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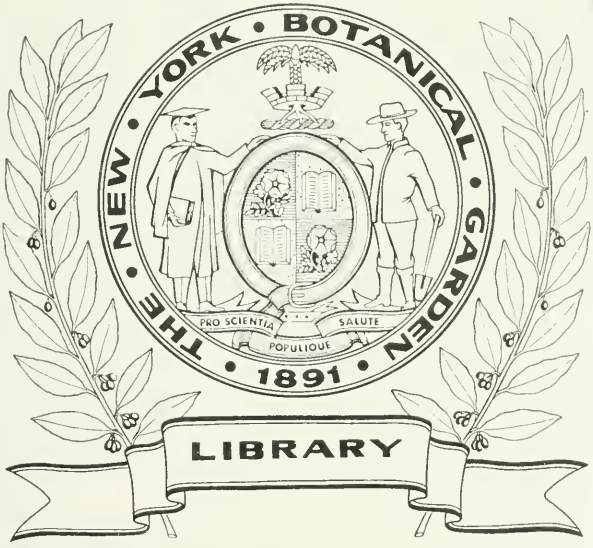
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A CONTRIBUTION TO THE BOTANY OF THE ISLE OF PINES, CUBA, BASED UPON THE SPECIMENS OF PLANTS FROM THAT ISLAND CONTAINED IN THE HERBARIUM OF THE CARNEGIE MUSEUM UNDER DATE OF OCTOBER, 1916

By O. E. Jennings

(Issued March 31 1917.)

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By O. E. Jennings.

(Plates V–XXVIII.)

Introductory.

The present paper is primarily an annotated list of the plants collected in the Isle of Pines and now contained in the Herbarium of the Carnegie Museum. The list has been supplemented by references to other specimens collected in the Island, wherever records of such specimens have been found in the literature consulted.

The greater part of the material studied in the preparation of this list was collected by the writer from May 5 to 26, 1910, while a member of a party sent out by the Carnegie Museum to make collections in the Isle of Pines. The party consisted of Dr. D. A. Atkinson, Mr. J. L. Graf, Mr. G. A. Link, Sr., and the writer. Most of the time was devoted to the exploration of the northern and northwestern parts of the island. Nueva Gerona was made the base of operations, and the surrounding savannas and the rugged mountains nearby were quite thoroughly explored. On May 7 the writer visited the ridge at Bibijagua in the northeastern part of the island. On May 16 a trip was made to the mouth of the Nuevas River in the northwestern corner of the island. On May 17 a move was made to Los Indios and from this base the surrounding region was explored. On May 21 in company with Mr. Graf the writer visited the Cañada Mountains and climbed the highest peak. On May 21 in company with Dr. Atkinson and Col. T. J. Keenan a trip was made on foot to Siguanea. On the following day we crossed Siguanea Bay in a launch to Bogarona, and thence walked about six miles to Caleta Grande on the southern coast. The last two days of our stay on the island, May 25 and 26, were spent collecting in the vicinity of Santa Fé.

The collections made comprised about two thousand specimens, included under about six hundred and fifty field-numbers. In addition to those specimens collected by the writer, there are in the Herbarium of the Carnegie Museum two hundred and ninety-eight specimens collected in the Isle of Pines by Mr. A. H. Curtiss in 1903 and 1904, these having been distributed from the New York Botanical Garden a number of years ago as one of a number of sets into which the Curtiss Collection was divided. There are also in the Carnegie Museum a small number of specimens obtained in the Isle of Pines in 1910 by Dr. Jared F. Shafer, of Pittsburgh, and a small collection made by Mr. G. A. Link, Sr., on the occasion of his sojourn in the island in 1912–1913. The Curtiss Collection was made in the vicinity of Nueva Gerona, that of Dr. Shafer mainly in the vicinity of Columbia and Nueva Gerona, and that of Mr. Link in the vicinity of Nueva Gerona and Los Indios.

The most complete set of the specimens collected by the writer in the Isle of Pines, the set which is now in the Herbarium of the Carnegie Museum, together with a duplicate set now in the Herbarium of the New York Botanical Garden, was submitted during the summer of 1910 to Dr. N. L. Britton, Director of the New York Botanical Garden. The specimens were studied by Dr. Britton and Mr. Percy Wilson, many of them being submitted to specialists both at the New York Botanical Garden and elsewhere. The fungi were studied by Professor D. R. Sumstine, of Pittsburgh. To all of these gentlemen I take the present opportunity to extend my grateful acknowledgment for their labors, which have facilitated my own.

In the preparation of the present report it has been found necessary to reëxamine the specimens, because during the past few years great progress has been made in the study of the flora of the West Indies. Much of the credit for this progress belongs to the gentlemen connected with the New York Botanical Garden, whose explorations and collections in the West Indies have been extensive and thorough. Dr. Ignatius Urban, of Berlin, assisted by various collaborators, has published much upon the flora of the West Indies in the seven volumes of his *Symbolæ Antillanæ;* and in the United States a number of specialists have monographed the North American plants of certain groups, including the West Indian species. An examination of the specimens of the Curtiss Collection shows that quite a number of them, according to the latest literature, belong to species other than

those originally indicated on the labels. As these specimens supplement those collected by the writer, it has been thought advisable to include in this list a reference to them also.

To facilitate further work upon the flora of this interesting island analytical keys for the species of the various families have been incorporated. These keys have been mainly based on the more readily observable characters of leaves and flowers. In some of the more difficult families the writer has taken the liberty of remodelling certain keys published by other authors, to whom he renders thanks and makes apology, if apology be necessary.

The sequence followed in this list is essentially that of Engler's *Syllabus der Pflanzenfamilien* and the nomenclature is based upon the *International Rules of Botanical Nomenclature*, excepting as to the "Nomina Conservanda" in matters of priority.

Great care has been exercised in the preparation of the synonymy. When synonyms are very numerous a selection has been made, preference being given to those based upon West Indian material, or most likely to be accessible to American botanists working upon West Indian plants.

Before closing these brief preliminary remarks I wish to express my sense of indebtedness to Dr. C. F. Millspaugh for his kindness in identifying certain of the *Euphorbiaceæ*. I wish also to put upon record my appreciation of the services rendered me by my travelling companions during the expedition of 1910, and of the courtesy and hospitality shown us on that occasion by Colonel Thomas J. Keenan, a citizen of Pittsburgh, who has done much to promote the industrial development of the Isle of Pines. To Dr. Jared F. Shafer the Carnegie Museum is indebted for the specimens collected by him, and the writer, in particular, wishes to acknowledge the assistance received from him in the study of the orchids, some of which he has successfully propagated and brought to flower in his conservatory, where it has been possible to view them from time to time and to obtain additional specimens. To Mrs. O. E. Jennings, for assistance in consulting the literature and in preparing photographs, and to Mr. Sidney Prentice, for his careful drawings of the plates, my thanks are due. I wish gratefully to acknowledge the support and encouragement given me by Dr. W. J. Holland, the Director of the Carnegie Museum, which made possible the collection of the specimens and the preparation of the present report. I am indebted to him for his

editorial revision of the manuscript and the care bestowed upon the preparation of the plates. Finally, I wish to pay my tribute of respect to the memory of my associate, Mr. G. A. Link, Sr., who since the completion of the following catalog passed away on August 16, 1916, under tragic circumstances. By his labors, which already have been referred to, he contributed to the formation of the collections upon which this catalog is based, and the writer will always cherish pleasant memories of the weeks spent with him during the expedition of 1910.

BOTANICAL COLLECTIONS MADE IN THE ISLE OF PINES.

Botanical collections have been made in the Isle of Pines as follows*:

1. A collection was made in 1831 by A. H. Lanier, the French consul at Trinidad, Cuba. This collection was studied and reported upon by Achille Richard in the botanical volumes of Sagra's *Historia fisica, politica y natural de la Isla de Cuba*, Volumes X and XI, 1845 and 1850, Volume XII, plates. Note has been made under various species listed in the following pages when Lanier's specimens have been mentioned by Richard. Richard cites thirty-eight species as having been collected by Lanier.

2. A collection of about one hundred and eighty-five specimens was made by Don José Blain, probably about 1849, or 1850, and was studied and listed by Dr. C. F. Millspaugh, *Field Columbian Museum, Botanical Series*, I, 1900, pp. 425–439. A number of new species based on Blain's specimens were described by Millspaugh. These specimens are noted in the following pages under the various species.

3. A small collection was made at the southwestern corner of the island (Pedernales Point) by Dr. C. F. Millspaugh, February 16, 1899, when the yacht *Utowana* stopped there for a few hours. These specimens were studied and listed, with notes and critical reports upon a number of the species, by Millspaugh (*Field Columbian Museum, Botanical Series*, II, 1900, pp. 1–110. "Plantæ Utowanæ.")

4. In 1900, from June 27 to July 13 inclusive, Messrs. William Palmer and Joseph H. Riley, under the auspices of the Smithsonian Institution, collected in the vicinity of Nueva Gerona, excepting for a part of two days which Mr. Palmer spent at Manigua, a plantation along the Nuevas River above McKinley, which since has been abandoned. A rather large collection was made by these gentlemen.

5. In the spring of 1901, Mr. A. A. Taylor, principally under the

*See also, p. 95, reference to Dr. Wm. Trelease.

auspices of Cornell University, made a collection of about two hundred species, mostly in the vicinity of Columbia.

6. During the winter of 1901–1902 Dr. W. W. Rowlee, of Cornell University, made a small collection, adding a few species to the Taylor Collection.

7. From November, 1903, to June, 1904, Mr. A. H. Curtiss made a fine collection, practically all from the vicinity of Nueva Gerona. This collection was studied at the New York Botanical Garden and a number of sets distributed. One of these sets is in the Carnegie Museum and its specimens have been included in the present annotated list.

8. In February and March, 1910, Dr. Jared F. Shafer, of Pittsburgh, an enthusiastic collector and grower of orchids, visited the island and made a collection of botanical specimens chiefly in the vicinity of Columbia and of Nueva Gerona. These collections were turned over to the Carnegie Museum. Dr. Shafer brought to Pittsburgh quite a number of live orchids, most of which grew and flowered in his conservatory. Dr. Shafer's specimens are reported upon in the present list.

9. About two thousand specimens (about six hundred and fifty field-numbers) were collected from May 5 to May 26, 1910, by the writer and they constitute the basis of the present report. The main collection is in the herbarium of the Carnegie Museum, and a number of smaller sets have been distributed in exchange, the next largest set being now in the Herbarium of the New York Botanical Garden.

10. A collection of about sixty specimens was collected by Mr. G. A. Link, Sr., during May and June, 1912, in the vicinity of Nueva Gerona, and in November, 1912, at Los Indios. These specimens are in the herbarium of the Carnegie Museum, and have been listed in the present report.

11. A large collection has been recently made by Dr. N. L. Britton, Mrs. Britton, and Mr. Percy Wilson, of the New York Botanical Garden, the expedition occupying the period from the middle of February to the latter part of March, 1916. In a recent account of this trip Dr. Britton notes that the flora of the island has been represented up to this date by specimens in the various collections to the number of seven hundred and forty species. Writing of the recent collection he notes: "Our collection aggregates one thousand six

hundred and fifty-seven numbers, and, taken with the others, indicates that the total natural flora of the island is not less than one thousand five hundred species."—Britton, *Journal of the New York Botanical Garden*, XVIII, 1916, pp. 64–71.

PUBLICATIONS RELATING TO THE FLORA OF THE ISLE OF PINES.*

The following list includes the titles of all publications relating to the flora of the Isle of Pines, so far as known to the writer. No mention has been made in this list of various popular articles, which have little or no botanical value:

1. Richard, Achille. In Sagra, *Historia fisica, politica y natural de la Isla de Cuba*, X, 1845, XI, 1850, and XII, plates, no date.

Richard, under various species in these volumes, refers to the Lanier Collection made in the Isle of Pines in 1831, by noting "*Crescit in insula Pinorum.*" A few of the plates in volume XII were made from Lanier's specimens.

2. The collections made about 1860 in the Isle of Pines by Don José Blain were reported on by Dr. C. F. Millspaugh, "*Plantæ Insulæ Ananasensis*," *Field Columbian Museum, Botanical Series*, I, 1900, pp. 425–439.

This report consists of an annotated list, with discussions as to the botanical relationships or characteristics of a number of the species, and descriptions of a few species proposed as new. Don José Blain is mentioned in one of Charles Wright's letters to Asa Gray as a botanical enthusiast of some ability.

3. Under the title "*Plantæ Utowanæ*," Dr. C. F. Millspaugh published an annotated list of the plants collected during a West Indian cruise of the yacht *Utowana* in the winter of 1898–1899.—*Field Columbian Museum*, II, 1900, pp. 1–110. During the course of this cruise, a stop of a few hours was made at Pedernales Point, on the southwestern corner of the island, February 16, 1899, when a small botanical collection was made.

Millspaugh's list contains the names of a number of species which have not otherwise been reported for the Isle of Pines.

4. Rowlee, W. W. "Conditions of Plant Growth in the Isle of Pines." *Plant World*, VI, 1903, pp. 34–37. See also *Science*, Ser. II, XVII, 1903, p. 461.

This article is devoted mainly to a discussion of the ecological distribution of the plants of the northern part of the island.

* See also page 95, reference to Dr. Wm. Trelease.

5. Rowlee, W. W. "Notes on Antillean Pines with Description of a New Species from the Isle of Pines." *Bulletin of the Torrey Botanical Club*, XXX, 1903, pp. 106–108.

Pinus recurvata Rowlee and *Pinus cubensis* var. *anomala* Rowlee are here described as new.

6. Urban, Ignatius. In his "*Flora Portoricensis*," *Symbolæ Antillanæ seu Fundamenta Floræ Indiæ Occidentalis*, IV, 1903–1911, Urban gives the general distribution of the various species cataloged therein for Porto Rico, and, among the various localities listed, the Isle of Pines frequently occurs, evidently based on the A. H. Curtiss Collection. Volumes V, VI, and VII of the *Symbolæ Antillanæ* also contain a number of references to plants from the Isle of Pines, mainly from the Curtiss Collection. Descriptions of new, and reports as to the distribution of previously described, species are given.

7. Britton, N. L. In the *Bulletin of the Torrey Botanical Club* there have appeared at irregular intervals for a number of years past a series of articles, entitled "Studies of West Indian Plants." In these articles Dr. Britton has dealt to a limited extent with specimens collected in the Isle of Pines, giving descriptions of a few new species.

8. *North American Flora.* In certain recent numbers of the *North American Flora* there are to be found references to the Isle of Pines, either in the paragraphs on general distribution of the species, or, in a few cases, new species are proposed based on specimens from the Isle of Pines.

For new species see *Lotoxalis pinetorum* Small, *North American Flora*, XXV, 1907, p. 49, *Kalmiella aggregata* Small, *op. cit.*, XXIX, 1914, pp. 54–55, *Xolisma vaccinioides* Small, *op. cit.*, XXIX, 1914, p. 68.

9. Harshberger, John W. *Phytogeographic Survey of North America*, in Engler & Drude, *Die Vegetation der Erde*, XIII, 1917.

Under the heading "Cuban District," in the treatment of the Antillean Region, Harshberger gives lists of species under various ecological groups, these lists being mainly derived from Rowlee's articles. (See above.)

10. Hitchcock, A. S. "Grasses of Cuba," *Contributions from the U. S. National Herbarium*, XII, 1909, pp. 183–258. The Isle of Pines is included in Cuba by Hitchcock, and various references are made to the Taylor, Palmer & Riley, and Curtiss Collections from the Isle of Pines. Curtiss' *No. 420*, Isle of Pines, is proposed as a new species, *Eragrostis cubensis* Hitchcock.

11. Jennings, O. E. "Notes on the Ferns of the Isle of Pines," *American Fern Journal*, I, 1911, pp. 129–136.

In this article there is given a general account of the species collected in 1910, with a discussion of their habitat and general distribution on the island. There were included also lists of the ferns collected on the island by Dr. J. F. Shafer, A. H. Curtiss, and Dr. C. F. Millspaugh.

12. Britton, N. L. "The Natural Vegetation of the Isle of Pines, Cuba," *Journal of the New York Botanical Garden*, XVIII, 1916, pp. 64–71.

A short account of the vegetation and general features of the island, with particular mention of some of the more noteworthy or striking species, a list of previous botanical collections on the island, and a statement as to the general results of the Expedition of the New York Botanical Garden in 1916.

PHYSICAL FEATURES.

For the purposes of the present paper it suffices to say that the Isle of Pines lies about sixty miles south of the west central portion of Cuba, somewhat farther west than Havana, and has an area of about eight hundred square miles.[1] The Island consists, generally speaking, of a northern and a southern part, separated by a fresh-water swamp which, to the east and west, passes into salt-water marshes and mangrove swamps, the latter eventually opening out into wide bays.

The northern portion of the island is roughly elliptic in shape averaging about twenty-five miles in diameter. It consists of a low-lying and rather level plain, from which, in the northeastern part of the island, the Caballos Mountains rise to a height of about one thousand feet. The mountains consist of crystalline limestone lying in thick strata which dip steeply to the east-northeast, the general trend of the ridges being from northwest to southeast. A short

[1] See in this connection the general discussion of the physiography and geology of the island in Jennings, "Notes on the Ferns on the Isle of Pines," *American Fern Journal*, I, 1911, pp. 129–136 and "A Note on the Geology of the Isle of Pines," *Journal of Geology*, XXI, 1912, pp. 367–369; Britton, "The Natural Vegetation of the Isle of Pines, Cuba," *Journal of the New York Botanical Garden*, XVIII, 1916, pp. 64–67; also (mainly contributed by the present writer) the discussion of the general natural features and vegetation in Todd, W. E. C., "Birds of the Isle of Pines," ANNALS CARNEGIE MUSEUM, X, 1916, pp. 146–296.

distance to the west of these mountains are the Casas Mountains, slightly lower, but very similar in their general features. On the northeastern coast is a still lower ridge (Bibijagua) of the same character as the other two. In the southwest, the Cañada Mountains rise to about one thousand feet (985 feet, Jennings; 1015 feet, Britton), being composed of an impure quartzose mica-schist, with some sandstone, and they have generally gentle slopes.

The mountains and hills in the south-central and southeastern parts of the island were not explored by me, but according to Britton, *l. c.*, they are partly limestone and partly sandstone and schist.

The plains of the northern part of the island, from which rise the hills and mountains just mentioned, are gently undulating, reaching an elevation of about two hundred feet above the sea in the central portion whence the drainage systems radiate towards the sea with broad, gently sloping valleys. This plain is mainly of subaërial erosion, but around the bases of the northern mountains there is a fine series of wave-cut cliffs at about fifty or sixty feet above the present sea-level. The outer margins of the plain mostly slope gently into the sea and marginal coastal deposits are of considerable extent.

There appears to have been in geologically recent times an elevation sufficient to enable the streams to cut down steep channels, at least in their lower courses, and subsequent depression has converted the lower parts of the rivers into deep inlets which are subject to tidewater for several miles above their outlets.

The soil of the plain in the northern part of the island consists mainly of a yellowish-red or brownish-red (iron-stained) gravelly clay, known as the "Mal Pais" gravel. This soil is evidently residual and has been derived by subaërial erosion from underlying marbles and schists. In depressions, however, and especially on the low plain below the level of the ancient sea-cliffs, the soil is more largely a yellowish or grayish sandy loam, while towards Los Indios in the western part of the island the soil becomes chiefly sand, or sometimes a pure white, angular, quartz gravel, with more or less iron ore (limonite).

The part of the island south of the swamps consists of a rather narrow area convex to the south and extending out to the west and northwest in a long curve. This component of the island, known locally as the "South Coast," is essentially a low plain of coralline (or partly æolian) limestone, rising somewhat to the south, where it

faces the sea in a more or less prominent, perpendicular, and extremely jagged cliff, broken here and there by inlets and sandy beaches, but constituting, altogether, a dangerous coast with but very few harbors. This "South Coast" plain has a very scanty, but yet rich, dark, loamy soil filling the holes and pockets in the jagged surface of the rock and supporting a hardwood forest with many large trees.

The climate of the island is, of course, oceanic and equable. The extreme annual range of temperature lies between 50° and 100° Fahr., the temperature during May, 1910, ranging from 82° to 92° during the warmest part of the day, the minimum rarely falling to 70° at night. The water taken from the wells and springs usually registered between 70° and 80° Fahr., while the temperature of the ocean water on the beaches was 80°–82° Fahr.

The season is sharply divided into a wet season and a dry season. The rains, frequently torrential thunderstorms, occur from May or early June to about November, then occur scattering showers until early spring, followed by a severe drought till the rains begin again. The drought must be ecologically a very important factor in determining the character of the vegetation of the island, particularly where associated with extensive grass and brush fires, as appears to have been the case at least since the occupation of the island by Europeans.

PLANT ASSOCIATIONS.

The vegetation of the various parts of the island is very closely related to the major features of the physiography and geology as outlined above. Briefly, the following ecological groups are outstanding features of the landscape. For purposes of uniformity the nomenclature adopted for these groups is essentially that of Harshberger's *Phytogeographic Survey of North America*.

1. *The Mangrove Forest Formation.*

This formation consists of a low thick forest of halophytic shrubs fringing the low coasts of the island and extending inland, particularly along the lower courses of the rivers, up to the limits of brackish water. Towards the mouth of the Nuevas River, in particular, the mangroves have been instrumental in catching and retaining river sands and coastal débris to the extent of adding considerably to the area of the island.

The margin of the mangrove forest nearest the water consists, in

the Isle of Pines, of *Rhizophora Mangle* but, towards the land, this species is mainly supplanted by the White Mangrove, *Avicennia nitida*. Under these latter trees are large tussocks of *Acrostichum aureum*, the leaves of this fern often reaching a height of five or six feet. In the clumps of *Acrostichum*, but apparently rarely forming tussocks independently, are great clumps of *Nephrolepis biserrata*. The ground under the *Avicennia* is often covered almost completely by *Batis maritima*, this species constituting there a distinct society.

2. *The River-bank Forest Formation.*

This forest constitutes a veritable jungle along the banks of the rivers where the water is non-saline. Among the various trees of this forest some of the most prominent are the royal palm (*Roystonea regia*), the majagua (*Hibiscus tiliaceus*), and the alligator-apple (*Annona palustris*). There are a large number of smaller trees, shrubs, and herbaceous plants competing vigorously for space, among these being *Lonchocarpus latifolius*, *Hirtella mollicoma*, *Eugenia faramoides*, *Ternstræmia obovalis*, *Dendropanax cuneifolium*, *Xylopia grandiflora*, *Matayba oppositifolia*, *Cyrilla racemiflora*, *Cecropia peltata*, *Miconia tomentosa*, and *Miconia prasina*.

This forest extends in an ever narrowing fringe up the rivers and terminates in a scattering fringe, or in a series of individuals, along the banks of periodically dry arroyos. This constitutes a more or less distinct vegetational unit, which may be termed the "Arroyo Formation."

3. *The Arroyo Formation.*

This vegetation is characterized best, perhaps, by *Chrysobalanus pellocarpus*, the Coco-plum. Accompanying this species are various other shrubs and smaller plants, many of them common in the river-bank forest. This is the habitat of the tree-fern, *Alsophila myosuroides* and of *Adiantum fragile* and *Adiantum cristatum*.

4. *The Freshwater Lagoon Formation.*

While there are apparently some good examples of this formation in the southern portion of the island, little opportunity was afforded to study them. At Los Indios the river forms an ox-bow approaching lagoon conditions. Here were *Castalia ampla* and *Utricularia spirandra*, and the small pond about one and one-half miles east of Nueva Gerona also shows this formation.

5. *The Mud-swamp Formation.*

Probably the nearest approach to this formation in the region explored by the writer is the muddy margin of the pond about one and one-half miles east of Nueva Gerona. One of the most striking plants is *Odontosoria Wrightiana* forming large clumps or tussocks, much in the same manner as does *Osmunda cinnamomea* in our Northern swamps.

6. *The Strand Formation.*

The strand formation is well developed near Bibijagua, and at that place it may be seen to consist of three well-defined members, as follows:

(*a*) The *Ipomœa Pes-Caprœ* Association characterized by the beach morning-glory (*Ipomœa Pes-Caprœ*). (See Plate V.)

(*b*) The *Suriana-Scœvola* Association characterized by *Suriana maritima* and *Scœvola Plumierii.*

(*c*) The *Coccolobis uvifera* Association. The sea grape is sometimes supplanted in such locations by the poisonous *Metopium Brownei*, as at Siguanea Beach.

7. *The Salt-marsh Formation.*

Very little salt-marsh was seen on the Isle of Pines. Near the mouth of the Nuevas River there was a small area of it and some of the halophytic swamp between the northern and southern portions of the island probably should be so classed. Photographs taken up the channels of this swamp by Dr. D. A. Atkinson show *Mariscus jamaicensis* to be apparently a characteristic member of this salt marsh. *Distichlis spicata* is also a member of this formation.

8. *The Fresh-water Marsh Formation.*

This formation is probably represented in the middle portions of the swamp mentioned above, but it was not personally studied.

9. *The Sand-plain Formation.*

Near the mouth of the Nuevas River there are areas probably derived from a salt-marsh by the accumulation of loose sand. This is perhaps best characterized by *Andropogon tenuispathaceus* and includes *Opuntia.*

10. *The Savanna Formation.*

This is one of the most prominent and characteristic formations on the island, occupying most of the lower areas of the plain, excepting

where too sandy. It is preëminently characteristic of the "Mal Pais" gravels near Nueva Gerona, and is itself characterized by a considerable number of species of scraggly shrubs and palmettoes, associated rather openly on a more or less grassy plain. The most characteristic of these shrubs are *Byrsonima crassifolia*, *Miconia delicatula*, *Tabebuia lepidophylla*, *Brya Ebenus*, *Curatella americana*, the large-leaved and mullein-like *Byrsonima verbascifolia*, and the common palmetto, perhaps the most characteristic species of the savanna, *Acœlorraphe Wrightii*.

Probably these savannas largely owe their existence, at least their very open character, to the grass and brush fires which formerly were of common occurrence during the dry season. If left undisturbed, there can be little doubt that much of the savanna would eventually pass more or less completely into the Open Forest Formation.

11. *The Open Forest Formation.*

This consists of an open pine forest with palmettoes and a sparse undergrowth of many of the species characteristic of the savanna. The pine is *Pinus caribœa* and the formation occupies the higher and drier parts of the "Mal Pais" gravel plain, towards Los Indios merging into the pine-barren forest. The open forest formation, as noted above, would very likely succeed much of the savanna were it not for man's use of the trees and for the fires.

12. *The Pine-barren Formation.*

I have seen fit to distinguish between this open pine forest, of the white sands and gravels of the Los Indios region, and the "Open Forest Formation." In the pine barrens the soil shows its acid character and the undergrowth is not to any large extent composed of species characteristic of the savanna.

These lower plants constituting the undergrowth are *Pachyanthus cubensis*, *Pachyanthus ovatus*, *Kalmiella aggregata*, *Miconia delicatula*, *Polygala uncinata*, *Xolisma myrtilloides*, *Pinguicula filifolia*, *Stenorrhynchos squamulosus*, *Tetramicra Eulophiæ*, etc., altogether a considerable number of interesting plants not found elsewhere on the island but some of them occurring also in Pinar del Rio Province, Cuba.

13. *The Tropical Forest Formation.*

This is the hardwood forest formation covering the crystalline limestone hills and ridges and the limestone plain constituting the

southern portion of the island. The forest is dense and contains many vines and epiphytes.

On the hills and ridges near Nueva Gerona this forest is characterized by the large-trunked *Bombax emarginata*, the cabbage-palm (*Sabal parviflora*), *Casearia sylvestris*, *Trichilia hirta*, *Amyris balsamifera*, *Cordia globosa*, etc. On open exposed knobs and cliffs *Agave papyrocarpa*, and *Plumiera emarginata* become conspicuous.

The forest on the limestone plain of the "South Coast" is quite similar but with a larger proportion of leguminous plants. Here occur *Bauhinia*, *Lysiloma bahamense*, etc., and towards the interior, especially where burned or where lumbered, there are areas which may be termed "chaparral."

14. *The Chaparral Formation.*

This formation, as exemplified near Hato, in the interior of the peninsula between Bogarona and Caleta Grande, is a dry forest of small-leaved trees of low stature, and with a rather large proportion of thorny species. Here occur *Bucida Buceras*, *Tecoma pentaphylla*, *Pithecolobium arboreum*, *Lysiloma bahamense*, *Ouratea agrophylla*, etc.

15. *The Sea-cliff Formation.*

Wherever the mountains or the limestone plains form a cliff along the coast, there appears a very characteristic fringe composed of a palm, *Thrinax Wendlandiana*, and the peculiar clubby, branched Apocynaceous plant, *Plumiera emarginata*, accompanied by a number of other less conspicuous species, these constituting altogether what may be termed the Sea-cliff Formation. Good examples of this vegetation are to be seen along the steeper seaward slopes and cliffs of the Colombo and Bibijagua mountains.

Owing to the brief time spent in the Isle of Pines no attempt was made to study the marine formations along the coasts, although the few observations which were made indicated a rich flora.

ANNOTATED LIST OF SPECIES

MYXOMYCETES.

1. Fuligo ovata (Schæffer) Macbride.

Mucor septicus LINNÆUS, Species Plantarum, ed. 2, 1763, p. 1656(?).

Mucor primus ovatus SCHÆFFER, Fungorum qui in Bavaria et Palatinatu circa Ratisbonam nascuntur, 1763, p. 132, fig. 192.

Æthalium flavum LINK, Dissertatio I, Magazin der Gesellschaft Naturforschender Freunde zu Berlin, III, 1809, p. 42.
Fuligo varians SOMMERFELT, in Rostafinski, Sluzowce (Mycetozoa) Monographia, 1875, p. 134.
Fuligo ovata MACBRIDE, North American Slime moulds, 1899, p. 23.

On an old log near Los Indios, May 19, 1910, *O. E. Jennings, No. 381.* General Distribution: On dead wood, or, less often, on other organic matter, widely distributed throughout the temperate and warmer regions of the earth.

ALGÆ.

(Determined by M. A. Howe.)

CHLOROPHYCEÆ.

Family CLADOPHORACEÆ.

2. **Cladophora** sp.

On coralline limestone along little stretch of rocky beach west of the base of Mt. Colombo, May 14, 1910, *O. E. Jennings, No. 258 (in part).*

PHÆOPHYCEÆ.

Family FUCACEÆ.

3. **Sargassum bacciferum** (Turner) Agardh.

Fucus natans LINNÆUS, Species Plantarum, 1753, p. 1628.
Fucus Sargasso GMELIN, Historia Fucorum, 1768, p. 92.
Fucus bacciferus TURNER, Historia Fucorum, I, 1808, p. 55, tab. 47.
Sargassum bacciferum AGARDH, Species, Genera, et Ordines Algarum, 1848, p. 6.

Thrown up by waves on beach at Mt. Colombo, May 14, 1910, *O. E. Jennings, Nos. 255, 256.* General Distribution: Warmer parts of the Atlantic Ocean.

RHODOPHYCEÆ.

Family RHODOMELACEÆ.

4. **Digenea simplex** (Wulfen) Agardh.

Conferva simplex WULFEN, Cryptogamia Aquatica, 1803, p. 17, n. 16.
Digenea Wulfeni KÜTZING, Phycologia Generalis, 1843, p. 433, pl. 50.
Digenea simplex AGARDH, Species, Genera. et Ordines Algarum, I, 1848, p. 389.
(For a number of other synonyms see DeToni, Sylloge Algarum, IV, (3), 1903, p. 963.)

On rocks of coralline limestone, beach at base of Mt. Colombo, May 14, 1910, *O. E. Jennings, No. 258 (in part).* General Distribution: Warmer parts of the Atlantic and Indian Oceans.

5. **Polysiphonia** sp.

On rocks of coralline limestone, beach at base of Mt. Colombo, May 14, 1910, *O. E. Jennings, No. 258 (in part)*.

Family CERAMIACEÆ.

6. **Ceramium** sp.

On rocks of coralline limestone, beach at base of Mt. Colombo, May 14, 1910, *O. E. Jennings, No. 258 (in part)*.

7. **Centroceras clavellatum** (Agardh) Montagne.

Ceramium clavellatum AGARDH, in Kunth, Synopsis Plantarum Æquinoxialium Orbis Novi, I, 1822, p. 2.

Centroceras clavellatum MONTAGNE, Novitiæ Floræ Sueciæ ex Algarum Familia, 1836, p. 140.

(For a number of other synonyms see DeToni, Sylloge Algarum, IV, (3), 1903, p. 1491.)

On rocks of coralline limestone, beach at base of Mt. Colombo, May 14, 1910, *O. E. Jennings, No. 258 (in part)*. General Distribution: In the warmer parts of the oceans of both hemispheres.

LICHENES.

Family PARMELIACEÆ.

8. **Ramalina usneoides** (Acharius) Fries.

Lichen Usnea LINNÆUS, Mantissa, I, 1767, p. 131.

Parmelia usneoides ACHARIUS, Synopsis Methodica Lichenum, 1803, p. 270.

Ramalina usneoides FRIES, Lichenographia Europæa reformata, 1831, p. 468.

On trees along lower Nuevas River, May 16, 1910, *O. E. Jennings, No. 293*. General Distribution: Florida, Isle of Pines, Jamaica, Santo Domingo, and Mexico.

FUNGI.

(Determined by D. R. Sumstine.)

Family POLYPORACEÆ.

9. **Coriolus pinsutus** (Fries) Patouillard.

Polyporus pinsutus FRIES, Elenchrus Fungorum, 1828, p. 95.

Polyporus tener Léveillé, Annales des Sciences Naturelles, Series III, V, 1846, p. 139.

Polystictus umbonatus FRIES, Nova Acta Regiæ Societatis Scientiarum Upsaliensis, III, I, 1851, p. 87.

Hexagona Friesiana SPEGAZZINI, Anales de la Sociedad de Ciencias Argentina, XVII, 1884, p. 69.

Polystictus jamaicensis HENNINGS, Hedwigia, XXXVII, 1898, p. 280.
Coriolus pinsutus Patouillard, Essai Taxonomique sur les Familles et les Genres des Hyménomycètes, 1900, p. 94.

On an old log on the slope of Bibijagua ridge, May 7, 1910, *O. E. Jennings, No. 130;* on old tree trunk on slope of Caballos Mts., May 12, 1910, *O. E. Jennings, No. 226a.* General Distribution: Southern Florida and Mexico, and southward through the West Indies and continental tropical America to Brazil.

10. **Coriolus maximus** (Montagne) Murrill.

Irpex maximus MONTAGNE, Annales des Sciences Naturelles, Series II, VIII, 1837, p. 364.
Polyporus labyrinthicus MONTAGNE, in Sagra, Historia Fisica, Politica y Natural de la Isla de Cuba, IX, 1842, p. 406. (Not Schweinitz.)
Polyporus Meyenii KLOTZSCH, Nova Acta Academiæ Caesareæ Leopoldino-Carolinæ, XIX, 1843, Suppl., p. 236.
Trametes obstinatus COOKE, Grevillea, XII, 1883, p. 17.
Coriolus maximus MURRILL, Bulletin Torrey Botanical Club, XXXIV, 1907, p. 467.

On dead log north of Caleta Grande, May 22, 1910, *O. E. Jennings, No. 603a.* General Distribution: West Indies and Central America, also the tropics of the Old World.

11. **Tyromyces versicutis** (Berkeley & Curtis) Murrill.

Polyporus versicutis BERKELEY & CURTIS, Journal of the Linnean Society, London, X, 1868, p. 308.
Trametes versicutis MURRILL, North American Flora, IX, 1907, p. 33.

On old wood along sandy beach at Bibijagua, May 7, 1910, *O. E. Jennings, No. 109a.* General Distribution: Cuba and the Isle of Pines.

12. **Pycnoporus sanguineus** (Linnæus) Murrill.

Boletus sanguineus LINNÆUS, Species Plantarum, Ed. 2, 1762, p. 1646.
Xylometron sanguineum PAULET, Traité des Champignons, 1812?, Pl. III, figs. 3, 4.
Polyporus sanguineus G. MEYER, Floræ Primitiæ Essequeboensis, 1818, p. 304.
Polystictus sanguineus FRIES, Nova Acta Regiæ Societatis Scientiarum Upsaliensis, III, I, 1851, p. 75.
Polyporus argentatus COOKE, Grevillea, XV, 1886, p. 20.
Pycnoporus sanguineus MURRILL, Bulletin Torrey Botanical Club, XXXI, 1904, p. 421.

On rotten log in swamp near Nueva Gerona, May 6, 1910, *O. E. Jennings, No. 68;* Los Indios, May 19, 1910, *O. E. Jennings, No. 431.* General Distribution: On dead wood throughout the tropical regions of the earth.

13. **Coriolopsis occidentalis** (Klotzsch) Murrill.

Polyporus occidentalis KLOTZSCH, Linnæa, VIII, 1833, p. 436.

Polyporus lanatus FRIES, Epicrisis Systematis Mycologici seu Synopsis Hymenomycetum, 1838, p. 490.

Polyporus lenis LÉVEILLÉ, Annales des Sciences Naturelles, Series III, IX, 1848, p. 123.

Polystictus cyclodes homoporus FRIES, Nova Acta Regiæ Societatis Scientiarum Upsaliensis, III, I, 1851, p. 90.

Polyporus scorteus FRIES, *op. cit.*, p. 89.

Coriolopsis occidentalis MURRILL, Bulletin Torrey Botanical Club, XXXII, 1905, p. 358.

On old log between Bogarona and Caleta Grande, "South Coast," May 22, 1910, *O. E. Jennings, No. 602a.* General Distribution: On dead wood in the tropical regions of both hemispheres.

14. **Favolus tenuis** (Hooker) Murrill.

Boletus reticulatus HOOKER, in Kunth, Synopsis Plantarum, I, 1822, (9). Not Schæffer.

Boletus tenuis HOOKER, *op. cit.*, p. 10.

Hexagona polygramma FRIES, Epicrisis Systematis Mycologici seu Synopsis Hymenomycetum, 1838, p. 497.

Hexagona favoloides PECK, Bulletin Torrey Botanical Club, X, 1883, p. 73.

Favolus tenuis MURRILL, *op. cit.*, XXXII, 1905, p. 100.

(For a number of other synonyms see Murrill, North American Flora, IX, 1908, p. 83.)

On trunk and limbs of *Muntingia Calabura,* at base of the ridge at Bibijagua, May 7, 1910, *O. E. Jennings, No. 129.* General Distribution: On dead wood of deciduous trees in tropical regions, somewhat generally.

This "shelf-fungus" has a thin and widely expanding body. Some of the specimens measure as much as a foot in diameter.

15. **Pogonomyces hydnoides** (Swartz) Murrill.

Boletus hydnoides SWARTZ, Prodromus Descriptionum Vegetabilium Indiæ Occidentalis, 1788, p. 149.

Boletus hydnatinus BOSC, Magazin d. Gesellschaft Naturforschenden Freunde, Berlin, V, 1811, Taf. IV, fig. 3.

Polyporus pellitus G. MEYER, Primitiæ Floræ Essequeboensis, 1818, p. 304.

Boletus crinitus SPRENGEL, Kongliga Svenska Vetenskaps-Akademien Handlingar, 1820, p. 51.

Boletus fibrosus HOOKER, in Kunth, Synopsis Plantarum, I, 1822, p. 10.

Trametes ocella BERKELEY & CURTIS, Journal of the Linnean Society, London, X, 1868, p. 319.

Polyporus Feathermanni RAVENEL, Grevillea, VI, 1877, p. 130.
Pogonomyces hydnoides MURRILL, Bulletin Torrey Botanical Club, XXXI, 1904, p. 609.

On old log near McKinley, May 16, 1910, *O. E. Jennings, No. 306;* on dead wood in forest along river bank at Los Indios, May 20, 1910, *O. E. Jennings, No. 440a;* near Sante Fé springs, May 26, 1910, *O. E. Jennings, No. 604.* General Distribution: On dead wood in the Gulf States and in tropical America.

16. **Coltricia cinnamomea** (Jacquin) Murrill.

Boletus cinnamomeus JACQUIN, Collectanea ad Botanicam, Chemiam, et Historiam Naturalem Spectantia, I, 1786, p. 116.
Strilia cinnamomea S. F. GRAY, Natural Arrangement of British Plants, I, 1821, p. 645.
Polyporus parvulus KLOTZSCH, Linnæa, VIII, 1833, p. 483. Not Schweinitz, 1832.
Polyporus oblectans BERKELEY, London Journal of Botany, IV, 1845, p. 51.
Polyporus splendens PECK, Annual Report New York State Museum, XXVI, 1874, p. 68.
Polystictus cinnamomeus SACCARDO, Michelia, I, 1878, p. 362.
Polyporus subsericeus PECK, *op. cit.*, XXXIII, 1880, p. 37.
Coltricia cinnamomea MURRILL, Bulletin Torrey Botanical Club, XXXI, 1904, p. 343.

Near Los Indios, May 18, 1910. *O. E. Jennings, No. 358a.* General Distribution: On humus or well-decayed wood, practically cosmopolitan.

17. **Pyropolyporus yucatanensis** Murrill.

Pyropolyporus yucatanensis MURRILL, Bulletin Torrey Botanical Club, XXX-1903, p. 119.

On trunk of tree on the rocky slope of the ridge at Bibijagua, May 7, 1910, *O. E. Jennings, No. 128.* General Distribution: Yucatan, Nicaragua, and the Isle of Pines.

18. **Dædalea amanitoides** Beauvois.

Dædalea amanitoides BEAUVOIS, Flore d'Oware et de Benin en Afrique, I, 1805, p. 44.
Dædalea elegans SPRENGEL, Kongliga Svenska Vetenskaps Akademien, Hand, lingar, 1820, p. 51.
Dædalea repanda PERSOON, Voyage autour du Monde . . . exécuté sur les Corvettes de S. M. l'Uranie et la Physicienne . . . par M. Louis de Freycinet, Botanique, 1826, p. 168; MONTAGNE, in Sagra, Historia Fisica, Politica y Natural de la Isla de Cuba, IX, 1842, p. 382, Pl. XIV, fig. 4.
Trametes elegans FRIES, Epicrisis Systematis Mycologici seu Synopsis Hymenomycetum, 1838, p. 492.

On log between Bogarona and Caleta Grande, "South Coast," May 22, 1910, *O. E. Jennings, No. 605a.* General Distribution: On dead wood of deciduous trees in the tropics of both hemispheres.

19. **Glœophyllum** sp.

On slope of the ridge at Bibijagua, May 7, 1910, *O. E. Jennings, No. 131;* Sante Fé, May 25, 1910, *O. E. Jennings, No. 569.*

Family AGARICACEÆ.

20. **Lentodium squamosum** (Schæffer) Murrill.

Agaricus squamosus SCHÆFFER, Fungorum qui in Bavaria et Palatinatu circa Ratisbonam nascuntur, Icones, IV, 1774, Index, p. 15.
Agaricus lepideus FRIES, Observationes Mycologicæ, I, 1815, p. 21.
Lentinus lepideus FRIES, Systema Orbis Vegetabilis, 1825, p. 78.
Lentinus suffrutescens FRIES, Epicrisis Systematis Mycologici seu Synopsis Hymenomycetum, 1838, p. 393.
Lentinus magnus PECK, Bulletin Torrey Botanical Club, XXIII, 1896, p. 413.
Lentinus spretus PECK, Bulletin New York State Museum, 105, 1906, p. 24.
Lentodium squamosum MURRILL, Mycologia, III, 1911, p. 27.

On base of stump in the pine-barrens at Los Indios, May 18, 1910, *O. E. Jennings, No. 607a.* General Distribution: Widely distributed in eastern and southeastern North America, and occurring, possibly less commonly, in tropical America.

21. **Lentinus crinitus** (Linnæus) Fries.

Agaricus crinitus LINNÆUS, Species Plantarum, Ed. 2, 1763, p. 1644.
Agaricus Bertieri FRIES, Systema Mycologicum, I, 1821, p. 175.
Lentinus crinitus FRIES, Systema Orbis Vegetabilis, 1825, p. 77.
Lentinus nigripes FRIES, in Klotzsch, Linnæa, VIII, 1833, p. 479.
Lentinus nicaraguensis BERKELEY & CURTIS, Proceedings American Academy Arts and Sciences, IV, 1858, p. 121.
Lentinus Wrightii BERKELEY & CURTIS, Journal of the Linnean Society, London, X, 1868, p. 300.
Lentinus subcervinus BERKELEY & CURTIS, *Idem.*
Lentinus rigidulus BERKELEY & CURTIS, *Idem.*
Pocillaria vestida EARLE, Informe anual de la Estación Central Agronómica de Cuba, I, 1906, p. 231.

In swamp near the base of Mt. Colombo, May 14, 1910, *O. E. Jennings, No. 261a;* on old log in the pine-barrens near Los Indios, May 18, 1910, *O. E. Jennings, No. 379.* General Distribution: Widely distributed throughout the tropics and, in North America, extending up to the Gulf States. For other synonyms see Murrill, North American Flora, IX, 1915, pp. 291, 292.

MUSCI. (MOSSES.)

(Mostly determined by Elizabeth G. Britton and Percy Wilson.)

Family SPHAGNACEÆ. (SPHAGNUM OR BOG MOSSES.)

22. **Sphagnum** sp.

On sand-covered rocks in the bed of the upper part of the Los Indios River, near the Cañada Mts., May 18, 1910, *O. E. Jennings, No. 372a.* Specimens not in fruit.

Family BRYACEÆ. (WOOD MOSSES.)

23. **Octoblepharum albidum** (Linnæus) Hedwig.

Bryum albidum LINNÆUS, Species Plantarum, 1753, p. 1583.
Bryum octoblepharis GMELIN, Linnæi Systema Vegetabilium, II, 1791, p. 1331.
Octoblepharum albidum HEDWIG, Descriptiones et Adumbrationes Microscopico-analytica Muscorum Frondosorum, III, 1792, p. 15, Pl. 6.

On the base of a Royal Palm (*Roystonea regia*) near Nueva Gerona, May 9, 1910, *O. E. Jennings;* similar substratum in an arroyo north of Nueva Gerona, May 12, 1910, *O. E. Jennings, No. 198.* General Distribution: Florida, the West Indies, Hawaii, Japan, the Himalayas, and tropical Africa.

24. **Callicostella** sp.

On roots in a pool in an arroyo near Nueva Gerona, May 12, 1910, *O. E. Jennings, No. 199.*

25. **Macromitrium** sp.

On top of Caballos Mts., May 13, 1910, *O. E. Jennings, No. 227.* Non-fruiting specimens.

Family HYPNACEÆ.

26. **Isopterygium micans** (Swartz) Renauld & Cardot.

Hypnum micans SWARTZ, Adnotationes Botanicae, 1829, p. 175.
Hypnum albulum C. MUELLER, Synopsis Muscorum Frondosorum, II, 1851, p. 280.
Raphidostegium albulum (C. MUELLER) BRUCH & SCHIMPER, in Sullivant & Lesquereux, Musci Boreali Americani, 1856, No. 302.
Rhynchostegium micans AUSTIN, Botanical Gazette, I, 1875, p. 30.
Isopterygium albulum JÆGER, Adumbratio Floræ Muscorum Totius Orbis Terrarum, 1876–77, p. 436.
Raphidostegium micans RENAULD & CARDOT, Musci Americæ Septentrionalis, 1893, p. 54.

On rotten stump in swamp at base of Mt. Colombo, May 14, 1910,

O. E. Jennings, No. 243. General Distribution: On earth and on rotten wood in moist woods of eastern North America from New York southwards to the West Indies.

PTERIDOPHYTA.

(FERNS AND FERN ALLIES.)

Family HYMENOPHYLLACEÆ. (FILMY FERNS.)

27. **Trichomanes pinnatum** Hedwig.

Trichomanes pinnatum HEDWIG, Filicum Genera et Species, Fascicle I, 1799, p. 16, Pl. 4, fig. 1.

Neurophyllum pinnatum PRESL, Hymenophyllaceæ, 1843, p. 19, Pl. 4, fig. C.

Near Nueva Gerona, January 28, 1904, *A. H. Curtiss, No. 317.* General Distribution: Quite commonly found all over the West Indies and continental tropical America.

28. **Trichomanes** sp.

Along edge of arroyo in pine-barrens east of Los Indios, May 18, 1910, *O. E. Jennings, No. 370;* bank of Majagua River near Los Indios, May 19, 1910, *O. E. Jennings, No. 398.*

Family CYATHEACEÆ. (TREE FERNS.)

29. **Alsophila myosuroides** Liebmann.

Alsophila myosuroides LIEBMANN, Kgl. Danske Videnskabernes Selskabs Afhandlinger, Ser. V, I, 1849, p. 286.

Alsophila Wrightii UNDERWOOD. (Herbarium name not published).

Near Nueva Gerona, February 15, 1904, *A. H. Curtiss, No. 346;* Dr. J. F. Shafer, February–March, 1910, near Sante Fé, on bank of arroyo about one and one-half miles south of Nueva Gerona, May 12, 1910, *O. E. Jennings, No. 222.* General Distribution: The Isle of Pines and Mexico.

Family SCHIZEACEÆ.

30. **Lygodium venustum** Swartz.

Lygodium venustum SWARTZ, in Schrader, Journal für die Botanik, 1801, (2), p. 503.

Near Nueva Gerona, January 6, 1904, *A. H. Curtiss, No. 275.* General Distribution: West Indies (not common), and from Mexico through continental tropical America to Brazil and Peru.

Leaves thin, the sterile portions of the tertiary segments distinctly crenate-serrate to incised below.

31. **Lygodium cubense** Humboldt, Bonpland, & Kunth.

Lygodium cubense HUMBOLDT, BONPLAND, & KUNTH, Nova Genera et Species Plantarum, I, 1815, p. 31.

On sand-plain near bank of the Majagua River, north of Los Indios, May 19, 1910, *O. E. Jennings, No. 409;* in pine-barrens east of Los Indios, May 18, 1910, *O. E. Jennings, No. 354.* General Distribution: Cuba and the Isle of Pines.

The sterile specimens from the Los Indios pine-barrens have coriaceous, mostly obtuse ultimate segments.

32. **Dicranopteris flexuosa** (Schrader) Underwood.

Mertensia flexuosa SCHRADER, Göttingische Gelehrte Anzeigen, 1824, p. 863.
Mertensia rigida KUNTZE, Linnæa, IX, 1834, p. 16.
Dicranopteris flexuosa UNDERWOOD, Bulletin of the Torrey Botanical Club, XXXIV, 1907, p. 254.

Near Nueva Gerona, January 28, 1904, *A. H. Curtiss, No. 316,* along bank of an arroyo east of Los Indios, near the Cañada Mts., May 18, 1910, *O. E. Jennings, No. 378.* General Distribution: Generally distributed in the Greater Antilles, less so in the Lesser Antilles, occurring also from southern Mexico to Brazil.

33. **Dryopteris sancta** (Linnæus) Kuntze.

Acrostichum sanctum LINNÆUS, Systema Naturæ, Ed. X, II, 1759, p. 1320.
Polypodium sanctum SWARTZ, Prodromus Descriptionum Vegetabilium Indiæ Occidentalis, 1788, p. 133.
Aspidium sanctum GRISEBACH, Flora of the British West Indian Islands, 1864, p. 691.
Dryopteris sancta O. KUNTZE, Revisio Generum Plantarum, II, 1891, p. 813.

Along arroyo bank near Sante Fé, May 24, 1910, *O. E. Jennings, No. 560;* along an arroyo south of Nueva Gerona, May 12, 1910, *O. E. Jennings, No. 620; G. A. Link,* near Nueva Gerona, June 12, 1912. General Distribution: Cuba, the Isle of Pines, Hispaniola, Jamaica, Guadeloupe, Dominica, Martinique, and Central America.

34. **Dryopteris patens** (Swartz) O. Kuntze.

Polyporus patens SWARTZ, Prodromus Descriptionum Vegetabilium Indiæ Occidentalis, 1788, p. 133.
Aspidium patens (SWARTZ), Schrader's Journal für die Botanik, II, 1800, p. 34.
Neprodium patens DESVAUX, Annales de la Société Linnéenne de Paris, Mémoires, VI, 1827, p. 258.
Dryopteris patens O. KUNTZE, Revisio Generum Plantarum, II, 1891, p. 813.

In swamp near Mt. Colombo, May 12, 1910, *O. E. Jennings, No. 262;* margin of ravine at magnesia springs, Sante Fé, May 26, 1910, *O. E. Jennings, No. 580;* near Nueva Gerona, June 12, 1912, *G. A. Link.* General Distribution: Cuba, the Isle of Pines, Hispaniola, St. Thomas, Barbados, Grenada, Tobago, Montserrat, Trinidad, from Alabama to Chile, tropical Africa, Japan, China, and Polynesia.

35. **Dryopteris deltoidea** (Swartz) O. Kuntze.

Polypodium deltoideum SWARTZ, Prodromus Descriptionum Vegetabilium Indiæ Occidentalis, 1788, p. 133.

Polypodium appendiculatum POIRET, in Lamarck, Encyclopédie Méthodique, Botanique, V, 1804, p. 533.

Neprodium deltoideum DESVAUX, Annales de la Société Linnéenne, Paris, VI, 1827, p. 259.

Dryopteris deltoidea O. KUNTZE, Revisio Generum Plantarum, II, 1891, p. 812.

Along bank of an arroyo in pine-barrens east of Los Indios, May 18, 1910, *O. E. Jennings, No. 377; Dr. J. F. Shafer,* February–March, 1910. General Distribution: The West Indies and continental tropical America.

36. **Tectaria martinicensis** (Sprengel) Copeland.

Aspidium martinicense SPRENGEL, Anleitung zur Kentniss der Gewächse, III, 1804, p. 133.

Aspidium repandum VAHL, Eclogæ Americanæ, 1807.

Neprodium macrophyllum HOOKER & BAKER, Synopsis Filicum, Ed. II, 1874, p. 300.

Dryopteris martinicensis O. KUNTZE, Revisio Generum Plantarum, II, 1891, p. 812.

Tectaria martinicensis COPELAND, Philippine Journal of Science, Botany, II, 1907, p. 410.

In brackish swamp north of Nueva Gerona, May 8, 1910, *O. E. Jennings, No. 619.* General Distribution: West Indies and continental tropical America.

37. **Goniopteris obliterata** (Swartz) Presl.

Polypodium obliteratum SWARTZ, Prodromus Descriptionum Vegetabilium Indiæ Occidentalis, 1788, p. 132.

Goniopteris obliterata PRESL, Tentamen Pteridographiæ, 1836, p. 183.

Dryopteris obliterata CHRISTENSEN, Index Filicum, 1905, p. 280.

Near Nueva Gerona, February 15, 1904, *A. H. Curtiss, No. 345;* February–March, 1910, *Dr. J. F. Shafer.* General Distribution: West Indies and tropical continental America.

38. **Meniscium reticulatum** (Linnæus) Swartz.

Polypodium reticulatum LINNÆUS, Systema Naturæ, Ed. X, II, 1759, p. 1325.
Meniscium reticulatum SWARTZ, in Schrader's Journal für die Botanik, II, 1800, p. 10.
Neprodium reticulatum DIELS, in Engler & Prantl, Natürliche Pflanzenfamilien, I, (4), 1899, p. 170.
Dryopteris reticulata URBAN, Symbolæ Antillanæ, IV, 1903, p. 22.

In swamp, southwest of Bibijagua, May 7, 1910, *O. E. Jennings, No. 91;* in river-bank forest near Los Indios, May 20, 1910, *O. E. Jennings, No. 451;* along moist margin of ravine at magnesia springs, Sante Fé, May 26, 1910, *O. E. Jennings, No. 573.* General Distribution: From Florida and Cuba southwards through the West Indies and continental tropical America.

39. **Tectaria heracleifolia** (Willdenow) Underwood.

Aspidium heracleifolium WILLDENOW, Species Plantarum, V, 1810, p. 217.
Tectaria heracleifolia UNDERWOOD, Bulletin of the Torrey Botanical Club, XXXIII, 1906, p. 200.

Along margin of ravine near magnesia springs, Sante Fé, May 26, 1910, *O. E. Jennings, No. 574.* General Distribution: Florida, Texas, and southwards through tropical America.

40. **Nephrolepis biserrata** (Swartz) Schott.

Aspidium biserratum SWARTZ, in Schrader's Journal für die Botanik, II, 1800, p. 32.
Aspidium punctulatum SWARTZ, Synopsis Filicum, 1806, p. 46; Grisebach, Flora of the British West Indian Islands, 1864, p. 688.
Nephrolepis biserrata SCHOTT, Genera Filicum, 1834, Pl. 3.

Near Nueva Gerona, January 14, 1904, *A. H. Curtiss, No. 289;* in swamp, one mile north of Nueva Gerona, in clumps with *Phlebodium aureum*, May 8, 1910, *O. E. Jennings, No. 132.* General Distribution: Rather generally distributed through the West Indies; also in continental tropical America, Africa, Asia, and Australia.

41. **Odontosoria Wrightiana** Maxon.

Odontosoria Wrightiana MAXON, Contributions from the U. S. National Herbarium, XVII, 1913, p. 164; Pl. III.

Palmer & Riley, No. 984, July 3, 1900, and *No. 1022,* July 7, 1900; *A. A. Taylor, No. 5,* 1901; *A. H. Curtiss,* near Nueva Gerona, 1904; *Dr. J. F. Shafer,* February–March, 1910; *No. 362.* Forming large raised bunches in the swamp, one mile north of Nueva Gerona, May 6,

1910, *O. E. Jennings, No. 59.* General Distribution: Cuba and the Isle of Pines.

42. **Lindsæa cubensis** Underwood & Maxon.

Lindsæa cubensis UNDERWOOD & MAXON, Smithsonian Miscellaneous Collections, L, 1907, p. 336.

On wet bank, Majagua River near Los Indios, May 19, 1910, *O. E. Jennings, No. 418.* General Distribution: Cuba and the Isle of Pines.

43. **Asplenium dentatum** Linnæus.

Asplenium dentatum LINNÆUS, Species Plantarum, 1753, p. 1079; GRISEBACH, Flora of the British West Indian Islands, 1864, p. 680.

Pedernales Point, February 16, 1899, *C. F. Millspaugh, No. 1441.* General Distribution: West Indies, continental tropical America, and Society Islands.

44. **Asplenium** sp.

Near Nueva Gerona, June 12, 1912, *G. A. Link.*

These specimens, perhaps referable to *A. dentatum*, have been listed separately while undergoing further investigation. The stipe and rachis are sparsely stipitate-glandular with dark brown glands, often several on the petiolules, which latter are slightly more distinct than in the material from Florida and Cuba which appears to be referable to *A. dentatum.* A smaller specimen in the Herbarium of the Carnegie Museum from the Guttenberg collection from Jamaica (no data) appears to be identical with Mr. Link's collection.

45. **Blechnum occidentale** Linnæus.

Blechnum occidentale LINNÆUS, Systema Naturæ, Ed. X, 1759, p. 1322; GRISEBACH, Flora of the British West Indian Islands, 1864, p. 673.

Near Nueva Gerona, February 7, 1904, *A. H. Curtiss, No. 334;* February–March, 1900, *Dr. J. F. Shafer;* along arroyo east of Los Indios, May 18, 1910, *O. E. Jennings, No. 345;* near Nueva Gerona, *G. A. Link,* June, 1912. General Distribution: West Indies and continental tropical America.

46. **Blechnum serrulatum** L. C. Richard.

Blechnum serrulatum L. C. RICHARD, Actes de la Société d'Histoire Naturelle de Paris, 1792, p. 114; GRISEBACH, Flora of the British West Indian Islands, 1864. p. 673.

North of Nueva Gerona, May 8, 1910, *O. E. Jennings, No. 613.*

General Distribution: Florida, the Bahamas, West Indies, continental tropical America, New Caledonia, and Australia.

47. **Pityrogramma tartarea** (Cavanilles) Maxon.

Acrostichum tartarea CAVANILLES, Descripción de las Plantas, 1801, p. 242.
Ceropteris tartarea LINK, Filicum Species in Horto Regio Botanico Berolinense Cultæ, 1841, p. 142.
Pityrogramma tartarea MAXON, Contributions from the U. S. National Herbarium, XVII, 1913, pp. 173–175.

Along moist side of ravine near magnesia springs, Sante Fé, May 26, 1910, *O. E. Jennings, No. 570.* General Distribution: Cuba, Isle of Pines, Jamaica, and continental tropical America.

48. **Adiantum villosum** Linnæus.

Adiantum villosum LINNÆUS, Systema Naturæ, Ed. X, II, 1759, p. 1328; GRISEBACH, Flora of the British West Indian Islands, 1864, p. 664.

Near Nueva Gerona, January 6, 1904, *A. H. Curtiss, No. 276;* on lower slope of Caballos Mts., May 13, 1910, *O. E. Jennings, No. 237.* General Distribution: West Indies, central and northern South America.

49. **Adiantum melanoleucum** Willdenow.

Adiantum melanoleucum WILLDENOW, Species Plantarum, V, (I), 1810, p. 443.
Adiantum Kunzeanum KLOTZSCH, Linnæa, XVIII, 1844, p. 555; GRISEBACH, Flora of the British West Indian Islands, 1864, p. 665.

Near Nueva Gerona, February 7, 1904, *A. H. Curtiss, No. 333;* February–March, 1910, *J. F. Shafer; G. A. Link*, near Nueva Gerona, June 12, 1912. General Distribution: Cuba, Isle of Pines, Jamaica, Haiti, and Porto Rico.

50. **Adiantum cristatum** Linnæus.

Adiantum cristatum LINNÆUS, Systema Naturæ, Ed. X, II, 1759, p. 1328; GRISEBACH, Flora of the British West Indian Islands, 1864, p. 665.

Along wet arroyo bank east of Nueva Gerona, May 6, 1910, *O. E. Jennings, No. 62;* along river bank near magnesia springs, Sante Fé, May 26, 1910, *O. E. Jennings, No. 579.* General Distribution: The West Indies, Guiana, Venezuela.

51. **Adiantum fragile** Swartz.

Adiantum fragile SWARTZ, Prodromus Descriptionum Vegetabilium Indiæ Occidentalis, 1788, p. 135; GRISEBACH, Flora of the British West Indian Islands, 1864, p. 666.

Near Nueva Gerona, January 6, 1904, *A. H. Curtiss, No. 277;* on shaded clay sides of an arroyo northeast of Nueva Gerona, May 14, 1910, *O. E. Jennings, No. 279;* near Nueva Gerona, June 12, 1912, *G. A. Link.* General Distribution: Cuba, Isle of Pines, Jamaica, Haiti, Porto Rico, St. Thomas, St. Jan, Guadeloupe, Martinique.

52. **Pteridium caudatum** (Linnæus) Maxon. BRACKEN.

Pteris caudata LINNÆUS, Species Plantarum, 1753, p. 1075; GRISEBACH, Flora of the British West Indian Islands, 1864, p. 670.

Pteridium aquilinum var. *caudatum* HOOKER, in Hooker & Baker, Synopsis Filicum, Ed. II, 1874, p. 162.

In dry thicket on savanna east of Nueva Gerona, May 13, 1910, *O. E. Jennings, No. 239.* General Distribution: From Florida and the Bahamas south through the West Indies and tropical continental America.

53. **Polypodium polypodioides** (Linnæus) Hitchcock. ROCK POLYPODY.

Acrostichum polypodioides LINNÆUS, Species Plantarum, 1753, p. 1068.

Polypodium polypodioides HITCHCOCK, Report of the Missouri Botanical Garden, IV, 1893, p. 156.

On old tree-trunk at top of Caballos Mts., May 13, 1910, *O. E. Jennings, No. 224.* General Distribution: From Pennsylvania and Illinois south to Argentina and Chile, also south Africa.

This fern is rare, at least, in the northern part of the island, it having been much sought after by the local inhabitants, by whom it is said to have been shipped to Havana as a medicinal herb.

54. **Goniophlebium ampliatum** Maxon.

Polypodium gladiatum KUNTZE, Linnæa, IX, 1834, p. 45. Not Vell, 1827.

Goniophlebium ampliatum MAXON, Contributions from the U. S. National Herbarium, X, 1908, p. 492.

In 1901, by *A. A. Taylor, No. 9,* see Maxon, *l. c.* General Distribution: Cuba, Isle of Pines, and Jamaica.

55. **Campyloneuron phyllitidis** (Linnæus) Presl.

Polypodium phyllitidis LINNÆUS, Species Plantarum, 1753, p. 1083; GRISEBACH, Flora of the British West Indian Islands, 1864, p. 702.

Campyloneuron phyllitidis PRESL, Tentamen Pteridographiæ, 1836, p. 190.

In swamp northeast of Bibijagua, May 13, 1910, *O. E. Jennings, No. 242.* General Distribution: The Bahamas, West Indies, and from Florida to Argentina.

56. **Phlebodium aureum** (Linnæus) Robert Brown.
GOLDEN POLYPODY.

Polypodium aureum LINNÆUS, Species Plantarum, 1753, p. 1087; GRISEBACH, Flora of the British West Indian Islands, 1864, p. 698.
Phlebodium aureum ROBERT BROWN, in Horsfield, Plantæ Javanicæ Rariores, I, 1838, p. 4.

On trunks of Royal Palm (*Roystonea regia*) along an arroyo north of Sante Fé, May 25, 1910, *O. E. Jennings, Nos. 535a and 609;* similar habitat south of Sante Fé, May 25, 1910, *O. E. Jennings, Nos. 610 and 611.* General Distribution: The Bahamas and West Indies southwards to South America.

The smaller specimens seem to approach very closely *Phlebodium areolatum* Willdenow.

57. **Acrostichum aureum** Linnæus.

Acrostichum aureum LINNÆUS, Species Plantarum, 1753, p. 1069.
Chrysodium vulgare FÉE, Histoire de Acrostichées, 1845, p. 97.
Chrysodium aureum METTENIUS, Filices Horti Botanici Lipsiansis, 1856, p. 21.

In swamp southwest of Bibijagua, May 7, 1910, *O. E. Jennings, No. 84.* General Distribution: Tropics and subtropics generally, in America extending north as far as the Bermudas and Bahamas.

Family MARSILEACEÆ.

58. **Marsilea polycarpa** Hooker & Greville.

Marsilea polycarpa HOOKER & GREVILLE, Icones Filicum, II, 1831, pl. 160.
Marsilea caribæa UNDERWOOD (Herbarium name, unpublished).

Near Nueva Gerona, December 10, 1903, *A. H. Curtiss, No. 220.* General Distribution: Cuba, the Isle of Pines, Jamaica, continental tropical America; the Society Islands.

Family LYCOPODIACEÆ.

59. **Lycopodium cernuum** Linnæus.

Lycopodium cernuum LINNÆUS, Species Plantarum, II, Ed. I, 1753, p. 1103.

Near Nueva Gerona, January 28, 1904, *A. H. Curtiss, No. 318;* near Nueva Gerona, February–March, 1910, *J. F. Shafer;* in swampy border of pond one mile east of Nueva Gerona, May 6, 1910, *O. E. Jennings;* near base of Caballos Mts., May 13, 1910, *O. E. Jennings, No. 224a;* winter of 1912, *G. A. Link.* General Distribution: From Florida to Mississippi, through the West Indies, common in the tropics.

60. **Lycopodium** sp.

On peaty-sand (apparently acid) one mile north of Los Indios, May 19, 1910, *O. E. Jennings, No. 385.* Prostrate, complanate, and stiff, but non-fruiting.

Family SELAGINELLACEÆ.

61. **Selaginella rhodospora** Baker, var.

Selaginella rhodospora BAKER, The Fern-Allies, 1887, p. 1–6.

In pine-barrens east of Los Indios, May 18, 1910, *O. E. Jennings, No. 361.* (Det. by Hieronymus.) General Distribution: Florida, Cuba, and the Isle of Pines.

62. **Selaginella** sp.

On moist bank along arroyo near Nueva Gerona, May 6, 1910, *O. E. Jennings, No. 63.* Non-fruiting.

SPERMATOPHYTA.

Family CYCADACEÆ.

63. **Zamia silicea** Britton.

Zamia silicea BRITTON, Bulletin of the Torrey Botanical Club, XLIII, 1916, p. 462.

In swampy place east of Nueva Gerona, May 6, 1910, *O. E. Jennings, No. 60;* near Los Indios, November 4, 1912, *G. A. Link; Britton & Wilson, No. 14,166,* near Los Indios, type, spring, 1916. General Distribution: The Isle of Pines.

The specimen collected by Mr. Link, is a carpellate plant with a fine ripe cone. The cone is oblong-ovoid, 5 cm. long by nearly 3 cm. thick, mounted on a stout peduncle which is 3 cm. long and 4 mm. thick, and densely and softly brownish-pubescent. The cone contains about twenty carpels, the peltate flat-topped scales being densely brown pubescent, hexagonal, in lateral diameter about 12–15 mm., the vertical dimension about 6 mm., and the middle portion being marked off by a light colored line and somewhat sunken. The apex of the cone consists of a stout point about 5 mm. long.

Family PINACEÆ.

KEY TO THE SPECIES ENUMERATED.

Leaves in two-leaved clusters, light-colored, slender, usually not over 1 mm. in diameter and often 3 dm. long.....65. *Pinus tropicalis.*

Leaves in three- (or two-) leaved clusters, fairly dark green, rather stiff, usually 1.5–2 mm. wide and less than two dm. long.....64. *Pinus caribæa.*

64. **Pinus caribæa** Morelet. CARIBBEAN PINE.

Pinus caribæa MORELET, Bulletin de la Société d'Histoire Naturelle du Département de la Moselle, VII, 1885, p. 97.

On "Mal Pais" gravel plain southwest of Bibijagua, May 7, 1910, *O. E. Jennings, No. 82;* in sandy field southwest of Mt. Colombo, May 14, 1910, *O. E. Jennings, No. 685;* Sante Fé, February 11, 1903, *George R. Shaw.* General Distribution: Southern Florida to Georgia and Mississippi, the Bahamas, Cuba, and the Isle of Pines.

In the *Bulletin of the Torrey Botanical Club* (XXX, 1903, pp. 106–108.) W. W. Rowlee has published some notes on the pines of the Isle of Pines, including in these notes descriptions of a new species (*Pinus recurvata* Rowlee) and a new variety (*Pinus cubensis* var. *anomala* Rowlee), also recording the occurrence on the island of *Pinus cubensis* Grisebach.

Pinus caribæa is the common pine which probably formerly covered almost completely the "Mal Pais" gravel plains, the sandy or gravelly (quartzose) plains in the western and southwestern parts of the island, and the gentle slopes and rounded tops of the mica-schist hills and mountains in the south-central and southwestern parts. At the time of the writer's visit in 1910, the view from the top of the Cañada Mts., looking to the west and northwest over the pine-barrens, was as over a sea of light green, broken here and there in the hazy distance by the darker green jungle and mangrove forest along the moist valleys and near the coast.

65. **Pinus tropicalis** Morelet.

Pinus tropicalis MORELET, Bulletin de la Société d'Histoire Naturelle du Département de la Moselle, VII, 1885, p. 97.

Pinus occidentalis RICHARD, in Sagra, Historia Fisica, Politica y Natural de la Isla de Cuba, XI, 1850, pp. 232, 233 (at least in part, not Swartz).

Pinus cubensis var.? *terthrocarpa* GRISEBACH, Catalogus Plantarum Cubensium, 1866, p. 217.

Pinus recurvata ROWLEE, Bulletin of the Torrey Botanical Club, XXX, 1903, p. 107 (in part).

Pinus cubensis var. *anomala* ROWLEE, *op. cit.*, p. 108 (in part).

Pinus terthrocarpa SHAW, Trees and Shrubs, I, 1905, p. 149.

Collected in the Isle of Pines, 1831, *A. H. Lanier* (A. Richard, *l. c.*); February, 1901, *W. W. Rowlee, Nos. 231, 232, 233* (in part); Sante Fé,

George R. Shaw, February, 1903; probably near Santo Fé, March, 1910, *Dr. Jared F. Shafer*. General Distribution: Western Cuba and the Isle of Pines.

Shaw notes ("Trees and Shrubs," I, 1905, p. 149) that at Santo Fé the species grows both alone and in mixture with *Pinus heterophylla* (= *P. caribæa* as to the Isle of Pines reference).

Rowlee's description of *Pinus cubensis* var. *anomala* (*Bulletin of the Torrey Botanical Club*, XXX, 1903, pp. 106–108), as collected by him at Jucaro Landing in 1901, is as follows: "Tree 6–9 m. high. Slender needles 3, bracts 6–8 mm. long, green and remaining on the shoots the first season, resembling the leaves of a spruce."

Family TYPHACEÆ.

66. **Typha angustifolia** Linnæus. NARROW-LEAVED CAT-TAIL.

Typha angustifolia LINNÆUS, Species Plantarum, Ed. I, 1753, p. 971.

In stream from spring, Keenan's estate, south of Nueva Gerona, May 9, 1910. *O. E. Jennings, Number 164.*

The hairs accompanying the pistillate flowers do not have the club-shaped tips which are supposed to indicate the distinctive character of *Typha domingensis* Persoon, and, it appears probable that there are good reasons for reducing the latter species to the position of a form of *T. angustifolia*, or even to pure synonymy, as has been done by Wilson, in the "North American Flora," XVII, 1909, p. 3.

Family ALISMACEÆ.

67. **Sagittaria falcata** Pursh.

Sagittaria falcata PURSH, Flora Americæ Septentrionalis, 1814, p. 397.

Sagittaria lancifolia var. *media* MICHELI, in De Candolle, Monographiæ Phanerogamarum, III, 1881, p. 73.

Sagittaria lancifolia var. *falcata* J. G. SMITH, Memoirs, Torrey Botanical Club, V, 1894, p. 25.

In swale along stream near the west base of Mount Colombo, May 14, 1910, *O. E. Jennings, No. 259.*

This species, now reported to extend from "Delaware to Florida, Texas, and Mexico" ("North American Flora," XVII, 1909, p. 57), has probably been confused with typical *Sagittaria lancifolia*, as to a number of West Indian records. It is quite distinct from *S. lancifolia*, however, in the specimens from the Isle of Pines. A brief description of the specimen from the Isle of Pines follows:

Leaves emersed, arising from a strong horizontal rhizome, the petioles about 15 to 20 cm. long, the blades about 6 to 10 cm. long by 3 to 5 mm. wide, thick, pseudo-penninervate, with usually 5 nerves, the apex narrow but obtuse, scape simple, 6 to 6.5 dm. tall, the whorls of the inflorescence 4 to 7 in number, peduncles of the staminate flowers 1.5 to 2 cm. long, slender, ascending, those of the pistillate flowers about 8 to 17 mm. long, somewhat thicker than those of the staminate flowers, bracts ovate, acute, strongly veined, dorsally minutely papillose, 8 to 13 mm. long, sepals obtuse, about 6 mm. long, petals about 1.5 cm. long, anthers slightly shorter than the very sparingly pubescent filaments, mature achenes rounded-obovate, about 2 mm. long by 1.2 mm. wide, margined all around by a lighter colored wing, the beak about 0.5 mm. long, spreading horizontally from the apex of the achene, but with the extreme tip usually upturned.

Family GRAMINEÆ.

KEY TO THE SPECIES ENUMERATED.

(Adapted from Hitchcock, *Grasses of Cuba*.[2])

Series I. Paniceæ.

Spikelets 1- or rarely 2-flowered; if 2-flowered the terminal floret perfect, the lower staminate or neutral; rachilla articulated below the glumes; spikelets not laterally compressed.

Lemma and palea hyaline; glumes more or less indurated, the first largest; sterile and fertile lemma alike in texture.

Joints of the rachis much thickened and excavated to receive the spikelets.

68. *Hackelochloa granularis.*

Joints of the rachis not thickened nor excavated.

Spikelets all alike, perfect; panicle plume-like..69. *Imperata brasiliensis.*

Spikelets not all alike.

Racemes of several to many joints, at least some of the racemes sessile.

Racemes numerous in a leafless terminal panicle.

73. *Andropogon leucopogon.*

Racemes 1–4, solitary or fascicled from spathes.

Racemes solitary.

Spikelets awnless.....75. *Andropogon spathiflorus.*

Spikelets awned.....72. *Andropogon gracilis.*

Racemes 2–4 from each spathe.

Spathes numerous in a large corymb.

Spikelets awnless.....70. *Andropogon bicornis.*

Spikelets long-awned....71. *Andropogon tenuispatheus.*

[2] HITCHCOCK, A. S. Contributions from the United States National Herbarium, XII, 1909, pp. 183–258.

Racemes naked and terminal; spikelets awnless.
74. *Andropogon leucostachys.*
Racemes reduced to one or two joints; all racemes more or less pedunculate.....76. *Rhaphis pauciflora.*
Lemma and palea membranaceous or indurated; sterile lemma when present like the glumes in texture.
Spikelets unisexual; plants monœcious; blades abruptly contracted into petiole-like bases.....123. *Olyra latifolia.*
Spikelets all perfect.
Spikelets 2–4 together, sunken in alternate notches of a broad thickened rachis; creeping grasses.....122. *Stenotaphrum secundum.*
Spikelets not sunken in the notches of a thickened rachis.
Spikelets solitary or in small clusters subtended by an involucre consisting of one to many bristles, these sometimes grown together.
Involucre persistent on the rachis, spikelets deciduous.
Inflorescence dense and spike-like; bristles of the involucre 5 or more.....117. *Chætochloa imberbis.*
Inflorescence comparatively loose; bristles 1–3.
118. *Chætochloa setosa.*
Involucre deciduous with and attached to the spikelets.
Involucre a spiny bur enclosing 1–5 spikelets.
119. *Cenchrus echinatus.*
Involucre of a single sterile branch produced beyond each spikelet.....121. *Paratheria prostrata.*
Spikelets not involucrate.
Fruits not rigid, margins of lemma not inrolled.
Inflorescence of slender racemes, divergently digitate at summit of culm, both glumes wanting.
77. *Reimarochloa brasiliensis.*
Inflorescence paniculate.
Fruit open at the white-margined summit; spikelets tuberculate-hispid between the nerves.
92. *Leptocoryphium lanatum.*
Fruit not open nor white-margined at the summit.
Spikelets clothed with long silky hairs.
95. *Valota insularis.*
Spikelets glabrous or pubescent only.
Spikelets 3–4 mm. long, more or less villous on the nerves; rachis not pilose.
94. *Syntherisma sanguinalis.*
Spikelets 2 mm. long, glabrous; rachis sparsely long-pilose.....93. *Syntherisma digitata.*
Fruits indurated-rigid, or if thin not open at the summit nor hyaline-margined.
Spikelets placed with the back of the fruit turned away from the main axis.

First glume as long as the spikelet or nearly so.
96. *Mesosetum Rottbœllioides.*
First glume wanting or not over one-fourth the length of the spikelet.....91. *Axonopus compressus.*
Spikelets with the back of the fruit turned towards the main axis.
Spikelets plano-convex, subsessile in spike-like racemes, typically lacking the first glume (*Paspalum*).
Racemes terminal and also from the upper sheath.
85. *Paspalum pedunculatum.*
Racemes terminal only.
Racemes normally in pairs, and approximate.
Plants with creeping rootstocks.
79. *Paspalum distichum.*
Plants without creeping rootstocks.
Both glumes obsolete.
87. *Paspalum pulchellum.*
First glume only obsolete.
Spikelets circular, 1.5 mm. long or less.
78. *Paspalum conjugatum.*
Spikelets lanceolate or elliptic, 2 mm. long or more.
Spikelets loosely imbricated; spikes ascending. ...81. *Paspalum Neesii.*
Spikelets densely imbricated; spikes spreading.
Spikelets 2 mm. long.
82. *Paspalum minus.*
Spikelets 3 mm. long.
84. *Paspalum notatum.*
Racemes 1 to several; if 2, the lower at some distance below the terminal and the number not constant.
Raceme usually 1, sometimes 2.
Spikelets transversely wrinkled.
Blades involute, glabrous, elongated, 40–60 cm. long.
80. *Paspalum filiforme.*
Blades flat, pubescent, 5–15 cm. long.
83. *Paspalum nanum.*
Spikelets not transversely wrinkled.
88. *Paspalum Rottbœllioides.*
Racemes more than 1, often numerous.
Sterile lemma transversely wrinkled; spikelets brown.....86. *Paspalum plicatulum.*
Sterile lemma not transversely wrinkled.

Spikelets pubescent.
89. *Paspalum virgatum.*
Spikelets glabrous.
90. *Paspalum virgatum* var. *Schreberianum.*
Spikelets unequally biconvex; paniculate, or if racemose, with the first glume present.
Glumes awnless.
Second glume broad and saccate; panicle contracted or spike-like.
Spikelets 2 mm. long, panicle dense.
97. *Sacciolepis Myuros.*
Spikelets 3 mm. long, panicle often interrupted.
98. *Sacciolepis vilvoides.*
Second glume not broad nor saccate; margins of lemma inrolled (*Panicum*).
Inflorescence consisting of several spike-like, more or less secund racemes.
Fruit smooth and shining, spikelets not over 1.5 mm. long.
Rachis pilose; pedicel short, subequal.
114. *Panicum pilosum.*
Rachis not pilose; pedicels unequal. panicle less regular.
110. *Panicum laxum,*
Fruit transversely wrinkled; spikelets turgid.
Spikelets hispidulous pointed, first glume acute.....103. *Panicum adspersum.*
Spikelets glabrous; first glume truncate.
109. *Panicum geminatum.*
Inflorescence a more or less diffuse panicle, not consisting of spike-like racemes.
Stems woody, resembling bamboos.
Panicle large and spreading, 10–20 cm. long.....112. *Panicum Sloanei.*
Panicle small and few-flowered, usually 5 cm. long.....101. *Lasiacis divaricata.*
Stems herbaceous.
Plants forming winter-rosettes; secondary reduced panicles borne after the maturity of the primary terminal panicle.
Ligule a ring of hairs 1–1.5 mm. long; spikelets pubescent, 1–1.5 mm. long.
102. *Panicum acuminatum.*
Ligule inconspicuous.
Autumnal state a flat mat or

rosette of soft leaves; blades ciliate; spikelets 1.5–2 mm. long, glabrous.
111. *Panicum polycaulon.*
Autumnal state erect or spreading.
Sheath velvety or pilose.
106. *Panicum chrysopsidifolium.*
Sheaths not velvety or pilose.
Blades long and narrow; spikelets papillose.
108. *Panicum fusiforme.*
Blades not elongated; spikelets not papillose.
115. *Panicum albomarginatum.*
Plants not forming winter-rosettes.
Panicles narrow and compact with appressed branches.
113. *Panicum stenodes.*
Panicles open usually diffusely spreading.
Spikelets 1.5 mm. long, short-pedicelled.
107. *Panicum exiguiflorum.*
Spikelets on more or less elongated pedicels.
Sheaths glabrous.
105. *Panicum diffusum.*
Sheaths hispid.
104. *Panicum cayennense.*
One or both glumes awned or cuspidate.
Fruit cuspidate, palea free at the tip; second glume and sterile lemma tapering into a cuspidate point or awn (*Echinochloa*).
Spikelets pointed, not awned.
99. *Echinochloa colonum.*
Spikelets awned.....100. *Echinochloa Crusgalli.*
Fruit not cuspidate, palea not free; awns arising from a toothed summit..116. *Oplismenus hirtellus.*

Series II. Poaceæ.

Spikelets one to many-flowered, the imperfect or rudimentary floret, if any, uppermost; rachilla articulated (except in *Achlæna* and *Reynaudia*) above the glumes, which are persistent on the pedicel or rachis after the fall of the florets; when 2- or many-flowered a manifest internode of the rachilla separating the florets and articulated below them; spikelets laterally compressed.
Spikelets articulated below the glumes.
Glumes tapering into awns; spikelets, including awns, over 3 cm. long.
124. *Achlæna piptostachya.*

Glumes awned from the notched apex; spikelets including awns, scarcely 1 cm. long.....125. *Reynaudia filiformis.*

Spikelets articulated above the glumes.

Inflorescence of one-sided spikes or racemes; spikelets sessile or nearly so.

Spikelets with one or two sterile florets above the perfect one.

Spikelets awnless; spikes dark brown.....131. *Chloris petræa.*

Spikelets awned; spikes green or yellow. ....130. *Chloris paraguaiensis.*

Spikelets with 2 or 3 perfect florets.

Spikes alternate, more or less remote along the main axis, spikelets not crowded.....133. *Leptochloa filiformis.*

Spikes digitate or nearly so, spikelets crowded.....132. *Eleusine indica.*

Inflorescence paniculate, sometimes contracted but spikelets never sessile in 1-sided spikes.

Spikelets 1-flowered.

Lemma awnless.

Plants with long rhizomes; blades distichous.

129. *Sporobolus virginicus*

Plants cespitose, not with rhizomes; blades not distichous.

Panicle dense and spike-like.....128. *Sporobolus indicus.*

Panicle open; basal sheaths copiously felty-ciliate.

127. *Sporobolus cubensis.*

Lemma awned, indurate, convolute; awn 3-fid....126. *Aristida refracta.*

Spikelets 2–many-flowered.

Lemmas 3-nerved, not at all indurated.

Creeping annuals with dioecious flowers...137. *Eragrostis hypnoides.*

Not creeping; flowers perfect.

Annuals; palea prominently ciliate.....134. *Eragrostis ciliaris.*

Perennials.

Plants low, 10–20 cm. high; blades involute; panicle not diffuse.....135. *Eragrostis cubensis.*

Plants tall; blades flat; panicles very diffuse.

136. *Eragrostis Elliottii.*

Lemmas many-nerved, somewhat indurated and rigid.

138. *Distichlis spicata.*

68. **Hackelochloa granularis** (Linnæus) Kuntze.

Cenchrus granularis LINNÆUS, Mantissa Plantarum, 1771, p. 575.

Manisurus granularis SWARTZ, Prodromus Descriptionum Vegetabilium Indiæ Occidentalis, 1788, p. 25.

Manisurus polystachya BEAUVOIS, Flore de Royaumes d'Owaré et de Benin, I, 1805, p. 24.

Rytilix granularis SKEELS, Bureau Plant Industry, U. S. Dept. Agriculture, XX, 1913, p. 282.

Near Nueva Gerona, May 12, 1904, *A. H. Curtiss, No. 493.* General Distribution: General throughout tropical regions, extending northwards in America to Florida, Georgia, Arizona, and Lower California.

69. **Imperata brasiliensis** Trinius.

Imperata brasiliensis TRINIUS, Mémoires de l'Académie Imperiale des Sciences de St. Petersburg, VI, (2), 1832. p. 331.

Imperata Sape ANDERSSON, Oefversigt Svenska Vetenskaps Akademien Forhandlingar, 1855, p. 159.

Syllepis Ruprechtii FOURNIER, Mexicanas Plantas, Gramineæ, 1881, p. 52.

Imperata caudata CHAPMAN, Flora of the Southern U. S., Ed. II, 1884, p. 668. Not Trinius.

Near Nueva Gerona, 1904, *A. H. Curtiss* (Hitchcock, Cat. Grasses of Cuba, Contrib. U. S. Nat. Herb., XII, 1909, p. 190); common in lower parts of the savanna, near Nueva Gerona, May 5, 1910, *O. E. Jennings, No. 18;* in pine woods north of McKinley, May 16, 1910, *O. E. Jennings, Nos. 295 and 296.* General Distribution: Florida, Cuba, the Isle of Pines, and from Vera Cruz to Brazil.

70. **Andropogon bicornis** Linnæus.

