

NEW OR NOTEWORTHY PHILIPPINE PLANTS

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The tenth paper under the above title consists of the descriptions of new species in the following families: *Gramineae*, *Cyperaceae*, *Moraceae*, *Loranthaceae*, *Olacaceae*, *Hernandiaceae*, *Rutaceae*, *Meliaceae*, *Buxaceae*, *Celastraceae*, *Icacinaceae*, *Sterculiaceae*, *Theaceae*, *Dilleniaceae*, *Lecythidaceae*, *Flacourtiaceae*, *Araliaceae*, and *Ebenaceae*. The genus *Worcesterianthus* of the *Olacaceae*, is proposed as new, while the genera *Buettneria* and *Firmiana* are new to the Philippine flora. A few species of older authors have been recorded from the Archipelago for the first time and a few changes in nomenclature are proposed. A total of eighty-six species are described as new. The last number of the series appeared in the year 1912.²

GRAMINEAE

ISACHNE R. Brown

ISACHNE CONFERTA sp. nov.

Planta parva, prostrata, ramosa, ramis floriferis erectis vel suberectis, 6 ad 8 cm longis; foliis numerosis, lanceolatis, acuminatis, circiter 2 cm longis, subtus leviter pilosis, supra scabridis; paniculis exsertis, angustis, 1 ad 2 cm longis, vix 5 mm latis, ramis paucis, erectis, 4-1-floris; spiculis confertis, circiter 1.8 mm longis, plus minusve purpureis; glumis sterilibus tenuiter 7- vel 9-nerviis, supra leviter hispidis; glumis fertilibus ellipsoideis vel elliptico-oblongis, inferioribus glabris, 1.6 mm longis, superioribus $\frac{1}{2}$ brevioribus, apice minute ciliatis.

A small, slender, prostrate, branched plant, rooting at the nodes, the flowering branches erect or suberect, 6 to 8 cm long. Sheaths rather lax, longer than the internodes, glabrous; ligule a ring of short white hairs. Leaves lanceolate, about 2 cm long, 2.5 to 3 mm wide, narrowed to the acute base and the acuminate

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² *Philip. Journ. Sci.* 7 (1912) *Bot.* 259-357.

apex, the lower surface somewhat pilose with scattered white hairs, the hairs arising from minute papillae, the upper surface at first papillate and sparingly pilose, becoming scabrid. Panicles exserted above the upper leaves, the peduncles 1.5 cm long or less, narrow, 1 to 2 cm long, less than 5 mm wide, the branches appressed, the lower ones 6 mm long or less and usually 4-flowered, the upper ones shorter, the uppermost usually bearing solitary spikelets. Spikelets crowded, about 1.8 mm long, more or less tinged with purple. Empty glumes about 1.8 mm long, slenderly 7- or 9-nerved, slightly hispid externally in the upper part, obtuse. Flowering glumes two, the lower one elliptic-oblong, obtuse, quite glabrous, 1.6 mm long, the upper one ellipsoid, slightly ciliate near the apex, usually about one-third shorter than the lower one.

LUZON, Province of Laguna, Dahican River back of San Antonio, *Bur. Sci.* 14914 *Ramos*, June, 1912, on stones along the river.

A rather characteristic species, distinguishable by its very narrow, dense panicles. It is perhaps most closely allied to *Isachne pauciflora* Hack., but is distinguished by its narrow leaves and glabrous flowering glumes.

DIMERIA R. Brown

DIMERIA CILIATA sp. nov.

Caespitosa, erecta, vaginis foliisque pilis longis albis mollibus instructis; racemis digitatis vel subfasciculatis, 4 ad 6, tenuibus, usque ad 12 cm longis, rhachibus circiter 0.7 mm latis, triangularibus, glabris vel leviter pubescentibus; spiculis 4 mm longis, glumis I et II carinatis, carinis longe ciliato-pilosis.

A densely tufted, erect, perennial grass 50 to 80 cm high, the culms slender, the sheaths and leaves rather densely clothed with long, soft, white hairs, some longer (5 mm) and somewhat stiffer ones intermixed with the shorter and softer ones, the nodes bearded. Leaves linear-lanceolate, acuminate, base slightly or not narrowed, 8 to 15 cm long, 3 to 4 mm wide, softly ciliate-pilose on both surfaces; ligule about 1 mm long, truncate. Inflorescence long-exserted, of 4 to 6 digitate or fasciculately arranged racemes, the racemes slender, 7 to 12 cm long, at first pale, soon turning pale-brownish, the rachis 3-angled and somewhat flattened, about 0.7 mm wide, glabrous or slightly pubescent, the internodes 2 to 4 mm long. Spikelets 4 mm long; first glume somewhat boat-shaped, keeled, 4 mm long, acute or obtuse, prominently ciliate-pilose with long white hairs on the keel; second glume similar but lanceolate, and also prominently ciliate-pilose on the keel; third glume shorter, hyaline, the awn slender, about 10 mm long.

PALAWAN, Taytay, in open swampy places at sea level, *Merrill 9320*, May 28, 1913.

A species allied both to *Dimeria chloridiformis* K. Schum. & Lauterb., of the Marianne Islands, and to the Indian *Dimeria fuscescens* Trin., differing from the former in its smaller spikelets and narrower, not ciliate rachises, and from the latter in its prominently ciliate-pilose sheaths and leaves and its prominently ciliate-pilose keels of the empty glumes.

ISCHAEMUM Linnaeus

ISCHAEMUM GLAUDESCENS sp. nov. § *Euischaemum*.

Species *I. aristato* affinis, differt planta majoribus, 1 ad 3 m longis, plus minusve glaucescens, racemis usque ad 15 cm longis, spiculis majoribus, 8 mm longis, glumis I spiculae sessilis in 1 inferiore prominente transverse rugosis, rugis 4 vel 5, elevatis.

A rather coarse, wiry, perennial grass reaching a height of from 1 to 1.5 m, the stems long-prostrate, scarcely or only slightly branched, reaching a total length of from 2 to 3 m, about 5 mm in diameter, hard, more or less glaucous under the sheaths. Leaves narrowly lanceolate to linear-lanceolate, glabrous, 15 to 20 cm long, about 1 cm wide, acuminate, base gradually narrowed, acute or obtuse, not at all cordate; sheaths about as long as the internodes, rather loose; ligule truncate, 2 to 3 mm long. Racemes two, closely appressed, 12 to 15 cm long, long-exserted, the joints of the rachis about 6 mm long, 3-angled, bearded on the outer angle. Sessile spikelets about 8 mm long, lanceolate; first glume coriaceous, 8 mm long, 2 mm wide, glabrous, somewhat glaucous, acuminate, margins incurved throughout, borders in upper part minutely scabrid, the dorsal part in the lower one-half with 4 or 5 prominent transverse ridges; second glume coriaceous, lanceolate, acuminate, keeled, 7 mm long; third glume hyaline, lanceolate, acuminate, 7 mm long; fourth glume similar to the third, a little shorter, cleft to the middle, bearing in the cleft a twisted, geniculate, 12 to 13 mm long awn. Anthers 3 mm long. Pedicellate spikelets dimidiate, their pedicels 2.5 mm long, stout, 3-angled, bearded on the outer angle, the first glume lanceolate, 8 mm long, 3 mm wide, acute or acuminate, coriaceous, one side rather broadly winged, the wing short ciliate-toothed; second glume somewhat lanceolate, 6 to 7 mm long, acuminate, the remaining ones somewhat shorter, hyaline.

PALAWAN, Lake Manguao, *Merrill 9453*, April 23, 1913, gregarious along the more or less swampy grassy borders of the lake in the openings of narrow valleys, with or without streams of water, areas submerged during periods of high water in the lake, altitude about 50 meters. The grass is abundant in suitable habitats, and is utilized by the crocodiles in build-

ing their nests. One nest examined by members of our party, containing numerous eggs, consisted of a large mound made entirely of sand and this grass very closely packed.

The species is manifestly allied to *Ischaemum aristatum* Linn., but differs in so many characters that it has been considered advisable to treat it as a distinct form.

ISCHAEMUM PUBESCENS sp. nov. § *Euischaemum*.

Species *I. aristato* affinis, differt foliis pilosis, spiculis paullo minoribus, glumis I spiculae sessilibus utrinque nodulis 2 obscuris praeditis, dorso parce piloso.

An erect perennial grass about 1 m high, the sheaths and leaves rather softly pilose with long white or pale hairs, the nodes rather densely ciliate-bearded, the internodes, under the sheaths, somewhat glaucous, about 3 mm in diameter. Leaves narrowly lanceolate, 10 to 18 cm long, 8 to 12 mm wide, acuminate, base of the upper ones truncate, of the lower ones narrowed, margins scabrid, both surfaces softly pilose with scattered, long hairs; sheaths rather lax, pilose; ligule brown, cleft, somewhat pubescent, 2 to 3 mm long. Racemes binate, closely appressed, 8 to 10 cm long, long-exserted, rather prominently white-ciliate, the joints 3-angled, bearded on all angles, 4 mm long. Sessile spikelets oblong, obtuse, about 5 mm long, 1.8 mm wide, the callus bearded; first glume coriaceous, obtuse, margins inflexed throughout, with two, broad, obscure undulations (scarcely nodules) near each side in the lower part, the back usually with very few, scattered, ciliate hairs; second glume lanceolate, acuminate, somewhat keeled, 5 mm long; third and fourth glumes hyaline, the fourth cleft to the middle, bearing in the cleft a geniculate, somewhat twisted, scabrid awn about 13 mm long. Pedicellate spikelets dimidiate, 5 to 6 mm long, the pedicels stout, 2 mm long, bearded; first glume widely winged on one side, springly ciliate-pilose on the back, smooth, the wing obscurely denticulate.

DUMARAN, *Bur. Sci.* 21639 *Escritor*, August, 1913.

Similar to *Ischaemum aristatum* Linn., and manifestly allied to that species. It is characterized, however, by its prominently pilose leaves and sheaths, its white-ciliate racemes, and the first glume of the sessile spikelets with very obscure marginal undulations which can scarcely be called nodules; the very short rachis-joints, and the bearded callus is also characteristic.

CYPERACEAE

ELEOCHARIS R. Br.

ELEOCHARIS ACICULARIS (L.) R. & S. Syst. 2 (1817) 154; Clarke in Hook. f. Fl. Brit. Ind. 6 (1893) 628, et in Journ. Linn. Soc. Bot. 36 (1903) 225.

LUZON, Benguet Subprovince, Baguio, Merrill 7665, May, 1909, on seepage slopes about rice paddies, altitude about 1,450 m.

Not previously reported from the Philippines, an additional distinct northern type in the flora of northern Luzon. Widely distributed in North America, throughout Europe and northern Asia, extending southward only in China.

FIMBRISTYLIS Vahl

FIMBRISTYLIS CAPITULIFERA sp. nov. § *Trichelostylis*.

Planta perennis glabra, subrigida, usque ad 40 cm alta; foliis numerosis, angustis, culmo brevioribus; spiculis omnibus sessilibus, capitato-congestis, capitulis umbellato-dispositis; glumis numerosis, 5-nerviis, oblongis, subobtusis, marginibus latis, scariosis; nucibus compressis vel plano-convexis, minutissime striatis, circiter 0.7 mm longis; stylo trifido.

