

STUDIES OF PACIFIC ISLAND PLANTS, VII FURTHER NOTES ON FIJIAN FLOWERING PLANTS

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IN CONTINUATION of No. VI in this series of papers (this Journal 31: 137–171. 1950), the present notes deal with the angiosperm families from Malpighiaceae to Flacourtiaceae, inclusive, in the Engler and Prantl sequence, except for certain families which merit more detailed study. Most of the species here described are based upon specimens collected by the writer in 1947.¹ The place of deposit of cited specimens is indicated as follows: Arnold Arboretum (A); Bernice P. Bishop Museum (Bish); Gray Herbarium (GH); New York Botanical Garden (NY); and U. S. National Herbarium (US). Dr. Richard A. Howard has kindly permitted the inclusion of his notes on the family Icacinaceae.

Notable extensions of the ranges of three genera into Fiji, where each is represented by a new species, are indicated for *Elaeodendron* (Celastraceae), *Cossignia* (Sapindaceae), and *Berrya* (Tiliaceae). Keys to the Fijian species of *Cupaniopsis* (Sapindaceae) and *Melochia* (Sterculiaceae) are presented.

MALPIGHIACEAE

Hiptage myrtifolia A. Gray, Bot. U. S. Expl. Exped. 1: 267. *pl.* 21. 1854; Seem. Fl. Vit. 29. 1865.

Hiptage javanica sensu A. Gray, Bot. U. S. Expl. Exped. 1: 267. 1854; Seem. Fl. Vit. 29. 1865; non Bl.

The two varieties (α and β) of his species proposed by Gray seem to be superficially distinct on the basis of foliar characters, the first (from which the description and most of the plate were drawn, and which must be taken as the type of the species) having comparatively small leaves. A series representing the genus in Fiji has been examined in detail to see whether substantiating characters exist for the maintenance of two varieties. I have been unable to find consequential differences in flowers or fruits among the specimens examined, and variation in the size, texture, and shape of leaves is such that no satisfactory lines can be drawn. Certain specimens (e.g. *Gillespie* 2647, 3559, and 3635.5) show a complete transition in leaf-size between Gray's two varieties. The actual type specimen has consistently small leaves (3–5.2 cm. long, 1.5–2.3 cm. broad). The specimens identified by Gray as *H. javanica* have large (up to 11×7.5 cm.) leaf-blades which are sometimes rounded or lightly cordate

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at base, but I do not see how they differ fundamentally from *H. myrtifolia*. The leaf-blades of the two Bryan specimens are acuminate at apex, whereas the species more typically has the leaf-apices merely acute or obtusely callose-mucronate.

The species is not common in Fiji, and so it seems desirable to record its range from the specimens now at hand.

VITI LEVU: Mba: Vicinity of Nalotawa, eastern base of Mt. Evans Range, alt. 550–600 m., *Smith 4466* (A, US) (tree 3–4 m. high, with subscandent branches, in forest along creek; young petals pink-tinged); Nandarivatu, alt. 900 m., *Gillespie 4268* (GH, US); Namosi: Vicinity of Namosi, alt. 500 m., *Gillespie 2647* (GH); Naitasiri: Vicinity of Nasinu, alt. 150 m., *Gillespie 3559* (GH) (in second growth bush), 3635.5 (GH, NY). "OVALAU and VANUA LEVU": *U. S. Expl. Exped.* (US, 14,050 TYPE, GH; var. β US 14,049, GH). VANUA MBALAVU: Extreme northwest end, *Bryan* Sept. 20, 1924 (A) (in forest on limestone hills north of Bay of Islands; flowers pink and white, fragrant). KATAFANGA: Northern end, alt. about 30 m., *Bryan 541* (A) (low shrub 1–2 m. high, in limestone forest; flowers pink and white). TAVEUNI and NAYAU ["Somu-somu and Naiau"]: *U. S. Expl. Exped.* (GH, NY, US, source of Gray's identification as "*H. javanica*"). Without definite locality: *Storck* in June, 1883 (GH); *Horne 949* (GH).

ANACARDIACEAE

Buchanania attenuata A. C. Sm. in *Bishop Mus. Bull.* 141: 87. fig. 45. 1936.

VANUA LEVU: Mathuata: Seanggangga Plateau, in drainage of Korovuli River, vicinity of Natua, alt. 100–200 m., *Smith 6891* (A, US) (tree 12 m. high, in patches of forest in open rolling country; petals and filaments white; anthers pale yellow).

The cited specimen is very typical of the species, otherwise known only from the islands of Kandavu and Moala.

CELASTRACEAE

Elaeodendron vitiense sp. nov.

Arbor glabra ad 8 m. alta, ramulis gracilibus apicem versus complanatis inferne teretibus fusco-cinereis; foliis oppositis vel suboppositis, petiolis semiteretibus 1.5–2 cm. longis, laminis papyraceis in sicco pallide viridibus lanceolato-ellipticis, (6–)8–10 cm. longis, (2.5–)3–4.5 cm. latis, basi attenuatis et in petiolum longe decurrentibus, apice obtusis vel paullo emarginatis, margine crenato-serratis (dentibus 2 vel 3 per centimetrum superne calloso-apiculatis), costa utrinque valde elevata, nervis lateralibus utrinsecus 5 vel 6 adscendentibus anastomosantibus cum rete venularum inconspicuo utrinque plus minusve prominulis; inflorescentiis axillaribus vel e ramulis inter folia orientibus cymosis 2–4-plo divisis, ad 5 cm. longis, pedunculo (ad 3 cm. longo) ramulisque gracilibus subteretibus in sicco striatis, bracteis minutis ad 0.3 mm. longis deltoideis obtusis caducis, bracteolarum cicatricibus lateraliter minute biglandulosis; pedicellis gracili-

bus teretibus sub anthesi 4–5 mm. longis; floribus hermaphroditis explanatis 9–10 mm. diametro; sepalis 5 semiorbicularibus circiter 1×1.5 mm. margine leviter erosulis; petalis 5 tenuiter carnosus oblongo-ellipticis, 4–4.5 mm. longis, 2.5–3 mm. latis, basi et apice rotundatis, margine erosulis; staminibus 5 e margine disci 5-angulati pulvinati circiter 2.5 mm. diametro erectis, filamentis gracilibus filiformibus circiter 1.5 mm. longis, antheris ovoideis circiter 0.5 mm. longis per rimas laterales longitudinales dehiscentibus; ovario in disco immerso apice umbonato, stigmate sessili subpeltato, loculis 3 vel 4, ovulis collateralibus.

VITI LEVU: Mba: Slopes of the escarpment north of Nandarivatu, alt. 550–800 m., Sept. 29, 1947, *Smith 6259* (A TYPE, US) ("kauloa"; tree 8 m. high, in hillside thickets; petals and filaments greenish yellow; anthers yellow; disk green).

The species here described extends the known range of *Elaeodendron* into Fiji, its previously recorded Pacific distribution extending only to New Caledonia and the New Hebrides, but these regions do not seem to provide a close ally. The Fijian plant, characterized by 5-parted hermaphrodite flowers, falls into the general relationship of *E. glaucum* Pers., the widespread species of tropical Asia, according to Loesener's treatment (in Engl. & Prantl, *Nat. Pfl.* ed. 2. 20b: 173. 1942). *Elaeodendron vitiense* is further distinguished by having its leaf-blades more distinctly attenuate at base and with more sharply ascending secondaries, and by its comparatively compact inflorescence.

HIPPOCRATEACEAE

Salacia vitiensis A. C. Sm. in *Am. Jour. Bot.* 28: 440. 1941, in *Sargentia* 1: 53. 1942.

VANUA LEVU: Mathuata: Southern slopes of Mt. Numbuiloa, east of Lambasa, alt. 100–350 m., *Smith 6388* (A, US) (liana, in open forest; fruit green); summit ridge of Mt. Numbuiloa, alt. 500–590 m., *Smith 6497* (A, US) (liana, in dense forest).

The three previously known specimens of this species have all been from Vanua Levu, but those cited above are the first from the Province of Mathuata. They agree excellently with the earlier material, but the mature fruits are somewhat larger than those originally described, being up to 5 cm. in diameter, obscurely ridged in the distal third, with a pericarp up to 5 mm. thick and with seeds up to 30×22 mm.

Salacia pachycarpa A. C. Sm. in *Sargentia* 1: 53. 1942.

VITI LEVU: Mba: Hills between Nggaliwana and Tumbeindreketi Creeks, east of the sawmill at Navai, alt. 725–800 m., *Smith 5861* (A, US) ("wa kau"; liana, in dense forest; petals and anthers dull yellow; disk and filaments pale green; seeds dull orange).

The cited specimen, in flower and fruit, agrees well with the only previously known collection of the species, a fruiting specimen from the adjacent Province of Ra. The following supplementary descriptive notes are now possible:

Inflorescence fasciculate, axillary or arising from branchlets between leaves, 2- or 3-flowered, subtended by minute coriaceous bracts; pedicels 5–8 mm. long at anthesis, slender, becoming much thicker and conspicuously lenticillate soon after anthesis; expanded flowers 4–5 mm. in diameter, the sepals deltoid, about 0.5×1 mm., obtuse; petals thin-carnose, oblong, 1.7–2.2 mm. long, 1.3–1.5 mm. broad, not much narrower at base, rounded at apex; disk annular-pulvinate, about 1.6 mm. in diameter and 0.6 mm. high; stamens 3, the filaments about 0.3 mm. long at apparent maturity, the anthers transversely ellipsoid, about 0.6 mm. broad, dehiscing by confluent apical clefts; ovary immersed in the disk, the style minute, about 0.3 mm. long, the locules 3, each with 2 superposed ovules; fruits up to 45 mm. in diameter, the seeds 1–4.

The species is thus distinguished from *S. vitiensis* A. C. Sm. not only by the characters mentioned in the original diagnosis, but also by having flowers which are smaller as regards their sepals, petals, and filaments. Of course too few specimens are available to permit careful floral comparison of the two species, but differences seem to be obvious; thus far each species is known from only one island.

ICACINACEAE

By R. A. Howard

Citronella vitiensis Howard in *Sargentia* 1: 53. fig. 3. 1942.