Andropogon bicornis LINNÆUS, Species Plantarum, 1753, p. 1046.

Anatherium bicorne BEAUVOIS, Essai d'une nouvelle Agrostographie, 1812, p. 150.

Sorgum bicorne KUNTZE, Revisio Generum Plantarum, I, 1891, p. 791.

Near Nueva Gerona, January and May, 1904, *A. H. Curtiss, No. 294;* Nueva Gerona, *Palmer & Riley, No. 1125* (Hitchcock); near Nueva Gerona, June 12, 1912, *G. A. Link.* General Distribution: Throughout the West Indies and from southern Mexico to Brazil.

71. **Andropogon tenuispatheus** Nash.

Andropogon macrourus pumilus VASEY, Botanical Gazette, XVI, 1891, p. 27. Not *A. pumilus* ROXB., 1820.

Andropogon glomeratus tenuispatheus NASH, in Small, Flora of the Southeastern U. S., 1903, p. 61.

Moist bank of stream at Keenan's estate, south of Nueva Gerona, May 9, 1910, *O. E. Jennings, No. 180;* in everglade meadow at mouth of Nuevas River, May 16, 1910, *O. E. Jennings, No. 283.* (Also part of *Curtiss, No. 294, and Taylor, No. 18.*—See report on *A. glomeratus* in Hitchcock, "Grasses of Cuba," Contrib. U. S. Nat. Herb., XII, 1909, p. 193.) General Distribution: From Georgia, Florida, and southern California, through the West Indies and Central America to tropical South America.

72. **Andropogon gracilis** Sprengel.

Andropogon gracilis SPRENGEL, Systema Vegetabilium, I, 1825, p. 284.

Sorgum gracile O. KUNTZE, Revisio Generum Plantarum, I, 1891, p. 791.

Schizachyrium gracile NASH, in Small, Flora of the Southeastern U. S., 1903, p. 60.

Near Nueva Gerona, 1904, *A. H. Curtiss, No. 380* and *Taylor, No. 17* (Hitchcock). Growing as a "bunch-grass" in savanna east of Nueva Gerona, May 6, 1910, *O. E. Jennings, No. 58*. General Distribution: Florida and the Bahamas, and from Cuba and Jamaica to Guadeloupe.

73. **Andropogon leucopogon** Nees.

Andropogon leucopogon NEES, Linnæa, XIX, 1847, p. 694.

Andropogon saccharoides leucopogon HACKEL, DeCandolle, Monographiæ Phanerogamarum, VI, 1889, p. 496.

Amphilophis barbinodis NASH, in Small, Flora of the Southeastern U. S., 1903, p. 65.

Near Nueva Gerona, March 2, 1904, *A. H. Curtiss, No. 382*. Distributed in "West Indian Plants" as "*Amphilopus saccharoides* (Sw.)." General Distribution: Cuba, Isle of Pines, Haiti, and Colombia.

74. **Andropogon leuchostachyus** Humboldt, Bonpland, & Kunth.

Andropogon leuchostachyus HUMBOLDT, BONPLAND, & KUNTH, Nova Genera et Species Plantarum, I, 1816, p. 187.

Andropogon domingensis ROEMER & SCHULTES, Systema Vegetabilium, II, 1817, p. 809.

Sorgum leuchostachyum O. KUNTZE, Revisio Generum Plantarum, I, 1891, p. 792.

Near Nueva Gerona, January 26, 1904, *A. H. Curtiss, No. 314; Taylor, No. 16* (Hitchcock). General Distribution: West Indies and southern Mexico to Brazil.

75. **Andropogon spathiflorus** (Nees) Kunth.

Hypogynium spathiflorum NEES, Agrostologia Brasiliensis, 1829, p. 366.

Andropogon spathiflorus KUNTH, Agrostographia sive Enumeratio Graminum, I, 1833, p. 496.

Anatherum spathiflorum GRISEBACH, Catalogus Plantarum Cubensium, 1866, p. 236.

Near Nueva Gerona, April 24, 1904, *A. H. Curtiss, No. 460; Taylor, No. 23* (Hitchcock). General Distribution: Cuba, Isle of Pines, Haiti, Porto Rico, and South America.

76. **Rhaphis pauciflora** (Chapman) Nash.

Sorgum pauciflorum CHAPMAN, Botanical Gazette, III, 1878, p. 20.

Chrysopogon pauciflorus BENTHAM; Vasey, Grasses of the U. S., 1883, p. 20.

Chrysopogon Wrightii MUNRO, in Vasey, Descriptive Catalogue of the Grasses of the U. S., 1885, p. 29.

Andropogon pauciflorus HACKEL, in DeCandolle, Monographiæ Phanerogamarum, VI, 1889, p. 548.

Raphis pauciflora NASH, in Small, Flora of the Southeastern U. S., 1903, p. 67.

Reported by Hitchcock, *A. A. Taylor, No. 46.* General Distribution: Florida, Cuba, and the Isle of Pines.

77. **Reimarochloa brasiliensis** (Sprengel) Hitchcock.

Agrostis brasiliensis SPRENGEL, Novi Proventus Hortorum Halensis et Berolinensis, 1819, p. 45.
Reimaria brasiliensis SCHLECHTENDAL, Flora oder Botanische Zeitung, X, 1852, p. 17.
Panicum oxyanthum STEUDEL, Synopsis Plantarum Glumacearum, I, 1854, p. 41.
Reimarochloa brasiliensis HITCHCOCK, Contributions U. S. National Herbarium, XII, 1909, p. 198.

Near Nueva Gerona, 1904, *A. H. Curtiss, No. 497* (Hitchcock). General Distribution: Cuba, Isle of Pines, Haiti, and tropical South America.

78. **Paspulum conjugatum** Bergius.

Paspulum conjugatum BERGIUS, Acta Helvetica Physico-Mathematico-Botanico-Medica, etc., VII, 1772, p. 129, t. 8.
Paspalum tenue GAERTNER, De Fructibus et Seminibus Plantarum, II, 1791, p. 2.

Isle of Pines, 1904, *A. H. Curtiss* (Hitchcock); in open spot in river-bank forest, Los Indios, May 20, 1910, *O. E. Jennings, No. 445.* General Distribution: Tropics and subtropics generally, extending north in America as far as Florida and Bermuda.

79. **Paspalum distichum** Linnæus.

Paspalum distichum LINNÆUS, Systema Naturæ, Ed. X, 1759, p. 899.
Digitaria paspalodes MICHAUX, Flora Boreali-Americana, I, 1803, p. 46.
(See list of synonyms in Nash, North American Flora, XVII, 1912, p. 195.)

Near Nueva Gerona, 1904, *A. H. Curtiss* (Hitchcock). General Distribution: From New Jersey, Arizona, and Washington south through the West Indies and continental tropical America. Also tropics of the Old World.

80. **Paspalum filiforme** Swartz.

Paspalum filiforme SWARTZ, Prodromus Descriptionum Vegetabilium Indiæ Occidentalis, 1788, p. 22.
Paspalum Swartzianum FLUEGGE, Graminum Monographiæ, 1810, p. 96.
Paspalum longifolium STEUDEL, Synopsis Plantarum Glumacearum, 1854, p. 21.
Paspalum approximatum DOELL, in Martius, Flora Brasiliensis, II, (2), 1877, p. 82.

Near Nueva Gerona, February 27 and June 3, 1904, *A. H. Curtiss, Nos. 374 and 523; Palmer & Riley, No. 949,* 1900 (Hitchcock). General Distribution: Cuba, Isle of Pines, Jamaica, and Brazil.

81. **Paspalum Neesii** Kunth.

Paspalum angustifolium NEES, Agrostologia Brasiliensis, 1829, p. 64. Not Le-Conte, 1820, nor Nees, in Trinius De Graminibus Paniceis, 1826.

Paspalum Neesii KUNTH, Revision de Graminées, I, 1829, p. 25.

Near Nueva Gerona, 1904, *A. H. Curtiss, No. 379* (Hitchcock); in pine-barrens at Los Indios, May 19, 1910, *O. E. Jennings, No. 428.* General Distribution: Cuba, Isle of Pines, southern Mexico (Hemsley), Costa Rica, Brazil. Miss Agnes Chase informs the writer in a recent letter that *Paspalum lineare* Trinius, for which these specimens were mistaken, is a larger plant not found in the West Indies.

82. **Paspalum minus** Fournier.

Paspalum minus FOURNIER, Mexicanas Plantas, Gramineæ, 1886, p. 6.

Moist bank of stream on Keenan's estate south of Nueva Gerona, May 9, 1910, *O. E. Jennings, No. 179; Palmer & Riley, No. 978* (Hitchcock); *A. H. Curtiss* in 1904 (Hitchcock). General Distribution: Cuba, Isle of Pines, Jamaica, southern Mexico, Guatemala, and Colombia.

83. **Paspalum nanum** Wright.

Paspalum nanum WRIGHT, in Grisebach Catalogus Plantarum Cubensium, 1866, p. 230.

Paspalum caudicatum WRIGHT, Anales del Academía de Ciencias Médicas, Físicas y Naturales de la Habana, VIII, 1871, p. 205.

"Isle of Pines, *Taylor*, 40, *Curtiss* in 1904" (Hitchcock). General Distribution: Cuba and the Isle of Pines.

84. **Paspalum notatum** Fluegge.

Paspalum notatum FLUEGGE, Graminum Monographiæ, 1810, p. 106.

"Isle of Pines, *Palmer & Riley* 1119" (Hitchcock). General Distribution: Central Mexico to the West Indies and South America.

85. **Paspalum pedunculatum** Poiret.

Paspalum decumbens SWARTZ, Prodromus Descriptionum Vegetabilium Indiæ Occidentalis, 1788, p. 22. Not Rottbœll, 1778.

Paspalum pedunculatum POIRET, Encyclopédie Méthodique, Supplementa in Dictionnaire de Botanique, IV, 1816, p. 315.

Panicum decumbens ROEMER & SCHULTES, Systema Vegetabilium, II, 1817, p. 429.

Paspalum vaginiflorum STEUDEL, Synopsis Plantarum Glumacearum, I, 1854, p. 19.

Dimorphostachys pedunculata FOURNIER, Mexicanas Plantas, II, 1886, p. 15.

Near Nueva Gerona, February 2, 1904, *A. H. Curtiss, No. 327.*

General Distribution: Cuba, Isle of Pines, Jamaica, Porto Rico, Trinidad, Guiana.

86. **Paspalum plicatulum** Michaux.

Paspalum plicatulum MICHAUX, Flora Boreali-Americana, I, 1803, p. 45.

"Isle of Pines, *Palmer & Riley* 947, *Taylor* 38, . . . *Curtiss* in 1904" (Hitchcock). General Distribution: In dry sandy soil, Georgia and Florida to Texas, and south through the West Indies and tropical America.

87. **Paspalum pulchellum** Kunth.

Reimaria elegans FLUEGGE, Graminum Monographiæ, 1810, p. 216. Not *Paspalum elegans* Kunth, 1833.

Paspalum pulchellum KUNTH, Mémoires de la Société d'Histoire Naturelle de Paris, II, 1815, p. 68.

"Isle of Pines, *Curtiss* in 1904 in Herb. N. Y. Bot. Gard." (Hitchcock). General Distribution: Cuba and the Isle of Pines.

88. **Paspalum Rottboellioides** Wright.

Paspalum rottboellioides WRIGHT, Anales del Academía de Ciencias Médicas, Físicas y Naturales de la Habana, VIII, 1871, p. 204.

Near Nueva Gerona, February 28, 1904, *A. H. Curtiss, No. 375;* in 1901, *A. A. Taylor* (Hitchcock). General Distribution: In sandy savannas, Cuba, and in the Isle of Pines.

89. **Paspalum virgatum** Linnæus.

Paspalum virgatum LINNÆUS, Systema Naturæ, Ed. X, II, 1759, p. 855.
Paspalum leuchocheilum WRIGHT, *op. cit.*, p. 203.

Near Nueva Gerona, May 15, 1904, *A. H. Curtiss, No. 501;* in an open spot in the river-bank forest at Los Indios, May 20, 1910, *O. E. Jennings, No. 448.* General Distribution: From southern Mexico to Costa Rica, in the West Indies, and in tropical South America.

90. **Paspalum virgatum** var. **Schreberianum** Fluegge.

Paspalum virgatum var. *Schreberianum* FLUEGGE, Graminum Monographiæ, 1816, p. 190.

Reported by Hitchcock, on the basis of one of the *A. H. Curtiss* specimens from Nueva Gerona, collected in 1904, and now in the herbarium of the New York Botanical Garden. The variety differs from the species in having a "scarcely pilose rachis and oblong-obovate, acute, glabrous spikelets."—Hitchcock.

91. **Axonopus compressus** (Swartz) Beauvois. CARPET GRASS.

Milium compressum SWARTZ, Prodromus Descriptionum Vegetabilium Indiæ Occidentalis, 1788, p. 24.

Paspalum compressum NEES, in Martius, Flora Brasiliensis, II, 1829, p. 23.

Anastrophus platycaulis NASH, in Small, Flora of the Southeastern U. S., 1903, p. 79.

Axonopus compressus BEAUVOIS, Essai d'une nouvelle Agrostographie, 1812, p. 12.

(For several other synonyms see Nash, in North American Flora, XVII, 1912, p. 162.)

Near Nueva Gerona, May 24, 1904, *A. H. Curtiss, No. 511;* Same locality, January 21, 1904, *A. H. Curtiss, No. 306*, sent out as "*Anastrophus tristachyus* (Lam.)." General Distribution: From Virginia to Florida and Texas, West Indies, and the tropics and subtropics generally.

92. **Leptocoryphium lanatum** (Humboldt, Bonpland, & Kunth) Nees.

Leptocoryphium lanatum NEES, Agrostologia Brasiliensis, 1829, p. 84.

Paspalum lanatum HUMBOLDT, BONPLAND, & KUNTH, Nova Genera et Species Plantarum, I, 1815, p. 94.

Milium lanatum ROEMER & SCHULTES, Systema Vegetabilium, II, 1817, p. 322.

Anthœnantia lanata BENTHAM, Journal Linnean Society, XIX, 1881, p. 39.

Near Nueva Gerona, March 6 and 20, 1904, *A. H. Curtiss, No. 393; Palmer & Riley, Nos. 440, 972*, in 1900 (Hitchcock); as a weed in a grapefruit grove north of Nueva Gerona, May 14, 1910, *O. E. Jennings, No. 245a;* in savanna at Los Indios, May 19, 1910, *O. E. Jennings, No. 434.* General Distribution: Southern Mexico to Costa Rica, Cuba, Isle of Pines, Trinidad, and northern South America.

93. **Syntherisma digitata** (Swartz) Hitchcock.

Milium digitatum SWARTZ, Prodromus Descriptionum Vegetabilium Indiæ Occidentalis, 1788, p. 24.

Digitaria setosa DESVAUX, in Hamilton, Prodromus Plantarum Indiæ Occidentalis, 1825, p. 6.

Syntherisma setosa NASH, Bulletin Torrey Botanical Club, XXV, 1898, p. 300.

Syntherisma digitata HITCHCOCK, Contributions U. S. National Herbarium, XII, 1908, p. 142.

Reported by Hitchcock on the basis of the collection made by Curtiss in 1904, specimens in herbarium of the New York Botanical Garden. General Distribution: Florida, Bermuda, Bahamas, and southward through the West Indies and continental tropical America.

94. **Syntherisma sanguinalis** (Linnæus) Dulac. CRAB GRASS.

Panicum sanguinale LINNÆUS, Species Plantarum, 1753, p. 57.
Digitaria sanguinalis SCOPOLI, Flora Carniolica, I, Ed. II, 1772, p. 52.
Syntherisma præcox WALTER, Flora Caroliniana, 1788, p. 76.
Asperella digitaria LAMARCK, Illustrations des Genres, I, 1791, p. 167.

Reported by Hitchcock on the basis of the Curtiss specimen, collected near Nueva Gerona, in 1904, now in the herbarium of the New York Botanical Garden. General Distribution: Widely distributed as a weed of cultivated and waste grounds throughout the temperate and warmer regions of the globe.

95. **Valota insularis** (Linnæus) Chase. SOUR GRASS.

Andropogon insulare LINNÆUS, Systema Naturæ, II, Ed. X, 1759, p. 1304.
Panicum leucophæum HUMBOLDT, BONPLAND, & KUNTH, Nova Genera et Species Plantarum, I, 1816, p. 87.
Panicum Duchaissingii STEUDEL, Synopsis Plantarum Glumacearum, I, 1854, p. 93.
Tricholæna insularis GRISEBACH, Flora of the British West Indian Islands, 1864, p. 557.

Open spot in river-bank forest at Los Indios, May 20, 1910, *O. E. Jennings, No. 441.* General Distribution: From Florida and Texas south through the tropics of America to Patagonia.

96. **Mesosetum Rottboellioides** Humboldt, Bonpland, & Kunth.

Panicum Rottboellioides HUMBOLDT, BONPLAND, & KUNTH, Nova Genera et Species Plantarum, I, 1816, p. 96.
Mesosetum cayennense STEUDEL, Synopsis Plantarum Glumacearum, I, 1854, p. 118.
Mesosetum Rottbœllioides HITCHCOCK, Contributions U. S. National Herbarium, XII, 1909, p. 211.

Near Nueva Gerona, March 10, 1904, *A. H. Curtiss, No. 396;* in 1900, *Palmer & Riley, Nos. 889, 896,* and *A. A. Taylor, No. 31,* in 1901 (Hitchcock). General Distribution: Cuba, the Isle of Pines, and South America.

97. **Sacciolepis myuros** (Lamarck) Chase.

Panicum Myuros LAMARCK, Illustrations des Genres, I, 1791, p. 172.
Sacciolepis Myuros CHASE, Proceedings of the Biological Society of Washington, XXI, 1908, p. 7.

Reported by Hitchcock on the basis of the A. H. Curtiss specimen, collected near Nueva Gerona, in 1904, *No. 428.* General Distribution: West Indies, Mexico, to northern South America.

98. **Sacciolepis vilvoides** (Trinius) Chase.

Panicum vilvoides TRINIUS, De Graminibus Paniceis, 1826, p. 171.
Hymenachne fluviatilis NEES, Agrostologia Brasiliensis, 1829, p. 273.
Sacciolepis vilvoides CHASE, Proceedings of the Biological Society of Washington, XXI, 1908, p. 7.

Reported by Hitchcock, on the basis of specimens collected by A. H. Curtiss, near Nueva Gerona, January 19, 1904, *No. 304*. General Distribution: Western Cuba, Isle of Pines, Guiana, and Brazil.

99. **Echinochloa colonum** (Linnæus) Link. JUNGLE RICE.

Panicum colonum LINNÆUS, Systema Naturæ, II, Ed. X, 1759, p. 870.
Echinochloa colonum LINK, Enumeratio Plantarum Horti Regii Botanici Berolinensis, II, 1833, p. 209.

Near Nueva Gerona, March 6, 1904, *A. H. Curtiss, No. 427*. General Distribution: Warmer regions the world over. Northward in America to Virginia and Kansas.

100. **Echinochloa Crus-galli** (Linnæus) Beauvois. BARN-YARD GRASS.

Panicum Crus-galli LINNÆUS, Species Plantarum, I, Ed. I, 1753, p. 56.
Echinochloa Crus-galli BEAUVOIS, Essai d'une nouvelle Agrostographie, 1812, p. 53.

Reported by Hitchcock, based on collection of A. H. Curtiss near Nueva Gerona, 1904, and now in the herbarium of the New York Botanical Garden. General Distribution: A common weed of cultivated and waste lands throughout the warmer and temperate regions of the globe.

101. **Lasiacis divaricata** (Linnæus) Hitchcock.

Panicum divaricatum LINNÆUS, Systema Naturæ, II, 1759, p. 871.
Panicum bambusoides HAMILTON, Prodromus Plantarum Indiæ Occidentalis, 1826, p. 10.
Panicum Chauvinii STEUDEL, Synopsis Plantarum Glumacearum, I, 1854, p. 68.
Lasiacis divaricata HITCHCOCK, Contributions U. S. National Herbarium, XV, 1910, p. 16.

Low land at Pedernales Point, February 16, 1899, *C. F. Millspaugh, No. 1422* (Millspaugh); in 1900, *Palmer & Riley, No. 1001*, and *Curtiss*, in 1904 (Hitchcock). General Distribution: Southern Florida, through the West Indies, and from Mexico to South America.

102. **Panicum acuminatum** Swartz.

Panicum acuminatum SWARTZ, Prodromus Descriptionum Vegetabilium Indiæ Occidentalis, 1788, p. 23.
Panicum comophyllum NASH, Bulletin of the Torrey Botanical Club, XXX, 1903, p. 380.

Near Nueva Gerona, January 21 and February 4, 1904, *A. H. Curtiss, Nos. 307 and 328;* along bank of arroyo south of Sante Fé, May 25, 1910, *O. E. Jennings, No. 543; Palmer & Riley, 989, 1083; Taylor, 3873* (Hitchcock & Chase). General Distribution: Cuba, Isle of Pines, Jamaica, Hispaniola, Porto Rico, and Colombia.

103. **Panicum adspersum** Trinius.

Panicum adspersum TRINIUS, De Graminibus Paniceis, 1826, p. 146.

"Isle of Pines, *Curtiss*, in 1904." Hitchcock, "Grasses of Cuba," Contributions of the U. S. National Herbarium, XII, 1909, p. 217. General Distribution: The Bahamas and West Indies generally.

104. **Panicum cayennense** Lamarck.

Panicum cayennense LAMARCK, Illustrations des Genres, I, 1791, p. 173.

Panicum floribundum A. RICHARD, in Lamarck, Encyclopédie Méthodique, Botanique, IV, 1798, p. 742.

Near Nueva Gerona, January 1, 1904, *A. H. Curtiss, No. 267;* in 1900, *Palmer & Riley, No. 1086;* and in 1901, *A. A. Taylor, No. 34* (Hitchcock). General Distribution: Open grounds and pine woods, Cuba, Isle of Pines, and from Costa Rica to Brazil.

105. **Panicum diffusum** Swartz.

Panicum diffusum SWARTZ, Prodromus Descriptionum Vegetabilium Indiæ Occidentalis, 1788, p. 23.

Panicum guadelupense SPRENGEL, in Steudel, Nomenclator Botanicus, II, Ed. II, 1841, p. 257.

Near Nueva Gerona, March 4, and May 12, 1904, *A. H. Curtiss, No. 384, 494.* General Distribution: On banks, cliffs, and dry savannas, quite widely distributed in the Bahamas and West Indies.

106. **Panicum chrysopsidifolium** Nash.

Panicum chrysopsidifolium NASH, in Small, Flora of the Southeastern U. S., 1903, p. 100.

"Isle of Pines, *Palmer & Riley* 982" (Hitchcock). General Distribution: Cuba, Isle of Pines, Jamaica, Porto Rico, and Hispaniola.

107. **Panicum exiguiflorum** Grisebach.

Panicum minutiflorum A. RICHARD, in Sagra, Historia Fisica Politica y Natural de la Isla de Cuba, XI, 1853, p. 305. Not Rasp. 1825.

Panicum exiguiflorum GRISEBACH, Catalogus Plantarum Cubensium, 1866, p. 234.

Panicum tricolor HACKEL, Oesterreichische Botanische Zeitschrift, LI, 1901, p. 370.

"Isle of Pines, *Taylor 35*, *Curtiss* in 1904" (Hitchcock). General Distribution: Savannas and moist sandy woods, Bahamas, Cuba, and the Isle of Pines.

108. **Panicum fusiforme** Hitchcock.

Panicum fusiforme HITCHCOCK, Contributions U. S. National Herbarium, XII, 1909, p. 222.

Panicum neuranthum ramosum GRISEBACH, Catalogus Plantarum Cubensium, 1866, p. 232. Not *ramosum* L., 1767.

Near Nueva Gerona, March 13, 1904, *A. H. Curtiss, No. 406.* General Distribution: Open moist savannas and sandy pine woods, Florida, Cuba, Isle of Pines, Jamaica, and British Honduras.

109. **Panicum geminatum** Forskål.

Panicum geminatum FORSKÅL, Flora Ægyptiaco-Arabica, 1775, p. 18.

Panicum paspalodes PERSOON, Synopsis Plantarum, I, 1805, p. 81.

Panicum bryzoides LAMARCK, Illustrations des Genres, I, 1791, p. 170. Not Linnæus, 1771.

"Isle of Pines, *Curtiss* in 1904 in Herb. N. Y. Bot. Gard." (Hitchcock). General Distribution: Moist ground, swamps, ditches, etc., in the tropics of both hemispheres, and reaching north in America as far as the Bahamas, southern Florida, Texas, and Lower California.

110. **Panicum laxum** Swartz.

Panicum laxum SWARTZ, Prodromus Descriptionum Vegetabilium Indiæ Occidentalis, 1788, p. 23.

Panicum agrostidiforme LAMARCK, Illustrations des Genres, I, 1791, p. 172.

Panicum tenuiculmum MEYER, Primitiæ Floræ Essequeboensis, 1818, p. 58.

Panicum polygonatum SCHRADER, in Schultes, Mantissa ad Systema Vegetabilium, II, 1824, p. 256.

Near Nueva Gerona, April and May, 1904, *A. H. Curtiss, No. 464;* "Isle of Pines, *Palmer & Riley* 1069, *Taylor* 37" (Hitchcock). General Distribution: From the West Indies and northwestern Mexico south to Paraguay.

111. **Panicum polycaulon** Nash.

Panicum polycaulon NASH, Bulletin Torrey Botanical Club, XXIV, 1897, p. 200.

Panicum dichotomum var. *glabrescens* GRISEBACH, Flora of the British West Indian Islands, 1864, p. 553.

"Isle of Pines, *Palmer & Riley* 990" (Hitchcock). General Distribution: Moist open woods and savannas, Florida, and the Greater Antilles.

112. **Panicum Sloanei** Grisebach.

Panicum Sloanei GRISEBACH, Flora of the British West Indian Islands, 1864, p. 551.

"Isle of Pines, *Taylor* 22" (Hitchcock). General Distribution: The West Indies and American continental tropics.

Hitchcock & Chase (Contributions U. S. National Herbarium, XVII, 1915, p. 538) indicate that this species should be included in the genus *Lasiacis*.

113. **Panicum stenodes** Grisebach.

Panicum stenodes GRISEBACH, Flora of the British West Indian Islands, 1864, p. 547.

"Isle of Pines, *Curtiss* in 1904, in Herb. N. Y. Bot. Gard." (Hitchcock). General Distribution: Borders of ponds, wet savannas, etc., the Greater Antilles, Trinidad, and from Costa Rica to Brazil.

114. **Panicum pilosum** Swartz.

Panicum pilosum SWARTZ, Prodromus Descriptionum Vegetabilium Indiæ Occidentalis, 1788, p. 22.

Panicum distichum LAMARCK, Encyclopédie Méthodique, Botanique, IV, 1797, p. 731.

Panicum pilisparsum MEYER, Primitiæ Floræ Essequeboensis, 1818, p. 57.

Near Nueva Gerona, January 21, 1904, *A. H. Curtiss, No. 305;* grassy place along the Majagua River, north of Los Indios, May 19, 1910, *O. E. Jennings, No. 417;* probably also belonging here, is a specimen collected in a pasture near Nueva Gerona, May 14, 1910, *O. E. Jennings, No. 280.* Hitchcock reports also *Taylor, No. 36,* in the Gray Herbarium. General Distribution: Mexico and the West Indies to Paraguay.

115. **Panicum albomarginatum** Nash.

Panicum albomarginatum NASH, Bulletin Torrey Botanical Club, XXIV, 1897, p. 40.

"Isle of Pines, *Taylor* 32" (Hitchcock). General Distribution: Southeastern U. S., Cuba, Isle of Pines, and Guatemala.

Note.—*Panicum pubescens* Lamarck was reported for the Isle of Pines by A. Richard, in Sagra, *Historia Fisica, Politica y Natural de la Isla de Cuba,* IX, 1850, p. 305. This report is probably based upon material belonging to one of the species enumerated above.

116. **Oplismenus hirtellus** (Linnæus) Roemer & Schultes.

Panicum hirtellum LINNÆUS, Systema Naturæ, II, Ed. X, 1759, p. 870.
Panicum setarium LAMARCK, Illustrations des Genres, I, 1791, p. 170.
Oplismenus hirtellus RŒMER & SCHULTES, Systema Vegetabilium, II, 1817, p. 481.

"Isle of Pines, *Curtiss* 268" (Hitchcock). General Distribution: Through Mexico and the West Indies to South America.

117. **Chætochloa imberbis** (Poir) Scribner.
PERENNIAL FOXTAIL-GRASS.

Panicum imberbe POIRET, Encyclopédie Méthodique, Supplementa, in Dictionnaire de Botanique, IV, 1817, p. 272.
Chaetochloa imberbis SCRIBNER, Division Agrostology, U. S. Dept. Agriculture, Bulletin IV, 1897, p. 39.

"Isle of Pines, *Taylor* 45" (Hitchcock); in everglade meadow at the mouth of the Nuevas River, May 16, 1910. *O. E. Jennings, No. 287.* General Distribution: Rather widely distributed in moist or saline soil from Massachusetts to Kansas, south through the Bahamas, West Indies, and Mexico to South America.

118. **Chætochloa setosa** (Swartz) Scribner.

Panicum setosum SWARTZ, Prodromus Descriptionum Vegetabilium Indiæ Occidentalis, 1788, p. 22.
Chætochloa setosa SCRIBNER, Division Agrostology, U. S. Dept. Agriculture, Bull. IV, 1897, p. 39.

"Isle of Pines, *Palmer & Riley* 1000, in Herb. N. Y. Bot. Gard." (Hitchcock). General Distribution: From the southwestern U. S. to the West Indies and South America.

119. **Cenchrus echinatus** Linnæus.

Cenchrus echinatus LINNÆUS, Species Plantarum, 1753, p. 1050.

"Isle of Pines, *Taylor* 24" (Hitchcock). Cultivated ground, along a stream on Keenan's estate south of Nueva Gerona, May 9, 1910, *O. E. Jennings, No. 161.* General Distribution: North Carolina to Florida and Texas, south through continental tropical America, and from the Bahamas south through the West Indies.

120. **Cenchrus** sp.

Near Caleta Grande, May 22, 1910. *O. E. Jennings, No. 500.*

121. **Paratheria prostrata** Grisebach.

Paratheria prostrata GRISEBACH, Catalogus Plantarum Cubensium, 1866, p. 236.
Panicum leptochyrium DOELL, in Martius, Flora Brasiliensis, II (2), 1877, p. 150.

Near Nueva Gerona, April 24, 1910, *A. H. Curtiss, No. 461.* General Distribution: Western Cuba and the Isle of Pines, Brazil.

122. **Stenotaphrum secundum** (Walter) Kuntze. SHORE GRASS.

Ischæmum secundum WALTER, Flora Caroliniana, 1788, p. 249.
Stenotaphrum americanum SCHRANK, Plantæ Rariores Horti Monacensis, 1810, p. 98, Pl. 98.
Stenotaphrum secundum KUNTZE, Revisio Generum Plantarum, II, 1891, p. 794.

"Isle of Pines, *Palmer & Riley* 1008, *Rowlee* 49, . . . *Curtiss* in 1904" Hitchcock. On coralline-limestone soil, between Bogarona and Caleta Grande, May 22, 1910, *O. E. Jennings, No. 473.* General Distribution: South Carolina to Texas, the Bermudas, Bahamas, West Indies, and the tropics and subtropics generally.

123. **Olyra latifolia** Linnæus.

Olyra latifolia LINNÆUS, Systema Naturæ, II, Ed. X, 1759, p. 1261.
Olyra paniculata SWARTZ, Observationes Botanicæ quibus Plantis Indiæ Occidentalis, 1791, p. 347.

Near Nueva Gerona, January 14, 1904, *A. H. Curtiss, No. 293;* grassy place along bank of Majagua River, north of Los Indios, May 19, 1910, *O. E. Jennings, No. 412;* "*Palmer & Riley* 1058, 1066, *Taylor* 26, 27 in Gray Herbarium" Hitchcock. General Distribution: Widely distributed through the West Indies and from northern Mexico south through the American continental tropics, also tropics of Africa.

124. **Achlæna piptostachya** Grisebach.

Achlæna piptostachya GRISEBACH, Catalogus Plantarum Cubensium, 1866, p. 229.

Near Nueva Gerona, December 17, 1903, *A. H. Curtiss, No. 236;* on banks of arroyo at Sante Fé, May 25, 1910. *O. E. Jennings, No. 540;* "*Palmer & Riley* 913" Hitchcock. General Distribution: Cuba and the Isle of Pines.

125. **Reynaudia filiformis** (Sprengel) Kunth.

Polypogon cubensis A. RICHARD, in Sagra, Historia Fisica, Politica y Natural de la Isla de Cuba, XI, 1850, p. 313.
Reynaudia filiformis KUNTH, Révision des Graminées, 1829, p. 195, pl. 9.

Near Nueva Gerona, February 26, 1904, *A. H. Curtiss, No. 371;* in white sand, in the pine barrens, Los Indios, May 17, 1910, *O. E. Jennings, No. 339,* and in field at Los Indios, *No. 424.* General Distribution: Cuba and the Isle of Pines.

126. **Aristida refracta** Grisebach.

Aristida refracta GRISEBACH, Catalogus Plantarum Cubensium, 1866, p. 228.
Aristida gyrans CHAPMAN, Botanical Gazette, III, 1878, p. 18.

"Isle of Pines, *Palmer & Riley* 995, *Taylor* 20" Hitchcock. General Distribution: Southern Florida, Cuba, and the Isle of Pines.

127. **Sporobolus cubensis** Hitchcock.

Sporobolus cubensis HITCHCOCK, Contributions U. S. National Herbarium, XII, 1909, p. 237.

Near Nueva Gerona, March 6, 1904, *A. H. Curtiss, No. 392* (type collection); on savanna south of Nueva Gerona, May 9, 1910, *O. E. Jennings, No. 162;* on sandy soil in pine woods, McKinley, May 16, 1910, *O. E. Jennings, No. 295.* General Distribution: Cuba, the Isle of Pines, and Porto Rico.

128. **Sporobolus indicus** (Linnæus) Robert Brown.

Agrostis indica LINNÆUS, Species Plantarum, Ed. I, 1753, p. 63.
Sporobolus indicus ROBERT BROWN, Prodromus Floræ Novæ-Hollandiæ et Insulæ Van Diemen, 1810, p. 170.

Near Nueva Gerona, January 31, 1904, *A. H. Curtiss, No. 323;* common in fields and lower places in savanna near Bibijagua, May 7, 1910, *O. E. Jennings, No. 106;* Bank of stream at Keenan's estate, south of Nueva Gerona, May 9, 1910, *O. E. Jennings, No. 177;* "*Palmer & Riley* 1121, *Taylor* 48" Hitchcock. General Distribution: Native to the warmer parts of the Old World and now naturalized in the southern United States, West Indies, and tropical continental America.

129. **Sporobolus virginicus** (Linnæus) Kunth.

Sporobolus virginicus KUNTH, Révision des Graminées, I, 1829, p. 67.
Agrostis virginica LINNÆUS, Species Plantarum I, 1753, p. 67.
Sporobolus pungens (SCHREBER) KUNTH, Révision des Graminées, I, 1829, p. 68.

"Isle of Pines, *Palmer & Riley* 995, 1122" Hitchcock. General Distribution: Mostly on sandy shores, Virginia to Florida and Texas, Lower California, from the Bermudas and Bahamas south through the West Indies, and in the tropics generally.

130. **Chloris paraguaiensis** Steudel.

Andropogon barbatum LINNÆUS, Mantissa Plantarum, II, 1771, p. 302. Not Linnæus, 1759.

Chloris barbata SWARTZ, Flora Indiæ Occidentalis, I, 1797, p. 200. Not *C. barbata* Nash, 1898.
Chloris paraguaiensis STEUDEL, Synopsis Plantarum Glumacearum, I, 1854, p. 204.

"In the herbarium of the New York Botanical Garden: Isle of Pines, *Curtiss* in 1904" Hitchcock. General Distribution: From the Bahamas south through the West Indies, and from Mexico south through tropical continental America.

131. **Chloris petræa** Swartz.

Chloris petræa SWARTZ, Prodromus Descriptionum Vegetabilium Indiæ Occidentalis, 1788, p. 25.
Eustachys petræa DESVAUX, Nouvelle Bulletin de la Société Philomathique, II, 1810, p. 189.

"Isle of Pines, *Palmer & Riley* 969" Hitchcock. In cultivated Field at McKinley, May 16, 1910, *O. E. Jennings, No. 302;* "in the herbarium of the New York Botanical Garden: Isle of Pines, *Curtiss* in 1904" Hitchcock. General Distribution: In dry sandy soil, mostly near the coast, from North Carolina to Florida, Texas, Mexico, and Costa Rica, and from the Bermudas and Bahamas through the Greater Antilles.

132. **Eleusine indica** (Linnæus) Gaertner.

Cynosurus indicus LINNÆUS, Species Plantarum, 1753, p. 72.
Eleusine indica GÆRTNER, De Fructibus et Seminibus Plantarum, I, 1788, p. 7, t. 1.

"Isle of Pines, *Curtiss* in 1904, in Herb. N. Y. Bot. Gard." Hitchcock. General Distribution: Warmer regions of the world, extending north in America to Massachusetts, northern Indiana, and Kansas.

133. **Leptochloa filiformis** (Lamarck) Beauvois.

Festuca filiformis LAMARCK, Illustrations des Genres, I, 1791, p. 191.
Eleusine mucronata MICHAUX, Flora Boreali-Americana, I, 1803, p. 65.
Leptochloa filiformis BEAUVOIS, Essai d'une nouvelle Agrostographie, 1812, p. 71.
Leptochloa mucronata KUNTH, Révision des Graminées, I, 1829, p. 91.

Near Nueva Gerona, May 21, 1904, *A. H. Curtiss, No. 508.* General Distribution: Virginia to Illinois and California and southward through the warmer and tropical regions of America; also in the tropics of the Old World.

134. **Eragrostis ciliaris** (Linnæus) Link.

Poa ciliaris LINNÆUS, Systema Naturæ, Ed. X, 1859, p. 875.
Eragrostis ciliaris LINK, Enumeratio Plantarum Horti Regii Botanici Berolinensis, I, 1827, p. 192.

In the herbarium of the New York Botanical Garden, "Isle of Pines, *Curtiss* in 1904" Hitchcock. General Distribution: Tropics and subtropics of both hemispheres, extending north in America to Georgia, Mississippi, and Mexico.

135. **Eragrostis cubensis** Hitchcock.

Eragrostis cubensis HITCHCOCK, Contributions U. S. National Herbarium, XII, 1909, pp. 243–244.

Near Nueva Gerona, March 20, 1904, *A. H. Curtiss, No. 420.* (The type is *Curtiss, 420,* U. S. National Herbarium, 522037.) General Distribution: Cuba and the Isle of Pines.

136. **Eragrostis Elliottii** Sereno Watson.

Poa nitida ELLIOTT, Sketch of the Botany of South Carolina and Georgia, I, 1816, p. 162. Not *Poa nitida* Lamarck, nor *Eragrostis nitida* Link, 1827.
Eragrostis Elliottii SERENO WATSON, Proceedings of the American Academy of Arts and Sciences, XXV, 1890, p. 140.
Eragrostis macropoda PILGER, in Urban, Symbolæ Antillanæ, IV, 1903, p. 106.

In everglade meadow at mouth of the Nuevas River, May 16, 1910, *O. E. Jennings, No. 290;* "Isle of Pines, *Taylor* 25," "Isle of Pines, *Curtiss* in 1904." General Distribution: South Carolina to Florida and Louisiana, Gulf coast of Mexico, Cuba, Isle of Pines, Hispaniola, and Porto Rico.

137. **Eragrostis hypnoides** (Lamarck) Britton, Sterns, & Poggenburg.

Poa hypnoides LAMARCK, Illustrations des Genres, I, 1791, p. 85.
Poa reptans MICHAUX, Flora Boreali-Americana, I, 1803, p. 69.
Eragrostis reptans NEES, Agrostologia Brasiliensis, 1829, p. 514.
Eragrostis hypnoides BRITTON, STERNS, & POGGENBURG, Preliminary Catalogue of the Anthophyta and Pteridophyta Reported as Growing Spontaneously within One Hundred Miles of New York City, 1888, p. 69.

Near Nueva Gerona, March 8, 1904, *A. H. Curtiss, No. 391.* General Distribution: Mostly on sandy or gravelly shores and banks, from Vermont and Ontario to the State of Washington, southward to the West Indies and South America.

138. **Distichlis spicata** (Linnæus) Greene. SALT GRASS.

Uniola spicata LINNÆUS, Species Plantarum, 1753, p. 71.
Distichlis spicata GREENE, Bulletin California Academy of Sciences, II, 1887, p. 415.

On sandy beach at Bibijagua, May 7, 1910, *O. E. Jennings, No. 79.* General Distribution: Coastal salt marshes and saline soils, Nova Scotia to the West Indies and Mexico, and Pacific coast as far north as British Columbia.

Family CYPERACEÆ.

KEY TO THE SPECIES ENUMERATED.

Spikelets with one or more perfect flowers.

Tribe I. *Cypereæ.*—Spikelets with many flowers, the scales distichous, none or not more than two of the lower scales empty.

Style branches two (*Kyllingia*).....139. *Kyllingia brevifolia.*

Style branches three (*Cyperus*).

Rachis of the flattened spikelet persistent, scales deciduous.
140. *Cyperus elegans.*

Rachis deciduous above the two lower empty scales.

Spikelets with one achene; umbels simple.....141. *Cyperus Swartzii.*

Spikelets with 2–4 achenes; umbels composite...142. *Cyperus ligularis.*

Spikelets with 5–8 achenes; umbels simple.....143. *Cyperus brunneus.*

Spikelets many-flowered; umbel proliferous.....145. *Cyperus pinetorum.*

Rachis breaking up into one-seeded joints; umbels composite.
144. *Cyperus Vahlii.*

Tribe II. *Scirpeæ.*—Scales of the spikelet pluriseriate, 2–0 of the lower ones empty. (Scales distichous in *Abildgaardia.*)

Style distinctly bulbous at the base, the bulbous base either remaining as a tubercle or falling away with the style.

Scales of the spikelet pluriseriate.

Bristles arising at base of achene; spikelet one, terminal (*Eleocharis*).

Culms plainly nodose-septate.....146. *Eleocharis interstincta.*

Culms not nodose-septate.....147. *Eleocharis capitata.*

Bristles none at base of achene; the style deciduous with its bulbous base, hence no tubercle (*Fimbristylis*).

Leaves long; spikelets firm.....149. *Fimbristylis spadicea.*

Leaves short; spikelets soft.....148. *Fimbristylis ferruginea.*

Bristles none; tubercle persistent.

Spikelets several in a terminal umbel or, in depauperate forms, solitary.....151. *Stenophyllus capillaris.*

The solitary spikelet terminal.....150. *Stenophyllus paradoxus.*

Scales of the spikelet two-ranked.....152. *Abildgaardia monostachya.*

Style without distinctly bulbous base; petal-like scales and bristles arising at base of achene (*Fuirena*).

Spikes of the head 1–5; petal-like scales elliptic, stalked.
153. *Fuirena simplex.*

Spikes numerous in oblong panicles; scales not stalked.
154. *Fuirena umbellata.*

Tribe III. *Rynchosporeæ.*—Spikelets mostly 1–2-flowered; three to many of the lower scales empty; styles 2-fid.

Spikes in terminal and axillary clusters; bristles commonly present (*Rynchospora*).

Style long, the branches much shorter than the undivided part.

Culms with one head.....156. *Rynchospora globosa.*

Heads globose, 1–25, laxly paniculate.....159. *Rynchospora cyperoides.*

Spikelets 2–6-fascicled, in lax corymbs.....161. *Rynchospora scutellata.*

Style branches as long or longer than the undivided part.

Perianth-bristles none.....162. *Rynchospora pusilla.*

Perianth-bristles present.

Bristles of the flower plumose.....157. *Rynchospora plumosa.*

Bristles scabrous in a forward direction.

Plant robust; achenes not transversely undulate.
158. *Rynchospora cephalotoides.*

Plant slender; achenes transversely undulate.
160. *Rynchospora cymosa.*

Culm with one globose head; stem leafy.....155. *Dichromena colorata.*

Tribe IV. *Schœneæ.*—Spikelets with 3–many lower empty scales; style 3-fid; no tubercle; no bristles.....163. *Mariscus jamaicensis.*

Flowers never perfect.

Tribe V. *Sclericeæ.*—Flowers monœcious, the staminate and pistillate in the same or different spikes.

Fertile spikelets one-flowered, usually intermixed with clusters of few-flowered staminate spikelets; no bristles (*Scleria*).

Hypogynium present.

Margin of the hypogynium neither ciliate nor fimbriate.

Achene smooth.

Achene depressed-globose.....164. *Scleria pterota.*

Achene longer than thick.

Leaves 2–4 mm wide.....165. *Scleria Wrightiana.*

Leaves 8–15 mm wide.....166. *Scleria setuloso-ciliata.*

Achene papillose.....167. *Scleria ciliata.*

Achene reticulated; hypogynium supporting three deeply 3-lobed tubercles.....168. *Scleria Curtissii.*

Margin of the hypogynium ciliate or ciliolate...169. *Scleria mixrocarpa.*

Hypogynium none or obsolete.

Spikelets in a single terminal cluster.....174. *Scleria gracilis.*

Spikelets in several clusters or spikes.

Annuals with fibrous roots; inflorescence glomerate-spicate.
170. *Scleria verticillata.*

Perennials with rootstocks.

Inflorescence glomerate-spicate; achene smooth.
171. *Scleria hirtella.*

Inflorescence not glomerate-spicate, panicle loose.
172. *Scleria lithosperma.*
Panicles long and many-flowered; upper spikelets pistillate, the lower staminate.
173. *Lagenocarpus guianensis.*

139. **Kyllingia brevifolia** Rottboell.

Kyllingia brevifolia ROTTBOELL, Descriptiones et Icones Plantarum Rariorum, 1773, p. 13, pl. 4, fig. 3.
Kyllingia monocephala THUNBERG, Flora Japonica, 1784, p. 35.
Kyllingia pumila A. RICHARD, In Sagra, Historia Fisica, Politica y Natural de la Isla de Cuba, XI, 1850, p. 288.

Near Nueva Gerona, January 9, 1904, *A. H. Curtiss, No. 281; Blain, No. 168,* northern part of the island (Millspaugh). General Distribution: Low grounds, etc., Georgia and Florida to Texas, the Bermudas, the West Indies, and the tropics generally.

140. **Cyperus elegans** Linnæus.

Cyperus elegans LINNÆUS, Species Plantarum, Ed. II, 1762, p. 68.
Cyperus viscosus SWARTZ, Prodromus Descriptionum Vegetabilium Indiæ Occidentalis, 1788, p. 20.

Near Nueva Gerona, June 12, 1912, *G. A. Link.* General Distribution: Southern Florida: widely reported from the West Indies, Central America, Argentina.

141. **Cyperus Swartzii** (Dietrich) Boeckeler.

Kyllingia filiformis SWARTZ, Prodromus Descriptionum Vegetabilium Indiæ Occidentalis, 1788, p. 20.
Mariscus Swartzii DIETRICH, in Linnæus, Species Plantarum, Ed. VI, 1833, p. 343.
Mariscus filiformis SPRENGEL, Systema Vegetabilium, I, 1825, p. 234.
Cyperus Swartzii BOECKELER, MS.

Near Nueva Gerona, March and April, 1904, *A. H. Curtiss, No. 383.* General Distribution: Cuba, Isle of Pines, Jamaica, and Hispaniola.

142. **Cyperus ligularis** Linnæus.

Cyperus ligularis LINNÆUS, Systema Naturæ, II, Ed. X, 1759, p. 867.
Mariscus rufus HUMBOLDT, BONPLAND, & KUNTH, Nova Genera et Species Plantarum, I, 1815, p. 216, t. 67.
Mariscus ligularis URBAN, Symbolæ Antillanæ, II, 1900, p. 165.

Along bank of stream south of Nueva Gerona, May 9, 1910, *O. E. Jennings, No. 160.* General Distribution: In wet sandy or swampy soil, from Florida and the Bahamas, quite generally distributed through the West Indies and continental tropical America, as far outh as Brazil. Also in tropics of Old World.

143. **Cyperus brunneus** Swartz.

Cyperus brunneus SWARTZ, Flora Indiæ Occidentalis, I, 1797, p. 116.
Mariscus bruneus C. B. CLARKE, in Urban, Symbolæ Antillanæ, II, 1900, p. 51.

"West shores of the Isle of Pines, Cuba (1427)" Millspaugh, Field Columbian Museum, Bot. Ser., II, 1900, p. 28; near Caleta Grande, "South Coast," May 22, 1910, *O. E. Jennings, Nos. 492 and 505.* General Distribution: From Florida through the West Indies and Central America.

144. **Cyperus Vahlii** Steudel.

Diclidium Vahlii NEES, in Martius, Flora Brasiliensis, II, (I), 1843, p. 53.
Cyperus Vahlii STEUDEL, Synopsis Plantarum Glumacearum, 1855, p. 48.
Cyperus flexuosus GRISEBACH, Catalogus Plantarum Cubensium, 1866, p. 238.
Torulinium Vahlii C. B. CLARKE, in Urban, Symbolæ Antillanæ, II, 1900, p. 56.

At outlet of magnesia springs at Keenan's estate, south of Nueva Gerona, May 9, 1910, *O. E. Jennings, No. 686.* General Distribution: Cuba, Isle of Pines, Jamaica, Hispaniola, Antigua, and Guadeloupe, Mexico, and Brazil.

145. **Cyperus pinetorum** Britton.

Cyperus pinetorum BRITTON, Studies of West Indian Plants, Bulletin of the Torrey Botanical Club, XLIII, 1916, p. 462.

"White-sand pine-barrens. Type from the vicinity of Los Indios (*Britton & Wilson 14166*)" Britton, *l. c.*

146. **Eleocharis interstincta** (Vahl) R. Brown.

Scirpus plantagineus Swartz, Flora Indiæ Occidentalis, I, 1797, p. 123, excluding synonyms.
Scirpus interstinctus VAHL, Enumeratio Plantarum, II, 1806, p. 251.
Eleocharis interstincta R. BROWN, Prodromus Floræ Novæ-Hollandiæ et Insulæ Van Diemen, 1810, p. 224.

Near Nueva Gerona, May 14, 1904, *A. H. Curtiss, No. 498;* northern part of the island, *Blain, No.* 113 Millspaugh. In small stream on Keenan's estate, Nueva Gerona, May 9, 1910, *O. E. Jennings, No. 174.* General Distribution: From Massachusetts to Michigan, south to the West Indies, and through continental America to South America.

147. **Eleocharis capitata** (Linnæus) R. Brown.

Scirpus capitatus LINNÆUS, Herbarium, *in part.*
Scirpus caribæus ROTTBOELL, Descriptiones et Icones Plantarum Rariorum, 1773, p. 46, t. 15, fig. 3.

Eleocharis capitata R. BROWN, Prodromus Floræ Novæ-Hollandiæ et Insulæ Van Diemen, 1810, p. 225.

On wet bank along arroyo one mile east of Nueva Gerona, May 7, 1910, *O. E. Jennings, No. 61;* wet bank of stream at Keenan's estate south of Nueva Gerona, May 9, 1910, *O. E. Jennings, No. 195.* General Distribution: Widely distributed in the tropics and subtropics.

148. **Fimbristylis ferruginea** (Linnæus) Vahl.

Scirpus ferrugineus LINNÆUS, Species Plantarum, Ed. II, 1762, p. 74.
Fimbristylis ferruginea VAHL, Enumeratio Plantarum, II, 1806, p. 291.
Iriha ferruginea O. KUNTZE, Revisio Generum Plantarum, II, 1891, p. 752.

Near Nueva Gerona, January 31, 1904, *A. H. Curtiss, No. 322,* swamp north of Nueva Gerona, May 8, 1910, *O. E. Jennings, No. 139;* ditch along roadside, Los Indios, May 17, 1910, *O. E. Jennings, No. 626;* near McKinley, May 16, 1910, *O. E. Jennings, No. 689.* General Distribution: Widely distributed in the warmer parts of the globe. In North America extending north as far as the Bahamas.

149. **Fimbristylis spadicea** (Linnæus) Vahl.

Scirpus spadiceus LINNÆUS, Species Plantarum, Ed. II, 1762, p. 74.
Fimbristylis spadicea VAHL, Enumeratio Plantarum, II, 1806, p. 294.
Iriha spadicea O. KUNTZE, Revisio Generum Plantarum, II, 1891, p. 752.

On sandy beach at Bibijagua, May 7, 1910, *O. E. Jennings, No. 81;* sandy shore of Nuevas River, May 16, 1910, *O. E. Jennings, No. 304;* ditch along roadside, Los Indios, May 17, 1910, *O. E. Jennings, No. 627;* near Los Indios, November 4, 1912, *G. A. Link.* General Distribution: Usually near the coast, Virginia to Florida, Bermudas, south through the West Indies, and in continental warmer to tropical America.

150. **Stenophyllus paradoxus** (Sprengel) Standley.

Schœnus paradoxus SPRENGEL, Systema Vegetabilium, I, 1825, p. 190.
Bulbostylis paradoxa KUNTH, Enumeratio Plantarum, II, 1837, p. 206.
Oncostylis paradoxa NEES, in Martius, Flora Brasiliensis, II, 1843, p. 81.
Isolepis paradoxa STEUDEL, Synopsis Plantarum Glumacearum, II, 1855, p. 100.
Scirpus paradoxus BOECKELER, Linnæa, XXXVI, 1869–70, p. 739.
Stenophyllus paradoxus STANDLEY, Contributions from the U. S. National Herbarium, XVIII, 1916, p. 88.

Near Nueva Gerona, May 27, 1904, *A. H. Curtiss, No. 516.* General Distribution: The Isle of Pines and "Tropical South America, frequent" Clarke, *Cyperaceæ of Costa Rica,* Contributions from the U. S. National Museum, X, 1908, p. 459.

151. **Stenophyllus capillaris** (Linnæus) Britton.

Scirpus capillaris LINNÆUS, Species Plantarum, 1753, p. 49.
Bulbostylis capillaris CLARKE, in Hooker, Flora of British India, VI, 1893, p. 652.
Stenophyllus capillaris BRITTON, Bulletin of the Torrey Botanical Club, XXI, 1894, p. 30.

Reported by Britton, in his *Studies of West Indian Plants, VIII*, Bulletin of the Torrey Botanical Club, XLIII, 1916, pp. 447, 448, as follows: "Sandy and rocky soil, Provinces of Oriente and Pinar del Rio and on the Isle of Pines, Cuba, pinelands at high elevations in Santo Domingo, Jamaica (not recently collected), continental North America, temperate South America."

152. **Abildgaardia monostachya** (Linnæus) Vahl.

Cyperus monostachyus LINNÆUS, Mantissa Plantarum, 1771, p. 180.
Abildgaardia monostachya VAHL, Enumeratio Plantarum, II, 1806, p. 296.
Fimbristylis monostachya HASSKARL, Plantæ Javanicæ Rariores, 1848, p. 61.
Iriha monostachya O. KUNTZE, Revisio Generum Plantarum, II, 1891, p. 751.
Scirpus monostachya O. KUNTZE, *op. cit.*, III, (2), 1898, p. 337.

Near Nueva Gerona, May 7, 1904, *A. H. Curtiss, No. 483.* General Distribution: Widely distributed throughout the tropics of both hemispheres. In America it extends northwards through the West Indies and the Bahamas.

153. **Fuirena simplex** Vahl.

Fuirena simplex VAHL, Eclogæ Americanæ, II, 1798, p. 8.
Fuirena obtusifolia VAHL, *l. c.*
Fuirena Schiedeana C. WRIGHT, in Sauvalle, Anales del Academía de Ciencias Médicas, Físicas y Naturales de la Habana, VIII, 1871, p. 177, n. 2645.

Near Nueva Gerona, December 17, 1903, *A. H. Curtiss, No. 237;* bank of stream at Keenan's estate, Nueva Gerona, May 9, 1910, *O. E. Jennings, No. 176;* in low recently cleared land north of Nueva Gerona, May, 1910, *O. E. Jennings, Nos. 141a and 151.* General Distribution: From Nebraska to Texas and Mexico, Isle of Pines and Cuba.

154. **Fuirena umbellata** Rottboell.

Fuirena umbellata ROTTBOELL, Descriptiones et Icones Plantarum Rariorum, 1773, p. 70, pl. 19, *i. e.*, pl. 18, altera fig. 3.
Fuirena paniculata LINNÆUS, F., Supplementum Plantarum, 1781, p. 105.
Fuirena camptotricha C. WRIGHT, in Sauvalle, Anales del Academía de Ciencias Medicas, Fisicas y Naturales de la Habana, VIII, 1871, p. 177, n. 2645.

Near Nueva Gerona, January 17 and April 5, 1904, *A. H. Curtiss,*

No. 299; moist bank of stream south of Nueva Gerona, May 9, 1910, *O. E. Jennings, Nos. 178 and 692a.* General Distribution: In tropics and subtropics in both hemispheres. Well distributed in the West Indies.

155. **Dichromena colorata** (Linnæus) Hitchcock.

Schœnus coloratus LINNÆUS, Species Plantarum, 1753, p. 43.
Schœnus stellatus LAMARCK, Encyclopédie Méthodique, Botanique, I, 1784, p. 741.
Dichromena leucocephala MICHAUX, Flora Boreali-Americana, I, 1803, p. 37.
Rhynchospora stellata GRISEBACH, Systematische Untersuchungen über die Vegetation der Karaiben, Abhandlungen Kgl. Gesellschaft der Wissenschaften, Göttingen, 1857, p. 123.

In low soil recently cleared, north of Nueva Gerona, May 8, 1910, *O. E. Jennings, No. 140.* General Distribution: Pine-lands, moist sandy soil, etc., from New Jersey to Florida and Texas, from the Bermudas south through most of the West Indies, and from southern Mexico to Brazil.

156. **Rynchospora globosa** Roemer & Schultes.

Rhynchospora globosa ROEMER & SCHULTES, Systema Vegetabilium, II, 1817, p. 89.
Schœnus globosus POIRET, Encyclopédie Méthodique, Supplementa, in Dictionnaire de Botanique, V, 1817, p. 617.
Rhynchospora globosa BRITTON, Transactions New York Academy of Sciences, XI, 1892, p. 83.

In white sand in the pine-barrens at Los Indios, May 17, 1910, *O. E. Jennings, No. 340;* near Nueva Gerona, March 13, 1904, *A. H. Curtiss, No. 405;* in pasture near Nueva Gerona, May 6, 1910, *O. E. Jennings, No. 691.* General Distribution: Cuba and the Isle of Pines, and from Mexico to Paraguay.

157. **Rynchospora plumosa** Elliott.

Rhynchospora plumosa ELLIOTT, Sketch of the Botany of South Carolina and Georgia, I, 1816, p. 58.
Rhynchospora penniseta GRISEBACH, Catalogus Plantarum Cubensium, 1866, p. 244.
Rhynchospora semiplumosa CHAPMAN, Flora of the Southern United States, 1860, p. 524.

Near Nueva Gerona, March 11 and April 21, 1904, *A. H. Curtiss, Nos. 399 and 453.* General Distribution: Pine-lands from South Carolina to Florida and Louisiana, Cuba, and the Isle of Pines.

158. **Rynchospora cephalotoides** Grisebach.

Rynchospora cephalotoides GRISEBACH, Catalogus Plantarum Cubensium, 1866, p. 242.

Near Nueva Gerona, February 13, 1904, *A. H. Curtiss, No. 341;* marshy place along river south of Nueva Gerona, May 12, 1910, *O. E. Jennings, No. 201;* clayey side of arroyo, Nueva Gerona, May 12, 1910, *O. E. Jennings, No. 206;* wet arroyo bank, Los Indios, May 18, 1910, *O. E. Jennings, No. 690;* grassy place along Majagua River, north of Los Indios, May 19, 1910, *O. E. Jennings, No. 421.* General Distribution: Cuba and the Isle of Pines.

159. **Rynchospora cyperoides** (Swartz) Martius.

Schœnus cyperoides SWARTZ, Prodromus Descriptionum Vegetabilium Indiæ Occidentalis, 1788, p. 19.

Rynchospora cyperoides MARTIUS, Denkschriften Akademie der Wissenschaften München, VI, 1816–17, p. 149.

Rhynchospora polycephala WYDLER, in Kunth, Enumeratio Plantarum, II, 1837, p. 291.

Near Nueva Gerona, January 17, 1904, *A. H. Curtiss, No. 297.* General Distribution: Bahamas, Cuba, Isle of Pines, Jamaica, Hispaniola, Porto Rico, St. Kitts, Guadeloupe, Martinique, Trinidad, and from Mexico to Montevideo; Africa.

160. **Rynchospora cymosa** (Willdenow) Elliott.

Schœnus cymosus WILLDENOW, Species Plantarum, I, 1798, p. 265.

Rynchospora cymosa ELLIOTT, Sketch of the Botany of South Carolina and Georgia, I, 1816, p. 58.

Near Nueva Gerona, April 17, 1904, *A. H. Curtiss, No. 447.* General Distribution: From New Jersey to Missouri and south through the West Indies and continental America to southern Brazil.

161. **Rynchospora scutellata** Grisebach.

Rhynchospora scutellata GRISEBACH, Catalogus Plantarum Cubensium, 1866, p. 246.

Northern part of the island, *Blain, No. 43* (Millspaugh). General Distribution: Western Cuba and the Isle of Pines.

162. **Rynchospora pusilla** Chapman.

Rynchospora pusilla CHAPMAN, in M. A. Curtis, American Journal of Science, Series II, VII, 1849, p. 409.

Rynchospora pusilla Charles Wright, in Sauvalle, Anales del Academía de Ciencias Médicas, Físicas y Naturales de la Habana, VIII, 1872, p. 88.

Reported in Britton, *Studies of West Indian Plants, VIII,* Bulletin of the Torrey Botanical Club, XLVIII, 1916, p. 443, as

follows: "Southeastern United States, Santa Clara, Pinar del Rio, and Isle of Pines, Cuba."

163. **Mariscus jamaicensis** (Crantz) Britton.

Cladium jamaicense CRANTZ, Institutiones Rei Herbariæ, I, 1766, p. 362.
Cladium effusum TORREY, Annals of the Lyceum of Natural History of New York, III, 1856, p. 374.
Mariscus jamaicensis BRITTON, in Britton & Brown, Illustrated Flora, Ed. II, I, 1913, p. 348.

Marshy soil at edge of pond two miles east of Nueva Gerona, May 6, 1910, *O. E. Jennings, No. 49.* General Distribution: In swamps, from Virginia to Florida and Texas, and rather widely distributed in the West Indies.

Note.—The treatment of Scleria has been based on the article by Britton, "The Genus *Scleria* Berg in Cuba." Bull. Torrey Bot. Club, XLII, 1915, pp. 487–494.

164. **Scleria pterota** Presl.

Scleria pterota PRESL, in Oken, Isis, XXI, 1828, p. 268.
Scleria pratensis NEES, Martius, Flora Brasiliensis, II, (I), 1843, p. 179.
Scleria Ottonis BOECKELER, Linnæa, XXXVIII, 1874, p. 490.

Reported by Britton (*op. cit.*, p. 490) from Cuba, Isle of Pines, Haiti, St. Thomas, Barbadoes, Jamaica, and continental tropical America.

165. **Scleria Wrightiana** Boeckeler.

Scleria elata C. WRIGHT, in Sauvalle, Anales del Academía de Ciencias Médicas, Físicas y Naturales de la Habana, VIII, 1872, p. 153. Not Thwaites.
Scleria Wrightiana BOECKELER, Flora, 65, 1882, p. 79.

Near Nueva Gerona, December 17, 1903, *A. H. Curtiss, No. 235.* General Distribution: "Pine-lands and savannas, Pinar del Rio and Isle of Pines. Endemic."—Britton, *op. cit.*, p. 490.

166. **Scleria setuloso-ciliata** Boeckeler.

Scleria setuloso ciliata BOECKELER, Flora, LXV, 1882, p. 30.

Reported by Britton (*l. c.*): "Wet situations, Matanzas, Havana, Isle of Pines; Guatemala."

167. **Scleria ciliata** Michaux.

Scleria ciliata MICHAUX, Flora Boreali-Americana, II, 1803, p. 167.
Scleria Elliottii CHAPMAN, Flora of the Southern U. S., 1860, p. 531.

Reported by Britton (*l. c.*): "Barrens and pine-lands, Santa Clara,

Matanzas, Pinar del Rio; Isle of Pines; southeastern United States; Santo Domingo."

168. **Scleria Curtissii** Britton.

? *Scleria pauciflora effusa* CLARKE in Urban, Symbolæ Antillanæ, II, 1900, p. 143.
Scleria Curtissii BRITTON, Small, Flora of the Southeastern United States, 1903, pp. 200 and 1398.

Reported by Britton (*l. c.*): "Savannas, Pinar del Rio and Isle of Pines; Florida."

169. **Scleria microcarpa** Nees.

Scleria microcarpa NEES, Linnæa, IX, 1834, p. 302.
Scleria foliosa C. Wright, Sauvalle, Anales del Academía de Ciencias Médicas, Físicas y Naturales de la Habana, VIII, 1872, p. 154. Not A. Richard.
Scleria microcarpa foliosa CLARKE in Urban, Symbolæ Antillanæ, II, 1900, p. 149.

"River banks, Pinar del Rio and Isle of Pines; Porto Rico, Guadeloupe, Jamaica, Trinidad, continental tropical America." Britton, *op. cit.*, p. 491.

170. **Scleria verticillata** Muhlenberg.

Scleria verticillata MUHLENBERG, Willdenow, Species Plantarum, IV, 1805, p. 317.

"Pine-lands, Pinar del Rio, Isle of Pines; eastern United States; New Providence, Bahamas." Britton, *op. cit.*, p. 493.

171. **Scleria hirtella** Swartz.

Scleria nutans KUNTH, Enumeratio Plantarum Omnium, II, 1837, p. 352.
Scleria hirtella SWARTZ, Prodromus Descriptionum Vegetabilium Indiæ Occidentalis, 1788, p. 19.

"Moist grounds, Oriente, Santa Clara, Pinar del Rio, Isle of Pines; southern United States, Haiti, Porto Rico, Jamaica, Trinidad, continental tropical America, tropical Africa." Britton, *op. cit.*, p. 493.

172. **Scleria lithosperma** (Linnæus) Swartz.

Scleria lithospermus LINNÆUS, Species Plantarum, 1753, p. 51.
Scleria lithosperma SWARTZ, Prodromus Descriptionum Vegetabilium Indiæ Occidentalis, 1788, p. 18.
Scleria filiformis SWARTZ, *op. cit.*, p. 19.
Scleria lithosperma filiformis BRITTON, Annals New York Academy of Sciences, III, 1885, p. 231.

Near Nueva Gerona, May 8, 1904, *A. H. Curtiss, No. 486.* General Distribution: "Woodlands and thickets, all provinces Cuba; Florida, Bahamas, West Indies, tropical continental America, Old World tropics." Britton, *op. cit.*, p. 493.

173. **Scleria gracilis** Elliott.

Scleria gracilis ELLIOTT, Sketch of the Botany of South Carolina and Georgia, II, 1824, p. 571.

Reported in Britton, *Studies of West Indian Plants, VIII*, Bulletin of the Torrey Botanical Club, XLIII, 1916, p. 443, as follows: "Southeastern United States, Pinar del Rio, and Isle of Pines, Cuba."

174. **Lagenocarpus guianensis** Nees.

Lagenocarpus guianensis NEES, Linnæa, IX, 1834, p. 304.
Scleria guianensis STEUDEL, Synopsis plantarum Glumacearum, 1855, p. 177.

On the white sand of the pine-barrens at Los Indios, May 17, 1910, *O. E. Jennings, No. 327*. General Distribution: Bahamas, Isle of Pines, Trinidad, Guiana, and Brazil. (Clarke.)

A slender stiffly erect light green sedge reaching the height of five feet or more, with slender brownish inflorescences of a foot or more in length. The plants arise from tuberous-thickened portions of a scaly rhizome which creeps along, just beneath the surface of the sand, the tuberous thickenings being two or three inches apart along the rhizome.

Family PALMÆ.

KEY TO THE SPECIES ENUMERATED.

Leaves fan-shaped.
- Petioles smooth.
  - Leaves large, usually five or six feet across, the petiole extending about half-way up the blade.....180. *Sabal parviflora.*
  - Leaves smaller or else the petiole not extending far up the blade.
    - Leaves small, about one to two feet across, stiff; trunk very slender and pole-like; habitat inland.....178. *Coccothrinax Miraguano.*
    - Leaves medium-sized, rather thin, the cross-veinlets prominent; trunk moderately thick; habitat coastal.....176 *Thrinax Wendlandiana.*
    - Leaves fairly large, up to five or six feet across; stiff; cross-veinlets not prominent.....175. *Colpothrinax Wrightii.*
- Petioles armed.
  - Leaves large; petioles 2 cm. in width (or more); cross-veinlets distinct; flowers white-tomentose.....179. *Copernicia Curtissii.*
  - Leaves of moderate size; petioles about 1 cm. in width; cross-veinlets indistinct; flowers glabrous.....177. *Acœlorraphe Wrightii.*

Leaves pinnate.
- Tall stately trees with whitish massive stems, usually enlarged near the middle and terminating in long green cylinders formed by the closely packed leaf sheaths; fruit bluish, about 1–1.5 cm. long.....182. *Roystonea regia.*
- Tall stately trees with the base usually enlarged; petioles clasping the stem but not forming a prominent cylinder; fruit large (the ordinary cocoanut).
  183. *Cocos nucifera.*

Small or medium-sized trees with slender stems and irregularly pinnate leaves; flowers situated in pockets in the thickened branches of the spike; fruits about 1 cm. long.....181. *Calyptronoma dulcis.*

175. **Colpothrinax Wrightii** H. Wendland.

Colpothrinax Wrightii H. WENDLAND, in Kerchove, Les Palmiers, 1878, p. 241.

Near Nueva Gerona, February 23, 1904, *A. H. Curtiss, No. 364.* General Distribution: Cuba, and the Isle of Pines.

176. **Thrinax Wendlandiana** Beccari.

Thrinax Wendlandiana BECCARI, in Webbia, II, 1908, p. 265.

Along rocky seaward face of the ridge at Bibijagua, where with *Plumiera emarginata*, it forms a large part of the taller vegetation just above the reach of the spray, May 7, 1910, *O. E. Jennings, No. 112;* at the edge of the bluff of coralline limestone along the coast at Caleta Grande, where it forms quite a thicket, May 22, 1910, *O. E. Jennings, No. 512.* General Distribution: Isle of Pines. West Indies (Kew Index).

177. **Acœlorraphe Wrightii** (Grisebach & Wendland) Beccari. SAW PALMETTO.

Copernicia Wrightii GRISEBACH & WENDLAND, in Grisebach, Catalogus Plantarum Cubensium, 1866, p. 220.

Paurotis androsana O. F. COOK, Memoirs of the Torrey Botanical Club, XII, 1902, p. 22.

Acœlorraphe Wrightii BECCARI, Webbia, II, 1907, p. 109.

Paurotis Wrightii BRITTON & SHAFER, North American Trees, 1908, p. 141 (in part), fig. 107.

Near Nueva Gerona, April 17, 1904, *A. H. Curtiss, No. 449;* in open savanna one mile east of Nueva Gerona, May 6, 1910, *O. E. Jennings, No. 64;* in sandy pine-barrens east of Los Indios, May 18, 1910, *O. E. Jennings, No. 361.* General Distribution: Southern Florida, Bahamas, Cuba, and the Isle of Pines.

This is the common palmetto of the savannas of the northern part of the island, where it grows either singly or in clumps. The plants reach a height of fifteen feet, or occasionally more. The writer has followed Sargent, "Trees and Shrubs," II, 1913, p. 119, in the synonymy of this species. Sargent distinguishes between this species and *Acœlorraphe arborescens* of Southern Florida, the latter species not having the petioles strongly toothed throughout their whole length as in *A. Wrightii*, and the fruits having a diameter of 8–9 mm. instead of 5–7 mm. as in *A. Wrightii.*

178. **Coccothrinax Miraguano** (Martius) Beccari. STAR PALM.

Thrinax Miraguano MARTIUS, Historia Naturalis Palmarum, III, 1850, p. 320.
Coccothrinax Miraguano BECCARI, Webbia, II, 1908, p. 295.

Near Nueva Gerona, May and April, 1904, *A. H. Curtiss, No. 423;* February–March, 1910, *Dr. Jared F. Shafer;* in savanna about two miles east of Nueva Gerona, May 9, 1910, *O. E. Jennings, No. 156;* near Nueva Gerona, May 14, 1910, *O. E. Jennings, No. 623.* General Distribution: Cuba and the Isle of Pines.

The Star Palm is an odd plant. Its trunk is straight, smooth, reaching perhaps a height of thirty feet, but very slender, usually not over two or three inches in diameter. The leaves are borne in a close cluster at the apex, very soon dropping when dead, rarely reaching a diameter of two feet, and being borne on smooth slender petioles. The palm is fairly common on the "Mal Pais" gravel of the savannas in the northern part of the island, reaching also the sandy pine-barrens around Los Indios. Some fine specimens were seen on the upper slopes (mica-schist) of the Cañada Mts. *See* Plate VII.

179. **Copernicia Curtissii** Beccari.

Copernicia Curtissii BECCARI, in Webbia, II, 1908, p. 176.

Near Nueva Gerona, April 5, 1904, *A. H. Curtiss, No. 435;* on the open savanna near Nueva Gerona, May 5, 1910, *O. E. Jennings, No. 7. See* Plate VIII. General Distribution: Isle of Pines.

This is one of the characteristic palms of the open savannas growing together with the Palmetto, *Acœlorraphe Wrightii.*

180. **Sabal parviflora** Beccari. CABBAGE PALM.

Sabal parviflora BECCARI, in Webbia, II, 1908, p. 43.

Near Nueva Gerona, January and April, 1904, *A. H. Curtiss, No. 484;* growing among palmettoes on the savanna about one and one-half miles east of Nueva Gerona, May 7, 1910, *O. E. Jennings, No. 70.* General Distribution: Cuba and the Isle of Pines.

This is the large-leaved "cabbage palm" of the Isle of Pines. It is quite largely used for purposes of thatching, and trees with a full crop of leaves are difficult to find. It occurs not only upon the savanna but also upon the slopes of the crystalline-limestone hills and mountains in the northeastern part of the island.

181. **Calyptronoma dulcis** (Wright) Wendland.

Geonoma dulcis WRIGHT, in Grisebach, Catalogus Plantarum Cubensium, 1866, p. 222.

Calyptronoma dulcis H. WENDLAND, in Kerchove, Les Palmiers, 1878, p. 241.

Near Nueva Gerona, May 7, 1904, *A. H. Curtiss, No. 485;* at base of Caballos Mts., near old marble quarry, May 9, 1910, *O. E. Jennings, No. 159.* General Distribution: Western Cuba and the Isle of Pines.

182. **Roystonea regia** (Humboldt, Bonpland, & Kunth) O. F. Cook. ROYAL PALM.

Oreodoxa regia HUMBOLDT, BONPLAND, & KUNTH, Nova Genera et Species Plantarum, I, 1815, p. 305.

Roystonea regia O. F. COOK, Science, Series II, XII, 1900, p. 479.

Near Nueva Gerona, April 1, 1904, *A. H. Curtiss, No. 432;* Keenan's estate, south of Nueva Gerona, May 9, 1910, *O. E. Jennings, No. 181.* General Distribution: Southern Florida, the West Indies, and Central America.

The Royal palm is a beautiful object, its tall white trunk usually standing sharply outlined against the other colors of the landscape. The trees occur in the moister spots along the streams and in the lower spots on the savanna. They commonly form clumps or small groves about the bases of the Casas and Caballos Mts., the roots here evidently reaching the moisture which drains away from the mountains. *See* Plate IX.

183. **Cocos nucifera** Linnæus.

Cocos nucifera LINNÆUS, Species Plantarum, 1753, p. 1188.

The coconut palm is commonly cultivated in the Isle of Pines. Along the "South Coast" at Caleta Grande, as well as along the coast near Bibijagua, specimens were seen which, from their location, would indicate that they had not been planted there. The coconut palm, now widely distributed through the tropics, probably had its origin in the tropics of America. See Cook, "History of the Coconut Palm in America," Contributions from the United States National Herbarium, XIV, 1910, pp. 271–342.

Note.—Blain, Nos. 75 & 94 were reported by Millspaugh (Field Columbian Museum, Bot. Series, I, 1900, p. 426) as *Sabal Blackburnianum* Glaziou, and *Blain, No. 170,* as *Geonoma Swartzii* Grise-

bach & Wendland. Millspaugh also reports "Fine groves of large, straight-trunked trees at Pedernales Point, Isle of Pines" for the species *Thrinax argentea* (Jacquin) Loddige, *op. cit.*, II, 1900, p. 30.

I have seen none of the *Blain* specimens, but it is quite probable that they are to be referred to some of the more recently described species enumerated above.

Family ARACEÆ.

KEY TO THE SPECIES ENUMERATED.

Leaf-blade ovate-oblong, with cordate base and acute apex, 1.5–3.5 dm. long. 184. *Philodendron Krebsii.*

Mature leaf-blades pinnatifid to one-fourth the transverse diameter, deeply cordate. 185. *Philodendron lacerum.*

184. **Philodendron Krebsii** Schott.

Philodendron Krebsii SCHOTT, Bonplandia, 1859, p. 164.

Philodendron Wrightii GRISEBACH, Catalogus Plantarum Cubensium, 1866, p. 219.

Clambering over the rocks on the highest point of Caballos Mts., May 13, 1910, *O. E. Jennings, No. 236.* General Distribution: Cuba, Isle of Pines, Porto Rico, Hispaniola, and St. Thomas.

My collection embraced only sterile specimens, but the leaf- and stem-characters agree so closely with those given for *Philodendron Krebsii* that I have no hesitation in referring the specimens to that species.

The petiole is little or not at all sheathing at the base, and is subterete, slightly flattened on the upper side, reaching a length of 8–10 cm. The lamina is 10–18 cm. long, the upper two-thirds being oblong, about 3–4 cm. wide, with an abrupt acumination, the basal one-third of the lamina being rounded, rather deeply cordate, 6–8 cm. wide, the basal three or four pairs of the primary veins being slightly stronger than the secondary veins.

185. **Philodendron lacerum** (Jacquin) Schott.

Arum lacerum JACQUIN, Plantarum Rariorum Horti Cæsarei Schœnbrunnensis Descriptiones, etc., IV, 1804, pl. 468.

Caladium lacerum WILLDENOW, Species Plantarum, IV, 1805, p. 491.

Philodendron incisco-crenatum KUNTH, Enumeratio Plantarum Omnium, III, 1844, p. 449.

Philodendrum lacerum SCHOTT, Meletemata Botanica, I, 1832, p. 19.

On trees and rocks at the top of Caballos Mts., east of Nueva Gerona, May 13, 1910, *O. E. Jennings, No. 235.* General Distribution: Cuba, Isle of Pines, and Jamaica.

Family XYRIDACEÆ.

KEY TO THE SPECIES ENUMERATED.

Leaves reaching a length of 10–20 cm. and a width of 8–12 mm.; spikes about 1.5 cm. long.....186. *Xyris ambigua.*

Leaves 8–10 cm. long by 1–1.5 mm. broad; spikes 7–9 mm. long.
187. *Xyris longibracteata.*

186. **Xyris ambigua** Beyrich.

Xyris ambigua BEYRICH, in Kunth, Enumeratio Plantarum Omnium, IV, 1843, p. 13.

On white sand in the pine-barrens at Los Indios, May 18, 1910, *O. E. Jennings, No. 649.* General Distribution: North Carolina to Florida and Texas, and the Isle of Pines.

187. **Xyris longibracteata** Britton & Wilson.

Xyris longibracteata BRITTON & WILSON, in Britton, Studies of West Indian Plants, VIII, Bulletin of the Torrey Botanical Club, XLIII, 1916, pp. 462, 463.

"White sand, vicinity of Los Indios, Isle of Pines (*Britton, Britton & Wilson 14215*)." Britton, *l. c.*

Family ERIOCAULACEÆ.

KEY TO THE SPECIES ENUMERATED.

Small, densely-tufted branching plants, up to 3 cm. high, with leaves less than 1 cm. long and peduncles usually not over 2 cm. long.
189. *Pæpalanthus alsinoides*, variety *minimus.*

Larger, with few or no branches, rosulate tufted leaves usually 3–5 cm. long, and peduncles 2–3 cm. or more in length.....188. *Pæpalanthus seslerioides.*

Leaves rosulate-tufted, about 2–3 cm. long; peduncles 5–10 cm. long.
190 *Pæpalanthus androsaceus.*

188. **Pæpalanthus seslerioides** Grisebach.

Pæpalanthus seslerioides GRISEBACH, Catalogus Plantarum Cubensium, 1866, p. 224. (*Wright, No. 3234.*)

Growing in the white sand of the pine-barrens near Los Indios, May 17, 1910, *O. E. Jennings, No. 338.* Reported heretofore only from Cuba.

This plant agrees very closely with the description of the Cuban plant, although the leaves are shorter, about 3–5 cm. instead of 8 cm. and the peduncles are shorter, being at the longest 13 cm. instead of 30 cm. This may possibly be found to be a variety of *P. seslerioides*, but a larger series of specimens are needed for study before such a decision can be made.

189. **Pæpalanthus alsinoides** var. **minimus** var. nov. (Plate XVII, figures *E–H.*)

Plant perennial (?), stem cæspitose-branched up to 3 cm. high, leaves densely tufted towards the top of the stems and branches, linear from a dilated, subamplexicaul, ciliate base, rather thick, rigid, finally somewhat obtuse, 6–8 mm. long, peduncles solitary in the axils of upper leaves, rigid, 3-costate, soon glabrate, 1.5–2 cm. long, sheaths about 3 mm. long, the lamina about 4 mm. long, linear-acuminate, the heads broadly obconic, about 2–4 mm. in diameter, hairs of the flowers acute, nearly hyaline, outwardly smooth, nodose at the septa, the interior surface of the wall scarcely at all granulose.

Planta perennis (?), caule cæspitoso-ramoso usque ad 3 cm. altitudine, foliis præsertim in apice dense confertis, e basi dilatata subamplexicauli ciliata linearibus, crassiusculo-rigidis, demum obtusiusculis, 6–8 mm. longis, medio vix 1 mm. latis; pedunculis in axillis foliorum superiorum solitariis, rigidulis, 3-costatis, mox glaberrimis, 1.5–2 cm. longis; vaginis circiter 3 mm. longis, laminis circiter 4 mm. longis, lineari-acuminatis; capitulis lato-obconicis, circiter 2–4 mm. diametro, pilis florum acutis, pæne hyaline, extus lævibus, ad septa nodulosis, intus vix granulosis.

Type: On gravelly soil in the pine-barrens one mile north of Los Indios, May 19, 1910, *O. E. Jennings, No. 387.*

This plant is evidently to be regarded as a derivative of the Cuban *Pæpalanthus alsinoides.* It was found growing on the coarse, glistening, white quartzose gravel in the pine-barrens north of Los Indios, and it was associated with a number of plants with decided inclinations towards a habitat of acid soil: *Pinguicula filifolia, Kalmia* sp., *Xyris ambigua.*

The variety differs from the typical species in that it has leaves only half as long as the latter, the peduncles only about one-third as long, and the hairs of the flowers scarcely or not at all granulose on the inside surface of the cell-wall. In most of the other characters the variety agrees well with the species. The flowers were too far past maturity to be studied satisfactorily, but were seen to be about 1.8 mm. long, the three outer segments 1 mm. long, obcuneate, the truncate apex piliferous and erose, the inner segments as long, united into a slender tube with the small lobes and, after maturity, strongly infolded.

190. **Pæpalanthus androsaceus** Grisebach.

Pæpalanthus androsaceus GRISEBACH, Catalogus Plantarum Cubensium, 1866, p. 225.

Northern part of the island, *Blain, No. 151*, Millspaugh, Field Columbian Museum, Botany, I, 1900, p. 426. General Distribution: Western Cuba and the Isle of Pines.

Family BROMELIACEÆ.

KEY TO THE SPECIES ENUMERATED.

Terrestrial plants in appearance and habit of growth resembling the pineapple; leaves rigid, armed with sharp marginal spines.....191. *Bromelia Pinguin.*

Epiphytic (or on rocks, etc.); leaf margins not armed with spines.

Leaves very wide (up to 10 or 15 cm. wide) with a widely rounded mucronate tip and finely serrate margins.....192. *Hohenbergia pendulifera.*

Leaves narrower, at apex not widely rounded, marginally not serrate.

Grayish-green, linear-leaved, "moss-like" plants hanging from branches of trees.....199. *Tillandsia usneoides.*

More or less erect plants growing on limbs of trees or from crevices of cliffs, not pendent.

Flowers few (1–4) on a slender scape-like stem about 1–2 dm. high; leaves setaceous-filiform from short dilated sheathing bases. 198. *Tillandsia recurvata.*

Flowers mostly more than four and stem not scape-like nor filiform.

Leaves up to 2 or 3 dm. long, linear-subulate and abruptly contracted from a very short dilated base...195. *Tillandsia tenuifolia.*

Leaves wider and with a longer dilated base.

Basal leaves shorter than the stems; stems considerably branched; bracts not closely imbricated.

Upper leaves of the stem merely clasping scales. 194. *Tillandsia utriculata.*

Upper leaves of stem with long acuminate points beyond the clasping base.....193. *Catopsis nutans.*

Basal leaves usually longer than the stems, or at least very little shorter; bracts often closely imbricated.

Leaves with bladder-like dilations of the base, widely spreading and recurved or twisted; bracts rather narrowly ovate, 1.5–2 cm. long, looser, not lustrous. 197. *Tillandsia Balbisiana.*

Leaves dilated but not bladdery at base, erect or somewhat spreading.

Leaves rather rigid and involute; bracts broadly ovate, 2–3 cm. long, closely imbricated, 2-ranked, keeled, lustrous.....196. *Tillandsia fasciculata.*

Leaves not rigid nor much involute; bracts lance-oblong, 1.5–2 cm. long, not very closely imbricated, not lustrous, not markedly 2-ranked.....200. *Tillandsia sublaxa.*

191. **Bromelia Pinguin** Linnæus.

Bromelia Pinguin LINNÆUS, Species Plantarum, 1753, p. 285; GRISEBACH, Flora of the British West Indian Islands, 1864, p. 591.

Near Nueva Gerona, March 5, 1904, *A. H. Curtiss, No. 387;* near old marble quarry, east base of Caballos Mts., May 9, 1910, *O. E. Jennings, No. 183.* General Distribution: Rather widely distributed in the Greater Antilles, St. Thomas, St. Croix, Antigua, Martinique, St. Vincent, and from Central America to Venezuela.

192. **Hohenbergia penduliflora** (A. Richard) Mez.

Pitcairnia penduliflora A. RICHARD, in Sagra, Historia Fisica, Politica y Natural de la Isla de Cuba, XI, 1850, p. 262.

Hohenbergia penduliflora MEZ, in DeCandolle, Monographiæ Phanerogamarum, IX, 1896, p. 135.

On trees along an arroyo south of Sante Fé, May 25, 1910, *O. E. Jennings, No. 531.* General Distribution: Cuba and the Isle of Pines.

