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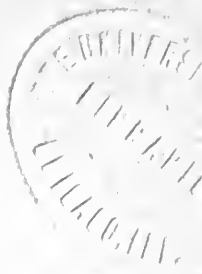
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I. SUPPLEMENT TO THE FLORA OF BARRO
COLORADO ISLAND, PANAMA

LESLIE A. KENOYER AND PAUL C. STANDLEY

II. TWO NEW SPECIES OF CHARA
FROM TROPICAL AMERICA

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SUPPLEMENT TO THE FLORA OF BARRO COLORADO ISLAND, PANAMA

LESLIE A. KENOYER AND PAUL C. STANDLEY

The first list of the plants of Barro Colorado Island in Gatún Lake, Canal Zone, the site of the laboratory of the Institute for Tropical Research, was published by Paul C. Standley in May, 1927, in the Smithsonian Miscellaneous Collections.¹ In that list 611 species of flowering plants and cryptogams were listed. Because of the large area of the island—about six square miles—and the small amount of time which had been devoted to its exploration, it was evident that its flora was then but imperfectly known.

In the summer of 1927, L. A. Kenoyer spent eight weeks on Barro Colorado Island, studying the plant ecology. In connection with his work there was made a large collection of plant specimens, amounting to 680 numbers. The present list is based upon this collection.

Most of the flowering plants here recorded have been determined by Mr. Standley, and the ferns by William R. Maxon. On the following pages there are enumerated 187 species new to the Barro Colorado flora. Several of these are plants unknown previously from the region of the Canal Zone, and four seem to belong to unpublished species, which are described here as new. There remain several plants, represented only by sterile material, which it has not been possible to determine definitely. These uncertain specimens doubtless belong to species not recorded from the island, and probably unknown at present from the Canal Zone area.

The large number of new ferns reported for the island is especially noteworthy. An annotated list of them already has been published.² It is not surprising that intensive collecting, extended over several weeks, should have added so large a number of plants to the known flora of Barro Colorado Island. As the island is explored more thoroughly, there is no doubt that the number will be increased substantially. This is particularly true in the case of the fungi and other groups of the lower plants.

¹Volume 78, No. 8, pp. 1-32.

²Kenoyer, Amer. Fern Journ. 18: 6-14. 1928.

CYATHEACEAE. Tree Fern Family

Alsophila tenerifrons Christ. Probably the largest tree fern on the island, attaining a height of 8 meters. Growing in several of the ravines. There are large specimens on Pearson Trail 100 yards from the laboratory.

Alsophila microdonta Desv. A small tree fern, collected along the shore at far end of the Gross Trail.

GLEICHENIACEAE. Gleichenia Family

Dicranopteris flexuosa (Schrad.) Underw. A vine, forming tangles along exposed shores. End of Gross Trail and on Orchid Island.

POLYPODIACEAE. Polypody Family

Acrostichum daneaeifolium Langsd. & Fisch. A tall coarse fern, abundant in marshes along the lake shore. Previously noted but not definitely placed as to species.

Adiantum obliquum Willd. Occasional in virgin forest.

Adiantum petiolatum Desv. Frequent in forest.

Adiantum villosum L. Common in virgin forest.

Adiantum sp. Hairy, with bipinnate leaves. Occasional.

Asplenium laetum Swartz. Fairly common, especially in ravines.

Blechnum occidentale L. On an eroding clay bank, Orchid Island at French lock site.

Dennstaedtia rubiginosa (Kaulf.) Moore. A large ravine fern. Pearson Trail.

Dryopteris gongylodes (Schk.) Kuntze. Marshes along lake shore; frequent.

Dryopteris serrata (Cav.) C. Chr. Marshes along lake shore; frequent.

Dryopteris sordida Maxon. A large ravine fern; occasional.

Dryopteris Sprengelii (Kaulf.) Kuntze. A large ravine fern with a short upright stem.

Hemidictyum marginatum (L.) Presl. A tall coarse ravine fern with pinnate leaves.

Leptochilus nicotianaefolius (Swartz) C. Chr. A coarse terrestrial plant.

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FIG. 1. THE APPROACH TO THE LABORATORY ON BARRO COLORADO ISLAND, FROM GATUN LAKE.