VITI LEVU: Mba: Immediate vicinity of Nandarivatu, alt. 800–900 m., *Smith* 5048 (A, US); western slopes of Mt. Nanggaranambuluta [Lomalangi], east of Nandarivatu, alt. 850–1000 m., *Smith* 4754 (A, US), 6317 (A, US), *Greenwood* 876 (A, US); hills between Nandala and Nukunuku Creeks, along trail from Nandarivatu toward Lewa, alt. 750–850 m., *Smith* 6205 (A, US); Nandronga & Navosa: Ridge between Singatoka and Navua Rivers, *B. E. Parham* 2468 (A).

The excellent collections cited above have many fruits which give a greater range of size than those mentioned in the original description of this species. Fruits are reported in field notes to be green or black. The largest are 4 cm. long and 2 cm. wide and thick. The angular prismatic character of the drupes makes this species clearly distinct from other species in the Pacific. Fruits were collected from May to October, and the species was collected in flower in September.

Medusanthera vitiensis Seem. in *Jour. Bot.* 2: 74. 1864; Howard in *Lloydia* 6: 139. 1943.

VITI LEVU: Mba: Hills between Nandala and Nukunuku Creeks, along trail from Nandarivatu toward Lewa, alt. 750–850 m., *Smith* 6159 (A, US); slopes and summit of Mt. Ndelaioö, on the escarpment west of Nandarivatu, alt. 900–1053 m., *Smith* 5054 (A, US); hills between Nggaliwana and Tumbeindreketi Creeks, east of the sawmill at Navai, alt. 725–800 m., *Smith* 5857 (A, US); western and southern slopes of Mt. Tomanivi [Mt. Victoria], alt. 850–1150 m., *Smith* 5280 (A, US).

The treatment of this species in my revision of 1943 was based on an unsatisfactory amount of material. The present collections add measurably to an understanding of the species. Smith's field notes report the plants to be trees in dense forests. Individual specimens reach 20 meters in height. The fruits, previously reported as oblong and 1.4 cm. long, must now be recognized as oblong in outline but tapering to a blunt apex which is recurved on the side of the pulvinus. Fresh fruits, collected from July to December, may be 32 mm. long and 12 mm. wide. The fruit is green or black and the fresh pulvinus is white. Flowering specimens were collected in September and the buds were pale green to pale yellow. The local name for this species is "lere."

SAPINDACEAE

Alectryon grandifolius A. C. Sm. in Bishop Mus. Bull. 141: 90. fig. 47. 1936.

VITI LEVU: Namosi: Wooded ridges near Namosi village, alt. 500 m., *Gillespie 2981* (GH).

Discovery of the cited Gillespie specimen in the Gray Herbarium permits a third record for this species, previously known only from the two specimens originally mentioned, from Koro and Vanua Levu. The Viti Levu specimen agrees precisely with the type in foliage and is in fruit; the following notes may be taken to supplement the description.

Fruiting inflorescence up to 35 cm. long and 20 cm. broad, the pedicels stout, 3–5 mm. long; fruits 1 (rarely 2-) lobed, the lobes subglobose-obovoid, up to 15 mm. in diameter, the pericarp coriaceous, copiously lenticellate, irregularly breaking into 4 or 5 oblong valves, the seed with a brittle blackish shining testa, the aril apparently cupuliform, not covering the seed distally.

Guioa chrysea A. C. Sm. in Sargentia 1: 54. 1942.

VITI LEVU: Mba: Upper slopes of Mt. Koromba [Pickering Peak], alt. 800–1075 m., *Smith 4632* (A, US) (tree 15 m. high, in dense forest; petals and filaments white; young anthers pink); immediate vicinity of Nandarivatu, alt. 800–900 m., *Smith 5020* (A, US) (tree 15–20 m. high, on open hillsides; petals and filaments white; anthers pink; disk pale yellow); Nandronga & Navosa: Northern portion of Rairaimatuku Plateau, between Nandrau and Rewasau, alt. 725–825 m., *Smith 5400* (A, US) ("marasa levu"; compact tree 4 m. high, in forest-grassland transition; flower-buds white). VANUA LEVU: Mathuata: Between Sarawangga and Ndreketi River, *B. E. Parham 1090* (A) ("ndrausasa"; tree 7 m. high, on edge of forest; flowers white); southern slopes of Mt. Numbuiloa, east of Lambasa, alt. 100–350 m., *Smith 6344* ("ndrausasa"; tree 8 m. high, in open forest), *6392* (A, US) (tree 10 m. high, in open forest); Thakau-drove: Maravu, near Salt Lake, alt. about 250 m., *Degener & Ordenez 14167* (A, US) (spreading tree 3 m. high, in forest). TAVEUNI: Vicinity of Somosomo, alt. 200 m., *Gillespie 4772* (GH, US) (on edge of clearing in low hills). Fiji, without other data: *Horne 880* (GH).

Guioa chrysea, previously recorded only from the type, *Degener 14398*, from the vicinity of Nandarivatu, seems to be a fairly frequent species. Its mature fruits are typical for the genus, up to 1.5 cm. long and 2 cm. broad.

Guioa capillacea sp. nov.

Arbor ad 8 m. alta, ramulis gracilibus subteretibus inconspicue lenticellatis fuscis vel subnigris, apicem versus pilis ferrugineis mollibus patentibus 0.3–0.5 mm. longis copiose indutis, demum glabrescentibus; foliis pinnatis ad 20 cm. longis vel forsan ultra 2–4-foliolatis, petiolo ad 4 cm. longo et rhachi petiolulisque ut ramulis molliter pilosis, foliolis suboppositis, petiolulis basi incrassatis 8–12 mm. longis; foliolorum laminis subcoriaceis in sicco fuscis ellipticis leviter falcatis, (5–)8–13 cm. longis, (3–)4–5.7 cm. latis, basi inaequilateraliter acutis et in petiolulum decurrentibus, apice obtuse callosa-cuspidatis, margine integris paullo incrassatis anguste revolutis, supra praeter costam nervosque subpilosos glabrescentibus, subtus pilis 0.4–0.6 mm. longis ubique persistenter molliter pilosis, costa utrinque prominente, nervis secundariis utrinsecus 5–8 curvato-adscententibus supra leviter subtus valde elevatis, rete venularum utrinque paullo prominulo; paniculis ad apices ramulorum congestis post anthesin ad 15 cm. longis, pedunculo brevi et ramulis ferrugineo-pilosis vel puberulis, pedicellis sub fructu incrassatis subteretibus 1–2 mm. longis; sepalis sub fructu subpersistentibus oblongis 1.3–1.6 mm. longis apice rotundatis, disco annulari-pulvinato circiter 0.6 mm. alto et 2 mm. diametro; capsula obcordata 3-lobata maturitate circiter 12 mm. longa et 15 mm. lata basi breviter stipitata, lobis aliformibus utrinque glabris, pericarpio haud 0.4 mm. crasso, seminibus compresso-ellipsoideis circiter $7 \times 6 \times 4$ mm. arillo libero in appendices filiformes paucas producto omnino obtectis.

VANUA LEVU: M b u a : Lower Wainunu River Valley, alt. 10–200 m., May 7, 1934, *Smith 1715* (GH, NY, US 1,676,291 TYPE, etc.) ("ndrausasa": tree 8 m. high, in thin forest).

Guioa capillacea is readily distinguished by the pubescence of its branchlets, petioles, etc., and by the ample tomentum of spreading hairs on the lower surfaces of its leaflets. The other Fijian species of the genus, *G. rhoifolia* (A. Gray) Radlk., and *G. chrysea* A. C. Sm., have the branchlets nearly glabrous and the leaflet-indument very inconspicuous, composed of minute and closely appressed pale hairs. This is apparently the third species of *Guioa* known from Fiji. My reference of a specimen from Vanua Mbalavu to *G. subfalcata* Radlk. (in Bishop Mus. Bull. 141: 89. 1936) was erroneous, the cited plant being *Arytera Brackenridgei* (A. Gray) Radlk. *Guioa concolor* Gillespie, as indicated below, is referable to *Arytera*. The two genera are difficult to distinguish without fruits.

CUPANIOPSIS Radlk.

In his treatment of *Cupaniopsis* in the *Pflanzenreich* (98f[IV. 165]: 1177–1208. 1933) Radlkofer recognizes three Fijian species, placing them

together in his section *Elattopetalum*. Of the three, one (*C. vitiensis*) is known only from a fruiting panicle, and so its identity will probably remain obscure for some time. The other two, *C. leptobotrys* and *C. Storckii*, seem hardly worthy of specific differentiation. Nevertheless, on the basis of material now available it seems that four species of *Cupaniopsis* occur in Fiji, two of these being here described. The following key will serve to distinguish our species.

Leaflet-blades glabrous beneath, or the pubescence, if present, inconspicuous and limited to nerves and nerve-axils.

Leaflet-blades usually 10–20(–27) cm. long and 4–6.5(–10) cm. broad, acuminate or long-cuspidate at apex, the secondary nerves usually 8–15 pairs; inflorescence-branches tomentellous with hairs 0.2–0.5 mm. long, the calyx-lobes sericeous without.....*C. leptobotrys*.

Leaflet-blades 8–11 cm. long and 3–3.7 cm. broad, rounded or obtusely short-cuspidate at apex, the secondary nerves 5–9 pairs; inflorescence-branches and calyx-lobes minutely puberulent.....*C. amoena*.

Leaflet-blades uniformly soft-pilose beneath with pale-ferruginous or canescent spreading hairs.

Leaflet-blades oblong-lanceolate, 8–12(–15) cm. long, 3–4(–6) cm. broad; capsules with an obvious stipe 2–3 mm. long.....*C. induta*.

Leaflet-blades broadly oblong-elliptic, 18–22 cm. long, 9–11 cm. broad; capsules short-stipitate or essentially obtuse at base.....*C. sp.*

***Cupaniopsis leptobotrys* (A. Gray) Radlk.** in Sitzungsab. Math. Phys. Kl. Akad. Wiss. München 9: 585. 1879, in Pflanzenr. 98f[IV. 165]: 1197. 1933.

Cupania leptobotrys A. Gray, Bot. U. S. Expl. Exped. 1: 255. 1854.

Ratonia Storckii Seem. Fl. Vit. 47. 1865.

Cupaniopsis Storckii Radlk. in Sitzungsab. Math. Phys. Kl. Akad. Wiss. München 9: 587. 1879, in Pflanzenr. 98f[IV. 165]: 1197. 1933.