193. **Catopsis nutans** (Swartz) Grisebach.

Tillandsia nutans SWARTZ, Prodromus Descriptionum Vegetabilium Indiæ Occidentalis, 1788, p. 56.

Catopsis nutans GRISEBACH, Flora of the British West Indian Islands, 1864, p. 599.

Catopsis nitida BAKER, Handbook of the Bromeliaceæ, 1889, p. 154. Not Grisebach.

On trees on upper slope of Caballos Mts., May 13, 1910, *O. E. Jennings, No. 229.* General Distribution: Southern Florida, and widely distributed through the West Indies and Central America.

194. **Tillandsia utriculata** Linnæus.

Tillandsia utriculata LINNÆUS, Species Plantarum, 1753, p. 286.

Tillandsia ramosa SWEET, Hortus Britannicus, Ed. I, 1827, p. 425.

Tillandsia Sintenisii BAKER, in Journal of Botany, XXVI, 1888, p. 12.

Near Caleta Grande, "South Coast," May 22, 1910, *O. E. Jennings, No. 529.* General Distribution: Southern Florida, the Bahamas, West Indies, Mexico, Venezuela, and Guiana.

195. **Tillandsia tenuifolia** Linnæus.

Tillandsia tenuifolia LINNÆUS, Species Plantarum, I, Ed. II, 1762, p. 410.

Tillandsia setacea SWARTZ, Flora Indiæ Occidentalis, I, 1797, p. 593; GRISEBACH, Flora of the British West Indian Islands, 1864, p. 595.

Near Nueva Gerona, February 17, 1904, *A. H. Curtiss, No. 355;* on tree along an arroyo near Sante Fé, May 25, 1910, *O. E. Jennings,*

No. 555. General Distribution: Southern Florida, Cuba, the Isle of Pines, Jamaica, Porto Rico, Hispaniola, Costa Rica, Venezuela, and Brazil.

196. **Tillandsia fasciculata** Swartz.

Tillandsia fasciculata SWARTZ, Prodromus Descriptionum Vegetabilium Indiæ Occidentalis, 1788, p. 56; GRISEBACH, Flora of the British West Indian Islands, 1864, p. 595.

Vriesea glaucophylla HOOKER, in Curtis's Botanical Magazine, Pl. 4415.

Tillandsia anceps BAKER, Journal of Botany, XXV, 1887, p. 239. Not Loddiges.

Near Nueva Gerona, February 17, 1904, *A. H. Curtiss, No. 353;* on marble cliffs, Caballos Mts., May 9, 1910, *O. E. Jennings, No. 193;* on trees at top of Caballos Mts., May 13, 1910, *O. E. Jennings, No. 233.* General Distribution: Southern Florida, the Bahamas, West Indies, and from Mexico to tropical South America.

197. **Tillandsia Balbisiana** Schultes.

Tillandsia Balbisiana SCHULTES, Systema Vegetabilium, VII, (2), 1830, p. 1212; GRISEBACH, Flora of the British West Indian Islands, 1864, p. 597.

Near Nueva Gerona, February 17, 1904, *A. H. Curtiss, No. 354;* on brush on savanna, southwest of Bibijagua, May 7, 1910, *O. E. Jennings, No. 92;* on Mt. Colombo, May 14, 1910, *O. E. Jennings, No. 629.* General Distribution: Southern Florida, Cuba, the Isle of Pines, and Jamaica.

198. **Tillandsia recurvata** Linnæus.

Renelamia recurvata LINNÆUS, Species Plantarum, 1753, p. 287.

Tillandsia recurvata LINNÆUS, Species Plantarum, Ed. II, I, 1762, p. 410; GRISEBACH, Flora of the British West Indian Islands, 1864, p. 598.

On crevices in face of cliff at marble quarry, east base of Caballos Mts., May 9, 1910, *O. E. Jennings, No. 194.* General Distribution: Southern Florida to Texas and Mexico, and southwards through the West Indies and tropical continental America.

199. **Tillandsia usneoides** Linnæus. SPANISH MOSS.

Tillandsia usneoides LINNÆUS, Species Plantarum, I, Ed. II, 1762, p. 411; GRISEBACH, Flora of the British West Indian Islands, 1864, p. 598.

Renealmia usneoides LINNÆUS, Species Plantarum, 1753, p. 287.

Dendropogon usneoides RAFINESQUE, Neogenyton, or Indication of 66 New Genera of Plants of North America, 1825, p. 3.

On *Brya Ebenus*, about 3 miles north of McKinley, May 16, 1910, *O. E. Jennings, No. 301;* on trees along the Nuevas River, May 16,

1910, *O. E. Jennings, No. 292.* General Distribution: From Virginia to Florida and Texas, West Indies, and continental tropical America.

Very little of the Spanish Moss was seen in the Isle of Pines.

200. **Tillandsia sublaxa** Baker.

Tillandsia sublaxa BAKER, Journal of Botany, 1887, p. 307; Handbook of the Bromeliaceæ, 1889, p. 188.

On trees on top of Caballos Mts., May 13, 1910, *O. E. Jennings, No. 234.* General Distribution: Jamaica, Hispaniola, Porto Rico, Isle of Pines.

Family COMMELINACEÆ.

201. **Commelina hamipila** Wright.

Commelina hamipila WRIGHT, in Sauvalle, Flora Cubana, Anales del Academía de Ciencias Médicas, Físicas y Naturales de la Habana, V, 1868, no. 157.

Near Nueva Gerona, March 13, 1904, *A. H. Curtiss, No. 407;* in swampy place near Bibijagua, May 7, 1910, *O. E. Jennings, No. 98;* in grassy place near the Majagua River north of Los Indios, May 19, 1910, *O. E. Jennings, No. 410.* General Distribution: Cuba and the Isle of Pines.

Family SMILACEÆ.

KEY TO THE SPECIES ENUMERATED.

Petioles articulated at the apex; leaves usually spiny-toothed on the nerves beneath. 202. *Smilax havanensis.*

Petioles articulated at the middle or below; leaves not spiny. 203. *Smilax domingensis.*

202. **Smilax havanensis** variety **ovata** (Duhamel) A. DeCandolle.

Smilax havensis JACQUIN, Enumeratio Plantarum quas in Insulis Caribæis Detexit, 1760, p. 33.

Smilax ovata DUHAMEL, Traité des Arbres et Arbustes que se cultivent en France en Pleine Terre, I, Ed. II, 1801, p. 242.

Smilax havanensis var. *ovata* A. DECANDOLLE, Monographiæ Phanerogamarum, I, 1878, p. 122.

Northern part of the island, *Blain, No. 39, 95,* Millspaugh. General Distribution: Florida, Cuba, the Isle of Pines, and Santo Domingo.

203. **Smilax domingensis** Willdenow.

Smilax domingensis WILLDENOW, Species Plantarum, IV, (2), 1806, p. 783.

Smilax Berteri SPRENGEL, Systema Vegetabilium, II, 1825, p. 102.

Smilax pseudo-china A. RICHARD, in Sagra, Historia Fisica, Politica y Natural de la Isla de Cuba, XI, 1850, p. 271. Not Linnæus.

On the peninsula north of Caleta Grande, May 22, 1910, *O. E. Jennings, No. 605.* General Distribution: Cuba, Jamaica, the Isle of Pines, Hispaniola, and Porto Rico.

Family HÆMODORACEÆ.

KEY TO THE SPECIES ENUMERATED.

Inflorescence heavily yellowish tomentose-pubescent.....204. *Gyrotheca tinctoria.*
Inflorescence not conspicuously tomentose-pubescent.
Inner perianth-parts obovate, about 11–12 mm. long and half as wide, the exterior yellow-spotted at the base.....206. *Xiphidium xanthorrhizon.*
Inner perianth-parts lance-oblong, somewhat shorter; outer ones not yellow-spotted at base.....205. *Xiphidium floribundum.*

204. **Gyrotheca tinctoria** Salisbury.

Gyrotheca tinctoria SALISBURY, Transaction of the Horticultural Society of London, I, 1812, p. 327.
Lachnanthes tinctoria ELLIOTT, A Sketch of the Botany of South Carolina and Georgia, I, 1816, p. 47.

Near Nueva Gerona, June 3, 1912, *G. A. Link.* General Distribution: Mostly in pine-barrens and savannas, Massachusetts to New Jersey and Florida, Cuba, and the Isle of Pines.

205. **Xiphidium floribundum** Swartz.

Xiphidium floribundum SWARTZ, Prodromus Descriptionum Vegetabilium Indiæ Occidentalis, 1788, p. 17.

Northern part of the island, *Blain, No. 45.* "In Cuba this species grows only in shady situations in glens, never on the open savannas, here, however, it seeks the open plains far from shade.—Blain" (Millspaugh, Field Columbian Museum, Botanical Series, I, 1900, p. 426). General Distribution: Reported in Cuba and a number of the other West Indian Islands, and from Mexico to Brazil.

206. **Xiphidium xanthorrhizon** Wright.

Xiphidium xanthorrhizon WRIGHT, in Grisebach, Catalogus Plantarum Cubensium, 1866, p. 252.

On the pine-barrens at Los Indios, May 17, 1910, *O. E. Jennings, No. 315;* on almost bare quartz gravel two miles east of Los Indios, May 17, 1910, *O. E. Jennings, No. 668.* General Distribution: Western Cuba and the Isle of Pines.

Family AMARYLLIDACEÆ.

KEY TO THE SPECIES ENUMERATED.

Leaves thick, fleshy, armed with terminal and marginal spines and forming a rosette (Century Plants).....210. *Agave papyrocarpa.*

Leaves not as above.

Flowers yellowish and with lobes of the perianth not more than 1.8 cm. long.

Perianth-tube very slender, and prolonged 2–3 cm. beyond the ovary. 211. *Curculigo scorzoneræfolia.*

Perianth-tube short and scarcely or not at all prolonged beyond the ovary. 212. *Hypoxis decumbens.*

Flowers white or rose-colored and much larger.

Flowers showy, white, with a long slender tube and perianth-parts narrow and 5–8 cm. long.

Flowers 2–4.....209. *Crinum americanum.*

Flowers 4–12.....208. *Crinum erubescens.*

Flowers rose-colored, with a very short tube and with perianth-parts 1 cm. wide and 3.5 cm. long.....207. *Atamosco rosea.*

207. **Atamosco rosea** Greene.

Atamosco rosea (Lindley) GREENE, Pittonia, III, 1897, p. 188.

Zephyranthes rosea LINDLEY, in Edwards, Botanical Register, 1824, Pl. 821.

Near Nueva Gerona, April 20, 1904, *A. H. Curtiss, West Indian Plants, No. 452.* General Distribution: Cuba and the Isle of Pines.

208. **Crinum erubescens** Solander.

Crinum erubescens SOLANDER, in Aiton, Hortus Kewensis, I, 1789, p. 413.

Northern part of the island, *Blain, No. 46,* Millspaugh. General Distribution: Cuba, Jamaica, Isle of Pines, and Guiana.

209. **Crinum americanum** Linnæus.

Crinum americanum LINNÆUS, Species Plantarum, 1753, p. 292.

In scrubby thicket southwest of Bibijagua, May 7, 1910, *O. E. Jennings, No. 95;* everglade meadow at mouth of Nuevas River, May 16, 1910, *O. E. Jennings, No. 289.* General Distribution: From Georgia and Florida to Louisiana and Texas, and in Cuba and the Isle of Pines.

All of the *Crinums* in the Isle of Pines may possibly belong to one species.

210. **Agave papyrocarpa** Trelease,

Agave papyrocarpa TRELEASE, Memoirs National Academy of Sciences, XI, 1913, p. 44, Pls. 95, 96.

Top of Caballos Mts., east of Nueva Gerona, May 12, 1910, *O. E.*

Jennings, No. 662; near Nueva Gerona, February 9, 1904, *A. H. Curtiss, West Indian Plants, No. 335;* Wm. Trelease, *No. 20*, March, 1907. General Distribution: Isle of Pines, Curtiss, *No. 335*, being the type.

See Britton, *Journal of the New York Botanical Garden*, XVIII, 1916, p. 67, where, with reference to this species, it is noted that the steep cliffs of the Casas and Caballos mountains are "often thickly clothed by the maguey or century plant of the Isle of Pines (*Agave papyrocarpa*)."

211. **Curculigo scorzoneræfolia** (Lamarck) Baker.

Hypoxis scorzoneræfolia LAMARCK, Encyclopédie Méthodique, Botanique, III, 1789, p. 183.

Curculigo scorzoneræfolia BAKER, Synopsis Hypoxidaceæ, Journal of the Linnean Society, XVII, 1880, p. 124.

Pine-barrens east of Los Indios, May 18, 1910, *O. E. Jennings, No. 364;* on "Mal Pais" gravel soil south of Sante Fé, May 25, 1910, associated with *Hypoxis decumbens* L., which it fairly closely resembles in general appearance. Northern part of the island, *Blain, No. 34*, Millspaugh. General Distribution: Cuba, Isle of Pines, Haiti, Jamaica, St. Vincent, Brazil, and Peru.

212. **Hypoxis decumbens** Linnæus.

Hypoxis decumbens LINNÆUS, Systema Naturæ, Ed. X, 1759, p. 986.

Gravelly soil on savanna near Sante Fé, May 25, 1910, *O. E. Jennings, No. 550:* Probably also belonging here is *Blain, No. 33*, reported as *H. juncea*. General Distribution: Tropical America from Mexico and Cuba to South America.

This was identified as *H. juncea* Smith, but as the writer understands that species it is far different from the plant found in the Isle of Pines. *H. juncea*, in the form in which it occurs in our Southern States, has far more filiform-linear leaves. The plants from the Isle of Pines have the free portion of the perianth-parts about 1 cm. long, the corms semiglobose and often 1.5 cm. thick, and the inner perianth segments only about three-fourths as wide and three-fourths as long as the outer ones.

Growing together with this species in the dry open fields just south of Sante Fé, and apparently related to it, were similar but considerably smaller plants, the leaves being usually less than 3 mm.

wide, and the peduncles bearing but one flower each. These appear to belong to a good variety and, from such descriptions as could be found, it is evidently the same as described by Roemer and Schultes as *Hypoxis mexicana*.

Note.—Since writing the above, Dr. N. L. Britton has assured the writer that specimen *No. 550* in the New York Botanical Garden is clearly *Hypoxis juncea*. Dr. Britton doubts the occurrence of more than one species of *Hypoxis* on the island.

213. **Hypoxis decumbens** variety **mexicana** (Roemer & Schultes) comb. nov.

Hypoxis mexicana ROEMER & SCHULTES, Systema Vegetabilium, VII, 1835, p. 761.

Gravelly soil in open field just south of Sante Fé, May 25, 1910, *O. E. Jennings, No. 551.*

Family DIOSCOREACEÆ.

KEY TO THE SPECIES ENUMERATED.

Leaves cordate-ovate to cordate-deltoid, acuminate; staminate racemes long, slender.

3 fertile and 3 sterile stamens.....214. *Dioscorea polygonoides.*

All 6 stamens fertile.....215. *Dioscorea trifida.*

Leaves cordate-hastate with widely rounded basal lobes and the apex suddenly apiculate; staminate flowers distinctly glomerate-subsessile.

216. *Rajania hastata.*

214. **Dioscorea polygonoides** Humboldt & Bonpland.

Dioscorea polygonoides HUMBOLDT & BONPLAND, in Willdenow, Species Plantarum, IV, 1806, p. 795.

Dioscorea multifida PRESL, Botanische Bemerkungen, 1844, p. 116; GRISEBACH, Flora of the British West Indian Islands, 1864, p. 588.

Dioscorea Kegeliana GRISEBACH, Flora of the British West Indian Islands, 1864, p. 588.

Dioscorea alata BELLO, Anales de la Sociedad Española de Historia Natural, XII, 1883, p. 863. Not Linnæus.

Near Nueva Gerona, *A. H. Curtiss, No. 506* ♀, *no date.* General Distribution: From Cuba through the West Indies to Trinidad and in continental tropical America.

215. **Dioscorea trifida** Linnæus, fil.

Dioscorea trifida LINNÆUS, FIL., Supplementum Plantarum, 1781, p. 427.

Northern part of the island, *Blain, No. 98*, Millspaugh. General Distribution: Isle of Pines, Jamaica, Guadeloupe, Martinique, St.

Vincent, Trinidad, and South America. Often escaping from cultivation in the tropics.

216. **Rajania hastata** Linnæus.

Rajania hastata LINNÆUS, Species Plantarum, 1753, p. 1032.

Near Nueva Gerona, May 20, 1904, *A. H. Curtiss, No. 506.* General Distribution: Santo Domingo, Cuba, and the Isle of Pines.

Family MUSACEÆ.

217. **Musa sapientum** Linnæus. COMMON BANANA.

Musa sapientum LINNÆUS, Systema Naturæ, II, Ed. X, 1759, p. 1303.
Musa paradisiaca subsp. *sapientum* O. KUNTZE, Revisio Generum Plantarum, II, 1891, p. 692.

Near Nueva Gerona, May 23, 1904, *A. H. Curtiss, No. 510.* General Distribution: Naturalized in tropical America from the East Indies.

Family ZINGIBERACEÆ.

KEY TO THE SPECIES ENUMERATED

Flowers large and showy, 4–6 cm. long.....218. *Alpinia speciosa.*
Flowers not so showy, about 2 cm. long.....219. *Zingiber Zingiber.*

218. **Alpinia speciosa** (Wendland) K. Schumann.

Zerumbet speciosum WENDLAND, Sertum Hannoverianum, Fasc. IV, 1798, p. 3, t. 19.
Renealmia nutans ANDREWS, The Botanist's Repository for New and Rare Plants, V, about 1802–1803, Pl. 360.
Alpinia nutans ROSCOE, in Smith, Exotic Botany, II, 1805, p. 93, Pl. 106.
Alpinia speciosa K SCHUMANN, Flora Kaiser Wilhelmsland, 1887, p. 29.

Low place along the Majagua River, north of Los Indios, May 19, 1910, *O. E. Jennings, No. 405* (naturalized); near Nueva Gerona, early summer, 1912, and near Los Indios, November 4, 1912, *G. A. Link.* General Distribution: Native to China, but cultivated extensively in India and the Malay region, and rather widely naturalized in the West Indies.

219. **Zingiber Zingiber** (Linnæus) Karsten.

Amomum Zingiber LINNÆUS, Species Plantarum, 1753, p. 1.
Zingiber officinale ROSCOE, Transactions of the Linnean Society, VIII, 1807, p. 348.
Zingiber Zingiber KARSTEN, Deutsche Flora, 1880, p. 471.

Northern part of the island, *Blain, No. 105,* Millspaugh. General Distribution: Cultivated and often escaping throughout tropical

regions of both hemispheres. In America extending as far north as the Bahamas and Bermudas.

Family ORCHIDACEÆ.

KEY TO THE SPECIES ENUMERATED.

Terrestrial plants, growing in soil.

Flowers brick-red, with a spur about as long as the ovary.

222. *Stenorrhynchos squamulosus.*

Flowers with brownish perianth, lip purplish, with no spur.

232. *Tetramicra Eulophiæ.*

Bracts and sepals greenish-yellow, petals and lip lemon-yellow; no spur.

233. *Cyrtopodium Andersonii.*

Climbing plants with rather fleshy fruit.

Bracts large, foliaceous; leaves longer than the internodes; pods 12–18 cm. long.....221. *Vanilla inodora.*

Bracts small, not foliaceous; leaves not longer than internodes; pods 15–25 cm. long.....220. *Vanilla planifolia.*

Plants growing on trees, rocks, stones, etc., not in soil.

Without pseudo-bulbs.

Flowers with a short spur, white or pale rose, variegated with purple; lip about 1 cm long; stem erect and quite slender; plants growing on trees.

234. *Ionopsis utricularioides.*

Flowers with no spur.

Leaves about 2–6 cm. long, linglulate-oblong or oblong-elliptic; stems erect, 5–14 cm. long, from a creeping rhizome; flowers green, 6–7 mm. long.....230. *Epidendrum rigidum.*

Leaves longer, from 6–20 cm. long.

Stems erect, 20–30 cm. long; flowers pale yellow, sepals and petals 12–14 mm. long; leaves oblong or lance-oblong, 6–14 cm. long.

224. *Epidendrum pallidiflorum.*

Flowers greenish-white to cream-colored, 4–5 cm. long; no spur; stem erect, 10–35 cm. high; leaves up to 14–15 cm. long.

229. *Epidendrum nocturnum.*

Flowers light-brown, greenish-brown, or tawny-yellow, 6–8 mm. long; plant 30–90 cm. high; leaves 5–18 cm. long with a sheathing base; no spur.....228. *Epidendrum anceps.*

With pseudo-bulbs.

Flowers lilac, 2.5–3.5 cm long; lip free from the column; pseudo-bulbs 2.5–5 cm. long, ellipsoidal to globose; the two leaves oblong-ligulate, 6–20 cm. long.....231. *Broughtonia domingensis.*

Flowers not lilac.

Leaves rather large and comparatively lax, lance-oblong, 20–30 cm. long, 3–5 cm. wide; pseudo-bulbs lance-ovoid to cylindrical; sepals and petals pale green with one or two purple spots at base, lip purple; column about half connate.....227. *Epidendrum cochleatum.*

Leaves rather stiff and coriaceous.

Column free from the middle; petals and sepals yellow, freely spotted with brown, lip yellow; pseudo-bulbs ovate or suborbicular, 2–3 cm. long, strongly flattened, 5–7 mm. thick; leaves oblong-ligulate, 6–12 cm. long.....223. *Epidendrum Boothianum.*

Column free to the base; pseudo-bulbs not so strongly flattened.

Flowers with yellow sepals and petals (often tinged brownish), lip creamy-yellow, with a crimson spot and purplish lines below; pseudo-bulbs numerous, narrowly ovoid, the one (or two) leaves linear-ligulate, 12–30 cm. long.

225. *Epidendrum obcordatum.*

Flowers purplish-brown, the lip white with numerous radiating purple lines towards the base; pseudo-bulbs numerous, ovoid, somewhat compressed; the two (one–three) leaves narrowly oblong-ligulate, 5–9 cm. long.....226. *Epidendrum brevifolium.*

220. **Vanilla planifolia** Andrews (?).

Vanilla planifolia ANDREWS, Botanist's Repository, VIII, 1808, Pl. 538.

On ridge at Bibijagua, February–March, 1910, *Jared F. Shafer.* General Distribution: Southeastern Mexico to Costa Rica. Cultivated to some extent and naturalized in some of the West Indies: Jamaica, Guadeloupe, Martinique, and the Isle of Pines.

221. **Vanilla inodora** Scheide.

Vanilla inodora SCHEIDE, Linnæa, IV, 1829, p. 474.

Vanilla anaromatica GRISEBACH, Flora of the British West Indies, 1864, p. 638.

Reported by Millspaugh (Field Columbian Museum, Botanical Series I, 1900, p. 426), *Blain, No. 123.* General Distribution: Widely distributed in the West Indies, also reported for Mexico, Nicaragua, and Guiana. Possibly this and the preceding are based upon the same species.

222. **Stenorrhynchos squamulosus** (Humboldt, Bonpland, & Kunth) Fawcett & Rendle.

Neottia orchioides SIMS, Botanical Magazine, 1807, Pl. 1036, not Swartz.

Neottia squamulosa HUMBOLDT, BONPLAND, & KUNTH, Nova genera et species plantarum, I, 1815, p. 332, t. 71.

Stenorrhynchus orchioides L. C. RICHARD, De Orchideis Europeis Adnotationes, 1817, p. 37.

Stenorrhynchos squamulosus FAWCETT & RENDLE, Flora of Jamaica, I, 1910, p. 24.

Dry savanna among "sandpaper oaks" (*Curatella americana*), about a mile east of Nueva Gerona, May 13, 1910, *O. E. Jennings, No. 238.* General Distribution: Cuba, Isle of Pines, and Colombia.

The flowers, as noted in the field, were flesh-pink and rather sweet-scented.

223. **Epidendrum Boothianum** Lindley.

Epidendrum Boothianum LINDLEY, Botanical Register, XXIV, 1838, no. 7.
Epidendrum bidentatum GRISEBACH, Catalogus Plantarum Cubensium, 1866, p. 262, not Lindley.

Collected in March, 1904, near Columbia, by Dr. Jared F. Shafer, and since grown in his conservatory in Pittsburgh. In fine flower, July 17, 1916, at which time specimens were dried for the herbarium of the Carnegie Museum. General Distribution: Cuba and the Isle of Pines, also southern Florida and the Keys.

An attractive plant with yellow, brown-spotted, widely spreading sepals and petals, and a yellow lip, and succeeding very well in the conservatory.

224. **Epidendrum pallidiflorum** Hooker.

Epidendrum pallidiflorum HOOKER, Botanical Magazine, 1830, Pl. 2980.

Northern part of the island, *J. Blain*, *Nos. 82, 122;* reported by Millspaugh, Field Columbian Museum, Botanical Ser., I, 1900, p. 426. General Distribution: Isle of Pines, Porto Rico, Guadeloupe, Dominica, Martinique, and St. Vincent.

225. **Epidendrum obcordatum** sp. nov. (PLATE XVIII.)

Epiphytic: the pseudo-bulbs aggregated, numerous, narrowly ovoid, nearly or completely terete, at the apex rather strongly attenuate, with one or rarely two leaves, 3.5–5 cm. long, leaf rather thickly coriaceous, linear-ligulate, somewhat obtuse, narrowed at the base, shortly conduplicate, 12–30 cm. long, 12–25 mm. wide, the margin entire, peduncle slender, flexuous, in the upper half often quite abundantly producing short branches, laxly many-flowered, 3.5–6 dm. long, pedicels slender, with the ovary 14–19 mm. long, the bracts triangular, acute, 1–4 mm. long, sepals oblanceolate-oblong, rather obtuse, 9–11 mm. long, 3–4 mm. wide, 7-nerved, petals linear-spatulate, 9–10 mm. long, 2.5–3 mm. wide, somewhat obtuse, 5-nerved, lip 9–11 mm. long, deeply three-lobed, the lateral lobes erect, 6 mm. long, 2 mm. wide, obtuse, the middle lobe rounded, 5 mm. wide, strongly constricted at the base, the lower part of the disk thickly bicostate, the apex distinctly emarginate, the sinuses between the terminal and lateral lobes about 1 mm. wide and somewhat obtuse; column free to the base, about 4 mm. long, furnished along the front

side with membranaceous wings which have a small tooth at the apex and are decurrent downwards to the base.

Planta epiphytica: pseudobulbis aggregatis, numerosis, anguste ovoideis, teretiusculis, apice longiuscule attenuatis, monophyllis (vel diphyllis), 3.5–5 cm. longis, folio crassiuscule coriaceo, linear-ligulato, apice obtusiusculo, basi satis angustato, breviuscule conduplicato, 12–30 cm. longo, 12–25 mm. lato, margine integerrimo, pedunculo communi satis gracili, flexuoso, superne usque ad medium sæpius satis ramoso ramis breviusculis, laxe multifloro, 3.5–6 dm. longo, pedicellis filiformibus, cum ovario 14–19 mm. longis, bracteis triangularibus, acutis, 1–4 mm. longis, sepalis oblanceolato-oblongis, obtusiusculis, 9–11 mm. longis, 3–4 mm. latis, 7-nervulosis, petalis lineari-spathulatis, 9–10 mm. longis, 2.5–3 mm. latis, obtusiusculis, 5-nervulosis; labello 9–11 mm. longo, profunde trilobato, lobis lateralibus erectis, 6 mm. longis, 2 mm. latis, obtusis, mediano obcordato, 5 mm. lato, basi valde constricto, disco inferne crasse bicostato, apice distincte emarginato, sinubus inter lobos circa 1 mm. latis obtusiusculisque; columna usque ad basin libera, circa 4 mm. longa, antice alis membranaceis apice paulo unidentatis inferne usque ad basin decurrentibus aucta.

The general color of the fresh flowers was yellowish with a purple tinge: the sepals and petals were yellow, often shading to brownish; the lip was a creamy yellow, usually with more or less of a crimson spot and rather prominently marked, especially towards the base, with purple lines.

The general habitat of the species is the forks of trees. The plant apparently flowers most profusely at a height of about ten or fifteen feet above the ground. The species is not confined, however, to such habitats, but it occurs on palm trunks, posts, etc., where it may receive little or no shade.

Type.—Near Nueva Gerona, May 12, 1910, *O. E. Jennings, No. 651* (Herbarium, Carnegie Museum). Other specimens of the same species are in the Carnegie Museum, and were collected as follows: On trees near mouth of Nuevas River, May 16, 1910, *O. E. Jennings, No. 300;* between Bogarona and Caleta Grande, "South Coast," May 22, 1910, *O. E. Jennings, No. 515.*

This species differs from *E. fucatum* Lindley in that the middle lobe of the lip is emarginate, whereas it is entire and often somewhat

acute in *E. fucatum*. The flowers are apparently somewhat smaller than those of *E. fucatum*. *E. tampense* Lindley is also very closely related to *E. obcordatum*, but the flowers of *E. tampense* are much larger than those of the Isle of Pines species.

226. **Epidendrum brevifolium** sp. nov. (PLATES X AND XIX.)

Epiphytes. Pseudo-bulbs aggregated, about 20–30 in number, ovoid, somewhat compressed, at the apex 2- (1–3)-leaved, 3–5 cm. long, leaves coriaceous, erect-spreading, narrowly oblong-ligulate, somewhat obtuse, conduplicate at the base, 5–9 cm. long, 1.2–2 cm. wide, peduncle simple or laxly sparsely branched, 3–4 dm. long, above laxly few-flowered, much longer than the leaves, pedicels slender, with the ovary 2–2.5 cm. long, bracts broadly triangular, acute or somewhat obtuse, the lower up to 10 mm. long, sheathing, the upper about 3–4 mm. long, flowers spreading, with spreading segments; sepals narrowly obovate, 2–2.5 cm. long, 6–8 mm. wide, acute to somewhat obtuse, 7-nerved, petals narrowly oblong spatulate, somewhat obtuse, 2–2.5 cm. long, 5–7 mm. wide, the lip short-clawed, 25–30 mm. long, about 20 mm. wide, deeply three-lobed, the lateral lobes 12–15 mm. long, oblong, subfalcate, obtuse, erect, the apex somewhat recurved, the middle lobe shortly clawed, broadly rounded. at the base broadly cuneate, at the apex deeply emarginate, the margin crisped, the disk bicarinate below with fleshy ridges, column triquetrous, 10–12 mm. long, canaliculate along the front side, the apex with membranaceous, incurved, rounded auricles. Flowers purplish brown, the lip white, towards the base with numerous radiating purple lines.

Planta epiphytica: pseudobulbis aggregatis, numerosis, circiter 20–30, ovoideis, paulo compressis, apice 2- (1–3)-phyllis, 3–5 cm. longis; foliis coriaceis, erecto-patentibus, coriaceis, anguste oblongo-ligulatis, obtusiusculis, basi conduplicatis, 5–9 cm. longis, 1.2–2 cm. latis; pedunculo simplici vel laxe pauciramoso, 3–4 dm. longo, superne laxe paucifloro, foliis multo longiore; pedicellis gracilibus, cum ovario 2–2.5 cm. longis; bracteis late triangularibus, acutis vel obtusiusculis, inferioribus usque 10 mm. longis, superioribus circiter 3–4 mm. longis; floribus patulis, segmentis patulis; sepalis anguste obovatis, 2–2.5 cm, longis, 6–8 mm. latis, acutis vel obtusiusculis, 7-nervulosis; petalis anguste oblongo-spathulatis, obtusiusculis, 2–2.5 cm. longis, 5–7 mm. latis; labello brevissime unguiculato, 25–30 mm. longo, circiter 20 mm.

lato, profunde trilobato, lobis lateralibus 12–15 mm. longis, oblongis, subfalcatis, obtusis, erectis, apice leviter recurvis, intermedio breviuscule unguiculato, late rotundato, basi late cuneato, apice profundiuscule emarginato, margine crispo, disco inferne bicarinato, carinis carnosis; columna triquetra, 10–12 mm. longa, antice canaliculata, apice auriculis membranaceis incurvis rotundatis. Flores purpureofusci; labello albo, inferne lineis numerosis radiantibus purpureis ornato.

This species differs from *Epidendrum plicatum* Lindley in that the former has a deeply emarginate lip, the sinus being 6–8 mm. deep and cutting the median lobe about one-third across. *E. brevifolium* is most nearly related to *Epidendrum phœniceum* Lindley but differs from the latter particularly in the much shorter leaves, which in *E. phœniceum* are 25–30 cm. long. *E. brevifolium* has also fewer flowers, longer pedicels, the base of the median lobe of the lip not truncate but broadly regularly narrowed, while the color of the lip is *white* marked below with purple lines, not purplish-violet nor crimson as described for *E. phœniceum*. The flowers had no odor.

Abundant on palm trunks in the Los Indios pine-barrens.

Type.—Pine-barrens near Los Indios, on palmetto trunk, May 17, 1910, *O. E. Jennings, No. 314* (Herbarium, Carnegie Museum). Of the same species is also a specimen collected on an old tree near Los Indios, May 17, 1910, *O. E. Jennings, No. 312.*

227. **Epidendrum cochleatum** Linnæus.

Epidendrum cochleatum LINNÆUS, Species Plantarum, II, Ed. II, 1763, p. 1351.

Top of Mt. Colombo, May 12, 1910, *G. A. Link* (*O. E. Jennings, No. 210*). General Distribution: From the Bahamas and southern Florida through the Greater Antilles, and from Mexico to Venezuela.

228. **Epidendrum anceps** Jacquin.

Epidendrum anceps JACQUIN, Selectarium Stirpium Americanarum Historia, 1763, p. 224, t. 138.

Epidendrum secundum SWARTZ, Observationes Botanicæ Quibus Plantæ Indiæ Occidentalis, etc. 1791, p. 325, excluding synonyms (not Jacquin).

Epidendrum fuscatum SMITH, Spicilegium Botanicum, 1791, p. 21, t. 23.

Epidendrum amphistomum A. RICHARD, in Sagra, Historia Fisica, Politica y Natural de la Isla de Cuba, XI, 1850, p. 20, Pl. 81.

On trees at top of Caballos Mts., May 13, 1910, *O. E. Jennings, No. 228.* General Distribution: From Florida through the West

Indies and from Mexico through tropical continental America to Guiana and Brazil.

229. **Epidendrum nocturnum** Jacquin.

Epidendrum nocturnum JACQUIN, Enumeratio Plantarum Quas in Insulis Caribæis Detexit, 1760, p. 29.

On trees along arroyo south of Sante Fé, May 24, 1910., *O. E. Jennings, No. 558.* General Distribution: From the Bahamas and Florida south through the West Indies, and from Mexico south to central South America.

230. **Epidendrum rigidum** Jacquin.

Epidendrum rigidum JACQUIN, Enumeratio Plantarum Quas in Insulis Caribæis Detexit, 1760, p. 29.

On old tree, near Los Indios, May 17, 1910, *O. E. Jennings, No. 310.* General Distribution: From Florida south through the West Indies, and from Mexico through continental America to Brazil and Bolivia.

231. **Broughtonia domingensis** (Lindley) Rolfe.

Cattleya domingensis LINDLEY, Genera and Species of Orchidaceous Plants, 1831, p. 118.

Lælіopsis domingensis LINDLEY, Paxton's Flower Garden, III, 1853, p. 156, t. 105.

Bletia domingensis REICHENBACH, FIL., in Walpers, Annales Botanices Systematicæ, VI, 1862, p. 432.

On fence-post between Columbia and Nueva Gerona, May 4, 1910, *D. A. Atkinson and G. A. Link;* on trees at top of Caballos Mts., May 13, 1910, *O. E. Jennings, No. 230;* near Nueva Gerona, May 12, 1910, *O. E. Jennings, No. 650.* General Distribution: Bahamas (Cogniaux, in Urban's *Symbolæ Antillanæ*), Cuba, Isle of Pines, Hispaniola, and Jamaica.

232. **Tetramicra Eulophiæ** Reichenbach, fil.

Tetramicra Eulophiæ REICHENBACH, FIL., in Walpers, Annales Botanices Systematicæ, VI, 1862, p. 439.

Bletia Eulophiæ REICHENBACH, FIL., *l. c.*

Near Nueva Gerona, April 11, 1904, *A. H. Curtiss, No. 442;* on "Mal Pais" gravel (iron-ore) on knoll with *Tabebuia lepidophylla*, near Sante Fé, May 25, 1910, *O. E. Jennings, No. 552;* near Los Indios, May 19, 1910, *O. E. Jennings, No. 644.* General Distribution: Western Cuba and the Isle of Pines.

The following field-notes relating to the color of the flowers will be of interest in view of the paucity of such data in the current descriptions of the plant: sepals and petals pale green, streaked with brownish purple, lip whitish, streaked with crimson, but on under side with brownish blotches.

233. **Cyrtopodium Andersonii** (Lambert) Robert Brown.

Cymbidium Andersonii LAMBERT, in Andrews, Botanist's Repository, X, 1811, t. 651.

Cyrtopodium Andersonii ROBERT BROWN, in Aiton, Hortus Kewensis, Ed. II, V, 1818, p. 216; GRISEBACH, Flora of the British West Indian Islands, 1865, p. 630.

"Pedernales Point, Isle of Pines, (1426)" (Millspaugh). General Distribution: Cuba, Isle of Pines, St. Vincent, Trinidad, and South America.

234. **Ionopsis utricularioides** (Swartz) Lindley.

Epidendrum utricularioides SWARTZ, Prodromus Descriptionum Vegetabilium Indiæ Occidentalis, 1788, p. 122.

Dendrobium utricularioides SWARTZ, Nova Acta Regiæ Societatis Scientiarum Upsaliensis, VI, 1799, p. 83.

Ionopsis tenera LINDLEY, Botanical Register, XXII, 1836, t. 1904.

Ionopsis Gardneri LINDLEY, Annals and Magazine of Natural History, Ser. III, I, 1858, p. 322.

Epidendrum calcaratum SESSÉ & MOÇINO, Flora Mexicana, Ed. II, 1894, p. 201.

On palm in swamp at Los Indios, May 19, 1910, *O. E. Jennings, No. 432;* in low pasture near Los Indios, on trees, May 20, 1910, *O. E. Jennings, No. 446.* General Distribution: Florida, the West Indies, and from Mexico to Brazil and Peru.

Flowers white or slightly pink, marked particularly towards the base with lilac-purple lines, the center of the flower often yellow. The yellow center, so conspicuous in the fresh specimens collected in the Isle of Pines, is not mentioned in the various descriptions of this species, so far as known to the writer.

Family PIPERACEÆ.

KEY TO THE SPECIES ENUMERATED.

Leaf-blade glabrous above, puberulent beneath.....235. *Piper tuberculatum.*
Leaf-blade scabrous above, appressed-villous below.....236. *Piper angustifolium.*

235. **Piper tuberculatum** Jacquin.

Piper tuberculatum JACQUIN, Icones Plantarum Rariorum, II, 1786, p. 2, t. 210.

Artanthe tuberculata MIQUEL, Systema Piperacearum, 1844, p. 497; GRISEBACH, Flora of the British West Indian Islands, 1859, p. 171.

Northern part of the island, *Blain, Nos. 17, 20, 40, 181.* (Millspaugh). General Distribution: Cuba, Isle of Pines, Jamaica, and in continental tropical America.

In view of the close relationship of the species, and the fact that Blain's collections and those of the writer were made in the same locality, the writer is inclined to believe that Blain's specimens belong to the following species:

236. **Piper angustifolium** var. **Ossanum** DeCandolle.

Piper angustifolium var. *Ossanum* DECANDOLLE, Prodromus Systematis Naturalis Regni Vegetabilis, XVI, (1), 1869, p. 286.

Collected but once, in thicket at side of a pool near the base of Caballos Mts., east of Nueva Gerona, May 9, 1910, *O. E. Jennings, No. 168.* General Distribution: Cuba, the Isle of Pines, and Mexico.

Although first identified with *Piper elongatum* the specimen is certainly not of that species. The specimen has rather densely villous branches, the leaves are rather densely and more or less appressed-villous below, eventually smoothish but minutely *scabrous* above, there are four stamens, the bracts being villous above, and the ovary is sub-tetragonal, almost three-angled, and at first hirtellous on the top. The leaves reach a length of about 16 cm. and a width of 5 cm., and when mature become sub-lustrous above.

After an examination of specimens in the herbarium, it becomes plainly evident that many of the narrower-leaved specimens from Cuba and Mexico belonging to this species have been erroneously labeled "*Piper aduncum* L."

Family MYRICACEÆ.

237. **Myrica cerifera** Linnæus. WAX MYRTLE.

Myrica cerifera LINNÆUS, Species Plantarum, 1753, p. 1024.

Myrica microcarpa GRISEBACH, Flora of the British West Indian Islands, 1859, p. 177.

Myrica cerifera var. *angustifolia* C. DECANDOLLE, Prodromus Systematis Naturalis Regni Vegetabilis, XVI, (2), 1864, p. 149.

Morella cerifera SMALL, Flora of the Southeastern U. S., 1903, p. 337.

Shrub about five feet in height, in swamp at western base of Mt. Colombo, May 14, 1910, *O. E. Jennings, No. 268.* General Distribution: Maryland and Arkansas to Florida and Texas, the Bermudas, Bahamas, Cuba, Hispaniola, Porto Rico, Guadeloupe, and the Isle of Pines.

The writer adopted Urban's treatment of the Antillean wax myrtles. No essential differences are evident between the specimen from the Isle of Pines and a Porto Rican specimen cited by Urban, *Sintenis, No. 5959!* See Urban, *Symbolæ Antillanæ*, IV, 1905, p. 193.

Family BATIDACEÆ.

238. **Batis maritima** Linnæus.

Batis maritima LINNÆUS, Systema Naturæ, II, Ed. X, 1759, p. 1380.
Dondia linearis MILLSPAUGH, Field Columbian Museum, Botanical Series, II, 1900, p. 35.—See Urban, Symbolæ Antillanæ, IV, 1905, p. 227.

Forms almost the entire ground-cover in spots in the mangrove forest along the lower part of the Nuevas River, May 16, 1910, *O. E. Jennings, No. 294.* General Distribution: Along the seashores of the West Indies and eastern tropical North America as far north as Texas, Florida, and the Bahamas, also California and the Hawaiian Islands.

Family MORACEÆ.

KEY TO THE SPECIES ENUMERATED.

Leaves large, peltate, palmately lobed, whitish-tomentose beneath.
239. *Cecropia peltata.*
Leaves not peltate, blades entire, not tomentose.
Leaves subcordate to cordate at base.
Leaves 10 cm. or more long; fruit pubescent and 1.5 cm. or more in diameter.
240. *Ficus mitrophora.*
Leaves about 3–6 cm. long; fruit glabrous and hardly 1 cm. in diameter.
241. *Ficus populnea* var. *lentiginosa.*
Leaves obtuse to narrowed at base.
Leaves acuminate at the base, about 4–8 cm. long.....242. *Ficus nitida.*
Leaves obtuse at base, about 6–12 cm. long.....243. *Ficus aurea.*

239. **Cecropia peltata** Linnæus.

Cecropia peltata LINNÆUS, Systema Naturæ, II, Ed. X, 1759, p. 1286.
Ambaiba peltata O. KUNTZE, Revisio Generum Plantarum, II, 1891, p. 623.

In open spot in jungle near Los Indios, May 20, 1910, *O. E. Jennings, No. 443.* A. Richard (Sagra, "Historia Fisica Politica y Natural de la Isla de Cuba," XI, 1850, p. 222) reports this species for the Isle of Pines on the basis of the Lanier Collection, 1831. General throughout the West Indies, and in Venezuela and Guiana.

240. **Ficus mitrophora** Warburg.

Ficus mitrophora WARBURG, in Urban, Symbolæ Antillanæ, III, 1903, p. 457–458.

Near old marble quarry at east base of Caballos Mts., May 9, 1910, *O. E. Jennings, No. 191;* tree about 7 m. high, along east base of Caballos Mts., May 9, 1910, *O. E. Jennings, No. 192.* General Distribution: Isle of Pines, Cuba (*Britton, Britton, & Shafer, No. 456*), and, according to Warburg, Haiti and San Domingo.

Reported heretofore only from Haiti and Santo Domingo, Warburg, *l. c.*, this species has apparently been confused with *Ficus Combsii* Warburg, as to Cuban specimens. *Ficus mitrophora* differs from *F. Combsii* in having longer and appressed-pilose stipules, and the bracts at the base of the figs larger and minutely pilose, also the petioles not at all or very little pruinose.

241. **Ficus populnea** var. **lentiginosa** subvar. **subcordata** Warburg.

Ficus populnea var. *lentiginosa* subvar. *subcordata* WARBURG, in Urban, Symbolæ Antillanæ, III, 1903, pp. 476–477.

In pasture near base of Casas Mts. Appearances indicated that this was one of the "strangling figs" which had formerly clasped a tree, since dead and almost entirely decayed. May 12, 1910, *O. E. Jennings, No. 278.*

This specimen probably represents still another and probably undescribed form of the polymorphous *Ficus populnea.* Among the many varieties and subvarieties described by Warburg, *op. cit.*, pp. 471–479, the specimen from the Isle of Pines can be best referred to subvariety *subcordata*, as indicated, but there is considerable difference between this specimen and the *No. 6090, Sintenis*, from Porto Rico, which Warburg cites as of this subvariety. The Isle of Pines specimen has much smaller leaves, the largest being only about 6.5 cm. long by 3.5 cm. wide, the petioles are shorter, and the base is more decidedly cordate.

242. **Ficus nitida** Thunberg.

Ficus nitida THUNBERG, Dissertat. Ficus, 1786, p. 10.
Ficus pertusa WILLDENOW, Species Plantarum, IV, 2, 1806, p. 1144.

Large spreading tree, probably planted, about one-half mile north of Sante Fé, May 25, 1910, *O. E. Jennings, No. 566.* (*See* Plate XI.) General Distribution: Southeastern Asia but quite commonly cultivated as a shade tree in Cuba and the Isle of Pines, in the latter place

bearing the name of "Spanish Laurel." There is a fine row of these trees to be seen along the side of the plaza in the old town of Sante Fé.

243. **Ficus aurea** Nuttall.

Ficus aurea NUTTALL, Sylva, II, 1854, p. 4.

Growing as a parasite on a deciduous tree, probably *Bombax emarginata*, near the old marble quarry, at the eastern base of the Caballos Mts., May 9, 1910, *O. E. Jennings, No. 152.* (Plate XII.) Near Nueva Gerona, May 10, 1910, *O. E. Jennings, No. 655.* General Distribution: Florida, Bahamas, Cuba, Isle of Pines, Grand Cayman, Haiti, and Jamaica (Fawcett and Rendle, Flora of Jamaica, III, 1914, p. 49).

Note.—The Bread-fruit, *Artocarpus incisa* Forster, has been collected in the Isle of Pines (*Jared F. Shafer, March, 1910*), but is probably not naturalized there.

Family POLYGONACEÆ.

KEY TO THE SPECIES IN THE ISLE OF PINES.

A smooth herb, 0.5–1.5 m. high, with slender-pointed lanceolate leaves. ..... 244. *Polygonum glabrum.*

A climber, shrubby below, the peduncle ending in a branched tendril. ..... 245. *Antigonum leptopus.*

Shrubs or trees.

Leaves large, roundish to reniform..... 246. *Coccolobis uvifera.*

Leaves oval to elliptic or somewhat oval-orbicular.

Leaf-apex obtuse to retuse, the base narrowed to the petiole; fruiting pedicels not over 1.5 mm. long..... 247. *Coccolobis retusa.*

Leaf-apex acute to obtuse, the base usually obtuse; fruiting pedicels 2.5–4 mm. long..... 248. *Coccolobis laurifolia.*

244. **Polygonum glabrum** Willdenow.

Polygonum glabrum WILLDENOW, Species Plantarum, II, 1799, p. 447.

Polygonum truncatum A. RICHARD, in Sagra, Historia Fisica, Politica y Natural de la Isla de Cuba, XI, 1850, p. 182.

Polygonum portoricense BERTERO, MS., ex Endlicher, Genera Plantarum, Supplement IV, part 2, 1847, p. 47.

Polygonum densiflorum var. *imberbe* MEISSNER, DeCandolle, Prodromus Systematis Naturalis Regni Vegetabilis XIV, 1, 1856, p. 121.

Northern part of the island, *Blain, No. 109.* Reported by Millspaugh (Field Columbian Museum, Publication 48, Botanical Series, I, 1900, p. 427). General Distribution: From Missouri to the Gulf States, and in the tropics generally.

245. **Antigonum leptopus** Hooker & Arnott.

Antigonum leptopus HOOKER & ARNOTT, Capt. Beechey's Voyage, Botanical Appendix, 1840, p. 308, Pl. 69.

Near Nueva Gerona, March and April, 1904, *A. H. Curtiss, No. 411;* near Nueva Gerona, June 3, 1912, *G. A. Link.* General Distribution: Native to Mexico, but commonly escaping from cultivation in the Bahamas and West Indies.

246. **Coccolobis uvifera** (Linnæus) Jacquin. SEA GRAPE.

Polygonum uvifera LINNÆUS, Species Plantarum, I, Ed. 1, 1753, p. 365.
Coccoloba leoganensis JACQUIN, Enumeratio Plantarum, 1760, p. 19.
Uvifera leoganensis O. KUNTZE, Revisio Generum Plantarum, II, 1891, p. 623.

Low bushy tree at border of strand at Bibijagua, May 7, 1910, *O. E. Jennings, No. 87;* no locality given, February–March, 1910, *Jared F. Shafer;* near Nueva Gerona, May, 1912, *G. A. Link.* General Distribution: Southern Florida, the Bahamas, Bermuda, and south through Central and South America, always within reach of salt water.

247. **Coccolobis retusa** Grisebach.

Coccoloba retusa GRISEBACH, Catalogus Plantarum Cubensium, 1866, p. 61.
Coccoloba leoganensis var. *parvifolia* GRISEBACH, *l. c.*
Uvifera retusa O. KUNTZE, Revisio Generum Plantarum, II, 1891, p. 562.

Northern part of the island, *Blain, No. 185*, reported by Millspaugh, *Plantæ Insulæ Ananasensis*, Field Columbian Museum, Botanical Series I, No. 6, 1900, p. 427. General Distribution: Western Cuba, Santo Domingo (?), and the Isle of Pines.

248. **Coccolobis laurifolia** Jacquin.

Coccoloba laurifolia JACQUIN, Plantarum Rariorum Horti Cæsarei Schœnbrunensis Descriptiones, etc. III, 1798, p. 9, t. 267.
Coccoloba floridana MEISSNER in DeCandolle, Prodromus Systematis Naturalis Regni Vegetabilis, XVI, 1857, p. 165.
Uvifera laurifolia O. KUNTZE, Revisio Generum Plantarum, II, 1891, p. 561.

South of Sante Fé, May 25, 1910, *O. E. Jennings, No. 656.* General Distribution: Florida, Bahamas, most of the West Indian islands, Venezuela.

The writer has not seen the Blain specimen reported by Millspaugh as *C. retusa*, but there is a strong possibility that the specimen here referred to (*Jennings, No. 656*) is the same species. Specimens such as the Porto Rican *Sintenis, No. 3945*, referred by Lindau (Symbolæ

Antillanæ, I, 1899, p. 227) to *C. laurifolia*, represent a form having a large leaf with an obtuse base and a strong wide petiole, very much in contrast to the specimens from the Isle of Pines. The latter specimens have leaves up to about 7 cm. long and 2.5 cm. wide, acute or even acuminate at the base, while the petiole is comparatively slender. Florida plants referable to Lindau's *C. Curtissii* are, in fact, very closely related to the specimens from the Isle of Pines, as to leaf characters.

Family AMARANTACEÆ.

KEY TO THE SPECIES ENUMERATED.

Leaves alternate.
  A climbing shrub with herbaceous branches, and spikes of flowers arranged in slender panicles; axils not spinose.....249. *Chamissoa altissima.*
  Non-climbing, and with flowers spicate, mostly terminal; axils bispinose.
    250. *Amaranthus spinosus.*
Leaves opposite.
  Leaves obovate-roundish; flowers in very long slender spikes.
    251. *Centrostachys indica.*
  Leaves narrower; flowers not in particularly slender spikes.
    Plant glabrous.
      Leaves narrowly oblong-lanceolate, not fleshy.....255. *Iresine keyensis.*
      Leaves sessile, linear, fleshy; sea-shore plant.
        254. *Philoxerus vermicularis.*
    Plants more or less pubescent, at least in the inflorescence.
      Leaves long-stalked, oblanceolate to elliptical.
        253. *Alternanthera paronichioides.*
      Leaves woolly, oblong-elliptical, narrowed to a semi-clasping base.
        252. *Gomphrena dispersa.*

249. **Chamissoa altissima** (Jacquin) Humboldt, Bonpland, & Kunth.

Achyranthes altissima JACQUIN, Enumeratio Plantarum, 1760, p. 17.

Celosia paniculata LINNÆUS, Species Plantarum, I, Ed. II, 1762, p. 298 (non Linnæus, 1753).

Kokera paniculata O. KUNTZE, Revisio Generum Plantarum, II, 1891, p. 542.

Chamissoa altissima HUMBOLDT, BONPLAND, & KUNTH, Nova Genera et Species Plantarum, II, 1817, p. 197, t. 125.

Near Nueva Gerona, January 4, 1904, *A. H. Curtiss, No. 269;* Pedernales Point, February 16, 1899, *C. F. Millspaugh, No. 1420* (Field Columb. Mus., Bot. II, 1900, pp. 39–40). General Distribution: West Indies, generally, and continental tropical America.

250. **Amaranthus spinosus** Linnæus.

Amaranthus spinosus LINNÆUS, Species Plantarum, 1753, p. 991.

"An old garden spot at Pedernales Point, Isle of Pines, (1425)

spines few and poorly developed" (Millspaugh). General Distribution: From Massachusetts to Kansas and south through the Bermudas, Bahamas, West Indies, and continental America. Also in warmer parts of the Old World. Often a troublesome weed.

251. **Centrostachys indica** (Linnæus) Standley.

Achyranthes aspera var. *indica* LINNÆUS, Species Plantarum, I, Ed. 1, 1753, p. 204.
Achyranthes indica MILLER, Gardener's Dictionary, Ed. 8, 1768, No. 2.
Achyranthes obtusifolia LAMARCK, Encyclopédie Méthodique, Botanique, I, 1783, p. 545.
Achyranthes aspera MOQUIN, in DeCandolle, Prodromus Systematis Naturalis Regni Vegetabilis, XIII, (III), 1849, p. 314.
Achyranthes aspera var. *obtusifolia* GRISEBACH, Flora of the British West Indian Islands, 1864, p. 62.
Centrostachys indica STANDLEY, Journal of the Washington Academy of Sciences, V, 1915, p. 75.

Near Nueva Gerona, March 22, 1904, *A. H. Curtiss, No. 424;* near magnesian spring, Sante Fé, May 26, 1910, *O. E. Jennings, No. 576.* General Distribution: Southern Florida and generally, through the tropics as a weed.

252. **Gomphrena dispersa** Standley.

Gomphrena decumbens MOQUIN-TANDON, in DeCandolle, Prodromus Systematis Naturalis Regni Vegetabilis, XIII (2), 1849, p. 410. Not Jacquin.
Gomphrena dispersa STANDLEY, Contributions, U. S. National Herbarium, XVIII, 1916, p. 91.

Near Nueva Gerona, March 13, 1904, *A. H. Curtiss, No. 410; A. A. Taylor, No. 88,* in 1901, *Palmer & Riley, No. 1117,* in 1900, on sandy beach at Bibijagua, May 7, 1910, *O. E. Jennings, No. 75;* near Nueva Gerona, May, 1912, *G. A. Link.* General Distribution: A common weed of the Greater Antilles, Florida, and from Mexico to Costa Rica.

253. **Alternanthera paronychioides** A. St. Hilaire.

Alternanthera polygonoides R. BROWN, Prodromus Floræ Novæ-Hollandiæ et Insulæ Van Diemen, I, 1810, p. 417.
Alternanthera paronychioides A. ST. HILAIRE, Voyage au Brésil, II, 1833, p. 439.
Alternanthera ficoides GRISEBACH, Flora of the British West Indian Islands, 1859, p. 67.

Near Nueva Gerona, March 17, 1904, *A. H. Curtiss, No. 418.* General Distribution: North Carolina to Texas, Florida, Bahamas, West Indies, and tropical continental America.

254. **Philoxerus vermicularis** (Linnæus) Beauvois.

Gomphrena vermicularis LINNÆUS, Species Plantarum, I, ed. 1, 1753, p. 224.
Illecebrum vermiculatum LINNÆUS, Species Plantarum, I, Ed. II, 1762, p. 300.
Iresine vermicularis MOQUIN, in DeCandolle, Prodromus Systematis Naturalis Regni Vegetabilis, XIII, (II), 1849, p. 340.
Lithophila vermiculare ULINE, Field Columbian Museum, Botanical Series, II, 1900, p. 39.

Sandy beach at Bibijagua, May 7, 1910, *O. E. Jennings, No. 76;* northern part of the island, *Blain, No. 76* (Millspaugh, Field Columb. Mus., Bot. I, 1900, p. 427). General Distribution: Along sea-shores, Florida to Texas, Bahamas, West Indies, and in tropical continental America, Western Africa.

255. **Iresine keyensis** Millspaugh.

Iresine keyensis MILLSPAUGH, Field Columbian Museum, Botanical Series, II, 1906, pp. 148–149.

On strand at Caleta Grande, South Coast, May 22, 1910, *O. E. Jennings, No. 496.* General Distribution: Bahama Islands and the Isle of Pines.

Family NYCTAGINACEÆ.

Herbs with widely branched panicles; petioles mostly at least half as long as leaf-blade.....256. *Bærhaavia paniculata.*
Trees, with compact cymes; petioles quite short.....257. *Pisonia rotundata.*

256. **Bœrhaavia paniculata** L. C. Richard.

Bærhaavia paniculata L. C. RICHARD, Actes de la Société d'Histoire Naturelle de Paris, I, 1792, p. 105.
Bærhaavia diffusa SWARTZ, Observationes Botanicæ Quibus Plantæ Indiæ Occidentalis, etc. 1791, p. 10. Not Linnæus.

"In old garden spot at Pedernales Point, Isle of Pines (1134)" Millspaugh; near Nueva Gerona, February 19, 1904, *A. H. Curtiss, No. 359.* General Distribution: Tropical continental America and the West Indies. Probably a number of reported localities in this range belong to other species.

257. **Pisonia rotundata** Grisebach.

Pisonia rotundata GRISEBACH, Catalogus Plantarum Cubensium, 1866, p. 283.

Near Nueva Gerona, April 28, 1904, *A. H. Curtiss, No. 470;* northern part of the island, *Blain, No. 8.* (Millspaugh). General Distribution: Western Cuba and the Isle of Pines.

Family PHYTOLACCACEÆ.

KEY TO THE SPECIES HEREIN ENUMERATED.

Petioles usually pubescent, leaves usually not more than 10 cm. long, mostly much shorter; perianth parts 4.....258. *Rivina humilis.*
Petioles glabrous, leaves up to 15 cm. long; perianth parts 5.
259. *Phytolacca icosandra.*

258. **Rivina humilis** Linnæus. BLOODBERRY.

Rivina humilis LINNÆUS, Species Plantarum, I, Ed. I, 1753, p. 121.
Rivina lævis LINNÆUS, Mantissa Plantarum, I, 1767, p. 41.
Rivina puberula HUMBOLDT, BONPLAND, & KUNTH, Nova Genera et Species Plantarum, II, 1817, p. 184.
Rivina viridiflora BELLO, Anales de la Sociedad Española de Historia Natural XII, 1883, p. 105.

In thicket at west base of Casas Mts., May 5, 1910, *O. E. Jennings, No. 637.* General Distribution: From Florida and the Bahamas southwards through the American tropics and subtropics.

259. **Phytolacca icosandra** Linnæus. POKE WEED.

Phytolacca icosandra LINNÆUS, Species Plantarum, I, 1753, p. 631, and Systema Naturæ, II, Ed. X, 1759, p. 1040.
Phytolacca mexicana GAERTNER, De Fructibus et Seminibus Plantarum, I, 1788, p. 337, t. 77, f. 8.
Phytolacca nova-hispania MILLSPAUGH, Field Columbian Museum, Botanical Series, II, 1900, p. 41.

On soil derived from coral rock, near Caleta Grande, May 22, 1910, *O. E. Jennings, Nos. 423 and 483;* edges of an old cultivated field at Pedernales Point, February 16, 1899, *C. F. Millspaugh, No. 1413, Cf. l. c.* General Distribution: Cuba, Isle of Pines, Haiti, Jamaica, St. Thomas, and from Mexico to northern South America. Often a weed.

Dr. N. L. Britton writes that he regards this species as the same as *Phytolacca decandra*, the only difference being that of the number of stamens.

Family AIZOACEÆ.

260. **Sesuvium portulacastrum** Linnæus.

Portulaca portulacastrum LINNÆUS, Species Plantarum, I, Ed. I, 1753, p. 446.
Sesuvium portulacastrum LINNÆUS, Systema Naturæ, Ed. X, II, 1759, p. 1058.
Trianthema polyandrum BLUME, Bijdragen tot de Flora van Nederlandsch Indië, 1826, p. 1137.
Halimus portulacastrum O. KUNTZE, Revisio Generum Plantarum, I, 1891, p. 263.

On the beach at Bibijagua, May 7, 1910, *O. E. Jennings, No. 109.* General Distribution: Along sea-shores from North Carolina southwards and generally throughout the tropics.

Family CARYOPHYLLACEÆ.

KEY TO SPECIES HEREIN ENUMERATED.

Stem and branches slender, weak; leaves orbicular.....261. *Drymaria cordata.*
Stem and main branches shorter, usually about 10 cm. long, more rigid; leaves narrowly oblanceolate or lance-linear.....262. *Drymaria ortegioides.*

261. **Drymaria cordata** (Linnæus) Willdenow.
WEST INDIAN CHICKWEED.

Holosteum cordatum LINNÆUS, Species Plantarum, I, Ed. I, 1753, p. 88.
Drymaria cordata WILLDENOW, ex Roemer & Schultes, Systema Vegetabilium, V, 1819, p. 406.
Drymaria ramosissima O. KUNTZE, Revisio Generum Plantarum, I, 1891, p. 50.

Near Nueva Gerona, January 12, 1904, *A. H. Curtiss, No. 288.* General Distribution: West Indies and throughout the tropics generally.

262. **Drymaria ortegioides** Grisebach.

Drymaria ortegioides GRISEBACH, Catalogus Plantarum Cubensium, 1866, p. 21.

Near Nueva Gerona, February 19 and March 11, 1904, *A. H. Curtiss, No. 397;* near Nueva Gerona, February 19, and March 11, 1904, *O. E. Jennings, No. 397;* in open fields at Los Indios, May 19, 1904, *O. E. Jennings, No. 427.* General Distribution: Western Cuba and the Isle of Pines.

Family NYMPHÆACEÆ.

KEY TO THE SPECIES ENUMERATED.

Flowers white.....263. *Castalia ampla.*
Flowers yellow.....264. *Nymphæa advena.*

263. **Castalia ampla** Salisbury. WATER LILY.

Castalia ampla SALISBURY, Paradisus Londinensis, I, 1805, t. 14, 73.
Nymphæa ampla DECANDOLLE, Regni Vegetabilis Systema Naturæ, II, 1821, p. 54.
Leuconymphæa ampla O. KUNTZE, Revisio Generum Plantarum, I, 1891, p. 11.

In pond southwest of Nueva Gerona, May 7, 1910, *O. E. Jennings, No. 96;* near Nueva Gerona, December 12, 1903, *A. H. Curtiss, No. 223.* General Distribution: From Cuba and Texas south through the West Indies and continental tropical America.

264. **Nymphæa advena** var. **erythræa** Miller & Standley.

Nymphæa advena var. *erythræa* MILLER & STANDLEY, Contributions U. S. National Herbarium, XVI, Part III, 1912, p. 91.

In pools in jungle along Los Indios River, at Los Indios, May 20,

1910, *O. E. Jennings, No. 449.* General Distribution: Heretofore known only from the Miami River in southern Florida.

The specimens show the straight-sided, Λ-shaped sinus, at the base of the leaf, and the bright red stigmatic surface which characterize the variety and distinguish it, also, from the common *Nymphæa americana* (Provancher) Miller & Standley of the eastern United States.

Family MENISPERMACEÆ.

265. **Cissampelos tomentosa** DeCandolle.

Cissampelos tomentosa DECANDOLLE, Regni Vegetabilis Systema Naturæ, I, 1818, p. 535.

Near Nueva Gerona, January 2, 1904, *A. H. Curtiss, No. 283;* clambering over bushes, near Sante Fé, May 25, 1910, *O. E. Jennings, No. 567.*

This is the more tomentose plant which, by many botanists, is regarded as merely a form of *Cissampelos Pareira* Linnæus, distributed widely through the West Indies and the tropics generally. *Blain's No. 52,* from the northern part of the Isle of Pines, is reported by Millspaugh (Field Columb. Museum, Bot., I, 1900, p. 427) as *C. Pareira.*

Family ANNONACEÆ.

KEY TO THE SPECIES ENUMERATED.

Leaves leathery, lanceolate-acuminate; carpels free in fruit. 266. *Xylopia grandiflora.*

Leaves not markedly leathery, wider or not much acuminate; carpels united into one fruit.

Leaves oblong-elliptic, very shortly acuminate, up to 10–18 cm. long. 267. *Annona palustris.*

Leaves oblong-lanceolate to narrowly elliptic, obtuse, on flowering branches about 5–8 cm. long. . . . . 268. *Annona squamosa.*

266. **Xylopia grandiflora** St. Hilaire. BITTERWOOD.

Xylopia grandiflora ST. HILAIRE, Flora Brasiliæ Meridionalis, I, 1825, p. 40, Pl. 8.
Xylopia cubensis A. RICHARD, in Sagra, Historia Fisica, Politica y Natural de la Isla de Cuba, X, 1845, p. 16, t. 36.

Near Nueva Gerona, December 31, 1903, *A. H. Curtiss, No. 261;* in swampy place along river south of Nueva Gerona, May 12, 1910, *O. E. Jennings, No. 204;* small tree with yellowish-white flowers, along arroyo near Sante Fé, May 24, 1910, *O. E. Jennings, No. 554;* moist woods south of Sante Fé, May 25, 1910, *O. E. Jennings, No.*

622; also 1831, *A. H. Lanier.* (A. Richard, in Sagra, *l. c.*) General Distribution: Cuba, Isle of Pines, Trinidad, Panama, and tropical South America.

The fruits of this fine looking tree are gathered in an unripe condition and used as a condiment for seasoning foods, particularly meats. Further south the fruits are said to be used medicinally as tonics for the digestive organs.

267. **Annona palustris** Linnæus. ALLIGATOR APPLE.

Annona palustris LINNÆUS, Species Plantarum, II, Ed. I, 1762, p. 757.

Near Nueva Gerona, May 15, 1904, *A. H. Curtiss, No. 502;* small tree in fresh water jungle at Los Indios, May 20, 1910, *O. E. Jennings, No. 437.* Flowers yellowish, with purple at base inside.

268. **Annona squamosa** Linnæus. SWEET SOP.

Annona squamosa LINNÆUS, Species Plantarum, I, Ed. I, 1753, p. 537.

Tree about 15 feet high, with spreading crown, at east base of Caballos Mts., May 9, 1910, *O. E. Jennings, No. 189;* near Nueva Gerona, June 10, 1912, *G. A. Link.* (Fruits nearly mature.)

The fruit of this species is by some people esteemed as highly as is the Cherimoya (*Annona cherimola* Miller). It is said to be of best quality when grown on uplands.

The leaves in our specimens are acute at the base and the immature fruits are highly glaucous.

Family LAURACEÆ.

KEY TO THE SPECIES ENUMERATED.

Perianth-segments persistent in fruit; leaves not very lustrous above nor prominently coarsely reticulated on both sides.....269. *Phœbe elongata.*

Perianth-segments not persistent in fruit; leaves plainly lustrous above and prominently coarsely reticulate on both sides.....270. *Nectandra coriacea.*

269. **Phœbe elongata** (Vahl) Nees. LAUREL.

Laurus elongata VAHL, in Herbarium Willdenow, no. 7780, fig. 2, according to Nees.

Phœbe elongata NEES, Systema Laurinearum, 1836, p. 116.

Phœbe antillana var. *genuina* MEISSNER, in DeCandolle, Prodromus Systematis Naturalis Regni Vegetabilis, XV, Part I, 1864, p. 31.

Near Nueva Gerona, January 22, 1904, *A. H. Curtiss, No. 309;* at marble quarry, east base of Caballos Mts., May 9, 1910, *O. E. Jennings, No. 672.* General Distribution: Quite widely distributed through the West Indies.

270. **Nectandra coriacea** (Swartz) Grisebach. LAUREL.

Laurus coriacea SWARTZ, Prodromus Descriptionum Vegetabilium Indiæ Occidentalis, 1788, p. 65.

Nectandra Willdenowiana NEES, Systema Laurinearum, 1836, p. 321 (non 290).

Nectandra sanguinea GRISEBACH, Flora of the British West Indian Islands, 1860, p. 281.

Near Nueva Gerona, June 4, 1904, *A. H. Curtiss, No. 526;* near Los Indios, along the river, May 18, 1910, *O. E. Jennings, No. 653.* General Distribution: Southern Florida, the Bahamas, throughout the West Indies, and in Yucatan. In Jamaica (Fawcett & Rendle, *Flora of Jamaica*, III, 1914, p. 217) this species is variously called sweetwood, cap-berry sweetwood, small-leaved sweetwood. Mez (Urban's "Symbolæ Antillanæ," IV, 1905, p. 249) gives, as common names, avispillo and laurel.

Millspaugh in his "Plantæ Insulæ Ananasensis" (Field Columb. Mus., Bot., I, 1900, p. 427) reports for the island: *Nectandra patens* (Swartz) Grisebach, and *Nectandra exaltata* Grisebach. These reports are founded upon *Blain, No. 90* (Sante Fé, June) and *Blain, No. 116.*

Authors writing subsequently have not credited *Nectandra patens* to localities other than Jamaica, Porto Rico, Haiti, and Martinique (*see* Fawcett & Rendle, and Mez, in the works cited above).

Family PAPAVERACEÆ.

271. **Argemone mexicana** var. **ochroleuca** (Sweet) Lindley. PRICKLY POPPY. MEXICAN THISTLE.

Argemone ochroleuca SWEET, British Flower Garden, III, 1828, Pl. 242.

Argemone mexicana var. *ochroleuca* LINDLEY, Botanical Register, 1830, p. 1343.

Argemone mexicana var. ..... TORREY & GRAY, Flora of North America, I, 1838, p. 61.

Weed in field on Keenan's estate south of Nueva Gerona, May 9, 1910, *O. E. Jennings, No. 190;* near Nueva Gerona, June 12, 1912, *G. A. Link.* General Distribution: From the United States south, through the West Indies and Mexico, to the southern part of South America, also escaped in Australia and in Europe.

Family CAPPARIDACEÆ.

KEY TO THE SPECIES HEREIN ENUMERATED.

Leaves digitately compound with 5–7 leaflets.....272. *Cleome spinosa.*
Leaves simple.

Herbaceous plant, woody at base; leaves linear-lanceolate.
273. *Cleome procumbens.*

Shrub or tree, 3–15 m. high; leaves elliptic or oblong-elliptic.
274. *Capparis jamaicensis.*

272. **Cleome spinosa** Jacquin.

Cleome spinosa JACQUIN, Enumeratio Plantarum Quas in Insulis Caribæis Detexit, 1760, p. 26.

Cleome pungens WILLDENOW, Enumeratio Plantarum Horti Botanici Berolinensis, II, 1809, p. 689.

Outskirts of Nueva Gerona, May 6, 1910, *O. E. Jennings, No. 642.* General Distribution: Widely distributed in the West Indies and tropical and subtropical continental America.

273. **Cleome procumbens** Jacquin.

Cleome procumbens JACQUIN, Selectarium Stirpium Americanarum Historia, 1788, p. 189, Pl. 120.

Northern part of the island, *Blain, No. 49.* Reported by Millspaugh in "Plantæ Insulæ Ananasensis" (Field Columb. Mus., Bot., I, 1900, p. 427). General Distribution: Cuba, Isle of Pines, and Haiti.

274. **Capparis jamaicensis** Jacquin.

Capparis jamaicensis JACQUIN, Enumeratio Plantarum Quas in Insulis Caribæis Detexit, 1760, p. 23.

Capparis Breynia SWARTZ, Observationes Botanicæ, 1791, p. 210 (non Jacquin).

Capparis nitida SESSÉ & MOÇINO, Flora Mexicana, Ed. II, 1894, p. 129 (not Ruiz & Pavon).

Tree about 7 m. high, in mangrove swamp along east bank of lower Nuevas River, May 16, 1910, *O. E. Jennings, No. 291.* General Distribution: From southern Florida and the Bahamas south through the West Indies. Called in Jamaica "Black Willow" or "Zebra Wood," and in Porto Rico said to go by the name of "Burro" or "Palo de burro prieto."

The flowers of the specimens collected had four purple petals. The filaments were purple and the stamens yellow.

Family CRUCIFERÆ.

275. **Cakile lanceolata** (Willdenow) O. E. Schultz.

Raphanus lanceolatus WILLDENOW, Species Plantarum, III, 1801, p. 562.

Cakile domingensis TUSSAC, Flora Antillarum, I, 1808, p. 119.

Cakile æqualis L'HÉRITIER, in DeCandolle, Regni Vegetabilis Systema Naturale, II, 1821, p. 430.

Cakile cubensis HUMBOLDT, BONPLAND, & KUNTH, Nova Genera et Species Plantarum, V, 1821, p. 75.

Cakile lanceolata subsp. *domingensis* O. E. SCHULTZ, in Urban, Symbolæ Antillanæ, III, 1903, pp. 505–506.

On coral sand along strand at Caleta Grande, South Coast, May 22, 1910, *O. E. Jennings, No. 504.* General Distribution: Bermuda, the Bahamas, most of the West Indian islands, and Colombia.

Family DROSERACEÆ.

276. **Drosera capillaris** Poiret.

Drosera capillaris POIRET, Encyclopédie Méthodique Dictionnaire de Botanique, VI, 1804, p. 299.

Drosera brevifolia var. *major* HOOKER, Journal of Botany, I, 1834, p. 194.

Along moist bank of arroyo east of Los Indios, May 18, 1910, *O. E. Jennings, No. 372.* General Distribution: Around ponds and similar habitats from South Carolina to Florida and Texas; Cuba; Isle of Pines; British Honduras; Trinidad; and British Guiana.

Family ROSACEÆ.

KEY TO THE SPECIES HEREIN ENUMERATED.

Leaves oval to obovate or orbicular, smooth; drupe obovoid with a sharply angled stone.....277. *Chrysobalanus pellocarpus.*

Leaves ovate-oblong, abruptly acuminate, pubescent, especially beneath; fruit oblong, without a sharply ridged stone.....278. *Hirtella mollicoma.*

277. **Chrysobalanus pellocarpus** Meyer. COCO-PLUM.

Chrysobalanus pellocarpus MEYER, Primitiæ Floræ Essequeboensis, 1818, p. 193.

Chrysobalanus icaco var. *pellocarpa* DECANDOLLE, Prodromus Systematis Naturalis Regni Vegetabilis, II, 1825, p. 525.

Chrysobalanus icaco var. *minor* A. RICHARD, in Sagra, Historia Fisica, Politica y Natural de la Isla de Cuba, X, 1845, p. 237.

Near Nueva Gerona, January 9 (fruit), February 27 (flowers), 1904, *A. H. Curtiss, No. 280;* along bank of arroyo near Nueva Gerona, May 5, 1910, *O. E. Jennings, No. 9.* A shrub about ten feet high and bearing an abundance of fruit, which is sweet, and is prepared with sugar as a conserve in some of the West Indian islands. General Distribution: Low ground from southern Florida through the West Indies to northern South America.

This is probably the same as the specimen collected by A. H. Lanier in 1831 and described by A. Richard, in Sagra, "Historia Fisica, Politica y Natural de la Isla de Cuba," X, 1845, p. 237, as

Chrysobalanus icaco var. *minor*. The variety was said to be known in the Isle of Pines as "*Ycaco negro*" and it was described by Richard as having smaller leaves and flowers, with the flowers in fewer numbers, so that the plants would answer very well to the description of Meyer's *Chrysobalanus pellocarpus*.

278. **Hirtella mollicoma** Humboldt, Bonpland, & Kunth.

Hirtella mollicoma HUMBOLDT, BONPLAND, & KUNTH, Nova Genera et Species Plantarum, VII, 1825, p. 263.

Near Nueva Gerona, December 30, 1903, *A. H. Curtiss, No. 260* (distributed as *Hirtella glandulosa* Sprengel); along bank of Casas River, near Keenan's estate, south of Nueva Gerona, May 12, 1910, *O. E. Jennings, No. 208;* northern part of the island, *Blain, No. 25*. Reported by Millspaugh (Field Columbian Mus., Bot., I, 1900, p. 427). General Distribution: Isle of Pines, Colombia.

Note.—A. Richard, in Sagra, *Historia Fisica, Politica y Natural de la Isla de Cuba*, X, 1845, p. 238, reports for the Isle of Pines, *Hirtella nitida* Willdenow, based on the collection of A. H. Lanier in 1831. However, Richard's description of Lanier's specimen fits the specimens collected by Curtiss and Jennings so closely that there can be little doubt that the three collections are the same species, *Hirtella mollicoma* Humboldt, Bonpland & Kunth.

Family MIMOSACEÆ.

KEY TO THE SPECIES ENUMERATED.

Low rather woody herbs; leaves with one to five pairs of pinnæ; sensitive plants.
- Pinnæ in one or two pairs.....285. *Mimosa pudica.*
- Pinnæ in three to five pairs.....286. *Neptunia plena.*

Shrubs or trees, often armed with thorns.
- Valves of the flat and thin pod separating from the continuous margin; stipules about as large as the leaflets (*Lysiloma*).
  - Stipules obovate, obtuse; leaflets about 10–15 mm. long and two-thirds as wide.....283. *Lysiloma Sabicu.*
  - Stipules ovate, acuminate; leaflets about 6–10 mm. long and 2.5–3 mm. wide.....284. *Lysiloma bahamensis.*
- Valves of the pod not separating from the margin; stipules inconspicuous (*Pithecolobium*).
  - Leaflets 3–6 cm. long.
    - Pinnæ 3–6 pairs, leaflets finely and softly pubescent beneath; pods 2 dm. or more long, only moderately curved...280. *Pithecolobium saman.*
    - Pinnæ mostly 2 pairs, leaflets sparsely pubescent with minute, straight,

closely appressed hairs; pods smaller and strongly curved or coiled. 282. *Pithecolobium obovale.*

Leaflets hardly exceeding 1 cm. in length.

Armed with stipular thorns; leaflets widely and obtusely obovate. 281. *Pithecolobium tortum.*

Unarmed; leaflets ovate-oblong.....279. *Pithecolobium arboreum.*

279. **Pithecolobium arboreum** (Linnæus) Urban. WILD TAMARIND.

Mimosa arborea LINNÆUS, Species Plantarum, I, Ed. I, 1753, p. 519.

Acacia arborea WILLDENOW, Species Plantarum, IV, (2), 1806, p. 1064.

Pithecolobium filicifolium GRISEBACH, Flora of the British West Indian Islands, 1860, p. 226–227.

Acacia Berteriana BELLO, Anales de la Sociedad Española de Historia Natural, 1881, p. 264.

Pithecolobium arboreum URBAN, Symbolæ Antillanæ, II, 1900, pp. 259–260.

Near Nueva Gerona, February 15 and April 17, 1904, *A. H. Curtiss, No. 348;* in dry gravelly land east of Nueva Gerona, May 5, 1910, *O. E. Jennings, No. 11;* on thin soil overlying coral-limestone, about three miles north of Caleta Grande, May 22, 1910, *O. E. Jennings, No. 519;* along bank of arroyo, Sante Fé, May 24, 1910, *O. E. Jennings, No. 559.* General Distribution: Cuba, Isle of Pines, Jamaica, Porto Rico, Haiti, Mexico, and Central America.

Together with *Thrinax Wendlandiana* and *Bucida Buceras*, this species forms, in large part, the sparse and low forest growth (chaparral) near Hato, in the interior part of the peninsula which runs out from the island to the southwest and is comprised in the term "south coast." In this particular locality the original forest had probably been removed and the chaparral can perhaps be regarded as an intermediate stage in the plant successions which would eventually result in the establishment of a denser forest of taller hardwood species.

The specimens from the Isle of Pines, almost without exception, have fewer pinnæ (usually four pairs) and fewer leaflets to a pinna (usually less than twenty pairs) than are stated for the species in the older descriptions.

280. **Pithecolobium Saman** (Jacquin) Bentham. SAMAN.

Inga Saman WILLDENOW, Species Plantarum, IV (2), 1806, p. 1024.

Pithecolobium Saman BENTHAM, London Journal of Botany, III, 1844, p. 216.

Mimosa Saman JACQUIN, Fragmenta Botanica, 1809, p. 15, Pl. 9.

Calliandra Saman GRISEBACH, Flora of the British West Indian Islands, 1860, p. 225.

Near Nueva Gerona, April 19 and May 30, 1904, *A. H. Curtiss, No. 450.* General Distribution: Native to America, from Nicaragua

to Brazil, and introduced into most of the West Indian islands, where it has sparingly escaped from cultivation. The tree is of considerable value as a shade tree and also for the pods, which furnish good food for cattle.

281. **Pithecolobium tortum** Martius.

Pithecolobium tortum MARTIUS, Herbarium, Flora Brasiliensis, 1837, p. 114.
Pithecolobium Vincentis BENTHAM, London Journal of Botany, III, 1844, p. 222.

Northern part of the island, *Blain, No. 120.* (Millspaugh); on gravelly soil east of Nueva Gerona, May 6, 1910, *O. E. Jennings, No. 66.* Near site formerly occupied by a homestead and probably planted. General Distribution: Western Cuba, Isle of Pines, St. Vincent, Martinique, and in Central and South America.

282. **Pithecolobium obovale** Wright.

Pithecolobium obovale WRIGHT, in Sauvalle, Anales de la Academía de Ciencias Médicas, Físicas y Naturales de la Habana, V, 1868, no. 36.
Inga obovalis A. RICHARD, in Sagra, Histoire Physique, Politique et Naturelle de l'Ile de Cuba, I, 1845, p. 472.
Calliandra revoluta GRISEBACH, Catalogus Plantarum Cubensium, 1866, p. 83.

Near Nueva Gerona, February 7, 1904, *A. H. Curtiss;* along bank of Casas River, south of Nueva Gerona, May 12, 1910, *O. E. Jennings, No. 209;* near Caleta Grande, "South Coast," May 22, 1910, *O. E. Jennings, No. 694.* General Distribution: Cuba and the Isle of Pines.

283. **Lysiloma Sabicu** Bentham. SABICU.

Lysiloma Sabicu BENTHAM, Journal of Botany and Kew Garden Miscellany, VI, 1854, p. 236.
Acacia latisiliqua var. *paucifolia* DECANDOLLE, Prodromus Systematis Naturalis Regni Vegetabilis, II, 1825, p. 467.
Acacia formosa A. RICHARD, in Sagra, Historia Fisica, Politica y Natural de la Isla de Cuba, X, 1845, p. 205.
Leucæna formosa GRISEBACH, Catalogus Plantarum Cubensium, 1866, pp. 82 and 284.
Lysiloma formosa HITCHCOCK, Report Missouri Botanical Garden, 1893, p. 83.

Near Nueva Gerona, January 8 and April 13, 1904, *A. H. Curtiss, No. 278;* bushy tree about thirty feet high, at west base of Caballos Mts., May 10, 1910, *O. E. Jennings, No. 186;* near Los Indios, November 4, 1912, *G. A. Link.* General Distribution: Bahamas, Cuba, Isle of Pines, and Santo Domingo.

284. **Lysiloma bahamensis** Bentham. SINGING BEANS.

Lysiloma bahamensis BENTHAM, Hooker's London Journal of Botany, III, 1844, p. 82.

Acacia bahamensis GRISEBACH, Flora of the British West Indian Islands, 1860, p. 221.

Lysiloma latisiliqua A. GRAY, in Sauvalle, Flora Cubana, 1869, p. 35.

Forming a rather prominent part of the woods (chaparral) near Hato, in the interior of the peninsula, north of Caleta Grande, May 22, 1910, *O. E. Jennings, No. 628.* General Distribution: Florida Keys, Bahamas, Cuba, Isle of Pines.

285. **Mimosa pudica** Linnæus. SENSITIVE PLANT.

Mimosa pudica LINNÆUS, Species Plantarum, I, Ed. I, 1753, p. 518.

Near Nueva Gerona, April 27, 1904, *A. H. Curtiss, No. 466;* open field in jungle at Los Indios, May 20, 1910, *O. E. Jennings, No. 440.* General Distribution: Generally through the West Indies and continental tropical America, and also introduced into the tropics of the Old World.

In places on the Isle of Pines this plant becomes a very common weed, as at the Jucaro Landing, where the open field was practically covered with it, and where one's path could be traced for some time by the different appearance of the drooping leaves of the plants which had been disturbed.

286. **Neptunia plena** (Linnæus) Bentham.

Mimosa plena LINNÆUS, Species Plantarum, 1753, p. 519.

Desmanthus plenus WILLDENOW, Species Plantarum, IV, (II), 1806, p. 1045.

Neptunia plena BENTHAM, in Hooker, Journal of Botany, IV, 1842, p. 355; GRISEBACH, Flora of the British West Indian Islands, 1860, p. 218.

Desmanthus comosus A. RICHARD, in Sagra, Historia Fisica, Politica y Natural de la Isla de Cuba, X, 1845, pp. 212, 213.

"Crescit in insula Pinorum." 1831. *A. H. Lanier.* (Richard, *l. c.*). General Distribution: From Cuba, the Isle of Pines, and Jamaica, southeast through the West Indies and into northern South America; also introduced into tropical Asia.

Family CÆSALPINIACEÆ.

KEY TO THE SPECIES ENUMERATED.

Leaves with one pair of leaflets, or with but one leaflet.

Leaflet single.....287. *Bauhinia Jenningsii.*

Leaflets united for two-thirds of their length; shrub or small tree.

288. *Bauhinia caribæ* .

Leaflets distinct to the base; herbs.
Leaflets with five or six prominent flabellate veins; branches and petioles glabrous.....293. *Chamæcrista diphylla.*
Leaflets with four or five less prominently flabellate veins; branches and petioles pubescent.....292. *Cassia rotundifolia.*
Leaves with more than one pair of leaflets.
Leaflets in two pairs; low plant, woody, at least at base...291. *Cassia hispidula.*
Leaflets in more than two pairs.
Leaves simply pinnate.
Leaflets obovate-elliptic, 5–10 cm. long; shrubs.....290. *Cassia alata.*
Leaflets lanceolate, about 2–4 cm. long; shrubs....289. *Cassia Sophera.*
Leaflets obliquely oblong to obcuneate, mostly 10 mm. long; low shrub. 294. *Chamæcrista lineata.*
Leaflets about 2.5–7 mm. long, 1–2.5 mm. wide, oblong.
Leaflets 3-nerved, or with more and shorter nerves at base; stem flexuose.....296. *Chamæcrista savannarum.*
Leaflets with one main nerve near the upper edge; stem not flexuose. 295. *Chamæcrista micrantha.*
Leaves bipinnate.
Tree, with spreading branches, numerous small leaflets, and large. woody, flattened pods.....297. *Delonix regia.*
Shrub or small tree, prickly; leaflets fewer, about seven to twelve pairs, and larger, about 1.5–2 cm. long.....298. *Poinciana pulcherrima,*
A straggling or sprawling shrub with hooked prickles, the larger pinnæ with about six or eight pairs of leaflets which are about 2.5–3.5 cm. long.....299. *Guilandina crista.*

287. **Bauhinia Jenningsii** P. Wilson.