FIG. 2. FERNS (*NEPHROLEPIS PENDULA*) ON ERODED BANK AT THE EDGE OF BARRO COLORADO ISLAND.

Maxonia apiifolia (Swartz) C. Chr. Terrestrial or epiphytic, the trailing rhizome covered with brown scales.

Nephrolepis biserrata (Swartz) Schott. Abundant in marshes.

Polybotrya villosula Christ. A trailing epiphyte with large bipinnate leaves; growing especially on tree ferns.

Polypodium costaricense Christ. An epiphyte; frequent.

Polypodium phyllitidis L. A coarse epiphyte; common.

Pteris grandifolia L. A coarse ravine fern with pinnate leaves four meters long.

Pteris Kunzeana Agardh. In ravines.

Pteris propinqua Agardh. Low areas in forest.

Pteris pungens Willd. Virgin forest.

HYMENOPHYLLACEAE. Filmy-fern Family

Trichomanes diversifrons (Bory) Mett. Shaded ravine bank on Pearson Trail near laboratory.

LYCOPODIACEAE. Clubmoss Family

Lycopodium dichotomum Jacq. A single specimen fallen from a tree on which it had grown as an epiphyte.

ALISMACEAE. Water-plantain Family

Sagittaria lancifolia L. An acaulescent plant with lanceolate leaves and racemes of white flowers. Frequent in marshes along shore.

POACEAE. Grass Family

Andropogon bicornis L. Very common in clearings and in marshes offshore.

Andropogon brevifolius Swartz. Near French lock site, Orchid Island.

Andropogon glomeratus (Walt.) B. S. P. A tall coarse grass. Laboratory clearing.

Chloris virgata Swartz. Laboratory clearing.

Ichnanthus tenuis (Presl) Hitchc. & Chase. Range light clearing.

Isachne polygonoides (Lam.) Doell. Marsh near Termite House.

Leersia hexandra Swartz. Clearing at Barbour Navigation Signal.

Leptochloa virgata (L.) Beauv. Frequent in clearings.

Panicum barbinode Trin. An extensive marsh former in the lake.

Panicum fasciculatum Swartz. Clearing at highest point of the island.

Panicum geminatum Forsk. Marsh near Termite House.

Panicum megiston Schult. Marsh near Termite House.

Panicum zizanioides H. B. K. Marsh near Termite House.

Paspalum decumbens Swartz. A prostrate grass in forest.

Paspalum saccharoides (Swartz) Nees. Clearing at Fairchild Navigation Signal.

Phragmites communis Trin. REED. A tall coarse marsh grass in lake near laboratory.

Setaria paniculifera (Steud.) Fourn. French lock site, Orchid Island.

Sporobolus indicus R. Br. Clearing at Barbour Navigation Signal.

CYPERACEAE. Sedge Family

Cyperus luzulae (L.) Retz. Marshes near laboratory landing.

Cyperus rotundus L. Abundant in clearings.

Cyperus simplex H. B. K. Clearings and trails; frequent.

Eleocharis variegata var. *laxiflora* (Thwaites) Ridley. Marshes near laboratory landing.

Rynchospora corymbosa (L.) Britton. A large marsh plant with 3-angled stem, south and west shores of the island.

Rynchospora micrantha Vahl. French lock site, Orchid Island.

Scirpus cubensis Kunth. Marshes near Redwood House.

Scleria mitis Berg. Abundant in clearings.

Scleria paludosa Kunth. A coarse marsh sedge.

PHOENICACEAE. Palm Family

Attalea gomphococca Mart. COROZO. COHUNE PALM. The largest palm on the island. Abundant. The large fruits, borne in huge dense pendent panicles, are rich in oil.

ARACEAE. Arum Family

Anthurium acutangulum Engler. An epiphytic climber with thick lance-ovate leaves.

Anthurium linearifolium Engler. A frequent epiphyte with oblong-linear leaves.

Anthurium rigidulum Schott? An epiphyte on a stump in the lake.

Montrichardia arborescens (L.) Schott. An upright shrublike plant, frequent in lake shore marshes near the laboratory. The large spathes are white and showy, resembling those of the cultivated calla.

Philodendron panamense Krause. A common trailing epiphyte.

Xanthosoma pilosum Koch. A common terrestrial plant with large, finely pubescent, broadly sagittate leaves.