Type material of the two species here listed, obtained in each case on the island of Ovalau, has been carefully examined, but I am unable to follow Radlkofer in separating them. The type collection of *Ratonia Storckii* bears capsules which, as implied by Radlkofer in his key in the Pflanzenreich, are comparatively short-stipitate; they are also larger than those accompanying the type of *Cupania leptobotrys*, but one finds these characters of secondary consequence when an ample series of specimens is examined. I am unable to verify Radlkofer's observation that secretory cells in the testa of the seed are lacking in one case and present in the other. No consequential foliage differences are apparent, the two type collections being less diverse than many of the more recent specimens which must be referred here.

On the basis of available material, *Cupaniopsis leptobotrys* is variable in the size of its leaves, but the leaflets are essentially glabrous and consistently pointed, while the inflorescence-indument, in comparison with that of the following new species, is comparatively dense and long. It has been noted as a slender tree up to 8 meters in height, occurring in forest

on the larger islands at elevations from near sea-level up to 1100 meters. My present examination is based upon the following collections:

VITI LEVU: Mba: Slopes of Mt. Nairoso, eastern flank of Mt. Evans Range, *Smith 4066* (A, US); Nandronga & Navosa: Southern slopes of Nausori Highlands, in drainage of Namosi Creek above Tumbenasolo, *Smith 4570* (A, US) ("malatawa"); Ra: Tuvatuva, between Rewasa and Nokonoko, near Vaileka, *Degener 15371* (A, NY, US) ("malawathe"; infusion of crushed bark drunk for stomach trouble); Namosi: Mt. Naitarandamu, *Gillespie 3243* (GH), *3317* (GH, NY); hills near Navua River, *Greenwood 1033* (A, NY); Naitasiri: Near Tamavua, *Gillespie 2447* (GH). OVALAU: *U. S. Expl. Exped.* (GH, US TYPE); *Seemann 67* (type coll. of *Ratonia Storckii*, GH). VANUA LEVU: Mbua: Southern slope of Mt. Seatura, *Smith 1639* (GH, NY, US); Thakaundrove: Natewa Peninsula, hills south of Natewa, *Smith 1954* (NY, US). KANDAVU: Hills above Namalata and Ngaloa Bays, *Smith 120* (NY), *154* (GH, NY, US).

Cupaniopsis amoena sp. nov.

Arbor ad 25 m. alta, ramulis subteretibus cinereis parce lenticellatis, juvenilibus cinereo-puberulis mox glabrescentibus; foliis ad 40 cm. longis et 20 cm. latis, petiolo ad 12 cm. longo basi incrassato et rhachi gracilibus striatis minute puberulis glabratiss, foliolis (8-)10-14 alternatis vel suboppositis, petiolulis gracilibus leviter canaliculatis basi incrassatis maturitate (10-)15-23 mm. longis glabratiss; foliolorum laminis tenuiter coriaceis in sicco fusco-viridibus vel fuscis anguste oblongo-ellipticis, 8-11 cm. longis et 3-3.7 cm. latis (infimis minoribus), basi inaequilateraliter acutis vel obtusis et in petiolum decurrentibus, apice rotundatis vel obtuse breviterque cuspidatis, margine integris leviter recurvatis, glabris (costa subtus haud puberula), saepe in axillis nervorum subtus foveolatis, costa supra elevata subtus prominente, nervis secundariis utrinsecus 5-9 patentibus anastomosantibus supra paullo subtus valde elevatis, rete venularum utrinque leviter prominulo; paniculis apices ramulorum versus axillaribus ad 20 cm. longis, pedunculo brevi (ad 3 cm. longo) et ramulis pedicellisque arcte et copiose tomentello-puberulis (pilis cinereis vel pallide ferrugineis circiter 0.1 mm. longis), ramulis lateralibus patentibus ad 9 cm. longis, bracteis bracteolisque minutis ovatis 0.5-1 mm. longis latisque apice rotundatis vel obtusis extus sericeo-puberulis, pedicellis sub anthesi supra articulationem 1-1.5 mm. longis; calyce sub anthesi cupuliformi-rotato 8-9 mm. diametro, lobis late imbricatis obovatis 4-5 mm. longis latisque extus minute cinereo-puberulis margine scariosis erosulis; petalis membranaceis obscure punctatis orbiculari-ovatis, 2-2.5 mm. longis, 2.2-3 mm. latis, basi minute unguiculatis et obscure aureo-sericeis, margine plicato-erosulis, intus praeter squamulas 2 breves pilis aureis circiter 0.1 mm. longis extus sericeo-hispidulas apice deflexas glabris; disco annulari complanato minute aureo-puberulo; staminibus plerumque 10 interdum 9 raro 8, filamentis sub anthesi 1.5-2 mm. longis apice angustatis minute aureo-puberulis, antheris ovoideo-oblongis 2-2.5 mm. longis glabris; ovario in floribus ♂ rudimentario, in floribus ♀ subgloboso-ovoideo obscure

trigono sub anthesi sessili pilis circiter 0.1 mm. longis copiose aureo-sericeo-puberulo, stylo breviter conico declive 3-stigmatoso, stigmatibus pallidis elongatis copiose papillosis, loculis 3, ovulo solitario erecto; capsula triquetro-obovoidea stipite crasso 3-angulari 2–3 mm. longo incluso maturitate circiter 15 mm. longa et lata, extus pilis circiter 0.1 mm. longis copiose velutino-puberula, intus (septis inclusis) pilis stramineis circiter 0.7 mm. longis copiose vestita; seminibus ellipsoideis circiter 8 mm. longis 5–6 mm. latis utroque rotundatis arillo tenui margine erosulo fere ad apicem obductis, testa castanea.

VITI LEVU: Mba: Slopes of Mt. Nairoso, eastern flank of Mt. Evans Range, alt. 700–1050 m., April 28, 1947, *Smith 4083* (A TYPE, US) (tree 25 m. high, in dense forest; petals, disk, and filaments white; anthers orange), *4105* (A, US) (slender tree 5 m. high, in crest thickets; petals white; anthers yellow); eastern slopes of Mt. Koroyanitu, Mt. Evans Range, alt. 950–1050 m., *Smith 4149* (A, US) (tree 8 m. high, in dense low forest; fruit green); southern slopes of Mt. Ndelainathovu, on the escarpment west of Nandarivatu, alt. 870–970 m., *Smith 4935* (A, US) ("ndrengandrenga"; slender tree 7 m. high, in dense forest). The type bears staminate flowers, no. *4105* pistillate flowers, and the other two specimens essentially mature fruits.

The species here described is readily characterized by its small obtuse leaflets and its indument, which, when present (i.e. on young branchlets, petioles, inflorescence-branches, calyx, disk, filaments, ovary, and capsule), is a mere puberulence of minute hairs, contrasting with the copious longer tomentum of these parts in *C. leptobotrys* (A. Gray) Radlk.

Cupaniopsis induta sp. nov.

Arbor gracilis ad 8 m. alta, ramulis teretibus sat robustis copiose tomentellis (pilis ferrugineis 0.2–0.7 mm. longis) demum subglabratibus, cortice purpurascens vel fusco; foliis ad 55 cm. longis et 25 cm. latis, petiolo 8–15 cm. longo basim versus incrassato et supra complanato cum rhachi petiolulisque ut ramulis tomentellis demum subglabrescentibus, foliolis 12–16 alternatis vel suboppositis, petiolulis gracilibus 10–17 mm. longis supra complanatis basi incrassatis; foliolorum laminis subcoriaceis in sicco supra olivaceis subtus fuscis oblongo-lanceolatis, 8–12 (–15) cm. longis, 3–4 (–6) cm. latis (infimis minoribus), basi inaequilateraliter acutis et in petiolum decurrentibus, apice breviter cuspidatis vel calloso-acutis raro obtusis, margine integris leviter recurvatis, supra glabris vel secus costam subpuberulis, subtus pilis pallide ferrugineis vel canescentibus 0.2–0.4 mm. longis uniformiter molliter pilosis et interdum in axillis nervorum barbellato-foveolatis, costa supra in sulculo prominula vel subplana subtus prominente, nervis secundariis utrinsecus 8–15 erecto-patentibus leviter curvatis vel subrectis supra prominulis vel leviter impressis subtus elevatis, rete venularum utrinque subprominulo vel supra immerso; paniculis apices ramulorum versus axillaribus ad 25 cm. longis, pedunculo ad 8 cm. longo et ramulis pedicellis pilis pallide ferrugineis 0.4–1 mm. longis copiose tomentellis vel molliter pilosis, bracteis oblongis 2–4 mm.

longis obtusis extus ut pedicellis pilosis, bracteolis similibus 1–2 mm. longis, pedicellis sub anthesi supra articulationem 1–3 mm. longis; calyce cupuliformi-rotato sub anthesi 8–9 mm. diametro, lobis late imbricatis obovatis 4–5.5 mm. longis latisque (exterioribus 2 minoribus) utrinque pilis 0.1–0.2 mm. longis sericeis vel intus subglabris margine integris vel obscure erosulis; petalis membranaceis obscure punctatis deltoideo-ovatis, 1.5–1.7 mm. longis, 1.8–2 mm. latis, basi obtusis haud unguiculatis, extus basim versus aureo-sericeis, margine saepe tricuspidatis, intus praeter squamulas 2 breves pilis aureis 0.1–0.2 mm. longis sericeo-hispidulas apice deflexas glabris; disco annulari-pulvinato minute aureo-hispidulo; staminibus 8–10, filamentis sub anthesi 1–1.8 mm. longis hispidulis (interdum sparsim, pilis aureis 0.2–0.3 mm. longis), antheris ovoideo-oblongis 2–2.7 mm. longis glabris; ovario subgloboso-ovoideo pilis aureis 0.3–0.8 mm. longis densissime setuloso, stylo subnullo declive 3-stigmatoso, stigmatibus pallidis ellipticis minute papillois, loculis 3, ovulo solitario erecto; capsula trigono-obovoidea conspicue angulata stipite valido 3-angulari 2–3 mm. longo incluso maturitate circiter 2 cm. longa et lata, extus pilis circiter 0.5 mm. longis copiose velutino-hispidula, intus (septis inclusis) pilis stramineis circiter 1.5 mm. longis dense sericea; seminibus ellipsoideis circiter 13 mm. longis 8–9 mm. latis utroque rotundatis arillo tenui margine irregulariter lobato fere ad apicem obductis, testa castanea.