Bauhinia Jenningsii P. WILSON, in Britton, Studies of West Indian Plants, Bulletin of the Torrey Botanical Club, XLIII, 1916, pp. 463, 464.

"Wooded limestone plain, Coe's Camp, Ensenada de Siguanea (*Britton & Wilson 14851, type*); coastal plain, San Juan (*Britton & Wilson 15544*); coral soil, north of Caleta Grande (*O. E. Jennings, 480*)." (Britton, *l. c.*). The Britton & Wilson collections were made in the spring of 1916, the Jennings specimen was collected near Hato, May 22, 1910. To this species belongs also a specimen, *O. E. Jennings, No. 464*, collected from a slender shrub about six feet high, growing on coralline-limestone soil between Hato and Caleta Grande, May 22, 1910.

The published description of this species does not strictly apply in certain particulars to the specimens in the Herbarium of the Carnegie Museum. Many of the petioles of well-developed leaves are not over 10 mm. long, the base of the leaf is rather uniformly subcordate instead

of subtruncate or rounded, and the apex is in many of the leaves distinctly acuminate rather than acute.

288. **Bauhinia caribæa** sp. nov. (PLATE XX.)

A slender sparsely branched shrub up to five meters high; the leaves 3–6 cm. long, petioled, broadly suborbicular, at the base broadly and obtusely cordate, at the apex deeply and acutely cordate, the median nerve exserted in the sinus as a short point, leaves bifoliate, somewhat lustrous above, paler below; leaflets connate about two-thirds of their length, ascending, 3–4.5 cm. long, 15–28 mm. wide, below minutely and very shortly pilose, finally glabrescent above, rounded at the base, the apex broadly obtuse, the margin entire, the nerves 3 (or 4), the exterior curved, the interior nearly straight; petioles 8–12 cm. long, slender, densely and minutely short-pilose; racemes pseudo-terminal; pedicels densely and minutely appressed pilose, the bracts linear-lanceolate, 1–1.5 mm. long; flowers 15–25, zygomorphous; calyx spathaceous during flowering, reflexed and finally marcescent, minutely pilose, 5-dentate, about 15–20 mm. long; petals 5, subequal, 10–16 mm. long, 2–3.5 mm. wide, furnished with a claw about 4 mm. long, lanceolate, long acuminate, marginally undulate; stamens inserted in the throat, the lowest one fertile, 2–3 cm. long, arcuate; the sterile ones 9, more or less connate-spathaceous above the base, about 10–13 mm. long; the anther oblong, 2–2.5 mm. long, attached at the middle; ovary on a stipe 5–7 mm. long; the fruits (legumes) usually solitary in the raceme, linear-oblong, about 5–6 cm. long, 9–12 mm. wide, with a stipe 2–2.5 cm. long, minutely and densely hispidulous, the sides of the pod eventually glabrescent, the apex acute and mucronate with the persistent base of the style.

Frutex usque 5 m. altus, gracilis, sparse ramosus; foliis 3–6 cm. longis, petiolatis, late suborbicularibus, basi late obtusangule cordatis, apice valde acutangule cordatis, nervo medio in sinum breviter setaceo-producto, bifoliatis, supra nitidulis, subtus pallidioribus; foliolis circiter 2/3 connatis, adscendentibus, 3–4.5 cm. longis, 15–28 mm. latis, subtus minute et brevissime pilosis, supra demum glabrescentibus, basi rotundatis, apice late obtusis, margine integerrimis, nervis 3 (–4), nervis exterioribus curvatis, interioribus subrectis; petiolis 8–12 cm. longis, satis gracilibus, dense minute et brevissime pilosa; racemis pseudoterminalibus; pedicellis dense et minute appresso-pilosis; bracteis lineari-lanceolatis, 1–1.5 mm. longis; floribus

15–25, zygomorphis; calyce per anthesin spathaceo, reflexo et demum marcescente, minute piloso, 5-dentato, circiter 15–20 mm. longo; petalis 5, subequalibus, 10–16 mm. longis, 2–3.5 mm. latis, circiter 4 mm. longe unguiculatis, lanceolatis, longe acuminatis, margine undulatis; staminibus fauci insertis, infimo fertili, usque 2–3 cm. longo, arcuato, anantheris 9, supra basin plus minusve connato-spathaceis, circiter 10–13 mm. longis; anthera oblonga 2–2.5 mm. longa, in parte media affixa; ovario 5–7 mm. longe stipitato; stylo vix 1 mm. longo; fructibus (leguminibus) in racemo plerumque solitariis, lineari-oblongis, circiter 5–6 cm. longis, 9–12 mm. latis, 2–2.5 cm. longe stipitatis, minute et densissime hispidulis, lateribus demum glabrescentibus, apice acutis et basi styli persistente mucronatis.

Type.—In dense woods north of Caleta Grande, "South Coast." *O. E. Jennings, No. 630.* Now in the herbarium of the Carnegie Museum.

This species is most nearly related to *Bauhinia divaricata* Linnæus, but differs in that *B. divaricata* has the leaflets more or less acute and not united for more than half their length. The color of the petals in *B. caribæa* is apparently white, or very nearly so.

289. **Cassia Sophera** Linnæus.

Cassia Sophera LINNÆUS, Species Plantarum, I, Ed. I, 1753, p. 379.

Near Los Indios, November 4, 1912, *G. A. Link.* General Distribution: Tropics of the Old World, Cuba, Isle of Pines, and rather sparingly in other localities in the American tropics.

290. **Cassia alata** Linnæus. TALANTALA.

Cassia alata LINNÆUS, Species Plantarum, I, Ed. I, 1753, p. 378.
Herpetica alata RAFINESQUE, Sylva Telluriana, 1838, p. 123.

Near Nueva Gerona, December 18, 1903, and February 2, 1904, *A. H. Curtiss, No. 240;* near Nueva Gerona, June 10, 1912, *G. A. Link.* General Distribution: Probably indigenous to tropical America but now widely spread through the tropics of both hemispheres. It occurs in most of the West Indian islands.

291. **Cassia hispidula** Vahl.

Cassia hispidula VAHL, Eclogæ Americanæ, III, p. 10.
Cassia hispida COLLADON, Histoire Naturelle et Médicale des Casses, 1816, p. 118.

Near Nueva Gerona, December 26, 1903, *A. H. Curtiss, No. 255*

(distributed as *Cassia Absus);* weed, dry pasture west of Nueva Gerona, May 5, 1910, *O. E. Jennings, No. 31.* General Distribution: Central America to northern Brazil, Isle of Pines, Cuba.

292. **Cassia rotundifolia** Persoon.

Cassia rotundifolia PERSOON, Synopsis Plantarum seu Enchiridium Botanicum, I, 1805, p. 456.

Cassia bifoliolata DECANDOLLE, in Colladon, Histoire Naturelle et Médicale des Casses, 1816, p. 120, Pl. 9, fig. B.

Near Nueva Gerona, December 27, 1903, *A. H. Curtiss, No. 259.* General Distribution: Mexico to Brazil, Isle of Pines, Cuba, and Jamaica.

293. **Chamæcrista diphylla** (Linnæus) Greene.

Cassia diphylla LINNÆUS, Species Plantarum, I, Ed. I, 1753, p. 376.

Chamæcrista diphylla GREENE, Pittonia, IV, 1899, p. 28.

Near Nueva Gerona, December 15, 1903, *A. H. Curtiss, No. 229;* open spot in jungle at Los Indios, May 20, 1910, *O. E. Jennings, No. 453;* near Los Indios, November 12, 1912, *G. A. Link.* General Distribution: Widely spread through the tropics, although probably indigenous to America.

294. **Chamæcrista lineata** (Swartz) Greene.

Cassia lineata SWARTZ, Prodromus Descriptionum Vegetabilium Indiæ Occidentalis, 1788, p. 66.

Chamæcrista lineata GREENE, Pittonia, IV, 1899, p. 31.

On beach at Siguanea City, May 21, 1910, *O. E. Jennings, No. 460;* open places in the woods near Caleta Grande, May 22, 1910, *O. E. Jennings, No. 521.* A common low shrub in these spots. General Distribution: Jamaica, Isle of Pines.

295. **Chamæcrista micrantha** Britton.

Chamæcrista micrantha BRITTON, Studies of West Indian Plants, Bulletin of the Torrey Botanical Club, XLIII, 1916, p. 463.

In pine-barrens near Majagua River, north of Los Indios, May 19, 1910, *O. E. Jennings, No. 403;* in grassy savanna, along arroyo, near Sante Fé, May 25, 1910, *O. E. Jennings, No. 534;* "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 pygmæa* DC., and taken up by Bentham under *Cassia procumbens* L., but the type of *C. procumbens* is the same as *C. nictitans* L." (Britton, *l. c.*).

The leaflets occur in 10–16 pairs, and are oblong, obliquely mucronate, about 3–4 mm. long, strongly pinnately veined from a midrib, which is located very close to the upper margin of the leaflet. The petiolar glands are subsessile and are situated immediately below the lowest pair of leaflets, and the whole plant is pubescent with minute, curved hairs. The plants differ from *Chamæcrista nictitans* chiefly in the smaller leaflets and the more unsymmetrical position of the midrib. The leaflets in the Carnegie Museum specimens of this species are somewhat more numerous and of a somewhat larger maximum size than is given by Britton in his original description.

296. **Chamæcrista savannarum** Britton.

Chamæcrista savannarum BRITTON, Studies of West Indian Plants, Bulletin of the Torrey Botanical Club, XLIII, 1916, p. 463.

"Savannas and pine-lands, Pinar del Rio and Isle of Pines, Cuba. Type collected near Siguanea, Isle of Pines(*Britton & Wilson, 14379*)" (Britton, *l. c.*). To this species probably belongs also *No. 299, O. E. Jennings*, Pine woods near McKinley, May 14, 1910.

297. **Delonix regia** (Bojer) Rafinesque. ROYAL POINCIANA. FLAME TREE. FLAMBOYANT.

Poinciana regia BOJER, Curtis's Botanical Magazine, 1829, Pl. 2884.
Delonix regia RAFINESQUE, Florula Telluriana, II, 1836, p. 92.
Colvillea racemosa BELLO, Anales de la Sociedad Española de Historia Natural, X, 1881, p. 257.

Near Nueva Gerona, May 21, 1904, *A. H. Curtiss, No. 507;* on Keenan's estate south of Nueva Gerona, May 9, 1910, *O. E. Jennings, No. 181;* without locality, February–March, 1910, *J. F. Shafer.* General Distribution: Native of Madagascar, but now extensively cultivated in the tropics as an ornamental tree, and almost naturalized in some of the West Indian islands.

298. **Poinciana pulcherrima** Linnæus.

Poinciana pulcherrima LINNÆUS, Species Plantarum, I, Ed. I, 1753, p. 380.
Cæsalpinia pulcherrima SWARTZ, Observationes Botanicæ, 1791, p. 166.

Without locality, February–March, 1910, *J. F. Shafer.* General Distribution: Widely distributed in the tropics, extending through the West Indies and reaching southern Florida and the Bahamas.

299. **Guilandina crista** (Linnæus) Small.

Cæsalpinia crista LINNÆUS, Species Plantarum, I, Ed. I, 1753, p. 380, not of Ed. II, p. 544.
Guilandina Bonduc LINNÆUS, Species Plantarum, I, Ed. I, 1753, p. 381.
Guilandina Bonducella LINNÆUS, Species Plantarum, I, Ed. II, 1762, p. 545.
Cæsalpinia Bonducella FLEMING, Asiatic Researches, Calcutta, XI, 1810, p. 159.
Guilandina Bonduc var. *minus* DECANDOLLE, Prodromus Systematis Naturalis Regni Vegetabilis, II, 1825, p. 480.
Guilandina crista SMALL, Flora of the Southeastern U. S., 1903, p. 591.

Near Nueva Gerona, April 30, 1904, *A. H. Curtiss, No. 472.* "Crescit in locis maritimis insulæ Pinorum." 1831, *A. H. Lanier*, A. Richard, in Sagra, "Historia Fisica, Politica y Natural de la Isla de Cuba," X, 1845, p. 217. Richard's statement that the species grows in maritime situations on the Isle of Pines is probably true to the extent that the plant grows mainly on gravelly or sandy lands and it happens that these, in the Isle of Pines, are mainly near the sea. General Distribution: Widely distributed in the tropics, and extending north in North America to Bermuda and southern Florida.

Family FABACEÆ.

(*PAPILIONACEÆ.*)

KEY TO THE SPECIES ENUMERATED.

Annual herbs with glandular hairs and sharply serrate leaflets.
317. *Cicer arietinum.*

Leaflets not sharply serrate.
Leaflets five or more to a leaf.
Fair-sized shrubs or trees.
Leaflets retuse at apex; flowers purplish, in large branching panicles.
316. *Vouacapoua retusa.*
Leaflets with apex acuminate, not retuse.
Leaflets with about 10–12 main veins each side of mid-rib; pods with 4 wings.....315. *Piscidia piscipula.*
Leaflets with less than 10 main veins each side of mid-rib; pods not winged.
Pods somewhat woody, 10–20 cm. long; leaflets about 9–17 in number.....304. *Gliricidia sepium.*
Pods thin, 1–2-seeded, 5–7.5 cm. long; leaflets about 5–11 in number.....314. *Lonchocarpus latifolius.*
Herbs or low herbaceous shrubs.
Leaflets 5 (or 3), up to 2 cm. long.....302. *Indigofera lespedezioides.*
Leaflets more numerous and shorter.
Leaflets hairy, 5–10 mm. long; pods not constricted.
305. *Cracca cinerea.*

Leaflets smooth or nearly so, rarely more than 5 or 6 mm. long; pods strongly constricted.

Leaflets in 4–12 pairs; a slender erect herb; pods much more deeply constricted on the lower edge.

308. *Æschynomene tenuis.*

Leaflets in 12–20 pairs; half-shrubby, 1–3 m. high; pods about equally constricted on both edges. . 307. *Æschynomene sensitiva.*

Leaflets less than five to a leaf.

Leaflets one to a leaf (see also *Indigofera pascuorum* and *Galactia parvifolia*).

Shrub or low bushy tree with one or more leaflets in the axil of a small spine. . . . . 306. *Brya Ebenus.*

Herbs; unarmed.

Stem conspicuously winged. . . . . 300. *Crotalaria pterocaula.*

Stem not conspicuously winged.

Twining vines; leaflets varying from three and ovate, to one and linear-oblong or lance-oblong. 320. *Bradburya virginiana.*

Non-twining, more or less erect herbs.

Leaves obcuneate-oblong, retuse; pod about 3 cm. long by 1.3 cm. wide. . . . . 301. *Crotalaria retusa.*

Leaves linear-oblong, the leafless stem above them terminating in a slender, erect, laxly-flowered spike.

313. *Meibomia Cowellii.*

Leaflets two to a leaf. . . . . 309. *Zornia diphylla.*

Leaflets three to a leaf.

Tree; terminal leaflet often 10 or 12 cm. wide and about the same length.

323. *Erythrina Berteroana.*

Herbs, vines, or undershrubs.

Erect, or not essentially twining plants.

Leaflets up to about 2 cm. long and 3 mm. wide; slender peduncle ascending far above the leaves.

340. *Phaseolus lathyroides.*

Leaflets much larger or else relatively much wider.

Flowers large and showy, with standard up to 5 cm. long and 4 or 5 cm. wide. . . . . 319. *Clitoria guianensis.*

Flowers much smaller.

Leaflets narrowly oblong, more than five times as long as wide. . . . . 338. *Eriosema crinitum.*

Leaflets relatively wider.

Leaflets obtuse to retuse, softly tomentose, about 3–5 by 1.5–2 cm. . . . . 332. *Galactia Jussiæana.*

Leaflets velvety, acuminate, up to 3 by 7 or 8 cm. in dimensions; plants erect; pods not much constricted.

335. *Cajanus indicus.*

Leaflets oval or oblong, rarely over 2 cm. long; plant creeping. . . . . 312. *Meibomia Scorpiurus.*

Leaflets widely ovate, usually about 6 cm. long; stems

creeping, sending up erect leafless flowering branches to a height of 3–5 dm. (or more).

311. *Meibomia axillaris.*

Leaflets ovate, usually about 3–6 cm. long; stems creeping, sending up erect flowering branches which are leafy below. 310. *Meibomia supina.*

Characteristically vines or twining plants.

Leaflets rather small, not usually over 2 cm. in width, varying from oval or ovate to oblong or linear.

Standard spurred or gibbous above the base.

Upper leaves with linear or linear-oblong leaflets, the lower shorter and oblong to oval, rather obtuse, rounded or emarginate.

321. *Bradburya virginiana* var. *angustifolia.*

Leaflets all essentially alike, but on different plants varying from ovate to linear-oblong, obtuse to subacute.

Bracteoles ovate, as long as the calyx.

322. *Bradburya pubescens.*

Bracteoles ovate, shorter than the calyx.

320. *Bradburya virginiana.*

Standard not spurred nor gibbous above the base.

Terminal leaflet (when 3) long-stalked.

Inflorescence short with 1–3 flowers.

Calyx loosely pubescent; branches prostrate.

328. *Galactia parvifolia.*

Calyx densely villous; branches suberect.

329. *Galactia suberecta.*

Inflorescence longer and with several or many flowers.

330. *Galactia striata.*

Leaflets with stalks of about equal length.

331. *Galactia Jenningsii.*

Leaflets mainly over 2 cm. in width.

Peduncles elongated, pendent, with one to several large (up to 15 cm. or more long) pods, which are covered with brownish bristly hairs. 325. *Mucuna altissima.*

Not as above.

Valves of pod 20–30 cm. long, with a prominent ridge near the upper margin.

333. *Canavalia ensiformis.*

Pods short, 1–2-seeded, seeds scarlet and black.

Flowers in short, rather dense, axillary racemes not over 2 cm. long.

336. *Dolicholus reticulatus.*

Flowers numerous in rather dense racemes up to 8 or 10 cm. long. . . . . 337. *Dolicholus precatorius.*

Pods longer; seeds not scarlet and black; leaflets ovate-oblong to ovate.

Pod 2–4 cm. long, the valves with a strong mid-rib. 318. *Clitoria rubiginosa.*

Pod 3–4 cm. long, strongly brownish bristly pubescent, terminal leaflet widely ovate and up to 10–15 cm. long. 327. *Calopogonium orthocarpum.*

Pod 10–15 cm. long by about 5–6 mm. wide, with a slender beak about 10 mm. long; flowers large, 2.5–3 cm. long.....320. *Bradburya virginiana.*

Pods about 4–5 cm. long, nearly terete, scarcely compressed between the seeds.....341. *Vigna repens.*

Pods 6–12 cm. long, somewhat compressed between the seeds, dark colored, slightly pubescent.

Flowers blue, about 1 cm. long. 326. *Calopogonium cæruleum.*

Flowers mostly rose-red, 2–2.5 cm. long. 339. *Phaseolus adenanthus.*

300. **Crotalaria pterocaula** Desvaux.

Crotalaria pterocaula DESVAUX, Journal de Botanique, II, 1814, p. 76.

In swampy place in thicket east of Nueva Gerona, May 6, 1910, *O. E. Jennings, No. 52.* General Distribution: Tropical South America, Cuba, Isle of Pines.

301. **Crotalaria retusa** Linnæus.

Crotalaria retusa LINNÆUS, Species Plantarum, II, Ed, I, 1753, p. 715.

A weed in fields at Bibijagua, May 7, 1910, *O. E. Jennings, No. 108.* General Distribution: Widely distributed in the tropics of the world, extending north in America as far as the Bahamas and southern Florida.

302. **Indigofera lespedezioides** Humboldt, Bonpland, & Kunth.

Indigofera lespedezioides HUMBOLDT, BONPLAND, & KUNTH, Nova Genera et Species Plantarum, VI, 1823, p. 457.

In open woods near Sante Fé, May 25, 1910, *O. E. Jennings, No. 556.* Flowers flesh pink. General distribution: Cuba, Isle of Pines, and from Mexico to tropical South America.

303. **Indigofera pascuorum** Bentham.

Indigofera pascuorum BENTHAM, Annals and Magazine of Natural History, III, 1839, p. 431.

Northern part of the island, *Blain, No. 23* (Millspaugh). General Distribution: Cuba, the Isle of Pines, and continental tropical America.

304. **Gliricidia sepium** (Jacquin) Steudel.

Robinia sepium JACQUIN, Enumeratio Plantarum Quas in Insulis Caribæis Detexit, 1760, p. 28.

Robinia maculata HUMBOLDT, BONPLAND, & KUNTH, Nova Genera et Species Plantarum, VI, 1823, p. 393.

Lonchocarpus maculatus P. DECANDOLLE, Prodromus Systematis Naturalis Regni Vegetabilis, II, 1825, p. 260.

Gliricidia sepium STEUDEL, Nomenclator Botanicus, I, Ed. II, 1841, p. 688.

Gliricidia Lambii FERNALD, Botanical Gazette, XX, 1895, p. 533.

Near Nueva Gerona, April 6 and May 30, 1904, *A. H. Curtiss, No. 437*. General Distribution: Cuba, the Isle of Pines, Haiti, Santo Domingo, Porto Rico, Jamaica, and from Mexico to northern South America.

305. **Cracca cinerea** (Linnæus) Morong.

Galega cinerea LINNÆUS, Systema Naturæ, II, Ed. X, 1759, p. 1172.

Tephrosia cinerea PERSOON, Synopsis Plantarum, II, 1807, p. 328.

Cracca villosa var. *cinerea* O. KUNTZE, Revisio Generum Plantarum, I, 1891, p. 173.

Cracca cinerea MORONG, Annals, New York Academy of Sciences, VII, 1892, p. 79.

Field at Bibijagua, May 7, 1910 (flowers blue) *O. E. Jennings, No. 105;* field, near Nueva Gerona, May 14, 1910, *O. E. Jennings, No. 640*. General Distribution: Bahamas, West Indies, and the American continental tropics.

Our specimens are smaller-leaved than specimens from various other localities, but the specimens from the Isle of Pines, in at least one instance, show traces of fire, the present shoots arising from the perennial more or less charred woody crown. This may perhaps account for a dwarfed condition of the specimens.

306. **Brya Ebenus** (Linnæus) DeCandolle.

GRANADILLO. AMERICAN EBONY.

Aspalathus Ebenus LINNÆUS, Systema Naturæ, II, Ed. X, 1759, p. 1158.

Amerimnon Ebenus SWARTZ, Prodromus Descriptionum Vegetabilium Indiæ Occidentalis, 1788, p. 104.

Brya Ebenus DECANDOLLE, Prodromus Systematis Naturalis Regni Vegetabilis, II, 1825, p. 421.

Near Nueva Gerona, January and March, 1904, *A. H. Curtiss, No. 262;* shrub about five feet high, in dry savannah east of Nueva Gerona, May 5, 1910, *O. E. Jennings, No. 2;* northern part of the island, *Blain, No. 135* (Millspaugh). General Distribution: Dry gravelly savannas in the Bahamas, Cuba, Isle of Pines, and Jamaica.

On the dry "Mal Pais" gravelly soils of the northeastern part of

the island the Granadillo occurs in large numbers in thickets or as scattered plants. The plants grow to a height of from six or eight up to perhaps fifteen feet, with a rounded crown of stiff bushy branches. The wood is hard, heavy, and takes a beautiful polish, the light yellowish sapwood contrasting strikingly with the seal-brown heartwood.

307. **Æschynomene sensitiva** Swartz.

Æschynomene sensitiva SWARTZ, Prodromus Descriptionum Vegetabilium Indiæ Occidentalis, 1788, p. 107.

Æschynomene fistulosa BELLO, Anales de la Sociedad Española de Historia Natural, X, 1881, p. 259.

Near Nueva Gerona, January 19, 1904, *A. H. Curtiss, No. 300.* General Distribution: Widely distributed through the West Indies and continental tropical America, also in the tropics of Africa.

308. **Æschynomene tenuis** Grisebach.

Æschynomene tenuis GRISEBACH, Catalogus Plantarum Cubensium, 1866, p. 72.

Near Nueva Gerona, December 18, 1903, *A. H. Curtiss, No. 241;* in pasture on dry savanna land near Nueva Gerona, May 5, 1910, *O. E. Jennings, No. 19;* same locality, May 14, 1910, *O. E. Jennings, No. 248;* near Nueva Gerona, June 10, 1912, *G. A. Link;* near Los Indios, November 4, 1912, *G. A. Link;* northern part of the island, *Blain, No. 24* (Millspaugh). General Distribution: Western Cuba and the Isle of Pines.

309. **Zornia diphylla** (Linnæus) Persoon.

Hedysarum diphyllum LINNÆUS, Species Plantarum, II, Ed. I, 1753, p. 747.

Zornia diphylla PERSOON, Synopsis Plantarum, II, 1807, p. 318.

Zornia reticulata J. E. SMITH, Rees's New Encyclopedia, XXXIX, 1818, no. 2.

Near Nueva Gerona, February, 1904, *A. H. Curtiss, No. 340;* field near Nueva Gerona, May 6, 1910, *O. E. Jennings, No. 635;* northern part of the island, *Blain No. 101* (Millspaugh). General Distribution: Widely distributed throughout the tropics of both hemispheres, occurring on most of the West Indian islands. In the Isle of Pines found mainly in pastured lands, repeatedly burned over, the plants coming up year after year from a woody partly subterranean base.

310. **Meibomia supina** (Swartz) Britton.

Hedysarum supinum SWARTZ, Prodromus Descriptionum Vegetabilium Indiæ Occidentalis, 1788, p. 106.

Hedysarum incanum SWARTZ, *op. cit.*, p. 107.
Desmodium incanum DECANDOLLE, Prodromus Systematis Naturalis Regni Vegetabilis, II, 1825, p. 332.
Hedysarum portoricense SPRENGEL, Systema Vegetabilium, III, 1826, p. 314.
Meibomia supina BRITTON, Annals, New York Academy of Sciences, VII, 1892, p. 83.
Meibomia incana COOK & COLLINS, Contributions from the U. S. National Herbarium, VIII, 1903, p. 189.

Near Nueva Gerona, January 31, 1904, *A. H. Curtiss, No. 320;* thin soil on coralline limestone, north of Caleta Grande, May 22, 1910, *O. E. Jennings, Nos. 477 and 523;* in dry savanna south of Sante Fé, May 25, 1910, *O. E. Jennings, No. 548.* General Distribution: From southern Florida and the Bahamas southwards through the West Indies, and widely distributed in the American continental tropics; Africa; Mauritius.

311. **Meibomia axillaris** var. **obtusifolia** O. Kuntze.

Meibomia axillaris var. *obtusifolia* O. KUNTZE, Revisio Generum Plantarum, I, 1891, p. 195.
Desmodium axillare var. *genuinum* URBAN, Symbolæ Antillanæ, II, 1900, p. 303.
Desmodium axillare var. *obtusifolia* URBAN, Symbolæ Antillanæ, IV, 1905, p. 291.

In Sante Fé, in the park near the magnesia springs, May 26, 1910, *O. E. Jennings, No. 572.* General Distribution: Rather widely distributed in the West Indies from Cuba south and southeast, and occurring in Central and South America.

312. **Meibomia Scorpiurus** (Swartz) Kuntze.

Hedysarum Scorpiurus SWARTZ, Prodromus Descriptionum Vegetabilium Indiæ Occidentalis, 1788, p. 107.
Desmodium Scorpiurus DESVAUX, Journal de Botanique, I, 1813, p. 122.
Meibomia Scorpiurus O. KUNTZE, Revisio Generum Plantarum, I, 1891, p. 198.

Near Nueva Gerona, February 22, 1904, *A. H. Curtiss, No. 360;* northern part of the island, *Blain, No. 77* (Millspaugh). General Distribution: From Cuba southwards through the West Indies, and from Mexico to Peru.

313. **Meibomia Cowellii** Britton.

Meibomia Cowellii BRITTON, Bulletin of the Torrey Botanical Club, XLI, 1914, p. 19.

In thin pine woods near Sante Fé, May 26, 1910, *O. E. Jennings, No. 563.* General Distribution: Savannas and open pine woods in Pinar del Rio Province, Cuba, and the Isle of Pines.

314. **Lonchocarpus latifolius** (Willdenow) Humboldt, Bonpland, & Kunth.

Amerimnum latifolium WILLDENOW, Species Plantarum, III (2), 1803, p. 909.
Dalbergia pentaphylla POIRET, Lamarck's Encyclopédie Méthodique, Botanique, Supplement II, 1811, p. 445.
Lonchocarpus pentaphyllus HUMBOLDT, BONPLAND, & KUNTH, Nova Genera et Species Plantarum, VI, 1823, p. 383.
Lonchocarpus latifolius HUMBOLDT, BONPLAND, & KUNTH, *op. cit.*, p. 383.
Cytisus membranaceus SESSÉ & MOÇINO, Flora Mexicana, Ed. II, p. 174.

Near Nueva Gerona, April 24, 1904, *A. H. Curtiss, No. 462;* on river bank at Sante Fé, May 24, 1910 (in full flower), *O. E. Jennings, No. 565*. General Distribution: Generally distributed in the West Indies as far north as Cuba, and in continental America from Mexico to Guiana.

The specimens secured at Sante Fé were borne on a large spreading tree about forty feet high, with rather light green foliage somewhat resembling that of *Fraxinus americana*. The flowers borne in dense racemes about two or three inches in length, were light yellow in color and faintly but not very pleasantly scented.

Note.—Lonchocarpus sericeus Humboldt, Bonpland & Kunth, was reported as growing in Cuba and the Isle of Pines by Achille Richard, in Sagra, "Historia Fisica, Politica y Natural de la Isle de Cuba," X, 1845, p. 179. The Isle of Pines was included in this distribution on the basis of specimens collected there by Lanier in 1831.

The writer is not satisfied that *Lonchocarpus sericeus* is properly to be included in the list for the Isle of Pines. Richard's description for that species is mainly as follows: Branches, petioles, and peduncles densely tomentose-sericeous; leaflets 7–11, oval, acuminate, the base obtuse, above pubescent, below densely tomentose-sericeous; racemes terminal, numerous, as long as or longer than the leaves; petals externally sericeous; legumes short, 1–3-seeded, densely fulvous-velvety.

315. **Piscidia piscipula** (Linnæus) Sargent.

Erythrina piscipula LINNÆUS, Species Plantarum, II, Ed. I, 1753, p. 707.
Piscidia erythrina LINNÆUS, Systema Naturæ, II, Ed. X, 1759, p. 1155.
Ichthyomethia piscipula HITCHCOCK, Garden and Forest, IV, 1891, p. 472.
Piscidia piscipula SARGENT, Garden and Forest, IV, 1891, p. 436.

Northern part of the island, *Blain, No. 159* (Millspaugh). General Distribution: From Florida and the Bahamas south through the West Indies, and from Mexico to northern South America.

316. **Vouacapoua retusa** (Humboldt, Bonpland, & Kunth).

Andira retusa HUMBOLDT, BONPLAND, & KUNTH, Nova Genera et Species Plantarum, VI, 1823, p. 385.

Near Nueva Gerona, June 4, 1904, *A. H. Curtiss, No. 525* (issued as *Vouacapoua americana* Aublet, from which it differs in the non-acuminate, retuse leaves); small spreading tree at west base of Caballos Mts., May 9, 1910, *O. E. Jennings, No. 185*. General Distribution: Northern South America and the Isle of Pines. Possibly to be regarded as a variety of the Jamaican species (*V. jamaicensis* = *Andira jamaicensis*) but differing quite strongly in the shape of the leaves.

317. **Cicer arietinum** Linnæus. CHICK-PEA.

Cicer arietinum LINNÆUS, Species Plantarum, II, Ed. I, 1753, p. 738.

Collected by Millspaugh (Field Columbian Museum, Botanical Series, II, 1900, p. 51), "running wild in a garden enclosure at Pedernales Point, Isle of Pines." *Millspaugh, No. 1407*. General Distribution: Warmer regions of the Old World, and cultivated and often escaping in the American tropics.

318. **Clitoria rubiginosa** Jussieu.

Clitoria rubiginosa JUSSIEU in Persoon, Synopsis Plantarum, II, 1807, p. 33.

Neurocarpum ellipticum DESVAUX, Journal de Botanique, I, 1813, p. 119.

Clitoria glycinoides P. DECANDOLLE, Prodromus Systematis Naturalis Regni Vegetabilis, II, 1825, p. 234.

Neurocarpum falcatum P. DECANDOLLE, *op. cit.*, p. 236.

Near Nueva Gerona, May 8, 1904, *A. H. Curtiss, No. 487*. General Distribution: West Indies generally; Panama; and northern South America.

319. **Clitoria guianensis** (Aublet) Bentham.

Crotalaria guianensis AUBLET, Histoire des Plantes de la Guiane Française, II, 1773, p. 761.

Crotalaria longifolia LAMARCK, Encyclopédie Méthodique, Botanique, II, 1811, p. 201.

Neurocarpum guianense DESVAUX, Journal de Botanique, I, 1814, p. 75.

Clitoria guianensis BENTHAM, Journal of the Linnean Society, London, II, 1858, p. 40.

Near Nueva Gerona, April 17, 1904, *A. H. Curtiss, No. 448;* near Nueva Gerona, in field, May, 1910, *O. E. Jennings;* in open pine woods, near McKinley, May 16, 1910, *O. E. Jennings, No. 298;* near Nueva Gerona, early summer, 1912, *G. A. Link*. General

Distribution: In fields, Guiana, Venezuela, Brazil, and Isle of Pines.

Curtiss's plant was distributed (*No. 448, West Indian Plants*) under the name *Clitoria cajanifolia*, and subsequent collections from the Isle of Pines seem to have been labeled the same (= *Clitoria laurifolia*), but a careful examination of various descriptions have led the writer to believe that the plants should be called *Clitoria guianensis*. The plants have a thick woody taproot and, from the crown, are sent up erect branches to a height of from 5 to 20 cm., bearing in the upper axils one or two flowers. The flowers are quite striking objects, the standard often reaching a length of 6 cm. and a width of 5 cm., the color varying from blue to rose or fading to almost white. The leaflets are narrowly oblong, about 8–12 mm. wide and from 6–10 cm. long, sometimes longer in vegetative shoots. The leaves are sparingly pubescent on the veins beneath, strongly reticulated, minutely glandular on both sides, paler and somewhat glaucous beneath. The apex is obtuse but mucronulate. The pods are about 4 cm. long by 6 mm. wide, their valves being strongly costate, the apex tapering into a beak about 5–8 mm. long.

The writer has not seen Blain's collections, now in the Herbarium of the Field Museum, but it is probable that the specimen reported by Millspaugh for the Isle of Pines, *Blain, No. 29*, is also *Clitoria guianensis*.

320. **Bradburya virginiana** (Linnæus) Kuntze.

Clitoria virginiana LINNÆUS, Species Plantarum, II, Ed. I, 1753, p. 753.

Centrosema virginianum BENTHAM, Annalen d. K. K. Naturhistorischen Hofmuseums, Wien, II, 1838, p. 120.

Bradburya virginiana KUNTZE, Revisio Generum Plantarum, I, 1891, p. 164.

Open savanna among palmettoes, near Nueva Gerona, May 5, 1910, *O. E. Jennings, No. 17;* same locality and collector, *No. 35;* weed on low, rich, recently cleared land north of Nueva Gerona, May 7, 1910, *O. E. Jennings, No. 142;* along arroyo east of Los Indios, May 18, 1910, *O. E. Jennings, No. 356;* west of La Cañada Mts., May 18, 1910, *O. E. Jennings, No. 633;* near Nueva Gerona, June 3, 1912, *G. A. Link.* General Distribution: In America ranging from New Jersey and Arkansas to Argentina; also occurring in the tropics of the Old World.

321. **Bradburya virginiana** var. **augustifolia** (Linnaeus) comb. nov

Clitoria virginiana var. *angustifolia* P. DECANDOLLE, Prodromus Systematis Naturalis Regni Vegetabilis, II, 1825, p. 234.

Centrosema virginianum var. *angustifolium* GRISEBACH, Flora of the British West Indian Islands, 1860, p. 193.

Bradburya cubana BRITTON. Herbarium name, not published.

Near Nueva Gerona, February 14, 1904, *A. H. Curtiss, No. 343.* General Distribution: Cuba and the Isle of Pines.

322. **Bradburya pubescens** (Bentham) Kuntze.

Centrosema pubescens BENTHAM, Annalen d. K. K. Naturhistorischen Hofmuseums, Wien, II, 1838, p. 119.

Bradburya pubescens KUNTZE, Revisio Generum Plantarum, I, 1891, p. 164.

Near Nueva Gerona, December 16, 1903, *A. H. Curtiss, No. 232;* between Los Indios and La Cañada Mts., May 18, 1910, *O. E. Jennings, No. 631.* General Distribution: Cuba, the Isle of Pines, the West Indies generally; continental tropical America.

323. **Erythrina Berteroana** Urban.

Erythrina Berteroana URBAN, Symbolæ Antillanæ, V, 1908, p. 370.

Near Nueva Gerona, January 11, 1904, *A. H. Curtiss, No. 284;* low shrub near Caleta Grande, "South Coast," May 22, 1910, *O. E. Jennings, No. 466.* General Distrbution: Cuba, the Isle of Pines, Colombia.

The Caleta Grande specimen was in fruit. Its pods being 8–14 cm. long, strongly moniliform, about 1 cm. thick but the constrictions only about 3–5 mm. in diameter, the pod greenish brown in color, tapering below into a stipe about 2 cm. long, abruptly terminated at the apex by a stiff acumination about 2–2.5 cm. long. The seeds are about 8–10 mm. long, by about 5 mm. thick, brick-red, shining. The Curtiss specimen (*West Indian Plants, No. 284*) was distributed under the name of *Erythrina carnea* Aiton.

324. **Erythrina** sp.

Specimen with a few flowers and immature pods, gathered from a leafless tree about 14 feet high, on the top of Caballos Mts., May 13, 1910, *O. E. Jennings, No. 232.*

Too incomplete for definite identification. The flowers have an obtusely and shallowly two-lipped calyx about 8 mm. long, the corolla being red (probably scarlet) with a closely folded standard about 3 cm. long and about 6 mm. wide when in the normal folded position.

325. **Mucuna altissima** (Jacquin) P. DeCandolle.

Dolichos altissimus JACQUIN, Enumeratio Plantarum Quas in Insulis Caribæis Detexit, 1760, p. 27.

Stizolobium altissimum PERSOON, Synopsis Plantarum, II, 1807, p. 299.

Mucuna altissima DECANDOLLE, Prodromus Systematis Naturalis Regni Vegetabilis, II, 1825, p. 405.

Mucuna urens STAHL, Estudios sobre (para) la Flora de Puerto-Rico, III, 1885, p. 85 (not DeCandolle).

In jungle along stream southwest of Bibijagua, May 7, 1910, *O. E. Jennings, No. 83.* General Distribution: Cuba, the Isle of Pines, Jamaica, Haiti, St. Kitts, Guadeloupe, Martinique, St. Vincent, Panama, and Brazil.

A vine, climbing in the dense jungle to a height of eight or ten feet. The pods (on our specimen) are borne, four together, on a long hanging peduncle. The largest pods are 20 cm. long, 5 cm. in width, and on one edge ridged with two somewhat scalloped flanges. The valves are irregularly ridged, and are more or less brown-velvety with fine stiff hairs, which, to the skin, are very irritating and somewhat poisonous, evidently in this respect resembling closely the notorious "cowhage" (*Mucuna pruriens*). The seeds are borne one to four in a pod and are a dirty yellow-brown, shading towards the raphe into a lighter ashy color, the raphe itself being black and extending about four-fifths the way around the seed. The beans are about 2.5 cm. in diameter, almost orbicular, and about 1.5 cm. in thickness.

326. **Calopogonium cæruleum** Desvaux.

Calopogonium cæruleum, DESVAUX, Annales des Sciences Naturelles, Ser. I, IX, 1826, p. 423.

Stenolobium cæruleum BENTHAM, Annalen d. K. K. Naturhistorischen Hofmuseums, Wien, II, 1838, p. 125.

Near Nueva Gerona, December 14, 1903, *A. H. Curtiss, No. 226.* General Distribution: West Indies, and from Mexico to southern Brazil.

327. **Calopogonium orthocarpum** Urban.

Calopogonium orthocarpum URBAN, Symbolæ Antillanæ, I, 1899, pp. 327–328.

Near Nueva Gerona, January 1, 1904, *A. H. Curtiss, No. 265.* General Distribution: Isle of Pines, Porto Rico, Haiti, and Colombia.

328. **Galactia parvifolia** A. Richard.

Galactia parvifolia A. RICHARD, in Sagra, Histoire Physique, Politique et Naturelle de l'Ile de Cuba, Plantes Vasculaires, 1845, p. 414.

Galactia stenophylla URBAN, Symbolæ Antillanæ, II, 1900, p. 313. Not Hooker & Walker-Arnott.

Galactia parvifolia triphylla, heterophylla, and *monophylla* URBAN, *op. cit.*, pp. 314, 315.

Galactia Grisebachii URBAN, Symbolæ Antillanæ, V, 1908, p. 372.

Reported by Britton, "Studies of West Indian Plants", VIII, *Bulletin of the Torrey Botanical Club*, XLIII, 1916, p. 449, as follows: "Grassy fields and banks at lower elevations, all provinces [Cuba] and Isle of Pines; South Florida; Hispaniola. Consists of races differing in number, form and size of leaflets."

329. **Galactia suberecta** Britton.

Galactia suberecta BRITTON, Studies of West Indian Plants, VIII, Bulletin of the Torrey Botanical Club, XLIII, 1916, p. 450.

"Savanna near San Juan, Isle of Pines, Cuba (*Britton & Wilson 14973*)" (Britton, *l. c.*).

330. **Galactia striata** (Jacquin) Urban.

Glycine striata JACQUIN, Hortus Botanicus Vindobonensis, I, 1770, p. 32, Pl. 76.

Galactia cubensis HUMBOLDT, BONPLAND & KUNTH, Nova Genera et Species Plantarum, VI, 1823, p. 429.

Galactia Berteriana DECANDOLLE, Prodromus Systematis Naturalis Regni Vegetabilis, II, 1825, p. 238.

Galactia striata URBAN, Symbolæ Antillanæ, II, 1900, p. 320.

Galactia striata cubensis and *Berteriana* URBAN, *op. cit.*, p. 322.

Reported by Britton, "Studies of West Indian Plants", VIII, *Bulletin of the Torrey Botanical Club*, XLIII, 1916, p. 450, as follows: "Thickets and hillsides at lower elevations, all provinces [Cuba] 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 [*Galactia spiciformis* Torrey & Gray]. Races differ in pubescence." Reported by Millspaugh: Northern part of the island, *Blain, No. 92*, as *Galactia filiformis* var. *cubensis* (Kunth) Grisebach.

331. **Galactia Jenningsii** Britton.

Galactia Jenningsii BRITTON, Studies of West Indian Plants, Bulletin of the Torrey Botanical Club, XLIII, 1916, p. 451.

Pine-barrens east of Los Indios, May 18, 1910, *O. E. Jennings, No. 350.* Probably also belonging to this species is a fragmentary

specimen collected on the savanna ("Mal Pais" gravel) near Santa Fé, May 25, 1910, *O. E. Jennings, No. 539.* Flowers blue or purplish; "white-sand pine-barrens, Isle of Pines, scarce and local (*Britton & Wilson 14186, type*)" (Britton, *l. c.*).

332. **Galactia Jussiæana** Kunth.

Galactia Jussiæana KUNTH, Mimoses et Autres Plantes Legumineuses du Nouveau Continent, 1824, p. 196, Pl. 55.

Clitoria glomerata GRISEBACH, Catalogus Plantarum Cubensium, 1866, p. 74.

Near Nueva Gerona, March 13 and May 8, 1904, *A. H. Curtiss, No. 402.* (Distributed as *Galactia Curtisii* Britton); northern part of the island, *Blain* (Millspaugh); open woods southwest of Bibijagua, May 7, 1910, *O. E. Jennings, No. 90;* open pine woods near McKinley, May 16, 1910, *O. E. Jennings, No. 297;* sandy pine-barrens, Los Indios, May 19, 1910 (abundant at this locality), *O. E. Jennings, No. 391.* General Distribution: "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." Britton, "Studies of West Indian Plants," VIII, *Bulletin of the Torrey Botanical Club,* XLIII, 1916, p. 452.

Millspaugh lists for the Isle of Pines also: *Galactia angustifolia* var. *retusa* Wright, in Grisebach, *Catalogus Plantarum Cubensium,* 1866, p. 75. Northern part of the island, *Blain, No. 61.*

333. **Canavalia ensiformis** (Linnæus) DeCandolle. SWORD BEAN. JACK BEAN.

Dolichos ensiformis LINNÆUS, I, Ed. I, 1753, pp. 725–726.

Canavalia gladiata (Savi) DECANDOLLE, Prodromus Systematis Naturalis Regni Vegetabilis, II, 1825, p. 404.

Canavalia ensiformis DECANDOLLE, *l. c.*

Without locality, February–March, 1910, *Dr. Jared F. Shafer.* General Distribution: Tropics and subtropics of both hemispheres and often cultivated. Probably sparingly escaped in the Isle of Pines.

334. **Canavalia cubensis** Grisebach.

Canavalia cubensis GRISEBACH, Plantæ Wrightianæ, Memoirs American Academy Arts and Sciences, Ser. II, VIII, 1860, p. 178.

Northern part of the island, *Blain, No. 97* (Millspaugh). General Distribution: Western Cuba and the Isle of Pines.

Note.—*Canavalia obtusifolia* DECANDOLLE, Prodromus Systematis Naturalis Regni Vegetabilis, II, 1825, p. 403, is reported by A. Richard as an Indian species cultivated and acclimated near Batabanó and in the Isle of Pines (Sagra, "Historia Fisica, Politica y Natural de la Isla de Cuba," XX, 1845, p. 194).

335. **Cajanus indicus** Sprengel.

Cytisus Cajan LINNÆUS, Species Plantarum, II, Ed. I, 1753, p. 739.
Cajanus bicolor DECANDOLLE, Catalogus Plantarum Horti Monspeliensis, 1813, p. 85.
Cajanus flavus DECANDOLLE, *l. c.*
Cajanus indicus SPRENGEL, Systema Vegetabilium, III, 1826, p. 248.
Cajan(us) Cajan MILLSPAUGH, Field Columbian Museum, Bot. Ser., II, 1900, p. 53.

Pedernales Point, February 16, 1899, *Millspaugh, No. 1416.* General Distribution: Tropics. In America extending north to Bermuda and southern Florida.

336. **Dolicholus reticulatus** (Swartz) Millspaugh.

Glycine reticulata SWARTZ, Prodromus Descriptionum Vegetabilium Indiæ Occidentalis, 1788, p. 105.
Rhynchosia reticulata DECANDOLLE, Prodromus Systematis Naturalis Regni Vegetabilis, II, 1825, p. 385.
Dolicholus reticulatus MILLSPAUGH, Field Columbian Museum, Botany, II, 1900, p. 53.

In savanna near Santa Fé, May 25, 1910, *O. E. Jennings, No. 557*, near Nueva Gerona, June 12, 1912, *G. A. Link.* General Distribution: Through most of the West Indian Islands and in northern South America.

337. **Dolicholus precatorius** (Humboldt & Bonpland) Rose.

Glycine precatoria HUMBOLDT & BONPLAND, in Willdenow, Enumeratio Plantarum Horti Botanici Berolinensis, 1809, p. 755.
Rhynchosia precatoria DECANDOLLE, Prodromus Systematis Naturalis Regni Vegetabilis, II, 1825, p. 385.
Dolicholus precatorius ROSE, Contributions from the U. S. National Herbarium, XX, (Part III), 1906, p. 101.

Near base of Mt. Colombo, in woods, May 14, 1910, *O. E. Jennings, No. 274.* General Distribution: Mexico to Panama, and the Isle of Pines.

The seeds of this vine are scarlet, with one end black-tipped, and resemble so closely the seeds of *Abrus precatorius*, the "Prayer-

beads," or "Jequirity," as to make it almost impossible to separate them when mixed. Kunth notes that the seeds of this species are strung on strings for rosaries in the same manner as those of *Abrus*.

338. **Eriosema crinitum** (Humboldt, Bonpland, & Kunth) G. Don.

Glycine crinita HUMBOLDT, BONPLAND, & KUNTH, Nova Genera et Species Plantarum, VI, 1823, p. 421, Pl. 573.

Rhynchosia crinita DECANDOLLE, Prodromus Systematis Naturalis Regni Vegetabilis, II, 1825, p. 389.

Eriosema crinitum G. DON, General History of the Dichlamydeous Plants, II, 1832, p. 348.

Near Nueva Gerona, December 16, 1903, *A. H. Curtiss, No. 233;* savanna near Nueva Gerona, May 5, 1910, *O. E. Jennings, No. 20;* open pine woods west of La Cañada Mts., May 18, 1910, *O. E. Jennings, No. 634;* northern part of the island, *Blain, No. 47*, reported by Millspaugh, *Field Columbian Museum, Botany*, I, 1900, p. 428. General Distribution: Cuba, Isle of Pines, and from Mexico to South America.

339. **Phaseolus adenanthus** Meyer.

Phaseolus adenanthus MEYER, Primitiæ Floræ Essequeboensis, 1818, p. 239.

Phaseolus truxillensis HUMBOLDT, BONPLAND, & KUNTH, Nova Genera et Species Plantarum, VI, 1823, p. 451.

Phaseolus cochleatus BELLO, Anales de la Sociedad Española de Historia Natural, X, 1881, p. 253.

Near Nueva Gerona, January 31 and March 20, 1904, *A. H. Curtiss, No. 319.* General Distribution: The Isle of Pines, Jamaica, Guadeloupe, Martinique, St. Vincent, Tobago, and in various localities in tropical continental America and the tropics of the Old World.

340. **Phaseolus lathyroides** Linnæus (?).

Phaseolus lathyroides LINNÆUS, Species Plantarum, II, Ed. II, 1763, p. 1018.

Phaseolus semierectus LINNÆUS, Mantissa Plantarum, I, 1767, p. 100.

Near Nueva Gerona, February and April, 1904, *A. H. Curtiss, No. 357;* pastured lands west of Nueva Gerona, May 5, 1910, *O. E. Jennings, No. 36.* Flowers flesh-pink. General Distribution: Tropics of America and Asia, extending in America as far north as the West Indies and Bahamas.

The specimens seen from the Isle of Pines have small linear-oblong leaves, the largest being 3 mm. wide and about 15–18 mm. long, at the apex mucronulate, obtuse, the edges revolute, and both sides

minutely strigose pubescent with hairs arising from glands. The identification of these specimens as *P. lathyroides* must be considered doubtful.

341. **Vigna repens** (Linnæus) Kuntze.

Dolichos repens LINNÆUS, Systema Naturæ, II, Ed. X, 1759, p. 1163.
Dolichos luteolus JACQUIN, Hortus Botanicus Vindobonensis, I, 1770, p. 39, Pl. 90.
Vigna luteola BENTHAM, Martius, Flora Brasiliensis, XV (I), 1859, p. 194, Pl. 50, fig. II.
Vigna repens KUNTZE, Revisio Generum Plantarum, I, 1891, p. 212.
Orobus trifoliatus SESSÉ & MOÇINO, Flora Mexicana, Ed. II, 1894, p. 167.

Near Caleta Grande, South Coast, May 22, 1910, *O. E. Jennings, No. 509* (flowers yellow). General Distribution: Tropics and subtropics of both hemispheres; in America as far north as the Bermudas and the Gulf States from Florida to Texas.

Family OXALIDACEÆ.

342. **Oxalis pinetorum** (Small) Urban.

Oxalis frutescens GRISEBACH, Catalogus Plantarum Cubensium, 1866, not Linnæus.
Lotoxalis pinetorum SMALL, North American Flora, XXV, Part I, 1907, p. 49.
Oxalis pinetorum URBAN, Symbolæ Antillanæ, V, 1908, p. 376.

The type specimen, reported by Small, *l. c.*, was collected at Santa Rosalia, June 25, 1901, *A. A. Taylor, 154;* on "Mal Pais" gravel, Sante Fé, May 25, 1910, *O. E. Jennings, No. 541;* northern part of the island, May, *Blain, Nos. 27, 139,* reported by Millspaugh (*Field Columbian Museum, Botany,* I, 1900, p. 428) under the name of *Oxalis frutescens* Linnæus, but with the note: "Flowering peduncles twice exceeding the leaf." General Distribution: Cuba and the Isle of Pines.

Family ERYTHROXYLACEÆ.

KEY TO THE SPECIES ENUMERATED.

Leaves about 1.5–2 cm. long, obovate, emarginate.
343. *Erythroxylon alaternifolium.*
Leaves up to 6–8 cm. long, obtuse or emarginate.....344. *Erythroxylon obtusum.*

343. **Erythroxylon alaternifolium** A. Richard.

Erythroxylon alaternifolium A. RICHARD, in Sagra, Historia Fisica, Politica y Natural de la Isla de Cuba, X, 1845, p. 105.
Erythroxylon alternifolium MAZA, Anales de la Academía de Ciencias Médicas, Físicas y Naturales de la Habana, 1890, p. 225.

Near Nueva Gerona, April 27, 1904, *A. H. Curtiss, No. 467.* General Distribution: Cuba and the Isle of Pines.

344. **Erythroxylon havanense** Jacquin.

Erythroxylon havanense JACQUIN, Enumeratio Plantarum Quas in Insulis Caribæis Detexit, 1760, p. 21.

Erythroxylon obtusum DECANDOLLE, Prodromus Systematis Naturalis Regni Vegetabilis, I, 1824, p. 574.

Erythroxylon areolatum POEPPIG, MS, not Linnæus. (O. E. Schulz.)

Near Nueva Gerona, May 31, 1904, *A. H. Curtiss, No. 519;* northern part of the island, *Blain, Nos. 55, 155, 165* (Millspaugh). General Distribution: Cuba and the Isle of Pines.

Family ZYGOPHYLLACEÆ.

345. **Guiacum sanctum** Linnæus.

Guiacum sanctum LINNÆUS, Species Plantarum, 1753, p. 382; GRISEBACH, Flora of the British West Indian Islands, 1859, p. 134.

Northern part of the island, *Blain, No. 124* (Millspaugh). General Distribution: Southern Florida, the Bahamas, Cuba, the Isle of Pines, Porto Rico, and Hispaniola.

Family RUTACEÆ.

KEY TO THE SPECIES ENUMERATED.

Leaves with 3–5 leaflets.....346. *Amyris balsamifera.*

Leaves with but one leaflet.

Branches with thorns; leaflets ovate-oblong, about twice as long as wide. 348. *Citrus Lima.*

Branches usually thornless; leaflets widely ovate, often nearly as wide as long. 347. *Citrus vulgaris.*

346. **Amyris balsamifera** Linnæus.

Amyris balsamifera LINNÆUS, Systema Naturæ, II, Ed. X, 1759, p. 1000.

Toxicodendron arborescens MILLER, Gardener's Dictionary, Ed. VIII, 1768.

Rhus arborescens DECANDOLLE, Prodromus Systematis Naturalis Regni Vegetabilis, II, 1825, p. 73.

Amyris sylvatica var. GRISEBACH, Memoirs of the American Academy of Arts and Sciences, Series II, VIII, 1860, p. 176.

Elemifera balsamifera KUNTZE, Revisio Generum Plantarum, I, 1891, p. 100.

Schimmelia oleifera HOLMES, Pharmaceutical Journal and Transactions, London, LXII, 1899, p. 53.

A bushy tree about 5 m. high, in moist soil at edge of jungle along west base of Mt. Colombo, May 12, 1910, *O. E. Jennings, No. 273;* near Nueva Gerona, June 10, 1912, *G. A. Link.* General Distribution: Southern Florida, Cuba, the Isle of Pines, Jamaica (type locality), Haiti, Porto Rico, and South America.

347. **Citrus vulgaris** Risso. BITTER-SWEET ORANGE.

Citrus vulgaris RISSO, Annales du Muséum d'Histoire Naturelle, Paris, XX, 1813, p. 190.

Citrus Bigaradia LOISELEUR, Traité des Arbres et Arbustes, Edit. Nov., VII, 1819, p. 99.

Citrus Aurantium vulgaris WIGHT & ARNOTT, Prodromus Floræ Peninsulæ Indiæ Orientalis, I, 1834, p. 97.

Citrus Aurantiacum Bigaradia HOOKER, Flora of British India, I, 1872, p. 515.

Near Nueva Gerona, June 12, 1912, *G. A. Link*. Possibly naturalized. Cultivated and widely naturalized the world over in the tropics and subtropics.

348. **Citrus Lima** Lunan. LIME.

Citrus Lima LUNAN, Hortus Jamaicensis, 1814, p. 451.

Citrus acida ROXBURGH, Flora Indica, III, 1832, p. 390.

Citrus Limetta WIGHT, Icones Plantarum Indiæ Orientalis III (3), 1845, Pl. 4, in part, not *C. Limetto* Risso.

Citrus Aurantium spinosissima GRISEBACH, Flora of the British West Indian Islands, 1859, p. 132.

On site formerly occupied by a homestead, near Nueva Gerona, May 5, 1910, *O. E. Jennings, No. 39*. Perhaps naturalized. General Distribution: Cultivated and widely naturalized in the tropics and subtropics.

Note.—The grape-fruit or pomelo (*Citrus decumana*) and the lemon (*Citrus Limonum*), as also other citrus fruits, are cultivated and naturalized in some of the West Indian islands and will likely become naturalized in the Isle of Pines, if, indeed, they have not already done so.

Family SURIANACEÆ.

(*SIMARUBACEÆ* authors, in part.)

349. **Suriana maritima** Linnæus.

Suriana maritima LINNÆUS, Species Plantarum, I, Ed. I, 1753, p. 284.

Along the low sandy strand at Bibijagua, May 7, 1910, *O. E. Jennings, No. 120;* Pedernales Point, February 16, 1899, *C. F. Millspaugh, No. 1430*. General Distribution: On sea-beaches from Florida southwards throughout the American tropics, also in the tropics of the Old World.

Family BURSERACEÆ.

KEY TO THE SPECIES ENUMERATED.

Petals in the bud imbricate.....351. *Elaphrium Simaruba.*
Petals in the bud valvate.....350. *Icica cubensis.*

350. **Icica cubensis** Rose (?).

Icica Copal A. RICHARD, in Sagra, Histoire Physique, Politique et Naturelle de l'ile de Cuba, I, 1845, p. 1842. Not *Icica Copal* Schlechtendal, 1830.
Icica cubensis ROSE, North American Flora, XXV, 1911, p. 260.

Blain's specimen *No. 124*, from the northern part of the island, was listed by Millspaugh under *Protium heptaphyllum* (Aublet) March. Without an examination of the specimen the writer is unable to properly refer this to any of the species recorded for the West Indies in the North American Flora, XXV, 1911, p. 268–291. It probably belongs to *Icica cubensis* Rose, as there published. See also, with reference to these species, Urban, *Symbolæ Antillanæ*. VII, 1912, pp. 239–241.

351. **Elaphrium Simaruba** (Linnæus) Rose.

Pistacia Simaruba LINNÆUS, Species Plantarum, 1753, p. 1026.
Bursera gummifera JACQUIN, Selectarum Stirpium Americanarum, (1762?), p. 94, Pl. 65; GRISEBACH, Flora of the British West Indian Islands, 1859, p. 173.
Elaphrium Simaruba ROSE, North American Flora, XXV, 1911, p. 246.

Pedernales Point, February 16, 1899.—C. F. Millspaugh. General Distribution: Florida, the West Indies, and probably Mexico.

Family MELIACEÆ.

KEY TO THE SPECIES ENUMERATED.

Leaves even-pinnate.
Leaflets in 7–10 pairs; fruit a woody oblong capsule about 3 cm. long. 352. *Cedrela odorata*.
Leaflets in 5–8 pairs; fruit a globose capsule not over 1.5 cm. long. 353. *Trichilia hirta*.
Leaflets in 3–5 pairs; fruit a woody ovoid capsule about 6–12 cm. long. 355. *Swietenia Mahagoni*.
Leaves odd-pinnate, the leaflets 7–9, rarely 5, in number. 354. *Trichilia havanensis*.

352. **Cedrela odorata** Linnæus. WEST INDIAN CEDAR. CEDRO.

Cedrela odorata LINNÆUS, Systema Naturæ, Ed. X, II, 1759, p. 940.
Surenus Brownii O. KUNTZE, Revisio Generum Plantarum, I, 1891, p. 574.

Near Nueva Gerona, February 2, 1904. Fruiting specimen, *A. H. Curtiss, No. 325;* middle slope of Caballos Mts., May 13, 1910, *O. E. Jennings, No. 226* (fruiting specimen); near Nueva Gerona, early summer 1912, *G. A. Link*. General Distribution: West Indies and from Mexico to Colombia.

Probably at one time quite a common tree on the slopes of the

marble mountains and hills in the northern part of the island, but since taken out for its valuable timber. However, A. Richard in Sagra ("Historia Fisica, Politica y Natural de la Isla de Cuba," X, 1845, p. 126) says with regard to the distribution of the species: "Crescit in locis elevatis insulæ Cubæ, nec non insulæ Pinorum."

353. **Trichilia hirta** Linnæus.

Trichilia hirta LINNÆUS, Systema Naturæ, II, Ed. X, 1759, p. 1020.
Trichilia spondioides JACQUIN, Enumeratio Plantarum, 1760, p. 20.

Near Nueva Gerona, January 27, 1904, *A. H. Curtiss, No. 315,* tree, 30 feet high, at base of Bibijagua ridge, May 7, 1910, *O. E. Jennings, No. 116* (in fruit); lower western slope of Casas Mts., May 12, 1910, in flower, *O. E. Jennings, No. 220; A. H. Lanier,* in 1831 (A. Richard, in Sagra, "Historia Fisica, Politica y Natural de la Isla de Cuba," X, 1845, p. 123). General Distribution: Greater Antilles, St. Thomas, St. Croix, St. Jan, Grenada, Mexico, and Colombia.

354. **Trichilia havanensis** Jacquin.

Trichilia havanensis JACQUIN, Selectarium Stirpium Americanarum Historia, 1763, p. 129, Pl. 175.
Trichilia glabra LINNÆUS, Systema Naturæ, Ed. XIII, 1768, p. 214.

Reported for the Isle of Pines by Achille Richard, in Sagra, "Historia Fisica, Politica y Natural de la Isla de Cuba," X, 1845, p. 124, based upon specimens collected on the island, in 1831, by A. H. Lanier. General Distribution: Cuba, the Isle of Pines, and Central America.

355. **Swietenia Mahagoni** Jacquin. MAHOGANY.

Swietenia Mahagoni JACQUIN, Enumeratio Plantarum, 1760, p. 20.

Mahogany, ranging from the Florida Keys and Bahamas southwards through the West Indies, and from Mexico to Peru, is reported ("The Gem of the Caribbean," I. A. Wright, 1909, p. 10) as among the various valuable hardwoods on the coralline limestone along the South Coast. No specimens, however, appear to have been preserved by any botanical collector.

Family MALPHIGIACEÆ.

KEY TO THE SPECIES ENUMERATED.

Small tree with paniculate flowers; the leaves acute or acuminate, and, when mature, glabrous, or nearly so, and shining above.....357. *Banisteria laurifolia.*
Flowers racemose or in axillary, short-peduncled cymes; leaves more or less densely pubescent, or else not much acuminate.

Low mat-forming shrubs with small, spiny-lobed, leathery leaves.
358. *Malphigia horrida.*

Leaves not lobed.

Stem short, gnarled, and thickened, lying at or close to the ground; leaves mullein-like and terminal in a kind of rosette.
361. *Byrsonima verbascifolia.*

Not as above.

Flowers in small umbel-like corymbs; shrubs or vines with leaves varying from elliptic to linear.....356. *Stigmaphyllon Sagræanum.*

Flowers in terminal raceme-like panicles.

Connectives projecting beyond the anther-sacs as acute appendages, leaves rounded or emarginate at apex.
362. *Byrsonima coccolobæfolia.*

Connectives not so projecting; leaves mostly acute or shortly acuminate at apex.

Leaves 3–5 cm. long; anthers oblong, glabrous.
360. *Byrsonima Wrightiana.*

Leaves 3–17 cm. long; anthers narrowly oblong, pubescent.
359. *Byrsonima crassifolia.*

356. **Stigmaphyllon Sagræanum** Jussieu.

Stigmaphyllon Sagræanum JUSSIEU, Annales des Sciences Naturelles, Ser. II, XIII, 1840, p. 290.

Stigmaphyllon reticulatum JUSSIEU, *l. c.*

Stigmaphyllon Faustinum WRIGHT, in Sauvalle, Anales de la Academía Ciencias, Habana, V, 1868, p. 244.

Near Nueva Gerona, December 8, 1903, and February 7, 1904, *A. H. Curtiss, No. 213;* shrub, 3 feet high, among palmettoes, on savanna near Nueva Gerona, May 5, 1910, *O. E. Jennings, Nos. 1 and 33;* a low clambering shrub, on soil derived from coralline limestone, between Bogarona and Caleta Grande, May 22, 1910, *O. E. Jennings, No. 471;* a slender woody vine, near Hato, May 22, 1910, *O. E. Jennings, No. 520.* General Distribution: The Bahamas, Cuba and the Isle of Pines.

This species is remarkable for the great variation in the shape of its leaves. In the savannas and open woods of the northern part of the island it grows as a low shrub with oval, oboval, or oblong leaves, while in the southern part of the island, on the coralline limestone of the "South Coast," it grows as a vine and its leaves there become very narrowly lance-oblong or even linear. The writer is not yet prepared to claim that the differences noted are due to the differences in the soil, but our collections would seem to indicate such a relationship.

357. **Banisteria laurifolia** Linnæus.

Banisteria laurifolia LINNÆUS, Species Plantarum, Ed. II, 1762, p. 611.
Banisteria cærulea LAMARCK, Encyclopédie Méthodique, Botanique, I, 1783, p. 367.
Heteropteris cærulea HUMBOLDT, BONPLAND, & KUNTH, DeCandolle's Prodromus Systematis Naturalis Regni Vegetabilis, I, 1824, p. 591.
Heteropteris laurifolia JUSSIEU, Annales des Sciences Naturelles, Ser. II, XIII, 1840, p. 276.

Small bushy tree about 12 feet in height, western base of Caballos Mts., May 9, 1910, *O. E. Jennings, No. 184.* General Distribution: West Indies, Mexico, and Central America.

358. **Malphigia horrida** Small.

Malphigia coccigera var. *ilicifolia* WRIGHT, in Grisebach's Catalogus Plantarum Cubensium, 1866, p. 43.
Malphigia ilicifolia WRIGHT, in Niedenzu, De Genere Malphigia, 1899, p. 18, not *M. ilicifolia* Miller, 1768.
Malphigia horrida SMALL, North American Flora, XXV, 1910, p. 160.

On very sterile almost barren iron-gravel soil between Los Indios and the Cañada Mts., May 18, 1910, *O. E. Jennings, No. 371.* Forms low shrubby mats. Flowers pink, one-half to three-quarters of an inch across. *Blain. No. 36*, reported by Millspaugh as *M. coccigera* L., is presumably this more recently described species. General Distribution: Cuba and the Isle of Pines.

359. **Byrsonima crassifolia** (Linnæus) DeCandolle. CORK-WOOD.

Malphigia crassifolia LINNÆUS, Species Plantarum, Ed. I, 1753, p. 126.
Malphigia cinerea POIRET, Lamarck's Encyclopédie Méthodique, Botanique, Suppl., IV, 1816, p. 7.
Byrsonima cinerea DECANDOLLE, Prodromus Systematis Naturalis Regni Vegetabilis, I, 1824, p. 580.
Byrsonima crassifolia DECANDOLLE, Prodromus Systematis Naturalis Regni Vegetabilis, I, 1824, p. 579.
Malphigia cubensis JUSSIEU, Annales des Sciences Naturelles, Ser. II, XIII, 1840, p. 333.

Near Nueva Gerona, April and May, 1904, *A. H. Curtiss, No. 216.* Bushy tree about 15 feet in height, savanna near Nueva Gerona, May 5, 1910, *O. E. Jennings, No. 3;* along wet bank of arroyo near Nueva Gerona, May 6, 1910, *O. E. Jennings, No. 63 & 645;* on "Mal Pais" gravel in savanna near Santa Fé, May 25, 1910, *O. E. Jennings. No. 647.* "Crescit in insula Pinorum" (A. Richard, in Sagra, "Historia Fisica, Politica y Natural de la Isla de Cuba," X, 1845, p. 110, as *Byrsonima cinerea*); northern part of the island, *Blain, No. 136*

(Millspaugh) as *B. cubensis*. General Distribution: Through the West Indies and Mexico to northern South America. *See* Plate VI.

360. **Byrsonima Wrightiana** Urban & Niedenzu.

Byrsonima chrysophylla var. *lancifolia* GRISEBACH, Catalogus Plantarum Cubensium, 1866, p. 42. Not *B. lancifolia* Jussieu, 1843.

Byrsonima Wrightiana URBAN & NIEDENZU, De Genere Byrsonima, II, 1901, p. 19.

A spreading shrub forming a flattened mat about two feet wide, in pine-barrens near Los Indios, May 17, 1910, *O. E. Jennings, No. 328;* same data, *No. 329*, forming low shrubby mats about eighteen inches high, on white sandy soil. General Distribution: Cuba and the Isle of Pines. (This is the first collection reported for the Isle of Pines.)

The leaves of the first-mentioned specimen are narrowly ovate, the largest being 6 cm. long by 2 cm. wide, while the largest of the leaves on the other specimen measure only about 3 cm. long by 6 mm, wide. Otherwise the two collections agree very closely.

361. **Byrsonima verbascifolia** (Linnæus) DeCandolle.

Malphigia verbascifolia LINNÆUS, Species Plantarum, Ed. I, 1753, p. 426.

Byrsonima verbascifolia DECANDOLLE, Prodromus Systematis Naturalis Regni Vegetabilis, I, 1824, p. 579.

Open savanna among palmetto-growth, near Nueva Gerona, May 5, 1910, *O. E. Jennings, No. 12;* savanna, annually burned over, near Nueva Gerona, May 5, 1910, *O. E. Jennings, No. 26; Blain, Nos. 134, 141, and 172*, reported by Millspaugh for the northern part of the island. General Distribution: Isle of Pines, Trinidad, northern South America.

The specific name *verbascifolia* is especially well chosen. The plants grow scattered about the open savanna with large mullein-like leaves arising in groups of one to several, rosette-like, from the apex of a short, gnarled, woody stem, which is often prostrate or at least ascending but a few inches above the ground. At a short distance the resemblance to rosettes of *Verbascum Thapsus* is particularly striking.

362. **Byrsonima coccolobæfolia** Humboldt, Bonpland, & Kunth.

Byrsonima coccolobæfolia HUMBOLDT, BONPLAND, & KUNTH, Nova Genera et Species Plantarum, V, 1822, p. 148.

Malphigia coccolobæfolia SPRENGEL, Systema Vegetabilium, II, 1825, p. 384.

Near Nueva Gerona, May 15, 1904, *A. H. Curtiss, No. 500;* Savanna, near Santa Fé, May 24, 1910, *O. E. Jennings, No. 561.* General Distribution: Isle of Pines and northern South America.

The plants, as seen growing on the savanna near Santa Fé, were small bushy trees rising to a height of ten feet, with much the general habit of growth and appearance of *Curatella americana* (the "Sandpaper Oak"). The flowers generally are white, tinged with pink, the stamens being yellow.

Note.—Malphigia urens Linnæus, and *M. setosa* Sprengel, *Blain, Nos. 37 and 144* respectively, were reported for the island by Millspaugh, but these records seem not to have been accepted in the *North American Flora*, XXV, Pt. II, 1910, the former species being credited to "Jamaica and the lesser Antilles," the latter to "Hispaniola" only.

Family POLYGALACEÆ.

KEY TO THE SPECIES ENUMERATED.

Flowers in a short, rounded, dense spike, deep rose-color; leaves and corolla glandular, leaves 5–10 mm. long.....363. *Polygala longicaulis.*
Not as above.
Flowers greenish-yellow in dense acuminate spikes about 1–1.5 cm. long; flowers about 2.5–3 mm. long.....364. *Polygala squamifolia.*
Spikes slender, laxly flowered, 2 to 6 cm. long; flowers light purple to rose.
Leaves up to one cm. or more long.....366. *Polygala gracilis.*
Leaves minute, about 1–1.5 mm. long.....365. *Polygala uncinata.*

363. **Polygala longicaulis** Humboldt, Bonpland, & Kunth.

Polygala longicaulis HUMBOLDT, BONPLAND, & KUNTH, Nova Genera et Species Plantarum, V, 1821, p. 396.
Polygala stellera P. DECANDOLLE, Prodromus Systematis Naturalis Regni Vegetabilis, I, 1824, p. 327.
Polygala adenophora BELLO, Anales de la Sociedad Española de Historia Natural, X, 1881, p. 238.
Polygala variabilis BELLO, *l. c.*

Near Nueva Gerona, May 26, 1904, *A. H. Curtiss, No. 514.* General Distribution: Cuba, Isle of Pines, Hispaniola, Porto Rico, Trinidad, and from southern Mexico to South America.

364. **Polygala squamifolia** Wright.

Polygala squamifolia WRIGHT, in Grisebach's Catalogus Plantarum Cubensium, 1866, pp. 12–13.

Along arroyo east of Los Indios, May 18, 1910, *O. E. Jennings, No. 346;* same locality, May 17, on white sand, *O. E. Jennings, No.*

Family EUPHORBIACEÆ.

KEY TO THE SPECIES ENUMERATED.

Flowers not in an involucre; calyx of several sepals.
Ovules or seeds two in each cavity.
Stamens in the staminate flowers 5; staminate flowers densely clustered; shrubs.
Leaves lance-oblong or lance-oval, sublustrous on upper surface.
368. *Savia sessiliflora.*
Leaves obovate or elliptic-obovate, strongly lustrous above.
369. *Savia perlucens.*
Three stamens; fruit a three-celled capsule; leaves entire (*Phyllanthus*).
Staminate flowers with 5 sepals; styles slender.
Stipules scarious; filaments free.....372. *Phyllanthus heliotropus.*
Stipules withered dark-brown in upper half; filaments connate into a column.....370. *Phyllanthus nanus.*
Stipules never scarious; filaments connate into a column.
Flowers monœcious.
Anthers not opening in one continuous rift; seeds longitudinally ridged.....371. *Phyllanthus Niruri.*
Anthers opening in one continuous circular or triangular rift; seeds not longitudinally ridged.
375. *Phyllanthus cyclanthera.*
Anthers not opening in one continuous rift; seeds not longitudinally ridged.....376. *Phyllanthus diffusus.*
Flowers dicœcious; style bifid; seeds dorsally and faintly subcostate, transversely striolate.....374. *Phyllanthus junceus.*
Staminate flowers with four sepals; styles short and thick; a tall climber.
373. *Phyllanthus scandens.*
Ovules and seeds solitary in each cavity.
Filaments inflexed in the bud; staminate flowers mostly with a corolla; flowers spicate or racemose, in axils or terminal (*Croton*).
Receptacle of the staminate flowers hairy.
Lobes of the calyx equal in the pistillate flowers.
Leaves with scurfy-scales; stamens about 6; styles 4-parted.
377. *Croton cerinus.*
Leaves not scurfy-scaly.
Lower leaves orbicular, 3–5-nerved.
383. *Croton craspedotrichus.*
Leaves mainly pinnately veined; if with 3–5 nerves, these short; leaves longer.
Seeds smooth.....385. *Croton discolor.*
Seeds minutely foveolate-impressed.
381. *Croton Sagræanus.*
Two lobes of the calyx of the pistillate flowers larger than the others.
381. *Croton Sagræanus.*
Receptacle of the staminate flowers smooth; calyx-lobes all equal.
379. *Croton lobatus.*

341 (flowers greenish-white). General Distribution: Western Cuba and the Isle of Pines.

365. **Polygala uncinata** Wright.

Polygala uncinata (WRIGHT, MSS.) Millspaugh, Field Columbian Museum, Botanical Series, I, 1900, p. 429.

Based on specimens collected in the northern part of the island, by *Blain, Nos. 16, 160;* on white sand, pine-barrens near Los Indios, May 17, 1910, *O. E. Jennings, No. 317;* same locality, May 18, *No. 344;* Los Indios, November 4, 1912, *G. A. Link.* General Distribution: Isle of Pines.

From the descriptions and from such specimens as he has seen, the writer must claim inability to distinguish this species from *Polygala glochidiata* Humboldt, Bonpland, & Kunth, a species reported as widely distributed from Mexico through continental tropical America to Brazil, with a few localities reported in the West Indies. The fully ripened seeds of the plants from the Isle of Pines, are "obovate-elliptic" (Wright) to almost perfectly spherical, the apex apiculate, the surface dark brown and somewhat shining, the hairs being white, erect, and hooked at the tip. The seeds are about 0.7–0.8 mm. in diameter. Flowers are light rose-purple in color.

366. **Polygala gracilis** Humboldt, Bonpland, & Kunth.

Polygala gracilis HUMBOLDT, BONPLAND, & KUNTH, Nova Genera et Species Plantarum, V, 1821, p. 401.

Near Nueva Gerona, February 19, 1904, *A. H. Curtiss, No. 358.* General Distribution: Cuba, the Isle of Pines, Mexico, Costa Rica, Colombia, and Venezuela.

These specimens are too near *Polygala paniculata* Linnæus, one of the four plants on the sheet being well branched. As now understood the writer considers these two species to be practically synonymous.

Family DICHAPETALACEÆ.

367. **Tapura obovata** Britton & Wilson.

Tapura obovata BRITTON & WILSON, in Britton, Studies of West Indian Plants, Bulletin of the Torrey Botanical Club, XLIII, 1916, p. 465.

"Savanna, Vivijagua [Bibijagua] (*Britton & Wilson 15607, type*); coastal plain, San Juan (*Britton & Wilson 15524*)" (Britton, *l. c.*).

(Materials and descriptions at hand do not permit a satisfactory disposal in the key for the rest of the Crotons mentioned in the list.)

Filaments erect in the bud.

(*a*) Calyx valvate in the staminate flowers; petals present or not.

Staminate flowers mostly apetalous; flowers in clusters, spikes, or panicles, axillary or terminal.

Staminate flowers with petals.....387. *Caperonia palustris.*

Flowers without petals.

Styles free or only slightly united at the base.

Leaves entire, stipules deciduous; stamens 12–15.

386. *Adelia Ricinella.*

Leaves usually serrate with permanent stipules; stamens usually 8.....388. *Acalypha chamædryfolia.*

Stigma practically sessile, large and disk-like, lobed.

389. *Pera oppositifolia.*

(*b*) Calyx valvate or almost imbricate; staminate flowers with petals; stamens usually 10 (*Jatropha*).

Petals free or slightly cohering at the base.

Petioles about as long as the leaf-blade; stipules persisting.

Petioles bearing glands on branched stalks.

390. *Jatropha gossypifolia.*

Petioles without such glands.....395. *Jatropha multifida.*

Petioles very much shorter than the leaf-blades; stipules not persisting.

Leaves distinctly petiolate; oblong or obovate; partly with one or two acuminate basal lobes.

391. *Jatropha glaucovirens.*

Leaves linear to oblanceolate, not lobed, scarcely petioled.

(*Jatropha angustifolia.*)

Leaves linear.....393. Var. *genuina.*

Leaves oblanceolate.....392. Var. *glauca.*

Petals cohering about half way; leaves broad and angularly lobed.

394. *Jatropha Curcas.*

(*c*) Calyx valvate; stamens free; staminate flowers without petals; woody plants with large tuberous roots.....396. *Manihot Manihot.*

(*d*) Calyx imbricate; staminate flowers always without petals; flowers in terminal or axillary spikes, glomerate.

Shrub with shining, leathery, laurel-like, lance-oblong leaves.

399. *Gymnanthes lucida.*

Low pubescent herb with small, lance-ovate leaves.

398. *Sebastiana corniculata.*

Large tree with rounded-cordate acuminate leaves.

397. *Hura crepitans.*

Flowers in involucres; calyx represented by a minute scale at the base of a filament-like pedicel.

Glands of the involucre with petal-like appendages, often very much reduced; leaves inequilateral, oblique at the base (*Chamæsyce*).

Leaves entire, glabrous.
Leaves fleshy, involute, whitish underneath, longer than wide.
402. *Chamæsyce buxifolia.*
Leaves hardly fleshy, not involute, reddish underneath, often wider than long.....401. *Chamæsyce camaguayensis.*
Leaves plainly serrate, often only at the apex.
Leaves several times longer than wide.....400. *Chamæsyce brasiliensis.*
Leaves suborbicular to about three times longer than wide.
403. *Chamæsyce Jenningsii.*
Glands without petaloid appendages; leaves fleshy, tapering evenly to a sessile base.....404. *Tithymalus trichotomus.*

368. **Savia sessiliflora** (Swartz) Willdenow.

Croton sessiliflorum SWARTZ, Prodromus Descriptionum Vegetabilium Indiæ Occidentalis, 1788, p. 100.
Savia sessiliflora WILLDENOW, Species Plantarum, IV, (2), 1806, p. 771.

Near Nueva Gerona, March 2, 1904, *A. H. Curtiss, No. 381.* General Distribution: Cuba, Isle of Pines, Hispaniola, Porto Rico, St. Thomas, St. Croix, St. Jan.

369. **Savia perlucens** Britton.

Savia perlucens BRITTON, Studies of West Indian Plants, Bulletin of the Torrey Botanical Club, XLIII, 1916, p. 464.

"Limestone plain, Caleta Grande (*Britton, Wilson & Leon 15330*)." Spring of 1916 (Britton, *l. c.*).

370. **Phyllanthus nanus** Millspaugh.

Phyllanthus nanus MILLSPAUGH, in Britton, Studies of West Indian Plants, Bulletin of the Torrey Botanical Club, XLIII, 1916, pp. 464, 465.

"In white sand in the vicinity of Los Indios (*Britton & Wilson 14192*). Type sheet in the herbarium of the Field Columbian Museum" (Britton, *l. c.*). This specimen was collected in the spring of 1916.

371. **Phyllanthus Niruri** Linnæus.

Phyllanthus Niruri LINNÆUS, Species Plantarum, 1753, p. 981.

Near Nueva Gerona, March 20, 1904, *A. H. Curtiss, No. 422.* General Distribution: Tropical regions generally, in America extending northward through the West Indies, Bahamas, and Bermuda ("Introduced", Hemsley).

372. **Phyllanthus heliotropus** Grisebach.

Phyllanthus heliotropus GRISEBACH, Nachrichten Kgl. Gesellschaft der Wissenschaften, Göttingen, 1865, p. 167.

In grassy place along the Majagua River, north of Los Indios, May 19, 1910, *O. E. Jennings, No. 411.* General Distribution: Western Cuba and the Isle of Pines.

373. **Phyllanthus scandens** Mueller-Aargau.

Phyllanthus scandens MUELLER-AARGAU, in DeCandolle, Prodromus Systematis Naturalis Regni Vegetabilis, XV, (2), 1866, p. 415.

A straggling shrub on the rocky slope of the ridge at Bibijagua, May 5, 1910, *O. E. Jennings, No. 678.* General Distribution: Cuba and the Isle of Pines.

374. **Phyllanthus junceus** Mueller-Aargau.

Phyllanthus junceus MUELLER-AARGAU, in DeCandolle, Prodromus Systematis Naturalis Regni Vegetabilis, XV, (2), 1866, p. 411.

In the pine-barrens, near the Majagua River, north of Los Indios, May 19, 1910, *O. E. Jennings, No. 408.* General Distribution: Western Cuba and the Isle of Pines.

375. **Phyllanthus cyclanthera** Baillon.

Phyllanthus cyclanthera BAILLON, Adansonia, I, 1806, p. 31.

Northern part of the island, *Blain, No. 107* (Millspaugh). General Distribution: Cuba, the Isle of Pines, Hispaniola.

376. **Phyllanthus diffusus** Klotzsch.

Phyllanthus diffusus KLOTZSCH, in Seemann, Voyage of the Herald, Botany, 1852–1857, p. 105.

Northern part of the island, *Blain, No. 174* (Millspaugh). General Distribution: The Isle of Pines, Porto Rico, Guadeloupe, and from Panama to Brazil.

377. **Croton cerinus** Mueller-Aargau.

Croton cerinus MUELLER-AARGAU, in DeCandolle, Prodromus Systematis Naturalis Regni Vegetabilis, XV, (2), 1866, pp. 570–571.

Along moist side of arroyo between Los Indios and the Cañada Mts., May 18, 1910, *O. E. Jennings, No. 373; Blain, No. 64.*—Millspaugh. General Distribution: Western Cuba and the Isle of Pines.

378. **Croton reptans** Swartz.

Croton reptans SWARTZ, Prodromus Descriptionum Vegetabilium Indiæ Occidentalis, 1788, p. 99.

Reported by Millspaugh (*Field Columbian Museum, Bot. Ser.*, I,

1900, p. 429) on the basis of a specimen collected in the northern part of the island by *Blain* (*No. 62*). General Distribution: West Indies.

379. **Croton lobatus** Linnæus.

Croton lobatus LINNÆUS, Species Plantarum, Ed. I, 1753, p. 1004.

Northern part of the Island, *Blain*, *No. 81* (Millspaugh). General Distribution: Well distributed through the West Indies and continental tropical America.

380. **Croton bispinosus** Wright.

Croton bispinosus WRIGHT, in Sauvalle, Anales Academía de Ciencias Médicas, Físicas y Naturales de la Habana, V, 1868, n. 128.

Northern part of the island, *Blain*, *Nos. 117*, *178* (Millspaugh). General Distribution: Western Cuba and the Isle of Pines.

381. **Croton Sagræanus** Mueller-Aargau.

Croton Sagræanus MUELLER-AARGAU, in DeCandolle, Prodromus Systematis Naturalis Regni Vegetabilis, XV, (II), 1846, p. 616–617.

Near Nueva Gerona, February and April, 1904, *A. H. Curtiss*, *No. 366;* along side of an arroyo south of Nueva Gerona, May 12, 1910, *O. E. Jennings*, *No. 200*. General Distribution: Cuba and the Isle of Pines.

382. **Croton procumbens** Wright.

Croton procumbens WRIGHT, in Grisebach, Nachrichten Kgl. Gesellschaft der Wissenschaften, Göttingen, 1865, p. 167.

Near Nueva Gerona, March 11, 1904, *A. H. Curtiss*, *No. 398*. General Distribution: Western Cuba and the Isle of Pines.

383. **Croton craspedotrichus** Grisebach.

Croton craspedotrichus GRISEBACH, Nachrichten Kgl. Gesellschaft der Wissenschaften, Göttingen, 1865, p. 173.