A glabrous, somewhat rigid, apparently densely caespitose, glabrous, perennial plant 20 to 40 cm high. Leaves very numerous, sheathing the bases of the stems, subrigid, flat or nearly so, 1 to 2 mm wide, 8 to 18 cm long. Culms terete, striate, exserted, rather slender. Inflorescence umbellate, consisting of a central sessile head and from 3 to 6 peduncled ones, each head with from 10 to 20 sessile, densely disposed spikelets 3 to 6 mm in length. Glumes numerous, oblong, about 2 mm long, somewhat keeled, closely 5-nerved in the median portion, with broad, somewhat scarious and thin margins, apex somewhat obtuse, usually apiculate. Nut obovate, brown, about 0.7 mm long, somewhat compressed or plano-convex, not trigonous, minutely striate; style glabrous, slender, about 2 mm long, 3-fid.

BATANES ISLANDS, Batan, *Bur. Sci.* 3575 *Fénix*, *Bur. Sci.* 10203 *McGregor*, *Bur. Sci.* 3171, 3172, 3173 *Mearns*. BABUYANES ISLANDS, Babuyan Islands, *Bur. Sci.* 3926 *Fénix*. Camiguin Island, *Bur. Sci.* 4042 *Fénix* (type).

This species was previously recorded by me under the name of *Fimbristylis spathacea* Vahl, to which it does not seem to be closely allied. It is well characterized by its spikelets being all sessile and disposed in dense heads, the central head sessile, the others peduncled; the rays of the umbel vary from 1 to 4 cm in length. The species belongs in the section *Trichelostylis*, and is probably as closely allied to *Fimbristylis junciformis* Kunth as to any other species. It differs from Kunth's species in its much smaller umbels, the spikelets much more numerous in each head, none of them being solitary, and in the style being quite glabrous, not villous below the fork.

FIMBRISTYLIS PALUDOSA sp. nov. § *Trichelostylis*.

Densissime caespitosa, erecta, glabra, efoliosa, 60 ad 100 cm alta, culmis distincte 3- vel 4-angularibus; umbellis decompositis, 2 ad 4 cm longis; spiculis numerosis, ovoideis, 2.5 ad 3.5 mm longis, brunneis, glumis usque ad 10, ovatis, acutis vel obtusis,

obscure carinatis; nucibus obovoideis, triangularibus, laevibus vel obscurissime transverse lineatis; stylo 3-fido.

A densely caespitose, leafless, perennial plant 0.6 to 1 m high from stout rhizomes, the lower parts of the culms with 3 or 4 rather loose, imbricate sheaths, the lower ones ovate to oblong-ovate, 1 to 2 cm long, the upper one up to 10 cm long, the mouth oblique, with a broad, brown, membranaceous margin. Culms prominently 3- or 4-angled, rather stiff. Inflorescence terminal, 2 to 4 cm long, open, umbellately decomposed, subtended by one or two, lanceolate, acuminate, leaf-like, 1 cm long bracts. Spikelets numerous, not fascicled, usually one sessile median one and two lateral pedicelled ones on each ultimate branchlet, 2.5 to 3.5 mm long, brown, ovoid, the pedicels scabrid; glumes 10 or fewer, brown, ovate, acute or obtuse, obscurely keeled. Stamens 3. Nut obovoid, 3-angled, white, 0.8 to 1 mm long, smooth or very obscurely transversely lineate; style-arms 3.

LUZON, Benguet Subprovince, Baguio, *Williams 1239* (type), May, 1904, *Elmer 6497*, June, 1904, *Phil. Pl. 551 Merrill*, June, 1911.

Apparently a very characteristic species allied to *Fimbristylis miliacea* Vahl, *F. quinquangularis* Kunth, etc., but differing in its leafless stems, large rhizomes, smooth or nearly smooth nuts, and other characters.

FIMBRISTYLIS PINETORUM sp. nov. § *Trichelostylis*.

Erecta, glabra, culmis e rhizomate crasso, solitariis, gracilibus, 20 ad 40 cm altis, basi foliosis; foliis paucis, subsetaceis, usque ad 13 cm longis; inflorescentiis simpliciter umbellatis; spiculis paucis, 3 ad 7, brunneis, oblongo-ovoideis, 6 ad 11 mm. longis; nucibus obovoideis, verruculosus, albidis, 1 ad 1.2 mm longis, obscure triangularibus; stylo trifido.

A solitary, erect, slender, perennial plant from stout, woody rhizomes, the rhizomes clothed with membranaceous, lanceolate, usually brownish scales or sheaths, usually about 1 cm long. Culms striate, 20 to 40 cm high, the base with several imbricate leafless sheaths, and at or near the base 2 to 4 leaf-bearing sheaths, the sheaths oblique, their margins membranaceous, the leaves linear or setaceous, involute when dry, 1 to 1.5 mm wide, 4 to 13 cm long. Inflorescence usually a simple umbel, rarely compound, 2 to 3 cm long, the subtending bract lanceolate, acuminate, usually less than 1 cm long. Spikelets oblong-ovoid, brown, many-flowered, 6 to 11 mm long, 3 to 7, one sessile, the others mostly slenderly pedicelled, the pedicels 1 to 2 cm long. Glumes ovate, concave, keeled, glabrous, acute to obtuse, often retuse, the margins thinner and paler. Stamens 3. Nut white, obovoid, 1 to 1.2 mm long, obscurely 3-angled, apex broadly

rounded or subtruncate, verruculose, not at all reticulate. Style-arms 3.

LUZON, Benguet Subprovince, Baguio, *Merrill 7664* (type), *Phil. Pl.*, 558 *Merrill*, June, 1911, scattered on slopes among various grasses in thin pine forests, altitude about 1,550 m.

A species apparently well characterized by its solitary, not at all caespitose stems, woody rhizomes, narrow leaves, usually simple inflorescence of few spikelets, and verrucose, not at all reticulate, white, obscurely triangular nuts. It is allied to *Fimbristylis monticola* Steud., and to *F. pierotii* Miq., of India, the latter extending to Japan.

MAPANIA Aublet

MAPANIA PALUSTRIS (Hassk.) F.-Vill. Novis. App. (1882) 309; C. B. Clarke in Hook. f. *Fl. Brit. Ind.* 6 (1894) 681.

Pandanophyllum palustre Hassk. in *Tijdschr. Nat. Vereen. Ned. Ind.* 10 (1843) 119; Boeck. in *Linnaea* 37: 138; Kurz in *Journ. As. Soc. Beng* 38: 78.

Lepironia palustris Miq. *Ill. Fl. Archip. Ind.* (1871) 63, t. 25.

MINDANAO, Agusan Subprovince, Waloe, in muddy places along small streams in forests, *Merrill 7298*, October, 1910.

Except for F.-Villar's previously unverified record, not before reported from the Philippines; Malay Peninsula and Archipelago.

There is some doubt as to the proper specific name for this plant, for Clarke, l. c., states that Hasskarl's description calls for a bifid style and 3 to 5 spikelets, which does not apply to *Mapania palustris*; however, these statements may have been based in part on erroneous observations. Miquel definitely states that the number of spikelets in a head is variable, and his drawing shows a 2-cleft style. It is not clear, that in case *Mapania palustris* is distinct from *Pandanophyllum palustre* Hassk., why the specific name is retained, for if not based on Hasskarl's description, then it was based on a later one under the same name by Boeckler or Kurz. It seems only reasonable to suppose that Boeckler and Miquel were familiar with type or typical material of Hasskarl's *Pandanophyllum palustre*, and under the circumstances it seems best to retain the specific name *palustris*, at least until opportunity is had to examine Hasskarl's type. Incidentally Clarke credits Bentham with authorship of the combination *Mapania palustris*; this is incorrect, for Bentham did not make the actual transfer, but only indicated *Pandanophyllum* to be a synonym of *Mapania*. F.-Villar appears to be the first to make the actual transfer of the species.

MAPANIA GRACILLIMA Kükenthal & Merrill sp. nov.

Rhizoma breve, lignosum, crassum. Culmi laterales scapiformes, 5–10 cm alti, gracillimi, obtusanguli, striati, asperi, basi vaginis nonnullis lanceolatis fuscis nervosis tecti et in medio vagina unica aequali obsiti. Folia culmos longe superantia, 4–5 mm lata, plane utrinque attenuata, marginibus aculeato-scabra, coriacea, glaucescentia. Spica parva, primo lineari-ellipsoidea demum ovata, densa, 5 mm longa, 4 mm lata, bracteae squamiformes. Spiculae haud numerosae oblongae. Squamae late

ovatae, apice rotundatae, rufae. Squamellae 4 squama longiores, 2 exteriores navicularis in carina valde setulosae. Nux ellipsoideo-lageniformis, 2 mm longa, medio turgidula, straminea, laevis, sessilis, erostrata. Stylus brevissimus. Stigmata 3 vel 4.

MINDANAO, District of Zamboanga, Sax River Mountains back of San Ramon, *Merrill 8205*.

Omnium *Mapaniarum* gracillima, foliis pro ratione angustissimis spicaque minima ab omnibus affinibus bene distinguenda. Squamellas non nisi 4 observari, sed forsan 6 adsunt, quarum duae jam elapsae.

SCHOENUS Linnaeus

SCHOENUS FALCATUS R. Br. Prodr. (1810) 232; Benth. Fl. Austral. 7 (1878) 372; Clarke ex Hemsl. in Journ Linn. Soc. Bot. 36 (1903) 261.

LUZON, Province of Zambales, *Bur. Sci. 5036 Ramos*, December, 1907.

Not previously reported from the Philippines; tropical Australia and Queensland, Borneo, and Formosa.

The specimens differ from the species, as described by Benth, in having somewhat smaller panicles, and in some of the flowering-glumes being distinctly retuse. A distinct Australian type, the fifth species of the genus to be found in the Philippines.

SCIRPIODENDRON Zippel

SCIRPIODENDRON GHAERI (Gaertn. f.) comb. nov.

Chionanthus ghaeri Gaertn. f. Fruct. 1 (1788) 190, t. 29, fig. a-e; Boerl. in Journ. Linn. Soc. Bot. 31 (1896) 246.

• *Scirpiodendron costatum* Kurz in Journ. As. Soc. Beng. 38¹ (1869) 85; Clarke in Hook. f. Fl. Brit. Ind. 6 (1904) 684; Merr. in Philip. Journ. Sci. 2 (9107) Bot. 422.

Scirpiodendron sulcatum Miq. Ill. Fl. Archip. Ind. (1871) 65, pl. 28.

LUZON, Province of Cagayan, Abulug River, *For. Bur. 19612 Curran*, January, 1911. POLILLO, *Bur. Sci. 10249 McGregor*, October, 1909. PALAWAN, San Antonio Bay, *Merrill 5257*, October, 1906; Taytay, *Phil. Pl. 1295 Merrill*. MINDANAO, District of Zamboanga, Malasugat, *Merrill 8114*, December, 1911.

Chionanthus ghaeri Gaertn. f., which was described and figured from detached fruits alone, remained a doubtful species until the year 1896, when Boerlage was able to determine its identity from examination of the original material used by Gaertner in describing and figuring it. Gaertner's name is by far the earliest one for the species, and there is no reason why it should not be adopted.

MORACEAE

ARTOCARPUS Forster

ARTOCARPUS OVATIFOLIA sp. nov.