BROMELIACEAE. Pineapple Family

Aechmea pubescens Baker. A frequent epiphyte.

Tillandsia compressa Bert. An epiphyte with compressed flower spikes.

Tillandsia fasciculata Swartz. An epiphyte on stump near Termite House.

COMMELINACEAE. Dayflower Family

Tradescantia cumanensis Kunth. Laboratory clearing.

PONTEDERIACEAE. Pickerelweed Family

Pontederia cordata L. PICKERELWEED. Marshes near Termite House.

AMARYLLIDACEAE. Amaryllis Family

Crinum erubescens Soland. A coarse bulbous plant with umbels of showy flowers. Frequent along shores of Gatún Lake.

MUSACEAE. Banana Family

Heliconia platystachys Baker. A tall plant with recurved inflorescence, the bracts red and yellow.

ORCHIDACEAE. Orchid Family

Dichaea sp. An epiphyte on a large living *Bombacopsis* in Gatún Lake.

Habenaria alata Hook. A terrestrial plant. Clearings and marsh islands.

Stelis sp. An epiphyte.

Stenorrhynchus sp. Terrestrial.

Triphora cubensis (Reichenb.) Ames. A terrestrial and apparently saprophytic plant. Found in the laboratory clearing. "This species was originally found in Cuba but is uncommon there, and in places where it has been found seems to appear at irregular intervals. It has also been found in Florida, but only once." (Oakes Ames).

PIPERACEAE. Pepper Family

Peperomia mameiana C. DC. A succulent epiphyte. Occasional.

Piper breve C. DC. A shrub. Barbour Point.

Piper peltatum L. A common shrub in clearings. Easily recognized by the peltate leaves.

Piper peracuminatum C. DC. A shrub. Fairchild Point.

MORACEAE. Mulberry Family

Cecropia longipes Pittier. GUARUMO. Fruiting spikes in 4's. A common tree.

Cecropia mexicana Hemsl. GUARUMO. Fruiting spikes in pairs, elongated. A common tree.

Cecropia sp. Leaves about 8-lobed, very white beneath, without brown hairs. Fruiting spikes in 8's, drooping, wavy. Frequent.

Ficus colubrinae Standl. An epiphytic shrub or small tree in virgin forest.

Ficus involuta (Liebm.) Miq. Pearson Trail near laboratory. A tree with large wedge-shaped leaves, rounded at apex.

Pourouma aspera Trecul. A *Cecropia*-like tree near laboratory. Leaves similar to those of *Cecropia*, but not peltate.

URTICACEAE. Nettle Family

Pouzolzia obliqua Gaud. A low tree with entire leaves; along shore near laboratory.



FIG. 1. VIEW IN THE FOREST ON BARRO COLORADO ISLAND.



FIG. 2. BASE OF PLANT OF *RENEALMIA AROMATICA*, SHOWING THE INFLORESCENCES.

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OLACACEAE. Olax Family

Heisteria longipes Standl. An occasional shrub in forest. Leaves entire; fruiting calyx saucer-shaped, dark red.

ARISTOLOCHIACEAE. Birthwort Family

Aristolochia pilosa H. B. K. A small herbaceous climber. On short cut from Barbour Trail.

POLYGONACEAE. Buckwheat Family

Polygonum punctatum Ell. SMARTWEED. Stump islands near Redwood House.

AMARANTHACEAE. Pigweed Family

Amaranthus gracilis Desf. PIGWEED. Laboratory clearing. Introduced.

Gomphrena dispersa Standl. A weedy herb with small heads of white flowers. Laboratory clearing, probably introduced.

PHYTOLACCACEAE. Pokeweed Family

Microtea debilis Swartz. A small weak weedy herb.

Phytolacca rivinoides Kunth and Bouché. POKEWEEED. A coarse weed in laboratory garden.

Rivina humilis L. A weed in laboratory garden. An erect herb with racemes of small whitish flowers, and small, bright red fruits.

ANNONACEAE. Custard-apple Family

Annona glabra L. PONDAPPLE. A large shrub or small tree. Lake shore near laboratory.

Guatteria dolichopoda Donn. Smith. A tall tree on Armour Trail. Species new to the Canal Zone.