Near Nueva Gerona, March 5, 1904, *A. H. Curtiss*, *No. 385;* among palmettoes on the pastured savanna near Nueva Gerona, May 5, 1910, *O. E. Jennings*, *Nos. 21 and 24; Blain*, *No. 63* (Millspaugh). General Distribution: Western Cuba and the Isle of Pines.

384. **Croton glandulosus** Linnæus.

Croton glandulosus LINNÆUS, Systema Naturæ, II, Ed. X, 1759, p. 1275.
Croton affinis VAHL, Sprengel's Systema Vegetabilium, III, 1826, p. 70.

Growing as a weed in a grapefruit grove north of Nueva Gerona,

May 14, 1910, *O. E. Jennings, No. 244;* in pine-barrens near Los Indios, May 19, 1910, *O. E. Jennings, No. 392.* General Distribution: Widely distributed from Florida and Texas south through tropical continental America and the West Indies.

This is a highly polymorphous species with many named varieties. The flowers were white in all the specimens seen in the Isle of Pines.

385. **Croton discolor** Willdenow.

Croton discolor WILLDENOW, Species Plantarum, IV, 1805, p. 532.

Northern part of the island, *Blain, No. 133* (Millspaugh). General Distribution: Isle of Pines, Hispaniola, St. Thomas, St. Croix, and Porto Rico.

Note.—Croton domingense VAHL, is reported by A. Richard (Sagra, "Historia Fisica, Politica y Natural de la Isla de Cuba," XI, 1850, p. 213) on the basis of specimens collected by Lanier.

386. **Adelia Ricinella** Linnæus.

Adelia Ricinella LINNÆUS, Systema Naturæ, II, Ed. X, 1759, p. 1298.
Ricinella pedunculosa MUELLER-AARGAU, Linnæa, XXXIV, 1865, p. 153.

A small tree at the base of the ridge at Bibijagua, May 7, 1910, *O. E. Jennings, No. 122.* General Distribution: Greater Antilles, eastward as far as St. Martin.

387. **Caperonia palustris** (Linnæus) St. Hilaire.

Croton palustris LINNÆUS, Species Plantarum, 1753, p. 1004.
Caperonia palustris ST. HILAIRE, Histoire des Plantes les plus Remarquables du Brésil et du Paraguay, etc., 1824, p. 245.
Caperonia castaneifolia GRISEBACH, Flora of the British West Indian Islands, 1859, p. 43. Not St. Hilaire.

Near Nueva Gerona, May 1, 1904, *O. E. Jennings, No. 476.* General Distribution: Cuba, the Isle of Pines, Porto Rico, Hispaniola, Guadeloupe, Martinique, Tobago, and from Mexico to Paraguay; also tropical Africa.

388. **Acalypha chamædryfolia** (Lamarck) Mueller-Aargau.

Croton chamædryfolius LAMARCK, Encyclopédie Méthodique, Botanique, II, 1786, p. 214.
Acalypha reptans SWARTZ, Prodromus Descriptionum Vegetabilium Indiæ Occidentalis, 1788, p. 99.
Acalypha chamædryfolia MUELLER-AARGAU, in DeCandolle, Prodromus Systematis Naturalis Regni Vegetabilis, XV, (2), 1866, p. 879.

Ricinocarpus chamædryfolius O. KUNTZE, Revisio Generum Plantarum, II, 1891, p. 617.

Near Nueva Gerona, May 6, 1904, *A. H. Curtiss, No. 481.* In pine-barrens between Los Indios and the Cañada Mts., May 18, 1910, *O. E. Jennings, No. 376;* on strand at Caleta Grande, South Coast, May 22, 1910, *O. E. Jennings, No. 501.* General Distribution: Cuba, the Isle of Pines, Jamaica, Hispaniola, Porto Rico, St. Thomas, St. Croix, and Guadeloupe.

389. **Pera oppositifolia** Grisebach.

Pera oppositifolia GRISEBACH, Nachrichten Kgl. Gesellschaft der Wissenschaften, Göttingen, 1865, p. 167.

Northern part of the island, *Blain, No. 53* (Millspaugh). General Distribution: Western Cuba and the Isle of Pines.

390. **Jatropha gossypifolia** var. **elegans** (Klotzsch) Mueller-Aargau.

Adenoropium elegans POHL, Plantarum Brasiliæ Icones et Descriptiones Hactenus Ineditæ, I, 1827, p. 15.

Adenoropium gossypifolium POHL, *op. cit.*, p. 16.

Jatropha elegans KLOTZSCH, in Seemann, Voyage of the Herald, Botany, 1845–1851, p. 102.

Jatropha gossypifolia LINNÆUS, Species Plantarum, 1753, p. 1006, var. *elegans* MUELLER-AARGAU, in DeCandolle, Prodromus Systematis Naturalis Regni Vegetabilis, XV, (2), 1866, p. 1087.

Near Nueva Gerona, April 2, 1904, *A. H. Curtiss, No. 434.* General Distribution: From the Bahamas and southern Mexico south through the West Indies and continental tropical America to Paraguay.

391. **Jatropha glaucovirens** Pax & Hoffmann.

Jatropha glaucovirens PAX & K. HOFFMANN, in Engler, Pflanzenreich, IV, 1910, p. 147.

Near Nueva Gerona, April 22, 1904, *A. H. Curtiss, No. 458* (*type collection*); upper edge of rocky strand along front of ridge at Bibijagua, May 7, 1910, *O. E. Jennings, No. 88;* swamp, one mile north of Nueva Gerona, May 8, 1910, *O. E. Jennings, No. 147;* near the Majagua River, north of Los Indios, May 19, 1910, *O. E. Jennings, Nos. 661 and 680.* General Distribution: Isle of Pines.

This is a sparsely branched shrub about two to four feet high, growing quite commonly in the sandy pine woods, rocky slopes, or even in swampy woods, in nearly every part of the island visited.

Some of the flat-topped inflorescences are composed of as many as fifty flowers, several of which are usually in bloom at once and, on account of the bright scarlet color, they make the plant quite striking. The flowers vary somewhat in color, some of them showing a tinge of yellow. Added to the striking character of the flowers, the bright green oblanceolate leaves, towards the lower part of the branches, have an unusual form. They usually swing out at the base into one or two sharply acuminate lobes.

392. **Jatropha angustifolia** var. **glauca** (Grisebach) Pax.

Jatropha glauca GRISEBACH, Nachrichten Kgl. Gesellschaft der Wissenschaften, Göttingen, 1865, p. 170.

Jatropha angustifolia var. *spathulacea* MUELLER-AARGAU, in DeCandolle, Prodromus Systematis Naturalis Regni Vegetabilis, XV, (2), 1866, p. 1093.

Jatropha angustifolia var. *glauca* PAX, in Engler, Pflanzenreich, IV, (147), 1910, p. 52.

In an arroyo in the pine-barrens, near Los Indios, May 17, 1910, *O. E. Jennings, No. 331;* in low pine woods north of Los Indios, May 19, 1910, *O. E. Jennings, No. 667.* General Distribution: Western Cuba and the Isle of Pines.

393. **Jatropha angustifolia** var. **genuina** Mueller-Aargau.

Jatropha angustifolia var. *genuina* MUELLER-AARGAU, in DeCandolle, Prodromus Systematis Naturalis Regni Vegetabilis, XV, (2), 1866, p. 1093.

On the white sand of the pine-barrens at Los Indios, May 17, 1910, *O. E. Jennings, No. 320;* near the Majagua River, north of Los Indios, May 19, 1910, *O. E. Jennings, No. 666.* General Distribution: Western Cuba and the Isle of Pines.

The flowers and fruit of the two varieties are identical in character, but the shape of the leaves is so strikingly different that were it not for occasional transitional forms one would have good reason for regarding them as distinct species. The plants are low, usually not over two or three feet high, simple or sparsely branched, woody, particularly below, and at the base there is often an enlarged woody stem, just underneath the soil, often an inch or more in diameter.

The flowers are not so brilliantly scarlet as are those of *Jatropha glaucovirens*, the color ranging from a purplish or rose pink to a pure white. In some localities only white ones were seen.

394. **Jatropha Curcas** Linnæus. PHYSIC NUT.

Jatropha Curcas LINNÆUS, Species Plantarum, 1753, p. 1006.
Curcas indica A. RICHARD, in Sagra, Historia Fisica, Politica y Natural de la Isla de Cuba, III, 1853, p. 208.

Near Nueva Gerona, April 19, 1904, *A. H. Curtiss, No. 451.* General Distribution: Widely distributed in tropical America from the Bermudas and Mexico to Paraguay and Chile; also in the tropics of the Old World, where it has been introduced. This plant is much cultivated in some regions for the nuts, which are strongly purgative and are used medicinally.

395. **Jatropha multifida** Linnæus.

Jatropha multifida LINNÆUS, Species Plantarum, 1753, p. 1006.

Northern part of the island, *Blain, No. 106* (Millspaugh). General Distribution: Widely distributed in the West Indies and continental tropical America, and cultivated and sub-spontaneous in the tropics of the Old World.

396. **Manihot Manihot** (Linnæus) Cockerell. CASSAVA. BITTER CASSAVA. YUCA.

Jatropha Manihot LINNÆUS, Species Plantarum, 1753, p. 1007.
Janipha Manihot HUMBOLDT, BONPLAND, & KUNTH, Nova Genera et Species Plantarum, II, 1817, p. 108.
Manihot utilissima POHL, Plantarum Brasiliæ Icones et Descriptiones Hactenus Ineditæ, I, 1827, p. 32, Pl. 24.
Manihot Manihot COCKERELL, Bulletin Torrey Botanical Club, XIX, 1892, p. 95.

The writer was told that this plant has been found wild upon the island, but no specimens were seen. Dr. J. F. Shafer collected a specimen (root) in 1910, probably cultivated. General Distribution: American tropics, especially South America.

The natives of the island still use the plant for food, cooking the large roots, so that there is a chance that it may be given good opportunities to become naturalized, if it has not already done so.

397. **Hura crepitans** Linnæus. SAND-BOX TREE. JAVILLO.

Hura crepitans LINNÆUS, Species Plantarum, 1753, p. 1008.

Near where a house was formerly located, one mile east of Nueva Gerona, May 6, 1910, *O. E. Jennings, No. 65* (possibly naturalized). General Distribution: Rather widely distributed in the West Indies and in continental tropical America.

The fruit of this tree is of about the size of a small orange, finally becoming dry and bursting apart with much force. The seeds rattle about in the dry fruit, hence the name "Sand-box Tree." The trees are fairly large, with a spreading crown, so that they are of considerable value as shade trees, and are so used in some of the West Indian islands.

398. **Sebastiana corniculata** (Vahl) Pax.

Sebastiana corniculata MUELLER-AARGAU, in DeCandolle, Prodromus Systematis Naturalis Regni Vegetabilis, XV, (2), 1866, p. 1168.

Variety **tragioides** (Martius) Pax.

Cnemidostachys tragioides MARTIUS, Nova Genera et Species Plantarum, I,I 1824, p. 70.

Microstachys Vahlii A. RICHARD, in Sagra, Historia Fisica Politica y Natural de la Isla de Cuba, XI, 1850, p. 202.

Microstachys corniculata GRISEBACH, Flora of the British West Indian Islands, 1864, p. 49.

Sebastiana corniculata var. *tragioides* PAX, in Engler, Pflanzenreich, IV, (147, IV), 1912, p. 98.

Near Nueva Gerona, January 1 and May 8, 1904, *A. H. Curtiss, No. 266;* side of arroyo, pine-barrens, Los Indios, May 17, 1910, *O. E. Jennings, No. 330;* in low place along the Majagua River near Los Indios, May, 1910, *O. E. Jennings, No. 405a.* General Distribution: Cuba, the Isle of Pines, Haiti, Columbia, Guiana, and Brazil.

Millspaugh reports *Blain, No. 111* to be *Sebastiana corniculata* (*Cf. Field Columbian Museum, Bot. Ser.*, I, 1900, p. 429).

399. **Gymnanthes lucida** Swartz. POISONWOOD.

Gymnanthes lucida SWARTZ, Prodromus Descriptionum Vegetabilium Indiæ Occidentalis, 1788, p. 96.

Excœcaria lucida SWARTZ, Flora Indiæ Occidentalis, II, 1800, p. 1122.

Sebastiana lucida MUELLER-AARGAU, in DeCandolle, Prodromus Systematis Naturalis Regni Vegetabilis, XV, (2), 1866, p. 1181.

Near Nueva Gerona, May 31, 1904, *A. H. Curtiss, No. 518.* General Distribution: Southern Florida, the Bahamas, and West Indian islands as far east as Guadeloupe.

400. **Chamæsyce brasiliensis** (Lamarck) Small.

Euphorbia brasiliensis LAMARCK, Encyclopédie Méthodique, Botanique, II, 1786, p. 423.

Chamæsyce brasiliensis SMALL, Flora of the Southeastern U. S., 1903, p. 712.

Near Nueva Gerona, December 19, 1903, *A. H. Curtiss, No. 244;*

in pine-barrens east of Los Indios, May 18, 1910, *O. E. Jennings, No. 357;* Santa Fé, May 26, 1910, *O. E. Jennings, No. 684.* General Distribution: From the Gulf States to Mexico, the West Indies, and tropical America generally.

401. **Chamæsyce camaguayensis** Millspaugh.

Chamæsyce camaguayensis MILLSPAUGH, Field Columbian Museum, Bot. Ser., II, 1914, pp. 392–393.

Field near Nueva Gerona, May 5, 1910, *O. E. Jennings, No. 608.* General Distribution: Cuba and the Isle of Pines.

402. **Chamæscye buxifolia** (Lamarck) Small.

Euphorbia buxifolia LAMARCK, Encyclopédie Méthodique, Botanique, II, 1786, p. 421.
Chamæsyce buxifolia SMALL, Flora of the Southeastern U. S., 1903, p. 712.

On sandy beach at Bibijagua, May 7, 1910, *O. E. Jennings, Nos. 77, 78a;* on coralline beach at Caleta Grande, South Coast, May 22, 1910, *O. E. Jennings, No. 510;* February 16, 1899, *Millspaugh, No. 1432* (Millspaugh); 1831, *A. H. Lanier,* (A. Richard, in Sagra.) General Distribution: On maritime sands, Florida, the Bahamas, and the tropical coasts of the Gulf of Mexico and the Caribbean Sea generally.

403. **Chamæsyce Jenningsii** Millspaugh.

Chamæsyce Jenningsii MILLSPAUGH, in Britton, Studies of West Indian Plants, Bulletin of the Torrey Botanical Club, XLIII, 1916, p. 465.

Near Bibijagua, along the shore, May 7, 1910, *O. E. Jennings, No. 621.* Type in the Herbarium of the Carnegie Museum; also in coastal sands at Bibijagua, spring of 1916, *Britton & Wilson, No. 14, 690.*

404. **Tithymalus trichotomus** (Kunth) Klotzsch & Garcke.

Euphorbia trichotoma KUNTH, in Nova Genera et Species Plantarum, II, 1817, p. 60.
Tithymalus trichotomus KLOTZSCH & GARCKE, Linne's Natürliche Pflanzenklasse Tricoccæ, 1860, p. 81.

Near Caleta Grande, "South Coast," on coralline sand May 22, 1910, *O. E. Jennings, No. 499.* General Distribution: On coastal sands, southern Florida, the Bahamas, Cuba, the Isle of Pines, Cayman Islands, and the shores of Mexico.

Family ANACARDIACEÆ.

KEY TO THE SPECIES ENUMERATED.

Leaves simple; large trees.
  Leaves lanceolate, acuminate.....405. *Mangifera indica.*
  Leaves obovate, apex rounded or retuse.....406. *Anacardium occidentale.*
Leaves pinnate; trees or shrubs.
  Leaflets sessile, minutely repand-denticulate.....408. *Comocladia dentata.*
  Leaflets usually 5, thick, lustrous on upper surface....409. *Metopium Brownei.*
  Leaflets usually 9–13, thin, dull, or but slightly lustrous.
    407. *Spondias Mombin.*

405. **Mangifera indica** Linnæus. MANGO.

Mangifera indica LINNÆUS, Species Plantarum I, Ed. I, 1753, p. 200.

Near Nueva Gerona, January 17, 1904 (flowers), *A. H. Curtiss, No. 298;* no locality given, *Dr. Jared F. Shafer*, February–March, 1910. General Distribution: From the Bahamas and Florida south through the West Indies and tropical America. Naturalized throughout the tropics from southeastern Asia, and the better varieties of it furnishing a valuable fruit much appreciated by those who have become accustomed to it. The Mango has established itself, especially in the vicinity of Santa Fé, to the extent of forming small groves.

406. **Anacardium occidentale** Linnæus. CASHEW.

Anacardium occidentale LINNÆUS, Species Plantarum, I, Ed. I, 1753, p. 383.

Near Nueva Gerona, January 4, and May, 1904, *A. H. Curtiss, No. 271;* near base of Casas Mts., west of Nueva Gerona, May 4, 1910, *O. E. Jennings, No. 40; Dr. Jared F. Shafer*, February–March, 1910; near Los Indios, November 4, 1912, *G. A. Link.* General Distribution: From the Bahamas and Cuba south through the West Indies and in continental tropical America. Now quite generally naturalized throughout the tropics. *See* Plate IX.

The cashew is a very valuable tree, as yet not sufficiently appreciated. The wood is strong, hard, and useful in a variety of ways; the peduncle of the fruit becomes enlarged and pear-shaped, and, when mature, constitutes a subacid, slightly astringent edible fruit, which is either eaten raw or prepared in various ways by cooking; and the nut, which is kidney-shaped and about one inch long, is claimed to be a strong competitor of the almond when properly roasted. The middle layer of the shell of this nut is poisonous, but the poisonous property may be destroyed by heat. Altogether the

various uses of this plant, many of them not here mentioned, give it a very prominent place among the useful trees of the tropics. (*See* Cook and Collins, "Economic Plants of Porto Rico," Contrib. U. S. Nat. Herbarium, VIII, 1903, pp. 57–269.)

407. **Spondias Mombin** Linnæus. HOG-PLUM.

Spondias Mombin LINNÆUS, Species Plantarum, I, Ed. I, 1753, p. 371.
Spondias lutea LINNÆUS, Species Plantarum, I, Ed. II, 1762, p. 613.
Spondias pseudomyrobal nus TUSSAC, Flora Antillarum, IV, 1827, p. 97, Pl. 33.

A loosely branched tree about 60 feet high, at the base of the Bibijagua ridge, May 7, 1910, *O. E. Jennings, No. 123*. General Distribution: From the Bahamas south through the West Indies and continental tropical America. Also in the tropics of the Old World.

This tree was quite abundant on the slopes of the Bibijagua ridge and was common on the Caballos and Casas Mts.

408. **Comocladia dentata** Jacquin. GUAO.

Comocladia dentata JACQUIN, Enumeratio Plantarum Quas in Insulis Caribæis Detexit, 1760, p. 12.
Comocladia propinqua HUMBOLDT, BONPLAND, & KUNTH, Nova Genera et Species Plantarum, VII, 1824, p. 16.
Comocladia dentata propinqua ENGLER, in DeCandolle, Monographiæ Phanerogamarum, IV, 1883, p. 364.

A low spreading shrub with club-like, but crooked, branches, the short trunk about four inches in diameter, the uppermost branches reaching a height of about fourteen feet. In pasture at north base of Casas Mts., May 15, 1910, *O. E. Jennings, No. 282*. General Distribution: Cuba and the Isle of Pines. This species was seen to extend up the slopes of Casas Mts. for some distance. It is quite poisonous to the touch, the effects being very similar to those of Poison Ivy (*Rhus Toxicodendron*).

409. **Metopium Brownei** Urban.

Rhus Metopium LINNÆUS, Systema Naturæ, Ed. X, II, 1759, p. 964.
Terebinthus Brownei JACQUIN, Enumeratio Plantarum, 1760, p. 18.
Metopium Linnæi ENGLER, in DeCandolle, Monographiæ Phanerogamarum, IV, 1883, p. 367 (p.p.).
Cotinus Metopium MAZA, El Progreso Medico, VIII, 1896, p. 50.
Metopium Brownei URBAN, Symbolæ Antillanæ, V, 1908, p. 402.

Along sandy beach below Siguanea just above the reach of ordinary wave action, May 21, 1910, *O. E. Jennings, No. 462;* on bluff of coral-

line limestone near Caleta Grande, May 22, 1910, *O. E. Jennings, No. 468; A. H. Lanier*, in 1831 (Achille Richard, in Sagra, "Historia Fisica, Politica y Natural de la Isla de Cuba," X, 1845, p. 157). General Distribution: Cuba, the Isle of Pines, Jamaica, San Domingo, and Yucatan.

Not seen in the northern part of the island. At Siguanea a fine row of these trees had been left when the mangrove fringe was cleared away, just back of the bathing beach. The trees were highly ornamental, with dense heads of lustrous foliage and a whitish smooth bark. They were about thirty feet high, the trunks with a diameter of about sixteen inches. Along the south coast near Caleta Grande the species was also quite abundant, particularly along the bluffs near the sea. The tree from which specimens were taken was about forty feet high and with a trunk about twelve inches in diameter.

Family CYRILLACEÆ.

KEY TO THE SPECIES ENUMERATED.

Leaves manifestly petioled; flowers not over 3 mm. long..410. *Cyrilla racemiflora.*
Leaves narrowed to a sessile base; outer sepals showy, rose-tinted, and up to 15 mm. long.....411. *Costæa cubensis.*

410. Cyrilla racemiflora Linnæus.

Cyrilla racemiflora LINNÆUS, Mantissa Plantarum, I, 1767, p. 50.
Cyrilla racemifera VANDELLI, Floræ Lusitanicæ et Brasiliensis Specimen, No. 88, 1788.
Itea cyrilla SWARTZ, Prodromus Descriptionum Vegetabilium Indiæ Occidentalis, 1788, p. 50.
Cyrilla antillana MICHAUX, Flora Boreali-Americana, I, 1803, p. 158.

Near Nueva Gerona, May 9, 1904, *A. H. Curtiss, No. 490;* tree, on the bank of the river at Los Indios, May 20, 1910, *O. E. Jennings, No. 436.* General Distribution: Along the coastal plain from North Carolina to Florida and Texas, West Indies, Guiana, and northern Brazil.

411. Costæa cubensis A. Richard.

Costæa cubensis A. RICHARD, in Sagra, Historia Fisica, Politica y Natural de la Isla de Cuba, II, 1850, p. 76, Pl. 53.

In pine-barrens east of Los Indios, May 17, 1910, *O. E. Jennings, No. 326.* General Distribution: Cuba and the Isle of Pines, this being the first report for the latter island.

A low shrub with few branches, these ranging from more or less

stiffly ascending to erect and bearing at the apex a rather close tuft of leaves. The plants were growing in a soil largely composed of white quartzose gravel. The showy terminal racemes suggest that the plant might be of some value as an ornamental shrub.

Family AQUIFOLIACEÆ.

(*ILICACEÆ.*)

412. **Ilex montana** Grisebach.

Ilex montana GRISEBACH, Memoirs of the American Academy of Arts and Sciences, New Series, VIII, 1861, p. 171.

Northern part of the island, *Blain, No. 152* (Millspaugh). General Distribution: Cuba, the Isle of Pines, and perhaps other West Indian Islands. See recently described species and varieties in Urban's *Symbolæ Antillanæ.*

Family CELASTRACEÆ.

413. **Maytenus buxifolia** Grisebach.

Monteverdia buxifolia A. RICHARD, in Sagra, Historia Fisica, Politica y Natural de la Isla de Cuba, X, 1845, p. 142, Pl. 36.

Celastrus parvifolius A. RICHARD, *op. cit.*, p. 143.

Maytenus buxifolia GRISEBACH, Catalogus Plantarum Cubensium, 1866, p. 53.

Maytenus cochlearifolius GRISEBACH, Catalogus Plantarum Cubensium, 1866, p. 53.

Celastrus Richardi G. MAZA, Diccionario Botanico, 1889, p. 25.

Along Casas River, about three miles south of Nueva Gerona, May 12, 1910, *O. E. Jennings, No. 211.* General Distribution: Bahamas, Cuba, the Isle of Pines, Haiti, and Santo Domingo.

Family HIPPOCRATEACEÆ.

414. **Salacia Blainii** Millspaugh.

Salacia Blainii MILLSPAUGH, Field Columbian Museum, Botanical Series, I, 1900, p. 430.

Northern part of the island, *Blain, No. 176.* Type (Millspaugh, *l. c.*). Known only from the type-locality.

Family STAPHYLEACEÆ.

415. **Huertea cubensis** Grisebach.

Huertea cubensis GRISEBACH, Catalogus Plantarum Cubensium, 1866, pp. 66, 67.

Northern part of the island, *Blain, Nos. 115, 169* (Millspaugh). General Distribution: Cuba and the Isle of Pines.

Family SAPINDACEÆ.

KEY TO THE SPECIES ENUMERATED.

Leaves with usually 6–10 (4–12) leaflets.
  Leaflets scabrous-pubescent (or glabrate) beneath, obovate-oblong, serrate, or repand-crenate.....419. *Cupania americana.*
  Leaflets glabrous, entire, lance-oblong.
    421. *Matayba apetala* forma *oppositifolia.*
Leaves with 3–5 leaflets.
  Climbing woody vines with tendrils.....416. *Serjania diversifolia.*
  Non-climbing shrubs or trees.
    Leaflets three.....417. *Allophyllus Cominia.*
    Leaflets four, in two pairs.....418. *Melicocca bijuga.*
    Leaflets mostly five; fruit with three almost spherical lobes.
      420. *Cupania macrophylla.*

416. **Serjania diversifolia** (Jacquin) Radlkofer.

Paullinia diversifolia JACQUIN, Enumeratio Plantarum, 1760, p. 36.
Serjania diversifolia RADLKOFER, Monographie der Sapindaceen Gattung Serjania, 1875, p. 179.

Near Nueva Gerona, January 31 (flowers) and March 24 (fruit), 1904, *A. H. Curtiss, No. 321;* in clearing on low ground north of Nueva Gerona, May 8, 1910, *O. E. Jennings, No. 149;* along South Coast, near Caleta Grande, May 22, 1910, *O. E. Jennings, No. 506;* in thicket along river south of Nueva Gerona, May 12, 1910, *O. E. Jennings, No. 652.* General Distribution: Bahamas, Cuba, the Isle of Pines, Porto Rico, Haiti, Venezuela.

This plant is a woody climber and is quite common in thickets on low grounds in various parts of the island, often growing at the edge of the mangrove association in brackish soil. The plant helps materially to make the thickets almost impenetrable, clinging to its supports with strong tendrils; but it is often highly ornamental, the winged seeds, usually tinted a rose-purple, hanging in large racemes.

417. **Allophyllus Cominia** (Swartz) Radlkofer.

Schmidelia Cominia SWARTZ, Prodromus Descriptionum Vegetabilium Indiæ Occidentalis.
Allophyllus Cominia RADLKOFER, Natürliche Pflanzenfamilien, III, Abt. V, 1895, p. 312.

Near Nueva Gerona, December 18, 1904, *A. H. Curtiss, No. 242.* General Distribution: Cuba, Haiti, the Isle of Pines, Jamaica.

418. **Melicocca bijuga** Linnæus. GENIP TREE.

Melicocca bijuga LINNÆUS, Species Plantarum, I, Ed. II, 1762, p. 495.

Near Nueva Gerona, April 15 and June 1, 1904, *A. H. Curtiss, No. 444.* General Distribution: Widely distributed in the West Indies and in the American tropics from Nicaragua southwards. Sometimes used as a shade tree.

419. **Cupania americana** Linnæus.

Cupania americana LINNÆUS, Species Plantarum, I, Ed. I, 1753, p. 200.

Cupania tomentosa SWARTZ, Prodromus Descriptionum Vegetabilium Indiæ Occidentalis, 1788, p. 61.

Near Nueva Genona, February 14, 1904, *A. H. Curtiss, No. 351.* General Distribution: Cuba, the Isle of Pines, Haiti, Porto Rico, Martinique, Trinidad, and Venezuela.

420. **Cupania macrophylla** A. Richard. GUARA COLORADO.

Cupania macrophylla A. RICHARD, in Sagra, Historia Fisica, Politica y Natural de la Isla de Cuba, X, 1845, p. 120.

Reported from Cuba and from the Isle of Pines by Achille Richard, *l. c.* General Distribution: Mexico, Cuba, and the Isle of Pines.

421. **Matayba apetala** forma **oppositifolia** (A. Richard) Radlkofer.

Cupania oppositifolia A. RICHARD, Historia Fisica, Politica y Natural de la Isla de Cuba, X, 1845, p. 121, Pl. 32.

Matayba apetala forma *oppositifolia* RADLKOFER, in Urban, Symbolæ Antillanæ, I, 1899, p. 354.

River-bank at Los Indios, May 19, 1910, *O. E. Jennings, No. 406;* near Nueva Gerona, February 7 and April 5, 1904, *A. H. Curtiss, No. 329.* General Distribution: Cuba, the Isle of Pines, Porto Rico, and Honduras.

A characteristic tree of the river-banks near Los Indios, growing to a height of about forty feet, and the trunk reaching a diameter of six inches or more.

Family DODONÆACEÆ.

KEY TO THE SPECIES ENUMERATED.

Leaves mostly obovate-lanceolate; wings of fruit of nearly uniform width.
422. *Dodonæa viscosa.*

Leaves mostly spatulate-lanceolate; wings of fruit broader at apex.
423. *Dodonæa jamaicensis.*

422. **Dodonæa viscosa** Jacquin.

Dodonæa viscosa JACQUIN, Enumeratio Systematica Plantarum Quas in Insulis Caribæis Detexit, 1760, p. 19.

Near Nueva Gerona, January 1, and February 4, 1904, *A. H. Curtiss, No. 263;* in wet sandy soil at west base of Mt. Colombo, May 14, 1910, *O. E. Jennings, No. 267.* General Distribution: Tropical and subtropical regions generally, extending north in America to southern Florida and the Bermudas.

423. **Dodonæa jamaicensis** DeCandolle.

Dodonæa jamaicensis DECANDOLLE, Prodromus Systematis Naturalis Regni Vegetabilis, 1824, I, p. 616.

In pastured land near base of Mt. Colombo, May 14, 1910, *O. E. Jennings, No. 276b.* General Distribution: Jamaica and the Isle of Pines.

Family RHAMNACEÆ.

424. **Gouania polygama** (Jacquin) Urban.

Rhamnus polygamus JACQUIN, Enumeratio Plantarum Quas in Insulis Caribæis Detexit, 1760, p. 17.

Gouania tomentosa JACQUIN, Selectarium Stirpium Americanarum Historia, 1763, p. 263.

Lupulus lupuloides var. *tomentosus* O. KUNTZE, Revisio Generum Plantarum, I, 1891, p. 119.

Gouania polygama URBAN, Symbolæ Antillanæ, IV, 1910, p. 378.

Near Nueva Gerona, January 5, 1904, *A. H. Curtiss, No. 272.* General Distribution: Cuba, the Isle of Pines, Hispaniola, Porto Rico, Tobago, Trinidad, and the American continental tropics.

Family VITACEÆ.

KEY TO THE SPECIES ENUMERATED.

Leaves large, widely cordate-ovate, minutely undulate-dentate, the upper usually slenderly lobed.....425. *Vitis tiliifolia.*

Leaves ovate or oblong-ovate, smaller (3–8 cm. long), distantly serrate with bristle-tipped teeth, blades simple.....426. *Cissus sicyoides.*

Leaves 3-foliolate with small (1–2 cm. long) leaflets.....427. *Cissus intermedia.*

425. **Vitis tiliifolia** Hooker & Bentham. GRAPE.

Vitis tiliifolia HOOKER & BENTHAM ex Schultes, Systema Vegetabilium, V, 1819, p. 320.

Vitis caribæa DECANDOLLE, Prodromus Systematis Naturalis Regni Vegetabilis, I, 1824, p. 634.

In swampy forest at west base of Mt. Colombo, May 14, 1910, *O. E. Jennings, No. 261.* General Distribution: From Florida southwards through the West Indies and South America to Ecuador.

426. **Cissus sicyoides** Linnæus.

Cissus sicyoides LINNÆUS, Systema Naturæ, II, Ed. X, 1759, p. 897.
Vitis sicyoides MORALES, Monografia de las Ampelideas de Cuba, in Poey, Repertorio Fisico-Natural de la Isla de Cuba, I, 1866, p. 206.
Vitis vitiginea var. *repens* O. KUNTZE, Revisio Generum Plantarum, I, 1891, p. 138.

A low vine with light yellow flowers, in swampy forest at base of Mt. Colombo, May 14, 1910, *O. E. Jennings, No. 269;* a woody vine climbing to about ten feet over low shrubs at Caleta Grande, May 22, 1910, *O. E. Jennings, No. 465.* General Distribution: From Florida and the Bahamas south through tropical America.

427. **Cissus intermedia** A. Richard.

Cissus intermedia A. RICHARD in Sagra, Historia Fisica, Politica y Natural de la Isla de Cuba, X, 1845, p. 128.

Near Nueva Gerona, April 8, 1904, *A. H. Curtiss, No. 438.* General Distribution: Bahamas, Cuba, the Isle of Pines, Haiti, and Porto Rico.

Family ELÆOCARPACEÆ.

428. **Muntingia Calabura** Linnæus.

Muntingia Calabura LINNÆUS, Species Plantarum, 1753, p. 509.

Near Nueva Gerona, December 8, 1903 (flowers), and January 8, 1904 (fruit), *A. H. Curtiss, No. 215;* in rather open scrubby forest near Nueva Gerona, May 9, 1910, *O. E. Jennings, No. 182;* near Nueva Gerona, June 12, 1912, *G. A. Link.* General Distribution: Haiti (Grisebach, "Flora of the British West Indian Islands," 1864, p. 98), the Isle of Pines, Mexico to Brazil.

The globose fruit, red and about 1 cm. in diameter is palatable and is said to be eaten by the Spanish inhabitants.

Family TILIACEÆ.

KEY TO THE SPECIES ENUMERATED.

Shrubs, or herbs of shrubby aspect.
Leaves usually more or less 3-lobed; fruit small, dry, globose, and armed with prickles.....429. *Triumfetta althæoides.*
Leaves not lobed; fruit an elongated capsule without prickles.
430. *Corchorus siliquosus.*
Trees; leaves not lobed; fruit an obovoid capsule, somewhat obcordate in outline.
431. *Belotia mexicana.*

429. **Triumfetta althæoides** Lamarck.

Triumfetta althæoides LAMARCK, Encyclopédie Méthodique, Botanique, III, 1789, p. 420.

Near Nueva Gerona, December 16, 1903, *A. H. Curtiss, No. 234.* General Distribution: Bahamas, West Indies, and continental tropical America.

In the present unsatisfactory condition of the genus *Triumfetta*, the determination of species is not easy. The specimen from the Isle of Pines is probably correctly placed under Lamarck's species *althæoides*, but the writer is not entirely satisfied with this disposition. The leaves are distinctly and acuminately three-lobed, in general outline very similar to those of *Acer spicatum.* The basal teeth are not conspicuously transformed into glands, the calyx is densely tomentose, the sepals and petals are narrow and about 7–8 mm. long, the stamens are about twenty-five in number, and the body of the fruit, as well as the spines, is pubescent. Although *Triumfetta althæoides* is regarded as quite variable, the writer is of the opinion that the plant from the Isle of Pines will be found eventually to be distinct from that species, and, possibly, more nearly related to some of the numerous South American species.

430. **Corchorus siliquosus** Linnæus.

Corchorus siliquosus LINNÆUS, Species Plantarum, I, Ed. I, 1753, p. 529.

On low, recently cleared ground, north of Nueva Gerona, May 7, 1910, *O. E. Jennings, No. 143;* Pedernales Point, February 16, 1899, *C. F. Millspaugh, No. 1433* (*Plantæ Utowanæ. Field Columbian Museum, Botanical Series,* II, No. 1, 1900, p. 70). General Distribution: From Florida and Texas southwards through the West Indies and tropical America to Guiana.

431. **Belotia mexicana** (DeCandolle) K. Schumann.

Grewia mexicana DECANDOLLE, Prodromus Systematis Naturalis Regni Vegetabilis, I, 1824, p. 510.

Belotia greviæfolia A. RICHARD in Sagra, Historia Fisica, Politica y Natural de la Isla de Cuba, X, 1845, p. 83–84, and XII, Plate 21.

Belotia mexicana K. SCHUMANN, Engler & Prantl, Natürliche Pflanzenfamilien, III, (6), 1890, p. 28.

Northern part of the island, *Blain, No. 175* (Millspaugh, *Field Columbian Museum, Botanical Series,* I, No. 6, 1900, p. 430). General Distribution: Cuba, the Isle of Pines, and Mexico.

Family MALVACEÆ.

KEY TO THE SPECIES ENUMERATED.

Fruit of several radially placed carpels which separate from each other at maturity.
Stigmas and carpels of the same number; calyx without involucral bracts.
Carpels 2–several-seeded.....432. *Abutilon permolle.*
Carpels one-seeded (*Sida*).
Small plants with weak stems and orbicular, cordate, dentate leaves about 1 cm. in diameter.....438. *Sida hederæfolia.*
Not as above.
Leaves linear or lance-linear, not over 1 cm. wide.
Leaves entire and flowers mostly in terminal clusters.
441. *Sida linifolia.*
Leaves serrate, flowers in axils of stem and branch leaves.
435. *Sida angustifolia.*
Leaves ovate to cuneate or lanceolate, often over 1 cm. wide.
Leaves conspicuously cordate at the base.
Calyx 6–7 mm. long, lobes almost as wide; whole plant lustrous velvety-tomentose.....437. *Sida cordifolia.*
Calyx 6–7 mm. long, the lobes about one-half as wide; plant not lustrous, but with fine spreading hairs.
439. *Sida urens.*
Calyx 2–3 mm. long; plant not lustrous, but velvety-tomentose.....440. *Sida micrantha.*
Leaves tapering or but slightly cordate at base.
Flowers solitary or glomerate; stipules 10–15 mm. long, obliquely lanceolate, two to three times as long as the petiole.....434. *Sida glomerata.*
Flowers solitary or glomerate; stipules linear-subulate, about 5–6 mm. long; petioles 1 cm. or more in length.
433. *Sida spinosa.*
Flowers solitary; stipules about as long as petiole (5–6 mm.).
436. *Sida acuta.*
Stigmas twice as many as carpels.
Inflorescence capitate; calyx without involucral bracts.
Lower leaves rounded-cordate in outline and three to five-lobed; carpels glabrous.....443. *Malachra fasciata.*
Lower leaves more ovate, less lobed; carpels villous.
442. *Malachra urens.*
Inflorescence axillary or racemose; calyx furnished with involucral bracts.
Involucral bractlets 5, partially united; carpels spiny all over (*Urena*).
444. *Urena sinuata.*
Involucral bractlets 5–15, distinct; carpels unarmed or with 1–3 dorsal spines (*Pavonia*).
Leaves cordate-ovate, up to 6–10 cm. wide....445. *Pavonia spicata.*
Leaves lance-linear, barely 1 cm. wide.....446. *Pavonia intermixta.*

Fruit a capsule, loculicidal (or indehiscent).
Styles distinct, spreading; seeds reniform, not clothed with cotton (*Hibiscus*).
Bractlets of the involucres distinct or nearly so.
Nearly glabrous; calyx becoming thick, fleshy, and red; corolla yellow.
452. *Hibiscus Sabdariffa.*
Not as above.
Leaves glabrous; peduncle twice the length of the petiole.
451. *Hibiscus spiralis.*
Leaves sparsely covered with small, stellate, stiff hairs; peduncle longer than petiole.....450. *Hibiscus costatus.*
Leaves white-tomentose beneath; peduncles shorter than petioles.
449. *Hibiscus furcellatus.*
Bractlets of the involucre more or less united into a toothed cup; leaves large and cordate-rounded.
Petals about 5–8 cm. long, yellow; seeds essentially glabrous.
447. *Hibiscus tiliaceus.*
Petals about 19 cm. long, changing from pale-primrose through orange to deep-red; seeds densely villous.....448. *Hibiscus elatus.*
Styles united; seeds densely clothed with long white hairs (cotton).
453. *Gossypium barbadense.*

432. **Abutilon permolle** (Willdenow) Sweet.

Sida permollis WILLDENOW, Enumeratio Plantarum Horti Botanici Berolinensis, 1809, p. 728.
Abutilon permolle SWEET, Hortus Britannicus, I, 1826, p. 53.

"Dry field of scrub at Pedernales Point, Isle of Pines No. 1431." (Millspaugh). General Distribution: Southern Florida, Cuba, and the Isle of Pines.

433. **Sida spinosa** Linnæus.

Sida spinosa LINNÆUS, Species Plantarum, 1753, p. 683.

Credited to the Isle of Pines by Urban (*Symbolæ Antillanæ*, IV, 1910, p. 389). General Distribution: Warmer regions of both hemispheres, ranging north in America to Florida and the Bahamas.

434. **Sida glomerata** Cavanilles.

Sida glomerata CAVANILLES, Monadelphiæ Classis Dissertationes Decem, I, 1785, p. 18, Pl. 2, fig. 6.
Sida Berteriana BALBIS, according to DeCandolle, Prodromus Systematis Naturalis Regni Vegetabilis, I, 1824, p. 460.
Sida jamaicensis BELLO, Anales de la Sociedad Española de Historia Natural, I, 1881, p. 239, no. 43. Not Linnæus.

Near Nueva Gerona, December 16, 1903, *A. H. Curtiss, No. 231.* General Distribution: Bermudas (introduced), Bahamas, West Indies, Central and northern South America.

435. **Sida angustifolia** Lamarck.

Sida angustifolia LAMARCK, Encyclopédie Méthodique, Botanique, I, 1783, p. 4.

Near Nueva Gerona, May 6, 1904, *A. H. Curtiss, No. 482.* This has been considered by Urban to be merely a variety of *Sida spinosa* Linnæus (Urban, *Symbolæ Antillanæ*, IV, 1910, p. 389). It probably has about the same distribution as the latter, extending northward, however, to Texas and Arizona.

436. **Sida acuta** Burmann.

Sida acuta BURMANN, Flora Indica, 1768, p. 147.

Sida carpinifolia LINNÆUS, FIL., Supplementum Plantarum, 1781, p. 307.

Sida Balbisiana DECANDOLLE, Prodromus Systematis Naturalis Regni Vegetabilis, I, 1824, p. 460.

Near Nueva Gerona, March 25, 1904, *A. H. Curtiss, No. 430;* forming mats on the grounds at the back of the Nueva Gerona Hotel, May 7, 1910, *O. E. Jennings, No. 127; G. A. Link*, Nueva Gerona, May 31, 1912. General Distribution: Widely distributed in the tropics, extending north in America to the Bermudas, Florida, and Alabama.

The flowers are yellow, and in the vicinity of Nueva Gerona, at least, the bases of the branches are quite decumbent, mats thus being formed.

437. **Sida cordifolia** Linnæus.

Sida cordifolia LINNÆUS, Species Plantarum, 1753, p. 684.

Sida conferta LINK, Enumeratio Plantarum Horti Regii Botanici Berolinensis, II, 1822, p. 207.

Sida portoricensis SPRENGEL, Systema Vegetabilium, III, 1826, p. 111. (Ex Garcke.)

Northern part of the island, *Blain, No. 102* (Millspaugh); near Nueva Gerona, December 25, 1903, *A. H. Curtiss, No. 253;* on savanna, south of Sante Fé, May 25, 1910, *O. E. Jennings, No. 616.* General Distribution: In sand, usually near the coast, southern Florida, the West Indies, continental tropical America, and the tropics of the Old World.

438. **Sida hederæfolia** Cavanilles.

Sida hederæfolia Cavanilles, Monadelphiæ Classis Dissertationes Decem, I, 1785, p. 8, Pl. IX, fig. 3.

Near Nueva Gerona, February 27, 1904, *A. H. Curtiss, No. 372;* northern part of the island, *Blain, No. 41* (Millspaugh). General Distribution: The Bahamas, Cuba, the Isle of Pines, Porto Rico, and Hispaniola.

439. **Sida urens** Linnæus.

Sida urens LINNÆUS, Systema Naturæ, II, Ed. X, 1759, p. 1145.

Near Nueva Gerona, December 25, 1903, *A. H. Curtiss, No. 254.* General Distribution: The Bahamas, West Indies, and northern South America; also tropical Africa.

440. **Sida micrantha** St. Hilaire.

Sida micrantha ST. HILAIRE, Flora Brasiliæ meridionalis, I, 1824, p. 190.

Near Nueva Gerona, December 21, 1903, *A. H. Curtiss, No. 248.* General Distribution: West Indies and South America.

441. **Sida linifolia** Jussieu.

Sida linifolia JUSSIEU, in Cavanilles, Monadelphiæ Classis Dissertationes Decem, I, 1785, p. 14, Pl. II, fig. 1.

Near Nueva Gerona, January 9, 1904, *A. H. Curtiss, No. 279;* weed in grapefruit grove north of Nueva Gerona, May 14, 1910, *O. E. Jennings, No. 246.* General Distribution: The West Indies, and from southern Mexico to tropical South America; also tropics of the Old World.

Flowers about one-half inch in diameter, creamy-white, with a purplish "eye."

442. **Malachra urens** Poiteau.

Malachra urens POITEAU, in Ledebour & Adlerstam, Dissertatio Botanica Sistens Plantarum Domingensium Decadem, 1805, p. 22.

Malachra ciliata POIRET, in Lamarck, Encyclopédie Méthodique, Supplementa in Dictionnaire de Botanique, III, 1813, p. 578.

Urena urens MAZA, Anales Sociedad Española de Historia Natural, 1890, p. 220.

Near Nueva Gerona, May 1, 1904, *A. H. Curtiss, No. 475.* General Distribution: Florida Keys, Cuba, the Isle of Pines, Jamaica, Hispaniola, Porto Rico, and Central America.

443. **Malachra fasciata** Jacquin.

Malachra fasciata JACQUIN, Collectanea ad Botanicam, etc., II, 1788, p. 352.

Malachra radiata GRISEBACH, Flora of the British West Indian Islands, 1859, p. 81.

Near Nueva Gerona, May 12, 1904, *A. H. Curtiss, No. 492.* General Distribution: West Indies and continental tropical America.

444. **Urena sinuata** Linnæus.

Urena sinuata LINNÆUS, Species Plantarum, 1753, p. 692.

Urena lobata var. *sinuata* MIQUEL, in Plantæ Junghuhnianæ, 1851–1855, p. 283.

Near Nueva Gerona, December 24, 1903, *A. H. Curtiss, No. 252;* in open place in river-bank forest at Los Indios, May 21, 1910, *O. E. Jennings, No. 452.* General Distribution: Widely distributed in the West Indies; Panama, Colombia, Venezuela; and the tropics of the Old World. As noted in the field, the flowers are pink with a purplish center.

445. **Pavonia spicata** Cavanilles.

Malache scabra VOGEL, in Trew, Plantæ Selectæ ab Ehret Pictæ, 1772, p. 50, Pl. 90.
Pavonia spicata CAVANILLES, Monodelphiæ Classis Dissertationes Decem, III, 1787, p. 136, Pl. 46, fig. 1.
Althæa racemosa SWARTZ, Prodromus Descriptionum Vegetabilium Indiæ Occidentalis, 1788, p. 102.
Pavonia racemosa SWARTZ, Flora Indiæ Occidentalis, II, 1800, p. 1215.
Malache spicata O. KUNTZE, Revisio Generum Plantarum, I, 1891, p. 70.

In swamp one mile north of Nueva Gerona, May 8, 1910, *O. E. Jennings, No. 135;* northern part of the island, *Blain, No. 87* (Millspaugh). General Distribution: Occurring widely in the West Indies; Panama, Colombia, Venezuela; and the tropics around the Indian Ocean.

446. **Pavonia intermixta** A. Richard.

Pavonia intermixta A. RICHARD, in Sagra, Historia Fisica, Politica y Natural de la Isla de Cuba, X, 1845, pp. 45–46.

Near Nueva Gerona, January 14, 1904, *A. H. Curtiss, No. 290.* General Distribution: Western Cuba and the Isle of Pines.

447. **Hibiscus tiliaceus** Linnæus. La Majagua.

Hibiscus tiliaceus LINNÆUS, Species Plantarum, 1753, p. 694.
Paritium tiliaceum JUSSIEU, in St. Hilaire, Flora Brasiliæ Meridionalis, I, 1825, p. 256.

In abandoned field at Bibijagua, May 7, 1910, *O. E. Jennings, No. 103;* "Pedernales Point, Isle of Pines." (Millspaugh); fair-sized tree on river bank in forest at Los Indios, May 20, 1910, *O. E. Jennings, No. 435;* Los Indios, *G. A. Link,* November 4, 1912. General Distribution: In sandy soil, southern Florida, Bermuda, the Bahamas, the West Indies, and in tropical regions generally.

The bast of this plant furnishes a valuable fiber, used in many places in the tropics for making ropes, and having also other uses, mainly domestic. The fiber becomes stronger after long maceration in water, and, as the plant grows very readily from cuttings or from

the cut stumps, it is highly probable that, in the future, the plant will be cultivated and appreciated to a much greater extent than is the case at the present time. (See Cook & Collins, "Economic Plants of Porto Rico," Contributions U. S. National Herbarium, VIII, 1903, p. 212.)

448. **Hibiscus elatus** Swartz.

Hibiscus elatus SWARTZ, Prodromus Descriptionum Vegetabilium Indiæ Occidentalis, 1788, p. 102.

Paritium elatum G. DON, General History of the Dichlamydeous Plants, I, 1831, p. 485.

A tree about twenty feet high, growing in the swamp at the western base of Mt. Colombo, May 12, 1910, *O. E. Jennings, No. 265*. General Distribution: Cuba, the Isle of Pines, Jamaica, southern Mexico, Guiana, and probably the West Indies and tropical continental America generally.

There is a difference of opinion among botanists as to the distinctness of *Hibiscus tiliaceus* and *Hibiscus elatus*, a number of leading botanists having treated them as one and the same species. The writer has not investigated the subject to any great extent but the evidence indicates two distinct species.

449. **Hibiscus furcellatus** Lamarck.

Hibiscus furcellatus LAMARCK, Encyclopédie Méthodique, Botanique, III, 1789, p. 358.

Hibiscus tomentosus STAHL, Estudios sobra la Flora de Puerto Rico, II, 1884, p. 92. Not Miller.

Hibiscus fraternus SESSÉ & MOÇINO, Flora Mexicana, Ed. II, 1894, p. 161. Not Linnæus.

Along an arroyo, Los Indios, May 17, 1910, *O. E. Jennings, No. 336;* in pine-barrens near Los Indios, May 19, 1910, *O. E. Jennings, No. 397*. General Distribution: Naturalized in Florida; native in Cuba, the Isle of Pines, Dominica, Trinidad, Central and South America; Sandwich Islands.

Flowers large, rose-color, like *Hibiscus Moscheutos*.

450. **Hibiscus costatus** A. Richard.

Hibiscus costatus A. RICHARD, in Sagra, Historia Fisica, Politica y Natural de la Isla de Cuba, X, 1845, pp. 49–50, and plate 15, Vol. XII.

Near Nueva Gerona, February 4, 1904, *A. H. Curtiss, No. 326*. General Distribution: Western Cuba and the Isle of Pines.

The plate accompanying Richard's description, and the description itself, each indicate non-lobed leaves for this species, but all the Cuban specimens the writer has seen, as well as the specimens from the Isle of Pines, have the leaves more or less acuminately lobed.

451. **Hibiscus spiralis** Cavanilles.

Hibiscus spiralis CAVANILLES, Icones et Descriptiones Plantarum, etc., II, 1786, p. 47, t. 162.

Rocky slope of ridge at Bibijagua, May 7, 1910, *O. E. Jennings, No. 126.* General Distribution: Mexico and the Isle of Pines.

452. **Hibiscus Sabdariffa** Linnæus. ROSELLE. JAMAICA SORREL.

Hibiscus Sabdariffa LINNÆUS, Species Plantarum, 1753, p. 695.

Specimen collected by Dr. Jared F. Shafer, February–March, 1910, probably from a cultivated plant. This species is a native of the Old World tropics and is rather widely cultivated for the acid, fleshy calyx, which, when cooked, much resembles cranberry sauce. The stems are also used in some countries as a source of fiber, which is strong, silky, and quite highly esteemed especially in the Asiatic tropics, where it is known as the "Roselle Hemp."

453. **Gossypium barbadense** Linnæus. SEA-ISLAND COTTON.

Gossypium barbadense LINNÆUS, Species Plantarum, 1753, p. 693.

Hibiscus barbadensis var. *latifolius* O. KUNTZE, Revisio Generum Plantarum, I, 1891, p. 68.

Collected in the Isle of Pines February–March, 1910, by Dr. Jared F. Shafer, probably from a cultivated plant. General Distribution: Cultivated and spontaneous in sandy soil, mostly near the coast, from the Carolinas to Florida, the Bahamas, the West Indies, and the tropics generally.

Family BOMBACACEÆ.

454. **Bombax emarginatum** (A. Richard) Decaisne. CEIBA TREE.

Pachira emarginata A. RICHARD, in Sagra, Historia Fisica, Politica y Natural de la Isla de Cuba, X, 1845, pp. 70–71 and XII, Pl. 20.

Bombax emarginatum DECAISNE, Flora des Serres, Series II, XIII, 1880, p. 40.

In the Journal of the New York Botanical Garden, XVIII, 1916, p. 67, Dr. N. L. Britton notes that the steep slopes of the rough hills and mountains in the northeastern part of the island are "dotted by the large and peculiar green-barked ceibon tree (*Bombax emarginata*),

one of the few deciduous-leaved trees of the flora, essentially bare of foliage at the time of our visit."

No good specimens are at hand representing this species, it being leafless at the time of our visit also. It is the most conspicuous tree on the upper slopes of the Caballos Mts., at least during the dry season. See photograph (Plate XII). Towards the top of the mountains the large sprawling limbs of the trees furnish favorite habitats for a considerable number of epiphytic orchids and bromeliads.

Family STERCULIACEÆ.

KEY TO THE SPECIES ENUMERATED.

Low shrubs or bushes; leaves widely acute to obtuse.
Leaves and upper parts of plant more or less brownish or yellowish tomentose. 455. *Melochia hirsuta.*
Leaves and upper parts of plant whitish tomentose..456. *Waltheria americana.*
Tall shrubs or trees; leaves more or less acuminate.....457. *Guazuma Guazuma.*

455. **Melochia hirsuta** Cavanilles.

Melochia hirsuta CAVANILLES, Monadelphiæ Classis Dissertationes Decem, VI, 1788, p. 323; Pl. 175, fig. 1.
Riedlea serrata VENTENAT, Choix des Plantes, 1803, Pl. 37.
Riedlea hirsuta DECANDOLLE, Prodromus Systematis Naturalis Regni Vegetabilis, I, 1824, p. 492.
Melochia serrata ST. HILAIRE & NAUDIN, Annales de Sciences Naturelles, Series II, vol. XVIII, 1842, p. 36.

A common low shrub on the "Mal Pais" gravel lands near Nueva Gerona, May 5, 1910, *O. E. Jennings, No. 16;* near Nueva Gerona, 1904, *A. H. Curtiss;* northern portion of the island, *Don José Blain, No. 14* (Millspaugh, *Field Columbian Museum, Botanical Series,* I, 1900, p. 430.) General Distribution: From Florida southwards through the West Indies and continental tropical America. A common weed in the fields and pastures near Nueva Gerona, and where frequently subjected to grass fires there develops eventually a large woody base at the surface of the ground from which springs each year a growth of short scraggly twigs.

456. **Waltheria americana** Linnæus.

Waltheria americana LINNÆUS, Species Plantarum, II, Ed. I, 1753, p. 673.
Waltheria indica LINNÆUS, *l. c.*

Along sandy beach at Bibijagua, May 7, 1910, *O. E. Jennings, No. 74;* open spot in jungle at Los Indios, May 20, 1910, *O. E. Jen-*

nings, No. 444. General Distribution: From the Florida Keys through the Bahamas and the West Indies, and through continental tropical America; also in the tropics of the Old World.

This occasionally occurs as a weed in the pasture-lands with *Melochia hirsuta*, which, in a general way, it quite closely resembles.

457. **Guazuma Guazuma** Cockerell.

Guazuma tomentosa HUMBOLDT, BONPLAND, & KUNTH, Nova Genera et Species Plantarum, V, 1821, p. 320.

Guazuma ulmifolia var. *tomentosa* C. SCHUMACHER in Martius, Flora Brasiliensis, XII (3), 1886, p. 81.

Guazuma Guazuma COCKERELL, Bulletin of the Torrey Botanical Club, XIX, 1892, p. 95 (in part).

Near Nueva Gerona, January 4 and March 3, 1904, *A. H. Curtiss, No. 270;* on lower slope on the inland side of the ridge at Bibijagua, May 7, 1910, *O. E. Jennings, No. 119;* in flower, a tree about 30 feet in height; reported for the Isle of Pines on the basis of specimens collected by Lanier in 1831. (A. Richard, in Sagra, "Historia Fisica, Politica y Natural de la Isla de Cuba," X, 1845, pp. 74, 75). General Distribution: Bahamas and generally throughout the West Indies and tropical continental America.

Family DILLENIACEÆ.

Two inner sepals becoming enlarged, crustaceous, or woody, and shining, enclosing the fruit; clambering shrubs; flowers yellow.....458. *Davilla rugosa.*

Sepals all about the same size, not enlarging nor hardening nor enclosing fruit; flowers white; tortuous shrub to low tree.....459. *Curatella americana.*

458. **Davilla rugosa** Poiret.

Davilla rugosa POIRET, Encyclopédie Méthodique, Supplementa in Dictionnaire de Botanique, II, 1811, p. 457.

Near Nueva Gerona, February 11, 1904, *A. H. Curtiss, No. 339; Dr. Jared F. Shafer,* February–March, 1910; swampy margin of pond east of Nueva Gerona, May 6, 1910, *O. E. Jennings, No. 45;* a clambering shrub along Majaguay River, near Los Indios, May 19, 1910, *O. E. Jennings, No. 415;* bank of arroyo near Sante Fé, May 25, 1910, *O. E. Jennings, No. 537.* General Distribution: Cuba, the Isle of Pines, Jamaica, St. Thomas, Colombia, Guiana, and Brazil.

459. **Curatella americana** Linnæus. SANDPAPER TREE.

Curatella americana LINNÆUS, Systema Naturæ, Ed. X, p. 1079.

"Crescit in insula *de Pinos*, locis inundatis." (A. Richard, in Sagra, "Historia Fisica, Politica y Natural de la Isla de Cuba," X, 1845, p. 10); near Nueva Gerona, February 11, 1904, *A. H. Curtiss, No. 337;* Dr. Jared F. Shafer, February–March, 1910; a bushy tree about 15 feet in height, on "Mal Pais" gravel, on savanna near Nueva Gerona, May 5, 1910, *O. E. Jennings, No. 4.* General Distribution: Widely distributed in the interior of tropical America from Colombia and Guiana to Brazil; the Isle of Pines. (*See* Plate XIII.)

The leaves of this tree are very rough and are used in some localities for polishing wood, etc. The leaves are also rich in tannic acid and are locally used for tanning purposes. In South America Gilg notes (Engler & Prantl, "Die Natürliche Pflanzenfamilien," III (Abt. VI), 1895, p. 114) that it is especially common in the "catinga" formation.

Family OCHNACEÆ.

KEY TO THE SPECIES ENUMERATED.

Low herbs with leaves less than 2 cm. long; stipules conspicuously laciniate-fringed. 460. *Sauvagesia Brownei.*

Shrubs with larger coriaceous leaves; stipules soon deciduous.

Leaves not serrate.

Leaves oblong-elliptic, obtuse at each end.....461. *Ouratea elliptica.*

Leaves, at least the upper ones, lance-ovate, subacute at the apex. 462. *Ouratea* sp.

Leaves more or less serrate.

Leaves large, up to 12 or 15 cm. long, about half as wide, abruptly acuminate, sharply serrate above the middle.....464. *Ouratea cubensis.*

Leaves smaller, about 2.5–4 cm. wide and 5–8 cm. long, the crinkled margin undulately serrate and with spine-tipped teeth, holly-like. 463. *Ouratea agrophylla.*

460. **Sauvagesia Brownei** Planchon.

Sauvagesia Brownei PLANCHON, MS. in Herb. Hooker: Troisième Voyage de J. Linden, Botanique par J. Linden et J. E. Planchon, I, 1863, p. 64. (Reprinted in Urban: Symbolæ Antillanæ, V, 1908, p. 430–431.)

Near Nueva Gerona, April 28, 1904, *A. H. Curtiss, No. 469;* growing in thin sandy soil on pine roots, in barrens east of Los Indios, May 18, 1910, *O. E. Jennings, No. 366;* as a weed in field at Nueva Gerona, May 6, 1910, *O. E. Jennings, No. 657.* General Distribution: Cuba, the Isle of Pines, and Jamaica.

461. **Ouratea elliptica** (A. Richard) G. Maza.

Gomphia elliptica A. RICHARD, in Sagra, Historia Fisica, Politica y Natural de la Isla de Cuba, X, 1845, p. 140.

Ouratea elliptica G. MAZA, Contribuciones al Catalago de las Periantiadas Cubanas, Anales de la Sociedad Española de Historia Natural XXIII, 1894, p. 45.

Camptouratea elliptica VAN TIEGHEM, Annales des Sciences Naturelles, Series VIII, Vol. XVI, 1902, pp. 214 and 215.

Growing on the white sands of the pine-barrens near Los Indios, May 17, 1910, *O. E. Jennings, No. 325.* General Distribution: Cuba and the Isle of Pines (*see* Plate XIV).

The Los Indios specimen has leaves much shorter than that from Sante Fé, the leaves of the former being not more than twice as long as wide. On neither of the numbers can there be detected, along the revolute edge of the leaves, any sign of the obsolete crenulation mentioned by Sagra ("foliis . . . margine obsolete crenulatis," *l. c.*).

462. **Ouratea** sp.

The specimens under this number have been labelled *Ouratea Curtissii* Britton, but Dr. Britton has since referred them to *Ouratea elliptica.* Near Nueva Gerona, February 28 and April 26, 1904, *A. H. Curtiss, No. 377;* shrub about two feet in height, along bank of an arroyo near Sante Fé, May 25, 1910, *O. E. Jennings, No. 532.* General Distribution: Known only from the Isle of Pines.

463. **Ouratea agrophylla** (Van Tieghem) Urban.

Gomphia ilicifolia A. RICHARD in Sagra, Historia Fisica, Politica y Natural de la Isla de Cuba, X, 1845, p. 138. Not A. DeCandolle; GRISEBACH, Catalogus Plantarum Cubensium, 1866, p. 36.

Ouratea ilicifolia G. MAZA, Contribuciones al Catalago de las Periantiadas Cubanas, 1894, p. 46. Not Baillon.

Camptouratea agrophylla VAN TIEGHEM, Annales des Sciences Naturelles, Series VIII, Vol. XVI, 1902, p. 214.

Ouratea agrophylla URBAN, Symbolæ Antillanæ, V, 1908, p. 426.

Between Bogarona and Caleta Grande, on the coralline limestone soil, May 22, 1910, *O. E. Jennings, Nos. 470 and 517.* General Distribution: Western Cuba and the Isle of Pines.

To the excellent recent description of this peculiar plant, as given by Urban in the Symbolæ Antillanæ, V, 1908, p. 426, it should be added that the leaves on vigorous non-fruiting branches tend to have a decidedly obtuse or rounded outline at the apex and that the

base is then often quite strongly cordate, thus presenting quite a contrast to the leaves of the fruiting branches on the same plant. The shrubs, as the writer found them on the Isle of Pines, have a maximum of about seven feet in height. They are rather straggling in habit, and the flowers are a bright yellow or golden-yellow. The leaves are lustrous on the upper surface but dull below.

464. **Ouratea cubensis** Urban.

Gomphia acuminata A. RICHARD in Sagra, Historia Fisica, Politica y Natural de la Isla de Cuba, X, 1845, p. 139. Not P. DeCandolle.

Gomphia nitida GRISEBACH, Catalogus Plantarum Cubensium, 1866, p. 36. Not Vahl.

Ouratea nitida MAZA, Contribuciones al Catalago de las Periantiadas Cubanas, 1894, p. 46. Not Engler.

Ouratea cubensis URBAN, Symbolæ Antillanæ, I, 1899, p. 362.

In thicket on swampy ground along the river south of Nueva Gerona, May 12, 1910, *O. E. Jennings, No. 214;* near base of Mt. Colombo, in wet jungle, May 12, 1910, *O. E. Jennings, No. 270.* General Distribution: Cuba and the Isle of Pines.

Family THEACEÆ.

(*TERNSTRŒMIACEÆ.*)

KEY TO THE SPECIES ENUMERATED.

Anthers roundish, not grown fast to the filament; fruit a capsule.
465. *Hæmocharis Curtyana.*

Anthers linear, grown fast to the filament; fruit not capsule-like.
466. *Ternstrœmia obovalis.*

465. **Hæmocharis Curtyana** (A. Richard) Millspaugh.

Laplacea Curtyana A. RICHARD, Essai d'une Flore de l'Ile de Cuba, in Sagra, Histoire Physique, Politique et Naturelle de l'Isle de Cuba, I, 1845, p. 225.

Hæmocharis Curtyana MILLSPAUGH, Field Columbian Museum, Botanical Series, I, 1900, p. 430.

Northern part of the island, *Blain, No. 22* (Millspaugh). General Distribution: Cuba and the Isle of Pines.

466. **Ternstrœmia obovalis** A. Richard.

Ternstrœmia obovalis A. RICHARD, in Sagra, Historia Fisica, Politica y Natural de la Isla de la Cuba, X, 1845, p. 89–90, also XII, Pl. 25.

Near Nueva Gerona, March 22 and May 29, 1904, *A. H. Curtiss, No. 429;* bank of dry arroyo in savanna east of Nueva Gerona, May

5, 1910, *O. E. Jennings, No. 8.* General Distribution: Western Cuba and the Isle of Pines.

Family HYPERICACEÆ.

KEY TO THE SPECIES ENUMERATED.

Shrubs or low bushes with the leaves not over 2 cm. long.
  Leaves linear or subulate.
    Leaves of the axillary clusters mostly much shorter than the main pair.
      467. *Hypericum galioides* var. *cubense.*
    Clusters of small leaves borne in the axils of the larger ones.
      468. *Hypericum aspalathoides.*
  Leaves lance-ovate or wider and often strongly 4-ranked.
    469. *Hypericum styphelioides.*
Shrubs, woody twiners, or trees, with leaves 4 cm. or more long.
  Leaves tipped with a sharp spine 2–3 mm. long.....471. *Rheedia aristata.*
  Leaves not spine-tipped.
    Leaves elliptic-oblong with numerous straight pinnate veins only about 1 mm. apart.....470. *Calophyllum Calaba.*
    Leaves obovate-cuneate with the less regular pinnate veins 2–3 mm. apart.
      472. *Clusia rosea.*

467. **Hypericum galioides** var. **cubense** Grisebach.

Hypericum galioides var. *cubense* GRISEBACH, Catalogus Plantarum Cubensium, 1866, p. 39.

About 1850, *José Blain, Nos. 129, 150* (Millspaugh, *Botanical Series, Field Columbian Museum*, I, 1900, p. 430); probably to this variety also belongs the report by Achille Richard, in Sagra, *Historia Fisica, Politica y Natural de la Isla de Cuba*, X, 1845, p. 97, based on the collections of A. H. Lanier, 1831. Richard lists this as *Hypericum galioides*, but notes that upon comparison of the specimens from the Isle of Pines with material from North America differences are plainly evident. Lanier's specimens appear to answer to the description of the variety *cubense* as later published by Grisebach. General Distribution: Cuba and the Isle of Pines.

468. **Hypericum aspalathoides** Willdenow.

Hypericum aspalathoides WILLDENOW, Species Plantarum, III, 1805, p. 1451.
Hypericum fasciculatum var. *aspalathoides* TORREY & GRAY, Flora of North America, I, 1840, p. 672.

In dry arroyo in the pine barrens at Los Indios, May 17, 1910, *O. E. Jennings, No. 333;* pine barrens east of Los Indios, May 18, 1910, *O. E. Jennings, No. 360.* General Distribution: Open pine

lands, North Carolina to Florida and Louisiana, and in the Isle of Pines.

Our specimens agree closely with specimens of this species from the Gulf States, except that the leaves average a little longer, often one cm. long for the larger ones, and the corymbose cymes become rather more densely branched.

469. **Hypericum styphelioides** A. Richard (?).

Hypericum styphelioides A. RICHARD in Sagra, Historia Fisica, Politica y Natural de la Isla de Cuba, X, 1845, pp. 96–97.

A scraggly shrub forming a prominent part of the vegetation on the white sand and gravel of the pine-barrens near Los Indios. The plants are never massed into thickets, but are quite abundant, growing singly and with few rather irregular branches, and with the rigid leaves arranged in 4-ranks and somewhat imbricated. On the white sand in the pine-barrens at Los Indios, May 17, 1910, *O. E. Jennings, No. 316;* same locality, May 21, 1910, *O. E. Jennings, No. 455;* no locality given, February–March, 1910, *Jared F. Shafer.* General Distribution: Cuba and the Isle of Pines.

Unfortunately the plants were not in such condition when found as to furnish good specimens of flowers or fruit. For this reason it has been thought best to regard the plant provisionally as *Hypericum styphelioides*, although a comparison of the specimens with a fine sheet of specimens of that species collected by J. A. Shafer (*No. 432*) at Herradura, Pinar del Rio Province, Cuba, April 30, 1903, leaves considerable doubt as to the identity of the plants from the two islands. The Isle of Pines specimens have larger, thicker, more closely imbricated, and more conspicuously 4-ranked leaves, and it is not unlikely that they represent an undescribed species.

470. **Calophyllum Calaba** Jacquin.

Calophyllum Calaba JACQUIN, Selectarum Stirpium Americanarum Historia, 1763, p. 269, Pl. 165. (Not Linnæus, Species Plantarum, Ed. I, 1753, p. 514.)

Near Nueva Gerona, April 17, 1904, *A. H. Curtiss, No. 445.* General Distribution: Bahamas and Cuba and southwards through the West Indies generally.

471. **Rheedia aristata** Grisebach.

Rheedia aristata GRISEBACH, Catalogus Plantarum Cubensium, 1866, p. 38.

Near Nueva Gerona, March 6, flowers, and April 23, fruit, 1904,

A. H. Curtiss, No. 389. General Distribution: Western Cuba and the Isle of Pines.

Urban (*Symbolæ Antillanæ*, I, 1899, pp. 368–369) has described as *Rheedia portoricensis* a plant of Porto Rico very closely related to *R. aristata*, but having the petioles 5–8 mm. long, instead of 2–3 mm., lateral nerves 25–35, instead of 15–20, and pedicels 2–3 cm. long, instead of but 1–1.5 cm. Curtiss's specimen from the Isle of Pines is intermediate in most characters; the petioles often reach 5 mm. in length, the lateral nerves on the larger leaves are between 20 and 25 in number, and the longer pedicels reach a length of over 2 cm. Further study of more extensive collections will probably show good reasons for regarding *Rheedia portoricensis* as a variety of *R. aristata*.

472. **Clusia rosea** Jacquin.

Clusia rosea JACQUIN, Enumeratio Systematica Plantarum, 1760, p. 34.

A small tree about fifteen feet high, growing on the bank of an arroyo south of Nueva Gerona, May 12, 1910, *O. E. Jennings, No. 196;* February–March, 1910, no locality given, *Jared F. Shafer.* General Distribution: The Bahamas, most of the larger West Indian islands, Panama, and Venezuela.

Family FLACOURTIACEÆ.

KEY TO THE SPECIES ENUMERATED.

Shrub or small tree with flowers about 4 cm. long; leaves oblong, obtuse, often retuse, the upper surface shining and pebbly-roughened.
473. *Samyda grandiflora.*

Shrubs or trees; flowers small, less than 10 mm. long; leaves acuminate or mucronate (*Casearia*).

Branchlets and under surface of leaves softly and densely brownish-pubescent. Calyx-lobes about 5–6 mm. long; shorter branchlets not ending in a spine.
476. *Casearia hirsuta.*

Calyx-lobes somewhat shorter; shorter branchlets often aculeate.
475. *Casearia aculeata.*

Branchlets and under surface of leaves glabrous, or, if hairy, scarcely softly and densely pubescent.

Plants essentially glabrous; calyx-lobes about 1.5 mm. long.
474. *Casearia sylvestris.*

Plants, especially the flowers, younger branchlets and petioles, pubescent; calyx-lobes somewhat longer.....475. *Casearia hirta* = *C. aculeata.*

473. **Samyda grandiflora** Grisebach.

Samyda grandiflora GRISEBACH, Catalogus Plantarum Cubensium, 1866, p. 11.

Near Nueva Gerona, March and April, 1904, *A. H. Curtiss, No. 368.* General Distribution: Western Cuba and the Isle of Pines.

474. **Casearia sylvestris** Swartz. SARNA DE PERRO.

Samyda parviflora LINNÆUS, Systema Naturæ, II, Ed. X, 1759, p. 1025. Not of Loefling.

Casearia parviflora WILLDENOW, Species Plantarum, II, 1799, p. 627.

Casearia sylvestris SWARTZ, Flora Indiæ Occidentalis, II, 1800, p. 752.

Casearia punctata SPRENGEL, Neue Entdeckungen im Ganzen Umfang der Pflanzenkunde, II, 1821, p. 154.

Near Nueva Gerona, January 6, February 15, February 26, 1904, *A. H. Curtiss, Nos. 274 and 347;* slender shrub about twelve feet high, at west base of Caballos Mts., May 9, 1910, *O. E. Jennings, No. 187;* tree about twenty feet high, bushy, near base of Mt. Colombo, *O. E. Jennings, No. 272;* spreading tree, about eighteen feet high, base of Casas Mts., May 14, 1910, *O. E. Jennings, No. 281.* General Distribution: Throughout the West Indies and from Mexico to South America.

475. **Casearia aculeata** Jacquin.

Casearia aculeata JACQUIN, Enumeratio Plantarum, Quas in Insulis Caribæis Detexit, 1760, p. 21.

Samyda spinosa LINNÆUS, Species Plantarum, I, Ed. II, 1762, p. 557.

Casearia spinosa WILLDENOW, Species Plantarum, II, 1799, p. 626.

Casearia hirta SWARTZ, Flora Indiæ Occidentalis, II, 1800, p. 756.

Casearia ramiflora var. *spinosa* GRISEBACH, Flora of the British West Indian Islands, 1859, p. 23.

Casearia ramiflora STAHL, Estudios sobra la Flora de Puerto-Rico, IV, 1886, p. 30, not Vahl.

Near Nueva Gerona, February 9, 1904, *A. H. Curtiss, No. 336;* small tree at base of ridge at Bibijagua, May 7, 1910, *O. E. Jennings, No. 117;* small spreading tree near Mt. Colombo, May 14, 1910, *O. E. Jennings, No. 275.* General Distribution: Greater Antilles and continental tropical America.

476. **Casearia hirsuta** Swartz.

Samyda tomentosa SWARTZ, Prodromus Descriptionum Vegetabilium Indiæ Occidentalis, 1788, p. 68.

Casearia hirsuta SWARTZ, Flora Indiæ Occidentalis, II, 1800, p. 756.

Near Nueva Gerona, January 22, 1904, *A. H. Curtiss, No. 310*

General Distribution: Cuba, the Isle of Pines, Jamaica, and from Panama to Guiana and Brazil.

The various species of *Casearia*, particularly *C. sylvestris*, form, as to numbers, quite a prominent part of the forest on the lower slopes and around the bases of the limestone ridges in the northern part of the island.

Flacourtia inermis Roxburgh, Hortus Bengalensis, 1814, p. 73, is represented by *Blain, No. 121*, reported by Millspaugh (*Field Columbian Museum, Bot. Series*, I, 1900, p. 431) and Blain's note is added: "An introduced tree.—Blain."

Family TURNERACEÆ.

KEY TO THE SPECIES ENUMERATED.

Peduncles slender, axillary, not united with the petiole; stem usually with stellate pubescence (*Piroqueta*).

Leaves sharply serrate, lance-ovate; hairs viscid.....478. *Piroqueta viscosa*.

Leaves obscurely denticulate-serrate, lance-linear; hairs not viscid.

477. *Piroqueta cistoides*.

Peduncles short and apparently arising from the apex of the petiole; usually little or no stellate pubescence (*Turnera*).

Annuals, low, the lower branches spreading and often procumbent; leaves with no glands.....479. *Turnera Pumilea*.

Shrubby, branches tending towards erect; two glands on petiole immediately below base of blade.....480. *Turnera ulmifolia*.

477. **Piroqueta cistoides** (Linnæus) Meyer.

Turnera cistoides LINNÆUS, Species Plantarum, I, Ed. II, 1762, p. 387.

Piroqueta cistoides MEYER, ex Steudel, Nomenclator Botanicus, II, Ed. II, 1841, p. 344.

Piroqueta longifolia BELLO, Anales Sociedad Española de Historia Natural, I, 1881, p. 275.

Piroqueta villosa COOK & COLLINS, Contributions U. S. National Herbarium, VIII, 1903, p. 220.

Near Nueva Gerona, May 12, 1904, *A. H. Curtiss, No. 496;* in pine-barrens, near Majagua River, north of Los Indios, May 19, 1910, *O. E. Jennings, No. 404.* Flowers golden-yellow. General Distribution: Throughout the West Indies and American continental tropics.

478. **Piroqueta viscosa** Grisebach.

Piroqueta viscosa GRISEBACH, Catalogus Plantarum Cubensium, 1866, p. 114.

Pine-barrens at Los Indios, May 19, 1910, *O. E. Jennings, No. 395.* Included also in the printed list of plants collected in the Isle of

Pines and distributed by A. H. Curtiss, but no specimen is in the set acquired by the Carnegie Museum. General Distribution: Cuba, the Isle of Pines, and Colombia.

479. **Turnera Pumilea** Linnæus.

Turnera Pumilea LINNÆUS, Systema Naturæ, II, Ed. X, 1759, p. 965.

Near Nueva Gerona, May 17, 1904, *A. H. Curtiss, No. 503;* in pine-barrens near the Majagua River, north of Los Indios, May 19, 1910, *O. E. Jennings, No. 400.* General Distribution: Cuba, the Isle of Pines, Jamaica, Curaçao, South America.

The writer's notes say, as to the color of the flower: "rose-pink;" Urban ("*Symbolæ Antillanæ*," IV, 1910, p. 423) says: "Flores albi;" Grisebach ("Flora of the British West Indian Islands," 1860, p. 297) describes the color as "tawny."

480. **Turnera ulmifolia** Linnæus.

Turnera ulmifolia LINNÆUS, Species Plantarum, I, Ed. I, 1753, p. 271.

On coralline strand at Caleta Grande, May 22, 1910, *O. E. Jennings, No. 514.* General Distribution: A species, breaking up into many varieties and forms, through a wide range from the West Indies and Mexico south to Argentina.

Family PASSIFLORACEÆ.

KEY TO THE TWO SPECIES ENUMERATED.

Leaves not glandular-villous, not cordate at the base; no involucre below the calyx.....482. *Passiflora suberosa.*

Leaves glandular-villous, cordate at the base; calyx subtended by a large, finely tripinnatifid involucre.....481. *Passiflora fœtida.*

481. **Passiflora fœtida** Linnæus.

Passiflora fœtida LINNÆUS, Species Plantarum, II, Ed. I, 1753, p. 959.

Near Nueva Gerona, March 6, 1904, *A. H. Curtiss, No. 388.* General Distribution: Widely distributed in the tropics, extending north in America to the Bahamas and Texas.

482. **Passiflora suberosa** var. **minima** (Linnæus) Masters.

Passiflora suberosa LINNÆUS, Species Plantarum, II, Ed. I, 1753, p. 958.

Passiflora minima LINNÆUS, *op. cit.*, p. 959.

Passiflora hirsuta LINNÆUS, *op. cit.*, p. 959.

Passiflora hederacea CAVANILLES, Monadelphiæ Classis Dissertationes Decem, X, 1790, p. 448.

Passiflora suberosa var. *minima* MASTERS, in Martius, Flora Brasiliensis, XIII (I), 1872, p. 579.

Near Caleta Grande, South Coast, May 22, 1910, *O. E. Jennings, No. 525* (flowers yellow-green, unripe berries blue); also same locality and date, *No. 528* (fruits globose, yellowish, reaching one and one-half inches in diameter; flowers yellow). General Distribution: From southern Florida and the Bahamas, south through the West Indies and South America as far as Argentina.

An exceedingly polymorphous species, or, according to some botanists, one of a group of closely related species. The synonymy given above is based upon Urban's "Flora Portoricensis," (*Symbolæ Antillanæ*, IV, 1910, p. 424).

Family CARICACEÆ.

483. **Caiica cubensis** Solms (?).

Carica cubensis SOLMS, in Martius, Flora Brasiliensis, XIII, 3, 1899, p. 177.

Alongside of old stone wall at old marble quarry, east base of Caballos Mts., May 9, 1910, *O. E. Jennings, No. 671.* Identity doubtful, possibly *Carica Papaya.*

Family CACTACEÆ. CACTI.

KEY TO THE SPECIES ENUMERATED.

Stem more or less erect or becoming procumbent, consisting of flattened obovate joints.....484. *Opuntia Dillenii.*

Stems erect, cylindrical with 5–8 ridges or flutings; the tubercles on the ridges bearing slender spines up to 7–8 cm. long.....485. *Harrisia* sp.

Stems trailing or climbing, throwing out roots from their whole length.

Stems triangular-winged or very strongly three-fluted.

486. *Hylocereus triangularis.*

Stems with five or more ridges or flutings.

Spines on the tubercles only about 2–3 mm. long.....488. *Selenicereus* sp.

Spines up to 5 mm. long.....487. *Cephalocereus Bakeri.*

484. **Opuntia Dillenii** (Ker) Haworth.

Cactus Dillenii KER, Botanical Register, III, 1818, Pl. 255.

Opuntia Dillenii HAWORTH, Supplementum Plantarum Succulentarum, 1819, p. 79.

Dry sandy fields near Bibijagua, May 7, 1910, *O. E. Jennings, No. 99.* General Distribution: Coasts of Florida, the Bermudas, a number of the West Indian islands, and Vera Cruz.

485. **Harrisia** sp.

(Probably near *Harrisia eriophora* (Pfeiffer) Britton.)

Live specimens of this plant were brought to Pittsburgh by Mr. G. A. Link in 1912 and some of these are now growing in the Phipps Conservatories, Schenley Park, Pittsburgh, others in a window of the Herbarium Room, Carnegie Museum. The plants were collected from the upper slopes of the Caballos Mts., and Mr. Link states that the species was quite abundant on the upper slopes of Mt. Colombo. Mr. Link's observations with regard to the flowers were that they were two or three inches across, about the same in length, yellow; the fruits were yellow, about two inches in diameter, and nearly round. The tallest plants noted were about six or eight feet, the stems branching towards the top, with spreading and then ascending branches.

486. **Hylocereus triangularis** (Linnæus) Britton & Rose.

Cactus triangularis LINNÆUS, Species Plantarum, I, Ed. I, 1753, p. 468.
Cereus compressus MILLER, Gardener's Dictionary, Ed. VIII, 1768, no. 10.
Cereus triangularis HAWORTH, Synopsis Plantarum Succulentarum, 1812, p. 180.
Cereus trigonus HAWORTH, *op. cit.*, p. 181.
Hylocereus triangularis BRITTON & ROSE, Contributions, U. S. National Herbarium, XII, 1909, p. 429.

This record is based on specimens now growing in the Herbarium Room, Carnegie Museum, and collected on the Caballos Mts., by Mr. G. A. Link, in 1912. General Distribution: Southern Mexico to Panama, Jamaica, the Isle of Pines, Cuba, Haiti, Porto Rico, and widely planted and escaped in the tropics from Florida southwards.

487. **Cephalocereus Bakeri** Britton & Rose.

Cephalocereus Bakeri BRITTON & ROSE, Contributions from the U. S. National Herbarium, XII, 1909, p. 415.
Cereus Bakeri VAUPEL, Monatsschrift für Kakteenkunde, XXIII, 1913, p. 23.

In swamp one mile north of Nueva Gerona, May 8, 1910, *O. E. Jennings, No. 136; Dr. J. F. Shafer*, February–March, 1910; climbing on tree along bank of the Majagua River, north of Los Indios, May 19, 1910, *O. E. Jennings, No. 420;* tall climber, from top of tall tree recently blown down, north of Caleta Grande, South Coast, May 22, 1910, *O. E. Jennings, No. 513*. General Distribution: Western Cuba and the Isle of Pines.

A night-blooming cereus with flowers of rare beauty and exquisite fragrance. The plants climb, rope-like, to the tops of tall trees, and the flowers reach a length of about eleven inches.

488. **Selenicereus** sp.

Rocky slope of ridge at Bibijagua, facing the sea, May 7, 1910, *O. E. Jennings, No. 124.* Not certainly identifiable; no flowers or fruit seen, but it probably represents an unpublished species still being investigated by Drs. Britton and Rose.

Family THYMELÆACEÆ.

489. **Lagetta lintearia** Lamarck. LACE-BARK TREE.

Lagetta lintearia LAMARCK, Encyclopédie Méthodique, Botanique, III, 1789, p. 376

Northern part of the island, *Blain, No. 158* (Millspaugh). General Distribution: The species has been variously reported from Cuba, Jamaica, and Santo Domingo, but with the more recent description of new species, *e. g., Lagetta Wrightiana* Krug & Urban, it is likely that this distribution will be decreased in extent. The writer is not prepared, however, to dispute the correctness of the reference of Blain's specimen to *Lagetta lintearia.*

The lace-bark tree is said to be common in some parts of the island. Dr. Britton has this to say of it in the San Juan region: "The Loma Daguilla (Lace-bark Hill), an isolated mountain about 600 feet high, situated about two miles west-southwest of the San Juan Hills, is of exceptional interest. It takes its name from the lace-bark tree (La Daguilla), a near relative of the Jamaica lace-bark, here rather abundant; its inner bark is separable into a beautiful netted fiber."

Family LYTHRACEÆ.

KEY TO THE SPECIES ENUMERATED.

Leaves linear-oblong to lance-oblong, more or less auriculate-clasping at the base.
  Leaves about 3–7 cm. long; capsules 3–4 mm. in diameter.
    491. *Ammania latifolia.*
  Leaves about 1–3 cm. long; capsules 2–2.5 cm. in diameter.
    490. *Ammania auriculata.*
Leaves not as above.
  Leaves less than 1 cm. long, broadly ovate, almost sessile, cordate at base; flowers white.
    Disk more or less erect. . . . . 492. *Parsonsia Melanium.*
    Disk horizontal. . . . . 496. *Parsonsia Swartziana.*
  Leaves either distinctly larger or else tapering at base.
    Leaves linear-oblanceolate, up to about 1 cm. long.
      495. *Parsonsia pseudosilene.*
    Leaves lance-oblong to ovate.

Leaves ovate, somewhat glandular, but hardly pubescent.
494. *Parsonsia Grisebachiana.*
Leaves lance-oblong to ovate, minutely glandular, and also scabrous-pubescent.....493. *Parsonsia micrantha.*

490. **Ammania auriculata** var. **arenaria** f. **brasiliensis** (St. Hilaire) Koehne.

Ammania senegalensis var. *brasiliensis* St. Hilaire, Flora Brasiliensis, III, 1833, p. 135, Pl. 187.
Ammania auriculata var. *arenaria* f. *brasiliensis* Koehne, in Engler's Pflanzenreich, IV (216), 1903, p. 46.