VITI LEVU: Mba: Upper slopes of Mt. Koromba [Pickering Peak], alt. 800–1075 m., June 3, 1947, *Smith 4663* (A TYPE, US) (slender tree 5–8 m. high, in dense forest; petals and filaments cream-white; anthers orange); hills between Nggaliwana and Nandala Creeks, south of Nauwanga, alt. 725–850 m., *Smith 5854* (A, US) (slender tree 4 m. high, in forest-grassland transitional belt; infructescences axillary, among leaves crowded at apices of branchlets). VANUA LEVU: Mbua: Lower Wainunu River Valley, alt. 10–200 m., *Smith 1742* (GH, NY, US) (slender tree 5 m. high, in dense forest; petals white; anthers yellow). The type and no. 1742 have pistillate flowers; no. 5854 is in fruit.

The new species differs from *C. leptobotrys* (A. Gray) Radlk. most obviously in having its leaflet-blades soft-pilose beneath. It is also characterized by a generally longer tomentum of inflorescence-parts (i.e. branches of inflorescence, calyx, filaments, and ovary). The ovary of *C. induta* is covered by a mass of stiff erect contiguous hairs which form a fairly uniform layer 0.3–0.8 mm. in thickness, while in *C. leptobotrys* these hairs are sparser and irregular, some longer ones (0.3–0.4 mm. long) occurring among a puberulence of hairs scarcely 0.1 mm. long. There is a corresponding but less obvious difference in the capsular indument of the two species.

Cupaniopsis sp.

VITI LEVU: Naitasiri: Viria, *Mecbold 16721* (Bish).

The cited specimen obviously represents a fourth species of *Cupaniopsis* in Fiji. Unfortunately it consists only of the distal portion of a leaf, with several leaflets, and part of an infructescence. It differs from the preceding

new species, *C. induta*, in its much larger leaflets and in having its capsules essentially obtuse at base.

It seems quite possible that the specimen here cited represents *C. vitiensis* Radlk. (in Rep. Sp. Nov. 20: 34. 1924, in Pflanzenr. 98f [IV. 165]: 1198. 1933), rashly described on the basis of only a fruiting panicle collected by Horne (no. 982) at "Kow Luli" on the Wainimala River, Viti Levu. I do not find that characters of the fruits, alone, can be used for delimiting species in *Cupaniopsis*, but nothing in Radlkofer's description would exclude our specimen. Viria is on the Rewa River about 10 miles below the mouth of the Wainimala. It is hoped that future collections in east-central Viti Levu will clarify the status of *C. vitiensis*.

***Arytera concolor* (Gillespie) comb. nov.**

Guioa concolor Gillespie in Bishop Mus. Bull. 83: 17. fig. 19. 1931.

VITI LEVU: Mba: Vicinity of Nalotawa, eastern base of Mt. Evans Range, alt. 550–600 m., *Smith 4490* (A, US) ("tombilito"; tree 15 m. high, in forest along stream); southern slopes of Mt. Ndelaithovu, on the escarpment west of Nandarivatu, alt. 870–970 m., *Smith 5053* (A, US) ("marasa"; slender tree 4 m. high, in dry forest); summit of Mt. Nanggaranambuluta [Lomalangi], east of Nandarivatu, alt. 1100–1120 m., *Smith 4857* (A, US) ("marasa"; tree 6 m. high, in dense forest); western and southern slopes of Mt. Tomanivi [Mt. Victoria], alt. 850–1150 m., *Smith 5287* (A, US) ("sauva"; tree 15 m. high, in dense forest); Nandronga & Navosa: Northern portion of Rairaimatuku Plateau, between Nandrau and Nanga, alt. 725–825 m., *Smith 5580* (A, US) ("nduvu-nduvu"; tree 15 m. high, in dense forest); Ra: Vatundamu, vicinity of Rewasa, near Vaileka, alt. 50–200 m., *Degener 15398* (A, US) (tree 5 m. high, in dry forest); Saulangitua, vicinity of Rewasa, alt. 50–200 m., *Degener 15508* (A) (tree 3 m. high, in forest).

In describing *Guioa concolor*, Gillespie lacked mature fruits and consequently did not observe the copious stiff hairs which line the inner surface of the locules. Such hairs are not found in *Guioa*, but they are characteristic of *Arytera Brackenridgei* (A. Gray) Radlk. and other species of Radlkofer's section *Azarytera*. Mature fruits now available are 1-locular, ovoid, up to 25 mm. long and 18 mm. broad, glabrous and minutely rugulose without, copiously stiff-pilose within, and with a pericarp slightly less than 1 mm. thick. The single seed is large, up to 20×15 mm., completely enveloped by a thin yellowish aril which is few-lobed distally.

Guioa concolor is not as similar in foliage to *Arytera Brackenridgei* as implied by Gillespie, having leaflets which are fewer, thinner in texture, broader, and characteristically yellowish green when dried. Minute peltate scales, the persistence of which on the capsules and to a limited extent on the foliage is a feature of *A. Brackenridgei*, are seen to be present on the very young parts of *A. concolor* (e.g. in *Smith 5287*), but they are almost immediately caducous. Gillespie cited several numbers of his species from Taveuni and one from Viti Levu. Our cited material agrees perfectly with these, including an isotype.

Koelreuteria vitiensis sp. nov.

Koelreuteria formosana sensu A. C. Sm. in Sargentia 1: 55. 1942; non Hayata.

Arbor ad 25 m. alta, ramulis subteretibus fuscis sat robustis pallide lenticellatis, juventute pilis stramineis simplicibus 0.1–0.3 mm. longis parce pilosis mox glabrescentibus; foliis alternatis bipinnatis ad 75 cm. longis et 40 cm. latis, petiolis rhachibusque ut ramulis pilosis praecipue axillas pinnarum foliolorumque versus, petiolis validis basi incrassatis ad 17 cm. longis, pinnis 8–12 suboppositis, pinnis infimis minimis, pinnis superioribus ad 20 cm. (juvenilibus ad 30 cm.) longis brevipetiolulatis 11- vel 13(juvenilibus ad 15-)-foliolatis; foliolorum petiolulis inconspicuis gracilibus ad 2 mm. (infimis raro ad 5 mm.) longis parce pilosis, laminis chartaceis inaequilateraliter lanceolato-ovatis, plerumque 5–8 cm. longis et 1.8–2.5 cm. latis, basi inaequilateraliter obtusis vel acutis, apice in acuminem gracilem circiter 1 cm. longum attenuatis, margine in foliolis adultis subintegris vel distaliter inconspicue serratis (in foliolis juvenilibus grosse serratis), subtus secus costam et nervos stramineo-pilosis ceterum maturitate glabris, costa supra acute elevata subtus prominente, nervis secundariis utrinsecus 7–9 curvatis supra prominulis subtus elevatis, rete venularum utrinque plano vel subtus prominulo; inflorescentiis amplis paniculatis pyramidalibus multifloris ad 60 cm. longis vel ultra, pedunculo valido ramulisque parce pilosis demum glabris, cincinnis 4–8-floris, bracteolis ovato-delloideis 0.8–1.3 mm. longis acutis praeter marginem conspicue setoso-ciliatum glabris caducis, pedicellis glabris gracilibus sub anthesi 3–5 mm. longis sub fructu paullo longioribus; floribus polygamis asymmetricis; calyce cupuliformi sub anthesi circiter 2.5 mm. alto et 3.5–4 mm. diametro profunde 5-lobato, lobis submembranaceis subaequalibus anguste imbricatis ovato-oblongis 1.3–1.5 mm. longis 1.5–2 mm. latis praeter marginem ciliolatum etiam parce glandulosum glabris; petalis 4 subaequalibus unguiculatis, unguiculo ligulato 2–4 mm. longo pilis stramineis circiter 0.5 mm. longis copiose tomentello, lamina membranacea glabra oblongo-elliptica 6–7.5 mm. longa 3–3.5 mm. lata basi anguste auriculata et squama bipartita carnosa aucta apice rotundata; disco unilaterali carnoso oblique tumidulo circiter 1 mm. alto et 1.5 mm. diametro margine apicali crenulato; staminibus 8, filamentis filiformibus pilis 1–1.5 mm. longis subvillosis sub anthesi in floribus ♂ 8–10 mm. in floribus ♀ 1–4 mm. longis, antheris ellipsoideis 1.3–1.5 mm. longis parce hispidulis per rimas laterales dehiscentibus; ovario triquetro parce hispidulo-sericeo incomplete 3-loculari, stylo sub anthesi brevi in fructu juvenili ad 6 mm. mox elongato, stigmate obscure 3-lobato, loculis 2-ovulatis; capsula oblongo-ovata inflata glabra conspicue reticulato-venosa, maturitate 5–5.5 cm. longa et 4–5 cm. lata, basi rotundata, apice abrupte cuspidata, seminibus obovoideis ad 7×6 mm. minute scrobiculatis.

VITI LEVU: Mba: Slopes of Mt. Nairoso, eastern flank of Mt. Evans Range, alt. 700–800 m., May 14, 1947, *Smith 4389* (A TYPE, US) ("wiwi"; tree 25 m. high, in dense forest; petals bright yellow with red markings

within toward base; filaments yellow); slopes of the escarpment north of Nandarivatu, alt. 550–800 m., *Greenwood 450A* (A, US) (tree to 11 m. high, in gullies and on hillsides; flowers yellow, the petal-bases red; fruit reddish brown), *Smith 6081* (A, US) (tree 4–6 m. high, infrequent in hill-side thickets; sterile); Ra: Mataimeravula, vicinity of Rewasa, near Vaileka, alt. 50–200 m., *Degener 15435* (A, US) ("lombolombo"; large tree, in open forest; petals yellow, red toward base; extract of leaves used as a black hair-dye); Tailevu: King's Road, *B. E. Parham 1213* (A) (tree 7–10 m. high, on edge of forest). VANUA LEVU: Mathuata: Southern slopes of Mt. Numbuiloa, east of Lambasa, alt. 100–350 m., *Smith 6429* (A, US) (spreading tree 10 m. high, in dry secondary forest used for pasture; sterile).