Arbor circiter 40 m alta, stipulis parce brevissime pubescentibus exceptis glabra; foliis coriaceis, ovatis, integris, usque ad 30 cm longis, acutis vel breviter acute acuminatis, basi acutis

vel subrotundatis, nervis prominentibus, utrinque circiter 8; stipulis membranaceis, caducis, lanceolatis, 10 cm longis; fructibus globosis vel subglobosis, circiter 6 cm diametro (immaturis), anthocarpiis numerosissimis, apicibus subovoideis, obtusis, vix 2 mm longis, dense ceraceo-furfuraceis.

A tree about 40 m high, glabrous or nearly so. Branches dark reddish-brown, smooth, the ultimate ones nearly 1 cm in diameter, marked with slender annular rings less than 1 cm apart. Leaves ovate, coriaceous, glabrous, 10 to 30 cm long, 7 to 20 cm wide, entire, the apex acute or very shortly and acutely acuminate, or apiculate-acuminate, base acute or somewhat rounded, both surfaces slightly shining, of about the same color and somewhat brownish when dry; lateral nerves about 8 on each side of the midrib, prominent, spreading, curved only near their tips, the ultimate reticulations slender, subparallel; petioles 3 to 5 cm long; stipules caducous, lanceolate, acuminate, membranaceous, 10 cm long, outside sparingly pubescent with very short, somewhat appressed hairs. Flowers unknown. Immature fruits globose or subglobose, about 6 cm in diameter (immature), composed of very numerous, slender anthocarps, the projecting tips of the anthocarps ovoid or subovoid, about 2 mm long, rounded or obtuse, about 2 mm in diameter, densely covered with waxy-furfuraceous scales.

LUZON, Province of Laguna, San Antonio, in forests, *Bur. Sci.* 15040 (type), 20530 Ramos, June, 1912, February, 1913, fruits yellow.

A very characteristic species, manifestly, however, in the same group as *Artocarpus communis* Forst. In texture and venation the leaves resemble those of Forster's species, but are always quite entire. In being almost glabrous the present species differs also from *Artocarpus communis* Forst. The waxy-furfuraceous tips of the anthocarps is characteristic.

FICUS Linnaeus

FICUS CAMARINENSIS sp. nov. § *Urostigma*.

Arbor alta, glabra, ramis ramulisque rugosis; foliis alternis, oblongo-ellipticis, subcoriaceis, nitidis, laevis, usque ad 23 cm longis, integris, apice abrupte tenuiter acute acuminatis, basi rotundatis, 3-plinerviis, nervis lateralibus utrinque 10 ad 12, subpatulis, prominentibus, anastomosantibus; petiolo 2.5 cm longo; receptaculis axillaribus, solitariis, sessilibus, ellipsoideis, in siccitate brunneis, 3 ad 3.5 cm longis, bracteis 3, reniformibus, 3 mm longis, 5 mm latis.

A tall tree, quite glabrous except the bud-scales which are appressed-hirsute. Branches and branchlets prominently rugose when dry, somewhat lenticellate, with distinct stipular scars, the latter 5 to 6 mm in diameter. Leaves alternate, subcoriaceous,

brown and shining when dry, smooth, oblong-elliptic, 14 to 23 cm long, 7 to 11 cm wide, entire, 3-plinerved, base rounded, apex abruptly and usually slenderly acutely acuminate, the acumen 1.5 to 2 cm long; primary lateral nerves prominent, spreading, straight, 10 to 12 on each side of the midrib, anastomosing near the margin, the reticulations rather lax, anastomosing between each two lateral nerves into less distinct secondary nervs; petioles 2.5 cm long; bud-scales lanceolate, acuminate, 1.5 cm long, appressed-hirsute. Receptacles axillary, solitary, sessile, ellipsoid, brown when dry, smooth or somewhat warted, 3 to 3.5 cm long, 2 to 2.5 cm in diameter, the apex rounded, the umbilicus distinct. Basal bracts 3, reniform, brown, coriaceous, 3 mm long, 5 mm wide. Gall flowers numerous, their perianth segments usually 3, about 2 mm long. Male flowers few and chiefly near the orifice, anthers 1 mm long.

LUZON, Province of Camarines, Niog, *Phil. Pl.* 1547 Ramos, December 17, 1913, locally known as *balete*.

A species well characterized by its large, ellipsoid, sessile, solitary, axillary receptacles. Its alliance is apparently with *Ficus forstenii* Miq. (*F. vidaliana* Warb.) from which it differs in its much larger receptacles and larger leaves.

FICUS PRODUCTA sp. nov. § *Sycidium*.

Frutex erectus, circiter 2 m altus, foliis utrinque ramulisque scaberulis; foliis alternis, subcoriaceis, usque ad 18 cm longis, oblongis ad oblongo-obovatis vel ovato-ellipticis, aequilateralibus, basi 3-nerviis, acutis vel obtusis, apice longe tenuiter caudato-acuminatis, margine irregulariter grosse dentatis vel dentato-serratis, haud lobatis, in siccitate subviridis, nervis utrinque circiter 8, subtus cum reticulis valde prominentibus; receptaculis axillaribus, solitariis vel in paribus dispositis, subglobosis vel leviter obovoideis, scabridis, pedunculatis, 8 ad 10 mm diametro.

An erect shrub about 2 m high, scabrid. Branches terete, slender, pale-brownish when dry, glabrous, the branchlets scabrid. Leaves alternate, rather prominently scabrid in both surfaces, otherwise glabrous, oblong to oblong-obovate or even ovate-elliptic, 12 to 18 cm long, 4 to 7 cm wide, equilateral, the base shortly 3-nerved, acute or obtuse, the apex rather abruptly long and slenderly caudate-acuminate, the acumen 2 to 3.5 cm long, narrow at the base, entire, acute or apiculate, the margins rather coarsely dentate or dentate-serrate, not lobed, the teeth irregular, mostly 5 mm apart or more, both surfaces when dry somewhat greenish, shining, scabrid, the lower very slightly paler than the upper; lateral nerves about 8 on each side of the midrib, very prominent on the lower surface, anastomosing, the reticula-

tions very prominent, the lower surface more or less puncticulate; petioles about 1 cm long, scabrid. Receptacles orange-red, scabrid, solitary or in pairs, axillary, subglobose to somewhat obovoid, 8 to 10 mm in diameter, their peduncles 5 to 7 mm long, scabrid, the apical bracts small, ovate, about 1 mm long, the wall of the receptacle ciliate-hispid inside. Perfect female flowers numerous, the perianth-segments narrowly lanceolate, obtuse or acute, membranaceous, about 2 mm long, prominently ciliate-hispid in the upper part, one about twice as broad as the other three and cleft to about the middle, the narrower three often somewhat spatulate. Ovary ovoid-ellipsoid, obtuse, subequilateral, about 1.2 mm long, the styles distinctly lateral, 1.2 to 1.8 mm long.

MINDANAO, Subprovince of Butuan, Veruela, C. M. Weber 1132 (type), June 19, 1911, in thickets; Talacogon, Bur. Sci. 1131 Weber, July 20, 1911, among *abacá* plants.

A species in the *ulmifolia* group, but with equilateral leaves which are abruptly, long and slenderly caudate-acuminate, and with somewhat smaller receptacles than in *F. ulmifolia* Lam., under which name the specimens were distributed. Its closest ally is *Ficus euphlebia* Merr., which has less prominently acuminate, more distinctly and closely toothed leaves which are acute or merely obtuse at the base, not rounded; in the present species the interior of the receptacle and the perianth-segments are also prominently ciliate-hispid with stiff white hairs.

FICUS GRANDIDENS sp. nov. § *Covellia*.

Arbor circiter 6 m alta, ramulis adpresso-hirsutis exceptis glabra; foliis oblongis vel late oblongis, subcoriaceis vel chartaceis, usque ad 23 cm longis, glabris, laevis, nitidis, acuminatis, basi acutis, margine grosse irregulariter sinuato-lobato-dentatis, dentibus vel lobis 1 vel 2 utrinque; receptaculis obovoideis, pedunculatis, in fasciculis densis hemisphericis caulinis dispositis.

A tree 5 to 6 m high, quite glabrous except the appressed-hirsute younger branchlets. Branches terete, smooth, grayish-brown, the ultimate ones about 4 mm in diameter. Leaves oblong or broadly oblong, subcoriaceous or chartaceous, glabrous, smooth, 14 to 23 cm long, 5 to 11 cm wide, narrowed more or less at both ends, apex acuminate, base acute, the margins very coarsely sinuate-lobed or -toothed, the lobes or teeth 1 or 2 on each side, obtuse or acute, the upper surface shining, dark-colored when dry, the lower surface slightly shining, paler; nerves 5 or 6 on each side of the midrib, prominent, usually brownish when dry, anastomosing, the reticulations distinct, rather slender; petioles 1 to 2 cm long; stipules lanceolate, acuminate, 10 to 12 mm long, subpersistent. Fruits fascicled on stout protuberances on the

trunk, forming very dense, hemispheric masses 8 to 10 cm in diameter. Receptacles obovoid, often more or less compressed-angular by pressure of contiguous ones, 10 to 12 mm in diameter, green, glabrous or nearly so, the umbilicus about 3 mm in diameter; peduncles slender, 1.5 to 2 cm long, with three small bracteoles at the apex. Fertile female flowers numerous, their pedicels up to 1.5 mm in length; perianth short, sheathing the pedicel below, truncate, about 1 mm long. Ovary ovoid, 1.5 mm in diameter; style lateral.

MINDANAO, District of Zamboanga, Sax River Mountains back of San Ramon, *Merrill 8089*, November 28, 1911, in forests, altitude about 800 m.

A species manifestly closely allied to *Ficus rubrovenia* Merr., and very similar to that species, differing in its somewhat appressed-hirsute, not glabrous, branchlets, and its very coarsely lobed-toothed, not merely undulate leaves.

FICUS RIVULARIS sp. nov. § *Eusyce*.

Frutex circiter 4 m altus ramulis minute puberulis exceptis glaber; foliis alternis, lanceolatis vel anguste lanceolatis, leviter falcatis, usque ad 25 cm longis, utrinque angustatis, apice longe tenuiter caudato-acuminatis, basi acutis, integris, subcoriaceis, laevis, subtus albido-punctatis, nervis utrinque circiter 20; receptaculis axillaribus, solitariis, obovoideis, 1 ad 1.5 cm diametro, pedunculatis, bracteis circiter 2 mm longis.

An erect, nearly glabrous shrub about 4 m high. Branches terete, slender, reddish-brown, glabrous, the younger branchlets somewhat puberulent. Leaves alternate, subcoriaceous, lanceolate to narrowly lanceolate, 12 to 25 cm long, 1.5 to 3 cm wide, somewhat falcate, narrowed at both ends, the apex very slenderly caudate-acuminate, the acumen up to 4 cm in length, minutely apiculate, the base equilateral, usually acute, rarely slightly obtuse, minutely cucullate on the upper surface, the margins quite entire, somewhat revolute, the upper surface smooth, glabrous, shining, rather pale or somewhat olivaceous when dry, the lower surface somewhat paler, or brownish, distinctly white-punctulate under a lens; lateral nerves about 20 on each side of the midrib, rather distinct, anastomosing, the ultimate reticulations distinct, angular, about 1 mm in diameter; petioles 5 to 10 mm long; membranaceous, deciduous, linear-lanceolate or narrowly lanceolate, acuminate, 1.5 to 2 cm long. Receptacles axillary, solitary, obovoid, 1 to 1.5 cm in diameter, glabrous, somewhat narrowed at the base into a very short pseudo-stalk, their peduncles slender, 5 to 10 mm long, with three, ovate, obtuse, 2 mm long bracts at the summit. Gall flowers very numerous, in general obovoid, sessile or shortly pedicelled, about 2.5

mm long, the perianth brown, chartaceous or coriaceous, irregularly 3-lobed, the lobes short, the perianth itself glabrous, about 2 mm in diameter.