Near Nueva Gerona, December 19, 1903, *A. H. Curtiss, No. 245.* General Distribution: From Nebraska to Louisiana and New Mexico and south to Brazil; Cuba, the Isle of Pines; and Africa.

491. **Ammania latifolia** Linnæus.

Ammania latifolia Linnæus, Species Plantarum, I, Ed. I, 1753, p. 119.
Isnarda subhastata Ruiz & Pavon, Floræ Peruvianæ et Chilensis Prodromus, I, 1798, p. 66, Pl. 86, fig. *b.*
Ammannia ramosior Elliott, Sketch of the Botany of South Carolina and Georgia, I, 1821, p. 219.
Ammania lingulata Grisebach, Catalogus Plantarum Cubensium, 1866, p. 106.

Between Bogarona and Caleta Grande, on coralline-limestone soil, May 22, 1910, *O. E. Jennings, No. 472.* General Distribution: From the Bahamas and the northern shores of the Gulf of Mexico south through the West Indies and continental tropical America.

492. **Parsonsia Melanium** Linnæus.

Lythrum Melanium Linnæus, Systema Naturæ, Ed. X, 1759, p. 1045.
Cuphea Melanium R. Brown, in Steudel, Nomenclator Botanicus, Ed. I, 1821, p. 245.
Melanium alliaceum Sprengel, Systema Vegetabilium, II, 1825, p. 454.
Cuphea pseudomelanium Grisebach, Catalogus Plantarum Cubensium, 1866, p 186.

Dry savanna, south of Sante Fé, May 25, 1910, *O. E. Jennings, No. 546; Blain, Nos. 55, 56* (according to Millspaugh). (Flowers white.) General Distribution: Cuba, Jamaica, Haiti, and the Isle of Pines.

493. **Parsonsia micrantha** Humboldt, Bonpland, & Kunth.

Cuphea micrantha Humboldt, Bonpland, & Kunth, Nova Genera et Species Plantarum, VI, 1823, p. 196.
Melanium hirtum Sprengel, Systema Vegetabilium, II, 1825, p. 451.

Cuphea hirta DECANDOLLE, Prodromus Systematis Naturalis Regni Vegetabilium, III, 1828, p. 83.

Cuphea rapunculoides GRISEBACH, Catalogus Plantarum Cubensium, 1866, p. 105.

Near Nueva Gerona, April 21, 1904, and May 25, 1904, *A. H. Curtiss, Nos. 455 and 513.* General Distribution: Cuba, the Isle of Pines, Hispaniola, Porto Rico, and from Honduras and Guatemala to Brazil.

Curtiss's *No. 455* consists of very diminutive specimens, some of them not over 2.5 cm. high; these being, probably, merely starved forms.

494. **Parsonsia Grisebachiana** (Koehne) comb. nov.

Cuphea Grisebachiana KOEHNE, Flora Brasiliensis, XIII, (II), 1877, p. 225.

Cuphea hyssopifolia GRISEBACH (in part), Catalogus Plantarum Cubensium, 1866, p. 105, not of Humboldt, Bonpland, & Kunth.

Parsonsia Grisebachiana. (Herbarium name, as distributed in Curtiss' *West Indian Plants*, and unpublished.)

Near Nueva Gerona, April 3, 1904, *A. H. Curtiss, No. 433.* General Distribution: Western Cuba and the Isle of Pines.

495. **Parsonsia pseudosilene** (Grisebach) comb. nov.

Cuphea pseudosilene GRISEBACH, Catalogus Plantarum Cubensium, 1866, p. 105.

Parsonsia pseudosilene. (Herbarium name, as distributed in Curtiss' *West Indian Plants*, and unpublished.)

On white sand in the pine-barrens near Los Indios, May 17, 1910, *O. E. Jennings, No. 337;* on sour-looking spots on the white sand of the pine-barrens, May 18, 1910, *O. E. Jennings, No. 384* (flowers purplish); near Los Indios, November 4, 1912, *G. A. Link.* General Distribution: The Isle of Pines and Cuba.

496. **Parsonsia Swartziana** (Sprengel) comb. nov.

Cuphea Swartziana SPRENGEL, Systema Vegetabilium, II, 1825, p. 455.

Cuphea cordifolia KOEHNE, Engler, Botanische Jahrbücher, II, 1881, p. 140.

Parsonsia cordifolia. (Herbarium name, as distributed in Curtiss' *West Indian Plants*, and unpublished.)

Near Nueva Gerona, April 21, 1904, *A. H. Curtiss, No. 426.* General Distribution: Western Cuba and the Isle of Pines. In a recent letter to the writer Dr. Britton refers Curtiss' *no. 426* to *P. Swartziana.*

Family RHIZOPHORACEÆ.

497. **Rhizophora Mangle** Linnæus. MANGROVE. MANGLE.

Rhizophora Mangle LINNÆUS, Species Plantarum, I, Ed. I, 1753, p. 443.

Along margin of river south of Nueva Gerona, in brackish water, May 12, 1910, *O. E. Jennings, No. 692.* General Distribution: Along sea-coasts from the Bermudas and southern Florida south through the West Indies and continental tropical America; also tropics of Africa.

In the Isle of Pines the mangrove forms a continuous border around the coast, excepting where the coast is rocky, and it also fringes the rivers for several miles back from the sea, as far as the limit of salt water.

Family COMBRETACEÆ.

KEY TO THE SPECIES ENUMERATED.

Flowers in peduncled spikes.
  Corolla none.
    Leaves glabrous or nearly so; calyx persistent; branchlets thorny.
      Leaves about 2 cm. long and 5 mm. wide.....501. *Bucida spinosa.*
      Leaves 2–4 cm. long and 5–20 mm. wide.....500. *Bucida Buceras.*
    Leaves on the midrib beneath and on the margin rusty hirsute.
      498. *Buchenavia capitata.*
  Corolla present; leaves opposite, oblong to oval or obovate, rounded or retuse.
    502. *Laguncularia racemosa.*
Flowers in dense, round, peduncled heads; leaves alternate, elliptic to oval, acute or acuminate.....499. *Conocarpus erecta.*

498. **Buchenavia capitata** (Vahl) Eichler.

Bucida capitata VAHL, Eclogæ Americanæ, I, 1796, p. 50, Pl. VIII.
Buchenavia capitata EICHLER, Flora, 1866, p. 165.
Pseudolmedia bucidæfolia BELLO, Anales de la Sociedad Española de Historia Natural, II, 1883, p. 109, no. 701.

Near Nueva Gerona, February 28 and March 29, 1904, *A. H. Curtiss, No. 376.* General Distribution: From Cuba south through the West Indies and tropical South America.

499. **Conocarpus erecta** Linnæus. BUTTONWOOD.

Conocarpus erecta LINNÆUS, Species Plantarum, I, Ed. I, 1753, p. 176.

Pedernales Point, southwestern corner of the island, February 16, 1899, *C. F. Millspaugh, No. 1428.* General Distribution: From the Bermudas and southern Florida south through the West Indies and tropical America, along muddy or sandy shores.

500. **Bucida Buceras** Linnæus. BLACK OLIVE.

Bucida Buceras LINNÆUS, Systema Naturæ, II, Ed. X, 1759, p. 1025.

Near Nueva Gerona, May 3, 1904, *A. H. Curtiss, No. 479;* in swamp

southwest of Bibijagua, May 7, 1910, *O. E. Jennings, No. 100;* near Hato, north of Caleta Grande, May 22, 1910, *O. E. Jennings, No. 463a;* northern part of the island, *Blain, No. 130* (Millspaugh). General Distribution: From the Bahamas and southern Florida south through the West Indies and tropical America.

501. **Bucida spinosa** (Northrop) comb. nov.

Terminalia spinosa NORTHROP, Memoirs of the Torrey Botanical Club, XII, 1902, p. 54.

Conspicuous in the chaparral near Hato, north of Caleta Grande, May 22, 1910, *O. E. Jennings, No. 469.* General Distribution: The West Indies.

502. **Laguncularia racemosa** (Linnæus) Gaertner, filius. WHITE BUTTONWOOD. WHITE MANGROVE.

Conocarpus racemosa LINNÆUS, Systema Naturæ, II, Ed. X, 1759, p. 930.
Laguncularia racemosa GAERTNER, FILIUS, De Fructibus et Seminibus Plantarum, III, 1807, p. 209.

Based on specimen *Blain, No. 80,* reported by Millspaugh, collected in the northern part of the island. General Distribution: Along coasts, from the Bermudas and southern Florida south through the West Indies and tropical America.

Family MYRTACEÆ.

KEY TO THE SPECIES ENUMERATED.

Leaves long, up to 20 cm. or more, lance-linear, acuminate..506. *Eugenia Jambos.*
Leaves lanceolate, or narrowly ovate, acuminate.....509. *Psidium Guayabita.*
Leaves orbicular to rounded-cordate, very obtuse...510. *Calyptranthes pinetorum.*
Leaves narrowly elliptic to oval or oblong, not cordate nor sharply acuminate.
  Flowers densely grouped in a head at the apex of a long axillary peduncle.
    Leaves elliptic, obtuse to shortly bluntly acuminate; glomerule 5–9-flowered. calyx-lobes obtuse.....511. *Calyptranthes micrantha;*
    Leaves narrowly elliptic, obtuse; glomerule fewer-flowered; calyx-lobes apiculate.....512. *Calyptranthes punctata.*
  Flowers not grouped into a long-peduncled head.
    Leaves small, up to 2.5 cm. long by 1 cm. wide...507. *Eugenia punicifolia.*
    Leaves larger.
      Flowers 2.5–3.5 cm. in diameter, solitary, axillary; leaves pubescent beneath.....508. *Psidium Guajava.*
      Flowers much smaller.
        Peduncles axillary, dichotomously branching, 3–7 (or 1)-flowered; leaf-blades oblong to obovate-cuneate, 2–4 cm. long.
505. *Anamomis dichotoma.*

Peduncles axillary, solitary (or more), one-flowered; leaves oboval to oblong-oboval, 2.5–4 cm. long.....504. *Eugenia brevipes.*
Flowers short-peduncled, in short axillary clusters; leaves elliptic-ovate, 3–5 cm. long.....513. *Eugenia axillaris.*
Peduncles 1-flowered and simple, or branched and 3–4-flowered, bibracteolate below the flower, short and congested in the axils.
503. *Eugenia faramoides.*

503. **Eugenia faramoides** A. Richard.

Eugenia faramoides A. RICHARD, in Sagra, Historia Fisica, Politica y Natural de la Isla de Cuba, X, 1845, p. 281.

Small shrub in a thicket along bank of arroyo, near Sante Fé, May 24, 1910, *O. E. Jennings, No. 562.* General Distribution: Cuba and the Isle of Pines.

504. **Eugenia brevipes** A. Richard.

Eugenia brevipes A. RICHARD, in Sagra, Histoire Physique, Politique et Naturelle de l'Ile de Cuba, I, 1845, p. 584.

Northern part of island, *Blain, No. 54* (Millspaugh). General Distribution: Cuba and the Isle of Pines.

505. **Anamomis dichotoma** (Vahl) Sargent.

Myrtus dichotoma VAHL, in Poiret, Encyclopédie Méthodique, Supplementa, IV, 1816, p. 63.
Eugenia dichotoma DECANDOLLE, Prodromus Systematis Regni Vegetabilis, III, 1828, p. 278.
Anamomis dichotoma SARGENT, Garden and Forest, VI, 1893, p. 130.

Northern part of the island, *Blain, No. 114* (reported by Millspaugh). General Distribution: Rocky woods, Florida, the Bahamas, and several West Indian islands.

506. **Eugenia Jambos** Linnæus. Rose-Apple. Jambos. Jamrosade.

Eugenia Jambos LINNÆUS, Species Plantarum, I, Ed. I, 1753, p. 470.
Jambosa vulgaris P. DECANDOLLE, Prodromus Systematis Naturalis Regni Vegetabilis, III, 1828, p. 286.
Jambosa Jambos MILLSPAUGH, Field Columbian Museum, Botanical Series, II, 1900, p. 80.

Near Nueva Gerona, January 22, 1904, *A. H. Curtiss, No. 308;* among palmettoes on savanna, two miles east of Nueva Gerona, May 5, 1910, *O. E. Jennings, No. 13.* General Distribution: Native to the tropics of the Old World, but now extensively cultivated and

escaped in the American tropics. The fruit is apricot-flavored and is highly valued for making jelly.

507. **Eugenia punicifolia** (Humboldt, Bonpland, & Kunth) DeCandolle.

Myrtus punicæfolia HUMBOLDT, BONPLAND, & KUNTH, Nova Genera et Species Plantarum, VI, 1823, p. 149.

Eugenia punicæfolia P. DECANDOLLE, Prodromus Systematis Naturalis Regni Vegetabilis, III, 1828, p. 267.

Near Nueva Gerona, May 13, 1904, *A. H. Curtiss, No. 408;* swampy places along river south of Nueva Gerona, May 12, 1910, *O. E. Jennings, No. 203;* near Los Indios, Nov. 4, 1912, *G. A. Link.* General Distribution: Northern South America and the Isle of Pines.

508. **Psidium Guajava** Linnæus. GUAVA: LEMON GUAVA.

Psidium Guajava LINNÆUS, Species Plantarum, I, Ed. I, 1753, p. 470.

Psidium pyriferum LINNÆUS, Species Plantarum, I, Ed. II, 1762, p. 672.

Psidium pomiferum LINNÆUS, *l. c.*

Psidium Guava GRISEBACH, Flora of the British West Indian Islands, 1860, p. 241.

On old homestead site, near Nueva Gerona, May 5, 1910, *O. E. Jennings, No. 38.* General Distribution: American tropics, widely cultivated, now introduced and naturalized, sometimes as a weed, as far north as the Bermudas, Bahamas, Florida, and California. Fruit somewhat astringent, but highly valued for jellies and preserves.

509. **Psidium Guayabita** A. Richard.

Psidium Guayabita A. RICHARD, in Sagra, Historia Fisica, Politica y Natural de la Isla de Cuba, X, 1845, p. 277.

Near Nueva Gerona, March and May, 1904, *A. H. Curtiss, No. 350;* on dry savanna, near Nueva Gerona, May 5, 1910, *O. E. Jennings, No. 29;* dry savanna near Casas Mts., May 12, 1910, *O. E. Jennings, No. 217.* General Distribution: Cuba and the Isle of Pines.

510. **Calyptranthes pinetorum** Britton & Wilson.

Calyptranthes pinetorum BRITTON & WILSON, Bulletin of the Torrey Botanical Club, XLIII, 1916, p. 465.

An interesting plant, forming shrubby mats about two feet high, on the white gravelly soil about one mile north of Los Indios. May 19, 1910, *O. E. Jennings, No. 390,* type. The specimens were not as complete as desirable for study, but they represent a species very

closely related to *Calyptranthes nummularia* Berg, from Santo Domingo. The leaves are orbicular to orbicular-ovate, truncate to cordate at the base, the apex broadly rounded, the upper surface impressed-punctate, the lower surface densely punctate, leaves gray-green, paler below, coriaceous; younger twigs and peduncles more or less chestnut-brown, punctate, glabrous; peduncles more or less divaricate-branched at apex, one to two times as long as the subtending leaves; calyx-tube punctate-pellucid, about 2 mm. long. Older twigs ashy-gray in color. Known only from the Isle of Pines.

511. **Calyptranthes micrantha** Wright.

Calyptranthes micrantha WRIGHT, in Grisebach, Catalogus Plantarum Cubensium, 1866, p. 85.

Near Nueva Gerona, May 15, 1904, *A. H. Curtiss, No. 499;* side of ridge at Bibijagua, May 7, 1910, *O. E. Jennings, No. 638.* General Distribution: Cuba and the Isle of Pines.

In recent years the lines of demarcation between the West Indian species of *Calyptranthes* have been drawn very closely—it seems to the writer too closely in some cases—so that ordinary variations are in many cases very difficult to place in the species, as they are now described.

The two specimens catalogued above perhaps represent the same species, the Bibijagua specimen having slightly narrower leaves and more nearly glabrous twigs.

512. **Calyptranthes punctata** Grisebach.

Calyptranthes punctata GRISEBACH, Memoirs of the American Academy of Arts and Sciences, VIII, Series II, 1860, p. 181.

Chytraculia punctata MILLSPAUGH, Field Columbian Museum, Botanical Series, I, 1900, p. 431.

Reported by Millspaugh, *l. c.*, on the basis of *Blain, Nos. 158, 166.* General Distribution: Cuba and the Isle of Pines.

513. **Eugenia axillaris** (Swartz) Willdenow.

Myrtus axillaris SWARTZ, Prodromus Descriptionum Vegetabilium Indiæ Occidentalis, 1788, p. 78.

Eugenia axillaris WILLDENOW, Species Plantarum, II, 1800, p. 970.

Medium-sized tree at base of ridge at Bibijagua, May 7, 1910, *O. E. Jennings, No. 102.* General Distribution: On sandy shores from the Bermudas and southern Florida south through the West Indies.

Family MELASTOMACEÆ.

KEY TO THE SPECIES ENUMERATED.

Small herbaceous annuals with partly long-spurred anthers.
516. *Acisanthera glandulifera.*

Woody, at least at the base.
Low plants with a woody base and narrow leaves less than 2 cm. long.
Calyx-lobes obtusish, ovate-subrotund.....514. *Chætolepis saturioides.*
Calyx-lobes acuminate, ciliate, oblong-lanceolate...515. *Chætolepis cubensis.*
Shrubs or trees; leaves more than 2.5 cm. long.
Leaves with white to brownish, stiff hairs 1–3 mm. long.
Long hairs apically reddish-glandular; spur produced from back of calyx-lobe considerably below the apex.....528. *Clidemia hirta.*
Long hairs only occasionally glandular; spur on back of calyx-lobe very close to the apex.....529. *Clidemia strigillosa.*
Leaves not as above.
Leaves essentially glabrous.
Calyx-lobes prominently tuberculate near their apex; leaves 2.5–5 by 5–12 cm.
Calyx 7–8 mm. long; largest leaves on flowering shoots lance-ovate, at least 10–13 cm. long...526. *Pachyanthus longifolius.*
Calyx 5–6 mm. long; largest leaves on flowering shoots usually less than 10 cm. long, ovate.....527. *Pachyanthus ovatus.*
Calyx-lobes none or very small, not tuberculate.
Leaves about 1–1.5 by 20–30 mm., sessile, more or less yellow beneath.....519. *Tamonea androsæmifolia.*
Leaves about 10–15 cm. by 2–3.5 cm., distinctly petioled, whitish beneath.....517. *Tetrazygia bicolor.*
Leaves ovate or oval-oblong, 5–10 cm. long, very shortly petioled.
523. *Tamonea Wrightii.*
(See also 524. *Tamonea præcox*).
Leaves not as above.....530. *Ossæa macrandra.*
Leaves stellate-pubescent (or simply pubescent).
Leaves attenuate into a margined petiole....520. *Tamonea prasina.*
Leaves not thus attenuate at base.
Leaves up to 3 dm. or more long, elliptic to obovate, acuminate, petiole short or almost none.....521. *Tamonea impetiolaris.*
Leaves much shorter, broadly ovate, distinctly petioled.
Margins of leaves closely and finely denticulate, blades more or less brownish beneath, flowers pinkish.
518. *Tamonea tomentosa* var. *auriculata.*
Margins entire, usually closely revolute.
Flowers orange; leaves rounded at apex, at maturity smooth and lustrous above...525. *Pachyanthus cubensis.*
Flowers light yellow; leaves bluntly acute, dull, stellate-pubescent and more or less yellowish above.
522. *Tamonea delicatula.*

Leaves acute, somewhat strigillose below, about 1.5 dm. long by half as wide.....531. *Henrietella parviflora.*

514. **Chætolepis saturioides** (Grisebach) Triana.

Chætogastra saturejoides GRISEBACH, Catalogus Plantarum Cubensium, 1866, p. 103.

Chætolepis saturioides TRIANA, Transactions of the Linnean Society, London, XXVIII, 1871, p. 51.

Northern part of the island, *Blain, No. 164* (Millspaugh); near Nueva Gerona, April 23, 1904, *A. H. Curtiss, No. 459;* on the dry savanna east of Nueva Gerona, May 6, 1910, *O. E. Jennings, No. 54;* fields near Nueva Gerona, May 6, 1910, *O. E. Jennings, No. 669.* General Distribution: Western Cuba and the Isle of Pines.

515. **Chætolepis cubensis** (A. Richard) Triana.

Arthrostemma cubense A. RICHARD, in Sagra, Historia Fisica, Politica y Natural de la Isla de Cuba, 1845, X, p. 258.

Chætogastra cubensis GRISEBACH, Catalogus Plantarum Cubensium, 1866, p. 103.

Chætolepis cubensis TRIANA, Transactions of the Linnean Society, London, XXVIII, 1871, p. 51.

Northern part of the island, *Blain, No. 67* (Millspaugh); *A. H. Lanier,* (A. Richard, *l. c.*) 1831, General Distribution: Cuba and the Isle of Pines.

516. **Acisanthera glandulifera** Jennings, sp. nov. (PLATE XXI.)

Herbaceous, glandular pubescent: stem erect to sub-procumbently ascending, rooting at the nodes towards the base, acutely tetragonal to narrowly winged, branched, up to 2.5 dm. high; leaves 5–16 mm. long, petioled, ovate, subacute at the apex, rather acute at the base, when young crenate-ciliate, finally becoming merely crenate, above at length glabrous, punctate-foveolate, three-nerved; flowers 4-merous, solitary, in alternate axils, shortly pedicellate; calyx-tube ovoid-campanulate, rather terete, rounded at the base, about 3 mm. long, 8-nerved, along the nerves sparsely glandular-pubescent, lobes 4, erect and at length spreading, sparsely glandular-pubescent, elongate triangular, 3 mm. long; petals 4, about 5 mm. long, oblong, apparently purplish or violet, abruptly spreading; stamens 8, exserted, anthers linear, unequal, arcuate, about 1 mm. long, the connective arcuate, produced below the anther to the length of about 1 mm., and at the base prolonged into two slender spurs about 1 mm. long; style

3 mm. long; pistil 2-loculed, free; capsules 3.5 mm. long, globose, smooth; seeds 0.5–0.8 mm. long, subreniform, dorsally 2–4-sulcate, chestnut-colored, glandular-punctate.

Planta herbacea, glanduloso-pubescens: caule erecto vel subprocumbente adscendente, ad basin e nodis radicante, acute tetragono vel anguste 4-alato, ramoso, usque ad 2.5 dm. alto; foliis 5–16 mm. longis, petiolatis, ovatis, apice subacutis, basi acutiusculis, margine crenato-ciliatus demum crenatis, supra demum glabris punctulato-foveolatis, triplinerviis; floribus 4-meris, solitariis, alterne axillaribus, breviter pedicellatis; calycis tubo campanulato-ovoideo, teretiusculo, basi subrotundato, circiter 3 mm. longo, 8-nervato, ad nervos sparse glanduloso-pubescente, lobis 4, erectis demum patulis, sparse glanduloso-pubescentibus, triangulari-linearibus, 3 mm. longis; petalis 4, circiter 5 mm. longis, oblongis, manifeste purpureis aut violaceis, abrupte patulis; staminibus 8, exsertis, antheris linearibus, inæqualibus, arcuatis, circiter 1 mm. longis, majorum connectivo arcuato, infra loculos distincte producto ad 1 mm., basi distincte attenuato-calcarato ad circiter 1 mm. in longum; stylo 3 mm. longo; ovario 2-loculare, libero; capsulis 3.5 mm. longis, globosis, glabris; seminibus 0.5–0.8 mm. longis, dorso 2–4 sulcatis, subreniformibus, castaneis, glanduloso-punctulatis.

Type.—Near Nueva Gerona, Isle of Pines, December 15, 1903, *A. H. Curtiss, No. 228, West Indian Plants.* Specimen in the Herbarium of the Carnegie Museum.

The type specimen was issued as *Acisanthera quadrata* Jussieu, but it very clearly differs from that species in a number of prominent characters, it being much nearer to *A. recurva* (DeCandolle) Grisebach, which, however, has the basal spurs on the connectives of the anthers blunt, and has 5-merous flowers and a 3-loculed capsule.[1]

The writer has not examined *Blain's Nos. 70 and 162*, collected in the northern part of the island and referred by Millspaugh to *Acisanthera quadrata* Jussieu, but they in all probability are of the same species as *Curtiss's No. 228.*

517. **Tetrazygia bicolor** (Triana) Cogniaux.

Naudinia argyrophylla A. RICHARD, in Sagra, Historia Fisica, Politica y Natural de la Isla de Cuba, X, 1845, p. 265 and XII, Pl. 44.

[1] Triana, J. *Les Melastomacées. Transactions of the Linnean Society*, **28**: 34 and *Pl. II, b.* 1873; also DeCandolle, *Prodromus Systematis Naturalis Regni Vegetabilis*, **3**: 118, 1828, where treated as *Microlicia recurva.*

Tetrazygia angustiflora var. *argyrophylla* GRISEBACH, Flora of the British West Indian Islands, 1860, p. 254.

Miconia bicolor TRIANA, Transactions of the Linnean Society, London, XXVIII, 1871, p. 103.

Tetrazygia bicolor COGNIAUX, in DeCandolle, Monographiæ Phanerogamarum, VII, 1891, p. 724.

Northern part of the island, *Blain, No. 131,* (Millspaugh, as *Tetrazygia argyrophylla*); near Nueva Gerona, April 5, 1904, *A. H. Curtiss, No. 414;* in swampy place in the savanna east of Nueva Gerona, May 6, 1910, *O. E. Jennings, No. 57;* in savanna southwest of Nueva Gerona, May 9, 1910, *O. E. Jennings, No. 171;* a small tree along the arroyo south of Sante Fé, May 25, 1910, *O. E. Jennings, No. 544.* General Distribution: The Bahamas, southern Florida, Cuba, and the Isle of Pines. (*See* Plate XV.)

518. **Tamonea tomentosa** var. **auriculata** Jennings, var. nov. (PLATE XXII.)

Leaves broadly ovate, auricled at base, the petioles about 2–3 cm. long, the margin very shortly crenate.

Folia late ovata, basi auriculata, petiolis circiter 2–3 cm. longis, margine brevissime dense crenatis.

In a fresh-water jungle near Los Indios, May 20, 1910, *No. 442, O. E. Jennings,* TYPE. A slender tree about fifteen feet high, with pink flowers.

Tamonea tomentosa, ranging from Trinidad to Guiana and Brazil, apparently varies considerably in the shape of the base of the leaf, but it is possible that the plant here described as a variety may prove to be a distinct species. The brown-tomentose character of the axis and branches of the inflorescence and of the under side of the leaves makes it a striking plant. The upper surface of the leaves is only slightly stellate-pubescent and turns blackish in drying. The leaves are 9-nerved, the outermost nerve being rather indistinct and bordering closely the bases of the low closely approximate crenations, the innermost nerve being placed about half-way between the mid-nerve and the margin. The inflorescence is compact, in our specimen being 6 cm. in diameter by 19 cm. long. Calyx-tube about 10–12 mm. long, the lower third about 4 mm. in diameter, cylindric, the upper third abruptly enlarging into a campanulate portion with widely rounded lobes only about 1 mm. high, and tuberculate on

the back of the tip. Petals about 8–10 mm. long, narrowed below into a claw, the upper portion obliquely ovate, about 5 mm. wide, oblique and retuse at apex, finely stellate tomentose on the outside, glabrous and pinkish inside. Anthers 9–11 mm. long, from a shortly spurred base gradually long tapering, the base of the connective on the back densely stipitate glandular. Style fleshy, about 1 mm. thick, 17–18 mm. long, curved, stigmatic at the apex.

519. **Tamonea androsæmifolia** (Grisebach) Jennings, comb. nov. (PLATE XXIII.)

Miconia androsæmifolia GRISEBACH, Catalogus Plantarum Cubensium, 1866, p. 100.

In the absence of a recent extended description of the species, the following description is given, in the hope that it may be of assistance in making more clear the systematic relationship:

Shrub, six or eight feet high, of straggly aspect, the few main branches being tufted at the ends with usually one to four pairs of chestnut-colored branchlets about two to six inches long, plant glabrous in all parts: leaves approximate, 2 to 4 cm. long, about half as wide, ovate or ovate-oblong, sessile or very nearly so, the base subcordate or slightly clasping, margin entire and usually more or less narrowly revolute, the apex obtuse, leaves yellowish-green above, quite decidedly so beneath, the two (or four) lateral nerves and the cross veins almost hidden in the rather thick and coriaceous lamina; inflorescence rather densely cymose, terminal, about 2 to 4 cm. long, extending somewhat beyond the uppermost leaves; peduncles and pedicels two-bracteolate at the summit, the bracts partly fallen by flowering time; calyx-tube 2–3 mm. long, subglobose to oval, constricted at the neck and with 4 short triangular spreading lobes; petals 4, distinctly clawed, the lamina 4–5 mm. long, more or less broadly ovate or ovate-cordate, obtuse, widely spreading, when freshly opened bright scarlet to reddish-orange and in age and in dried specimens becoming more or less completely orange-yellow; stamens exserted, the connective not prolonged below the anthers but abruptly bent at the base of the anther, the anthers 1.5–2 mm. long, ventrally somewhat gibbous, opening by one terminal pore; style curved, slender, about 4–5 mm. long; capsule 3–4 mm. in diameter, globose, dark chestnut-brown, smooth to somewhat verruculose, 2-loculed; seeds yellowish, smooth, obpyramidal, the sides angled, the top slightly convex, about 1 mm. long.

In patches of dazzling white quartzose sand and gravel in the pine-barrens near Los Indios, May 17, 1910, *Nos. 321* and *323*, *O. E. Jennings;* northern part of the island, *Blain*, *No. 171* (Millspaugh).

520. **Tamonea prasina** (Swartz) Krasser.

Melastoma prasina SWARTZ, Prodromus Descriptionum Vegetabilium Indiæ Occidentalis, 1788, p. 69.

Miconia collina DECANDOLLE, Prodromus Systematis Naturalis Regni Vegetabilis, III, 1828, p. 185.

Miconia prasina DECANDOLLE, *op. cit.*, p. 188.

Acinodendron prasinum O. KUNTZE, Revisio Generum Plantarum, I, 1891, p. 245.

Tamonea prasina KRASSER, in Engler & Prantl, Natürliche Pflanzenfamilien, III, (7), 1893, p. 142.

Northern part of the island, *Blain*, *Nos. 1*, *2*, *4*, *5*, *6*, *127* (Millspaugh); a tree about twenty feet in height in forest on river at Los Indios, May 20, 1910, *O. E. Jennings*, *No. 447;* near Nueva Gerona, February and April, 1914, *A. H. Curtiss*, *No. 373*. General Distribution: Cuba, the Isle of Pines, Jamaica, Porto Rico, Hispaniola, Tortola, Grenada, Trinidad, Margarita, and the continental American tropics.

521. **Tamonea impetiolaris** (Swartz) Cook & Collins.

Melastoma impetiolaris SWARTZ, Prodromus Descriptionum Vegetabilium Indiæ Occidentalis, 1788, p. 70.

Miconia impetiolaris D. DON, Memoirs of the Wernerian Society of Natural History, IV, 1823, p. 316.

Miconia Wydleriana DECANDOLLE, Mémoire sur la Famille des Mélastomacées, 1828, p. 77.

Tamonea impetiolaris COOK & COLLINS, Contributions from the United States National Herbarium, VIII, 1903, p. 249.

Near Nueva Gerona, February 17, 1904, *A. H. Curtiss*, *No. 352*. General Distribution: Through the West Indies rather generally and in the continental American tropics.

522. **Tamonea delicatula** (A. Richard) Jennings, comb. nov.

Miconia delicatula A. RICHARD, in Sagra, Historia Fisica, Politica y Natural de la Isla de Cuba, X, 1845, p. 268.

"Crescit in insula Pinorum" 1831. *A. H. Lanier*. Type (A. Richard, *l. c.*); a shrub about eight feet in height, on savanna ("Mal Pais" gravel), near Nueva Gerona, May 5, 1910, *O. E. Jennings*, *No. 5;* on savanna near Sante Fé, May 25, 1910, *O. E. Jennings*, *No. 545;* in pine-barrens at Los Indios, May 18, 1910, *O. E. Jennings*, *No. 607*. General Distribution: The Isle of Pines.

523. **Tamonea Wrightii** (Triana) Jennings, comb. nov.

Pachyanthus Wrightii GRISEBACH, Catalogus Plantarum Cubensium, 1866, p. 101.
Miconia Wrightii TRIANA, Transactions of the Linnean Society, XXVIII, 1871, p. 103.
Acinodendron Wrightii O. KUNTZE, Revisio Generum Plantarum, II, 1891, p. 953.

Northern part of the island, *Blain, Nos. 138, 149* (Millspaugh). General Distribution: Western Cuba and the Isle of Pines.

524. **Tamonea præcox** (Wright) Jennings, comb. nov.

Miconia præcox WRIGHT, in Sauvalle, Flora Cubana, 1873, p. 47.

Northern part of the island, *Blain, No. 167* (Millspaugh). General Distribution: Cuba and the Isle of Pines.

The writer has not seen Blain's specimen, and from the meager description he is not able to say that the specimen might not belong to one or the other species enumerated above.

525. **Pachyanthus cubensis** A. Richard.

Pachyanthus cubensis A. RICHARD, in Sagra, Historia Fisica, Politica y Natural de la Isla de Cuba, X, 1845, p. 264.

"Crescit in insula Pinorum." 1831. *A. H. Lanier.* Type. (A. Richard, *l. c.*); northern part of the island, *Blain, No. 68* (Millspaugh); *J. F. Shafer,* February to March, 1910; in sandy pine-barrens near the western base of the Cañada Mts., May 18, 1910, *O. E. Jennings, No. 374.* General Distribution: Western Cuba and the Isle of Pines.

The flowers are rich orange in color and quite attractive.

526. **Pachyanthus longifolius** Jennings, sp. nov. (PLATE XXIV).

Small tree or shrub: the young branches, petioles, the nerves below, and the peduncles stellate-furfuraceous; leaves anisophyllous, coriaceous, petioled, ovate or lance-ovate, rounded and emarginate at the base, 5-nerved, at length glabrous, 3.5–5 × 5–12 cm., margin entire, narrowly revolute, apex obtuse or subacute; petioles rather slender, 8–20 mm. long; cymes with rather long peduncles, densely few-flowered; calyx densely stellate-furfuraceous, 7–8 mm. long, the tube broadly suburceolate-campanulate, rounded at the base, the limb divided into obtuse truncate-retuse lobes with a thick dorsal tubercle, the lobes about 3 mm. long, the tubercles about 1.5 mm. high; petals verruculose on both sides, rather broadly long-clawed,

12–15 mm. long, 5–8 mm. wide, obliquely ovate; filaments of the stamens 6 mm. long, apically geniculate, anthers 5 mm. long, narrowly oblong, with one apical pore, the connective, at the base, dorsally minutely tubercled; ovary usually 5-loculed; style 12–14 mm. long.

Arbor parva vel frutex: ramis junioribus, petiolis foliorum, nervis subtus pedunculisque stellato-furfuraceis; foliis anisophyllis, coriaceis, petiolatis, ovatis vel lanceolato-ovatis, basi rotundatis et emarginatis, 5-nerviis, demum glabris, 3–5.5 × 5–12 cm., margine integerrimis, anguste revolutis, apice obtusis vel subacutis; petiolis satis gracilibus, 8–20 mm. longis; cymis longiuscule pedunculatis, densiuscule pauci-floris; calyce dense stellato-furfuraceo, 7–8 mm. longo, tubo late campanulato suburceolato, basi rotundato, limbo demum in lobos obtusos apice truncato-retusos dorso crasse tuberculatos diviso, lobis 3 mm. longis, tuberculis 1.5 mm. altis; petalis utrinque verruculosis, latiuscule longiusculeque unguiculatis, 12–15 mm. longis, 5–8 mm. latis, irregulariter ovatis; staminum filamentis 6 mm. longis, apice geniculatis; antheris 5 mm. longis, anguste oblongis, apice uniporosis; connectivo basi dorso minute tuberculato; ovario plerumque 5-loculare; stylo 12–14 mm. longo.

Type.—Along arroyo bank near Los Indios, May 19, 1910, *O. E. Jennings, No. 426.* Herbarium, Carnegie Museum. Other specimens of the same species were collected as follows: Swampy margin of pond one mile east of Nueva Gerona, May 6, 1910, *O. E. Jennings, No. 56*, and a small tree along an arroyo near Sante Fé, May 25, 1910, *O. E. Jennings, No. 553.* Flowers white.

This species is a small tree or perhaps more commonly a tall shrub growing in the marginal thicket of ponds, or along the banks of arroyos, and is closely related to *Pachyanthus ovatus* Cogniaux and *P. cordifolius* Cogniaux, and there is a possibility that with more complete collections available for study these three species will be best treated as one, under the name of *Pachyanthus ovatus* Cogniaux. The present status of the group would not, however, justify such a decision. The specimen (*No. 334, Jennings*) collected in the xero-phytic sandy pine-barren at Los Indios fits the description of Cog-niaux's *ovatus* very closely, thus indicating a possible ecological relationship between that species and *longifolius.*

527. **Pachyanthus ovatus** Cogniaux.

Pachyanthus ovatus COGNIAUX, in Urban, Symbolæ Antillanæ, V, 1908, p. 449.

A tree about twelve feet in height, growing in the pine-barrens near Los Indios, May 17, 1910, *O. E. Jennings, No. 334.* General Distribution: In Pinar del Rio Province, Cuba, and in the Isle of Pines.

528. **Clidemia hirta** (Linnæus) D. Don.

Melastoma hirta LINNÆUS, Species Plantarum, 1753, p. 390.

Clidemia hirta D. DON, Memoirs of the Wernerian Natural History Society, IV, 1823, p. 309; GRISEBACH, Flora of the British West Indian Islands, 1860, p. 246.

Clidemia crenata DECANDOLLE, Prodromus Systematis Naturalis Regni Vegetabilis, III, 1828, p. 157.

Near Nueva Gerona, February 13, 1904, *A. H. Curtiss, No. 342 (in part);* swampy margin of pond about two miles east of Nueva Gerona, May 6, 1910, *O. E. Jennings, No. 42.* General Distribution: General throughout the West Indies and continental tropical America.

A rather common low shrub around margins of ponds and along moist banks of arroyos.

529. **Clidemia strigillosa** (Swartz) DeCandolle.

Melastoma strigillosa SWARTZ, Prodromus Descriptionum Vegetabilium Indiæ Occidentalis, 1788, p. 71.

Staphidium spicatum NAUDIN, in Annales des Sciences Naturelles, Series III, XVII, 1852, p. 316 (in part).

Clidemia spicata var. *strigillosa* GRISEBACH, Flora of the British West Indian Islands, 1860, p. 247.

Near Nueva Gerona, February 13, 1904, *A. H. Curtiss, No. 342* (as to Carnegie Museum specimen, in part); moist bank of arroyo between Los Indios and the Cañada Mts., May 18, 1910, *O. E. Jennings, No. 375.* General Distribution: Cuba, the Isle of Pines, Jamaica, Hispaniola, Porto Rico, Guiana, and Peru.

Note.—Clidemia spicata (Aublet) DeCandolle, as reported by Millspaugh, *Blain, Nos. 69, 125,* has not been examined. The more recent reports as to the distribution of the species would seem to leave some doubt as to its occurrence on the Isle of Pines, and from an examination of the current descriptions of the species the writer believes that Blain's specimens may be *C. strigillosa.*

530. **Ossæa macrandra** (Wright) Millspaugh.

Sagræa macrandra WRIGHT, in Sauvalle, Flora Cubana, 1873, p. 46.

Ossæa macrandra MILLSPAUGH, Field Columbian Museum, Botany, Series I, 1900, p. 432.

Northern part of the island, *Blain, Nos. 73, 74, 91* (Millspaugh, *l. c.*). General Distribution: Cuba and the Isle of Pines.

531. **Henrietella parviflora** (Grisebach) Triana.

Henriettea parviflora GRISEBACH, Catalogus Plantarum Cubensium, 1866, p. 95.
Henrietella parviflora TRIANA, Transactions of the Linnean Society, XXVIII, 1871, p. 144.

Northern part of the island, *Blain, Nos. 3, 71* (Millspaugh). General Distribution: Cuba and the Isle of Pines.

Family ONAGRACEÆ.

(*ŒNOTHERACEÆ.*)

KEY TO THE SPECIES ENUMERATED.

Leaves reaching a maximum of 10 cm. or more in length, lanceolate to ovate; flowers 4–5 cm. broad.....532. *Jussiæa peruviana.*
Leaves linear-lanceolate to narrowly oblong, the largest 5–15 cm. long; flowers 2–3 cm. broad.....533. *Jussiæa suffruticosa.*
Leaves obovate or broadly spatulate, tapering below into a flat petiole, the largest 4–5 cm. long; flowers less than 1 cm. broad.....534. *Isnarda repens.*

532. **Jussiæa peruviana** Linnæus.

Jussiæa peruviana LINNÆUS, Species Plantarum, I, Ed. I, 1753, p. 388.
Œnothera hirta LINNÆUS, Systema Naturæ, Ed. X, II, 1759, p. 998.
Jussiæa hirta VAHL, Eclogæ Americanæ, II, 1798, p. 31.

Near Nueva Gerona, 1904, *A. H. Curtiss;* along irrigation ditch, Keenan's estate, May 9, 1910, *O. E. Jennings, No. 163.* General Distribution: On wet banks, southern Florida, the Greater Antilles, and continental tropical America.

533. **Jussiæa suffruticosa** Linnæus.

Jussiæa suffruticosa LINNÆUS, Species Plantarum, I, Ed. I, 1753, p. 388.
Jussiæa angustifolia LAMARCK, Encyclopédie Méthodique, Botanique, III, 1789, p. 331.
Jussiæa octonervia LAMARCK, *l. c.*
Jussiæa octofila P. DECANDOLLE, Prodromus Systematis Naturalis Regni Vegetabilis, III, 1828, p. 57.
Jussiæa acuminata STAHL, Estudios Sobra la Flora de Puerto-Rico, IV, 1886, p. 132, in part, not Swartz.

Specimens from near Nueva Gerona, 1904, *A. H. Curtiss;* a weed, Keenan's estate, south of Nueva Gerona, May 9, 1910, *O. E. Jennings, Nos. 169 & 173;* in partly cleared swamp along river at Los Indios, May 20, 1910, *O. E. Jennings, No. 450.* General Distribution:

From North Carolina and Arkansas to Florida, Texas, the West Indies, and to Brazil.

534. **Isnarda repens** (Swartz) DeCandolle.

Ludwigia repens SWARTZ, Flora Indiæ Occidentalis, I, 1797, p. 273, Pl. 8.

Isnarda repens DECANDOLLE, Prodromus Systematis Naturalis Regni Vegetabilis, III, 1828, p. 60–61.

In swamp one mile north of Nueva Gerona, May 8, 1910, *O. E. Jennings, No. 137.* General Distribution: Cuba, the Isle of Pines, and Jamaica.

Family ARALIACEÆ.

535. **Dendropanax cuneifolium** (C. Wright) Seemann.

Hedera cuneifolia C. WRIGHT, in Grisebach's Catalogus Plantarum Cubensium, 1866, p. 117.

Dendropanax cuneifolium SEEMANN, Journal of Botany, VI, 1868, p. 140.

Schefflera cuneifolia MAZA, Anales de la Sociedad Española de Historia Natural, XIX, 1890, p. 249.

Gilibertia cuneifolia E. MARCH, MS., in Urban's Symbolæ Antillanæ, I, 1899, p. 201.

Along bank of the Majagua River, near Los Indios, May 9, 1910, *O. E. Jennings, No. 423;* along arroyo east of Los Indios, May 18, 1910, *O. E. Jennings, No. 358;* along bank of dry arroyo near Santa Fé, May 25, 1910, *O. E. Jennings, No. 536.* General Distribution: Western Cuba and the Isle of Pines.

Dr. N. L. Britton ("Studies of West Indian Plants, IV," *Bulletin of the Torrey Botanical Club*, XXXIX, 1912, p. 2) notes that this species attains a height of six meters and that the umbel is 7–20-flowered. The Sante Fé specimen (*No. 536*) was taken from a tree at least thirty-five feet in height, while in our specimens the umbels are often up to 30-flowered. The leaves sometimes are retuse at the rounded apex. Further, the berries are not black, but are a very dark blue and glaucous, although in the dried specimens they are blackish.

Family ERICACEÆ.

KEY TO THE SPECIES ENUMERATED.

Leaves narrowly ovate to lance-linear, strongly revolute; flowers light pink, with corolla 17–20 mm. broad.....536. *Kalmiella aggregata.*

Leaves 6–12 cm. long, 1.5–2.5 cm. wide, margin slightly revolute; corolla white, 9–10 mm. long; capsules angled, depressed-globose, 5–7 mm. high and somewhat wider.....537. *Pieris cubensis.*

Leaves 1–3 cm. long, oblong to oval or spatulate, thick, leathery, lepidote, especially beneath, obtuse at the apex; capsules ovoid, 3–5 mm. long; corolla urceolate, about 4 mm. long.

Leaves glaucous beneath.....539. *Xolisma vaccinioides.*
Leaves not glaucous beneath.....538. *Xolisma myrtilloides.*

536. **Kalmiella aggregata** Small.

(PLATE XVII, FIGURES A–D.)

Kalmiella aggregata SMALL, North American Flora, XXIX (I), 1914, p. 54–55.

On the white quartzose sand, pine-barrens north of Los Indios, May 17, 1910, *O. E. Jennings, No. 324* (TYPE); same date and locality, *No. 625.* General Distribution: Known only from the type-locality.

The plants grew scattered about in the pine-barrens, the growth always open and scraggly, the branches few and more or less erect, the leaves small and closely bunched towards the ends of the branches. The flowers occur densely bunched at the apex of the branches, the corolla being light pink and up to 20 mm. broad, glandular-pubescent, as is also practically the whole upper part of the plant. The lanceolate, acute sepals are about 4 mm. long, copiously soft-ciliate with gland-tipped and naked hairs, the peduncles and calyx more or less deeply reddish-purple in color. The filaments are pubescent near the base, this not being a good distinguishing character between *K. aggregata* and the closely related *Kalmiella ericoides* of western Cuba (Small, *l. c.*, in the key to species of *Kalmiella*, noting for *K. aggregata:* "Filaments glabrous").

537. **Pieris cubensis** (Grisebach) Small.

Andromeda cubensis GRISEBACH, Catalogus Plantarum Cubensium, 1866, p. 51.
Pieris cubensis SMALL, North American Flora, XXIX, Part I, 1914, p. 63.

Along arroyo east of Los Indios, May 18, 1910, *O. E. Jennings, No. 302.* General Distribution: Pinar del Rio, Cuba, and the Isle of Pines. This is the first report for the Isle of Pines.

538. **Xolisma myrtilloides** (Grisebach) Small.

Lyonia myrtilloides GRISEBACH, Catalogus Plantarum Cubensium, 1866, pp. 50–51. Including also varieties *parvifolia* Grisebach and *ovatifolia* Grisebach, *op. cit.*, p. 51.
Xolisma myrtilloides SMALL, North American Flora, XXIX, Part I, 1914, p. 67.

On white quartz sand in the pine barrens north of Los Indios, May 17, 1910, *O. E. Jennings, Nos. 309 and 309a.* The first-named number is a small-leaved variety, perhaps Grisebach's var. *parvifolia.* General Distribution: Cuba and the Isle of Pines.

539. **Xolisma vaccinioides** Small.

Xolisma vaccinioides SMALL, North American Flora, XXIX, Part I, 1914, p. 68.

Nueva Gerona, March, 1904, *A. H. Curtiss.* (Type in Herbarium N. Y. Botanical Garden, Small, *l. c.*). General Distribution: Known only from the type locality.

Family THEOPHRASTACEÆ.

Leaves about 2.5–5 cm. long by 5–10 mm. wide; twigs scurfy scaly.
540. *Jacquinia aculeata.*

Leaves about 2–3 cm. long by 3–4 mm. wide; twigs puberulent.
541. *Jacquinia Curtissii.*

540. **Jacquinia aculeata** (Linnæus) Mez. ESPUELLA DE CABALLERO (Cuba).

Medeola aculeata LINNÆUS, Species Plantarum, 1753, p. 339.
Jacquinia ruscifolia JACQUIN, Enumeratio Plantarum Quas in Insulis Caribæis Detexit, 1760, p. 15.
Jacquinia aculeata MEZ, Urban, Symbolæ Antillanæ, II, 1901, pp. 445–446.

On lower slope of Casas Mt., May 12, 1910, *O. E. Jennings, No. 221.* General Distribution: Western Cuba and the Isle of Pines.

541. **Jacquinia Curtissii** Britton.

Jacquinia Curtissii BRITTON, Torreya, V, 1905, p. 44.

Near Nueva Gerona, April 24, 1904, *A. H. Curtiss, No. 463.* General Distribution: Known only from the type locality.

Family PRIMULACEÆ.

542. **Centunculus pentandrus** Robert Brown.

Anagallis pumila SWARTZ, Flora Indiæ Occidentalis, I, 1797, p. 345.
Centunculus pentandrus ROBERT BROWN, Prodromus Floræ Novæ-Hollandiæ et Insulæ Van Diemen, 1810, p. 427.
Micropyxis pumila DUBY, in DeCandolle, Prodromus Systematis Naturalis Regni Vegetabilis, VIII, 1844, p. 72.

Near Nueva Gerona, December 15, 1903, *A. H. Curtiss, No. 230.* General Distribution: Cuba, the Isle of Pines, Jamaica; and, on the mainland, in Florida and from Mexico to South America; also in the tropics of the Old World.

Family PLUMBAGINACEÆ.

543. **Plumbago scandens** Linnæus.

Plumbago scandens LINNÆUS, Species Plantarum, I, Ed. II, 1762, p. 215.

Growing as a weed in dry fields near Nueva Gerona, May 6, 1910, *O. E. Jennings, No. 664.* General Distribution: From Florida and the Bahamas south through the West Indies and the American continental tropics.

Family SAPOTACEÆ.

KEY TO THE SPECIES ENUMERATED.

Leaves covered underneath with a lustrous copper-colored pubescence. 547. *Chrysophyllum oliviforme.*

Leaves little or not at all pubescent as above.

Leaves obovate or widely oblanceolate, the largest 20 cm. or more in length. 545. *Achradelpha mammosa.*

Leaves not as above.

Leaf-blades acuminate. . . . . 546. *Lucuma nervosa.*

Leaf-blades not acuminate.

Petioles distinctly rusty-sericeous; blades with very numerous fine lateral veins. . . . . 544. *Achras Zapota.*

Petioles glabrous or nearly so; blades with about 8–12 lateral veins. 548. *Sideroxylon fœtidissimum.*

544. **Achras Zapota** Linnæus. SAPODILLA. CHICLE-TREE. NASEBERRY (Jamaica).

Achras Zapota LINNÆUS, Species Plantarum, II, Ed. I, 1753, p. 1190.

Achras Sapota LINNÆUS, *op. cit.*, I, Ed. II, 1762, p. 470.

Sapota Achras MILLER, Gardener's Dictionary, Ed. VIII, 1768, no. 1.

Sapota zapotilla COVILLE, Contributions from the U. S. National Herbarium, IX, 1905, p. 369.

Large round-headed tree in Nueva Gerona (probably planted), May 5, 1910, *O. E. Jennings, No. 643;* specimen without data, probably near Columbia, February–March, 1910, *J. F. Shafer.* General Distribution: Cultivated and naturalized in the tropics of both hemispheres. In America found from the Bahamas through the West Indies, and from Mexico to Guiana.

545. **Achradelpha mammosa** (Linnæus) Cook. SAPOTE. MAMEY COLORADO (Cuba).

Sideroxylum Sapota JACQUIN, Enumeratio Plantarum Quas in Insulis Caribæis Detexit, 1760, p. 15.

Achras mammosa LINNÆUS, Species Plantarum, I, Ed. II, 1762, p. 469.

Sapota mammosa MILLER, Gardener's Dictionary, Ed. VIII, 1768, no. 2.

Lucuma mammosum GAERTNER, De Fructibus et Seminibus Plantarum, III, 1807, p. 130, pl. 203–4.

Vittellaria mammosa RADLKOFER, Sitzungsberichte König. Bayr. Akad. d. Wissenschf. XII, 1882, p. 325.

Calocarpum mammosum PIERRE, in Urban, Symbolæ Antillanæ, V, 1904, p. 98.

Achradelpha mammosa COOK, Journal of the Washington Academy of Science, III, 1913, p. 160.

Near Nueva Gerona, June, 1912, *G. A. Link;* near Nueva Gerona, December 12, 1903, *A. H. Curtiss, No. 224.* General Distribution: Cultivated and also found wild in the West Indies and Central America; also in the Philippines.

546. **Lucuma nervosa** A. DeCandolle. CANISTÉ (Cuba).

Lucuma nervosa A. DECANDOLLE, Prodromus Systematis Naturalis Regni Vegetabilis, VIII, 1844, p. 169.

Lucuma Rivicoa var. *angustifolia* MIQUEL, in Martius, Flora Brasiliensis, VII, 1863, p. 71.

Vitellaria nervosa RADLKOFER, Sitzungsberichte Königliche Bayerische Akademie der Wissenschaften, XII, 1882, p. 326.

Vitellaria tenuifolia ENGLER, Engler's Botanischer Jahresbericht, XII, 1890, p. 513.

Near Nueva Gerona, May 10, 1904, *A. H. Curtiss, No. 491.* General Distribution: Cuba and the Isle of Pines.

547. **Chrysophyllum oliviforme** Linnæus. SATIN-LEAF. CAIMITILLO (Cuba). DAMSON PLUM (Jamaica).

Chrysophyllum oliviforme LINNÆUS, Systema Naturæ, II, Ed. X, 1759, p. 937.

Chrysophyllum Cainito var. *microphyllum* JACQUIN, Selectarium Stirpium Americanarum Historia, 1763, p. 53, Pl. 37, fig. 2.

Chrysophyllum monopyrenum SWARTZ, Prodromus Descriptionum Vegetabilium Indiæ Occidentalis, 1788, p. 49.

Probably near Columbia, February–March, 1910, *Dr. Jared F. Shafer.* General Distribution: Southern Florida, the Bahamas, Cuba, the Isle of Pines, Jamaica, Hispaniola, and Porto Rico.

The specimen consists of two leaves only, and in size and shape they appear to be the variety *platyphyllum* Urban, *Symbolæ Antillanæ,* V, 1904, p. 157. The larger leaf is 13 mm. long by 8 cm. wide, oval-suborbicular, obtuse, while the other leaf is slightly smaller and with a broadly rounded apex. This variety has been heretofore reported only for the type-locality, *i. e.*, Haiti.

548. **Sideroxylon fœtidissimum** Jacquin. MASTIC.

Sideroxylon fœtidissimum JACQUIN, Enumeratio Plantarum Quas in Insulis Caribæis Detexit, 1760, p. 15.

Sideroxylon mastichodendron JACQUIN, Collectanea, II, 1788, p. 253, Pl. 17, fig. 5.
Sideroxylon pallidum SPRENGEL, Systema Vegetabilium, I, 1825, p. 666.

"Crescit . . . in insula Pinorum." 1831, *A. H. Lanier* (A. Richard, in Sagra, "Historia Fisica, Politica y Natural de la Isla de Cuba," XI, 1850, p. 84). General Distribution: Florida, the Bahamas, and many of the West Indian Islands.

Family EBENACEÆ.

KEY TO THE SPECIES ENUMERATED.

Fruit 6-seeded; ovary hairy..... 549. *Maba caribæa.*
Fruit with more than 6 seeds; ovary not hairy.....550. *Diospyros laurifolia.*

549. **Maba caribæa** (DeCandolle) Hiern.

Macreightia caribæa DECANDOLLE, Prodromus Systematis Naturalis Regni Vegetabilis, VIII, 1844, p. 221.
Maba caribæa HIERN, Transactions of the Cambridge Philosophical Society, XII. 1873, p. 125.

Northern part of the island, *Blain, Nos. 128, 180* (Millspaugh). General Distribution: Cuba and the Isle of Pines; Hispaniola.

550. **Diospyros laurifolia** A. Richard.

Diospyros laurifolia A. RICHARD, in Sagra, Historia Fisica, Politica y Natural de la Isla de Cuba, XI, 1850, p. 86 and XII, Pl. 55.

Northern part of the island, *Blain, No. 179* (Millspaugh). General Distribution: Cuba and the Isle of Pines.

Family SYMPLOCACEÆ.

KEY TO THE SPECIES ENUMERATED.

Stamens more or less distinctly separate from each other.
551. *Symplocos salicifolia.*
Stamens connate into a long tube.....552. *Symplocos martinicense.*

551. **Symplocos salicifolia** Grisebach.

Symplocos salicifolia GRISEBACH, Catalogus Plantarum Cubensium, 1866, p. 168.

Northern part of the island, *Blain, No. 137* (Millspaugh); near Nueva Gerona, February 23, 1904, *A. H. Curtiss, No. 365*. General Distribution: Western Cuba and the Isle of Pines.

552. **Symplocos martinicensis** Jacquin.

Symplocos martinicensis JACQUIN, Enumeratio Plantarum Quas in Insulis Caribæis Detexit, 1760, p. 24.

Northern part of the island, *Blain, No. 157* (Millspaugh). General Distribution: Widely distributed in the West Indies from Porto Rico through the lesser Antilles.

Family LOGANIACEÆ.

KEY TO THE SPECIES ENUMERATED.

Flowers solitary and sessile in the forks of the branchlets and axils of the leaves. 553. *Polypremum procumbens,*

Flowers in terminal and axillary spikes or spike-like racemes. 554. *Spigelia Blainii.*

553. **Polypremum procumbens** Linnæus.

Polypremum procumbens LINNÆUS, Species Plantarum, 1753, p. 111.

On coralline strand, Caleta Grande, "South Coast," May 22, 1910, *O. E. Jennings, No. 502.* General Distribution: From Pennsylvania to Florida and Texas, Mexico, and the West Indies.

554. **Spigelia Blainii** Millspaugh.

Spigelia Blainii MILLSPAUGH, Field Columbian Museum, Botanical Series I, 1900, p. 432.

Northern part of the island, *Blain, No. 51* (TYPE.) General Distribution: Known only from the type locality.

Family GENTIANACEÆ.

555. **Eustoma exaltatum** (Linnæus) Grisebach.

Lisianthus glaucifolius JACQUIN, Icones Plantarum Rariorum, 1781, t. 33.

Gentiana exaltatum LINNÆUS, Descourtilz, Flore (Pittoresque et) Médicale des Antilles, I, 1821, Pl. 15.

Urananthus glaucifolius BENTHAM, Plantas Hartwegianas Imprimas Mexicanas, 1839, p. 46.

Eustoma cheironioides GRISEBACH, DeCandolle, Prodromus Systematis Naturalis Regni Vegetabilis, IX, 1845, p. 51.

Eustoma exaltatum GRISEBACH, Flora of the British West Indian Islands, 1861, p. 422.

Along the strand west of Mt. Colombo, May 14, 1910, *O. E. Jennings, No. 253.* General Distribution: Florida to Texas, California, Mexico, a number of the West Indian islands, and south to Panama and Venezuela.

This is a quite ornamental Gentian, with a tinge of pink showing in the bluish flowers, the center of the corolla being darker.

Family APOCYNACEÆ.

KEY TO THE SPECIES ENUMERATED.

Leaves in whorls of four, unequal in size.....558. *Rauwolfia heterophylla.*
Leaves alternate, linear-oblong with rounded or emarginate apex, and up to 25 cm. long; clubby shrubs.....556. *Plumiera emarginata.*
Leaves opposite.
Branches rather densely hairy; corolla yellow, about 4 cm. long.
566. *Urechites lutea.*
Branches glabrous or almost so.
Flowers numerous in dense corymbiform clusters.
567. *Forsteronia corymbosa.*
Flowers not in dense corymbiform clusters.
Corolla-tube not more than one cm. long; leaves narrowly oblong, 1.5–3 cm. long, retuse.....559. *Cameraria retusa.*
Corolla-tube more than one cm. long.
Upper part of corolla-tube conspicuously enlarged into a campanulate portion.
Calyx-lobes ovate or oblong; petioles 5–15 mm. long; leaves distinctly mucronate.
Calyx-lobes one-half to one-fourth the length of the narrow part of corolla-tube.....562. *Rhabdadenia paludosa.*
Calyx-lobes less than one-fourth the length of narrow part of corolla-tube.....563. *Rhabdadenia biflora.*
Calyx-lobes lance-acute or acuminate, 2–3 mm. long.
564. *Rhabdadenia Sagræi.*
565. *Rhabdadenia cubensis.*
Corolla-tube not much enlarged below the limb.
Corolla green or white; leaves ovate to oval, 4–9 cm. long.
561. *Echites umbellata.*
Corolla reddish or rose-color; leaves rounded to narrowly oblong, rarely 1 cm. in width.....560. *Echites myrtifolia.*
Corolla reddish; leaves oblong-spatulate, up to 6 cm. long and 2 cm. wide.....557. *Rauwolfia cubana.*

556. **Plumiera emarginata** Grisebach.

Plumiera emarginata GRISEBACH, Catalogus Plantarum Cubensium, 1866, p. 171.

Near Nueva Gerona, June 4, 1904, *A. H. Curtiss, No. 524;* on rocky seaward slope of ridge at Bibijagua, May 7, 1910, *O. E. Jennings, No. 111.* General Distribution: Western Cuba and the Isle of Pines.

On the rocky seaward face of the Bibijagua ridge, this plant, together with *Thrinax Wendlandiana*, forms the main part of the taller vegetation just above the reach of the salt spray. It also is quite common together with *Bombax emarginatum* and *Agave papyrocarpa* on some of

the slopes and, especially on the tops, of the smaller crystalline limestone hills in the northeastern part of the island.

557. **Rauwolfia cubana** A. DeCandolle.

Rauwolfia cubana A. DECANDOLLE, Prodromus Systematis Naturalis Regni Vegetabilis, VIII, 1844, p. 339.

On swampy ground along the river south of Nueva Gerona, May 12, 1910, *O. E. Jennings, Nos. 212 and 665.* General Distribution: Western Cuba and the Isle of Pines.

558. **Rauwolfia heterophylla** Roemer & Schultes.

Rauwolfia heterophylla ROEMER & SCHULTES, Systema Vegetabilium, IV, 1817–20, p. 805.

Near Nueva Gerona, May 27, 1904, *A. H. Curtiss, No. 517.* General Distribution: Continental tropical America from Mexico to Colombia and Ecuador; the Isle of Pines.

559. **Cameraria retusa** Grisebach.

Cameraria retusa GRISEBACH, Flora of the British West Indian Islands, 1861, p. 410.

Northern part of the island, *Blain, No. 145* (Millspaugh); near Nueva Gerona, May 4, 1904, *A. H. Curtiss, No. 480;* on savanna southwest of Nueva Gerona, May 7, 1910, *O. E. Jennings, No. 93;* Nueva Gerona, *G. A. Link,* June 12, 1912. General Distribution: Cuba, the Isle of Pines, and Jamaica.

560. **Echites myrtifolia** Roemer & Schultes.

Echites myrtifolia ROEMER & SCHULTES, Systema Vegetabilium, IV, 1817–1820, p. 795. Not Jacquin.

Echites rosea A. DECANDOLLE, Prodromus Systematis Naturalis Regni Vegetabilis, VIII, 1844, p. 450.

Near Nueva Gerona, December 9, 1903, and February 15, 1904, *A. H. Curtiss, No. 217;* in dry sandy field near Nueva Gerona, May 9, 1910, *O. E. Jennings, No. 166;* dry sandy field north of Nueva Gerona, May 14, 1910; *O. E. Jennings, No. 249.* General Distribution: Cuba and the Isle of Pines.

561. **Echites umbellata** Jacquin.

Echites umbellata JACQUIN, Enumeratio Plantarum Quas in Insulis Caribæis Detexit, 1760, p. 13.

Northern part of the island, *Blain, No. 88* (Millspaugh). General Distribution: Southern Florida and the West Indies.

562. **Rhabdadenia paludosa** (Vahl) Miers.

Echites paludosa VAHL, Eclogæ Americanæ, II, 1798, p. 19.
Rhabdadenia paludosa MIERS, Apocynaceæ of South America, 1878, p. 119.

Northern part of the island, *Blain, No. 78* (Millspaugh); in swampy place along arroyo at Nueva Gerona, May 12, 1910, *O. E. Jennings, No. 205;* Along river bank at Los Indios, May 21, 1910, *O. E. Jennings, No. 454.* General Distribution: Southern Florida, the Bahamas, Cuba, the Isle of Pines, Jamaica, Porto Rico, Hispaniola, Central America, and Colombia (Urban).

563. **Rhabdadenia biflora** (Jacquin) Mueller-Aargau.

Echites biflora JACQUIN, Enumeratio Plantarum Quas in Insulis Caribæis Detexit, 1760, p. 13.
Rhabdadenia biflora MUELLER-AARGAU, in Martius, Flora Brasiliensis, VI (1), 1860, p. 175.

None of the specimens from the Isle of Pines appear to be the true *Rhabdadenia biflora*, with the relatively much shorter calyx-lobes, but the specimens listed under *R. paludosa* are somewhat intermediate and it is probable that specimens could be found on the island representing the species. The differences between these two species are too insignificant or are too unreliable to be depended upon. General Distribution: Porto Rico, and from Guadeloupe through the Windward Islands to Venezuela, Guiana, and Brazil (Urban).

564. **Rhabdadenia Sagræi** (A. DeCandolle) Mueller-Aargau.

Echites Sagræi A. DECANDOLLE, Prodromus Systematis Naturalis Regni Vegetabilis, VIII, 1844, p. 450.
Rhabdadenia Sagræi MUELLER-AARGAU, in Grisebach, Flora of the British West Indian Islands, 1861, p. 415.

Along the marshy border of a pond about two miles east of Nueva Gerona, May 6, 1910, *O. E. Jennings, No. 44;* south of Sante Fé, May 25, 1910, *O. E. Jennings, No. 618;* Nueva Gerona, May 31, 1912, *G. A. Link;* Los Indios, November 4, 1912, *G. A. Link.* General Distribution: Sandy thickets, Pine Key, Florida (Small), Cuba, and the Isle of Pines.

565. **Rhabdadenia cubensis** Mueller-Aargau.

Rhabdadenia cubensis MUELLER-AARGAU, Linnæa, XXX, 1859–1860, p. 435.
Echites cubensis GRISEBACH, Catalogus Plantarum Cubensium, 1866, p. 172.

Near Nueva Gerona, March 10 and April 2, 1904, *A. H. Curtiss, No. 395.* General Distribution: Cuba and the Isle of Pines.

566. **Urechites lutea** (Linnæus) Britton.

Vinca lutea LINNÆUS, Centuria Plantarum, II, 1756, p. 12.
Echites suberecta JACQUIN, Enumeratio Plantarum Quas in Insulis Caribæis Detexit, 1760, p. 13.
Echites barbata DESVAUX, Prodromus Plantarum Indiæ Occidentalis, 1825, p. 30.
Urechites suberecta MUELLER-AARGAU, Linnæa, XXX, 1860, p. 444.
Echites neriandra GRISEBACH, Flora of the British West Indian Islands, 1861, p. 415.
Echites obovata SESSÉ & MOÇINO, Flora Mexicana, Ed. II, 1894, p. 39. Not Nees.
Urechites lutea BRITTON, Bulletin of the New York Botanical Garden, V, 1907, p. 316.

In low clearing one mile north of Nueva Gerona, May 8, 1910, *O. E. Jennings, No. 150;* near Caleta Grande, "South Coast," May 22, 1910, *O. E. Jennings, No. 463b;* summer of 1912, *G. A. Link.* General Distribution: Southern Florida, the Bahamas, and the West Indies quite generally.

567. **Forsteronia corymbosa** (Jacquin) G. F. W. Meyer.

Echites corymbosa JACQUIN, Enumeratio Plantarum Quas in Insulis Caribæis Detexit, 1760, p. 13.
Forsteronia corymbosa G. F. W. MEYER, Primitiæ Floræ Essequeboensis, 1818. p. 134.

Northern part of the island, *Blain, No. 93* (Millspaugh). General Distribution: Cuba, the Isle of Pines, Hispaniola, Porto Rico, and Guiana.

Family ASCLEPIADACEÆ.

KEY TO THE SPECIES ENUMERATED.

Leaves oblanceolate to obovate or oblong, 4 cm. or more long; vines; pollinia erect.
  Leaves about 4 cm. long; corolla about 4 mm. long.....575. *Marsdenia clausa.*
  The largest leaves 10 cm. long; corolla about 8 mm. long.
    576. *Marsdenia umbellata.*
Leaves smaller or linear, or else not vines; pollinia pendulous.
  Erect herbs; corona simple (*Asclepias*).
    Corolla white.....568. *Asclepias nivea.*
    Corolla deep purple, inner parts yellow.....569. *Asclepias Curassavica.*
  Twining vines; corona simple.
    Corolla lobes pubescent inside; corona lobes entire.
      Leaves narrowly linear; pedicels and peduncles glabrous.
        570. *Metastelma linearifolium.*
      Leaves narrowly oblong or lance-oblong; pedicels and peduncles puberulent.....571. *Metastelma hamatum.*
    Corolla lobes glabrous inside; corona lobes slightly notched at apex.
      572. *Seutera palustris.*

Leaves large and broadly ovate or smaller and lanceolate or oblong-elliptic; vines; pollinia pendulous; corona double.

Outer corona thin; leaves lanceolate or oblong elliptic..573. *Philibertia clausa.*

Outer corona fleshy; leaves large and ovate.....574. *Fischeria crispiflora.*

568. **Asclepias nivea** Linnæus.

Asclepias nivea LINNÆUS, Species Plantarum, 1753, p. 215.

On thin soil derived from underlying coralline limestone, May 22, 1910, *O. E. Jennings, No. 476.* General Distribution: Cuba, the Isle of Pines, Porto Rico, Hispaniola, and Martinique.

569. **Asclepias Curassavica** Linnæus.

Asclepias Curassavica LINNÆUS, Species Plantarum, 1753, p. 314.

Asclepias nivea var. *Curassavica* O. KUNTZE, Revisio Generum Plantarum, I, 1891, p. 418.

Field at Bibijagua, May 7, 1910, *O. E. Jennings, No. 101;* weed in a pasture near Mt. Colombo, May 14, 1910, *O. E. Jennings, No. 276a;* near Nueva Gerona, June 13, 1912, *G. A. Link.* General Distribution: Quite widely distributed in the Bahamas and West Indies, and (probably introduced) in Florida and Louisiana.

570. **Metastelma linearifolium** A. Richard.

Metastelma linearifolium A. RICHARD, in Sagra, Historia Fisica, Politica y Natural de la Isla de Cuba, XI, 1850, p. 96, Pl. 57.

Amphistelma linearifolium GRISEBACH, Catalogus Plantarum Cubensium, 1866, p. 175.

Amphistelma filiforme GRISEBACH, Flora of the British West Indian Islands, 1861. p. 418 (in part).

"Crescit in insula Pinorum (*Isla de Pinos*)" 1831, *A. H. Lanier.* Type (A. Richard, *l. c.*); near Nueva Gerona, March 10, 1904, *A. H. Curtiss, No. 394;* among palmettoes on dry savanna near Nueva Gerona, May 5, 1910, *O. E. Jennings, No. 22.* General Distribution: Cuba and the Isle of Pines.

571. **Metastelma hamatum** Grisebach.

Metastelma hamatum GRISEBACH, Catalogus Plantarum Cubensium, 1866, p. 173.

Northern part of the island, *Blain, No. 110* (Millspaugh). General Distribution: Western Cuba and the Isle of Pines.

572. **Seutera palustris** (Pursh) Vail.

Ceropegia palustris PURSH, Flora Americæ Septentrionalis, I, 1814, p. 184.

Lyonia maritima ELLIOTT, Sketch of the Botany of South Carolina and Georgia, I, 1817, p. 316.

Cynanchium angustifolium PERSOON, Synopsis Plantarum seu Enchiridium Botanicum, I, 1805, p. 274.

Seutera maritima DECAISNE, in DeCandolle, Prodromus Systematis Naturalis Regni Vegetabilis, VIII, 1844, p. 590.

Amphistelma salinarum WRIGHT, in Grisebach, Catalogus Plantarum Cubensium, 1866, p. 175.

Vincetoxicum palustre A. GRAY, Proceedings of the Academy of Natural Sciences, Philadelphia, 1890, p. 392.

Seutera palustris VAIL, in Small, Flora of the Southeastern United States, 1903, p. 952.

In pasture near Mt. Colombo, May 14, 1910, *O. E. Jennings, No. 276a;* sandy shores of Nuevas River, May 16, 1910, *O. E. Jennings, No. 303.* General Distribution: Mostly in coastal salt marshes from North Carolina and Florida to Texas, south through the Bahamas, western Cuba, and the Isle of Pines.

A small twining plant with linear leaves and with very much the general aspect of *Metastelma linearifolium.*

573. **Philibertia clausa** (Jacquin) K. Schumann.

Asclepias clausa JACQUIN, Enumeratio Plantarum Quas in Insulis Caribæis Detexit, 1760, p. 17.

Asclepias viminalis SWARTZ, Prodromus Descriptionum Vegetabilium Indiæ Occidentalis, 1788, p. 53.

Philibertia viminalis A. GRAY, Proceedings of the American Academy of Arts and Sciences, XII, 1877, p. 64.

Philibertia Brownei BENTHAM & HOOKER, Filius, List of the Flowering Plants of Jamaica, 1893, p. 24.

Philibertia clausa K. SCHUMANN, in Engler & Prantl, Natürliche Pflanzenfamilien, IV (Abt. II), 1895, p. 229.

Northern part of the island, *Blain, No. 104* (Millspaugh). General Distribution: Florida, Cuba, Isle of Pines, Jamaica, Hispaniola, and Grenada.

574. **Fischeria crispiflora** (Swartz) Schlechter.

Cynanchum crispiflorum SWARTZ, Prodromus Descriptionum Vegetabilium Indiæ Occidentalis, 1788, p. 52.

Gonolobus crispiflorus ROBERT BROWN, Memoirs of the Wernerian Natural History Society, Edinburgh, I, 1809, p. 35.

Fischeria scandens DECANDOLLE, Catalogus Plantarum Horti Botanici Monspeliensis, 1813, p. 112; GRISEBACH, Flora of the British West Indian Islands, 1861. p. 421.

Fischeria crispiflora SCHLECHTER, in Urban, Symbolæ Antillanæ, I, 1899, p. 268,

A vine with greenish-yellow flowers, in river-bank forest at Los Indios, May 20, 1910, *O. E. Jennings, No. 438.* General Distribution: Cuba, the Isle of Pines, and Jamaica.

575. **Marsdenia clausa** Robert Brown.

Marsdenia clausa ROBERT BROWN, Memoirs of the Wernerian Society of Natural History, Edinburgh, I, 1809, p. 30.

Marsdenia agglomerata DECAISNE, in DeCandolle, Prodromus Systematis Naturalis Regni Vegetabilis, VIII, 1844, p. 615.

Marsdenia picta DECAISNE, *l. c.*, excluding synonyms.

Marsdenia clausa GRISEBACH, in part, Flora of the British West Indian Islands, 1861, p. 422.

Between Bogarona and Caleta Grande, "South Coast," May 22, 1910, *O. E. Jennings, No. 487.* General Distribution: Cuba, the Isle of Pines, and Hispaniola.

A vine in the hardwood jungle. Flowers pink inside.

576. **Marsdenia umbellata** Grisebach.

Marsdenia umbellata GRISEBACH, Catalogus Plantarum Cubensium, 1866, p. 178.

Northern part of the island, *Blain, No. 118* (Millspaugh). General Distribution: Cuba and the Isle of Pines.

Family CUSCUTACEÆ.

577. **Cuscuta americana** Linnæus.

Cuscuta americana LINNÆUS, Species Plantarum, 1753, p. 124; GRISEBACH, Flora of the British West Indian Islands, 1861, p. 476.

"Over weeds on the margin of an old clearing at Pedernales Point, Isle of Pines (1439)," February 16, 1899 (Millspaugh). General Distribution: The Bahamas, West Indies, and tropical continental America.

Family CONVOLVULACEÆ.

KEY TO THE SPECIES ENUMERATED.

Styles distinct, each two-parted; corolla white or blue, more or less rotate.
  Shaggy-pubescent with long silky hairs.....579. *Evolvulus Wrightii.*
  Closely appressed-pubescent.
    Leaves acute, linear to narrowly oblong.....578. *Evolvulus sericeus.*
    Leaves mostly obtuse or rounded, ovate to elliptic..580. *Evolvulus arenicola.*
Styles united up to the stigma.
  Stigma not distinctly flattened.
    Stamens protruding during the expansion of the limb of the corolla (*Exogonium*).
      Inflorescence with conspicuous bracts.....582. *Exogonium Wrightii.*
      Inflorescence without bracts.
        Leaf-blades silvery-canescent beneath.
583. *Exogonium argentifolium.*
        Leaf-blades neither silvery nor sericeous beneath.
581. *Exogonium microdactylum.*

Stamens included within the corolla.
Sepals blunt to acuminate; ovary 2–4-celled; capsule 4-seeded (*Ipomœa*).
Stems prostrate or creeping, not twining.
Leaf-blades broadly ovate, cordate, acute.
584. *Ipomœa asarifolia.*
Leaf-blades suborbicular, obcordate, or emarginate at the apex, not cordate.....585. *Ipomœa Pes-Caprœ.*
Stems trailing or twining, at least the tips twining.
Seeds with a dorsal or marginal coma longer than the seed, or the seed completely covered with long hairs.
Leaf-blades divided to the petiole into 3 to 9, stalked or sessile leaflets.....592. *Ipomœa carolina.*
Leaf-blades entire, or, if lobed, not divided to the petiole.
Leaf-blades deeply 5-lobed.....591. *Ipomœa quinquefolia.*
Leaf-blades entire or 3-lobed, rarely 5-lobed.
586. *Ipomœa lacteola.*
Seeds glabrous or pubescent but not with a conspicuous coma.
Sepals very unequal in size.
Leaf-blades linear to broadly lanceolate; corolla small.
589. *Ipomœa tenuissima.*
Leaf-blades ovate in outline.
Sepals 10–14 mm. long; stems usually prostrate and blades usually lobed, glabrous.
588. *Ipomœa Batatas.*
Sepals 8–19 mm. long; the pilose or pubescent stems usually twining.....587. *Ipomœa tiliacea.*
Sepals equal in size or nearly so.....590. *Ipomœa sagittata.*
Sepals with long tips; ovary 3–5-celled; capsules 6–10-seeded.
593. *Pharbitis acuminata.*
Stigmas distinctly flattened.
Leaves cordate-oblong; peduncle short or none; flower-clusters inconspicuous.....595. *Jacquemontia verticillata.*
Leaves ovate or ovate-oblong; peduncles long; flower-clusters dense and conspicuously bracted and tawny-pubescent.
594. *Jacquemontia tamnifolia.*

578. **Evolvulus sericeus** Swartz.

Evolvulus sericeus SWARTZ, Prodromus Descriptionum Vegetabilium Indiæ Occidentalis, 1788, p. 55.

Northern part of the island, *Blain, No. 10* (Millspaugh); near Nueva Gerona, February 14, 1904, *A. H. Curtiss, No. 344; O. E. Jennings, No. 614.* General Distribution: From Georgia and Florida to Texas, Mexico, South America and in the West Indies and Bahamas.

The specimens from the Isle of Pines are very close to *Evolvulus Bracei* House, of the Bahama Islands.

579. **Evolvulus Wrightii** House.

Evolvulus Wrightii HOUSE, Bulletin of the Torrey Botanical Club, XXXIII, 1906, pp. 316–317.

Near Nueva Gerona, March 13, 1904, *A. H. Curtiss, No. 409.* General Distribution: Pinar del Rio, Cuba, and the Isle of Pines.

580. **Evolvulus arenicola** Britton & Wilson.

Evolvulus arenicola BRITTON & WILSON, in Britton, Studies of West Indian Plants, VIII, Bulletin of the Torrey Botanical Club, XLIII, 1916, p. 466.

White sand in the vicinity of Los Indios, spring of 1916, *Britton & Wilson, 14, 190* (Britton). General Distribution: Los Indios, Isle of Pines.

According to the description this is a diminutive perennial sending up from a slender woody root one or a few short (2–5 cm.) ascending or nearly prostrate stems. Leaves ovate to elliptic, 9–15 mm. long, mostly obtuse or rounded at both ends. Flowers one or two, at the ends of the branches, with a white rotate corolla 9–12 mm. broad. For more complete description see Britton, *l. c.*

581. **Exogonium microdactylum** variety **integrifolium** House.

Exogonium microdactylum var. *integrifolium* HOUSE, Bulletin of the Torrey Botanical Club, XXXV, 1908, p. 103.

In pine-barrens east of Los Indios, May 18, 1910, *O. E. Jennings, No. 359,* and May 19, *No. 389,* in gravelly soil one mile north of Los Indios. General Distribution: Florida, the Bahamas, Cuba, and the Isle of Pines.

582. **Exogonium Wrightii** House.

Ipomœa racemosa GRISEBACH, Catalogus Plantarum Cubensium, 1866, p. 205. Not Poiret, 1816.

Exogonium Wrightii HOUSE, Bulletin of the Torrey Botanical Club, XXXV, 1908, p. 99, Pl. 1, fig. *d.*

House, *l. c.*, gives the following as to distribution: "CUBA: 'N. Sophie [Isle of Pines], climbing to tops of tall trees,' *C. Wright 1650,* 1859–60. (Type in the Gray Herbarium.)" The species is known from no other locality.

The writer is including this species in the Isle of Pines list only with considerable doubt. The "N. Sophie" [Nouvelle Sophie] referred to rather frequently in Wright's correspondence is probably the station from which this specimen came, and, if so, the record refers to Cuba and not to the Isle of Pines. See "A Summary of Charles

Wright's Explorations in Cuba," by Underwood (*Bulletin of the Torrey Botanical Club*, XXXII, 1905, pp. 291–300), where a considerable number of Wright's localities are mentioned.

583. **Exogonium argentifolium** (A. Richard) House.

Ipomœa ? argentifolia A. RICHARD, in Sagra, Historia Fisica, Politica y Natural de la Isla de Cuba, XI, 1850, p. 131.

Ipomœa præcox WRIGHT, Anales Academía de la Ciencias Médicas, Físicas y Naturales de la Habana.

Exogonium argentifolium HOUSE, Bulletin of the Torrey Botanical Club, XXXV, 1908, p. 102.

"Crescit in insula Pinorum (*Isla de Pinos*)"—A. Richard, *l. c.;* near Nueva Gerona, 1904, *A. H. Curtiss, No. 489; W. W. Rowlee, No. 182*, in 1901 (House, *l. c.*). General Distribution: Cuba, the Isle of Pines, and Mexico.

584. **Ipomœa asarifolia** (Desrousseaux) Rœmer & Schultes.

Convolvulus asarifolius DESROUSSEAUX, in Lamarck, Encyclopédie Méthodique, Botanique, III, 1789, p. 562.

Ipomœa asarifolia ROEMER & SCHULTES, Systema Vegetabilium, IV, 1817–20, p. 251.

Ipomœa urbica CHOISY, in DeCandolle, Prodromus Systematis Naturalis Regni Vegetabilis, IX, 1845, p. 349.

Ipomœa nymphæfolia GRISEBACH, Catalogus Plantarum Cubensium, 1866, p. 203. Not Blume, 1826.

Near Nueva Gerona, December 10, 1903, and January 7, 1904, *A. H. Curtiss, No. 219;* along the river about 3 miles south of Nueva Gerona, May 12, 1910, *O. E. Jennings, No. 617*. General Distribution: Tropical Africa, Asia, the West Indies, and the Gulf Coast of Mexico.

The slight difference of absence or presence of small glands at the base of the blade is scarcely a sufficient difference between *Ipomœa nymphæfolia* and *I. asarifolia*.

585. **Ipomœa Pes-Capræ** (Linnæus) Roth.

Convolvulus Pes-Capræ LINNÆUS, Species Plantarum, 1753, p. 159.

Ipomœa biloba FORSKAOL, Flora Ægyptiaco-Arabica, 1775, p. 44.

Ipomœa Pes-Capræ ROTH, Novæ Plantarum Species Præsertim Indiæ Orientalis, 1821, p. 109.

On sandy beach at Bibijagua, May 7, 1910, *O. E. Jennings, No. 73* (*see* Plate V); also same data, *No. 646*. General Distribution: On sandy beaches throughout the tropics and subtropics of both hemispheres.

586. **Ipomœa lacteola** House.

Ipomœa calophylla WRIGHT, in Grisebach, Catalogus Plantarum Cubensium, 1866, p. 204. Not Fenzl. 1845.

Ipomœa lacteola HOUSE, Annals of the New York Academy of Sciences, XVIII, 1908, p. 229.

House lists Cuba and the Isle of Pines under the distribution of this species.

587. **Ipomœa tiliacea** (Willdenow) Choisy.

Convolvulus tiliaceus WILLDENOW, Enumeratio Plantarum Quas in Insulis Caribæis Detexit, I, 1809, p. 203.

Convolvulus fastigiatus ROXBURGH, Hortus Bengalensis, 1814, p. 13.

Ipomœa fastigiata SWEET, Hortus Britannicus, Ed. I, 1828, p. 288.

Ipomœa tiliacea CHOISY, in DeCandolle, Prodromus Systematis Regni Vegetabilis, IX, 1845, p. 375.

Ipomœa Batatas var. *fastigiata* O. KUNTZE, Revisio Generum Plantarum, II, 1891, p. 442.

Ipomœa gracilis HOUSE, Annals of the New York Academy of Sciences, XVIII, 1908, p. 248.

Near Nueva Gerona, December 22, 1903, *A. H. Curtiss, No. 249;* along stream at Keenan's, south of Nueva Gerona, May 9, 1910, *O. E. Jennings, No. 172.* General Distribution: The Florida Keys, the Bahamas, the West Indies, and continental tropical America south to Bolivia, Peru, and Brazil.

588. **Ipomœa Batatas** (Linnæus) Lamarck. BATATA. SWEET POTATO.

Convolvulus Batatas LINNÆUS, Species Plantarum, 1753, p. 154.

Ipomœa Batatas LAMARCK, Encyclopédie Méthodique, Botanique, I, 1791, p. 465.

Batatas edulis CHOISY, Mémoires de la Société de Physique et d'Histoire Naturelle de Génève, VI, 1833, p. 53.

Northern part of the island, *Blain, No. 99* (Millspaugh). General Distribution: Commonly cultivated and often escaped from cultivation in the West Indies and tropical America, but possibly native only to the tropics of the Old World. (See Cook & Collins, "Economic Plants of Porto Rico," Contributions from the U. S. National Herbarium, VIII, 1903, p. 168.)

589. **Ipomœa tenuissima** Choisy.

Ipomœa tenuissima CHOISY, in DeCandolle, Prodromus Systematis Naturalis Regni Vegetabilis, IX, 1845, p. 376.

Near Nueva Gerona, May 12, 1904, *A. H. Curtiss, No. 495.* General Distribution: Southern Florida, Cuba, the Isle of Pines, and Hispaniola.

590. **Ipomœa sagittata** Poiret.

Convolvulus speciosus WALTER, Flora Caroliniana, 1788, p. 93. Not Linnæus, filius, 1781.