Unonopsis Pittieri Safford. A tree near the laboratory.

Xylopia frutescens Aubl. A small tree with lanceolate distichous leaves. Near Gross Point.

RAFFLESIACEAE. Rafflesia Family

Apodanthes flacourtiæ Karst. A parasite on the branches of *Xylosma Hemsleyana*. Found at several places in the forest near

Barbour Point. This is the first report of the family for Central America. The plants appear as rows of white waxy flowers 5 mm. in diameter, which burst through the bark of the host.

HYDRANGEACEAE. Hydrangea Family

Hydrangea panamensis Standl. A trailing woody epiphyte, frequent on the large trees.

AMYGDALACEAE. Almond Family

Licania platypus (Hemsl.) Fritsch. A frequent large tree about the laboratory.

MIMOSACEAE. Mimosa Family

Acacia melanoceras Beurl. BULLHORN ACACIA. A small specimen growing near the laboratory.

Inga leptoloba Schlecht. Shore near Termite House.

Inga punctata Willd. Shore near the laboratory.

Inga Roussoviana Pittier. Slothia Island.

Inga Ruiziana Don. Shore near the laboratory.

Inga spectabilis Willd. Pearson Trail. The species of *Inga* are all trees with heads or spikes of white blossoms.

Pithecolobium rufescens (Benth.) Pittier. A small tree on Slothia Island. Leaves once pinnate, like those of *Inga*.

CAESALPINIACEAE. Senna Family

Cassia reticulata Willd. A small tree with showy, bright yellow flowers, near Termite House.

Cassia tora L. An herb at French lock site, Orchid Island.

FABACEAE. Bean Family

Dalbergia ecastophyllum (L.) Taub. A shrub in marshes along the shore.

Erythrina glauca Willd. A tree in clearing at Barbour Navigation Signal. Flowers orange-colored.

Pterocarpus Hayesii Benth. A large tree on Wheeler Trail.

Vigna vexillata (L.) Rich. An herbaceous vine with pale yellow flowers. Marshes near Redwood House.



FIG. 1. *OPHIOMERIS PANAMENSIS*, AT LEFT, AND *LEIPHAIMOS ALBUS*.



FIG. 2. *APODANTHES FLACOURTIAE*, GROWING ON TRUNK OF *XYLOSMA HEMSLEYANA*.

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RUTACEAE. Rue Family

Zanthoxylum microcarpum Griseb. A tall tree with fine stellate pubescence. On Snyder-Molino Trail.

Zanthoxylum setulosum P. Wils. A forest tree.

BURSERACEAE. Torchwood Family

Protium panamense (Rose) Johnston. A tree on Van Tyne Trail.

MALPIGHIACEAE. Malpighia Family

Bunchosia cornifolia H. B. K. A shrub with yellow flowers. Gross Point.

Byrsonima crassifolia (L.) DC. NANCE. A small tree with leaves whitened beneath, and yellow flowers. Fruit edible.

Hiraea faginea (Swartz) Niedenzu. A climbing shrub with yellow flowers. Leaves silky-pubescent beneath.

Stigmaphyllon ellipticum (H. B. K.) Juss. A climbing yellow-flowered shrub with entire leaves and winged fruits. Clearings and stump islands.

POLYGALACEAE. Polygala Family

Polygala paniculata L. A small herb at French lock site, Orchid Island.

EUPHORBIACEAE. Spurge Family

Croton glandulosus L. A small weed with dentate leaves, in the laboratory clearing.

Euphorbia heterophylla L. A coarse erect weed with milky sap. Laboratory clearing.

Sapium aucuparium Jacq.? A shrub in ravine near the laboratory.

Sapium jamaicense Swartz. A tree on Barbour Trail. Species new to the Canal Zone. The species of *Sapium* are easy to recognize because of their milky sap, and the presence of two glands near the apex of the petiole. The latex, of some species at least, contains rubber.

SAPINDACEAE. Soapberry Family

Paullinia pinnata L. A liana with red capsules, frequent along shore.

STAPHYLEACEAE. Bladdernut Family

Turpinia paniculata Vent. A tree with panicles of small white flowers, on Wheeler Trail.

VITACEAE. Grape Family

Cissus rhombifolia Vahl. A common woody climber with red flowers and trifoliolate leaves.

