. wide, abruptly acute to obtuse at apex, rounded or shallowly cordate at base, thick-coriaceous, somewhat lustrous above, when young sparsely appressed-pilose but soon glabrate, the costa impressed, the other venation prominulous, beneath dull, sparsely

pilose with slender, closely appressed hairs, more densely pilose along the nerves, the costa salient, the lateral nerves very prominent, 5 or 6 pairs, nearly straight, ascending at an angle of 45° , arcuately anastomosing near the margin; inflorescence terminal, subsessile, 1-flowered, subtended by lanceolate to rhombic-ovate bracts, these longer than the capsule, appressed-pilose; capsule subglobose, 5 mm. long, densely appressed-pilose, the 4 persistent calyx-lobes (imperfect) oblong, 7 mm. long, densely appressed-pilose outside.

Type in the herbarium of the New York Botanical Garden, collected on rocky banks of Arroyo Bayajá, Sierra Maestra, south of Nagua, Oriente, Cuba, August 8, 1922 (*E. L. Ekman 14759*).

The foliage of this plant is suggestive of *R. correifolia* Griseb., but the form of the inflorescence is unlike that of any of the Cuban species of *Rondeletia*.

75. UNDESCRIBED SPECIES FROM TRINIDAD

Gravisia aripensis N. E. Brown, sp. nov.

Leaves 60–75 cm. or more long, $4\frac{1}{2}$ –5 cm. broad, broadly strap-shaped, concave; sides parallel up to about 5–6 cm. below the apex, where they incurve to an acute and shortly mucronate point; margins armed with small horizontally spreading pale brown (? green when alive) prickles 1 mm. long and 3–5 mm. apart; surface glabrous, very minutely punctate (not lepidote). Scape 13–14 cm. long in the only specimen seen, 7 mm. thick, clothed with light brown wool and bearing two glabrous sheathing acute bracts 5–7 cm. long, and terminating in a dense subglobose inflorescence 7–8 cm. long and 7–8 cm. in diameter, composed of 4–5 spherical bright pink flower-heads, each about 4 cm. in diameter and sessile in the axil of a large elliptic obtuse mucronate pink outer bract 5–6 cm. long and 4–5 cm. broad. Flowers numerous in each cluster or head. Bracts about $3-3\frac{1}{2}$ cm. long, 10–15 mm. broad, ovate-lanceolate, acute, tipped with a spine 3–4 mm. long, slightly woolly or becoming glabrous. Sepals 15 mm. long, spine-tipped, the lower two-thirds having unequal membranous inrolled margins, one margin about 3 mm. broad and the other 1 mm. broad and more acutely narrowed into the spine than the broad margin, woolly. Petals not seen in perfect condition, but apparently about as long as the sepals and lanceolate. Stamens about three-fourths as long as the petals, absent in two flowers examined; anthers $3\frac{1}{2}$ mm. long, versatile, oblong, with a blunt mucro. Style rather shorter than the stamens; stigma entire.

Trinidad: Heights of Aripo, growing on trees, Jan. 1922 (*Broadway 9917*).

I have placed this very distinct plant under *Gravisia* because in general appearance it seems more nearly allied to *G. aquilega* Mez, than to any other in the Kew Herbarium. But the flowers are not in a sufficiently good state to admit of complete details being given. I could not, however, detect any ligules upon the petals, nor did I find any pollen to examine. The habit of its inflorescence would seem to distinguish it from *Aechmea*. [N. E. BROWN.]

***Piper maraccasense* Trelease, sp. nov.**

Flowering internodes brown hirsute-tomentose; leaves sub-elliptic-oblong, somewhat acuminate, equilaterally rounded or barely subcordulate at base, rather small ($3.5-4.5 \times 9-11$ cm.), pinnately nerved from below about the upper third, the rather prominent nerves $5-7 \times 2$, glabrous and somewhat glossy above and finally bullate, brown appressed-hairy on the nerves beneath; petiole short (5 -scarcely 10 mm.), scarcely winged, densely brown-hairy; spikes opposite the leaves, rather slender and short (scarcely 4×40 mm.); peduncle short (5 mm.), brown-subtomentose; bracts concave-inflexed, hairy; flowers sessile, perfect; stigmas 3, sessile, berries subglobose, indented, glabrous.