Ipomœa sagittata POIRET, Voyage en Barbarie, II, 1789, p. 122.

Ipomœa speciosa HALLIER, FILIUS, Botanische Jahrbücher, XVIII, 1894, p. 143. Not Persoon, 1805.

Lowlands along the river at Nueva Gerona, May 6, 1910, *O. E. Jennings, No. 675.* General Distribution: North Carolina to Florida and Texas, Bermuda, the Bahamas, Cuba, the Isle of Pines; Spain and Barbary.

591. **Ipomœa quinquefolia** Linnæus.

Ipomœa quinquefolia LINNÆUS, Species Plantarum, 1753, p. 162; Grisebach, Flora of the British West Indian Islands, 1861, p. 468.

Convolvulus quinquefolius LINNÆUS, Systema Naturæ, Ed. X, II, 1759, p. 923.

Merremia quinquefolia HALLIER, FILIUS, in Engler, Botanische Jahrbücher, XVI, 1893, p. 552.

Near Nueva Gerona, February 28 and April 17, 1904, *A. H. Curtiss, No. 378.* General Distribution: The West Indies, and from Mexico to Venezuela, Brazil, and Peru.

592. **Ipomœa carolina** Linnæus.

Ipomœa carolina LINNÆUS, Species Plantarum, 1753, p. 160.

Ipomœa heptaphylla GRISEBACH, Memoirs of the American Academy of Arts and Sciences, VIII, 1868, p. 527. Not Voigt, 1845.

On river bank along the Majagua River north of Los Indios, May 19, 1910, *O. E. Jennings, No. 422.* General Distribution: The Bahamas, Cuba, and the Isle of Pines.

593. **Pharbitis acuminata** (Vahl) Choisy.

Convolvulus acuminatus VAHL, Symbolæ Botanicæ, III, 1794, p. 26.

Ipomœa cathartica POIRET, in Lamarck, Encyclopédie Méthodique, Botanique, IV, 1816, p. 633.

Pharbitis cathartica CHOISY, in DeCandolle, Prodromus Systematis Naturalis Regni Vegetabilis, IX, 1845, p. 342.

Pharbitis acuminata CHOISY, *op. cit.*, p. 348.

Ipomœa jamaicensis var. *glabrata* GRISEBACH, Flora of the British West Indian Islands, 1861, p. 474.

Ipomœa Vahliana HOUSE, Annals of the New York Academy of Sciences, XVIII, 1908, p. 204.

Climbing over bushes back of the sandy beach, near base of Mt. Colombo, May 14, 1910, *O. E. Jennings, Nos. 260 & 271.* General Distribution: The Bermudas, the Bahamas, Florida, the West Indies, Mexico, and Central America.

594. **Jacquemontia tamnifolia** (Linnæus) Grisebach.

Ipomœa tamnifolia LINNÆUS, Species Plantarum, 1753, p. 162.
Thyella tamnifolia RAFINESQUE, Flora Telluriana, IV, 1836, p. 84.
Jacquemontia tenuifolia GRISEBACH, Flora of the British West Indian Islands, 1861, p. 474.

Near Los Indios, November 4, 1912, *G. A. Link.* General Distribution: From South Carolina to Arkansas and south through the West Indies and tropical continental America.

595. **Jacquemontia verticillata** (Linnæus) Urban.

Ipomœa verticillata LINNÆUS, Systema Naturæ, II, Ed. X, 1759, p. 924.
Convolvulus verticillatus LINNÆUS, Species Plantarum, I, Ed. II, 1762, p. 220.
Convolvulus micranthus ROEMER & SCHULTES, Systema Vegetabilium, IV, 1819, p. 276.
Jacquemontia verticillata URBAN, Symbolæ Antillanæ, III, 1902, p. 339.
(See Urban, *l. c.*, for various other synonyms.)

Near Nueva Gerona, January 5, 1904, *A. H. Curtiss, No. 273.* General Distribution: The Bahamas, Cuba, the Isle of Pines, Jamaica, Hispaniola, St. Vincent, and Trinidad.

Family HYDROPHYLLACEÆ.

596. **Nama nigricaulis** (Wright) Kuntze.

Hydrolea nigricaulis WRIGHT, in Grisebach, Catalogus Plantarum Cubensium, 1866, pp. 207–208.
Nama nigricaulis O. KUNTZE, Revisio Generum Plantarum. 1891, p. 435.

Near Nueva Gerona, December 12, 1903, *A. H. Curtiss, No. 222.* General Distribution: Cuba and the Isle of Pines.

Family BORRAGINACEÆ.

KEY TO THE SPECIES ENUMERATED.

Woody plants with leaves reaching 10 cm. or more in length.
  Leaves obovate-oblong to elliptic, about one-half as wide as long, apex rounded, obtuse to very abruptly repand-acuminate.....597. *Cordia Collococca.*
  Leaves less than half as wide as long.
    Flowers about 20 mm. long.....599. *Cordia gerasacanthoides.*
    Flowers less than 10 mm. long.....601. *Tournefortia bicolor.*
Herbaceous or woody plants with leaves less than 10 cm. long.
  Leaves somewhat fleshy, densely silky-tomentose, linear-spatulate, 3–8 cm. long.....600. *Tournefortia gnaphalodes.*
  Leaves not as above.
    Shrub with ovate leaves and flowers in dense globose heads.
      598. *Cordia globosa.*

Shrubby vine with ovate or lance-oblong leaves, 2–6 cm. long; twigs rusty pubescent; flowers in widely branching cymes.
602. *Tournefortia volubilis.*

Mostly annuals, or herbaceous perennials.
Spikes mostly solitary, 1–3 dm. long; leaf-blades 2–10 cm. long, about half as wide.....604. *Heliotropium indicum.*
Spikes much shorter.
Leaf-blades 3–8 by 1.5–2.5 mm., oblong, flowers mostly apparently solitary and axillary.....607. *Heliotropium antillanum.*
Leaf-blades spatulate to oblong or oval, 1–3 cm. long; flowers in slender scorpioid spikes.....605. *Heliotropium inundatum.*
Leaf-blades succulent, linear to lance-obovate, 1.5–4 cm. long; flowers in simple or forked scorpioid spikes; glabrous.
603. *Heliotropium Curassavicum.*
Stems woody prostrate with erect branches; leaves 1–1.5 by 0.2–0.4 cm., narrow-lanceolate; flowers in a simple (or 2-forked) strongly circinate often reversed spike.....606. *Heliotropium reversifolium.*

597. **Cordia Collococca** Linnæus.

Cordia Collococca LINNÆUS, Species Plantarum, Ed. II, I, 1762, p. 274.
Cordia elliptica BELLO, Anales de la Sociedad Española de Historia Natural, X, 1881, p. 297, no. 550. Not Swartz.
Lithocardium Collococca O. KUNTZE, Revisio Generum Plantarum, II, 1891, p. 438.

Near Nueva Gerona, February 25 and April 2, 1904, *A. H. Curtiss, No. 369;* a bushy tree about 40 feet in height, at base of the ridge at Bibijagua, May 7, 1910, *O. E. Jennings, No. 121.* General Distribution: Throughout the West Indies and tropical South America.

598. **Cordia globosa** (Jacquin) Humboldt, Bonpland, & Kunth. COPILLO (Porto Rico).

Varronia globosa JACQUIN, Enumeratio Plantarum Quas in Insulis Caribæis Detexit, 1760, p. 14.
Cordia globosa HUMBOLDT, BONPLAND, & KUNTH, Nova Genera et Species Plantarum, III, 1818, p. 76.
Cordia dasycephala HUMBOLDT, BONPLAND, & KUNTH, *l. c.*, Herbarium Willdenow, no. 4544; GRISEBACH, Flora of the British West Indian Islands, 1861, p. 481.
Cordia bullata DECANDOLLE, Prodromus Systematis Naturalis Regni Vegetabilis, IX, 1845, p. 496. Not *Lantana bullata* L.

Near Nueva Gerona, December 20, 1903, *A. H. Curtiss, No. 247;* bushy shrub about 5 feet high, base of Casas Mts., May 5, 1910, *O. E. Jennings, No. 34;* small tree at base of Bibijagua ridge, May 7, 1910, *O. E. Jennings, No. 118;* on savanna south of Nueva Gerona, May 9, 1910, *O. E. Jennings, No. 188.* General Distribution: From

southern Florida and the Bahamas south through the West Indies and continental tropical America.

599. **Cordia gerasacanthoides** Humboldt, Bonpland, & Kunth.

Cordia gerasacanthoides HUMBOLDT, BONPLAND, & KUNTH, Nova Genera et Species Plantarum, III, 1818, p. 69; GRISEBACH, Flora of the British West Indian Islands, excluding synonyms, 1861, p. 481.

". . . in insula Pinorum," 1831, *A. H. Lanier* (A. Richard); near Nueva Gerona, February 26, 1904, *A. H. Curtiss, No. 370.* General Distribution: Cuba, the Isle of Pines, Jamaica, Mexico, and Central America (Hemsley).

600. **Tournefortia gnaphalodes** (Linnæus) Robert Brown.

Heliotropium gnaphalodes LINNÆUS, Systema Naturæ, Ed. X, 1759, p. 913.

Tournefortia gnaphalodes ROBERT BROWN, Prodromus Floræ Novæ-Hollandiæ et Insulæ Van Diemen, 1810, p. 496; GRISEBACH, Flora of the British West Indian Islands, 1861, p. 483.

"Sandy beach at Pedernales Point, Isle of Pines (1429), where it forms dense masses" (Millspaugh); a densely bushy shrub along the beach at Bibijagua, May 7, 1910, *O. E. Jennings, No. 110.* General Distribution: Along seashores from the Bermudas, Bahamas, Florida, and Mexico, south through the West Indies and tropical continental America.

601. **Tournefortia bicolor** Swartz.

Tournefortia bicolor SWARTZ, Prodromus Descriptionum Vegetabilium Indiæ Occidentalis, 1788, p. 40; GRISEBACH, Flora of the British West Indian Islands, 1861, p. 483.

Tournefortia lævigata LAMARCK, Illustrations des Genres, Encyclopédie Méthodique, I, 1791, p. 416.

Along the river bank at Los Indios, May 19, 1910, *O. E. Jennings, No. 419.* General Distribution: Throughout the West Indies and continental tropical America as far as Argentina.

602. **Tournefortia volubilis** Linnæus.

Tournefortia volubilis LINNÆUS, Species Plantarum, 1753, p. 140; GRISEBACH, Flora of the British West Indian Islands, 1861, p. 484.

Messerschmidia volubilis ROEMER & SCHULTES, Systema Vegetabilium, IV, 1819, p. 541.

Tournefortia ferruginea GRISEBACH, Flora of the British West Indian Islands, 1861, p. 484. Not Lamarck.

A slender clambering shrub about 15 feet in height, between Bogar-

ona and Caleta Grande, May 22, 1910, *O. E. Jennings, No. 486.* Northern part of the island, *Blain, No. 42* (Millspaugh). General Distribution: Southern Florida, the Bahamas, the West Indies, Yucatan, and South America.

603. **Heliotropium Curassavicum** Linnæus.

Heliotropium Curassavicum LINNÆUS, Species Plantarum, 1753, p. 130; GRISEBACH, Flora of the British West Indian Islands, 1861, p. 486.

Northern part of the island, *Blain, No. 84* (Millspaugh); on sandy beach at Bibijagua, May 7, 1910, *O. E. Jennings, Nos. 71 & 80.* General Distribution: Widely distributed, especially upon shore sands, throughout the tropics, extending north in America to the Gulf States and up to Virginia, and on the Pacific Coast.

604. **Heliotropium indicum** Linnæus.

Heliotropium indicum LINNÆUS, Species Plantarum, 1753, p. 130; GRISEBACH, Flora of the British West Indian Islands, 1861, p. 485.

Heliophytum indicum DECANDOLLE, Prodromus Systematis Naturalis Regni Vegetabilis, IX, 1845, p. 556.

On dry savanna west of Nueva Gerona (a weed), May 10, 1910, *O. E. Jennings, No. 32;* near magnesia spring at Sante Fé, May 26, 1910, *O. E. Jennings, No. 604.* General Distribution: Along roadsides and in waste places from Virginia to Illinois and south through the tropics and subtropics. Probably naturalized from the tropics of the Old World.

605. **Heliotropium inundatum** Swartz.

Heliotropium inundatum SWARTZ, Prodromus Descriptionum Vegetabilium Indiæ Occidentalis, 1788, p. 40; GRISEBACH, Flora of the British West Indian Islands, 1861, p. 485.

Heliotropium cinereum HUMBOLDT, BONPLAND, & KUNTH, Nova Genera et Species Plantarum, III, 1818, p. 89, Pl. 206.

Lisianthus chelonoides STAHL, Estudios Sobre la Flora de Puerto-Rico, VI, 1888, p. 280, not Linnæus, filius.

Near Nueva Gerona, February 2 and 24, 1904, *A. H. Curtiss, No. 324.* General Distribution: In low grounds from Louisiana to California, south through tropical continental America; the Bahamas, the Greater Antilles, Guadeloupe, and Trinidad.

606. **Heliotropium reversifolium** (Wright, herbarium name) Millspaugh.

Heliotropium reversifolium MILLSPAUGH, Field Columbian Museum, Botanical Series I, 1900, pp. 433–434.

"At San Francisco, four leagues from Sante Fé, June (58, 85)," José Blain (Millspaugh, *l. c*). General Distribution: Known only from the type-locality.

607. **Heliotropium antillanum** Urban.

Heliotropium antillanum URBAN, Symbolæ Antillanæ, IV, 1910, p. 528.

Heliotropium parviflorum GRISEBACH, Catalogus Plantarum Cubensium, 1866, p. 212. Not *Schleidenia parviflora* DeCandolle.

Near Nueva Gerona, March 8, 1904, *A. H. Curtiss, No. 390*. General Distribution: Porto Rico, Cuba, and the Isle of Pines.

Family VERBENACEÆ.

KEY TO THE SPECIES ENUMERATED.

Leaves deltoid-ovate, 19–20 cm. long and wide, long petioled.
615. *Clerodendron fragrans* var. *pleniflora*.

Leaves oblong to oblanceolate-obovate, tapering at base, often emarginate at apex, smooth, up to 15 cm. long and 5 cm. wide.....612. *Citharexylum caudatum*.

Leaves not as above.

Leaves leathery, 3–8 cm. long, obtuse, minutely whitish canescent beneath, oblong; maritime (mangrove).....616. *Avicennia nitida*,

Leaves ovate-oblong or elliptic, acute to acuminate, mostly 10–20 cm. long, rusty-tomentose beneath.....{613. *Petitia domingensis*. 614. *Petitia Poeppigii*.

Leaves not as above.

Flowers embedded in excavations in the long, thickened, terminal rachis.
611. *Abena jamaicensis*.

Flowers in peduncled congested heads or spikes.

Leaves strigillose, spatulate, serrate above the middle, 1–3 cm. long; spikes becoming cylindric, 1 cm. long by 5 mm. thick.
610. *Lippia nodiflora* var. *reptans*.

Leaves rigid-pubescent, crenate or crenate-serrate nearly to the base; spikes not becoming cylindric.

Flower-heads bracted but not involucrate; leaves deltoid-ovate, blades nearly as wide as long.....608. *Lantana Camara*.

Flower-heads involucrate; leaf-blades from suborbicular to oval and twice as long as wide.....609. *Lantana involucrata*.

608. **Lantana Camara** Linnæus.

Lantana Camara LINNÆUS, Species Plantarum, 1753, p. 627.

Lantana crocea JACQUIN, Plantarum Rariorum Horti Cæsarei Schœnbrunnensis Descriptiones, etc., IV, 1804, Pl. 473.

A low shrub on the beach at Siguanea City, May 21, 1910, *O. E. Jennings, No. 458*. General Distribution: The Florida Keys, the

Bahamas, the West Indies, continental tropical America, and introduced into the Old World tropics.

609. **Lantana involucrata** Linnæus.

Lantana involucrata LINNÆUS, Centuria Plantarum, II, 1756, p. 22.
Lantana odorata LINNÆUS, Systema Naturæ, Ed. XII, 1767, p. 418.

Northern part of the island, *Blain, No. 142* (Millspaugh); Pedernales Point, February 16, 1899, *C. F. Millspaugh, No. 1417* (Millspaugh); on beach at Siguanea City, May 21, 1910, *O. E. Jennings, No. 461.* General Distribution: The Bahamas, the Bermudas (introduced), southern Florida, the West Indies, Mexico and Central America, and the Galapagos Islands.

610. **Lippia nodiflora** variety **reptans** (Humboldt, Bonpland, & Kunth) O. Kuntze.

Lippia reptans HUMBOLDT, BONPLAND, & KUNTH, Nova Genera et Species Plantarum, II, 1817, p. 263.
Lippia nodiflora var. *reptans* O. KUNTZE, Revisio Generum Plantarum, II, 1891, p. 508.

On the savanna near Nueva Gerona, May 5, 1910, *O. E. Jennings, No. 14;* on strand at Bibijagua, May 7, 1910, *O. E. Jennings, No. 97;* in recently-cleared lowland north of Nueva Gerona, May 8, 1910, *O. E. Jennings, No. 146.* General Distribution: The Bahamas, the West Indies, and the continental American tropics.

Blain, No. 79, collected in the northern part of the island has been referred by Millspaugh to *Lippia nodiflora.*

611. **Abena jamaicensis** (Linnæus) Hitchcock.

Verbena jamaicensis LINNÆUS, Species Plantarum, 1753, p. 19.
Valerianodes jamaicensis MEDICUS, Philosophische Botanik mit Kritischen Bemerkungen, I, 1789, p. 178.
Stachytarpheta jamaicensis VAHL, Enumeratio Plantarum, I, 1804, p. 206.
Abena jamaicensis HITCHCOCK, Annual Report of the Missouri Botanical Garden, IV, 1893, p. 117.

On sandy beach at Bibijagua, May 7, 1910, *O. E. Jennings, No. 72;* open field on Keenan's estate, south of Nueva Gerona, May 9, 1910, *O. E. Jennings, No. 175.* General Distribution: The Bermudas, the Bahamas, southern Florida, the West Indies, and continental tropical America south to Guiana; tropics of Asia and Africa.

612. **Citharexylum caudatum** Linnæus.

Citharexylum caudatum LINNÆUS, Species Plantarum, II, Ed. II, 1763, p. 872.
Citharexylum surrectum GRISEBACH, Flora of the British West Indian Islands, 1861, p. 497, excluding specimens from Antigua.
Citharexylum Berterii SPRENGEL, Systema Vegetabilium, II, 1825, p. 763; GRISEBACH, Flora of the British West Indian Islands, 1861, p. 498.
(For various other synonyms see Schultz, in Urban, Symbolæ Antillanæ, VI, 1909, pp. 57–59.)

Near Nueva Gerona, May 26, 1904, *A. H. Curtiss, No. 515;* swampy margin of pool at western base of Caballos Mts., May 9, 1910, *O. E. Jennings, No. 167.* General Distribution: The Bahamas, Cuba (common), the Isle of Pines, Jamaica (common), Hispaniola, Porto Rico, and Mexico (Urban).

613. **Petitia domingensis** Jacquin.

Petitia domingensis JACQUIN, Enumeratio Plantarum Quas in Insulis Caribæis Detexit, 1760, p. 12; GRISEBACH, Flora of the British West Indian Islands, 1861, p. 501.
Citharexylum melanocarpum SWARTZ, Prodromus Descriptionum Vegetabilium Indiæ Occidentalis, 1788, p. 91.
Citharexylum panniculatum GAERTNER, De Fructibus et Seminibus Plantarum, I, 1788, p. 270, Pl. 56.

A rather common shrub on the wooded slope of Caballos Mts., collected there on May 12, 1910, *O. E. Jennings, Nos. 659, 660, & 676.* General Distribution: The Bahamas, Cuba, the Isle of Pines, Jamaica, Cayman, Hispaniola, Porto Rico, and St. Croix.

614. **Petitia Poeppigii** Schauer.

Petitia Poeppigii SCHAUER, in DeCandolle, Prodromus Systematis Naturalis Regni Vegetabilis, XI, 1847, p. 639.

Reported by Millspaugh on the basis of a specimen collected in the northern part of the island by *Blain, No. 18.* General Distribution: Cuba and the Isle of Pines.

This may belong to the same species as the preceding.

615. **Clerodendron fragrans** Venturi variety **pleniflora** Schauer.

Clerodendron fragrans var. *pleniflora* SCHAUER, in DeCandolle Prodromus Systematis Naturalis Regni Vegetabilis, XI, 1847, p. 666.

Near Nueva Gerona, March 30, 1904, *O. E. Jennings, No. 431;* near Nueva Gerona, June 12, 1912, *G. A. Link.* General Distribu-

tion: Rather widely distributed through the West Indies as well as through the tropics of continental America and the Old World.

616. **Avicennia nitida** Jacquin. BLACK MANGROVE. WHITE MANGROVE.

Avicennia nitida JACQUIN, Enumeratio Plantarum Quas in Insulis Caribæis Detexit, 1760, p. 25.

Avicennia officinalis var. *nitida* O. KUNTZE, Revisio Generum Plantarum, II, 1891, p. 502.

Near Nueva Gerona, May 3, 1904, *A. H. Curtiss, No. 312;* at rear margin of sandy strand at Bibijagua, May 7, 1910, *O. E. Jennings, No. 115;* on strand, back of which is a mangrove swamp, along Colombo Bay, northeast of Nueva Gerona, May 14, 1910, *O. E. Jennings, No. 254;* forming a large part of the innermost mangrove swamp-forest near the mouth of the Nuevas River, May 16, 1910, *O. E. Jennings, No. 693.* General Distribution: Along coastal borders, especially where sandy, from the Bermudas, southern Florida, Mississippi, and Texas, south through the Bahamas, the West Indies, and continental tropical America; also in tropical Africa.

The Black Mangrove (Mangle blanco, Mangle bobo.—Urban) forms a large part of the landward extension of the mangrove border around the lower shores of the island. It becomes a good-sized tree, sometimes fifty or sixty feet in height, but mostly smaller. Specimen number *115* was about twenty feet in height. The flowers are a pale yellow in color. The bark is used for tanning, and the wood is quite durable when placed in wet soil.

Family LABIATÆ.

KEY TO THE SPECIES ENUMERATED.

Flowers massed in dense globose heads.

Heads sessile, 4 cm. or more in diameter, enclosing the stem. 617. *Leonotis nepetifolia.*

Heads smaller, pedunculate.

Leaves 5–15 cm. long, tapering below into a more or less distinct slender petiole.

Leaves ovate-oblong; floral bracts shorter than the calyx and inconspicuous. . . . . 624. *Mesosphærum capitatum.*

Leaves narrow, linear-oblong; floral bracts longer than the calyx and conspicuous, even in fruit. . . . . 623. *Mesosphærum Hollandianum.*

Leaves usually subsessile; linear-lanceolate; floral bracts twice as long as the head. . . . . 625. *Mesosphærum actinocephalum.*

Leaves ordinarily less than 4 cm. long.
Leaves lance-linear, sessile, clasping....627. *Mesosphærum uliginosum.*
Leaves spatulate to oblong, attenuate at the base.
626. *Mesosphærum capitellatum.*
Leaves broadly ovate to orbicular, truncate or subcordate at the base.
622. *Mesosphærum minutifolium.*
Flowers axillary and in more or less spicate racemes.
Leaves broadly rounded or more or less cordate at base.
Leaves less than 2 cm. long; racemes rather lax; calyx glandular-pubescent.
618. *Salvia serotina.*
Leaves mostly 4–8 cm. long; racemes rather dense; calyx not glandular-pubescent.....621. *Mesosphærum pectinatum.*
Leaves more or less tapering at base.
Leaves oblong-ovate, usually 10–15 cm. long; fruiting calyx reflexed and with a wide rounded upper lobe.....620. *Ocimum gratissimum.*
Leaves widely triangular-ovate, usually less than 7 cm. long; fruiting calyx not strongly reflexed, the upper lobe ovate and shortly bristle-tipped.
619. *Salvia setosa.*
Leaves ovate, at base cuneate, about 2.5–4 cm. long; fruiting calyx not reflexed, upper lip entire and blunt.....*Salvia occidentalis* (See No. 619).

617. **Leonotis nepetifolia** (Linnæus) Robert Brown.

Phlomis nepetæfolia LINNÆUS, Species Plantarum, 1753, p. 586.
Leonotis nepetæfolia ROBERT BROWN, Prodromus Floræ Novæ-Hollandiæ et Insulæ Van Diemen, 1810, p. 504; GRISEBACH, Flora of the British West Indian Islands, 1861, p. 492.

Along the side of a small stream in cultivated ground, Keenan's estate, Nueva Gerona, May 9, 1910, *O. E. Jennings, No. 170.* General Distribution: Tropics of both hemispheres, extending north in America as far as the Bahamas, the Bermudas (introduced), and the southeastern United States north to Tennessee.

618. **Salvia serotina** Linnæus.

Salvia serotina LINNÆUS, Mantissa Plantarum, 1767, p. 25.
Salvia dominica VAHL, Enumeratio Plantarum, I, 1805, p. 233. Not Linnæus.

Near Caleta Grande, "South Coast," May 22, 1910, *O. E. Jennings, Nos. 494 & 601.* General Distribution: Florida, Cozumel Island, Yucatan, and the West Indies rather generally.

619. **Salvia setosa** Fernald.

Salvia privoides A. GRAY, in Watson, Proceedings of the American Academy of Arts and Sciences, XXI, 1848, p. 435. Not Bentham.
Salvia setosa FERNALD, Proceedings of the American Academy of Arts and Sciences, XXXV, 1900, pp. 493–494.

Near Nueva Gerona, May 1, 1904, *A. H. Curtiss, No. 474.* General Distribution: Northwestern Mexico and the Isle of Pines.

Salvia occidentalis Swartz is to be expected in the Isle of Pines. It occurs commonly in tropical and subtropical America, extending north as far as Vera Cruz and peninsular Florida. It has leafy stems; blue corolla; leaf-blades ovate, acute or short acuminate, the petioles winged by the decurrent blade; calyx at maturity about 3.5 mm. long.

620. **Ocimum gratissimum** Linnæus.

Ocimum gratissimum LINNÆUS, Species Plantarum, 1753, p. 832.

Near magnesia springs, Sante Fé, May 26, 1910, *O. E. Jennings, No. 584.* General Distribution: Native to the East Indies and southeastern Asia, now rather widely distributed as a weed in the tropics and subtropics.

621. **Mesosphærum pectinatum** (Linnæus) Kuntze.

Nepeta pectinata LINNÆUS Systema Naturæ, Ed. X, II, 1796, p. 1096.

Hyptis pectinata POITEAU, Annales du Muséum d'Histoire Naturelle, Paris, VII, 1806, p. 474, Pl. 30; GRISEBACH, Flora of the British West Indian Islands, 1861, p. 489.

Hyptis spicata BELLO, Anales de la Sociedad Española de Historia Natural, X, 1881, p. 303, no. 635. Not Poiteau.

Hyptis polystachya STAHL, Estudios Sobre la Flora de Puerto-Rico, VI, 1888, p. 195. Not Humboldt, Bonpland, & Kunth.

Mesosphærum pectinatum O. KUNTZE, Revisio Generum Plantarum, II, 1891, p. 525.

Ballota parviflora SESSÉ & MOÇINO, Flora Mexicana, Ed. II, 1894, p. 136.

Near Nueva Gerona, December 26, 1903, *A. H. Curtiss, No. 257.* General Distribution: From Florida and the Bahamas south through the West Indies and continental tropical America; also in the tropics of the Old World.

622. **Mesosphærum minutifolium** (Grisebach) Jennings, comb. nov.

Hyptis minutifolia GRISEBACH, Catalogus Plantarum Cubensium, 1866, p. 213.

Near Nueva Gerona, December 17, 1903, and January 12, 1904, *A. H. Curtiss, Nos. 238 & 285.* General Distribution: Western Cuba and the Isle of Pines.

623. **Mesosphærum Hollandianum** Jennings, sp. nov. (PLATE XXV.)

Somewhat shrubby, apparently perennial at the base, about one meter in height; stems erect, branched, glabrous or scantily puberulent

above, more or less castaneous, quadrangular; leaves for the most part linear-oblong, 5–11 cm. long, 5–10 mm. wide, sometimes 2 cm. wide, glabrous, paler below, on both sides glandular-punctate, the margin remotely crenulate, towards the base often recurved, the apex somewhat obtuse to rounded, gradually attenuate at the base into a short margined petiole, the upper decreasing in size, the mid-vein impressed above, prominent underneath, the lateral nerves few, remote, anastomosing before reaching the margin; flowers aggregated into axillary pedunculate heads; peduncles 2.5–4.5 cm. long, rather rigid, from the base somewhat incurved-erect, the lower somewhat shorter than the subtending leaf, the upper longer; bracts oblong-lanceolate, often somewhat dilated apically, rather obtuse, longer than the head, paler at the base, ciliate, at maturity strongly reflexed; calyx 4–5 mm. long, tube 2–2.5 mm. long, campanulate, at the base and especially at the middle somewhat incano-pilose, minutely glandular-punctate, the lobes rather erect, lance-subulate, ciliate, about 2.5 mm. long, subequal, at maturity 6–8 mm. long; corolla about 7–9 mm. long, outside sparsely and very shortly spreading-pilose, the upper half bilabiate, the lips very unequal, scarcely expanded, the upper lip barely 1 mm. long, its lobes broadly ovate, apically rounded, the lower lip 3.5–4 mm. long, its median lobe rounded, emarginate, deeply cucullate, the margin minutely erose, the lateral lobes one-half shorter, obliquely ovate, obtuse; stamens inserted on the throat, slightly shorter than the corolla, anthers all fertile, reniform; the style smooth, shortly 2-lobed, the lobes oblong; nutlets about 1 mm. long, dark brown (almost black), lustrous, oval.

Planta suffruticosa, basi verisimiliter perennans, plus minusve 1 m. alta; caulibus erectis, ramosis, glabris vel superne parcissime puberulentis, plus minusve castaneis, quadrangulatis; foliis plerisque linearioblongis, 5–11 cm. longis, 5–10 cm. latis, interdum latioribus usque ad 2 cm. latis, glabris, subtus pallidioribus, utrinque glandulosopunctulatis, margine remote crenulatis, inferne sæpe recurvis, apice obtusiusculis vel rotundatis, basi sensim in petiolum breve marginatum attenuatis, superioribus sensim decrescentibus, nervo medio supra impresso, subtus prominentibus, nervis lateralibus paucis, remotis, ante marginem anastomosantibus; floribus in capitula axillaris pedunculata aggregatis; pedunculis 2.5–4.5 cm. longis, rigidiusculis, e basi incurvo-erectiusculus, inferioribus quam folium subtendens aliquanto brevioribus, superioribus longioribus; bracteis oblongo-lanceolatis,

apice sæpe paulo dilatatis, obtusiusculis, capitulo longioribus, ad basin pallidioribus, margine ciliatis, maturatis valde reflexis; calyce 4–5 mm. longo, tubo 2–2.5 mm. longo, campanulato, basi et præsertim parte media paulo incano-pilosulo, minute glanduloso-punctulato, lobis subrectis, lanceolato-subulatis, ciliatis, ca. 2.5 mm. longis, subæqualibus, maturato 6–8 mm. longo; corolla ca. 7–9 mm. longa, extrinsecus parce brevissime patenti-pilosula, in parte 1/2 superiore bilabiata, labiis valde inæqualibus, parum expansis, labio superiore vix 1 mm. longo, lobis late ovatis, apice rotundatis, labio inferiore 3.5–4 mm. longo, lobo medio rotundato, emarginato, valde cucullato, margine minute eroso, lobis lateralibus medio 1/2 brevioribus, oblique ovatis obtusis; staminibus fauci insertis, corolla paulo brevioribus, antheris omnibus fertilibus, reniformibus; stylo lævi, apice breviter bilobo, lobis oblongis; nuculis ca. 1 mm. longis, atro-fuscis, nitidis, ovalibus.

Type.—Scrubby woods southwest of Bibijagua, May 7, 1910, *O. E. Jennings, No. 86.* Specimen in the herbarium of the Carnegie Museum. Of the same species is also *No. 264, A. H. Curtiss,* "West Indian Plants." Near Nueva Gerona, January 1, 1904. The latter specimen was distributed as *Mesosphærum rugosum* (Linnæus) Pollard.

Mesosphærum Hollandianum is most closely related to *M. rugosum* (Linnæus) Pollard (*Hyptis radiata* Willdenow), a rather common plant of wet places and swamps from North Carolina to Florida and Texas and by various authors identified and reported for localities southward in continental tropical America as far as Colombia. *M. Hollandianum* differs, however, from the continental species in the very much narrower and blunter and more remotely crenate leaves, the plant much more nearly glabrous, and the bracts and calyx-lobes practically glabrous, but decidedly, although minutely, ciliate. *M. angustifolium* is to be regarded probably as having been derived by isolation from *M. rugosum.*

This species has been named in honor of Dr. W. J. Holland, the Director of the Carnegie Museum, to whom much credit is due for his support and encouragement of the studies of the natural history of the Isle of Pines.

Hyptis (1786) has been adopted by the International Congress in place of *Mesosphærum* (1756), contrary to the principle of priority, hence the name of the species described above would be, according to the International Rules of Botanical Nomenclature, **Hyptis Hollandiana.**

624. **Mesosphærum capitatum** (Jacquin) O. Kuntze.

Hyptis capitata JACQUIN, Icones Plantarum Rariorum, I, 1781–1786, p. 11, Pl. 114; GRISEBACH, Flora of the British West Indian Islands, 1861, p. 488.
Mesosphærum capitatum O. KUNTZE, Revisio Generum Plantarum, II, 1891, p. 525.

Near Nueva Gerona, March and April, 1904, *A. H. Curtiss, No. 417.* General Distribution: Generally distributed through the West Indies and continental tropical America; also in the Malayan Archipelago (introduced ?).

625. **Mesosphærum actinocephalum** (Grisebach) O. Kuntze.

Hyptis actinocephala GRISEBACH, Catalogus Plantarum Cubensium, 1866, p. 212.
Mesosphærum actinocephalum O. KUNTZE, Revisio Generum Plantarum, 1891, p. 526.

Northern part of the island, *Blain, No. 26* (Millspaugh). General Distribution: Western Cuba and the Isle of Pines.

626. **Mesosphærum capitellatum** Jennings, sp. nov. (PLATE XXVI.)

Plant more or less incano-tomentose; branches virgate, obtusely 4-angled; leaves spatulate-obovate or oblong-obovate, at the base gradually narrowed into a very short margined petiole, at the apex obtuse or rounded, the upper margin serrulate, more or less incano-tomentose on both sides, paler underneath, on the upper surface reticulate and with strongly impressed nerves, 1–2.5 cm. long, 5–11 mm. wide; flower-bearing nodes distant (2–3 cm.); leaves of the inflorescence 1–1.5 cm. long; peduncles slender, 5–9 mm. long; heads globose, densely many-flowered, about 6–7 mm. in diameter; bracts linear-subulate, 1–1.5 mm. long, laxly tomentose; calyx about 2.2 mm. long, in fruit 3.5 mm. long, the tube obconic, strongly recurved at the apex, laxly pilose, the calyx-lobes triangular, subequal, strongly incrassate-subulate at the apex, usually subhamate, minutely more or less glandular-puberulent, 1 mm. long; corolla about 3 mm. long, very shortly pilose outside, the upper one-third bilabiate, the anterior lobe strongly cucullate, narrow, the lateral lobules oblique, ovate, and obtuse, the posterior lobes wide and broadly rounded; stamens inserted in the throat, prominently exserted, the anthers almost round; style smooth, apically very shortly bilobate; the seeds oval, about 0.7 mm. long, 3–4 mm. thick, minutely verruculose, yellowish brown.

Planta plus minusve minute incano-tomentosis; ramis virgatis,

obtuse 4-angulosis; foliis spathulato-obovatis vel oblongo-obovatis, ad basin sensim in petiolum brevissimum marginatum angustatis, apice obtusis vel rotundatis, margine superne serrulatis, utrinque plus minusve incano-tomentosis, subtus pallidioribus, supra valde impresso-nervosis et reticulatis, 1–2.5 cm. longis, 5–11 mm. latis; nodis floriferis distantibus (2–3 cm.); foliis floriferis 1–1.5 cm. longis; pedunculis gracilibus, 5–9 mm. longis; capitulis globosis, dense multifloris, ca. 6–7 mm. diametro; bracteis lineari-subulatis, 1–1.5 mm. longis, laxe tomentosis; calyce ca. 2.2 mm. longo, fructifero 3.5 mm. longo, tubo obconico, apice valde recurvo, laxe piloso, lobis triangularis, subæqualibus, apice incrassato-subulatis, subhamatis, minute glanduloso-puberulis, 1 mm. longis; corolla ca. 3 mm. longa, extrinsecus brevissime pilosula, in parte 1/3 superiore bilabiata, lobo antico cucullato, angustato, lobis lateralibus oblique ovatis, obtusis, lobis posticis latis, late rotundatis; staminibus fauci insertis, prominente exsertis, antheris subrotundis; stylo lævi, apice brevissime bilobo; seminibus ovalibus, ca. 0.7 mm. longis, 3–4 mm. latis, minute verruculosis, flavido-brunneis.

Type.—Near Nueva Gerona, Isla de Pinos, W. I., January 19, 1904, *A. H. Curtiss*, "West Indian Plants," *No. 301.* Specimen in the herbarium of the Carnegie Museum.

This species belongs to the section *Cyrta* Bentham (under *Hyptis*) and is most closely related to the Brazilian species *Mesosphærum clavelliferum* (Bentham) O. Kuntze and *M. microphyllum* (Pohl) O. Kuntze. The fruiting heads of *M. clavelliferum*, however, are stated as being 1.5 cm. or more in diameter, nearly three times the dimension of the Isle of Pines plant. The leaves of *M. microphyllum* differ from the plant from the Isle of Pines in that they are hardly 7 or 8 mm. long, and there is a further difference in that the peduncles of the former species are two or three times as long as the heads. The writer has had access to but few specimens from this large and difficult genus, but a careful comparison of the various descriptions available would leave little doubt of the specific distinctness of the plant from the Isle of Pines.

To those botanists who abide by the Nomina Conservanda of the International Rules of Botanical Nomenclature this plant should be known as **Hyptis capitellata.**

627. **Mesosphærum uliginosum** (St. Hilaire) O. Kuntze.

Hyptis uliginosa St. Hilaire, in Bentham, Labiatarum Genera et Species, 1832–1834, p. 81.

Hyptis eriocauloides A. Richard, in Sagra, Historia Fisica, Politica y Natural de la Isla de Cuba, XI, 1850, p. 157. (Through a typographical error this was published as "*Hyptis criocauloides.*")

Mesosphærum uliginosum O. Kuntze, Revisio Generum Plantarum, 1891, p. 526.

"Crescit in insula Pinorum (*Isla de Pinos*)"—A. Richard, *l. c.*; near Nueva Gerona, January 19, 1904, *A. H. Curtiss, No. 302.* General Distribution: Cuba, the Isle of Pines, and South America.

Family SOLANACEÆ.

KEY TO THE SPECIES ENUMERATED.

Fruit a berry, enclosed in a much inflated papery calyx....628. *Physalis angulata.*
Fruit not so enclosed.
An erect annual with very large ovate or lance-ovate leaves and red flowers 4–6 cm. long; odor strong.....639. *Nicotiana Tabacum.*
Not as above.
Leaves borne in two's, often unequal in size; corolla white or pale blue, about 5 mm. long.....631. *Solanum antillarum.*
Leaves not borne in *two's.*
No spines or strong prickles on either branches or leaves.
Slender-stemmed herbs.
Corolla about 1 cm. long, with very slender cylindrical tube. 640. *Schwenkia americana.*
Corolla-tube turbinate...630. *Solanum nigrum* var. *americanum.*
Shrubby; leaves ovate to ovate-lanceolate, 1–3 cm. long; corolla white, nearly rotate.....629. *Capsicum frutescens.*
Shrubby; leaves oblong to lance-oblong, 5–12 cm. long; corolla 11–13 mm. long, with a gradually dilated tube. ..638. *Cestrum diurnum.*
Branches and leaves more or less spiny.
Leaves 1–4 cm. long, angulate toothed, amply armed with yellowish spines.....633. *Solanum chamæacanthum.*
Leaves large, 10–25 cm. long, ovate, pale tomentose beneath, entire. 632. *Solanum verbascifolium.*
Leaves angulate-lobed; branches armed with short recurved spines with wide flattened bases.
Petioles distinct, 1–2 cm. long.....637. *Solanum Houstounii.*
Petioles very short or none, base of leaf long-tapering. 636. *Solanum jamaicense.*
Leaves entire, or sometimes somewhat angulate toothed; branches armed with slender rather straight spines.
Spines 2–10 mm. long, at base 0.5–1 mm. wide; calyx-lobes acuminate.....634. *Solanum bahamense.*
Spines 1.5–6 mm. long, at base 1.5–3 mm. wide; calyx-lobes rather obtuse.....635. *Solanum racemosum.*

628. **Physalis angulata** Linnæus.

Physalis angulata LINNÆUS, Species Plantarum, 1753, p. 183; GRISEBACH, Flora of the British West Indian Islands, 1861, p. 436.

Physalis Linkiana DUNAL, in DeCandolle, Prodromus Systematis Naturalis Regni Vegetabilis, XIII (1), 1852, p. 448, as to specimens Guadeloupe, not Nees; GRISEBACH. Flora of the British West Indian Islands, 1861, p. 436.

Northern part of the island, *Blain, No. 126* (Millspaugh). General Distribution: The Bahamas, West Indies, and tropical regions generally.

629. **Capsicum frutescens** Linnæus.

Capsicum frutescens LINNÆUS, Species Plantarum, 1753, p. 189; GRISEBACH, Flora of the British West Indian Islands, 1861, p. 436.

Capsicum annuum var. *frutescens* O. KUNTZE, Revisio Generum Plantarum, II, 1891, p. 449.

"Old garden spot at Pedernales Point, Isle of Pines (1423)." (Millspaugh, *Field Columbian Museum, Botanical Series*, II, 1900, p. 96.) General Distribution: From southern Florida and the Bahamas south through the West Indies and continental tropical America; also in the tropics of the Old World.

630. **Solanum nigrum** variety **americanum** (Miller) O. E. Schulz.

Solanum americanum MILLER Gardener's Dictionary, Ed. VIII, 1768, no. 5, in part.

Solanum nodiflorum DUNAL, Histoire Naturelle, Médicale, et Économique des Solanum, etc., 1813, p. 151; GRISEBACH, Catalogus Plantarum Cubensium, 1866, p. 188. Not Jacquin.

Solanum nigrum GRISEBACH, Catalogus Plantarum Cubensium, 1866, p. 188. Not Linnæus.

Solanum nigrum var. *nodiflorum* A. GRAY, Synoptical Flora of North America, II (1), 1886, p. 228.

(For various other synonyms see Schulz, in Urban, *Symbolæ Antillanæ*, VI, 1909, pp. 161–162.)

Pedernales Point, February 16, 1899, *C. F. Millspaugh, No. 1444* (Millspaugh). General Distribution: The Bahamas, the West Indies, Mexico, Costa Rica, Venezuela, and Guiana.

631. **Solanum antillarum** O. E. Schulz.

Solanum triste LUNAN, Hortus Jamaicensis, II, 1814, p. 10; GRISEBACH, Flora of the British West Indian Islands, 1861, p. 437 (excluding synonyms and specimens Siebold), and Catalogus Plantarum Cubensium, 1866, p. 189. Not Jacquin.

Solanum diphyllum LUNAN, Hortus Jamaicensis, II, 1814, p. 9. Not Linnæus.

Solanum nudum A. RICHARD, in Sagra, Historia Fisica, Politica y Natural de la Isla de Cuba, XI, 1850, p. 122. Not Humboldt, Bonpland, & Kunth.

Solanum antillarum O. E. SCHULZ, in Urban, Symbolæ Antillanæ, VI, 1909, pp. 164–166.

Near Caleta Grande, "South Coast," May 22, 1910, *O. E. Jennings, No. 602.* General Distribution: Cuba, the Isle of Pines, Jamaica, Porto Rico, Hispaniola, St. Vincent, and Grenada.

632. **Solanum verbascifolium** Linnæus.

Solanum verbascifolium LINNÆUS, Species Plantarum, 1753, p. 184; GRISEBACH, Flora of the British West Indian Islands, 1861, p. 438; Small, Flora of the Southeastern U. S., Ed. II, 1913, p. 990.

Near Caleta Grande, "South Coast," May 22, 1910, *O. E. Jennings, No. 485;* base of Casas Mts., May 5, 1910, *O. E. Jennings, Nos. 606 & 639.* General Distribution: Southern Florida, the Bahamas, the West Indies, Yucatan, and the tropics of Africa, Asia, and Australia.

The specimens collected at Caleta Grande were woody and about eight feet in height.

633. **Solanum chamæacanthum** Grisebach.

Solanum chamæacanthum GRISEBACH, Catalogus Plantarum Cubensium, 1866, p. 190.

In sand along beach north of Nueva Gerona, May 14, 1910, *O. E. Jennings, No. 250.* General Distribution: Western Cuba and the Isle of Pines.

A prostrate prickly plant with white and somewhat reflexed corolla-lobes.

634. **Solanum bahamense** Linnæus.

Solanum bahamense LINNÆUS, Species Plantarum, 1753, p. 188; Grisebach, Flora of the British West Indian Islands, 1861, p. 440 (var. *a*).

Solanum igneum GRISEBACH, *l. c.*, as to Cuba, and Catalogus Plantarum Cubensium, 1866, p. 189.

Near Caleta Grande, "South Coast," May 22, 1910, *O. E. Jennings, No. 495.* Flowers bluish: "Scrublands near Pedernales Point, Isle of Pines, 1445" (Millspaugh). General Distribution: The Bahamas, Cuba, the Isle of Pines, Jamaica, Porto Rico, Hispaniola; also in southern Florida and Mexico (?).

The specimens seen from the Isle of Pines are in some respects transitional to *Solanum racemosum* Jacquin, which takes the place of *S. bahamense* in the Lesser Antilles.

635. **Solanum racemosum** Jacquin.

Solanum racemosum JACQUIN, Enumeratio Plantarum Quas in Insulis Caribæis Detexit, 1760, p. 15; GRISEBACH, Flora of the British West Indian Islands, 1861, p. 439, in part.

Solanum bahamense EGGERS, Flora of the St. Croix and Virgin Islands, Bulletin of the U. S. National Museum, XIII, 1879, p. 77, no. 591, in part. Not Linnæus.

"Stony scrubland at Pedernales Point, Isle of Pines (1415)." (Millspaugh). General Distribution: From St. Thomas, St. Croix, and St. Jan, south through the Lesser Antilles, according to Schulz, thus indicating from the distribution that Millspaugh's plant is probably the same thing as the one the writer collected at Caleta Grande, eight or ten miles further to the southeast, and which is here placed provisionally under *Solanum bahamense* Linnæus.

636. **Solanum jamaicense** Miller.

Solanum jamaicense MILLER, Gardener's Dictionary, Ed. VIII, 1768, no. 17; GRISEBACH, Flora of the British West Indian Islands, 1861, p. 441.

Solanum brevipilum DUNAL, Histoire Naturelle, Médicale et Économique des Solanum, etc., 1813, p. 191, Pl. 21.

Solanum heterotrichum DUNAL, *op. cit.*, p. 192, Pl. 20.

Solanum cuneifolium DUNAL, *op. cit.*, p. 193, Pl. 22.

(For other synonyms see Schulz, in Urban, Symbolæ Antillanæ, VI, 1909, p. 232.)

Near Nueva Gerona, December 25, 1903, *A. H. Curtiss, No. 258.* General Distribution: The Greater Antilles, St. Thomas, Martinique, Grenada; Costa Rica, Colombia, Guiana, Brazil.

637. **Solanum Houstounii** Dunal.

Solanum quercifolium MILLER, Gardener's Dictionary, Ed. VIII, 1768, no. 16. Not Linnæus.

Solanum Houstounii DUNAL, Histoire Naturelle, Médicale et Économique des Solanum, etc., 1813, p. 243.

Solanum scabrum GRISEBACH, Catalogus Plantarum Cubensium, 1866, p. 189, var. Not Vahl.

Near Nueva Gerona, April 11, 1904, *A. H. Curtiss, No. 440.* General Distribution: Cuba, the Isle of Pines, Grand Cayman, and Mexico.

638. **Cestrum diurnum** Linnæus.

Cestrum diurnum LINNÆUS, Species Plantarum, 1753, p. 191, excluding synonyms in part; GRISEBACH, Flora of the British West Indian Islands, 1861, p. 444, and Catalogus Plantarum Cubensium, 1866, p. 190.

Cestrum fastigiatum JACQUIN, Plantarum Rariorum Horti Cesarei Schœnbrunnensis Descriptiones, etc., III, 1798, p. 44, Pl. 330.

(For other synonyms see Schulz, in Urban, Symbolæ Antillanæ, VI, 1909, pp. 261–262.)

Near Nueva Gerona, December 23, 1903, and January 7, 1904, *A. H. Curtiss, No. 251;* a weed in the hotel yard at Nueva Gerona,

May 5, 1910, *O. E. Jennings;* in open savanna near Nueva Gerona, May 13, 1910, *O. E. Jennings, No. 240.* General Distribution: Cuba, the Isle of Pines, Santo Domingo, Porto Rico, Mexico, and naturalized in Florida and Texas.

As found in the Isle of Pines this plant is a shrub reaching a height of at least ten feet, with white, sweet-scented flowers and black shining berries.

639. **Nicotiana Tabacum** Linnæus. TOBACCO.

Nicotiana Tabacum LINNÆUS, Species Plantarum, 1753, p. 180.

"Apparently indigenous in scrubland at Pedernales Point, Isle of Pines (1435)" (Millspaugh). General Distribution: Native to tropical America and now cultivated and escaped widely through the tropics.

640. **Schwenkia americana** Linnæus.

Schwenkia americana LINNÆUS, Genera Plantarum, Ed. VI, p. 567.

Near Nueva Gerona, March 12, 1904, *A. H. Curtiss, No. 401.* General Distribution: Cuba (Grisebach), the Isle of Pines, Yucatan (Millspaugh), Brazil.

Family SCROPHULARIACEÆ.

KEY TO THE SPECIES ENUMERATED.

Leaves one cm. or more long.
- Calyx-tube longer than its lobes.
  - Corolla salver-form; the capsule mostly included in the calyx. 647. *Buchnera elongata.*
  - Corolla more or less campanulate; capsule not very much enclosed in the calyx. 645. *Agalinis albida.*
- Calyx-tube very short or practically none.
  - Pedicels straight, 3–6 mm. long; corolla about 3 mm. wide. 644. *Scoparia dulcis.*
  - Pedicels often finally strongly recurved; corollas much larger.
    - Stems somewhat pubescent below, essentially glabrous towards the summit. 641. *Angelonia cubensis.*
    - Stems viscid-pubescent. 642. *Angelonia salicarifolia.*

Leaves less than one cm. long.
- Corolla several times longer than the calyx; anther-bearing filaments 2. 643. *Ilysanthes* sp.
- Corolla little longer than the calyx; anther-bearing filaments 4. 646. *Monniera Monniera.*
- Corolla-tube about twice the length of the calyx. 649. *Gerardia pinetorum.*

641. **Angelonia cubensis** B. L. Robinson.

Angelonia cubensis B. L. ROBINSON, in Urban, Symbolæ Antillanæ, II, 1901, pp. 458–459.

Near Nueva Gerona, April 26, 1904, *A. H. Curtiss, No. 465*. General Distribution: Western Cuba and the Isle of Pines.

642. **Angelonia salicarifolia** Humboldt & Bonpland.

Angelonia salicarifolia HUMBOLDT & BONPLAND, Plantes Æquinoxiales, 1809, p. 92, Pl. 108; GRISEBACH, Flora of the British West Indian Islands, 1861, p. 431.

"Crescit in insula Pinorum (*Isla de Pinos*)," 1831, *A. H. Lanier*. (A. Richard, in Sagra, "Historia Fisica, Politica y Natural de la Isla de Cuba," XI, 1859, p. 152). General Distribution: Western Cuba (?), Isle of Pines, Hispaniola, Trinidad, and South America.

643. **Ilysanthes** sp.

Ilysanthes Curtissii BRITTON. (Herbarium name, unpublished.)

Near Nueva Gerona, February 25, 1904. *A. H. Curtiss, No. 367*. Distributed in Curtiss's *West Indian Plants* as *Ilysanthes Curtissii* but probably referable to *I. alterniflora* (Wright) Urban.

644. **Scoparia dulcis** Linnæus.

Scoparia dulcis LINNÆUS, Species Plantarum, 1753, p. 116.

In everglade meadow at mouth of Nuevas River, May 16, 1910, *O. E. Jennings, No. 288*. General Distribution: Tropical regions of both hemispheres, extending northward in America to the Bahamas, Florida, Georgia, and Texas.

645. **Agalinis albida** Britton & Pennell.

Agalinis albida BRITTON & PENNELL, Bulletin of the Torrey Botanical Club, XLII, 1915, pp. 391–392.

"Isle of Pines: Managua (*Palmer & Riley 1102*)."—Britton & Pennell, *l. c.* General Distribution: "Wet, grassy, pineland, western Cuba, the Isle of Pines, and in Jamaica."—Britton & Pennell, *l. c.*

Gerardia Domingensis Sprengel has been reported for the Isle of Pines on the basis of *Blain, No. 32* (Millspaugh), but very probably that specimen is to be referred to the recently described *Agalinis albida*.

646. **Monniera Monniera** (Linnæus) Britton.

Gratiola Monniera LINNÆUS, Centuria Plantarum, II, 1756, p. 120.

Herpestis Monnieria HUMBOLDT, BONPLAND, & KUNTH, Nova Genera et Species Plantarum, II, 1817, p. 366.

Bacopa Monniera WETTSTEIN, in Engler & Prantl, Natürliche Pflanzenfamilien, IV (3b), 1891, p. 77.

Monniera Monniera BRITTON, Memoirs Torrey Botanical Club, V, 1894, p. 292.

Between Bogarona and Caleta Grande, "South Coast," May 22, 1910, *O. E. Jennings, No. 474.* General Distribution: On banks and shores, Maryland to Florida and Texas, the Bahamas, Bermudas, West Indies, and the tropics and subtropics generally.

647. **Buchnera elongata** Swartz.

Buchnera elongata SWARTZ, Prodromus Descriptionum Vegetabilium Indiæ Occidentalis, 1788, p. 92; GRISEBACH, Flora of the British West Indian Islands, 1861, p. 428.

Near Nueva Gerona, March 5, 1904, *A. H. Curtiss, No. 386;* dry savanna east of Nueva Gerona, May 6, 1910, *O. E. Jennings, No. 55;* same locality, May 14, 1910, *O. E. Jennings, No. 247.* General Distribution: In pine-lands and savannas from South Carolina to Florida and Texas, the Bahamas, and in the West Indies reported from Cuba, the Isle of Pines, Jamaica, Porto Rico, and Hispaniola; also South America.

648. **Gerardia*** sp.

Near Caleta Grande, "South Coast," on soil derived from coralline limestone, May 22, 1910, *O. E. Jennings, No. 493.*

649. **Gerardia* pinetorum** Britton & Wilson. (PLATE XXVII.)

Gerardia pinetorum BRITTON & WILSON, in Britton, Studies of West Indian Plants, VIII, Bulletin of the Torrey Botanical Club, XLIII, 1916, p. 466.

Acaulescent plants with perennial erect rhizomes reaching a maximum of 1 cm. in length; roots tuberous-thickened; leaves forming a rosette, hirsute, oblong, at the apex obtuse or rounded, 1–1.5 cm. long, 5–8 mm. wide, whitish hirsute or subglabrous, whitish glandular, subcrenate, somewhat narrowed at the base, the petiole 1–1.5 cm. long; spikes terminal, about 7–8 cm. high, sparsely whitish pubescent, whitish glandular, few-flowered, the bracts lance-subulate, 4–5 mm. long, ciliate, the bracteoles similar, about 1.5 mm. long; calyx cleft deeply, 2.5 mm. long, minutely ciliate and glandular; tube of the corolla about 5 mm. long, about 1 mm. in diameter, cylindrical, the lobes obovate, obtuse, the posterior ones about 7 mm. long, 4 mm. wide, not connate, the anterior one 8 mm. long and 6 mm. wide, the lateral ones about 8 mm. long and 5 mm. wide, the whole corolla

**Gerardia tuberosa* Linnæus, the type of the genus, is one of the Acanthaceæ.

See p. 259.

when dry lilac-colored; filaments about 0.5 mm. long, inserted in the throat of the corolla; anthers included, 1 mm. long, the apex recurved; style about 4 mm. long, widened at the apex; pollen grains about 23–25 μ in diameter, and about 40 μ long; capsule unknown.

Type.—Growing in the white sand of the pine-barrens at Los Indios, May 21, 1910, *No. 456, O. E. Jennings.* Specimen in the Herbarium of the Carnegie Museum.

The type consists of but two specimens, collected in flower, and, unfortunately, none of the capsules were mature. The plants were growing near the stations for *Stenandrium droseroides*, but they differ from that species markedly in the much larger flowers of a totally different color. The two species are quite similar in general appearance.

Family BIGNONIACEÆ.

KEY TO THE SPECIES ENUMERATED.

Leaves simple.
  Leaves practically or entirely smooth above.
    Petioles slender, about 1 cm. long; corolla-tube not more than 1.5 cm. long. 655. *Catalpa punctata.*
    Leaves spatulate, tapering to a subsessile base; corolla-tube 3 or 4 cm. long. 656. *Crescentia Cujete.*
  Leaves minutely scaly above.
    Petioles 3–4 mm. long; corolla-tube 3.5–5 cm. long. 650. *Tabebuia lepidophylla.*
    Petioles rigid, 5–15 mm. long; corolla-tube 3–4 cm. long. 651. *Tabebuia rigida.*
Leaves digitately compound.
  Leaflets one to three.
    Leaflets dull on both sides, minutely scaly above. . . 652. *Tabebuia geronensis.*
    Leaflets smooth and shining above. . . . . 653. *Tabebuia Curtissii.*
  Leaflets five. . . . . 654. *Tabebuia pentaphylla.*

650. **Tabebuia lepidophylla** (A. Richard) Greenman.

Bignonia lepidophylla A. RICHARD, in Sagra, Historia Fisica, Politica y Natural de la Isla de Cuba, XI, 1850, p. 101, and XII, Pl. 59.

Tabebuia lepidophylla GREENMAN, in Combs, Transactions of the St. Louis Academy of Science, VII, 1898, p. 451.

"Crescit in insula Pinorum (*Isla de Pinos*), ubi collegit clar. *Lanier.*" (A. Richard, *l. c.*); near Nueva Gerona, April 11 and 23, 1904, *A. H. Curtiss, No. 441;* a shrub about eight feet high with rather slender scraggly habit, and with the leaves clustered towards the ends of the branches, among palmettoes on the savanna near Nueva Gerona,

May 5, 1910, *O. E. Jennings, No. 6.* General Distribution: Known only from the Isle of Pines. Closely related species occur in Western Cuba.

This is one of the commonest of the sparsely branched, round-headed low trees or shrubs which grow scattered about on the savannas in the northern part of the island where the soil consists of the "Mal Pais" gravel. Its constant companions are *Curatella americana, Byrsonima crassifolia*, and the palmettoes, especially *Acœlorraphe Wrightii.*

651. **Tabebuia rigida** Urban.

Tabebuia rigida URBAN, Symbolæ Antillanæ, I, 1899, p. 404.

Northern part of the island, *Blain, No. 173* (Millspaugh); pine-barrens south of Sante Fé, May 25, 1910, *O. E. Jennings, No. 549.* General Distribution: Porto Rico and the Isle of Pines.

Although the distribution as given above does not seem reasonable, the characters given by Urban for his species agree very closely with the specimen from the Isle of Pines. The writer's field-notes have this to say regarding the color of the flowers: "Fls. rose-pink, with darker markings, and shading to cream-color in the throat."

652. **Tabebuia geronensis** Britton.

Tabebuia geronensis BRITTON, Bulletin of the Torrey Botanical Club, XLII, 1915, p. 375.

"Nueva Gerona, Isle of Pines, Cuba (*A. H. Curtiss*, May, 1904)" Britton, *l. c.* Known only from the type-locality.

653. **Tabebuia Curtissii** Britton.

Tabebuia Curtissii BRITTON, Bulletin of the Torrey Botanical Club, XLII, 1915, p. 375.

"Nueva Gerona, Isle of Pines, Cuba (*A. H. Curtiss*, May, 1904)" Britton, *l. c.* Known only from the type-locality.

654. **Tabebuia pentaphylla** (Jussieu) Hemsley.

Tecoma pentaphylla JUSSIEU, Genera Plantarum, 1789, p. 139.

Tabebuia pentaphylla HEMSLEY, in Biologia Centrali-Americana, II, 1881–1882, p. 495.

In the interior of the "South Coast" peninsula, where it forms, on the thin soil derived from coralline limestone, a considerable part of the brushy chaparral over considerable areas, May 22, 1910, *O. E. Jennings, Nos. 484 and 516.* General Distribution: The West Indies

and continental tropical America. A closely related species is the *Tabebuia bahamensis* of Cuba and the Bahamas. (See Britton, *Bulletin of the Torrey Botanical Club*, XLII, 1915, p. 379.)

655. **Catalpa punctata** Grisebach.

Catalpa punctata GRISEBACH, Catalogus Plantarum Cubensium, 1866, p. 192.

A weak shrub about eight feet high, near Caleta Grande, "South Coast," May 22, 1910, *O. E. Jennings, No. 507.* General Distribution: Western Cuba and the Isle of Pines.

656. **Crescentia Cujete** Linnæus. CALABASH.

Crescentia Cujete LINNÆUS, Species Plantarum, 1753, p. 626.

Near Nueva Gerona, January 26, 1904, *A. H. Curtiss, No. 311;* from tree in Nueva Gerona, May, 1910, *O. E. Jennings* (fruit). General Distribution: Key West, Florida, Bermuda (introduced), and quite generally over the West Indies and continental tropical America.

A very peculiar tree with the leaves fascicled along the few branches and the hard-shelled round fruits mainly borne on the stems and larger branches. The wood of the tree is tough and flexible, while the hard shells of the fruits are used for cups, dippers, and receptacles of various kinds. The tree is not often seen excepting around the towns, where it is a common tree along the stone fences, walls, etc., there apparently mostly naturalized from seeds carelessly thrown about when the shells were being cleaned out.

Family GESNERIACEÆ.

657. **Gesneria acuminata** Urban.

Conradia humilis A. RICHARD, in Sagra, Historia Fisica, Politica y Natural de la Isla de Cuba, XI, 1850, p. 71, in part.

Pentarhaphia humilis HANSTEIN, Linnæa, XXXIV, 1865, p. 294, in part.

Conradia pumila MILLSPAUGH, Field Columbian Museum, Botanical Series, I, 1900, p. 434.

Gesneria acuminata URBAN, Symbolæ Antillanæ, I, 1900, p. 479.

Northern part of the island, *Blain, No. 50* (Millspaugh, *l. c.*); at edge of rocks along water, Los Indios River, May 18, 1910, *O. E. Jennings, No. 363;* near magnesia spring at Sante Fé, May 26, 1910, *O. E. Jennings, No. 581.* General Distribution: Cuba and the Isle of Pines.

Family LENTIBULARIACEÆ.

KEY TO THE SPECIES ENUMERATED.

Terrestrial herbs with erect filiform leaves.....658. *Pinguicula filifolia.*
More or less completely aquatic herbs with finely-dissected leaves bearing bladders.
Flowers one cm. or more across.....659. *Utricularia spirandra.*
Flowers about 5 mm. in diameter.....660. *Utricularia obtusa.*

658. **Pinguicula filifolia** Wright.

Pinguicula filifolia WRIGHT, in Grisebach, Catalogus Plantarum Cubensium, 1866, p. 162.

Near Nueva Gerona, December 19, 1903, *A. H. Curtiss, No. 243;* in large patches on acid soil (white sand and gravel) in pine-barrens one mile north of Los Indios, May 18, 1910. Flowers blue, *O. E. Jennings, No. 386;* near Los Indios, November 4, 1912, *G. A. Link.* General Distribution: Western Cuba and the Isle of Pines.

The specimens from the Isle of Pines indicate that the species has a flowering period of considerable duration, *i. e.*, from November to May.

659. **Utricularia spirandra** Wright.

Utricularia spirandra WRIGHT, in Grisebach, Catalogus Plantarum Cubensium, 1866, p. 161.

In the Majagua River at Los Indios, May 19, 1910, *O. E. Jennings, No. 396.* General Distribution: Cuba and the Isle of Pines.

660. **Utricularia obtusa** Swartz.

Utricularia obtusa SWARTZ, Prodromus Descriptionum Vegetabilium Indiæ Occidentalis, 1788, p. 14.

At edge of shallow pond about two miles east of Nueva Gerona, May 6, 1910, *O. E. Jennings, No. 67.* General Distribution: Cuba and through the West Indies to Trinidad and continental tropical America.

Family ACANTHACEÆ.

KEY TO THE SPECIES ENUMERATED.

Rosette-plants; the bracts of the inflorescence not imbricate, flowers white, less than 1 cm. in diameter.....662. *Stenandrium droseroides.*
Branched annuals, not in rosettes.
Bracts large and imbricated; leaves ovate.....661. *Blechum Brownei.*
Bracts subulate, not imbricated.
Calyx glandular-pubescent, 5–7 mm. long.....664. *Justicia Rugeliana.*
Calyx not glandular, 1.5 mm. long.....663. *Justicia diversifolia.*
Outer bracts spatulate or linear-spatulate, not conspicuously imbricate.
665. *Diapedium assurgens.*

661. **Blechum Brownei** Jussieu.

Ruellia Blechum SWARTZ, Observationes Botanicæ Quibus Plantæ Indiæ Occidentalis, etc., 1791, p. 243.

Blechum Brownei JUSSIEU, Annales du Muséum d'Histoire Naturelle, Paris, IX. 1807, p. 270; GRISEBACH, Flora of the British West Indian Islands, 1861, p. 453.

In field at Sante Fé, May 25, 1910, *O. E. Jennings, No. 615.* General Distribution: From the Bahamas and Mexico widely distributed south through the West Indies and continental tropical America.

662. **Stenandrium droseroides** Nees.

Stenandrium droseroides NEES, in DeCandolle, Prodromus Systematis Naturalis Regni Vegetabilis, XI, 1847, p. 284.

Northern part of the island, *Blain, No. 11* (Millspaugh); in pine-barrens east of Los Indios, May 18, 1910, *O. E. Jennings, No. 351;* abundant but growing singly in the pine-barrens north of Los Indios near the Majagua River, May 19, 1910, *O. E. Jennings, No. 399.* General Distribution: Cuba and the Isle of Pines.

A low rosette plant with a short erect subterranean rhizome and roots bearing fusiform tuberous thickenings, and growing rather commonly on the sandy soil of the pine-barrens at Los Indios. The flowers are white with a minute crimson eye. The corolla is somewhat two-lipped, the two narrower upper lobes being connate to about one-half their length. Considering the variation of the specimens in size, number of flowers, length of floral bracts, leaves, hairs, etc., as well as the fact that the specimens have tuberous roots, it appears doubtful if consistent differences can be established between the three species *Stenandrium tuberosum* (Linnæus) Urban (*S. rupestre* Nees), *S. acuminatum* Urban, and *S. droseroides* Nees. If these plants should prove to be synonymous the species would bear the name *Stenandrium tuberosum* (Linnæus) Urban, = *Gerardia tuberosa* Linnæus. Nos. 648 and 649, p. 254, should follow No. 662, according to recent usage.

663. **Justicia diversifolia** Jennings, sp. nov. (PLATE XXVIII.)

Herbaceous, sparsely and minutely hispidulous; stem creeping or ascending, the maximum 2 dm. long, sub-angled, cystolithigerous; leaves entire, very shortly petioled, the lower broadly obovate or oblong, obtuse, at the base mostly acuminate, the upper linear, 2–4 cm. long, 1–2 mm. wide, somewhat obtuse; spikes terminalibus, simple or sparingly branched, secund, laxly few-flowered (4–7), pedunculate; bracts and bracteoles subulate, 1–2 mm. long, minutely hispidulous;

calyx lobes 5, minutely hispidulous, lance-subulate, about 1.5 mm. long; limb of the corolla at first minutely glandular pubescent, finally almost glabrous, the tube glabrous, 2 mm. long, the upper lip 3 mm. long, bidentate, the lower 3 mm. long, 3-lobed, white, spotted with purple, the middle lobe largest, about 1 mm. long; filaments about 1.5 mm. long; the locules of the anther superposed, about 0.3 mm. long, oblong, the upper more or less completely horizontal; pollen grains about 20 μ × 30 μ; style 3.5 mm. long.

Planta herbacea, sparse minute hispidulosa, caule repente vel ascendente, usque ad 2 dm. longo, subangulato, cystolithigero; foliis margine integris, brevissime petiolatis, inferioribus late obovatis vel oblongis, obtusis, basi plerumque acuminatis, superioribus linearibus, 2–4 cm. longis, 1–2 mm. latis, obtusiusculis; spicis terminalibus, simplicibus vel subramosis, secundis, laxifloris, paucifloris (4–7), pedunculatis; bracteis bracteolisque subulatis 1–2 mm. longis, minute hispidulosis; calycis laciniis 5, minute hispidulosis, lanceolato-subulatis, ca. 1.5 mm. longis; corollæ limbo extra minute glanduloso-puberulo, demum glabriusculo, tubo glabro, 2 mm. longo, labio supero 3 mm. longo, bidentato, infero albo, purpureo-maculato, 3 mm. longo, trilobo, lobio medio majore, ca. 1 mm. longo; filamentis ca. 1.5 mm. longis; antherarum loculis superpositis, ca. 0.3 mm. longis, oblongis, supero horizontali; pollinis granulis ca. 20 μ diametro, 30 μ longis; stylo 3.5 mm. longo.

Type.—Damp bank of arroyo, Sante Fé, May 25, 1910, *O. E. Jennings, No. 533.* Specimen in the herbarium of the Carnegie Museum.

This species is most nearly related to *Justicia reptans* Swartz, but differs very strikingly in the suddenly elongated upper leaves, the uppermost or next uppermost pair being the longest, some of the lowermost being almost orbicular.

664. **Justicia Rugeliana** (Grisebach) Lindau.

Dianthera Rugeliana GRISEBACH, Catalogus Plantarum Cubensium, 1866, p. 196.
Dianthera glandulosa GRISEBACH, *op. cit.*, p. 197.
Justicia Rugeliana LINDAU, Symbolæ Antillanæ, II, 1900, p. 244.

"On old garden spot at Pedernales Point, Isle of Pines (1438)" Millspaugh. General Distribution: Northern and western Cuba and the Isle of Pines.

665. **Diapedium assurgens** (Linnæus) Kuntze.

Justicia assurgens LINNÆUS, Systema Naturæ, Ed. X, 1759, p. 850.
Dicliptera assurgens JUSSIEU, Annales du Museum d'Histoire Naturelle, Paris, IX, 1807, p. 269.
Diapedium assurgens O. KUNTZE, Revisio Generum Plantarum, 1891, p. 485.

Between Bogarona and Caleta Grande, May 22, 1910, *O. E. Jennings, No. 526.* General Distribution: Florida, the Bahamas, the West Indies, Mexico, and south to Colombia.

Family RUBIACEÆ.

KEY TO THE SPECIES ENUMERATED.

Ovules numerous in each cell of the fruit.
Fruit a dry capsule, or at least dry.
Flowers single or in decussate cymes or panicles.
Seeds wingless.
Lobes of the corolla valvate; fruit dry, two-celled; herbs; peduncles usually filiform, axillary.
Stems hirsute; leaves short-petioled, ovate to oblong, 0.5–2.5 cm. long.....668. *Oldenlandia uniflora.*
Stems glabrous; leaves lanceolate to lance-linear, 2.5–6 cm. long, corolla lobes half as long as the tube..666. *Oldenlandia herbacea.*
Stems glabrous or glabrescent; leaves lanceolate or linear, about 2–3 cm. long; corolla lobes as long as the tube.
667. *Oldenlandia corymbosa.*
Lobes of the corolla imbricate; capsules two-celled; stipules between the petioles.
Leaves fleshy, furrowed on the back; stipules sheathing; low shrubs with solitary sessile flowers..669. *Rachicallis americana.*
Leaves not fleshy; stipules not sheathing; shrubs (or trees) with flowers in paniculate or simple cymes or clusters.
Leaves oblong-ovate to obovate, the upper 3–4 cm. wide.
671. *Rondeletia correifolia.*
Leaves narrowly oblong to oblong-oblanceolate, 8–18 mm. wide.....670. *Rondeletia calcicola.*
Seeds winged, flat; stipules between the petioles.
672. *Exostema ellipticum.*
Flowers in dense rounded heads.
673. *Cephalanthus occidentalis* var. *salicifolius.*
Fruit fleshy.
Corolla-lobes valvate.
Creeping or trailing herbs with the flowers glomerate on a long axillary peduncle.....675. *Coccocypselum nummularifolium.*
Scandent shrubs with the flowers in rather slender terminal racemes.
674. *Gonzalea leptantha.*
Corolla-lobes imbricate or twisted; shrubs or trees with intrapetiolar stipules.

Corolla-lobes twisted.
Flowers perfect; ovules immersed in the central placenta.
Flowers subsessile, axillary, 1–3 per axil; shrubs; leaves less than 10 cm. long.....676. *Randia mitis.*
Flowers in few-flowered terminal corymbs; trees; leaves 10–25 cm. long.....677. *Genipa americana.*
Flowers diœcious.
Stipules soon deciduous leaving a ring-like scar just at upper edge of leaf-scars; flowers in fascicled, terminal clusters.
678. *Amaioua fagifolia.*
Stipules persistent, 1–2 cm. long; flowers sessile, the pistillate single, terminal, staminate several.....679. *Alibertia edulis.*
Corolla-lobes imbricate, tube narrowly cylindrical, crimson, more than 1 cm. long.
Cymes rather wide spreading.....680. *Hamelia patens.*
Cymes rather compactly erect.....681. *Hamelia erecta.*
Ovules solitary in each cell of the fruit.
Flowers in dense rounded heads.
673. *Cephalanthus occidentalis* var. *salicifolius.*
Flowers not in dense rounded heads.
Ovules pendulous.
Filaments more or less adnate to the corolla-tube.
Fruit drupe-like, not springing apart.
Calyx finally deciduous; stigma capitate.
682. *Guettarda calyptrata.*
Calyx persistent; stigma 2–3-lobed.....683. *Antirrhœa tenuiflora.*
Fruit dry, springing apart into two long narrow lobes.
Fruit sparingly pubescent.....685. *Machaonia trifurcata.*
Fruit essentially glabrous.....684. *Machaonia littoralis.*
Filaments free from the corolla-tube except at the very base; climbing shrubs.....686. *Chiococca alba.*
Ovules not pendulous.
Corolla-lobes twisted or imbricate; low shrubs with 3-whorled thickish-linear revolute leaves.....687. *Strumpfia maritima.*
Corolla-lobes valvate.
Ovule or seed attached at the base of the carpel.
Ovary 2- (or more) loculed, septa thick.
Corolla straight (*Psychotria*).
Leaf-blades glabrous or essentially so.
Corolla 2.5–3 mm. long; calyx glabrous, bracts shorter than the calyx.....690. *Psychotria undata.*
Corolla 7–8 mm. long; calyx finely puberulous, bracts shorter than the calyx.....691. *Psychotria revoluta.*
Bracts longer than the corolla.
688. *Psychotria involucrata.*
Leaf-blades puberulent, at least on the veins beneath.

Peduncle usually less than 5 cm. long, and finely pubescent.....689. *Psychotria pubescens.*
Peduncle more than 5 cm. long, glabrous or almost so. 692. *Psychotria Sauvallei.*
Corolla swollen at the base on one side (*Palicourea*).
Panicle pyramidal, widely spreading, glabrous. 693. *Palicourea crocea.*
Panicle narrowly contracted, rather densely glandular-puberulent.....694. *Palicourea elongata.*
Ovary 1-loculed, septa thin; stipules rounded, shorter than their elongated awn.....695. *Faramea occidentalis.*
Ovule or seed attached to the lateral wall of the carpel.
Shrubs or trees; stipules undivided; fruit a fleshy syncarp. 696. *Morinda Roioc.*
Herbs, the stipules divided or laciniate.
Fruit separating into indehiscent carpels with firm walls.
Leaves ciliate, 1.5–3 cm. long.
Stem strongly angled, very soon glabrous. 697. *Diodia rigida.*
Stem less strongly angled, whitish pilose. 698. *Diodia ciliata,*
Leaves little or not at all ciliate; stem glabrous. 699. *Diodia arenicola.*
The carpel walls breaking open at maturity.
Capsule septicidal, both carpels ventrally dehiscent (*Borreria*).
Leaves lanceolate to elliptic-lanceolate, up to 1 cm. wide by 2.5–4 cm. long.
Calyx-teeth about as long as the fruit. 702. *Borreria ocimoides.*
Calyx-teeth minute, much shorter than the fruit. 701. *Borreria lævis.*
Leaves smaller and linear or quite narrow.
Flowers in dense terminal heads up to 7–9 mm. in diameter.....700. *Borreria podocephala.*
Flowers in smaller heads, up to 5 or 6 mm. in diameter.....704. *Borreria pygmæa.*
Flowers subsolitary, axillary. 703. *Borreria strumpfioides.*
Capsule splitting around the middle (circumscissile), the upper part falling away. 705. *Mitracarpum depauperatum.*

666. **Oldenlandia herbacea** DeCandolle.

Hedyotis commutata SCHULTES, Mantissa ad Systema Vegetabilium, III, 1827, p. 134.

Oldenlandia herbacea DECANDOLLE, Prodromus Systematis Naturalis Regni Vegetabilis, IV, 1830, p. 425.

Hedyotis herbacea SESSÉ & MOÇINO, Flora Mexicana, II, Ed., 1894, p. 20.

Near Nueva Gerona, December 10, 1903, and April 28, 1904, *A. H. Curtiss, Nos. 221 & 471.* General Distribution: Widely distributed through the West Indies and the tropics.

667. **Oldenlandia corymbosa** Linnæus.

Oldenlandia corymbosa LINNÆUS, Species Plantarum, I, Ed. I, 1753, p. 119.

Northern part of the island, *Blain, No. 9* (Millspaugh). General Distribution: A weed, widely distributed in the tropics and closely related to *O. herbacea* DeCandolle.

668. **Oldenlandia uniflora** Linnæus.

Oldenlandia uniflora LINNÆUS, Species Plantarum, I, Ed. I, 1753, p. 119.

Hedyotis glomerata MICHAUX, Flora Boreali-Americana, I, 1803, p. 83.

Near Nueva Gerona, May 1, 1904, *A. H. Curtiss, No. 473;* "Crescit in insula Pinorum (*Isla de Pinos*)," 1831, *A. H. Lanier* (A. Richard, in Sagra, *Historia Fisica, Politica y Natural de la Isla de Cuba*, XI, 1859, p. 15). General Distribution: Cuba, the Isle of Pines, Jamaica, Porto Rico, and South America. Also in the United States from New York to Florida and Texas.

669. **Rachicallis americana** (Jacquin) Hitchcock.

Hedyotis americana JACQUIN, Enumeratio Plantarum Quas in Insulis Caribæis Detexit, 1760, p. 12.

Rachicallis rupestris DECANDOLLE, Prodromus Systematis Naturalis Regni Vegetabilis, IV, 1830, p. 434.

Rachicallis americana HITCHCOCK, Report Missouri Botanical Garden, IV, 1893, p. 92.

Small shrub on coralline strand at Caleta Grande, May 22, 1910, *O. E. Jennings, No. 511* (flowers yellow); Pedernales Point, February 16, 1899 (Millspaugh, *Field Columbian Museum, Botanical Series*, II, 1900, p. 101). General Distribution: Rather widely distributed on the coasts of the Bermudas, Bahamas, and the West Indies.

670. **Rondeletia calcicola** Britton.

Rondeletia calcicola BRITTON, Studies of West Indian Plants, VIII, Bulletin of the Torrey Botanical Club, XLIII, 1916, p. 467.

"Wooded limestone plain, Coe's Camp, Ensenada de Siguanea (*Britton & Wilson 14842*)."—Britton, *l. c.*

671. **Rondeletia correifolia** Grisebach.

Rondeletia correifolia GRISEBACH, Catalogus Plantarum Cubensium, 1866, p. 129.

Near Nueva Gerona, December 8, 1903, and March 2, 1904, *A. H. Curtiss, No. 214;* low ground along river south of Nueva Gerona, May 12, 1910, *O. E. Jennings, No. 203a;* Caleta Grande, "South Coast," May 22, 1910, *O. E. Jennings, No. 600;* northern part of the island, *Blain, Nos. 153, 163* (Millspaugh). General Distribution: Western Cuba and the Isle of Pines.

The original description says of the corolla: "corolla tomentosa breviter exserta." In the Curtiss specimen, however, the corolla has a tube about 12–15 mm. long, protruding from a calyx of only about 6–8 mm. in length. Otherwise the specimens agree with the description very well.

672. **Exostema ellipticum** Grisebach.

Exostema ellipticum GRISEBACH, Memoirs American Academy of Arts and Sciences, VIII, 1862, p. 504.

Northern part of the island, *Blain, No. 12* (Millspaugh). General Distribution: Cuba and the Isle of Pines.

673. **Cephalanthus occidentalis** var. **salicifolius** (Humboldt & Bonpland) Gray.

Cephalanthus salicifolius HUMBOLDT & BONPLAND, Plantes Equinoxiales, 1808, Pl. 98.

Cephalanthus occidentalis var. *salicifolius* GRAY, Synoptical Flora of North America, I, 1886, p. 29.

Northern part of the island, *Blain, No. 89* (Millspaugh). General Distribution: Mexico, Cuba, and the Isle of Pines.

674. **Gonzalea leptantha** A. Richard.

Gonzalea leptantha A. RICHARD, in Sagra, Historia Fisica, Politica y Natural de la Isla de Cuba, XI, 1850, p. 16.

Near Nueva Gerona, January 26 and April 24, 1904, *A. H. Curtiss, No. 313.* General Distribution: Cuba and the Isle of Pines.

675. **Coccocypselum nummulariæfolium** Chamisso & Schlechtendal.

Coccocypselum nummulariæfolium CHAMISSO & SCHLECHTENDAL, Linnæa, IV, 1829, p. 145.

Near Nueva Gerona, January 9, 1904, *A. H. Curtiss, No. 282;* between Los Indios and La Cañada Mts., May 18, 1910, *O. E. Jen-*

nings, No. 352; probably near Columbia, February–March, 1910, *Jared F. Shafer* (fruit ripe). General Distribution: Southern Mexico, Brazil, Guiana, Trinidad, Cuba, and the Isle of Pines.

676. **Randia mitis** Linnæus.

Randia mitis LINNÆUS, Species Plantarum, I, Ed. I, 1753, p. 213.
Gardenia randia var. *mitis* SWARTZ, Flora Indiæ Occidentalis, 1797, p. 528.
Randia latifolia var. *mitis* DECANDOLLE, Prodromus Systematis Naturalis Regni Vegetabilis, IV, 1828, p. 385.

Between Bogarona and Caleta Grande, South Coast, May 22, 1910, *O. E. Jennings, No. 488.* General Distribution: Probably well distributed in the West Indies along with *Randia aculeata* Linnæus, of which species it may be merely a thornless and somewhat wider-leaved form.

677. **Genipa americana** Linnæus. JAGUA. GENIP TREE.

Genipa americana LINNÆUS, Systema Naturæ, Ed. X, II, 1759, p. 931.

A specimen collected somewhere in the northeastern quarter of the island, probably near Columbia, in February, 1910, by Dr. J. F. Shafer. General Distribution: Quite generally distributed in the West Indies and in tropical South America.

The species is a forest tree reaching a height of fifty feet or more. It is frequently cultivated for the sake of the fruit, which often reaches a length of four or five inches and is much used in some places in making a refreshing drink. The fruit is sometimes eaten but is not very highly esteemed, being said to contain a large amount of tannic acid.

678. **Amaioua fagifolia** Desfontaines.

Amaioua fagifolia DESFONTAINES, Mémoires du Muséum d'Histoire Naturelle, Paris, VI, 1820, p. 14, t. 5.

Near Nueva Gerona, February 23 (fruit) and April 11 (flowers) 1904, *A. H. Curtiss, No. 363.* General Distribution: West Indies and continental tropical America.

679. **Alibertia edulis** A. Richard.

Genipa edulis L. C. RICHARD, Actes de la Société d'Histoire Naturelle de Paris, 1792, p. 107.
Alibertia edulis A. RICHARD, Mémoires de la Société d'Histoire Naturelle de Paris, V, 1830, p. 234, Pl. 21, fig. 1.
Gardenia edulis POIRET, Encyclopédie Méthodique, Supplementa in Dictionnaire de Botanique, II, p. 708.

Near Nueva Gerona, February 11, 1904, *A. H. Curtiss, No. 338.*

General Distribution: Southern Mexico to Guiana, and Brazil; the Isle of Pines and Cuba.

680. **Hamelia patens** Jacquin.

Hamelia patens JACQUIN, Enumeratio Plantarum Quas in Insulis Caribæis Detexit, 1760, p. 16.

Pedernales Point, February 16, 1899, *C. F. Millspaugh, No. 1412* (Millspaugh). General Distribution: Florida, Bahamas, the West Indies, southward to Peru and Brazil.

681. **Hamelia erecta** Jacquin.

Hamelia erecta JACQUIN, Stirpium Americanarum Historia, 1763, p. 71.

Along the bank of the upper part of the Los Indios River, May 18, 1910, *O. E. Jennings, No. 673.* General Distribution: Northern South America and the West Indies.

This species is by some botanists regarded as a variety of the more widely distributed *Hamelia patens* Jacquin, the main differential characters between the two species being the more spreading cymes of *patens* and the erect cymes of *erecta*.

682. **Guettarda calyptrata** A. Richard.

Guettarda calyptrata A. RICHARD, in Sagra, Historia Fisica, Politica y Natural de la Isla de Cuba, XI, 1850, p. 21, Pl. 46.

Near Nueva Gerona, May 20, 1904, *A. H. Curtiss, No. 504;* northern part of the island, *Blain, No. 147* (Millspaugh). General Distribution: Western Cuba and the Isle of Pines.

683. **Antirrhœa tenuiflora** Urban.

Antirrhœa tenuiflora URBAN, Symbolæ Antillanæ, I, 1900, p. 438.

Along bank of river at Sante Fé, May 24, 1910, *O. E. Jennings, No. 564.* General Distribution: Western Cuba and the Isle of Pines.

The specimens were taken from a shrub about seven feet high, with 4-merous, salver-form, lemon-yellow flowers.

684. **Machaonia trifurcata** Urban.

Machaonia cymosa GRISEBACH, Flora of the British West Indian Islands, 1861, p. 348, as to Cuban specimens. See BRITTON, Bulletin of the Torrey Botanical Club, XLIII, 1916, p. 453.

Machaonia trifurcata URBAN, Symbolæ Antillanæ, V, 1908, p. 512.

Northern part of the island, *Blain, No. 44* (Millspaugh). General Distribution: Cuba, the Isle of Pines, and Jamaica.