MALVACEAE. Mallow Family

Hibiscus bifurcatus Cav. A coarse pink-flowered herb or half-shrubby plant. Shore near Barbour Point.

Hibiscus sororius L. f. A coarse semi-shrubby plant with white flowers. Abundant on offshore marsh islands.

BOMBACACEAE. Cotton tree Family

Quararibea asterolepis Pittier. A common large tree with smooth green bark and plank buttresses. The dried leaves have the odor of slippery elm.

ELAEOCARPACEAE. Elaeocarpus Family

Sloanea microcephala Standl., sp. nov.—Arbor mediocris, ramulis junioribus crassis, subteretibus, dense et minute tomentulosis; petioli 11 cm. longi, subteretes, brunneo-tomentulosi; limbus ellipticus, 40 cm. longus, 23 cm. latus, apice et basi rotundatus, margine fere ad basin dense sinuato-crenata, crenationibus late obtusis, subcoriaceus, supra glaber, subtus pallidior, ad nervos minutissime tomentulosus, nervis lateralibus utroque latere 17, elevatis, percurrentibus, leviter arcuatis, nervulis fere rectis, reticulato-conjunctis; panícula axillaris, 4 cm. longa, pedunculata, pedunculo compressiusculo, 2.5 cm. longo, ramulis tomentellis, bracteis 4-6 mm. longis, oblongis, obtusis, tomentulosis, floribus numerosis, 4 mm. diam., pedicellis 5-8 mm. longis; calyx rotatus, 2.5 mm. latus, extus griseo-tomentulosus, obscure lobatus, lobis late triangularibus, acutiusculis; stamina numerosa, antheris cuneiformibus, sessilibus, glabris, apice rotundatis.

PANAMA: Along shore near Termite House, Barro Colorado Island, Canal Zone, Aug. 6, 1927, *L. A. Kenoyer 468* (Herb. Field Mus. No. 579761, TYPE).

DILLENIAEAE. Dillenia Family

Doliocarpus olivaceus Sprague & Williams. A woody climber with toothed leaves. Near the laboratory.

Tetracera oblongata DC. A retrorsely scabrous, woody climber. Snyder-Molino Trail.

Tetracera sessiliflora Triana and Planch. A coarse woody vine with elm-like leaves. Shore line.

OCHNACEAE. Ochna Family

Cespedesia macrophylla Seem. A tall tree with long simple leaves and large showy flowers. Gross Point. The genus is new to the Canal Zone.

HYPERICACEAE. St. Johnswort Family

Vismia latifolia Choisy. A small tree, the leaves rusty-tomentose beneath. On shore near Redwood House.

CLUSIACEAE. Clusia Family

Calophyllum calaba Jacq. A large tree on Pearson Trail near the laboratory. The specimens are imperfect, but probably referable to this species, which is new to the region.

Clusia minor L. A frequent small tree, often beginning growth as an epiphyte.

BIXACEAE. Anatto Family

Bixa Orellana L. ANATTO. A small tree or large shrub. Occasional. Probably introduced.

COCHLOSPERMACEAE. Cochlospermum Family

Cochlospermum vitifolium Willd. A small tree with palmately lobed leaves and large yellow flowers resembling roses. Orchid Island.

FLACOURTIACEAE. Flacourtia Family

Banara guianensis Aubl. A small tree. Lake shore near the laboratory.

Xylosma Hemsleyana Standl. A small spiny shrub. Frequent in the neighborhood of Barbour Point.

Zuelania Roussoviae Pittier. A small tree with oblong to oval leaves.

PASSIFLORACEAE. Passionflower Family

Passiflora biflora Lam. A frequent white-flowered climber.

Passiflora hispida DC. An herbaceous vine. Range light clearing.

BEGONIACEAE. Begonia Family

Begonia cilibracteolata C. DC. Marsh island near Redwood House.

Begonia sp. A bushy herb a meter high. In forest near the laboratory.

CACTACEAE. Cactus Family

Rhipsalis cassutha Gaertn. MISTLETOE CACTUS. A cylindrical jointed epiphyte, without leaves, forming large masses on tall trees. Frequent.

LYTHRACEAE. Loosestrife Family

Cuphea Wrightii Gray. A small weed at French lock site, Orchid Island. The species is new to the Canal Zone.