Maraccas, Trinidad, (Trinidad Bot. Gard. Herb. 2613, collected in 1845). Type at the New York Botanical Garden).

***Coccolobis quadrifida* Britton, sp. nov.**

A small tree with stout somewhat flexuous, glabrous twigs. Leaves elliptic, coriaceous, strongly reticulate-veined on both sides, glabrous, $7-10$ cm. long, shining above, the apex acute, the base obtuse, the stout petiole $1-1.5$ cm. long; ocreae membranous, about 12 mm. long or shorter, their lobes acuminate; spikes slender, densely flowered, $6-8$ cm. long, numerous, glabrous, occasionally forked at the base, short-peduncled, $6-10$ cm. long; flowers sessile; buds about 2 mm. long; sepals 4; stamens 8, white; stigma 2-cleft.

Tocucho, Trinidad (*Trinidad Herbarium 11012*, collected by R. O. Williams April 28, 1925).

***Elsota lophosoma* Blake, sp. nov.**

Branches and branchlets densely and softly pilosulous with antrorse-curved, yellowish or in age fuscous hairs; leaves oval-ovate or oval-oblong, obtuse, papery, softly incurved-pilosulous on both sides, more densely so beneath; racemes terminal; fruit about 6 cm. long, sordid-pilosulous, the cell subglobose, about 1 cm. long, each side covered with about 5

elevated anastomosing thick blunt crests (about 2 mm. high), the upper margin of the cell bearing a repand-denticulate wing-margin about 3 mm. high, this truncate or emarginate at base of proper wing and not decurrent on it, the proper wing obliquely obovate, about 5 cm. long, 7 mm. wide at base, 2 cm. wide above the middle.

Shrub, doubtless scandent, branching; petiolar glands slender, peziziform, 0.5 mm. long; leaves distichous; petioles densely yellowish-pilous, 1-2 mm. long; leaf blades 2.5-4.5 cm. long, 1.7-2.3 cm. wide, rounded at base, dull brownish-green above, slightly paler beneath, loosely prominulous-reticulate on both sides, the lateral veins 7-10 pairs; racemes terminating leafy branches, solitary, in fruit 4 cm. long or less, pubescent like the stem, the bracts deciduous; flowers unknown; proper wing of fruit curved at apex, repand on lower margin, with numerous subparallel veins.

Trinidad: Road to Maraccas Bay, 10 July 1924, (*R. O. Williams, W. G. Freeman, and E. E. Cheeseman 11246*; type in herbarium of Royal Botanic Gardens, Trinidad and Tobago; photog. and fragm. in U. S. Nat. Herb., and in Herb. N. Y. Bot. Gard.).

A species allied to *Elsota coriacea* (Bonpl.) Blake and to *E. sylvestris* (Schlecht.) Kuntze, and characterized primarily by the numerous thick blunt crests of the fruiting cell. The description of *Securidaca tenuifolia* Chod., of Trinidad, suggests this species, but a fruit received from Berlin of Trinidad Bot. Gard. Herb. no. 2703, described by Chodat as a velvety form of *S. tenuifolia*, proves to be entirely different from the fruit of *E. lophosoma*.

***Pedilanthus ierensis* Britton, n. sp.**

Stem glabrous, tall, erect, up to 2 m. high. Leaves broadly ovate, rather thin, glabrous, the larger ones 8-15 cm. long, 5-10 cm. wide, the venation widely spreading, the apex bluntly acute, the base narrowed, the stout petiole about 1 cm. long or shorter, the midvein not flanged beneath; flowers similar to those of *P. tithymaloides* but smaller.