In identifying some of the cited specimens as *K. formosana* in 1942, I suggested that they were not native to Fiji. Mr. Greenwood expressed doubt of my conclusion, and field observation in 1947 caused me to agree with him. In the Mt. Evans Range, of northwestern Viti Levu, this tree is one of the most striking components of the vegetation during its short flowering season, which lasts for only about two weeks, in May or early June. From the high ridges one may observe large individuals, spectacularly covered with bright yellow flowers, in the forest on the inaccessible slopes. From the size and habitat of these trees one must suppose that they are indigenous, although the record causes an extraordinary extension of the known range of *Koelreuteria*, otherwise limited to eastern Asia and Formosa.

Although *K. formosana* Hayata is the closest ally of the new species, examination of the series of specimens now available discloses differences. *Koelreuteria vitiensis* differs from the Formosan species in having more numerous leaflets which are slightly smaller, more nearly entire-margined, shorter-petiolulate, and more definitely narrowed at base. Although *K. formosana* is described (Hayata, Ic. Pl. Formos. 3: 64. 1913) as having petiolules 2 mm. long, a photograph of the type (as well as the original plate, op. cit. pl. 13) shows that they average 3–5 mm. in length. In fruit, the Fijian plant differs in having its capsule abruptly cuspidate, rather than retuse, at apex; the retuse character in *K. formosana* is borne out by examination of the capsule of *Wilson 11145* (A, US), which, like the type, is without flowers. The other species of this relationship, *K. integrifoliola* Merr., of south China, obviously differs from *K. vitiensis* in its larger leaflets, longer petals, and smaller, more gradually pointed capsules.

Cossignia pacifica sp. nov.

Arbor ad 5 m. alta, ramulis subteretibus vel obtuse angulatis robustis (apicem versus 5–6 mm. diametro), juvenilibus copiose ferrugineo-furfuraceo-tomentosis (pilis glomerulato-stellatis stipite gracili incluso 0.1–0.2 mm. longis, ramulis minutis ex apice capitato radiatis), adultioribus glabrescentibus; foliis alternatis 5- vel 7-foliolatis maturis ad 35 cm. longis et 23 cm. latis (foliolis subadscendentibus), petiolo (ad 8 cm. longo) et

rhachis costa validis ut ramulis dense tomentosis, rhachi anguste alata, alis inter foliola 2–3.5 cm. longis ad 2 mm. latis textura foliolis similibus, foliolorum petiolulis robustis brevibus (ad 2 mm. longis) tomentosis, laminis subcoriaceis oblongo- vel obovato-ellipticis, ad 18 cm. longis et 6 cm. latis (inferioribus paullo minoribus), basim versus angustatis sed basi ipso subito obtusis, apice breviter calloso-acuminatis, margine integris et anguste revolutis, supra maturitate glabris, subtus ut ramulis tomentosis ac etiam pilis minutis sessilibus stellatis copiose albido-pilosis, pinnati-nerviis, costa supra in sulcula paullo elevata subtus prominente, nervis secundariis utrinsecus 15–20 erecto-patentibus leviter curvatis supra subplanis subtus elevatis, rete venularum supra immerso vel impresso subtus haud prominulo; inflorescentiis subterminalibus compactis sub anthesi ad 15 cm. diametro, cincinnis plurifloris, bracteis bracteolisque lineari-oblongis 2–3 mm. longis obtusis utrinque copiose tomentellis evanescentibus, pedicellis sub anthesi 5–7 mm. longis sub fructu paullo elongatis; floribus spurie polygamis oblique symmetricis; calyce rotato profunde 5-lobato, lobis oblongis 3–4 mm. longis 1.5–2.5 mm. latis apice rotundatis utrinque tomentosis (pilis extus ferrugineis stipitatis intus albidis sessilibus); petalis 6 membranaceis oblongis, 5–6.5 mm. longis, 3–4 mm. latis, basi obtusis et brevissime unguiculatis, apice rotundatis, utrinque pilis sessilibus stellatis copiose et arcte tomentellis; disco unilaterali vel lobis 2 oppositis, lobis carnosius oblongo-deltoides 3–3.5 mm. longis latisque margine undulatis lobulum parvum introrsum basalem gerentibus; staminibus 8 vel 9, filamentis filiformibus glabris sub anthesi in floribus ♂ 15–17 mm. in floribus ♀ 3.5–5 mm. longis, antheris ellipsoideis 1–1.2 mm. longis per rimas elongatas laterales dehiscentibus; ovario in floribus ♂ rudimentario glabro, stylo brevi; ovario in floribus ♀ obovato-trigono pilis glomerulato-stellatis breviter stipitatis ramulis circiter 0.3 mm. longis copiose hispidulo, stylo filiformi sub anthesi 12–15 mm. longo basi hispidulo superne glabro, stigmate subcapitato, loculis 3, ovulis in loculis binis superpositis medium versus affixis; capsula trigono-obovoidea maturitate 13–17 mm. diametro trivalva persistenter pilosa, stylo subpersistente, seminibus in loculis 1 vel 2 ellipsoideis submaturis circiter 1.8×1.4 mm.

VANUA LEVU: Mathuata: Southern slopes of Mt. Numbuiloa, east of Lambasa, alt. 100–200 m., Nov. 3, 1947, *Smith 6432* (A TYPE, US) (freely branching tree 5 m. high, on edge of open forest; petals and filaments white).

The species described above must be considered one of the most noteworthy recent additions to the known flora of Fiji. The genus *Cossignia* Commers. has otherwise, according to Radlkofer (in *Pflanzenr.* 98g[IV. 165]: 1337–1341. 1933), been known from only three species, two from the Mascarene Islands and one from New Caledonia. The new species is closer to Radlkofer's Section *Eucossignia*, which includes the Mascarene species, than to Section *Melicopsidium*, of New Caledonia, but possibly still another section should be erected for it. In the fundamental details of its flowers and fruits and in its peculiar indument, the Fijian plant closely resembles *C. triphylla* Commers. and *C. pinnata* Commers., differ-

ing not only in its larger leaves with more numerous and acuminate leaflets, but also in having 6 petals (rather than 4), 8 or 9 stamens (rather than 5 or 6), and disk-lobes (either unilateral or opposite) which are comparatively large and laminar in shape rather than merely pulvinate.

Although the collection cited above is the only one of *Cossignia* from Fiji seen by me, it should be noted that Mr. William Greenwood has included the genus in an unpublished list of his collections, kindly made available to me. Mr. Greenwood was at one time resident in Lambasa and it is probable that his specimen, if correctly referred to the genus, was obtained near my type-locality.

RHAMNACEAE

Colubrina micropetala sp. nov.

Colubrina papuana sensu A. C. Sm. in Bull. Torrey Bot. Club **70**: 545. 1943; non Merr. & Perry.

Arbor ad 15 m. alta vel frutex, ramulis juvenilibus subcomplanatis et innovationibus aureo-puberulis vel minute aureo-sericeis, vetustioribus subteretibus atro-fuscis mox glabrescentibus; foliis alternatis, petiolis gracilibus canaliculatis rugulosis 12–27 mm. longis primo ut ramulis pilosis mox glabris, laminis chartaceis vel papyraceis siccitate fusco-viridibus oblongo-ellipticis, (5–)8–12 cm. longis, (2.5–)4–7 cm. latis, basi late obtusis et in petiolum subito decurrentibus, apice obtuse cuspidatis vel interdum paullo emarginatis, margine saepe leviter undulatis, utrinque costa juventute subtus parce aureo-strigillosa excepta glabris, costa supra acute impressa subtus prominente, nervis secundariis utrinsecus 4–7 arcuato-adscendentibus supra subplana subtus elevata, rete venularum subtus leviter prominulo; inflorescentiis axillaribus cymoso-paniculatis 5–9 cm. longis, pedunculo (2–4 cm. longo) ramulisque gracilibus subteretibus primo aureo-strigillosis mox glabris, floribus 2–5 aggregatis ubique glabris, pedicellis sub anthesi 2–3 mm. longis; calyce sub anthesi turbinato carnosio 5–5.5 mm. longo 5–7 mm. apice diametro profunde 5-lobato, lobis deltoideis 3–4 mm. longis 2–2.5 mm. latis, apice obtusis, linea elevata medio percursis; petalis inconspicuis minutis membranaceis obovatis vel suborbicularibus, 0.7–0.8 mm. longis, 0.5–0.7 mm. latis, leviter cucullatis, apice rotundatis; staminibus 5 cum petalis insertis, filamentis subnullis, antheris oblongo-subglobosis 0.6–0.8 mm. diametro lateraliter dehiscentibus; disco carnosio tubum calycis impleto profunde 10-lobato; ovario in disco semi-immerso leviter trisulcato, stylo subnullo, loculis 3, ovulo in quoque loculo solitario e basi erecto; pedicellis sub fructu paullo incrassatis 6–10 mm. longis, fructibus triquetro-subglobosis inconspicue trisulcatis 1.5–1.7 mm. diametro, medium versus calycis patella suffultis, epicarpio tenui, endocarpio crustaceo; semine compresse ellipsoideo, 8–10 mm. longo, 6–8 mm. lato, 4–5 mm. crasso, testa rubra vel cinnabarina puncticulata.

VITI LEVU: Mba: Nandarivatu, alt. about 900 m., *Greenwood* 856 (A) (tree about 13 m. high; young fruits yellow); Naitasiri: Taulevu-Vunindawa track, alt. about 150 m., *B. E. Parham* 741 (A) (shrub 3 m.

high, in grassland); Nasinu, alt. 150 m., *Gillespie 3599.9* (Bish), 3661 (A, Bish, US) (tree 10 m. high, copiously branching; fruit dull russet-green, the seeds orange-red). VANUA LEVU: Mathuata: Seanggangga Plateau, in drainage of Korovuli River, vicinity of Natua, alt. 100–200 m., Nov. 28, 1947, *Smith 6736* (A TYPE, US) (tree 15 m. high, in patches of forest in open rolling country; sepals and anthers white). Fiji, without locality: *Horne 1116* (Bish), *Peni Turaga 1535* (A).