MYRTACEAE. Myrtle Family

Eugenia sericifolia Benth. A shrub with entire lanceolate leaves. Wheeler Trail.

Myrcia gatunensis Standl., sp. nov.—Arbor parva, ramulis gracilibus, teretibus, cinereo-strigillosis vel glabratis, internodiis 1-3.5 cm. longis; petioli 1-2 mm. longi, strigillosi; limbus lanceolato-oblongus, 7.5-10.5 cm. longus, 2-3.5 cm. latus, subabrupte longiacuminatus, acumine angusto, obtuso, basi obtusus vei rotundatus, crasse chartaceus, dense et minute pellucido-punctatus, supra lucidus, glaber vel ad costam minute puberulus, nervis prominulis, subtus brunnescens, lucidulus, sparse strigillosus, nervis lateralibus utroque latere c. 10, gracillimis, fere rectis, prope marginem nervum collectivum efformantibus; paniculae laterales et terminales, laxae multiflorae, foliis breviores, 3-4 cm. longae, pedunculatae, ramulis gracilibus, sparse strigillosis, pedicellis fere filiformibus, 1-2.5 mm. longis, sparse strigillosis; hypanthium 1 mm. longum et latum, dense cinereo-strigillosum, calycis limbo abrupte patente, lobis late ovatis, obtusissimis, glabratis; petala alba, rotundata, 1.5-2 mm. longa, venosa, punctata, extus sparse strigillosa; stamina numerosa, petala excedentia, filamentis glabris; stylus 3 mm. longus, versus basin pilosulus.

PANAMA: Barro Colorado Island, Canal Zone, near the lake on Barbour Trail, July 14, 1927, *L. A. Kenoyer 468* (Herb. Field Mus. No. 579760, TYPE).



TRUNK OF ZANTHOXYLUM SP., SHOWING THE CURIOUS FLATTENED CORKY PRICKLES.

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MELASTOMACEAE. Melastome Family

Clidemia neglecta Don. A brown-hairy shrub. Shore line near Gross Point.

Leandra dichotoma Cogn. A shrub on Pearson Trail.

ONAGRACEAE. Evening-primrose Family

Jussiaea natans H. B. K. A floating aquatic with yellow flowers. Near Termite House.

UMBELLIFERAE. Parsley Family

Eryngium foetidum L. A strong-scented weed along trails and in clearings.

SAPOTACEAE. Sapodilla Family

Chrysophyllum panamense Pittier. STAR-APPLE. A tall tree in forest.

GENTIANACEAE. Gentian Family

Leiphaimos albus Standl. (Plate XIII.) A small white saprophyte with white flowers in cymes. The species is new to the Canal Zone.

APOCYNACEAE. Dogbane Family

Allamanda cathartica L. A woody vine with large showy yellow flowers and spiny capsules. Marsh island near Termite House.

Aspidosperma megalocarpon Muell. A large tree. Fruits picked up in tall virgin forest. The seeds are surrounded by a broad thin wing. The genus is new to Panama.

Prestonia ipomoeifolia A. DC.? An epiphyte on stump near Termite House.

ASCLEPIADACEAE. Milkweed Family

Funastrum clausum (Jacq.) Schlechter. A slender herbaceous climber with umbels of white flowers. Marsh islands in the lake.

CONVOLVULACEAE. Morning-glory Family

Ipomoea batatas (L.) Lam. SWEET-POTATO. Abundant as an escape in the laboratory garden.

BORAGINACEAE. Borage Family

Cordia bicolor A. DC. A small tree. Range light clearing.

Cordia ferruginea (Lam.) Roem. & Schult. A shrub. Barbour Navigation Signal clearing.

Cordia sericicalyx A. DC. A very large tree near Redwood House.