LUZON, Province of Cagayan, *For. Bur.* 17806 Curran (type), January, 1912, *Bur. Sci.* 7399 Ramos, March, 1909: Province of Tayabas, Piapi, *For. Bur.* 10134 Curran, March, 1908, all the specimens indicated as growing on the banks of rivers, and from their "stenophyllous" leaves, apparently in places subject to submergence in times of floods or high water.

The specimens have been previously referred to *Ficus linearifolia* Elmer, with which they have very little relationship, except some resemblance in leaf-form, and manifestly the present species belongs in an entirely different section from Elmer's species. The very narrow, entire, slenderly caudate-acuminate, somewhat falcate leaves which are white-punctulate beneath are characteristic.

FICUS LAGUNENSIS sp. nov. § *Eusyce*.

Frutex scandens, glaber, vel ramulis parcissime ciliato-hirsutus; foliis alternis, ovatis vel oblongo-ovatis, coriaceis, in siccitate plus minusve brunneis, usque ad 20 cm longis, acuminatis, basi late cordatis, integris; nervis utrinque circiter 7, subtus cum reticulisque valde prominentibus; receptaculis axillaribus, solitariis vel fasciculatis, obovoideis, glabris, pedunculatis, circiter 7 mm diametro.

A scandent shrub, the young branchlets sometimes emitting rootlets, glabrous or nearly so. Branches terete, brown, wrinkled when dry, glabrous or with few scattered long hairs. Leaves alternate, coriaceous, ovate to oblong-ovate, 10 to 20 cm long, 5 to 10 cm wide, entire, the apex acuminate, the base broadly rounded, cordate, the upper surface glabrous, shining, the nerves impressed, the lower surface very prominently reticulate, glabrous or with very scattered hairs along the midrib and primary nerves; lateral nerves 7 on each side of the midrib, very prominent, the anastomosing, primary reticulations subparallel; petioles 1.5 to 3 cm long, somewhat ciliate-pubescent or glabrous; stipules lanceolate, acuminate, deciduous, about 1.5 cm long. Receptacles axillary, solitary or fascicled, obovoid, glabrous, smooth, about 7 mm in diameter, their peduncles 5 to 8 mm in length.

LUZON, Province of Laguna, Dahican River, back of San Antonio, *Phil. Pl.* 1123 Ramos, September 17, 1912, in forests.

A species very similar to and manifestly closely allied to *Ficus propinqua* Merr., and to *Ficus villosa* Bl., perhaps even too closely allied to the former to be distinguished as a true species. Its glabrous receptacles and leaves distinguish it from Blume's species, while from the Philippine *F. propinqua* it is distinguishable by its longer peduncled, obovoid, not globose receptacles, its glabrous or nearly glabrous leaves, and its only slightly hirsute branchlets.

FICUS WEBERI sp. nov. § *Sycidium*.

Frutex circiter 4 m altus, ramulis stipulis et subtus foliis ad nervos plus minusve brunneo-hirsutis; foliis alternis oppositisque, oblongo-ovatis ad obovato-oblongis, chartaceis, 10 ad 20 cm longis, acuminatis, basi acutis, truncatis, vel leviter cordatis, subaequilateralibus vel leviter inaequilateralibus, nervis utrinque circiter 10; stipulis anguste lanceolatis, acuminatis, usque ad 3 cm longis; receptaculis axillaribus, sessilibus, ovoideis, subglabris, circiter 1.5 cm longis, basi 3-bracteatis.

An erect shrub about 4 m high. Branches terete, brown, hirsute with spreading brownish hairs. Leaves alternate, a few also opposite, chartaceous, brown and slightly shining when dry, paler beneath, oblong-ovate to obovate-oblong, 10 to 20 cm long, 6 to 10 cm wide, the upper surface smooth and glabrous, the lower hirsute with spreading, scattered, brown or pale hairs along the midrib and lateral nerves, apex rather slenderly and abruptly acuminate, base acute but more often truncate or slightly cordate, usually somewhat inequilateral, one side sometimes acute and the other rounded, margins slightly crenulate; nerves about 10 on each side of the midrib, prominent, the reticulations rather lax; petioles hirsute, 1 to 3 cm long; stipules narrowly lanceolate, long-acuminate, 2 to 3 cm long, hirsute on the back, subpersistent. Receptacles green, axillary, sessile, ovoid, about 1.5 cm long, glabrous or nearly so, the base with three, triangular-ovate to ovate-lanceolate, acuminate, 3 to 5 mm long bracts. Male flowers not seen.

MINDANAO, Butuan Subprovince, Veruela, *Weber 1002*, in second growth forests, June 19, 1911.

A species probably most closely allied to *Ficus carpenteriana* Elm., but differing from that species in its much broader leaves, nearly glabrous receptacles, and other characters.

FICUS WORCESTERI sp. nov. § *Sycidium*.

Arbor parva, erecta, glabra, circiter 4 m alta, ramulis teretibus; foliis alternis, circiter 20 cm longis, chartaceis, in siccitate pallidis, utrinque leviter scabridis vel laevis, concoloribus, equilateralibus, apice abrupte subcaudato-acuminatis, basi acutis vel obtusis, 3-nerviis, margine integris vel leviter obscure undulatis, nervis utrinque circiter 10, distinctis; petiolo 1.5 ad 4 cm longo; receptaculis axillaribus, solitariis vel fasciculatis, pedunculatis, subglobosis, aurantiacis, 1 cm diametro.

A small, erect, glabrous tree about 4 m high, the branches terete, smooth, somewhat straw-colored. Leaves alternate, chartaceous, very slightly scabrid on both surfaces or smooth, slightly

shining, of the same color on both surfaces when dry, and rather pale-yellowish-green, about 20 cm long, 8 to 10 cm wide, oblong, the apex rather abruptly subcaudate-acuminate, the acumen 1 cm long, the base equilateral, acute or obtuse, shortly 3-nerved, the margins entire or slightly and obscurely undulate; lateral nerves about 10 on each side of the midrib, prominent, straight, somewhat anastomosing, the reticulations subparallel, distinct, rather lax; petioles 1.5 to 4 cm long. Receptacles axillary, solitary or somewhat fascicled, orange-red when mature, globose, about 1 cm in diameter, their peduncles 8 to 10 mm long, ebracteolate or with small bracteoles near the base.

CAVILLI ISLAND, Sulu Sea, *Merrill 7178*, September 24, 1911.

Common in thickets near the sea on both Cavilli Island, and the neighboring smaller islet known as Arena Island. Apparently allied to *Ficus ulmifolia* Lam., *F. blepharostoma* Warb., and similar forms, distinguishable at once by its smooth or nearly smooth leaves. Dedicated to the Honorable Dean C. Worcester, formerly Secretary of the Interior of the Philippine Government, to whom I am indebted for opportunity botanically to explore Cavilli Island.

FICUS HEMICARDIA sp. nov. § *Sycidium*.

Arbor parva, erecta; foliis oblongis, brevissime petiolatis, scabris, inaequilateralibus, 10 ad 30 cm longis, valde oblique cordatis, uno latere angustatis altero latissime rotundatis; receptaculis ovoideis vel subglobosis, circiter 11 mm diametro, hispidis, pedunculatis, solitariis vel binis in axillis foliorum vel in ramis vel caulis fasciculatis.

An erect tree, apparently of small size. Branches terete, light-gray, glabrous. Leaves varying greatly in size, 10 to 30 cm long, 3 to 11 cm wide, oblong, very harsh and scabrous on both surfaces, not pubescent, somewhat shining when dry, oblong, strongly inequilateral, margins coarsely dentate, apex rather prominently acuminate, base very strongly obliquely cordate, one side very much narrower than the other, narrowly rounded, the other broadly rounded, the sinus narrow; petioles stout, 5 mm long or less; lateral nerves very prominent as are the coarse reticulations, 6 or 7 on each side of the midrib above the base, the basal nerves radiating, the narrow side of the leaf usually with one, the broad side with four. Receptacles ovoid or subglobose, about 11 mm in diameter, hispid with scattered, spreading, white, bristle-like hairs, solitary or in pairs in the axils of the leaves, or solitary or fascicled on the larger branches and on the trunk near its base, the peduncles hispid, about 4 mm long, with 2 or 3, ovate, acute, 1.5 mm long bracts near the apex. Male flowers not seen. Fertile female flowers pedicelled, the

perianth lobes hyaline, equaling or a little longer than the ovary which is about 1.1 mm in length; style sublateral, 1.5 mm long.

MINDANAO, Butuan Subprovince, Mount Hilong-Hilong, *Weber 1001*, March 11, 1911, altitude about 130 m, on rocky slopes near streams.

The species is allied to *Ficus fiskei* Elm., differing in its short-petioled, differently shaped leaves and hispid fruits, and also to *F. odorata* Merr., differing from that species especially in its smaller fruits that are not densely hirsute. It is one of the most strongly marked species of the genus known from the Philippines, well characterized by its harsh, inequilateral, prominently and obliquely cordate, subsessile leaves. The receptacles are borne in the axils of the leaves on the ultimate branches, on the large branches below the leaves, and on the trunk of the tree near its base, a varied distribution that is quite unusual in the genus, although occasionally one finds the allied *Ficus odorata* Merr. with most of its receptacles in the leaf-axils, and a few supplementary ones near the base of the trunk.

FICUS CAMIGUINENSIS sp. nov.

Species *F. paucinerviae* Merr. similis et ut videtur affinis, differt foliis majoribus, receptaculis minoribus glabris.

A small tree about 6 m high. Branches terete, wrinkled and brownish when dry, the ultimate ones about 5 mm thick. Leaves alternate, somewhat crowded at the ends of the branchlets, chartaceous or thinly coriaceous, subelliptic or elliptic-ovate, greenish and shining when dry, narrowed to the acute or obtuse base, the apex shortly and slenderly caudate-acuminate, the acumen 1 cm long or less, 14 to 22 cm long, 8 to 13 cm wide, entire, the upper surface glabrous, the lower one more or less white-ciliate on the nerves and reticulations; basal nerves a single pair, extending to about the middle of the leaf, straight, prominent; lateral nerves above the basal pair 4 or 5 on each side of the midrib, ascending, straight, prominent, the reticulations distinct, subparallel; petioles ciliate-pubescent, 3 to 4.5 cm long; stipules caducous, ovate or ovate-lanceolate, 5 to 8 mm long, densely appressed-pubescent, the stipular scars prominent. Receptacles mostly in pairs in the axils of fallen leaves, sometimes solitary, sometimes somewhat fasciculate, numerous, their peduncles 4 to 8 mm long, with three prominent bracts at the apex or somewhat below the apex, glabrous, yellow, globose, about 8 mm in diameter.

CAMIGUIN DE MINDANAO, in mossy forests probably above an altitude of 1,200 m, *Phil. Pl. 1197 Ramos*, March 24, 1912.

Apparently a distinct species, at least not matched in our extensive collections. I have also been unable to refer it to any of the numerous Malayan species of which the descriptions are available here. It is similar to *Ficus paucinervia* Merr. (*F. integrifolia* Elm.), apparently closely allied to it, and certainly belongs to the same section of the genus.