In identifying this entity in 1943 as *C. papuana* Merr. & Perry, I pointed out the similarity of fruits and foliage to those of the New Guinean species. However, slight differences in the fruits are evident: the calycine scar is considerably higher in the new species than it is in *C. papuana*; and the seeds of our plant are smaller and ellipsoid rather than subglobose. The discovery of flowering material, indicated above as the type, shows other and more tangible differences between the Fijian and the New Guinean populations. Although the available flowers of *C. papuana* are not entirely mature, it is obvious that their calyces are smaller and thinner in texture than those of the new species. The New Guinean species has larger petals (more than 1 mm. in length), which considerably exceed the anthers and incurve over them, whereas the petals of the Fijian plant are essentially similar in size to the anthers, which effectively conceal them. The disk-lobes of *C. papuana* are not discrete, as they are in *C. micropetala*, and the ovary is produced into a thick conical style, whereas the ovary in the Fijian plant is merely obtuse at the apex.

TILIACEAE

Berrya pacifica sp. nov.

Arbor ad 25 m. alta, ramulis gracilibus teretibus juventute minute stellato-pubescentibus vel sublepidotis glabrescentibus; petiolis gracilibus 3–5 cm. longis subglabris basi et apice paullo incrassatis; laminis chartaceis in sicco fusco-olivaceis late ovatis, (7–)10–15 cm. longis, (4–)6–9 cm. latis, basi subcordatis, apice in acuminem ad 15 mm. longum callosopunctatis, margine inconspicue undulatis, utrinque glanduloso-punctatis, supra glabris, subtus secus costam et nervos stellato-barbulatis, nervis basalibus plerumque 7 cum lateralibus reliquis utrinsecus circiter 3 supra leviter subtus valde elevatis, rete venularum intricato utrinque prominulo; inflorescentiis in axillis foliorum apices ramulorum versus amplis sub fructu ad 20 cm. longis, pedunculo (ad 6 cm. longo) ramulisque gracilibus subteretibus stellato-pubescentibus glabrescentibus; pedicellis sub fructu gracilibus teretibus 20–25 mm. longis copiose et arcte stellato-tomentellis; calyce sub fructu subrotato 10–12 mm. diametro, extus arcte stellato-piloso, intus lobis apicem versus exceptis glabro, irregulariter 3- vel 4-lobato, lobis deltoideis acutis circiter 4×5 mm.; petalis sub fructu subpersistentibus glabris obovatis, circiter 10 mm. longis, 5–6 mm. latis, basi angustatis, apice erosulo-rotundatis; staminibus numerosissimis (150–200), filamentis basi breviter connatis filiformibus circiter 5 mm. longis glabris, antheris oblongis circiter 0.4 mm. longis per rimas conflu-

entes dehiscentibus; capsula 10–12 mm. alta alis patentibus inclusis 5–5.5 cm. lata, sublepidoto-stellato-pilosa, superne sulcata et stylo subpersistente gracili 4.5–5 mm. longo coronata, stigmatе subcapitato leviter lobato; carpidiis 4 vel 5 (raro 3) loculicide dehiscentibus ample bialatis, alis papyraceis oblongis 22–28 mm. longis 5–10 mm. latis apice unilateraliter obtusis vel erosulis, semine in quoque loculo uno ellipsoideo circiter 7×5 mm. pilis circiter 1 mm. longis copiose strigoso.

VITI LEVU: Nandronga & Navosa: Southern slopes of Nausori Highlands, in drainage of Namosi Creek above Tumbenasolo, alt. 300–450 m., May 29, 1947, *Smith 4590* (A TYPE, US) ("tovau"; tree 25 m. high, in dense forest, the trunk 50 cm. in diameter; fruit dull red).

The described specimen represents the first record of *Berrya* in Fiji and extends the range of the genus eastward from New Guinea; Burret (in Notizbl. Bot. Gart. Berlin 9: 606. 1926) does not accept the two Tahitian species as belonging in this genus. Our species is not very close to *B. papuana* Merr. & Perry, being more closely related to the widespread *B. cordifolia* (Willd.) Burret, from which it differs in the closer, almost lepidote, pubescence of the calyx and fruit, the longer and narrower petals, longer filaments, narrower carpidia-wings, and other obvious features.

The species was represented in the cited locality by at least several individuals but was not observed elsewhere. Its trunk is slender and free of lower branches, while its crown is compact and covered with abundant fruit which gives a bright touch of color to the forest-canopy.

Microcos vitiensis A. C. Sm. in Bishop Mus. Bull. 141: 96. fig. 50. 1936.

VITI LEVU: Mba: Hills between Nandala and Nukunuku Creeks, along trail from Nandarivatu toward Lewa, alt. 750–850 m., *Smith 6166* (A, US) (tree 18 m. high, in dense forest; perianth-segments and filaments greenish white, the anthers yellow; fruit at length bright orange).

Microcos vitiensis has previously been known only from the type collection, a fruiting specimen obtained on Taveuni at 700–900 m. altitude. The present collection agrees with this precisely in foliage and fruit, and it also bears inflorescences which permit an amplification of the characters of the species. Our plant is characterized by its comparatively ample inflorescences and its incompletely septate ovary. In spite of the latter character, I believe that the species is best left in *Microcos*, which (according to Burret's treatment in Notizbl. Bot. Gart. Berlin 9: 756–796. 1926) normally has a 3-locular ovary. The Fijian species seems best placed in § *Microcopsis*, in which its relationships are with the New Guinean *M. Ledermannii* Burret and *M. Schlechteri* Burret. The following description of the inflorescence is drawn up from the Viti Levu specimen:

Inflorescence axillary or arising from efoliate branchlets, paniculate, up to 10 cm. long, the rachis and branches slender, minutely stellate-tomentellous, the involucre bracteoles oblong, 2.5–3 mm. long, 2- or 3-parted distally, tomentellous on both sides, caducous; pedicels slender, at anthesis 3.5–5 mm. long, tomentellous; sepals oblong, about 7 mm. long and 2.5 mm. broad, minutely stellate-pilose on both sides, obtuse at apex,

the margins inflexed distally; petals subcarinose, ovate, about 3 mm. long and 1.5 mm. broad, obtuse at apex, sulcate without, bearing a glabrous glandular area about 1 mm. in diameter proximally within, otherwise pilose on both surfaces; androgynophore about 1.5 mm. high, carinose, pilose; stamens 15, free, the filaments filiform, tapering, 2–2.5 mm. long, pilosulous proximally, the anthers ellipsoid, about 0.5 mm. long; ovary ovoid, minutely but copiously tomentellous, rounded at base, tapering into the slender style, this glabrous, about 0.5 mm. long, the stigma bilobed; locule 1, with 2 opposite projecting placentae, each with 2 collateral ovules.

STERCULIACEAE

MELOCHIA L.

The difficult genus *Melochia*, in Fiji and the adjacent archipelagos, has suffered from casual herbarium identifications; it has been customary to refer much of the material to *M. odorata* L. f. without examining the area and variation of this species. *Melochia odorata* is based upon material from the New Hebrides, and the earlier discussions (e. g., L. f. Suppl. 302. 1781; Forst. f. Fl. Ins. Austr. Prodr. 47. 1786) do not give much assistance in interpreting the species. Available specimens from the New Hebrides, such as *Kajewski* 555 and 713 (A, US), permit a reasonable interpretation of the typical form of the species. *Melochia odorata*, as it occurs in the New Hebrides, may be described as a small to medium-sized tree (10–15 m. ex *Kajewski*), with nearly glabrous mature leaf-blades which are rounded or only lightly cordate at base; the petioles are comparatively short (1.5–7 cm. long, at least on distal leaves); the petals are pink, obovate, 8–12 mm. long; the filaments are dilated only at the base; and the seeds are essentially unwinged, the apical prolongation, if present, being a scarcely apparent loosening of the testa from the nucellus and less than 0.5 mm. long. Characters pertaining to pubescence of inflorescence-parts (such as pedicels, calyx, and capsule) seem too variable in *Melochia* to be used, by themselves, in delimiting species. The presence or absence of a true seed-wing is apparently a dependable character, as pointed out by Gray (Bot. U. S. Expl. Exped. 1: 191–194. 1854). Color of the petals — whether yellow or a shade of red — may also prove a useful character when a careful study of the genus is undertaken; at least in Fiji one observes stability of petal-color in correlation with other characters, and this should always be noted by collectors.

Melochia aristata A. Gray (Bot. U. S. Expl. Exped. 1: 193. 1854) is based upon an Exploring Expedition specimen from Upolu, Samoa, and differs from *M. odorata* principally, according to Gray, in having its seeds with a short subulate appendage. Such an appendage (about 1 mm. long) is indeed apparent in seeds of the type specimen (US). Two other specimens which agree excellently with the type, *Rechinger* 1443 (US) from Upolu and *Setchell* 512 (US) from Tutuila, however, have the seed essentially unappendaged. Apparently the testa may be more or less

loose in the apical portion of the seed, being sometimes merely wrinkled and sometimes flattened into a short appendage. A true seed-wing does not seem to occur in the Samoan material, as it does in *M. vitiensis*, discussed below. It is difficult to separate *M. aristata* from *M. odorata* on the basis of available material, but possibly the Samoan species should be maintained on characters pertaining to its small petals and more finely serrate leaf-margins. I have not located the specimen from Savaii which Gray (op. cit. 192) referred to *M. odorata*. The absence of specimens of this immediate relationship from Fiji, on the basis of present collections, is puzzling.

The Fijian specimens vary greatly in leaf-size and -shape, length of petiole, and degree of pubescence; both yellow-petaled and pink-petaled forms are found. But all the Fijian specimens have distinctly winged seeds and, in general, have smaller petals than typical *M. odorata*. That all of the Fijian specimens should be referred to *M. vitiensis* A. Gray seems an impossible solution of this genus locally. Definite patterns of variation are seen to occur; by utilizing combinations of characters referring to leaf-size and -shape, petiole-length, pubescence, color of petals, and proportions of seed-body and -wing one is able to recognize six entities, some better marked than others but all, in my opinion, meriting specific status. I do not believe that the purposes of clarity are served in this case by speculating as to the possible subspecific, rather than specific, nature of some of these entities. When the entire genus in the Pacific is carefully revised, the species described below may need some nomenclatural adjustment, but at present they are readily recognizable and geographically plausible.

Melochia vitiensis A. Gray, Bot. U. S. Expl. Exped. 1: 193. 1854.