685. **Machaonia littoralis** Britton.

Machaonia littoralis BRITTON, Studies of West Indian Plants, VIII, Bulletin of the Torrey Botanical Club, XLIII, 1916, pp. 452, 453.

"Coastal thickets, vicinity of Siguanea, Isle of Pines, Cuba (Britton & Wilson 14942)."—Britton, *l. c.* Collected during the spring of 1916. The species is known only from this locality.

686. **Chiococca alba** (Linnæus) Hitchcock.

Lonicera alba LINNÆUS, Species Plantarum, I, Ed. I, 1753, p. 175.

Chiococca racemosa LINNÆUS, Systema Naturæ, II, Ed. X, 1759, p. 917.

Chiococca alba HITCHCOCK, Report of the Missouri Botanical Garden, IV, 1893, p. 94.

A small tree about ten feet high, Sante Fé, May 25, 1910, *O. E. Jennings, No. 568.* General Distribution: From Bermuda and southern Florida south through the West Indies and tropical continental America. Berries pure white.

687. **Strumpfia maritima** Jacquin.

Strumpfia maritima JACQUIN, Enumeratio Plantarum Quas in Insulis Caribæis Detexit, 1760, p. 28.

"Plentiful on maritime rocks in the zone of spray, where it grows from the driest crevices, Pedernales Point, Isle of Pines."—Millspaugh, *Field Columbian Museum, Botanical Series*, II, 1900, p. 102. General Distribution: On sandy or rocky coasts, in the Bahamas, and rather widely distributed in the West Indies.

688. **Psychotria involucrata** Swartz.

Psychotria involucrata SWARTZ, Prodromus Descriptionum Vegetabilium Indiæ Occidentalis, 1788, p. 45.

Psychotria tribracteata C. WRIGHT, in Grisebach, Catalogus Plantarum Cubensium, 1866, p. 137.

Bank of the Majagua River north of Los Indios, May 19, 1910, *O. E. Jennings, No. 414.* General Distribution: Western Cuba and the Isle of Pines, Jamaica, Porto Rico, Trinidad, and from Guatemala to Brazil and Peru.

689. **Psychotria pubescens** Swartz.

Psychotria pubescens SWARTZ, Prodromus Descriptionum Vegetabilium Indiæ Occidentalis, 1788, p. 44.

Psychotria Berteriana BELLO, Anales de la Sociedad Española de Historia Natural, I, 1881, p. 281, n. 397, not DeCandolle.

Along upper Los Indios River, May 18, 1910, *O. E. Jennings, No. 687;* bank of stream near magnesia springs, Sante Fé, May 26, 1910, *O. E. Jennings, No. 575.* General Distribution: The Bahamas, Cuba, the Isle of Pines, Porto Rico, Hispaniola, Jamaica, St. Thomas, St. Kitts, Mexico, and Central America.

A scraggly shrub about five feet in height, with greenish-yellow flowers.

690. **Psychotria undata** Jacquin.

Psychotria undata JACQUIN, Plantarum Rariorum Horti Cæsarei Schœnbrunnensis Descriptiones, etc., III, 1798, p. 5, Pl. 260.

Psychotria lanceolata NUTTALL, American Journal of Science, Ser. I, V, 1822, p. 290, not Sauvalle.

Psychotria oligotricha DECANDOLLE, Prodromus Systematis Naturalis Regni Vegetabilis, IV, 1830, p. 514.

Psychotria portoricensis DECANDOLLE, *op. cit.*, p. 515.

On soil derived from coralline limestone, near Caleta Grande, May 22, 1910, *O. E. Jennings, No. 478;* same locality and date, *No. 522;* Pedernales Point, February 16, 1899, *C. F. Millspaugh* (Millspaugh). General Distribution: From the Bermudas and Florida south through the West Indies, and in Central America, Colombia, and Venezuela.

Flowers light yellow or cream-colored.

691. **Psychotria revoluta** P. DeCandolle.

Psychotria revoluta P. DECANDOLLE, Prodromus Systematis Naturalis Regni Vegetabilis, IV, 1830, p. 517.

Guettarda resinosa A. RICHARD, in Sagra, Historia Fisica, Politica y Natural de la Isla de Cuba, XI, 1850, p. 21. Not Persoon.

Psychotria tubulosa A. RICHARD, *op. cit.*, p. 27.

Psychotria coronata GRISEBACH, Memoirs American Academy of Arts and Sciences, Ser. II, VIII, 1862, p. 508.

Uragoga tubulosa G. MAZA, Anales Sociedad Española de Historia Natural, Ser. II, III, 1894, p. 293.

In dry savanna among palmettoes, near Nueva Gerona, May 5, 1910, *O. E. Jennings, No. 10;* along arroyo east of Los Indios, May 18, 1910, *O. E. Jennings, No. 348;* northern part of the island, *Blain, Nos. 15, 28, 154, 183* (Millspaugh); also 1831, *A. H. Lanier* (A. Richard, *l. c.*). General Distribution: Cuba and the Isle of Pines.

The flowers are white.

692. **Psychotria Sauvallei** Urban.

Faramea erythrocarpa GRISEBACH, Catalogus Plantarum Cubensium, 1866, p. 134. Not *Psychotria erythrocarpa* Schlechtendal.

Psychotria laurifolia SAUVALLE, Flora Cubana, 1869, n. 1074, p. 69 (in part). Not Swartz.

Psychotria Sauvallei URBAN, Symbolæ Antillanæ, VII, 1913, pp. 454–455.

Near Nueva Gerona, January 12, and June, 1904, *A. H. Curtiss, No. 287.* General Distribution: Cuba and the Isle of Pines.

Urban (*l. c.*) regards the Cuban plants as the typical form of the species, specimens from the Isle of Pines being larger as to leaves and length of peduncles.

693. **Palicourea crocea** (Swartz) Roemer & Schultes.

Psychotria crocera SWARTZ, Prodromus Descriptionum Vegetabilium Indiæ Occidentalis, 1788, p. 44.

Palicourea crocea ROEMER & SCHULTES, Systema Vegetabilium, V, 1819, p. 193.

Palicourea coccinea DECANDOLLE, Prodromus Systematis Naturalis Regni Vegetabilis, IV, 1830, p. 529.

A shrub four feet in height, flowers red, along bank of river at Los Indios, May 19, 1910, *O. E. Jennings, No. 413.* General Distribution: Greater Antilles, Dominica, Martinique, Grenada, Trinidad, Colombia, Bolivia.

694. **Palicourea elongata** Britton & Wilson.

Palicourea elongata BRITTON & WILSON, in Britton, Studies of West Indian Plants, VIII, Bulletin of the Torrey Botanical Club, XLIII, 1916, p. 468.

In arroyo, in pine-barrens near Los Indios, May 17, 1910, *O. E. Jennings, No. 332;* "Arroyo, Las Tunas (*Britton & Wilson 14749,* type); Arroyo, vicinity of San Pedro (*Britton & Wilson 15785*)" Britton, *l. c.* The Britton & Wilson collections were made in the spring of 1916. General Distribution: In arroyos, southern and central parts of the Isle of Pines.

695. **Faramea occidentalis** (Linnæus) A. Richard.

Ixora occidentalis LINNÆUS, Systema Naturæ, Ed. X, II, 1759, p. 893.

Coffea occidentalis JACQUIN, Enumeratio Plantarum Quas in Insulis Caribæis Detexit, 1760, p. 16.

Ixora americana LINNÆUS, I, Ed. II, 1762, p. 160. In part.

Faramea odoratissima DECANDOLLE, Prodromus Systematis Naturalis Regni Vegetabilis, IV, 1830, p. 496.

Faramea occidentalis A. RICHARD, Mémoires de la Société d'Histoire Naturelle de Paris, V, 1834, p. 176.

Northern part of the island, *Blain, No. 19* (Millspaugh). General Distribution: Throughout the West Indies, and from Mexico through Central America to northern South America.

696. **Morinda Roioc** Linnæus.

Morinda Roioc LINNÆUS, Species Plantarum, I, Ed. I, 1753, p. 176.

A clambering shrub resembling a *Lonicera*, on side of ridge at Bibijagua, May 7, 1910, *O. E. Jennings, No. 125;* in everglade meadow at mouth of Nuevas River, May 16, 1910, *O. E. Jennings, No. 285;* in swampy ground along river south of Nueva Gerona, May 12, 1910, *O. E. Jennings, No. 213;* shrubby, about ten feet in height, between Bogarona and Caleta Grande, "South Coast," May 22, 1910, *O. E. Jennings, No. 518;* northern part of the island, *Blain, No. 146* (Millspaugh); Pedernales Point, February 16, 1899, *C. F. Millspaugh, No. 1411* (Millspaugh). General Distribution: Southern Florida, Greater Antilles, and from Central America to Brazil.

697. **Diodia rigida** Chamisso & Schlechtendal.

Diodia rigida CHAMISSO & SCHLECHTENDAL, Linnæa, III, 1828, p. 341.

Spermacoce rigida HUMBOLDT, BONPLAND, & KUNTH, Nova Genera et Species Plantarum, III, 1818, p. 342.

Near Nueva Gerona, December 26, 1903, *A. H. Curtiss, No. 256.* General Distribution: The West Indies and South America as far as Uruguay.

698. **Diodia ciliata** Britton & Wilson.

Diodia ciliata BRITTON & WILSON, in Britton, Studies of West Indian Plants, Bulletin of the Torrey Botanical Club, XLIII, 1916, p. 467.

"In white sand, vicinity of Los Indios (*Britton & Wilson 15347*)" Britton, *l. c.* This specimen was collected in the spring of 1916. Other specimens, formerly identified by the writer as *Diodia rigida*, but probably belonging rather to *Diodia ciliata* are as follows: Cultivated ground south of Nueva Gerona on Keenan's estate, May 9, 1910, *O. E. Jennings, No. 165;* dry savanna south of Sante Fé, May 25, 1910, *O. E. Jennings, No. 542;* near Nueva Gerona, June 12, 1912, *G. A. Link;* and Los Indios, November 4, 1912, *G. A. Link.* This species is known only from the Isle of Pines and is evidently mainly limited to the areas of white sand and to dry portions of the savanna. It is perhaps too closely related to *Diodia rigida*, if the writer properly understands the two species.

699. **Diodia arenicola** Britton & Wilson.

Diodia arenicola BRITTON & WILSON, in Britton, Studies of West Indian Plants, Bulletin of the Torrey Botanical Club, XLIII, 1916, p. 467.

"Along arroyo, Los Indios, Isle of Pines (*O. E. Jennings 355* in part, type); vicinity of Los Indios (*Britton & Wilson 15812*)."—Britton, *l. c.* The specimen first mentioned was collected along an arroyo near the headwaters of the Los Indios River, near the Cañada Mts., May 18, 1910; the Britton & Wilson specimen was collected in the spring of 1916. The species is known only from the Los Indios region, Isle of Pines.

700. **Borreria podocephala** DeCandolle.

Borreria podocephala DECANDOLLE, Prodromus Systematis Naturalis Regni Vegetabilis, IV, 1830, p. 542.

Spermacoce podocephala GRAY, Synoptical Flora of North America, I, 1886, p. 34.

Near Nueva Gerona, January 6, 1904, *A. H. Curtiss, No. 295;* Fields at Los Indios, May 19, 1910, *O. E. Jennings, No. 425;* field, Nueva Gerona, May 6, 1910, *O. E. Jennings, No. 670;* northern part of the island, *Blain, No. 56* (Millspaugh). General Distribution: From southern Florida, Texas, and Mexico, south through the West Indies.

701. **Borreria lævis** (Lamarck) Grisebach.

Spermacoce lævis LAMARCK, Illustrations des Genres, 1791, no. 1435, Pl. 94, fig. 2.

Borreria Wydleriana DECANDOLLE, Prodromus Systematis Naturalis Regni Vegetabilis, IV, 1830, p. 535.

Borreria lævis GRISEBACH, Abhandlungen d. Königlichen Gesellschaft Wiss. Göttingen, VII, 1857, p. 231, no. 723.

In park at the magnesia springs, Sante Fé, May 26, 1910, *O. E. Jennings, No. 571.* General Distribution: Widely distributed as a weed in the Bermudas, the Bahamas, the West Indies, and the continental American tropics.

702. **Borreria ocimoides** (Burmann, Filius) DeCandolle.

Spermacoce ocymoides BURMANN, FILIUS, Flora Indica, 1768, p. 34.

Borreria parviflora G. F. W. MEYER, Primitæ Floræ Essequeboensis, 1818, p. 83.

Borreria ocimoides DECANDOLLE, Prodromus Systematis Naturalis Regni Vegetabilis, IV, 1830, p. 544.

Spermacoce parviflora HEMSLEY, Biologia Centrali-Americana, II, 1881, p. 59. (Urban.)

Near Nueva Gerona, January 17, 1904, *A. H. Curtiss, No. 296;* moist bank of the Majagua River, north of Los Indios, May 19, 1910, *O. E. Jennings, No. 407.* General Distribution: Common, as a weed, from Cuba and Mexico, south through the West Indies and continental tropical America to northern Argentina.

703. **Borreria strumpfioides** C. Wright.

Borreria strumpfioides C. WRIGHT, in Grisebach, Catalogus Plantarum Cubensium, 1866, p. 142.

On sandy plain near the Siguanea hills, May 21, 1910, *O. E. Jennings, No. 457.* General Distribution: Western Cuba and the Isle of Pines.

704. **Borreria pygmæa** (C. Wright) Spruce & K. Schumann.

Spermacoce pygmæa C. WRIGHT, in Sauvalle, Flora Cubana, 1868, p. 72.

Borreria pygmæa SPRUCE & K. SCHUMANN, in Martius, Flora Brasiliensis, VI, (6), 1888, p. 58.

Dry savanna east of Nueva Gerona, May 5, 1910, *O. E. Jennings, No. 25.* General Distribution: Cuba and the Isle of Pines.

705. **Mitracarpum depauperatum** Britton & Wilson.

Mitracarpum depauperatum BRITTON & WILSON, in Britton, Studies of West Indian Plants, VIII, Bulletin of the Torrey Botanical Club, XLIII, 1916, pp. 467, 468.

"Dry white sand, central districts; type from near Los Indios (*Britton & Wilson 14197*)."—Britton, *l. c.*

Family CUCURBITACEÆ.

Leaves subcordate-roundish, angled or slightly lobed; stamens 5.
706. *Fevillea cordifolia.*

Leaves not roundish or else deeply lobed; stamens mostly 3.
Anthers straight or not much curved.....707. *Melothria guadalupensis.*
Anthers contorted or U-shaped.....708. *Momordica Charantia.*

706. **Fevillea cordifolia** Linnæus.

Fevillea cordifolia LINNÆUS, Species Plantarum, 1753, p. 1013.

Northern part of the island, *Blain, No. 119* (Millspaugh). General Distribution: Cuba, the Isle of Pines, Jamaica, Hispaniola, Porto Rico, Guadeloupe, Martinique, Trinidad, and the tropics of South America.

707. **Melothria guadalupensis** (Sprengel) Cogniaux.

Bryonia guadalupensis SPRENGEL, Systema Vegetabilium, III, 1826, p. 15.

Melothria pervaga GRISEBACH, Flora of the British West Indian Islands, 1860, p. 289.

Melothria guadalupensis COGNIAUX, in DeCandolle, Monographiæ Phanerogamarum, III, 1881, p. 580.

Along bank of the Majagua River, north of Los Indios, May 19, 1910, *O. E. Jennings, No. 416;* near Nueva Gerona, June 3, 1912,

G. A. Link. General Distribution: The Bahamas and the West Indies, generally; Mexico, Venezuela, and Guiana.

708. **Momordica Charantia** Linnæus. BALSAM APPLE.

Momordia Charantia LINNÆUS, Species Plantarum, 1753, p. 1009.

Near magnesia springs, Sante Fé, May 26, 1910, *O. E. Jennings, No. 577;* near Nueva Gerona, June 3, 1912, *G. A. Link.* General Distribution: Tropics and subtropics of both hemispheres; in America extending north to Florida and the Bahamas. Probably introduced into America from the Old World.

Family CAMPANULACEÆ.

709. **Isotoma longiflora** (Linnæus) Presl.

Lobelia longiflora LINNÆUS, Species Plantarum, 1753, p. 930.
Isotoma longiflora PRESL, Prodromus Monographiæ Lobeliacearum, Abhandlungen der Königlich-Böhmische Gesellschaft der Wissenschaften, 1836, p. 42.

Along bank of arroyo between Los Indios and the Cañada Mts., May 18, 1910, *O. E. Jennings, No. 349.* General Distribution: Rather general in the West Indies.

A rather striking plant with the general aspect of an Evening Primrose (*Œnothera*) but with white flowers with a slender corolla-tube reaching a length of six inches. The flowers were quite strongly sweet-scented when collected.

Family GOODENIACEÆ.

710. **Scævola Plumierii** (Linnæus) Vahl.

Lobelia Plumierii LINNÆUS, Species Plantarum, 1753, p. 929.
Scævola Lobelia MURRAY, Linnæi Systema Vegetabilium, Ed. XIII, 1774, p. 178.
Scævola Plumierii VAHL, Symbolæ Botanicæ, II, 1791, p. 36.

A low plant on the strand at Bibijagua, May 7, 1910, *O. E. Jennings, No. 113.* General Distribution: Tropical regions of both hemispheres, extending north in America to Florida, the Bahamas, and the Bermudas.

Family COMPOSITÆ.

KEY TO THE SPECIES ENUMERATED.

None of the perfect flowers bilabiate.
Stigmatic lines not extending above the middle of the stigmas.
Stigmas filiform or subulate, hispidulous..... (Tribe I. *Vernonieæ*)
Stigmas more or less club-shaped, papillose-puberulent.
(Tribe II. *Eupatorieæ*)

Stigmatic lines extending to the tips of the stigmas or to the appendages.
Anther-sacs tailed at the base..... (Tribe IV. *Inuleæ*)
Anther-sacs not tailed at the base.
Receptacle naked.
Bracts of the involucre well imbricated.
Stigmas of the perfect flowers with terminal appendages.
(Tribe III. *Astereæ*)
Stigmas of the perfect flowers with truncate or hairy or papillose tips..... (Tribe V. *Heleniеæ*)
Bracts of the involucre little imbricated, except when broad outer ones overlap the inner..... (Tribe VII. *Senecioneæ*)
Receptacle chaffy..... (Tribe VI. *Helianthеæ*)
All flowers, or at least the perfect ones, bilabiate..... (Tribe VIII. *Mutisieæ*)

Tribe I. VERNONIEÆ.

Heads discoid; the flowers all perfect and tubular, never yellow. Branches of the style long, terete, filiform, minutely bristly-hairy all over. Leaves alternate or rarely whorled, never opposite.
Heads not condensed into glomerules.
Pappus consisting of a thickened ring without bristles.
711. *Sparganophorus Vaillantii.*
Pappus double; with inner hair-like bristles and outer shorter scales or bristles.
712. *Lachnorhiza piloselloides.*
Heads few-flowered, condensed into glomerules.
Pappus 1–2-serial, of scaly bristles dilated at the base.
Cauline leaves linear, 2–4 cm. long, 1 mm. broad, entire.
714. *Elephantopus arenarius.*
Cauline leaves larger, oblong, somewhat crenate-serrate.
713. *Elephantopus mollis.*
Pappus 1-serial, unequal, with several or the stouter bristles bent towards the summit.....715. *Distreptus spicatus.*

Tribe II. EUPATORIEÆ.

Heads discoid; the flowers all tubular and perfect, never yellow. Branches of the style thickened upward or club-shaped, uniformly minutely pubescent; stigmatic lines indistinct.
Anthers without appendages.....716. *Phania matricarioides.*
Anthers appendaged.
Pappus none (abortive).....717. *Alomia ageratoides.*
Pappus consisting of a series of nearly free more or less laciniate-tipped scales.
718. *Ageratum maritimum.*
Pappus consisting of hairs or bristles.
Involucre of more than 4 bracts, 5- (or more) flowered.
Leaves finely dissected.....720. *Eupatorium capillifolium.*
Leaves entire or repand-toothed.....719. *Eupatorium villosum.*
Involucre mostly of 4 bracts, sometimes with an outer short one (*Mikania*).
Leaves entire, dentate or incised-lobed.....721. *Mikania scandens.*
Leaves tripartite up to trifoliate.

Leaves 3-partite, the intermediate lobe lance-ovate to lanceolate, gradually acuminate.....722. *Mikania ranunculifolia.*
Leaves trisected to three-foliolate, the intermediate lobe lanceolate to sub-linear.....723. *Mikania corydalifolia.*

Tribe III. ASTEREÆ.

Heads discoid or radiate, the rays pistillate. Anthers not tailed at base. Branches of the style of the perfect flowers flat, smooth up to end of marginal stigmatic lines, then above this more or less hairy. Leaves alternate. Receptacle with no chaff.

Ray-flowers longer than the involucre and disk-flowers.
Bracts of the involucre in three or more series; rays oblong; scapes simple.
724. *Aster Grisebachii.*
Bracts of the involucre in two or three series; rays linear; scapose stems slender and mostly branched.
Basal leaves mostly 2–4 cm. long, spatulate, narrowed to the base but not distinctly petiolate.....725. *Erigeron cuneifolius.*
Basal leaves with blades 1–2 cm. long, the petioles purple, very slender, and 2–4 times as long as the blades.....726. *Erigeron purpuripes.*
Ray-flowers shorter than the head or flowers without well-marked ligule; erect, branching stems with the leaves lyrate and more or less pinnately lobed, especially the lower ones.....727. *Conyza lyrata.*

Tribe IV. INULEÆ.

Heads discoid, the pistillate flowers mostly filiform and truncate. Anthers sagittate-tailed at base. Style branches with obtuse or truncate mostly naked tips. Pappus capillary or none.

Style-branches tapering and hairy outside for a good portion of their length.
Leafy stemmed plants (*Pluchea*).
Perennial plants.
Stems woody; leaves entire.....728. *Pluchea odorata.*
Stems herbaceous; leaves serrate.....729. *Pluchea fœtida.*
Annuals.
Involucres 3–4 mm. wide by 3.5–5 mm. high.
730. *Pluchea purpurascens.*
Involucres 5–7 mm. wide by 6–8 mm. high....731. *Pluchea camphorata.*
Leaves in a basal rosette.....732. *Sachsia polycephala.*
Style-branches truncate, with an apical tuft of hairs.
733. *Gnaphalium purpureum.*

Tribe V. HELENIEÆ.

Heads radiate or discoid; often yellow. Anthers not tailed. Receptacle naked. Stigmas truncate or with hairy tips. Bracts of the involucre usually well imbricated.

Plant tissues usually without oil-glands.
Bracts of the involucre appressed, flowers numerous, corymbose.
750. *Flaveria linearis.*
Involucral bracts spreading or reflexed, flowers single on a scape.
751. *Helenium scaposum.*

Plant tissues with oil glands in leaves and involucral bracts; flowers small, in cymes.
Pappus scales uniformly setiform.....752. *Pectis elongata.*
Pappus scales irregularly broadly scale-like to basally scale-like and upwardly bristle-form.....753. *Pectis Swartziana.*

Tribe VI. HELIANTHEÆ.

Heads radiate or discoid. Involucre usually not scarious. Receptacle chaffy (none in *Pinillosia* and *Heptanthus*). Anthers not caudate. Pappus never capillary.
No chaff on receptacle.
Pistillate flowers without corolla.....734. *Pinillosia Berterii.*
Pistillate flowers with corolla.
Leaf-blades glabrous above or merely puberulent.
735. (*Heptanthus cochlearifolius*).
Leaf-blades pubescent on both surfaces....735. *Heptanthus ranunculoides.*
Chaff present on receptacle.
Marginal flowers pistillate with tubular or obsolete corollas; disk-flowers perfect but unfruitful.
Heads with two kinds of flowers.....738. *Iva cheiranthifolia.*
Heads either all pistillate or all staminate.....739. *Ambrosia hispida.*
Ray-flowers fertile and ligulate, disk-flowers sterile.
Achene cylindric or angled.....736. *Acanthospermum humile.*
Achene compressed parallel to the involucral scales.
737. *Parthenium Hysterophorus.*
Disk-flowers fertile.
Pappus consisting of scales or a crown of stiff retrorsely barbed bristles.
Achenes not compressed, or, if so, laterally.
Inner involucral scales enveloping the achenes of the ray-flowers.
740. *Enydra sessilis.*
Inner involucral scales flat.
Chaff awn-like.....741. *Eclipta alba.*
Chaff broad, sometimes enclosing the flowers, but never the ripe fruit.
Disk-achenes 4–5-angled, or rarely laterally compressed.
Pappus obsolete.....742. *Isocarpha divaricata.*
Pappus consisting of a short irregular or toothed crown.
Ray-flowers pistillate, fertile.
Shrubs with acutely 4-angled achenes.
743. *Borrichia arborescens.*
Herbaceous with achenes not at all or only obtusely angled.....744. *Wedelia trilobata.*
Ray-flowers unfertile or obsolete.
745. *Eleutheranthera ruderalis.*
Pappus of easily deciduous short, thin bristles.
746. *Melanthera angustifolia.*
Achenes strongly compressed parallel to the involucral scales.
748. *Bidens leucantha.*
Pappus consisting of plumose bristles.....749. *Tridax procumbens.*

Tribe VII. SENECIONEÆ.

Heads radiate or discoid. Involucre little or not at all imbricated. Anthers without tails. No chaff on receptacle, or occasionally present. Pappus capillary.

Receptacle with chaffy scales; involucre somewhat imbricate; half-shrubby herb with leaves partly trifid.....754. *Neurolæna lobata.*

Receptacle naked; involucre 1-seriate; annual herbs.

Heads whitish; stem erect, leaves sessile at the tapering base.
755. *Erechtites hieracifolia.*

Heads purplish; stem weak; lower leaves lyrate, the upper sagittate, clasping the stem.....756. *Emilia sonchifolia.*

Tribe VIII. MUTISIEÆ.

Heads various, usually some of the flowers with bilabiate corollas; anthers long-tailed at base; receptacle naked; style branches in the hermaphrodite flowers not appendaged and usually very short; scapose herbs with tufted radical leaves. whitish-canescent below.....757. *Chaptalia dentata,*

711. **Sparganophorus Vaillantii** Crantz.

Sparganophorus Vaillantii CRANTZ, Institutiones Rei Herbariæ, I, 1766, p. 261.
Ethulia sparganophora LINNÆUS, Species Plantarum, II, Ed. II, 1763, p. 1171.
Struchium sparganophorum O. KUNTZE, Revisio Generum Plantarum, I, 1891, p. 366.

Near Nueva Gerona, May 1, 1904, *O. E. Jennings, No. 478.* General Distribution: The West Indies, continental tropical America from Cuba and southern Mexico to Brazil; and tropical Africa.

712. **Lachnorhiza piloselloides** A. Richard.

Lachnorhiza piloselloides A. RICHARD, in Sagra, Historia Fisica, Politica y Natural de la Isla de Cuba, XI, 1850, p. 34.
Vernonia piloselloides HOFFMANN, in Engler & Prantl, Die Natürlichen Pflanzenfamilien, IV (V), 1894, p. 126.

Described by A. Richard (*l. c.*), from specimens collected by A. H. Lanier; northern part of the island, *Blain, No. 83* (Millspaugh); swamp north of Nueva Gerona, May 8, 1910, *O. E. Jennings, No. 138.* Flowers noted as "flesh-pink." General Distribution: The Isle of Pines.

Note.—"*Lachnorhiza asteroides* DC." is in the printed list of plants collected in the Isle of Pines by A. H. Curtiss. The writer has not seen this specimen, but ventures to think that the plant is *L. piloselloides* A. Rich.

713. **Elephantopus mollis** Humboldt, Bonpland, & Kunth.

Elephantopus mollis HUMBOLDT, BONPLAND, & KUNTH, Nova Genera et Species Plantarum, IV, 1820, p. 26.

Elephantopus scaber BELLO, Anales de la Sociedad Española de Historia Natural, X, 1881, p. 283, no. 418. Not Linnæus.

Near Nueva Gerona, January 12, 1904, *A. H. Curtiss, No. 286.* General Distribution: From Cuba and Lower California to South America.

714. **Elephantopus arenarius** Britton & Wilson.

Elephantopus arenarius BRITTON & WILSON, in Britton, Studies of West Indian Plants, Bulletin of the Torrey Botanical Club, XLIII, 1916, p. 468.

"White sand, vicinity of Los Indios (*Britton & Wilson 14206*)" Britton, *l. c.* Collected in the spring of 1916. Known only from the type locality.

715. **Distreptus spicatus** (Jussieu) Cassini.

Elephantopus spicatus JUSSIEU, Histoire des Plantes de la Guiane Francaise, II, 1775, p. 808.

Pseudoelephantopus spicatus ROHR, Skrivter Naturhistorie-Selskab, Kjöbenhavn, II, 1792, p. 213.

Distreptus spicatus CASSINI, Dictionnaire des Sciences Naturelles, XIII, 1819, p. 367.

Elephantopus glaber SESSÉ & MOÇINO, Flora Mexicana, II, 1894, p. 197.

Near Nueva Gerona, December 14, 1903, *A. H. Curtiss, No. 225.* General Distribution: The West Indies and continental tropical America from central Mexico to South America.

716. **Phania matricarioides** (Lessing) Grisebach.

Ageratum matricarioides LESSING, Synopsis Generum Compositarum, 1832, p. 155.

Phania matricarioides GRISEBACH, Catalogus Plantarum Cubensium, 1866, p. 145.

Near Nueva Gerona, December 17, 1903, *A. H. Curtiss, No. 239;* "Crescit in *Isla de Pinos*," 1831, *A. H. Lanier.*—Reported by A. Richard, in Sagra, "Historia Fisica, Politica y Natural de la Isla de Cuba," XI, 1850, pp. 37, 38, under the name *Phania arbutifolia* DeCandolle. General Distribution: Cuba and the Isla of Pines.

717. **Alomia ageratoides** Humboldt, Bonpland, & Kunth.

Alomia ageratoides HUMBOLDT, BONPLAND, & KUNTH, Nova Genera et Species Plantarum, IV, 1820, p. 151.

Isle of Pines, evidently Pedernales Point, February 16, 1899, *C. F. Millspaugh, No. 1437.* General Distribution: Southern Mexico and the Isle of Pines.

718. **Ageratum maritimum** Humboldt, Bonpland, & Kunth (?).

Ageratum maritimum HUMBOLDT, BONPLAND, & KUNTH, Nova Genera et Species Plantarum, IV, 1820, p. 150.

Forming low mats on the beach at Siguanea City, May 21, 1910, *O. E. Jennings, No. 459.* General Distribution: Cuba, the Isle of Pines, and South America.

719. **Eupatorium villosum** Swartz.

Eupatorium villosum SWARTZ, Prodromus Descriptionum Vegetabilium Indiæ Occidentalis, 1788, p. 111.

Shrub about four feet high, in sand near the coast, north of Nueva Gerona, May 14, 1910, *O. E. Jennings, No. 251;* near Nueva Gerona, June, 1904, *G. A. Link.* General Distribution: Southern Florida, the Bahamas, Cuba, the Isle of Pines, Cayman, and Jamaica.

720. **Eupatorium capillifolium** (Lamarck) Small.

Artemisia capillifolia LAMARCK, Encyclopédie Méthodique, Botanique, I, 1783, p. 267.

Eupatorium fœniculaceum WILLDENOW, Species Plantarum, III, 1804, p. 1750.

Eupatorium capillifolium SMALL, Memoirs of the Torrey Botanical Club, V, 1894, p. 311.

Northern part of the island, *Blain, No. 103* (Millspaugh); "Among the coast shrubbery at Pedernales Point." (*Millspaugh, No. 1410,* Millspaugh, *Field Columbian Museum, Botany,* II, 1900, p. 105). General Distribution: Virginia to Florida, Cuba, and the Isle of Pines.

721. **Mikania scandens** (Linnæus) Willdenow.

Eupatorium scandens LINNÆUS, Species Plantarum, II, Ed. I, 1753, p. 836.

Mikania scandens WILLDENOW, Species Plantarum, III, 1804, p. 1743.

Mikania pubescens MUHLENBERG, Catalogus Plantarum Americæ Septentrionalis, 1813, p. 71.

Mikania orinocensis HUMBOLDT, BONPLAND, & KUNTH, Nova Genera et Species Plantarum, IV, 1820, p. 134.

Mikania spp. *cissampelina, Sieberiana, batatifolia, tamoides, congesta,* DECANDOLLE, Prodromus Systematis Naturalis Regni Vegetabilis, V, 1836, pp. 195–197.

Willoughbya cissampelina and *scandens* O. KUNTZE, Revisio Generum Plantarum, I, 1891, pp. 371–372.

Swampy woods at west base of Mt. Colombo, May 14, 1910, *O. E. Jennings, No. 266.* General Distribution: Common, and quite variable in form, from Canada to Argentina.

722. **Mikania ranunculifolia** A. Richard.

Mikania ranunculifolia A. RICHARD, in Sagra, Historia Fisica, Politica y Natural de la Isla de Cuba, XI, 1850, p. 45.

Willoughbya ranunculifolia MILLSPAUGH, Field Columbian Museum, Botany, II, 1900, p. 106.

This species is known only from the Isle of Pines. The type collection was made by A. H. Lanier about 1831 and the locality given by A. Richard (*l. c.*) is "Insula Pinorum (*isla de Pinos*)." It has been since collected as follows: Pedernales Point, February 16, 1899, *C. F. Millspaugh, No. 1421;* near Nueva Gerona, April 8, 1904, *A. H.* Curtiss, No. 439; north of Caleta Grande, South Coast, May 22, 1910, *O. E. Jennings, No. 603;* near Nueva Gerona, June 10, 1912, *G. A. Link.*

723. **Mikania corydalifolia** Grisebach.

Mikania corydalifolia GRISEBACH, Memoirs of the American Academy of Arts and Sciences, VIII, 1862, p. 512.

Eupatorium Borregoianum MAZA, Anales Sociedad Española Historia Natural, XIX, 1890, p. 270.

Willoughbya corydalifolia O. KUNTZE, Revisio Generum Plantarum, I, 1891, p. 372.

Swamp southwest of Bibijagua, May 7, 1910, *O. E. Jennings, No. 89.* General Distribution: Western Cuba and the Isle of Pines.

724. **Aster Grisebachii** Britton.

Haplopappus marginatus GRISEBACH, Catalogus Plantarum Cubensium, 1866, p. 149. Not *Aster marginatus* Humboldt, Bonpland, & Kunth.

Aster Grisebachii BRITTON, Bulletin of the Torrey Botanical Club, XLI, 1914, p. 14.

Near Nueva Gerona, March 13, 1904, *A. H. Curtiss, No. 404* (issued in "West Indian Plants" as *Aplopappus marginatus* Grisebach); forming small mats on the white sand in the pine-barrens at Los Indios, May 17, 1910, *O. E. Jennings, Nos. 311 and 318.* General Distribution: Pinar del Rio, Cuba, and the Isle of Pines.

See photograph, Plate XVI, taken by O. E. Jennings, in the pine-barrens one mile northeast of Los Indios, May 17, 1910.

725. **Erigeron cuneifolius** P. DeCandolle.

Erigeron jamaicensis SWARTZ, Observationes Botanicæ Quibus Plantæ Indiæ Occidentalis, 1791, p. 305, Pl. VIII, fig. II. Not Linnæus.

Erigeron cuneifolius P. DECANDOLLE, Prodromus Systematis Naturalis Regni Vegetabilis, V, 1836, p. 288.

Near Nueva Gerona, April 17, 1904, *A. H. Curtiss, No. 446;* in gravelly soil north of Los Indios, May 18, 1910, *O. E. Jennings, No. 388;* in pine-barrens near the Majagua River, north of Los Indios, May 19, 1910, *O. E. Jennings, No. 401;* dry savanna south of Sante Fé, May 25, 1910, *O. E. Jennings, No. 547.* General Distribution: Cuba, the Isle of Pines, Jamaica, Hispaniola, Porto Rico, St. Thomas, and St. Jan.

726. **Erigeron purpuripes** Britton & Wilson.

Erigeron purpuripes BRITTON & WILSON, in Britton, Studies of West Indian Plants, Bulletin of the Torrey Botanical Club, XLIII, 1916, p. 468.

"In white sand, vicinity of Los Indios (*Britton & Wilson 14207*)" Britton, *l. c.* Collected in the spring of 1916. Known only from the Isle of Pines.

727. **Conyza lyrata** Humboldt, Bonpland, & Kunth.

Conyza lyrata HUMBOLDT, BONPLAND, & KUNTH, Nova Genera et Species Plantarum, IV, 1820, p. 70.

Near Nueva Gerona, March 17, 1904, *A. H. Curtiss, No. 419;* in recently-cleared low ground, north of Nueva Gerona, May 8, 1910, *O. E. Jennings, No. 134.* General Distribution: The West Indies, and from Nicaragua to Ecuador.

728. **Pluchea odorata** (Linnæus) Cassini.

Conyza odorata LINNÆUS, Systema Naturæ, Ed. X, II, 1759, p. 1213. Excluding Plumier's plant with serrate leaves.

Pluchea odorata CASSINI, Dictionnaire des Sciences Naturelles, XLII, 1826, p. 3.

Pedernales Point, February 16, 1899, *C. F. Millspaugh, No. 1414* (Millspaugh). General Distribution: From Bermuda, the Bahamas, and Florida, southward through the West Indies, and from Mexico to Venezuela.

729. **Pluchea fœtida** (Linnæus) DeCandolle.

Baccharis fœtida LINNÆUS, Species Plantarum, 1753, p. 861.

Baccharis viscosa WALTER, Flora Caroliniana, 1788, p. 202.

Pluchea bifrons DECANDOLLE, Prodromus Systematis Naturalis Regni Vegetabilis, V, 1836, p. 45.

Pluchea fœtida DECANDOLLE, *op. cit.*, p. 452.

On low ground along the river south of Nueva Gerona, May 12, 1910, *O. E. Jennings, No. 636.* General Distribution: Swamps, from New Jersey south to Florida and Texas, and in the West Indies.

730. **Pluchea purpurascens** (Swartz) DeCandolle.

Conyza purpurascens SWARTZ, Prodromus Descriptionum Vegetabilium Indiæ Occidentalis, 1788, p. 112.

Pluchea purpurascens DECANDOLLE, Prodromus Systematis Naturalis Regni Vegetabilis, V, 1836, p. 452.

In rich soil in low recently-cleared land north of Nueva Gerona, May 8, 1910, *O. E. Jennings, No. 144;* "Crescit in insula Pinorum

(*isla de Pinos*)."—A. Richard, in Sagra, "Historia Fisica, Politica y Natural de la Isla de Cuba," XI, 1850, p. 48. General Distribution: From Florida, Bermuda, and the Bahamas, south through the West Indies, and from Georgia to Texas and Central America. Also western Africa.

731. **Pluchea camphorata** (Linnæus) DeCandolle.

Erigeron camphoratum LINNÆUS, Species Plantarum, II, Ed. II, 1763, p. 1212.
Conyza marilandica MICHAUX. Flora Boreali-Americana, II, 1803, p. 126.
Pluchea camphorata DECANDOLLE, Prodromus Systematis Naturalis Regni Vegetabilis, V, 1836, p. 451.

Opens, at Pedernales Point, February 16, 1899, *C. F. Millspaugh, No. 1440* (Millspaugh). General Distribution: In salt marshes from Massachusetts to Florida, Texas, Mexico, and the West Indies.

732. **Sachsia polycephala** Grisebach.

Sachsia polycephala GRISEBACH, Catalogus Plantarum Cubensium, 1866, p. 151.

Northern part of the island, *Blain, No. 38* (Millspaugh); in rich soil in low recently-cleared ground north of Nueva Gerona, May 8, 1910, *O. E. Jennings, No. 145;* near Nueva Gerona, March 11, 1904, *A. H. Curtiss, No. 400.* General Distribution: Western Cuba and the Isle of Pines.

733. **Gnaphalium purpureum** Linnæus. CUDWEED.

Gnaphalium purpureum LINNÆUS, Species Plantarum, 1753, p. 854.

Near Nueva Gerona, February 17, and March 7, 1904. *A. H. Curtiss, No. 349.* General Distribution: Maine to Kansas, Texas, Florida, Bermuda, the Isle of Pines, Jamaica, and Mexico. This is probably the basis for Urban's record for the Isle of Pines for *Gnaphalium indicum* Linnæus, but the blunt inner scales would seem to indicate *Gnaphalium purpureum.*

734. **Pinillosia Berterii** (Sprengel) Urban.

Tetranthus Berterii SPRENGEL, Systema Vegetabilium, III, 1826, p. 459.
Pinillosia tetranthoides P. DECANDOLLE, Prodromus Systematis Naturalis Regni Vegetabilis, V, 1836, p. 528.
Pinillosia Berterii URBAN, Symbollæ Antillanæ, V, 1907, p. 251.

Upper course of the Los Indios River, along the damp bank, May 18, 1910, *O. E. Jennings, No. 654.* General Distribution: Cuba, Santo Domingo, and the Isle of Pines.

735. **Heptanthus ranunculoides** Grisebach.

Heptanthus ranunculoides GRISEBACH, Catalogus Plantarum Cubensium, 1866, p. 148.

Heptanthus cochlearifolius WRIGHT, in Sauvalle, Flora Cubana, 1869, no. 1218, p. 79, in part.

Northern part of the island, *Blain, No. 57* (Millspaugh). General Distribution: Western Cuba and the Isle of Pines.

736. **Acanthospermum humile** (Swartz) DeCandolle.

Melampodium humile SWARTZ, Prodromus Descriptionum Vegetabilium Indiæ Occidentalis, 1788, p. 114.

Centrospermum humile LESSING, Synopsis Generum Compositarum, 1832, p. 217.

Acanthospermum humile DECANDOLLE, Prodromus Systematis Naturalis Regni Vegetabilis, V, 1836, p. 522.

Near Nueva Gerona, February 22, 1904, *A. H. Curtiss, No. 361.* General Distribution: Sandy shores and around seaports of southeastern U. S., the West Indies, and Central and South America.

737. **Parthenium Hysterophorus** Linnæus.

Parthenium Hysterophorus LINNÆUS, Species Plantarum, II, Ed. I, 1753, p. 988.

Near Nueva Gerona, May 22, 1904, *A. H. Curtiss, No. 509;* weed in roadway at Sante Fé, May 26, 1910, *O. E. Jennings, No. 641.* General Distribution: From the Bermudas and Florida southwards through the West Indies, and from Alabama and Texas through tropical continental America.

738. **Iva cheiranthifolia** Humboldt, Bonpland, & Kunth.

Iva cheiranthifolia HUMBOLDT, BONPLAND, & KUNTH, Nova Genera et Species Plantarum, IV, 1820, p. 276.

Along the coralline strand at Caleta Grande, South Coast, May 22, 1910, *O. E. Jennings, No. 489.* General Distribution: Cuba and the Isle of Pines.

739. **Ambrosia hispida** Pursh.

Ambrosia hispida PURSH, Flora Americæ Septentrionalis, 1814, p. 743.

Ambrosia crithmifolia DECANDOLLE, Prodromus Systematis Naturalis Regni Vegetabilis, V, 1836, p. 525.

Reported for Pedernales Point, February 16, 1899, by *C. F. Millspaugh* (*Field Columbian Museum, Botany*, II, 1900, p. 106. General Distribution: Florida, the West Indies, and Yucatan.

740. **Enydra sessilis** (Swartz) P. DeCandolle.

Eclipta sessilis SWARTZ, Prodromus Descriptionum Vegetabilium Indiæ Occidentalis, 1788, p. 114.

Enydra sessilis P. DECANDOLLE, Prodromus Systematis Naturalis Regni Vegetabilis, V, 1836, p. 637.

Near Nueva Gerona, May 1, 1904, *A. H. Curtiss, No. 477;* in low clearing north of Nueva Gerona, May 8, 1910, *O. E. Jennings, No. 141.* General Distribution: The Greater Antilles, Brazil, Uruguay, and Paraguay.

741. **Eclipta alba** (Linnæus) Hasskarl.

Verbesina alba LINNÆUS, Species Plantarum, II, Ed. I, 1753, p. 902.

Eclipta erecta LINNÆUS, Mantissa Plantarum, II, 1771, p. 286.

Eclipta procumbens MICHAUX, Flora Boreali-Americana, II, 1803, p. 129.

Eclipta alba HASSKARL, Plantæ Javanicæ Rariores, 1848, p. 528.

In black mucky soil at west base of Mt. Colombo, May 14, 1910, *O. E. Jennings, No. 263.* General Distribution: From the Bermudas, New York, and Nebraska, south through the West Indies and continental warmer parts of America; also in warmer parts of the Old World. This is a weedy plant, but it grows only in wet places.

742. **Isocarpha divaricata** Bentham.

Isocarpha divaricata BENTHAM, Voyage of the "Sulphur" Round the World, Botany, 1844, p. 110, Pl. 41.

Near Nueva Gerona, December 19, 1903, *A. H. Curtiss, No. 246.* General Distribution: The Isle of Pines, Guatemala, Nicaragua, Colombia, and Peru.

743. **Borrichia arborescens** (Linnæus) P. DeCandolle.

Buphthalmum arborescens LINNÆUS, Systema Naturæ, II, Ed. X, 1759, p. 1227.

Borrichia arborescens DECANDOLLE, Prodromus Systematis Naturalis Regni Vegetabilis, V, 1836, p. 489.

On strand at Bibijagua, May 7, 1910, *O. E. Jennings, No. 114;* on coralline strand at Caleta Grande, "South Coast," May 22, 1910, *O. E. Jennings, No. 490.* General Distribution: From Bermuda and southern Florida south through the West Indies, and in Yucatan.

744. **Wedelia trilobata** (Linnæus) Hitchcock.

Silphium trilobatum LINNÆUS, Systema Naturæ, II, Ed. X, 1759, p. 1233.

Wedelia carnosa L. C. RICHARD, Systema Vegetabilium, III, 1826, p. 581, excluding synonyms.

Wedelia trilobata HITCHCOCK, Report of the Missouri Botanical Garden, IV, 1893, p. 99.

Stemmodontia trilobata SMALL, Flora of the Southeastern U. S., 1903, p. 1262.

(For various other synonyms see Schultz, in Urban's Symbolæ Antillanæ, VII, 1911, pp. 96–97.)

Near Nueva Gerona, May 24, 1904, *A. H. Curtiss, No. 512;* in swampy place along river south of Nueva Gerona, May 12, 1910, *O. E. Jennings, No. 207;* near Nueva Gerona, June 10, 1912, *G. A. Link.* General Distribution: Widely distributed from the Bahamas and Florida through the West Indies, and from Honduras to Colombia.

745. **Eleutheranthera ruderalis** (Swartz) Schultz.

Melampodium ruderale SWARTZ, Flora Indiæ Occidentalis, III, 1806, p. 1372.

Ogiera ruderalis GRISEBACH, Memoirs of the American Academy of Arts and Sciences, VIII, 1862, p. 513.

Eleutheranthera ruderalis SCHULTZ, Botanische Zeitung, XXIV, 1866, pp. 165, 239.

Near Nueva Gerona, May 8, 1904, *A. H. Curtiss, No. 488;* on pine-barrens at Los Indios, May 19, 1910, *O. E. Jennings, Nos. 393, 394* (flowers yellow). General Distribution: From the Bahamas south through the West Indies, and from Panama to Brazil.

746. **Melanthera angustifolia** A. Richard.

Melanthera angustifolia A. RICHARD, in Sagra, Historia Fisica, Politica y Natural de la Isla de Cuba, XI, 1850, p. 54.

Described by A. Richard from specimens from the Isle of Pines (*l. c.*), collected by A. H. Lanier; fragmentary specimen from low spot in savanna near Nueva Gerona, May 5, 1910, *O. E. Jennings, No. 15.* General Distribution: So far as known to the writer the species is known only from the Isle of Pines, but it is perhaps best regarded as a variety of the *Melanthera lanceolata* Bentham, reported from Florida, Mexico, and some of the West Indies.

747. **Melanthera** sp.

In swampy spot in savanna east of Nueva Gerona, May 6, 1910, *O. E. Jennings, No. 48.*

748. **Bidens leucantha** (Linnæus) Willdenow.

Coreopsis leucantha LINNÆUS, Species Plantarum, II, Ed. II, 1763, p. 1282.

Bidens leucanthus WILLDENOW, Species Plantarum, III, 1803, p. 1719.

Bidens pilosus var. *leucanthus* O. KUNTZE, Revisio Generum Plantarum, I, 1891, p. 322.

Near Caleta Grande, on coralline-limestone soil, May 22, 1910, *O. E. Jennings, No. 497.* General Distribution: From the Bermudas, Florida, and Mexico, south through tropical America.

749. **Tridax procumbens** Linnæus.

Tridax procumbens LINNÆUS, Species Plantarum, II, Ed. I, p. 900.

Creeping on sand at the upper edge of the strand north of Nueva Gerona, May 14, 1910, *O. E. Jennings, No. 252.* General Distribution: From Florida and Mexico south through the West Indies and tropical continental America to northern South America.

750. **Flaveria linearis** Lagasca.

Flaveria linearis LAGASCA, Genera et Species Plantarum Quæ aut Novæ Sunt aut Nondum Recte Cognoscuntur, 1816, p. 33.

Flaveria maritima HUMBOLDT, BONPLAND, & KUNTH, Nova Genera et Species Plantarum, IV, 1820, p. 285.

Selloa nudata NUTTALL, American Journal of Science, V, 1822, p. 300.

Flaveria tenuifolia NUTTALL, Journal of the Academy of Natural Sciences, Philadelphia, VII, 1834, p. 81.

Gymnosperma nudatum DECANDOLLE, Prodromus Systematis Naturalis Regni Vegetabilis, V, 1836, p. 312.

On coralline strand, Caleta Grande, "South Coast," May 22, 1910, *O. E. Jennings, No. 503.* General Distribution; Florida, the Bahamas, Cuba, the Isle of Pines, and Yucatan.

751. **Helenium scaposum** Britton.

Helenium scaposum BRITTON, Studies of West Indian Plants, VIII, Bulletin of the Torrey Botanical Club, XLIII, 1916, p. 469.

In white sand of the pine-barrens, Los Indios, May 19, 1910, *O. E. Jennings, No. 429;* type from near Siguanea, *Britton & Wilson, 14346*, spring, 1916. General Distribution: In the white sand of the pine-barrens in the west-central part of the Isle of Pines.

752. **Pectis elongata** Humboldt, Bonpland, & Kunth.

Pectis elongata HUMBOLDT, BONPLAND, & KUNTH, Nova Genera et Species Plantarum, IV, 1820, p. 262, t. 392.

Pectis floribunda A. RICHARD, in Sagra, Historia Fisica, Politica y Natural de la Isla de Cuba, XI, 1850, p. 36.

Pectis ciliaris A. RICHARD, *l. c.*, not Linnæus.

Pectis Plumieri GRISEBACH, Flora of the British West Indian Islands, 1861, p. 378, excluding synonym Plumier.

Pectis tenella HITCHCOCK, Report Missouri Botanical Garden, IV, 1893, p. 101, not DeCandolle.

Near Nueva Gerona, December 14, 1903, *A. H. Curtiss, No. 227.* General Distribution: Cuba, the Isle of Pines, Haiti, Jamaica, and from Guatemala to Peru and Brazil.

753. **Pectis Swartziana** Lessing.

Pectis Swartziana LESSING, Linnæa, VI, 1831, p. 711, excluding synonym Swartz.
Pectis Bonplandiana DECANDOLLE, Prodromus Systematis Naturalis Regni Vegetabilis, V, 1836, p. 99, in part.
Pectis pratensis C. WRIGHT, in Sauvalle, Flora Cubana, 1870, no. 1301, p. 81.
Pectis linifolia O. KUNTZE, Revisio Generum Plantarum, III, 1898, p. 166, not Linnæus.

Near Nueva Gerona, March 15, 1904, *A. H. Curtiss, No. 413.* General Distribution: Cuba, the Isle of Pines, Haiti, Jamaica, and from Mexico to Bolivia.

754. **Neurolæna lobata** (Linnæus) R. Brown.

Conyza lobata LINNÆUS, Species Plantarum, Ed. I, 1753, p. 862.
Neurolæna lobata R. BROWN, Transactions of the Linnean Society of London, XII, 1817, p. 120.

Near Nueva Gerona, March 13, 1904, *A. H. Curtiss, No. 403.* General Distribution: Widely distributed in the West Indies and from Mexico to Guiana and Ecuador.

755. **Erechtites hieracifolia** (Linnæus) Rafinesque. FIRE-WEED.

Senecio hieracifolius LINNÆUS, Species Plantarum, II, Ed. I, 1753, p. 866.
Erechtites hieracifolia RAFINESQUE, Florula Ludoviciana, ex DeCandolle, Prodromus Systematis Naturalis Regni Vegetabilis, VI, 1837, p. 294.

In an old field near Pedernales Point, February 16, 1899, *C. F. Millspaugh, No. 1418;* on white sand in the pine-barrens, Los Indios, May 17, 1910, *O. E. Jennings, No. 322.* General Distribution: In open woods, clearings, and burned-over places from Newfoundland and northwestern Canada south to Argentina.

756. **Emilia sonchifolia** (Linnæus) P. DeCandolle.

Cacalia sonchifolia LINNÆUS, Species Plantarum, II, Ed. I, 1753, p. 835.
Senecio sonchifolius MOENCH, Supplementum ad Methodum, etc., 1802, p. 231.
Emilia sonchifolia P. DECANDOLLE, Prodromus Systematis Regni Vegetabilis, VI, 1837, p. 302.

A weed in cultivated soil, Keenan's estate, Nueva Gerona, May 9, 1910, *O. E. Jennings, No. 155.* General Distribution: Tropics of both hemispheres; north in America as far as the Bahamas.

757. **Chaptalia dentata** (Linnæus) Cassini.

Tussilago dentata LINNÆUS, Species Plantarum, II, Ed. II, 1763, p. 1213.
Chaptalia dentata CASSINI, Dictionnaire des Sciences Naturelles, XXVI, 1803, p. 124.
Tussilago albicans SWARTZ, Flora Indiæ Occidentalis, III, 1806, p. 1348.
Leria albicans P. DECANDOLLE, Annales du Muséum d'Histoire Naturelle, Paris, XIX, 1812, p. 68.

In pine-barrens near the Majagua River, north of Los Indios, May 19, 1910, *O. E. Jennings, No. 402.* General Distribution: The Bahamas, Cuba, the Isle of Pines, Jamaica, Porto Rico, and Hispaniola.

EXPLANATION OF PLATES XVII–XXVIII.

PLATE XVII.

FIGS. *A–D. Kalmiella aggregata* Small. *A*, flowering branch natural size. *B*, flower. × 3½. *C*, stamen. × 3½. *D*, pistil. × 3½.

FIGS. *E–H. Pæpalanthus alsinoides* var. *minimus* Jennings, var. nov. *E*, flowering branch natural size. *F*, flower and the subtending floral bract. × 10½. *G*, outer bract of flower head. × 14. *H*, hair from the flower. × 85. All figures are from the type specimen.

PLATE XVIII.

Epidendrum obcordatum Jennings, sp. nov. Whole plant and one detached leaf, both × ⅝. Figured from the type specimen.

PLATE XIX.

Epidendrum brevifolium Jennings, sp. nov. Whole plant, with the upper parts of the two flowering branches detached and shown separately. × ⅝. Figured from the type specimen.

PLATE XX.

Bauhinia caribæa Jennings, sp. nov. Flowering branch with the pod nearly mature. × ⅞. Flower in its natural position and fully expanded. × 3. Figured from the type specimen.

PLATE XXI.

Acisanthera glandulifera Jennings, sp. nov. Large and small plants. × ¾. Flower. × 2½. Expanded calyx, enclosing a ripe capsule. × 4. Anther, showing the two long basal spurs. × 5. Seed, showing the tuberculate, ridged, and glandular-punctate surface. × 15. All figures are from the type specimens.

PLATE XXII.

Tamonea tomentosa var. *auriculata* Jennings, var. nov. Leaf with the tip restored according to the usual shape in the species. × ⅝. Flowering branch. × ⅝. Flower in fully expanded condition. × 2½. Petal, showing irregular outline and stellate tomentum. × 2½. Stamen. × 2½. All figures are from the type specimen.

PLATE XXIII.

Tamonea androsæmifolia (Grisebach) Jennings, comb. nov. Flowering branch. × $\frac{5}{8}$. *No. 321, O. E. Jennings.* Los Indios, May 17, 1910.

PLATE XXIV.

Pachyanthus longifolius Jennings, sp. nov. Flowering branch. × $\frac{5}{9}$. Figured from the type specimen.

PLATE XXV.

Mesosphærum hollandianum Jennings, sp. nov. Whole plant. × $\frac{7}{16}$. Flower fully expanded. × $3\frac{3}{4}$. Calyx, as it appears when the seeds are mature. × $3\frac{3}{4}$. Seed. × $7\frac{1}{2}$. Pollen grain, much magnified. All figures are from the type specimen.

PLATE XXVI.

Mesosphærum capitellatum Jennings, sp. nov. Flowering branch with the apical part broken over. × $\frac{9}{16}$. Fully expanded flower. × $6\frac{1}{3}$. Calyx at the time when the seeds are mature. × $6\frac{1}{3}$. All figures are from the type specimen.

PLATE XXVII.

Gerardia pinetorum Britton & Wilson. Flowering plant. × $1\frac{1}{2}$. Anther. × 20. Pollen grain, much enlarged. All figures are from the type specimen.

PLATE XXVIII.

Justicia diversifolia Jennings, sp. nov. Flowering plant. × $\frac{3}{4}$. Calyx and subtending bracts at the time of maturity of the seeds. × 5. Corolla, as seen from above. × 5. Pollen grain, much enlarged. All figures are from the type specimen.

Ipomœa pes-caprœ on the strand at Bibijagua. Cocoanut palms back of strand in middle distance.
Photograph by O. E. Jennings, May 7, 1910.

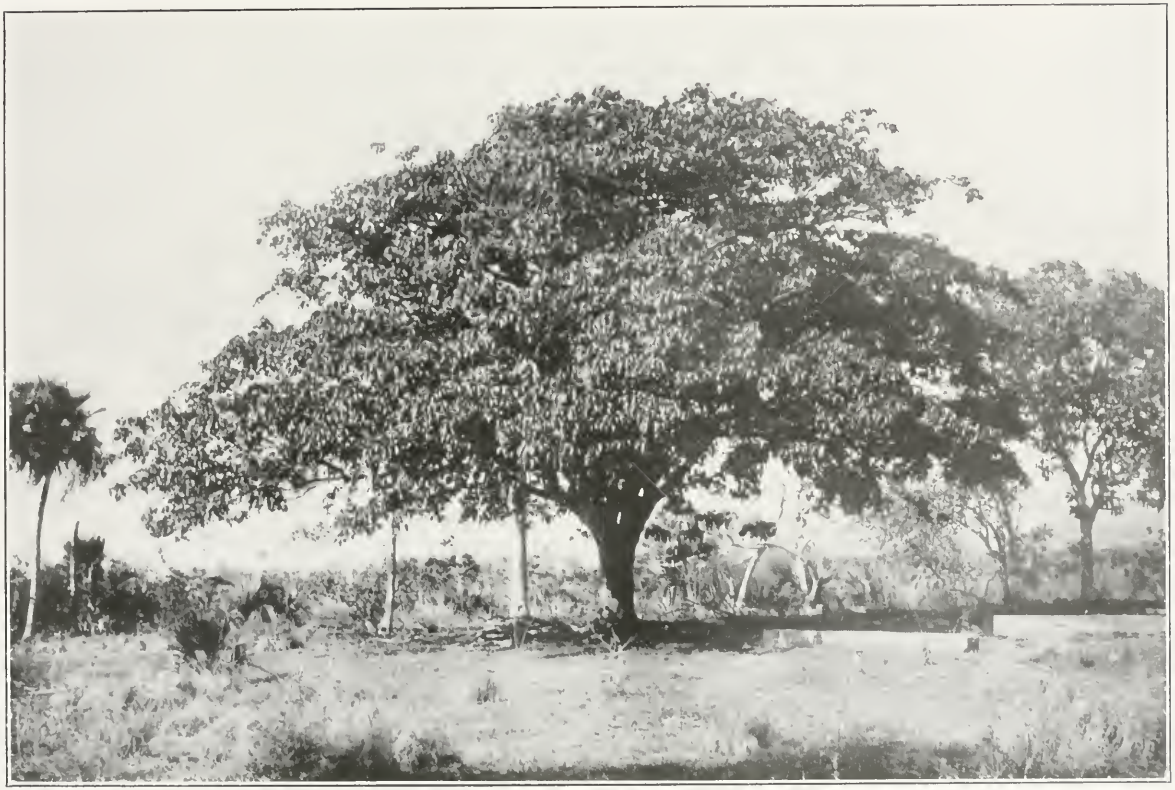
Savanna near Nueva Gerona. Two shrubs in right foreground, *Brysonima crassifolia;* shrub in center, *Curatella americana;* in left foreground and in distance, *Acœlorraphe Wrightii.* Photographed May 5, 1910.

Coccothrinax Miraguano. Star Palm. Height about twenty feet.
Near Nuevas River, north of McKinley; photographed May 16, 1910.

Copernicia Curtisii. In open savanna near Nueva Gerona; trees in background mainly *Acœlorraphe Wrightii.* Photographed by O. E. Jennings, May 5, 1910.

Royal Palm (*Roystonea regia*), about two miles east of Nueva Gerona. Cashew trees (*Anacardium occidentale*) in left foreground; India-rubber tree (*Ficus elastica*) near house. Photograph by O. E. Jennings, May 7, 1910.

Epidendrum brevifolium, sp. nov., on stem of *Paurotis Wrightii*.
Photograph by O. E. Jennings, May 17, 1910, at Los Indios. Specimen *No. 314*.



Ficus nitida, "Spanish Laurel." A large spreading tree north of Santa Fé.
Photograph by O. E. Jennings, May 25, 1910.

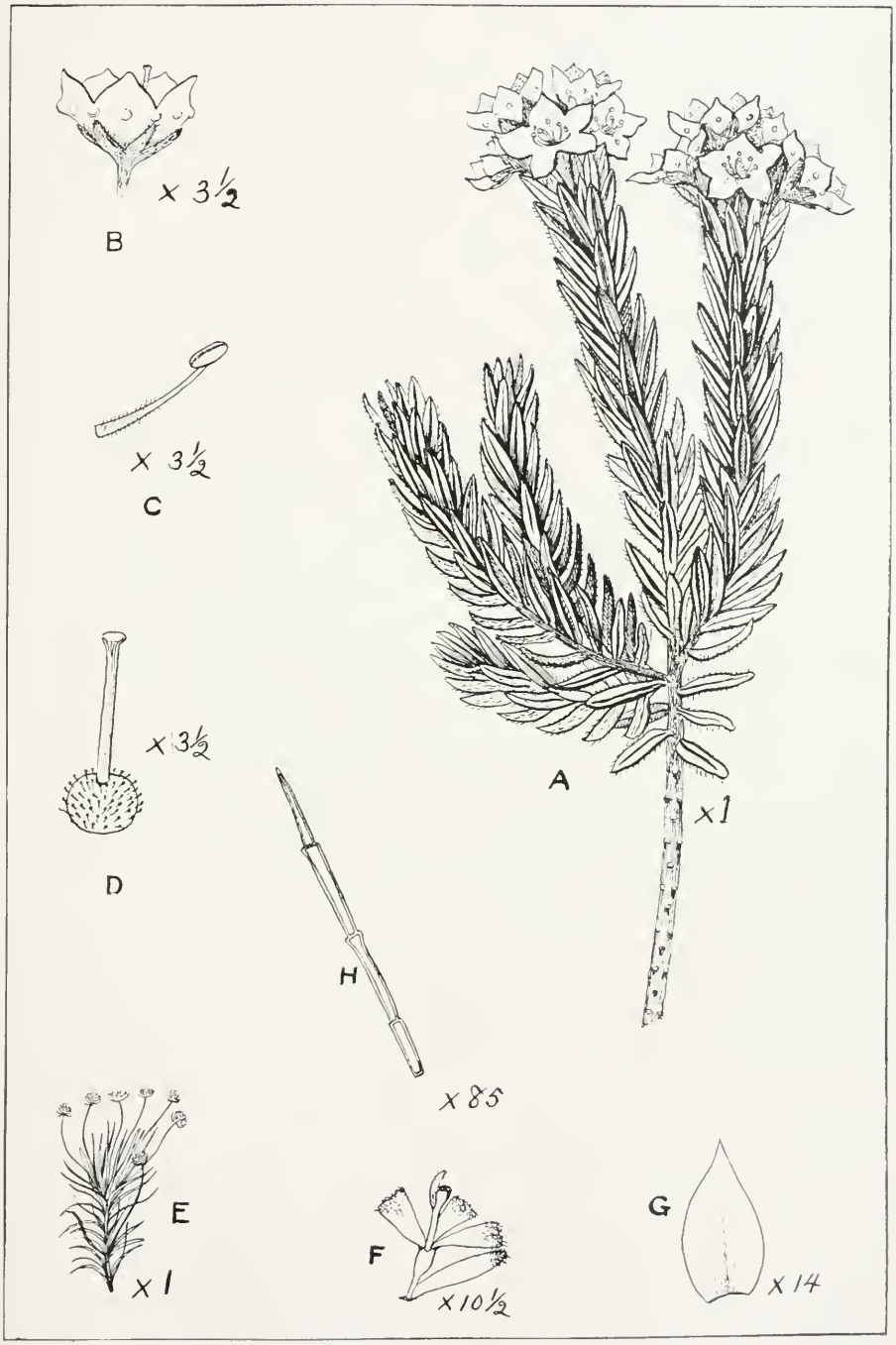
A Strangling Fig (*Ficus aurea*) growing as a partial parasite on an isolated Ceiba Tree (*Bombax emarginata*). East base of Caballos Mts., May 9, 1910.

Sandpaper Tree (*Curatella americana*) on savanna near Nueva Gerona. Photograph by O. E. Jennings, May 5, 1910.

Ouratea elliptica, growing on white sand in the pine-barrens near Los Indios, O. E. Jennings, *No. 325*.
Photographed May 17, 1910.

Tetrazygia bicolor, on the savanna near Nueva Gerona. Photographed May 5, 1910, by O. E. Jennings.

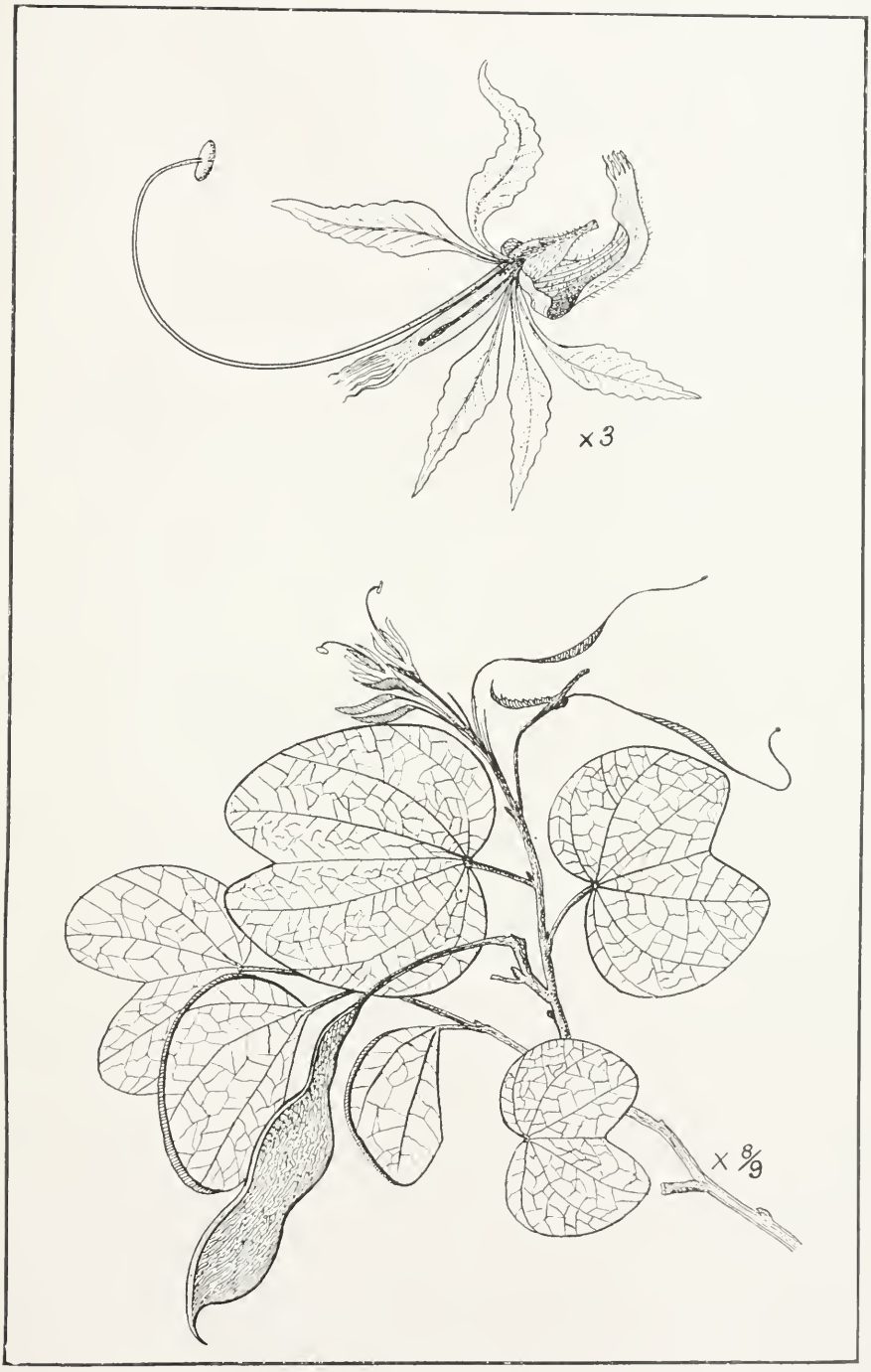
Aster Grisebachii, on the white quartz gravel in the pine barrens near Los Indios.
Photographed by O. E. Jennings, May 17, 1910.



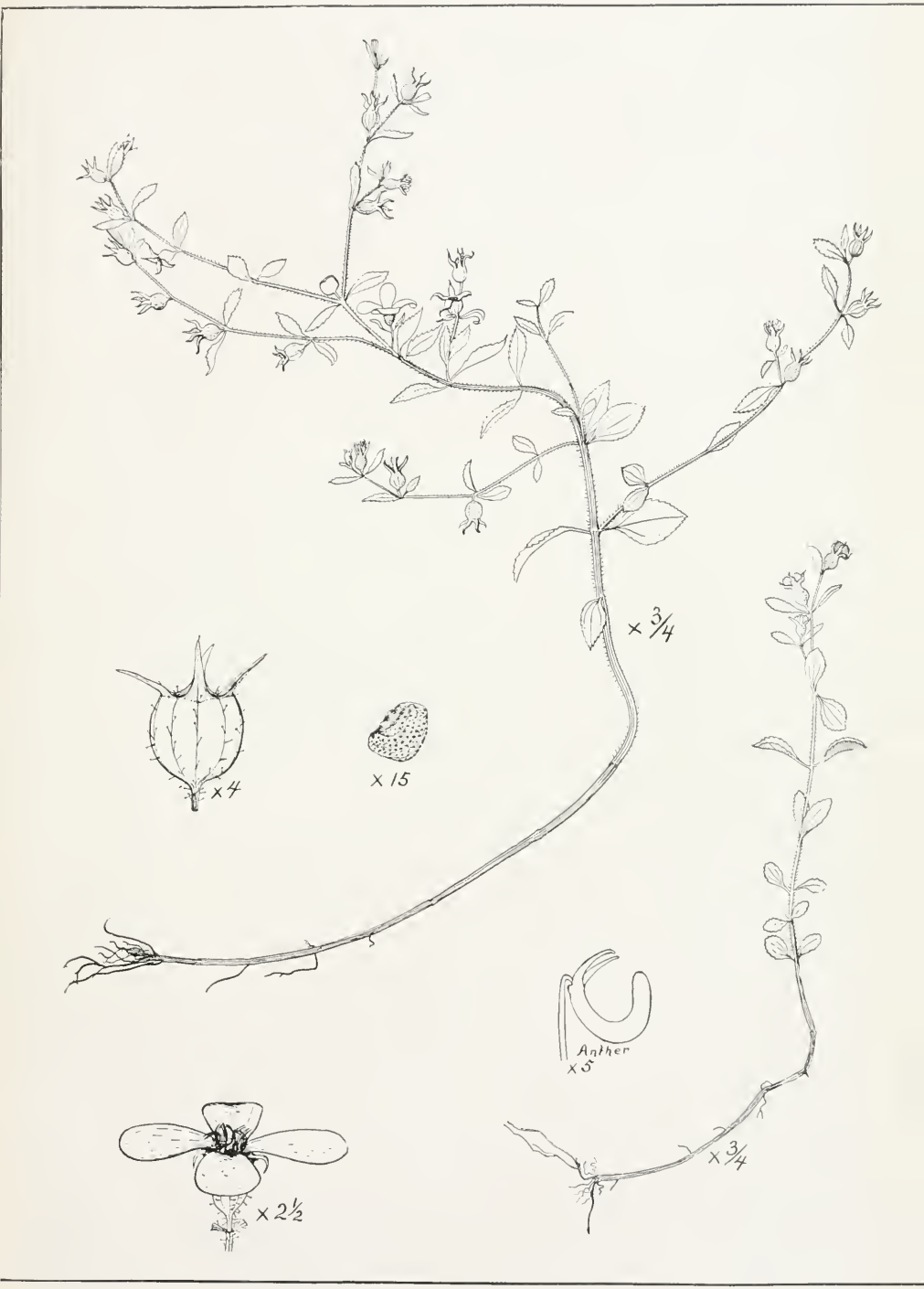
FIGS. A–D. *Kalmiella aggregata* Small.
FIGS. E–H. *Pœpalanthus alsinoides* var. *minimus* Jennings, var. nov.

Epidendrum obcordatum Jennings, sp. nov.

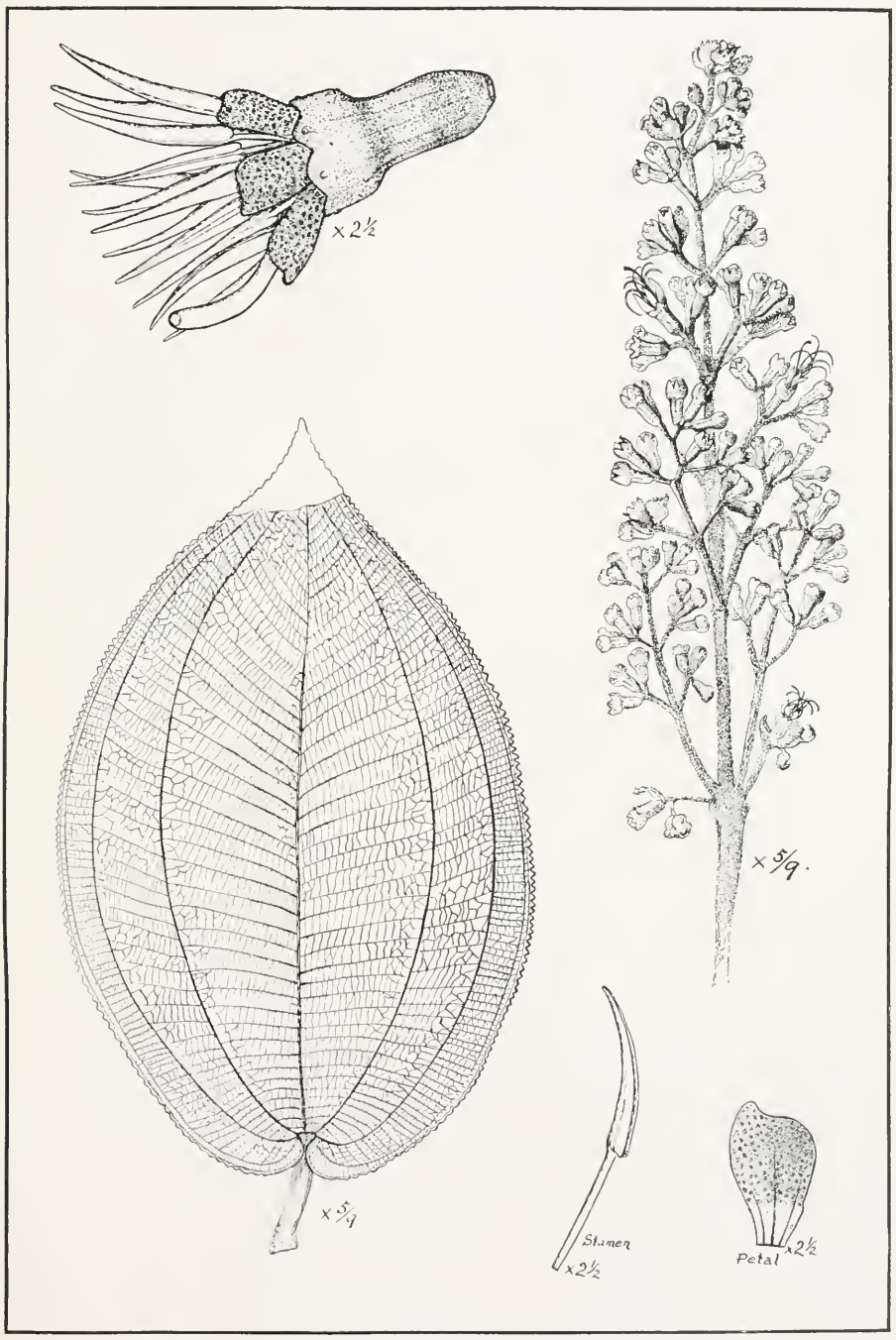
Epidendrum brevifolium Jennings, sp. nov.



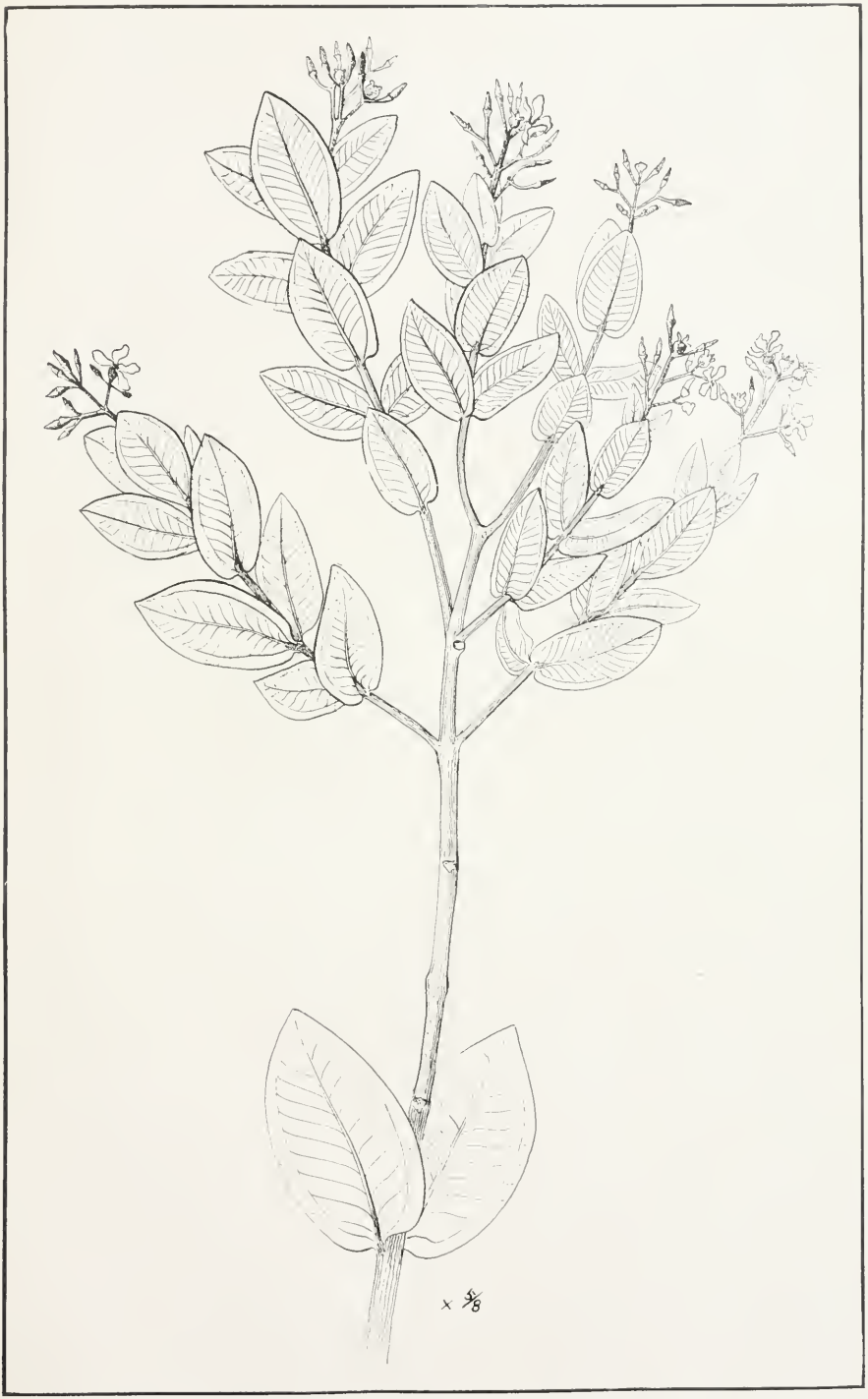
Bauhinia caribæa Jennings, sp. nov.



Acisanthera glandulifera Jennings, sp. nov.



Tamonea tomentosa var. *auriculata* Jennings, var. nov.

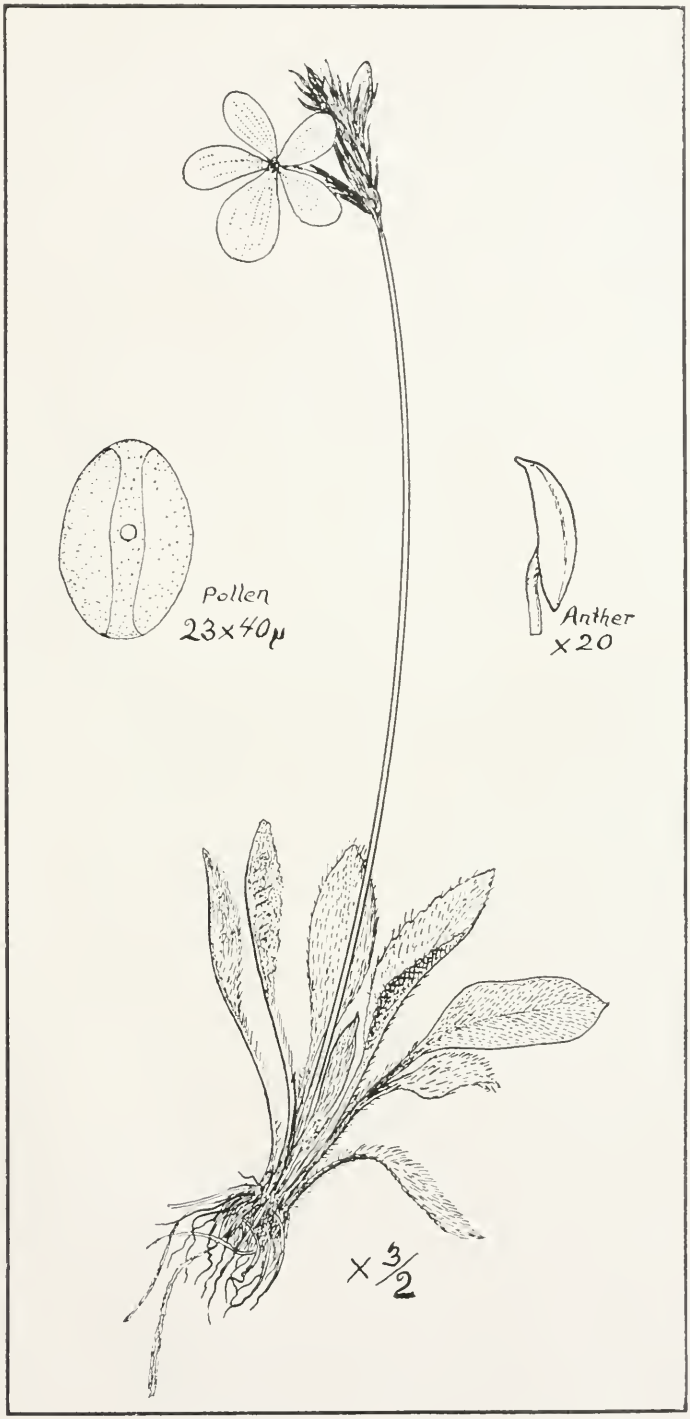


Tamonea androsæmifolia (Grisebach) Jennings, comb. nov.

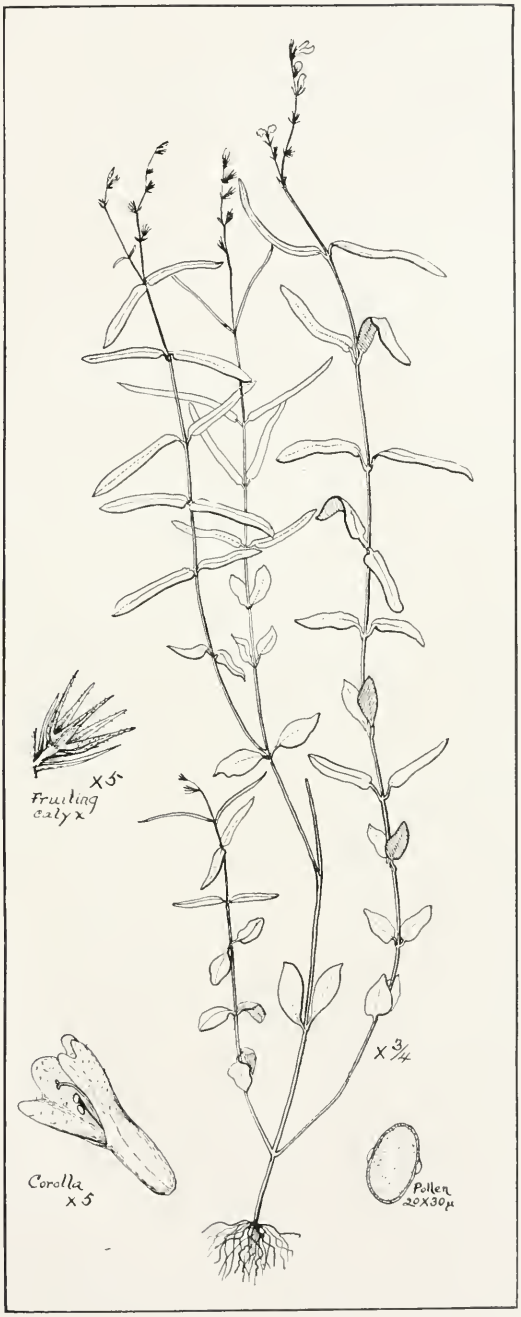
Pachyanthus longifolius Jennings, sp. nov.

Mesosphærum Hollandianum Jennings, sp. nov.

Mesosphærum capitellatum Jennings, sp. nov.



Gerardia pinetorum Britton & Wilson.



Justicia diversifolia Jennings, sp. nov.

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