LORANTHACEAE

LORANTHIS Linnaeus

LORANTHUS LUCIDUS sp. nov. § *Dendrophthoe*.

Frutex parasiticus, subscandens, glaber, ramis ramulisque teretibus; foliis oppositis vel suboppositis, usque ad 12 cm longis, breviter petiolatis, oblongo-ovatis ad lanceolatis, utrinque valde nitidis, longe acute acuminatis, basi late rotundatis cordatisque rariter subobtusis; inflorescentiis terminalibus et in axillis superioribus, 5 ad 10 cm longis, floribus 6-meris, circiter 1.6 cm longis, in triadibus dispositis, lateralibus pedicellatis, intermedio sessile, triadibus racemose dispositis.

A parasitic shrub, apparently somewhat scandent along its host, glabrous, the branches stout, terete, gray, slightly lenticellate, the younger ones somewhat reddish-brown, smooth. Leaves opposite or subopposite, coriaceous, oblong-ovate to lanceolate, normally 8 to 12 cm long, 3.5 to 5 cm wide, broadly rounded and prominently cordate at the base, exceptionally lanceolate, 1.5 to 3 cm wide, and subobtuse at the base, prominently shining on both surfaces, gradually narrowed upward to the long and sharply acuminate apex; lateral nerves 6 to 8 on each side of the midrib, slender, indistinct; petioles 3 to 7 mm long. Inflorescence terminal and in the uppermost axils, 5 to 10 cm long, the axis and lateral branches gray, obscurely furfuraceous, composed of racemosely disposed triads. Lateral branches of the panicles (peduncles of the triads), spreading, 1 cm long or less, each bearing a central sessile fertile flower, and two lateral flowers, each flower subtended by a broadly ovate, acute or acuminate bracteole as long as the calyx, the pedicels of the lateral flowers 4 to 5 mm long. Flowers 6-merous. Calyx subcylindric, 3 mm long, truncate, the rim not produced, very minutely and obscurely 6-denticulate. Corolla about 1.3 cm long, the basal part somewhat inflated, about 3 mm in diameter, the lobes united for the lower 2 mm, narrow, very slender upward, the reflexed part above the insertion of the stamen spatulate, 5 mm long. Filament very slender, 3 mm long; anther narrowly oblong, continuous, 2 mm long. Fruit very soft and fleshy, ovoid, about 8 mm long.

LUZON, Province of Laguna, San Antonio (Dahican River), *Bur. Sci.* 16647 Ramos, September 16, 1912, parasitic on *Worcesteranthus*, in forests.

A species in the same group with *Loranthus ahernianus*, *L. acuminatissimus*, *L. saccatus*, and *L. ovatifolius*, differing from the first three in its very much smaller flowers, and other characters, and from the latter in its very different vegetative and floral characters.

LORANTHUS FRAGILIS sp. nov. § *Dendrophthoe*.

Frutex parasiticus, glaber, ramis ramulisque crassis, teretibus, fragilis; foliis late ovatis, crasse coriaceis, nitidis, usque ad 15 cm longis, ovatis, sessilibus vel subsessilibus, obtusis, basi late rotundatis vel leviter cordatis; inflorescentiis in axillis superioribus, floribus omnibus sessilibus, 6-meris, pallide flavidis, circiter 2.4 cm longis, in triadibus brevissime pedunculatis racemose dispositis.

A species in the alliance with *Loranthus secundiflorus* Merr., and *L. mindanaensis* Merr., distinguished at once by its sessile or subsessile, broadly rounded or subcordate leaves. Branches up to 1 m in length, stout, terete, smooth and shining when dry, grayish-brown, very brittle when fresh, branches 1 cm in diameter breaking very readily. Leaves ovate, subopposite, thickly coriaceous, pale greenish-olivaceous when dry, shining, 9 to 15 cm long, 5.5 to 9 cm wide, apex rounded or obtuse, base broadly rounded or somewhat cordate, sessile or subsessile, the lateral nerves not prominent, 6 or 7 on each side of the midrib. Inflorescence in the upper axils, usually fascicled, about 4 cm long, the flowers 6-merous, all sessile in triads on very short peduncles which are racemosely disposed. Flowers pale-yellow, their subtending bracts broadly ovate, obtuse, 1 mm long, the peduncles bearing the triads of flowers very stout, about 2 mm long. Calyx oblong-ovoid, truncate, 3.5 to 4 mm long. Corolla about 2 cm long, the petals 6, united for the lower 2 to 3 mm, the reflexed parts of the petals above the insertion of the anthers 5 mm long. Filaments 1.5 long; anthers continuous, linear, 2.5 mm long.

PALAWAN, Taytay, on *Vernonia* in forests at sea level, May 31, 1913, Merrill 9248.

A species well characterized by its brittle stems, its thickly coriaceous leaves, which are almost fleshy and very brittle when fresh, and which are sessile or subsessile, broadly rounded or somewhat cordate at the base. Its inflorescence is of the type found in *Loranthus secundiflorus* Merr., and *L. mindanaensis* Merr., that is, the flowers sessile in triads, the triads shortly peduncled and racemosely disposed.

LORANTHUS LEYTENSIS sp. nov. § *Dendrophthoe*.

Frutex parasiticus, inflorescentiis puberulis exceptis glaber; foliis oppositis, alternis, vel subverticillatis, petiolatis, crassissime coriaceis, oblongis, usque ad 6 cm longis, acutis, nervis lateralibus obsoletis. Inflorescentiis axillaribus, pedunculatis, floribus 5-meris, circiter 3.3 cm longis, in triadibus umbellatim dispositis.

A stiff, parasitic shrub, glabrous except the inflorescence, the branches stout, reddish-brown or grayish, terete, the ultimate branchlets about 3 mm in diameter, the nodes often thickened,

the internodes not elongated. Leaves opposite, alternate, or somewhat whorled at the lower nodes, thickly coriaceous, opaque, oblong, 4 to 6 cm long, 1.5 to 3 cm wide, acute, the base rounded, obtuse, or acute, usually brownish when dry, slightly or not at all shining, the lateral nerves obsolete; petioles about 1 cm long. Inflorescence axillary, solitary, umbellate, the peduncles about 2 cm long, all parts more or less gray-puberulent, each peduncle bearing about 8, umbellately arranged, 5 mm long, primary branches, each branch bearing at its apex a triad of one middle sessile flower and two lateral, very shortly pedicelled flowers, each flower subtended by a broadly ovate, concave, obtuse, 1 to 1.5 mm long bracteole, the pedicels of the lateral flowers 2 mm long or less. Flowers 5-merous, reddish or yellowish, about 3.3 cm long. Calyx 3 mm long, puberulent, truncate, the limb scarcely produced. Corolla cylindric in bud, the lobes quite united below, forming a 4 mm long tube, the reflexed parts of the lobes above the insertion of the stamens narrowly oblong, obtuse, 5 to 6 mm long, 1 mm wide. Filaments 4 mm long; anthers continuous, oblong, 1.5 mm long.

LEYTE, Mount Ibuni back of Dagami, *Bur. Sci.* 15243 Ramos, August 22, 1912, growing in the tops of trees.

A species in the same group with *Loranthus haenkeanus* Presl, and manifestly closely allied to that species. It is distinguishable by its very much smaller, differently shaped leaves.

LORANTHUS HOPEAE sp. nov. § *Dendrophthoe*.

Frutex inflorescentiis minute puberulis exceptis glaber; ramis ramulisque teretibus, bi- vel trichotomis, rigidis; foliis oppositis, crasse coriaceis, sessilibus, ovatis, in siccitate pallidis, nitidis, usque ad 9 cm longis, apice rotundatis, basi late cordatis; inflorescentiis axillaribus, solitariis, brevibus, paucifloris; floribus extus puberulis, 5-meris, circiter 17 mm longis.

A parasitic shrub usually less than 50 cm in length, glabrous except the minutely grayish-puberulent inflorescence. Branches and branchlets terete, stiff, brownish or grayish, smooth, di- or trichotomously branched, more or less divaricate, the ultimate branchlets about 2 mm in diameter. Leaves opposite, sessile, ovate, thickly coriaceous, pale and equally shining on both surfaces when dry, smooth, 5 to 9 cm long, 4 to 6 cm wide, apex broadly rounded, base broadly cordate, often prominently so; lateral nerves 5 or 6 on each side of the midrib, very obscure or nearly obsolete. Inflorescence solitary, axillary and at the nodes, minutely puberulent, 2.5 cm long or less, with few, usually 4, lateral branches which are less than 1 cm in length, each bearing at its apex 2 or 3 sessile flowers, the bracteoles puber-

ulent, reniform, about 2.5 mm wide, 1.5 mm long, rounded. Flowers 5-merous, orange, the tips of the petals glaucous. Calyx cylindric, 5 mm long, puberulent, the limb slightly produced, very obscurely crenulate or entire. Corolla 12 mm long, puberulent externally, slightly inflated, cylindric, the lobes united for the basal 3 to 4 mm, forming a tube, the reflexed part above the insertion of the anthers oblong, obtuse, 2.5 mm long. Anther lanceolate, sessile, 2 mm long.

MINDANAO, District of Zamboanga, coast opposite Olutanga Island, *For. Bur. 13297 Foxworthy, De Mesa, & Villamil*, May 18, 1912, on *Hopea* sp., altitude about 20 meters.

A very characteristic species, recognizable by its opposite, sessile, coriaceous leaves which are rounded at the apex and cordate at the base, its few-flowered, axillary, puberulent inflorescences, and puberulent flowers. In leaf-form it is quite similar to *Loranthus merrillii* Elm., but is entirely different in its inflorescence.

LORANTHUS DEMESAE sp. nov. § *Dendrophthoe*.

Frutex glaber, ramis ramulisque teretibus; foliis oppositis, sessilibus, coriaceis, nitidis, usque ad 10 cm longis, ovatis vel late elliptico-ovatis, apice acutis vel leviter acuminatis, basi rotundatis, reticulatis; nervis utrinque circiter 10, tenuibus; inflorescentiis axillaribus, solitariis, brevibus, paucifloris; floribus circiter 2 cm longis 6-meris; corolla inflata, infra cylindrica, supra acute 6-angulata.

A glabrous parasitic shrub the branches and branchlets terete, brownish or somewhat grayish, smooth. Leaves opposite, sessile, coriaceous, shining when dry, brownish-olivaceous, of about the same color on both surfaces, 6 to 10 cm long, 4 to 6 cm wide, the apex acute or somewhat acuminate, the base rounded; lateral nerves about 10 on each side of the midrib, slender, not prominent, the reticulations rather fine, the lateral nerves anastomosing near the margin. Inflorescence axillary, solitary, few-flowered, the rachis 5 mm long or less, the flowers 2 or 3 (rarely more?). Calyx oblong-cylindric, truncate, 3 mm long, 1.8 mm in diameter. Corolla red, about 18 mm long, much inflated, 6 mm in diameter, the lower one-half cylindric, the upper part sharply and prominently 6-angled, the tube two-thirds to three-fourths as long as the corolla, the lobes about 4 mm wide at the base, narrowed to the insertion of the anthers and there 2 mm wide, thence gradually narrowed to the acute or obtuse apex, the reflexed portion above the insertion of the anthers 5 to 6 mm long, lanceolate. Anthers oblong, 2 mm long, much more slender than are the thick, cylindric, 2.5 mm long filaments.