Gray's species is typified by Exploring Expedition material from "Vanua-levu, Somu-somu [on Taveuni], Ovoulau, Oneata." Gray also appends a var. β , from "Muthuata" [i.e. Mathuata, Vanua Levu], expressing considerable doubt as to its place in the species. This doubt is indeed well justified, and I cannot place the narrow-leaved short-petiolate plant from Mathuata with the remaining material of *M. vitiensis*; it will be discussed below as *M. Grayana*. Gray distinguished his species from *M. odorata* on the basis of its yellow petals, silky-tomentose capsules, and conspicuously winged seeds. These characters, at least those pertaining to petal-color and seed-wings, readily distinguish the Fijian species, and I doubt if any reasonable interpretation of specific lines in *Melochia* could permit the reduction of *M. vitiensis* to *M. odorata*.

There are three Exploring Expedition sheets supposedly representing the typical form of *M. vitiensis* in the U. S. National Herbarium, unfortunately without locality-data. One is the fruiting specimen which Gray remarks to be "in a diseased state," and this should not be taken as the type; possibly it does not even represent the species. Of the remaining two, one is in very young bud and the other bears normal fruits with attached petals and stamens; this last sheet, U. S. Nat. Herb. no. 13,128, apparently served

as the principal basis for the description and should be considered the holotype.

The only recent collections which I can with certainty refer to *M. vitiensis* are from Vanua Levu and Kambara and are cited below. On the basis of this available material, the species has the following essential characteristics: petioles of mature leaves comparatively long (6–11 cm.); leaf-blades broadly ovate, 10–15 cm. long, 8–14 cm. broad, obviously cordate at base, nearly glabrous except for short pubescence covering the costa and principal secondaries especially on lower surface; petals yellow, oblong-obovate, 6–7.5 mm. long, 2–2.5 mm. broad; filaments dilated only near base; seed with a conspicuous distal wing nearly equal to the seed-body in length. The following specimens represent this typical form of *M. vitiensis*:

VANUA LEVU, TAVEUNI, OVALAU, and ONEATA, without further data: *U. S. Expl. Exped.* (US, 2 sheets, of which no. 13,128 is designated as the TYPE). VANUA LEVU: Mathuata: Southern slopes of Mt. Numbulua, east of Lambasa, alt. 350–500 m., *Smith 6549* (A, US) (“iviloa”; spreading tree 12 m. high, in thin forest on rocky slope; petals, filaments, and styles pale yellow; anthers bright yellow); Mbua: Lower Wainunu River valley, alt. 0–200 m., *Smith 1727* (GH, NY, US, etc.) (“kurulua”; shrub 3 m. high, in thin forest; petals pale yellow; anthers bright yellow). KAMBARA: *Smith 1301* (GH, NY, US, etc.) (“tanggalito”; tree 8 m. high, in thickets on limestone formation).

Melochia Degeneriana sp. nov.

Arbor ad 15 m. alta, ramulis teretibus rugulosis, juventute parce et pallide stellato-pilosis vel puberulis saepe purpurascentibus mox glabrescentibus; petiolis gracilibus subteretibus ut ramulis pilosis; maturis 1–4 cm. longis; laminis papyraceis anguste ovatis vel oblongo-ovatis, maturis 7–13 cm. longis et 3–7 cm. latis, basi late obtusis vel truncato-rotundatis (raro leviter cordatis), ad apicem acuminatum gradatim angustatis, margine crenato-serratis (dentibus obtuse callosis 2–4 per centimetrum), utrinque primo parce stellato-piloso, maturitate subglabratis (indumento secus costam et nervos subtus subpersistente), e basi 3- vel obscure 5-nerviis, nervis secundariis utrinsecus 5–8 erecto-patentibus subrectis cum costa supra subplanis subtus valde elevatis, rete venularum utrinque subplano; inflorescentiis apicem ramulorum versus axillaribus cymoso-paniculatis 5–10(–17) cm. longis, pedunculo (2–7 cm. longo) et ramulis pedicellisque subteretibus copiose stellato-pilosis (pilis cinereis, ramulis 0.1–0.2 mm. longis) etiam interdum parce glanduloso-hispidulis, pedicellis sub anthesi 4–7 mm. sub fructu ad 10 mm. longis; calyce campanulato subinflato 4–7 mm. longo 7–9 mm. apice diametro, extus et lobis intus minute puberulo etiam extus interdum parce hispidulo, lobis 2–3 mm. longis latisque acutis; petalis 5 submembranaceis pallide luteis obovatis, 7–8 mm. longis, 2–3.5 mm. latis, basi valde angustatis, apice rotundatis; filamentis 4–5 mm. longis basim versus vel interdum fere ad apicem membranaceo-dilatatis et connatis, antheris oblongis 1.5–2 mm. longis; ovario ovoideo pilis albidis ad 1 mm.

longis copiose hispido-sericeo, stylis 5–7 circiter 2 mm. longis basim versus cohaerentibus et pilosis superne liberis glabris, loculis 5–7, ovulis superpositis complanatis; capsula ellipsoideo-ovoidea, 8–10 mm. longa, 6–8 mm. lata, minute stellato-puberula etiam subdense hispidula; seminibus 5–6.5 mm. longis, nucella oblongo-obovoidea 2–3 mm. longa 0.8–1.2 mm. lata, ala conspicua subdeltoidea vel oblonga 2.5–3.5 mm. longa circiter 1.5 mm. lata in marginem ventralem nucellae conspicue decurrente.

VITI LEVU: Mba: North of Lomolomo, near Lautoka, alt. 0–150 m., *Degener & Ordenez 13643* (A, NY, US) (tree 4 m. high); Nauwanga, near Nandarivatu, alt. 750–900 m., *Degener 14558* (A, NY, US) (“makou”; tree, in dense forest); western slopes of Mt. Tomanivi [Mt. Victoria], alt. 850–1000 m., July 7, 1947, *Smith 5095* (A TYPE, US) (“semalo”; tree, 15 m. high, in dense forest; petals and filaments pale yellow); Ra: Vatundamu, vicinity of Rewasa, near Vaileka, alt. 50–200 m., *Degener 15399* (A, NY, US) (“seti”; tree 2–7 m. high, in dry open rocky forest; extract of leaves used medicinally); Nandronga & Navosa: Southern slopes of Nausori Highlands, in drainage of Namosi Creek above Tumbenasolo, alt. 300–450 m., *Smith 4585* (A, US) (slender tree 5 m. high, in forest on dry crests); Namosi: Hills about Namosi, alt. 400 m., *Gillespie 2825* (US).

The species here proposed is closely allied to *M. vitiensis* A. Gray but is marked by a combination of characters which make it worthy of specific recognition; it is also significant that *M. Degeneriana* is thus far known only from Viti Levu, whereas *M. vitiensis* has been discovered only on Vanua Levu and some of the smaller islands. The new species differs from *M. vitiensis* in having the petioles of its mature leaves shorter (1–4 cm. long), its leaf-blades more narrowly ovate (7–13 cm. long, 3–7 cm. broad), broadly obtuse or truncate-rounded (rarely lightly cordate) at base, and with the costa and secondaries scarcely pilose, and in having its seed-wing even larger and more pronounced. In the available material of *M. vitiensis* the seed is 3–4 mm. long, including the wing (1.5–2 mm. long, 0.8–1 mm. broad). No characters pertaining to petals and stamens appear to differentiate the two species under discussion.

Melochia mollipila sp. nov.

Arbor ad 7 m. alta, ramulis teretibus, juvenilibus pilis albidis stellatis ad 0.2 mm. longis copiose tomentellis, demum glabrescentibus purpurascenscentibus rugulosis; petiolis gracilibus subteretibus copiose tomentellis (pilis supra saepe erectis ad 0.5 mm. longis), maturis 2–5 cm. longis; laminis chartaceis ovatis, maturis 8–12 cm. longis, 5–9 cm. latis, basi rotundatis vel subcordatis, apice acutis vel cuspidatis, margine dentibus 2–4 per centimetrum leviter crenato-serratis, utrinque primo dense et molli-ter stellato-pilosis (pilorum ramulis 0.1–0.3 mm. longis), maturitate supra subglabrescentibus, tomento subtus longe persistente, e basi 5-nerviis, nervis secundariis utrinsecus 5 vel 6 erecto-patentibus leviter curvatis cum costa supra leviter subtus valde elevatis, rete venularum inconspicuo; inflorescentiis axillaribus apicem ramulorum versus congestis cymoso-paniculatis 5–12 cm. longis interdum nodis foliosis, pedunculo (3–4.5 cm. longo) et

ramulis pedicellisque copiose stellato-tomentellis, pedicellis sub anthesi et sub fructu 1–4 mm. longis; calyce campanulato subinflato 5–6 mm. longo et apice 6–7 mm. diametro, extus pilis diversis 0.1–0.3 mm. longis copiose pallide piloso, intus lobis puberulo, lobis 2.5–3 mm. longis latisque acutis; petalis 5 membranaceis pallide luteis obovatis, 7–8.5 mm. longis, 2.5–3 mm. latis, basi valde angustatis, apice rotundatis; filamentis 2.5–4 mm. longis membranaceis ligulatis ad apicem dilatatis et connatis, antheris oblongis 1.5–2 mm. longis; ovario ellipsoideo-ovoideo pilis albidis circiter 1 mm. longis copiose hispido-sericeo, stylis 6–8 liberis 1.5–2 mm. longis, loculis 6–8, ovulis superpositis complanatis; capsula ellipsoideo-ovoidea ad 10 mm. longa et 7 mm. lata, dense sericeo-hispidula etiam minute stellato-puberula; seminibus 5–5.5 mm. longis, nucella late obovoidea $2-2.5 \times 1.5$ mm., ala conspicua falcato-oblonga 3–3.5 mm. longa circiter 2 mm. lata in marginem ventralem nucellae conspicue decurrente.

VITI LEVU: Mba: Slopes of the escarpment north of Nandarivatu, alt. 550–800 m., Sept. 15, 1947, *Smith 6040* (A TYPE, US) (“samalo”; tree 7 m. high, in hillside thickets; calyx pink; petals and stamens pale yellow); Nandronga & Navosa: Northern portion of Rairaimatuku Plateau, between Nandrau and Nanga, alt. 725–825 m., *Smith 5588* (A, US) (“samaloa”; tree 3 m. high, in grassland thickets; petals and filaments pale yellow).

Melochia mollipila has relationships with both *M. vitiensis* A. Gray and the above-proposed *M. Degeneriana* A. C. Sm. Its essential characteristics are: petioles of mature leaves 2–5 cm. long; leaf-blades ovate, 8–12 cm. long, 5–9 cm. broad, rounded or subcordate at base, persistently soft-stellate-pilose on lower surface; petals yellow, 7–8.5 mm. long; filaments short (2.5–4 mm. long) and connate to apex; seed-wing very broad and pronounced, exceeding the nucellus in both length and breadth.