VERBENACEAE. Verbena Family

Aegiphila cephalophora Standl., sp. nov.—Frutex subscandens, ramulis gracilibus, subteretibus, dense pilis ochraceis adpressis obtectis, internodiis 4-6.5 cm. longis; petioli 5-6 mm. longi, crassi, dense pilis adscendentibus pilosi; limbus lanceolato-oblongus, c. 12 cm. longus et 4 cm. latus, longiacuminatus, acumine angusto, longe attenuato, basi obtusus, membranaceus, integer, supra pilis tenuibus adpressis sparse, ad costam magis dense, pilosus, subtus dense adpresso-pilosus, nervis lateralibus utroque latere c. 10, gracillimis, angulo lato adscendentibus, arcuatis; cymae capituliformes, densae, multiflorae, axillares, solitariae, 1-1.5 cm. latae, pedunculis validis, 1-2.5 cm. longis, densissime adpresso-pilosis, floribus sessilibus; bracteae numerosae, anguste lineares, calyce multo longiores, dense longipilosae; calyx late turbinatus, 2.5 mm. longus, extus dense pilosus, intus glaber, limbo truncato, remote 4-5-denticulato; corolla alba, c. 6 mm. longa, glabra, 3-5-lobata, staminibus longe exsertis.

PANAMA: Shannon Trail, Barro Colorado Island, Canal Zone, July 23, 1927, *L. A. Kenoyer 607* (U. S. Nat. Herb. No. 1,317,604, TYPE).

Related to *A. Deppeana* Steud., in which the inflorescence is much less congested and the leaves tomentose beneath. The material of *A. cephalophora* at hand is very scant, and it is, therefore, impossible to supply a complete and wholly satisfactory diagnosis of the species.

SOLANACEAE. Potato Family

Cyphomandra heterophylla Donn. Smith. A small tree with pinnately lobed leaves, and large fleshy fruits. Near Chapman House.

Physalis pubescens L. GROUNDCHERRY. An occasional weed in clearings.

Solanum asperum Rich. A common clearing shrub with narrow scurvy leaves.

Solanum Donnell-Smithii Coult. A prickly woody climber; frequent. The species is new to the Canal Zone.



FIG. 1. BASE OF TRUNK OF *BOMBACOPSIS FENDLERI*, THE LARGEST TREE OF BARRO COLORADO ISLAND, SHOWING THE BUTTRESSES. THE PALM IS *ACANTHORRHIZA WARSCIEWICZII*.



FIG. 2. BASE OF A TRUNK OF *OURATEA WRIGHTII*.

Randia formosa (Jacq.) Schum. A small tree near the laboratory.

Warscewiczia coccinea (Vahl) Klotzsch. A tree with very showy red bracts. Shore line near Slothia Island.

COMPOSITAE. Aster Family

Baltimora recta L. A sunflower-like weed. French lock site, Orchid Island.

Clibadium surinamense L. A coarse pioneer herb or shrub with small whitish flower heads. Range light clearing.

Melampodium divaricatum (Rich.) DC. A small yellow-flowered herb. French lock site, Orchid Island.

Verbesina myriocephala Schultz Bip. A tall harsh herb with pinnately lobed leaves and white flower heads. Frequent in clearings.

TWO NEW SPECIES OF CHARA FROM TROPICAL AMERICA

M. A. HOWE

In the collection of plants made on Barro Colorado Island, Canal Zone, in 1927 by Prof. Leslie A. Kenoyer is material of a *Chara* which, apparently, has not been described. Its study has involved the investigation of the nomenclature of a South American plant of the same genus, for which no valid name is available. Both these plants are described below.

Chara Kenoyeri M. A. Howe, sp. nov.

PLATE XVI

Dioicous: plants mostly 15-25 cm. high, olive- or sordid-green, very slightly incrustated, flexible; stems 0.8-1.1 mm. in diameter, irregularly and rather loosely triply corticated, the corticated cells often lying at different levels, occasionally the middle zone of the much elongated internodes uncorticated or imperfectly corticated; spine-cells rather few and scattered, or subverticillate in younger parts, flaccid and flexuous, mostly elongate, 0.6-2.7 mm. long, 100-150 μ in diameter at base; stipulodes forming a double whorl at each node, those of the upper whorl reaching a length of 0.6-0.75 mm. and commonly slightly exceeding the uncorticated basal internode of the leaves, those of the lower whorl of about the same length, both occasionally in part deficient (deciduous?); leaves 10-13 in a whorl, 2.5-3.75 cm. long, containing 8-10 internodes, all triply corticated except the basal and one at apex, which are uncorticated, the basal 0.7-0.9 mm. long, 0.35-0.6 mm. broad; leaflets at sterile nodes nearly equal, 1.5-3.7 mm. long, 120-180 μ broad, flexuous; antheridia 0.4-0.6 mm. in diameter; oogonia and sporocarps unknown.