MINDANAO, District of Zamboanga, Talisay, on tall trees, altitude 40 to 50 meters, *For. Bur. 13788 Foxworthy, DeMesa, & Villamil*, June 19, 1912.

A species well characterized by its ovate, sessile leaves which are acute or acuminate at the apex and rounded at the base, by its axillary, very short, few-flowered inflorescences, and its much inflated corollas which are cylindric below and sharply and prominently 6-angled above.

LORANTHUS LAGUNENSIS sp. nov. § *Dendrophthoe*.

Frutex glaber; foliis coriaceis, ovatis vel oblongo-ovatis, brunneis, oppositis, breviter petiolatis, usque ad 11 cm longis; floribus 6-meris, sessilibus, circiter 1.7 cm longis, in fasciculis axillaribus vel lateralibus dense confertis, fasciculis vix involu-
cratis, circiter 8-floris.

A glabrous shrub, the branches very stout, rough, brownish or grayish, the ultimate ones about 5 mm in diameter, lenticellate. Leaves opposite, thickly coriaceous, ovate to oblong-ovate, 6 to 11 cm long, 3.5 to 6.5 cm wide, brown when dry and somewhat shining on both surfaces, the lower a little paler than the upper, the apex obtuse, the base usually acute; lateral nerves about 7, very obscure or subobsolete, the reticulations entirely obsolete; petioles stout, about 5 mm long. Inflorescence of solitary, sessile, axillary or at the nodes, very dense, non-involucrate fascicles, about 8 flowers in each fascicle. Flowers sessile, subtended by a solitary bracteole which is reniform, rounded, about 2 mm wide and 1.5 to 2 mm long. Calyx globose or ovoid, 2 mm long, truncate. Corolla about 1.5 cm long, the tube 1.5 mm long, the lobes 6, linear, narrow, the reflexed part above the insertion of the stamens thick, obtuse, 4 mm long. Anthers linear-lanceolate, acuminate, sessile, 3.5 mm long.

LUZON, Province of Laguna, Dahican River back of San Antonio, *Bur. Sci. 15064 Ramos*, June, 1912, host not indicated.

A species apparently in the group with *Loranthus haenkeanus* Presl, in spite of the differences in the characters of the inflorescence in the species. If the fascicles were involucre the species might well be placed in the section *Lepiostegeres*, but there is quite no indication of an involucre in the material examined.

LORANTHUS FENICIS sp. nov. § *Dendrophthoe*.

Frutex parasiticus, inflorescentiis exceptis glaber, ramis ramulisque teretibus; foliis alternis, ovatis, opacis, crasse coriaceis, usque ad 10 cm longis, acutis vel acuminatis, basi late rotundatis, nervis utrinque circiter 5; obscuris vel obsoletis; pedunculis solitariis, axillaribus, floribus umbellatim dispositis; floribus 5-meris, circiter 3.3 cm longis, extus puberulis, in triadibus dispositis, omnibus sessilibus.

A species manifestly allied to *Loranthus haenkeanus*, differing

in its few-flowered umbels and in its flowers all being sessile, the lateral ones of each triad not pedicelled. Branches stout, terete, grayish or reddish-brown, the branchlets grayish-brown, terete, rather slender, the internodes 1 to 3 cm long. Leaves alternate, thickly coriaceous, opaque and rather pale or brownish when dry, ovate, 5 to 10 cm long, 3.5 to 6 cm wide, the apex acute or acuminate, the base broadly rounded; lateral nerves usually about 5 on each side of the midrib, obscure, sometimes obsolete; petioles about 8 mm long. Umbels solitary, in the axils of leaves on the larger branches, gray-puberulent, the peduncles about 1.5 cm long, the primary umbellately arranged branches few, about 6 mm long, each bearing at its apex a triad of three sessile flowers, the subtending bracteoles triangular-ovate, acute, 2.5 mm long, puberulent. Calyx pubescent, narrowly obovoid, 4 mm long, the limb slightly produced, obscurely and broadly 5-toothed. Corolla puberulent, in bud cylindric, the tube about 6 mm long, the lobes 5, about 1.5 mm wide, the part above the insertion of the stamens narrowly oblong, 6 to 7 mm long, 1.5 mm wide, acute. Filaments 4 to 5 mm long; anthers continuous, oblong, obtuse, 2 to 2.5 mm in length.

MINDANAO, District of Davao, Baganga, *Bur. Sci.* 15852 *Fénix*, August 20, 1912, the flowers green and purplish.

LORANTHUS MARITIMUS sp. nov. § *Dendrophthoe*.

Frutex epiphyticus inflorescentiis exceptis glaber; ramis ramulisque teretibus; foliis alternis oppositisque, oblongis, in siccitate pallidis, utrinque concoloribus, opacis, usque ad 8 cm longis, petiolatis, nervis obsoletis vel subobsoletis; inflorescentiis e ramis vetustioribus, pedunculatis, umbellato-subcapitatis, pedunculatis; floribus circiter 3.3 cm longis, 5-meris.

A parasitic shrub glabrous except the inflorescence. Branches stout, terete, reddish-brown, the branchlets terete, slender, grayish, the ultimate internodes 2 mm in diameter or less, up to 3 cm in length, frequently much shorter. Leaves oblong, alternate, opposite or subopposite, coriaceous, uniformly pale when dry, opaque, 5 to 8 cm long, 1.5 to 3 cm wide, the apex rounded or obtuse, the base acute; midrib prominent below, frequently evanescent below the apex, the lateral nerves entirely obsolete or very faint and about 3 on each side of the midrib, ascending; petioles about 5 mm long. Inflorescence from the larger branches, lateral, not axillary, scattered along the internodes, the peduncles 1.5 to 2 cm long, all parts gray-puberulent. Primary branches umbellately arranged at the apex of the pedun-

cle, 3 mm long or less, stout, rather numerous, each bearing a terminal triad of 3 sessile flowers, the three bracteoles broadly ovate, obtuse, 1.5 mm long, connate below, the persistent calyces after the fall of the corollas appearing like a rather lax globose head. Calyx puberulent, narrowly obovoid, truncate, 3.5 mm long, the limb very slightly produced. Corolla cylindric in bud, 3 cm long, purplish and green, puberulent externally, the lobes 5, united below and forming a cylindric tube about 6 mm long, the lobes about 1 mm wide below, the reflexed part above the insertion of the stamens linear-oblong, obtuse, 7 mm long, 1 mm wide. Filaments 6 mm long; anthers continuous, oblong, obtuse, 2.4 mm long.

MINDANAO, Province of Surigao, Tamano, *Bur. Sci.* 15824 *Fénix*, August 16, 1912, on trees along the seashore.

A species manifestly in the same group with *Loranthus haenkeanus* Presl, but only distantly allied to that species. It is characterized by its inflorescences being scattered along the older branches, not axillary, rather dense, and its flowers all sessile, the two lateral ones not at all pedicelled as in most of the forms in this group.

LORANTHUS ALTERNIFOLIUS sp. nov. § *Lepiostegeres*?

Frutex glaber, ramis ramulisque teretibus, tenuibus, brunneis, internodiis elongatis; foliis alternis, usque ad 11 cm longis, anguste oblongis ad oblongo-lanceolatis, subcoriaceis, nitidis, petiolatis, apice obtusis, basi acutis; floribus 6-meris, axillaribus, fasciculatis, sessilibus, 2 cm longis, fasciculis in alabastro in bractea solitaria inclusis.

A glabrous shrub, the branches elongated, slender, terete, smooth or somewhat striate, dark-brown when dry, the internodes 3 to 9 cm long, the ultimate branchlets 1.5 mm in diameter. Leaves subcoriaceous, brittle when dry, olivaceous, of about the same color and shining on both surfaces, 7 to 11 cm long, 2 to 3 cm wide, narrowly oblong to oblong-lanceolate, the apex rounded, the base gradually narrowed, acute; lateral nerves very slender, obscure or subobsolete, 6 or 7 on each side of the midrib; petioles 1 to 1.5 cm long. Flowers sessile, axillary, solitary fascicles at the nodes, 9 sessile flowers in each fascicle, in bud entirely enveloped by a single, brown, coriaceous or subcoriaceous bract, which bursts irregularly and falls at anthesis. Bracteoles subtending the flowers one to each calyx, orbicular or reniform, about 2 mm long. Calyx 2 mm long and about 2.5 mm in diameter, truncate. Corolla yellow, 6-merous, 18 mm long, cylindric, slightly gibbous, more or less inflated, the lobes united below forming a 5 mm long tube, the free portions 2 mm wide

below, gradually narrowed upwards to the acute apex, the parts above the insertion of the anthers lanceolate, 5 mm long. Anther sessile, linear-lanceolate, acuminate, 4 mm long.

MINDANAO, District of Zamboanga opposite the Island of Olutanga, in forests, altitude 30 meters, *For. Bur. 13295 Foxworthy, DeMesa, & Villamil*, May 17, 1912.

A characteristic species probably belonging in the section *Lepiostegeres*, although the involucre enclosing the buds is composed of a single bract. Its comparatively narrow leaves which are rounded or obtuse at the apex and acute at the base, as well as its 9-flowered, axillary, sessile fascicles are its distinguishing features.

LORANTHUS WORCESTERI sp. nov. § *Macrosolen*.

Glaber, ramis ramulisque teretibus, griseis; foliis oppositis, sessilibus, anguste oblongis ad late ovatis, nitidis, obtusis, basi obtusis, late rotundatis, vel distincte late cordatis, nervis utrinque 4 ad 8, laxis, irregularis, tenuibus; inflorescentiis axillaribus, pedunculis solitariis (vel fasciculatis), 3 ad 5 mm longis, 2-floris, floribus sessilibus, 6-meris, circiter 2 cm longis.

A glabrous, parasitic shrub, the branches and branchlets terete, glabrous, light-gray, the bark slightly wrinkled when dry. Leaves opposite, sessile, exceedingly variable in size, narrowly oblong to broadly ovate, 6 to 11 cm long, 2 to 7 cm wide, pale when dry, shining on both surfaces, the apex obtuse or rounded, the base obtuse, broadly rounded, or broadly and distinctly cordate; nerves 4 to 8 on each side of the midrib, slender, irregular, anastomosing, the reticulations lax. Peduncles axillary, solitary or few in each axil, 3 to 5 mm long, each bearing at its apex two sessile flowers, each flower subtended by an ovate, obtuse, 3 mm long bract and two similar but smaller, free, orbicular, 1.5 mm long bracteoles. Calyx cylindric, about 7 mm long, the limb produced about 1.5 mm, slightly spreading, thin, truncate. Corolla pink and yellow, the lobes 6, very slightly united below, the buds cylindric, in anthesis more or less swollen above the base, lobes 6, about 1.5 cm long, 2.5 mm wide above the base, then narrowed to 1.5 mm at the insertion of the anthers, the produced part above the anthers narrowly oblong, obtuse or acute, very thick, 6 to 7 mm long, about 1.8 mm wide and thick. Anthers sessile, linear, 5 mm long.

MINDANAO, Bukidnon Subprovince, near Sumilao, *Bur. Sci. 15673 Fénix*, August, 1912.

A species with much the floral and inflorescence characters of *Loranthus geminatus* Merr., but not closely allied to that species, being at once distinguishable by its very diversely shaped sessile leaves. Named in honor of the Honorable Dean C. Worcester, formerly Secretary of the Interior of the Phil-

ippine Government, through whose invitation I was able to send a collector with him on his southern trip of inspection in 1912.