Penal Rock Road, Trinidad (*Britton, Hazen and Mendelson 1093*). In flower, March 28, 1920.

***Metastelma Freemani*, N. E. Brown, sp. nov.**

Stem about 1 mm. thick, with internodes 10-20 mm. long, terete, puberulous along two opposite rather broad lines with strongly curved very short hairs. Leaves opposite, apparently

slightly deflexed; petiole 1-1½ mm. long, minutely puberulous; blade 9-13 mm. long, 4-8 mm. broad, elliptic or elliptic-oblong, obtusely rounded at both ends or slightly and broadly cuneate at the base, minutely apiculate at the apex, entire, glabrous on both sides. Flowers in small branching or simple axillary racemes 3-10 mm. long, minutely bracteate, and minutely puberulous on the axis, pedicel and calyx. Pedicels ½-1 mm. long. Calyx-lobes 1 mm. long, oblong, rounded at the apex. Corolla 5-lobed; tube 1 mm. long; lobes 1½ mm. long, oblong, subacute, with thickened microscopically puberulous margins within, glabrous on the back. Coronal lobes 5, arising from the sinuses between the corolla-lobes, about 1 mm. long, linear-lanceolate, acute, bent outwards just below the middle and upcurved at the apex. Staminal column 1½ mm. long, arising shortly above the base of the tube of the corolla and exerted from it, much dilated at the truncate apical part. Fruit not seen.

Balandra Bay, Trinidad, (*W. G. Freeman 11310*).

The genus *Metastelma* is one that urgently requires a thorough revision, for as understood by modern authors and as defined in Bentham & Hooker, *Genera Plantarum* 2: 755, it comprises three very distinct types of coronal structure, which in other parts of the order are held to constitute generic distinction, and there seems no valid reason why these differences should not be considered of generic value in this case. The three types are: 1, Plants with the coronal lobes inserted at the sinuses of the corolla. 2, Plants with the coronal lobes inserted at the base of the staminal column. 3, Plants with the coronal lobes inserted at the top of the staminal column.

Originally the genus *Metastelma* was founded by Robert Brown upon a plant collected in the Islands of St. Croix and St. Christopher, having the coronal lobes inserted at the sinuses of the corolla (type 1). This plant (*M. parviflorum* R. Br.) I find upon comparison with the type to be identical with *Thompson 499*, collected on St. Croix, and *M. Freemani*, above described, has the same type of structure and undoubtedly is a true species of *Metastelma*. But modern authors seems to have understood type 2 as being the typical structure of *Metastelma*. While K. Schumann in Engler, *Pflanzenfamilien* 4²: 229 has placed plants having the typical structure of *Metastelma* (i. e. type 1) under the genus *Irmischia*, founded by Schlechtendahl in *Linnaea* 19: 738 upon a Mexican plant I have not seen, but which from description may prove to be a typical *Metastelma*; in which case *Irmischia* will rank as a synonym of *Metastelma*.

As to types 2 and 3 mentioned above, I consider that these should be separated from *Melastelma* and made to constitute separate genera. [N. E. BROWN.]

***Jacquemontia elongata* Britton, sp. nov.**

A slender vine, up to 5 m. long or longer, the branches and peduncles appressed-pubescent. Leaves ovate, membranous, slender-petioled, glabrous or nearly so, about 7 cm. long or shorter, the apex acute or acuminate, the base cordate, rounded or subtruncate; peduncles 5–10 cm. long, much longer than the petioles; inflorescence subcapitate, several-flowered; corolla blue to lavender, about 1.5 cm. in diameter.

Thickets, Trinidad, Tobago and northern Venezuela. Type from Manzanilla, Trinidad (*Britton 2191*). This plant has been referred to *J. pentantha* (Jacq.) Don.