PANAMA: In inlet, Barro Colorado Island, Canal Zone, July 26, 1927, *L. A. Kenoyer* (type in Herb. N.Y. Bot. Gard.).

In size, light incrustation, and general habit *Chara Kenoyeri* is slightly suggestive of lax conditions of *C. Hornemannii* and *C. Nordhoffiae*, but it is manifestly a member of the "gymnopus" group, with all the leaf-internodes corticated with the exception of the basal and apical. In the "gymnopus" group, the Barro Colorado plant is remarkable by the great length of its leaflets and by being apparently dioicous. The only dioicous species hitherto ascribed

to this group, so far as known to the present writer, is the one to which Braun, in 1847, intended to apply the name *Chara Martiana* and did apply it as a *nomen nudum*,¹ but, unfortunately, before any sort of a description of it was published, Wallman mistakenly diverted the name, with full diagnosis, to a monoicous species, and to this, according to the "American Code" of nomenclature, the name *C. Martiana* legally belongs. Nordstedt has considered the *Chara Martiana* Wallm. non A. Braun to be a synonym of *C. sejuncta* A. Br., but C. B. Robinson (Bull. N. Y. Bot Gard. 4: 276. 1906) has expressed a doubt as to the alleged synonymy. But whether a synonym or not, the American Code demands the renaming of Braun's plant, as has been pointed out by Dr. Robinson. A plant evidently very similar to Braun's and probably of the same species has been collected rather recently by Dr. H. H. Rusby in Bolivia. On the supposition that it is the same as the Brazilian plant of Martius, we are proposing below a new name and framing a new description, based in part on the Bolivian specimens and in part on the Braun-Nordstedt diagnosis of *Chara Martiana* A. Br. We take the precaution of naming the Bolivian plant as the type to carry the new name in case any one should convince himself that the specimens collected by Martius and those collected by Rusby are not conspecific.

***Chara Rusbyana* M. A. Howe, nom. nov.**

Chara Martiana A. Br.; Nordstedt, *Fragmente einer Monographie der Characeen* von A. Braun 186. *pl. 4, f. 97, 98.* 1883. Not *C. Martiana* Wallm. *Kongl. Vet. Akad. Handl.* 1853: 294. 1853.

Dioicous: plant up to 30 cm. high, olive- or gray-green, moderately to strongly incrustated, fragile; stems 0.6-0.85 mm. in diameter, triply corticated; spine-cells scattered or subverticillate, acute and rather rigid, 0.075-0.7 mm. long, 30-50 μ in diameter at base; stipulodes forming a double whorl at each node, those of the upper whorl reaching a length of 0.45-1.68 mm., covering the uncorticated basal internode of the leaves or considerably shorter, those of the lower whorl similar; leaves 10-14 in a whorl, 1.5-3 cm. long, showing 8-13 internodes, all triply corticated except the basal and one (or rarely 2) at apex, which are uncorticated, the basal 0.6-0.9 mm. long, 0.25-0.35 mm. broad, mostly twice as long as broad; leaflets at sterile nodes subequal, 0.16-0.25 mm. long, 50-80 μ broad at base, rather rigid; anterior bracteoles up to 0.45-0.6 mm. long, the lateral and posterior 0.14-0.25 mm. long; antheridian 0.38-0.6 mm. in diameter; sporocarps 0.4-0.68 mm. long, 0.3-0.47 mm. broad, crown cells 35-65 μ high.

¹A. Braun, *Uebersicht der Schweizerischen Characeen* 23. 1847.



CHARA KENOYERI.
Slightly reduced.

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BOLIVIA: At the mouth of the Ingenio River, alt. 3,000 ft., September 28, 1921, *H. H. Rusby 692* (Mulford Biological Exploration of the Amazon Basin; type in Herb. N. Y. Bot. Gard.).

Reported also by Braun-Nordstedt, under the name *Chara Martiana* A. Br., from several localities in Brazil (Province of Minas Geraes, Province of Matto Grosso, Province of Piauhy, and in the lake of Alagoes), and from Oran, in the Argentine Republic, near the Bolivian border.

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