LORANTHUS ELMERI sp. nov. § *Macrosolen*.

Frutex parasiticus, glaber, ramis ramulisque teretibus; foliis oblongo-ovatis, crassissime coriaceis, oppositis, breviter petiolatis, usque ad 14 cm longis, sursum angustatis, obtusis vel obscure acuminatis, basi acutis, nervis lateralibus obscuris, utrinque circiter 7; racemis brevissimis, paucifloris, axillaribus, solitariis vel fasciculatis, haud 1 cm longis; floribus 6-meris, circiter 1.8 cm longis, basi bracteis bracteolisque 2 ornatis, pedicellis circiter 1.5 mm longis.

A parasitic shrub, quite glabrous, the branches and branchlets gray or grayish-brown, stout, terete. Leaves opposite, very thickly coriaceous, oblong-ovate, 8 to 15 cm long, 3.5 to 5 cm wide, brownish-olivaceous when dry, the upper surface shining, narrowed upward to the acute or obscurely acuminate apex, the base acute; lateral nerves very faint, about 6 on each side of the midrib; petioles stout, 4 to 8 mm long. Inflorescence of axillary, solitary and fascicled, very short, few-flowered racemes, the racemes 1 cm long or less. Flowers 6-merous, their pedicels 1 to 1.5 mm long, each bearing at its apex one, broadly ovate, acute, 1.5 mm long bract and two smaller but similar bracteoles which are usually more or less connate. Calyx ovoid, about 3 mm long, truncate. Corolla 1.5 cm long, the tube about 6 mm long, 3.5 mm in diameter, somewhat inflated and obscurely angled, the lobes 6, rather abruptly narrowed, about 1 mm wide below the insertion of the stamen, the reflexed parts thickened upward, 7 mm long, acute or obtuse; filament about 3.5 mm long; anther continuous, 2 mm long.

PALAWAN, Mount Pulgar, *Elmer 12749* (type), 13138, March and May, 1911, both distributed as *Loranthus mirabilis* Huerk & Muell.-Arg., a species that is quite different and which belongs in an entirely different section.

The alliance of *Loranthus elmeri* is with *L. ampullaceus* Roxb. It is readily distinguished, however, by its very short racemes.

LORANTHUS SERIATUS sp. nov. § *Heteranthus*.

Frutex parasiticus glaber, ramis ramulisque teretibus, internodiis elongatis; foliis oppositis, breviter petiolatis, oblongo-ovatis, coriaceis, opacis, usque ad 12 cm longis, apice breviter obtuseque acuminatis, basi acutis, nervis lateralibus obscuris, circiter 6 utrinque, subobsoletis; floribus 5-meris, circiter 2.5 cm longis, in triadibus breviter pedunculatis dispositis, triadibus

in ramis seriatim dispositis et ad nodos fasciculatis; petalis intus ad basim ligulatis.

A parasitic glabrous shrub, the branches and branchlets terete, reddish-brown, smooth except where the flowers are borne, the internodes 10 to 15 cm long, the ultimate branchlets about 2 mm in diameter. Leaves opposite, coriaceous, oblong-ovate, 8 to 12 cm long, about 5 cm wide, greenish-olivaceous on both surfaces when dry, not shining, the apex shortly and obtusely acuminate, the base acute, sometime a little decurrent; lateral nerves slender, very obscure, nearly obsolete, about 6 on each side of the midrib; petioles 3 to 5 mm long. Flowers red, 5-merous, the peduncles of the double triads stout, 2 mm long, fascicled at the nodes and also numerous ones seriatly arranged, along one side of the branches along the internodes. Flowers 6 on each peduncle, sessile in two triads, each flower subtended by a reniform-orbicular, rounded, obscurely pubescent, 2 mm long bracteole. Calyx cylindric, 3.5 to 4 mm long, the limb produced about 1 mm, truncate, minutely ciliate-pubescent. Buds cylindric. Petals 5, free, 1.8 mm wide below, 1.5 mm wide above, 2 to 2.2 cm long, the reflexed part above the insertion of the stamens 6 to 7 mm long, each petal with a membranaceous, reflexed, ovate, obtuse, 1 mm long, ligule-like organ on the inner side attached about 3 mm above the base. Filaments about 2 mm long; anthers continuous, linear, 3 to 4 mm long.

MINDANAO, District of Zamboanga, Mount Pulongbato, *Bur. Sci.* 16424 *Reillo*, September 28, 1912.

A very characteristic species, distinguishable by its peculiarly arranged flowers, the flowers sessile in double triads on very short peduncles which are fascicled at the nodes and serially arranged along one side of the internodes. The peculiar ligule-like growth on the inner surface of the petals shortly above the base is characteristic, both of the present species and of the very similar and closely allied *Loranthus cauliflorus* Merr. *Loranthus seriatus* is distinguished from *L. cauliflorus* by its very obscurely veined leaves and its flowers in double triads, that is, 6 flowers in two triads sessile at the apex of each peduncle, not with three flowers only as in the latter species.

LORANTHUS FALCATIFOLIUS sp. nov. § *Heteranthus*.

Frutex scandens, glaber, ramulis teretibus; foliis oppositis, usque ad 16 cm longis, brevissime petiolatis, oblongo-lanceolatis, leviter falcatis, coriaceis, opacis, acuminatis, basi acutis vel obtusis, nervis utrinque circiter 8, obscuris, subobsoletis; floribus 5-meris, ad nodos fasciculatis, sessilibus, circiter 2.5 cm longis, alabastro cylindraceo.

A scandent, parasitic, glabrous shrub, the stems long-climbing on the host, the branches and branchlets terete, the latter reddish-

brown or grayish, 3 mm in diameter or less, the internodes 5 to 8 cm long. Leaves opposite, subsessile or very shortly petioled, oblong-lanceolate, 10 to 16 cm long, 3 to 6 cm wide, somewhat falcate, not shining, coriaceous, the apex acuminate, the base obtuse or acute, brownish or greenish when dry; lateral nerves subobsolete, about 8 on each side of the midrib, very obscure; petioles 2 mm long or less. Flowers 5-merous, axillary, sessile, fascicled, 12 or less at each node, red below, yellow above, the buds rather slender, cylindric, outside very obscurely pubescent with very short scattered hairs. Calyx 3.5 to 4 mm long, straight or somewhat curved, the limb produced about 2 mm, membranaceous, somewhat spreading, truncate, margins minutely ciliate-pubescent. Petals 5, quite free, 1.5 mm wide below, very slightly narrowed upward, the apex obtuse, the reflexed portion above the insertion on the stamens linear-oblong, about 8 mm long, 1 mm wide. Filaments 4 mm long; anthers continuous, linear, 2 mm long.

MINDANAO, Bukidnon Subprovince, Sumilao, on trees in forests, *Bur. Sci.* 15746 *Fénix*, August 3, 1912.

A species well characterized by its scandent habit, its opposite, subsessile, subfalcate, obscurely nerved, coriaceous leaves, and its quite sessile, axillary, fascicled flowers. It is perhaps as closely allied to *Loranthus cuernosensis* Elm. as to any other species, but is very different from that form.

LORANTHUS MEDINILLICOLA sp. nov. § *Heteranthus*.

Frutex scandens, parasiticus, inflorescentiis exceptis glaber; ramulis teretibus, tenuibus; foliis verticillatis, lanceolatis vel ovato-lanceolatis, coriaceis, acuminatis, usque ad 10 cm longis, nervis utrinque 4 vel 5, obscuris; inflorescentiis axillaribus, solitariis, pedunculatis, subumbellatis, paucifloris; floribus 4-meris, circiter 3 cm longis.

A slender, nearly glabrous, scandent, parasitic shrub, the branches and branchlets rather slender, terete, light-gray or brownish, mostly smooth, the ultimate branchlets 2 mm in diameter or less. Leaves whorled, usually 4 at each node, the internodes 4 to 8 cm long, the leaf-blades coriaceous, lanceolate or oblong-lanceolate, 6 to 10 cm long, 1 to 3.4 cm wide, narrowed below to the acute base and above to the rather slenderly acuminate apex, rather dull when dry; lateral nerves 4 or 5 on each side of the midrib, slender, obscure, ascending; petioles 4 to 8 mm long. Inflorescence axillary, solitary, the peduncle slender, 1.5 to 2 cm long, sparingly pubescent, bearing at its apex 4 or more subumbellately arranged branchlets, each branchlet bearing two, spicately arranged, sessile flowers, the branchlets pubescent, about 4 mm long. Flowers sessile, 4-merous, bright yellow

above, reddish toward the base, about 3 cm long, the basal bracteole narrowly ovate, 1 mm long or less. Calyx narrowly funnel-shaped, pubescent; about 3 mm long, the throat about 2.5 mm wide, the limb produced, truncate, obscurely 4-toothed. Petals 4, entirely free, about 2.8 cm long, 2 mm wide, pubescent externally. Filaments 5 to 6 mm long; anthers continuous, narrowly oblong, obtuse, 3.5 mm long. Fruit not seen, said by the collector to be white.

LUZON, Subprovince of Ifugao, Mount Polis, *Bur. Sci.* 19842 McGregor, February 10, 1913, on *Medinilla*.

Apparently most closely allied to *Loranthus acutus* Engl., but with much larger flowers than that species. It also resembles *L. polillensis* C. B. Rob., in some respects, but has smaller leaves, and more numerous, pubescent flowers.

OLACACEAE

WORCESTERIANTHUS genus novum

Flores unisexuales. Calyx parvus, 5-dentatus, vix auctus. Petala 5, angusta, puberula. Fl. ♂ : Petala valvata. Stamina petala duplopluria, alternatim inaequalia, filamentis gracilis; antherae orbiculari-ovoidae, rimis intus dehiscentibus. Ovarium rudimentum cylindricum, elongatum, puberulum. Fl. ♀ : Petala imbricata. Stamina vel staminodia nulla. Ovarium ovoideum, glabrum vel basi pubescens, 2-loculare, loculis 1-ovulatis, ovula pendula. Stigma sessile, breviter 2-lobata. Drupa ovoidea vel subovoidea, 2-locellata, carne crasse coriacea vel sublignosa, putamine crustaceo. Arbor dioica, parva, glabra vel subglabra. Folia alterna, ovata vel oblongo-ovata, penninervia, integerrima. Flores parvi, axillari, breviter pedicellati, ♂ numerosi, ♀ subsolitarii.

WORCESTERIANTHUS CASEARIOIDES sp. nov.

Arbor parva, usque ad 12 m alta, partibus junioribus floribusque exceptis glabra; foliis alternis, glabris, ovatis ad oblongo-ovatis, chartaceis, in siccitate nitidis, pallidis, usque ad 15 cm longis, basi acutis vel subrotundatis, apice acuminatis, nervis utrinque circiter 5, distantibus, laxe anastomosantibus, prominentibus; floribus parvis, 5-meris, ♂ circiter 3 mm longis ♀ paullo longioribus; fructibus solitariis, glabris, circiter 1.5 cm longis, acutis.