***Columnnea tocoensis* Britton, sp. nov.**

Stems rather short, simple or little branched, clustered, 1.5 m. long or less; long, appressed, pubescent. Leaves oblong, 3–4 cm. long, appressed-pubescent, obtusish. Peduncles densely pubescent, 1.5 cm. long or shorter; calyx densely pubescent, about 8 mm. long, its lobes lanceolate, acutish; corolla yellow, about 4 cm. long, loosely villous with nearly white hairs, its slender tube about twice as long as the limb.

Pendent on forest trees, Trinidad. Type from Toco Road, near Valencia (*Britton, Hazen and Mendelson 1785*). This is, perhaps, the plant referred by Grisebach to *C. scandens*.

***Columnnea aripoensis* Britton, sp. nov.**

Branched, the branches rather stout, densely appressed-pubescent, 2 dm. long or longer. Leaves oblong, short-petioled 2.5–3.5 cm. long, finely appressed-pubescent, obtuse; peduncles densely villous, 8–12 mm. long; calyx 10–12 mm. long, appressed-pubescent, its lobes ovate, acute; corolla red, 3–4 cm. long, loosely pubescent with long jointed hairs, its tube gradually expanded above, about twice as long as the limb.

On trees, Heights of Aripo, Trinidad. (*Britton and Freeman 2340*, type).

***Diapedium aripoense* Britton, sp. nov.**

Branching, strigillose, 1–1.5 m. high. Leaves elliptic-ovate, membranous, slender-petioled, rather strongly veined, long-acuminate at the apex, narrowed at the base, the lower about 2 dm. long, the upper much smaller; inflorescence several-flowered,

short-peduncled or nearly sessile; corolla red, villous, slightly curved, about 3 cm. long, its lobes about 6 mm. long.

Heights of Aripo, Trinidad. (Trinidad Herbarium 9860, coll. *Broadway*, Jan. 10-26, 1922.)

***Chimarrhis microcarpa* Standley, sp. nov.**

Branchlets stout, obtusely angulate, ochraceous, glabrous, the internodes 5-13 mm. long; stipules lance-oblong, attenuate, 3 cm. long, thin, brown, glabrous, caducous; leaves opposite, the petioles slender, glabrous, 2.5 cm. long; leaf blades elliptic, 11-19 cm. long, 5-8 cm. wide, acute, at base acute and decurrent upon the petiole, membranaceous, glabrous, the lateral nerves about 10 pairs, arcuate, laxly and irregularly anastomosing close to the margin; inflorescences axillary, cymose-paniculate, half as long as the leaves, 4-5 cm. long and broad, many-flowered, the peduncles slender, 3.5-5.5 cm. long, thinly puberulent, the pedicels 1-2 mm. long; capsules subglobose, 2 mm. long, obtuse at base, broadly rounded at apex, slender-costate, dark red-brown, glabrous, crowned by the low persistent calyx.

Type in the herbarium of the New York Botanical Garden, collected at Maraval, Trinidad, in 1904 (*I. Dannouse 6946*).

Because of the incompleteness of the available material, there is some doubt as to the proper reference of this plant to *Chimarrhis*, but it agrees well with that genus in the characters exhibited by the specimen studied.

76. AN UNDESCRIBED TREE OF PORTO RICO

***Paralabatia portoricensis* Britton & Wilson, sp. nov.**

A tree 15 m. or more high, the twigs clothed with appressed ferruginous hairs. Leaves oblong-lanceolate, 6-11 cm. long, 2.5-4 cm. wide, acute or obtuse at the apex, rounded or somewhat acutish at the base; glabrous above except on the midvein, loosely pubescent beneath with rather long whitish hairs, the petioles about 1.5 cm. long; calyx-lobes 5, oblong-elliptic, 2 mm. long, pubescent on the back; corolla-lobes broadly elliptic to oval, 1.5 mm. long, unappendaged; staminodes filament-like; ovary 2-celled.

On limestone hills, northern Porto Rico. Type from Dominiguito, near Arecibo (*H. T. Cowles 702*).

Related to *P. dictyonura* (Griseb.) Pierre, of Cuba, but differing in the pubescence of the petioles and lower leaf-surfaces.

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