A small tree reaching a height of about 12 m, glabrous except the young branchlets and the flowers, dioecious. Branches gray, terete, slender, the young ones very obscurely angled, the growing tips finely grayish-puberulent. Leaves alternate, exstipulate.

ovate to oblong-ovate, chartaceous, 9 to 15 cm long, 4 to 7 cm wide, entire, the base slightly inequilateral, acute or somewhat rounded, the apex blunt-acuminate, the acumen broad, short, both surfaces shining when dry, rather pale and of about the same color, or the upper surface somewhat olivaceous; lateral nerves about 5 on each side of the midrib, very prominent on the lower surface, curved or curved-ascending, distant, prominently looped-anastomosing, the reticulations fine, distinct; petioles about 5 mm long. Flowers greenish-white, small, axillary, shortly pedicelled, the males numerous fascicled, the females solitary or subsolitary. Male flowers: Calyx shallowly cup-shaped, about 1.3 mm long, somewhat pubescent, shallowly and acutely 5-toothed, the teeth broad. Petals 5, free, valvate, alternating with the calyx-teeth, narrowly oblong, puberulent on both surfaces, acute or obtuse, about 3 mm long, 1.2 mm wide. Stamens 10, all fertile, 5 long ones alternating with 5 short ones, inserted in a single row on the rather obscure, ferruginous-pubescent disk; longer filaments 2.3 mm long, the shorter ones 1.5 mm long, glabrous, slender; anthers broadly ovoid or orbicular-ovoid, 0.5 mm long. Rudimentary ovary stout, cylindric, puberulent, 2.5 mm long, truncate. Female flowers 5-merous, solitary or subsolitary, their pedicels 2 mm long. Calyx about as in the males. Petals lanceolate, puberulent, imbricate, acute or somewhat acuminate, about 4 mm long, 1.6 mm wide. Rudimentary stamens or staminodes wanting. Ovary ovoid or narrowly ovoid, glabrous except the ferruginous-pubescent base, narrowed above to the sessile stigma, 2-celled, each cell with a solitary apical ovule. Stigma 2-lobed, curved or spreading, sessile, about 2 mm long. Fruit ovoid, acute, about 1.5 cm long, glabrous, the pericarp thick, very coriaceous or almost woody, the putamen crustaceous, 2-celled, cells 1-seeded. Mature seeds not seen.

LUZON, Province of Laguna, between San Antonio and Paete, *Bur. Sci.* 14943 (type), 16541 *Ramos*, the former with male flowers, June, 1912, the latter with nearly mature fruits and few female flowers, September, 1912: Province of Cagayan, *For. Bur.* 18436 *Alvarez*, February, 1909, in fruit.

This apparently represents a very distinct generic type, and one previously not described. It belongs in the Tribe *Olaceae*, and apparently near *Ximenia* Plum., and *Scorodocarpus* Becc., although not at all closely allied to either. The alternate leaves, dioecious flowers, the males fascicled and the females solitary, the 10 stamens, 5 short ones alternating with 5 longer ones, and the absence of staminodes or reduced stamens in the female flowers are distinguishing characters.

The first specimen received, in fruit, was tentatively referred by me to the *Olacaceae*, but later was transferred to the *Flacourtiaceae*, but with no further attempt to determine it, on account of the similarity of its

leaves to a specimen named *Erythrospermum phytolaccoides* Gardn., in the Herbarium of the Bureau of Science. The next collection received, with male flowers, that I have made the type, was hurriedly determined and erroneously referred to *Casearia solida* Merr., which in leaf-characters and in the position and size of its flowers it rather closely resembles; the duplicates of this number were distributed as *Casearia solida* Merr. The next collection yielded female flowers and nearly full grown, but immature, fruits, and a study of all the available specimens shows that it is well worthy of being described as a new genus. There appears to be nothing in the *Olacaceae* that very closely approaches it, although there is no doubt whatever in my mind but that it properly belongs in this group.

The genus is dedicated to the Honorable Dean C. Worcester, for many years Secretary of the Interior of the Philippine Government, in recognition of his interest in and great services to the advancement of the scientific work in the Philippines.

HERNANDIACEAE

HERNANDIA Linnaeus

HERNANDIA OVIGERA Linn. Amoen. Acad. 4 (1757) 125; Meissn. in DC. Prodr. 15¹ (1864) 262; F.-Vill. Novis. App. (1880) 182.

MINDANAO, District of Zamboanga, Mount Pulongbato, *Bur. Sci.* 16442 Reillo, Sept. 20, 1912. CAMIGUIN DE MINDANAO, *Bur. Sci.* 17424 Ramos, April, 1912.

This species was based on *Arbor ovigera* Rumph. Herb. Amboin. 3: 103, pl. 123, and is characterized by its leaves not being peltate. In other respects it is very similar indeed to *Hernandia peltata* Meissn., and it seems to be doubtful whether or not the two are really distinct. In the Philippines *Hernandia peltata* Meissn., is common and widely distributed along the seashore, and this seashore form apparently always has peltate leaves, although sometimes but slightly so, as in *Copeland 1331* from the strand at Tagalaya, Davao, Mindanao. At any rate, if the type of *Hernandia sonora* L. be interpreted as the American species, which seems to be the logical course to follow, *H. ovigera* L. is the oldest name for the oriental form, should *H. peltata* Meissn. and *H. ovigera* L. be united. *Hernandia ovigera* L. has already been reported from the Philippines by F.-Villar, but the record has not previously been verified.

Both specimens cited above are from the interior forests, not from the coast; *Hernandia peltata* Meissn. is confined to the beach forests.

Malay Archipelago, Java to Amboina.

ILLIGERA Blume

ILLIGERA MEGAPTERA sp. nov.

Frutex scandens, inflorescentiis exceptis glaber; foliis 3-foliolatis, foliolis oblongo-ovatis ad ovato-ellipticis, coriaceis, nitidis, usque ad 15 cm longis, breviter acuminatis, basi late rotundatis, integris, nervis utrinque 5 vel 6, prominentibus; fructibus 3.5 cm longis, cum alis 10 ad 12 cm latis.

Scandent, glabrous except the inflorescence, the stems terete, at least 5 mm diameter, dark-colored when dry, striate.

Leaves 3-foliolate, their petioles 9 to 12 cm long. Leaflets oblong-ovate to elliptic-ovate, coriaceous, entire, 13 to 15 cm long, 8 to 9 cm wide, apex shortly acuminate, base broadly rounded, pale-olivaceous when dry, both surfaces equally shining; lateral nerves 5 or 6 on each side of the midrib, prominent, the reticulations distinct; petiolules 1.5 to 2 cm long. Flowers not seen, the infructescence at least 20 cm long, subferruginous-pubescent, the mature fruits 3.5 cm long, including the wings 10 to 12 cm wide, the wings brown, shining, elliptic-ovate, broadly rounded, firmly chartaceous to subcoriaceous, 3.5 to 4 cm wide.

MINDANAO, Butuan Subprovince, *Bur. Sci. 21511 Escritor*, August, 1913, locally known as *cabacaba*.

Very characteristic on account of its relatively large leaflets and its very large fruits, the broad long wings being rather remarkable.

ILLIGERA RETICULATA sp. nov.

Frutex scandens, subglaber; foliis 3-foliolatis, foliolis coriaceis, late ovatis, acuminatis, basi rotundatis vel leviter cordatis, usque ad 11 cm longis, nervis utrinque 5 vel 6, subtus cum reticulis prominentibus; fructibus 3.5 cm longis, 3-alatis, alis lateralibus coriaceis, nitidis, late ovatis, rotundatis, circiter 4 cm longis, altero 1 ad 1.5 cm longis latisque.

A scandent shrub, nearly glabrous (flowers unknown). Leaves 3-foliolate, the petioles about 8 cm long; leaflets broadly ovate, coriaceous, about 11 cm long, slightly acuminate, entire, base rounded or somewhat cordate, pale when dry, the lower surface bearded in the axils; lateral nerves 5 or 6 on each side of the midrib, prominent, the reticulations lax, also prominent; petiolules 2 cm long. Panicles ample, in fruit glabrous. Fruits about 3.5 cm long, 3-winged, the lateral wings broadly ovate, coriaceous, rounded, shining, about 3.5 cm long and 3 cm wide, the other one much reduced, 1 to 1.5 cm long and wide and confined to the lower one-half of the fruit, the opposite side with a mere keel, not at all winged.

LUZON, Province of Laguna, Mount Maquiling, *For. Bur. 7761 Curran & Merritt*, October 24, 1907, on trees, open cogon slopes, altitude 160 meters.

A species well characterized by its prominently reticulate leaves and its comparatively large, 3-winged fruits, the lateral wings very large, the other very much reduced, and the fourth represented by a mere ridge or keel.

ILLIGERA ELLIPTIFOLIA sp. nov.

Frutex scandens inflorescentiis exceptis glaber; foliis trifoliolatis, foliolis ellipticis, 7 ad 13 cm longis, utrinque rotundatis, in siccitate pallidis, nitidis, nervis utrinque circiter 6; infructescentiis laxis, amplis, circiter 20 cm longis, dense olivaceo- vel

subferrugineo-pubescentibus; fructibus junioribus circiter 3 cm longis, bialatis, alis chartaceis, circiter 2 cm longis, ovatis, rotundatis.

A scandent shrub, glabrous except the inflorescence. Stems terete, about 5 mm in diameter, nearly black when dry. Leaves 3-foliolate, the petioles up to 12 cm long; leaflets entire, subcoriaceous, elliptic, 7 to 13 cm long, 4 to 7.5 cm wide, rounded at both ends, pale and somewhat shining when dry, the petiolules 1 to 2.5 cm long; lateral nerves about 6 on each side of the midrib. Inflorescence lax, subpyramidal, about 20 cm long, the branches few, scattered, the lower ones up to 9 cm long, all parts rather densely olivaceous- or subferruginous-pubescent with short hairs. Flowers unknown. Fruits (immature) about 3 cm long, 2-winged, the wings rather thin, ovate, rounded, about 2 cm long.

MINDANAO, Agusan Subprovince, in forests along streams southeast of Nasipit, altitud about 20 meters, *For. Bur.* 20571 *Miranda*, September, 1913.

Well characterized by its lax, rather densely pubescent panicles, its two-winged fruits, and its elliptic leaflets.

ILLIGERA CARDIOPHYLLA sp. nov.

Frutex scandens, glaber (floribus ignotis); foliis 3-foliolatis, foliolis late ovatis, coriaceis, 9 ad 12 cm longis, base late rotundatis cordatisque, apice late, abrupte, obtuse acuminatis; fructibus 3 cm longis, 4-alatis, alis coriaceis, late rotundatis, glabris, lateralibus 3.5 cm longis, ceteris triplo brevioribus.

A scandent glabrous shrub (flowers unknown). Branches terete, black when dry, 4 to 5 mm in diameter. Leaves 3-foliolate, the petioles 8 to 10 cm long; leaflets broadly ovate, coriaceous, 9 to 12 cm long, nearly or quite as wide, olivaceous and somewhat shining when dry, base broadly rounded, rather prominently cordate, apex abruptly, shortly, and obtusely acuminate; lateral nerves 5 to 6 on each side of the midrib, the reticulations lax, not prominent; petiolules 1.5 to 2 cm long. Panicles in fruit 15 cm long, glabrous or nearly so; fruits glabrous, 4-winged, about 3 cm long, the lateral wings coriaceous, rounded, broadly ovate, about 3.5 cm long, the other two about one-third as long as the lateral, ones.

BABUYANES ISLANDS, Camiguin, *Bur. Sci.* 4082 *Fénix*, June 28, 1907, in thickets near old clearings.

The characteristic features of this species are its broadly ovate, rather prominently cordate leaves and its comparatively large, 4-winged fruits.

(To be concluded)

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