In characters pertaining to leaf-shape and -proportions this is intermediate between the two allied species; in petiole-length and also in its pronounced seed-wing, it more nearly resembles *M. Degeneriana*. It differs from both the other species in the more copious and more persistent pubescence of its foliage and inflorescence-branches. It should be noted that the filaments of *M. mollipila* are very short and connate throughout, but this may not be too stable a character in *Melochia*. As contrasted with *M. Degeneriana*, the new species further differs in its shorter pedicels and in having both the nucellus and the wing of the seed appreciably broader.

Melochia Grayana sp. nov.

Melochia vitiensis var. β A. Gray, Bot. U. S. Expl. Exped. 1: 193. 1854.

Frutex ad 2 m. altus, ramulis teretibus subrugulosis, juventute parce stellato-puberulis mox glabrescentibus, purpurascentibus vel cinereis; petiolis subteretibus strigillosis (pilorum ramulis circiter 0.5 mm. longis), maturis 0.3–2 cm. longis; laminis chartaceis oblongo-lanceolatis, maturis 5–8 cm. longis et 2–2.5 cm. latis, basi acutis vel obtusis, apice acutis vel cuspidatis, margine conspicue serratis (dentibus 2–5 per centimetrum) saepe calloso-apiculatis, utrinque praeter costam et nervos secundarios

parce strigosos glabris, e basi trinerviis, nervis secundariis utrinsecus 4–6 adscendentibus paullo curvatis cum costa supra planis vel leviter elevatis subtus conspicuis; inflorescentiis apicem ramulorum versus axillaribus cymoso-paniculatis 5–11 cm. longis, pedunculo (1.5–5 cm. longo) et ramulis paucis pedicellisque gracilibus teretibus copiose stellato-pilosis (pilis albidis, ramulis 0.1–0.2 mm. longis) sub fructu glabrescentibus, pedicellis sub anthesi 2–3 mm. sub fructu ad 6 mm. longis; calyce campanulato inflato circiter 6 mm. longo et diametro, extus et lobis intus minute puberulo, lobis elongato-deltoides 3–3.5 mm. longis circiter 2.5 mm. latis apice acuminatis; petalis 5 luteis obovatis, 7.5–8 mm. longis, 2–2.5 mm. latis, basi angustatis, apice rotundatis; filamentis 3.5–4 mm. longis, saepe ligulatis membranaceis ad apicem connatis, interdum superne angustatis et liberis, antheris oblongis 1.8–2 mm. longis, loculis discretis; ovario ovoideo pilis stramineis 1–1.5 mm. longis copiose hispido-sericeo, stylis ad 8 circiter 3 mm. longis liberis glabris, loculis ad 8, ovulis superpositis complanatis ut videtur distaliter alatis; capsula ellipsoidea ad 7 mm. longa et 6 mm. lata stellato-puberula etiam hispida, seminibus non visis.

VANUA LEVU: Mathuata: Summit ridge of Mt. Numbuiloa, east of Lambasa, alt. 500–590 m., Nov. 6, 1947, *Smith 6525* (A TYPE, US) (shrub 2 m. high, in dense crest forest; calyx orange-tinged; petals and stamens yellow); Mathuata, without further data, *U. S. Expl. Exped.* (US 13,126).

The species here described is readily characterized by the following essential characters: petioles of mature leaves 0.3–2 cm. long; leaf-blades oblong-lanceolate, 5–8 cm. long, 2–2.5 cm. broad, acute to obtuse at base, essentially glabrous; calyx-lobes acuminate; petals yellow, 7.5–8 mm. long. The foliage gives the plant an entirely different aspect from *M. vitiensis* A. Gray, to which Gray referred it as “var. β .” The short-petiolate (often sessile) and lanceolate leaves represent the extreme of the trend found in *M. Degeneriana*, described above.

Melochia longepetiolata sp. nov.

Arbor ad 8 m. alta, ramulis teretibus striato-rugulosis subpersistenter minute stellato-velutino-puberulis, annotinis sat robustis; petiolis subteretibus ut ramulis pilosis, maturis validis (3 mm. diametro) 9–20 cm. longis (foliorum juveniliis 5–7 raro ad 3 cm. longis); laminis papyraceis rotundato-ovatis, maturis 17–25 cm. longis et 14–22 cm. latis (juvenilibus interdum ad 10 $\times$ 7 cm.), basi profunde cordatis, apice cuspidatis, margine dentibus 2 vel 3 per centimetrum conspicue crenatis, primo subtus minute stellato-puberulis et in axillis nervorum barbellatis, mox glabrescentibus, e basi conspicue 7- vel 9-nerviis, nervis basalibus ut costa validis patentibus supra elevatis subtus prominentibus, nervis secundariis e costa 6–8 (e nervis aliis basalibus pluribus) orientibus erecto-patentibus leviter curvatis supra paullo subtus valde elevatis, rete venularum intricato utrinque subplano; inflorescentiis apices ramulorum versus axillaribus cymoso-paniculatis ad 22 cm. longis, pedunculo conspicuo (7–11 cm. longo) et ramulis pedicellisque copiose molliter pilosis (pilis pallidis,

ramulis 0.2–0.3 mm. longis), pedicellis sub anthesi et sub fructu 5–7 mm. longis; calyce rotato-campanulato 6–7 mm. longo et apice 10–12 mm. diametro, utrinque minute puberulo, profunde 5-lobato, lobis oblongo-deltaideis 5–6 mm. longis 4–5 mm. latis acutis; petalis 5 salmoneis anguste oblongo-obovatis, 9–9.5 mm. longis, circiter 2 mm. latis, basi valde angustatis, apice rotundatis; filamentis 6–6.5 mm. longis infra medium membranaceis dilatatis connatis superne filiformibus liberis, antheris oblongis circiter 2 mm. longis; ovario ovoideó pilis stramineis circiter 1.5 mm. longis copiose hispido-sericeo, stylis ad 7 basim versus in columnam hispidulam circiter 1.5 mm. longam connatis superne liberis glabris, loculis ad 7, ovulis superpositis complanatis; capsula ovoidea costata ad 8 mm. longa et lata, dense puberula etiam copiose hispidula; seminibus circiter 5 mm. longis, nucella obovoidea circiter 2.5×1.5 mm., ala falcato-deltaidea circiter 2.5×1.5 mm. in marginem ventralem nucellae conspicue decurrente.

KANDAVU: Southwestern slopes of Mt. Mbuke Levu, alt. 200–500 m., Oct. 23, 1933, *Smith 218* (GH, NY, US 1,676,559 TYPE, etc.) (tree 8 m. high, in dense forest; petals salmon-pink); hills above Namalata and Ngaloa Bays, alt. 200–400 m., *Smith 110* (GH, NY, US, etc.) (“tundrou”; tree 4 m. high, among reeds).

The described species clearly differs from the Fijian entities here discussed in its pink petals and extremely large leaves. Its essential characters are: petioles of mature leaves 9–20 cm. long; mature leaf-blades rounded-ovate, 17–25 cm. long, 14–22 cm. broad, deeply cordate at base, 7- or 9-nerved from base, essentially glabrous; inflorescence long-pedunculate; calyx-lobes unusually large; petals salmon-pink, comparatively large, 9–9.5 mm. long; filaments longer than usual, dilated only toward base; seed-wing subequal to nucellus in length and breadth.

The pink and comparatively large petals suggest that *M. longepetiolata* may be more closely allied to *M. odorata* L. f. than the other Fijian species are, but it is very distinct in its large long-petiolate leaves, long-peduncled inflorescence, and winged seeds. In foliage it bears a similarity to certain Micronesian plants which have been identified as *M. odorata*, but those specimens have unwinged seeds and a rather harsh, but sparse, foliar indument; I doubt if they represent *M. odorata*, but in any case they are not conspecific with *M. longepetiolata*.

Melochia roseiflora sp. nov.

Frutex vel arbor ad 8 m. alta, ramulis teretibus purpurascentibus striato-rugulosis, juventute pilis cinereis stellatis 0.1–0.3 mm. longis dense hispidulis mox glabrescentibus; petiolis subteretibus ut ramulis pilosis, maturis 0.5–2 cm. longis; laminis papyraceis in sicco fusco-viridibus elliptico-ovatis, maturis 7–9 cm. longis et 5–7 cm. latis, basi rotundatis vel leviter subcordatis, apice acutis vel breviter cuspidatis, margine dentibus circiter 3 per centimetrum obtuse callosis crenato-serratis, secus costam et nervos secundarios parce stellato-hispidulis (pilorum ramulis ad 0.5 mm. longis) ceterum utrinque glabris, e basi 5-nerviis, costa et nervis secundariis utrinsecus 4–6 haud curvatis supra paullo elevatis subtus prominentibus,

rete venularum intricato utrinque subplano; inflorescentiis apicem ramulorum versus axillaribus congestis cymoso-paniculatis 3.5–7 cm. longis paucifloris, pedunculo (2–4 cm. longo) et ramulis pedicellisque gracilibus teretibus ut ramulis copiose stellato-pilosis ac etiam pilis glanduliferis simplicibus 0.4–0.5 mm. longis parce setulosis, bracteis bracteolisque lanceolatis 2–2.5 mm. longis mox caducis, pedicellis sub anthesi 1.5–3 mm. sub fructu ad 4 mm. longis; calyce campanulato circiter 5 mm. longo et apice 5–8 mm. diametro, extus et lobis intus minute stellato-puberulo etiam extus parce glanduloso-setuloso, lobis deltoideis 2–3 mm. longis et latis subacutis; petalis 5 oblongo-obovatis, 6–9 mm. longis, 2–3 mm. latis, basi angustatis, apice rotundatis; filamentis 2.5–6 mm. longis fere ad apicem membranaceo-dilatatis et connatis vel interdum supra medium filiformibus liberis, antheris oblongis circiter 2 mm. longis, thecis discretis; ovario ovoideo pilis pallidis 0.5–0.7 mm. longis copiose hispido-sericeo, stylis 5–7 liberis 3–4.5 mm. longis basim versus interdum stellato-hispidulis, loculis 5–7, ovulis superpositis complanatis; capsula ovoidea costata 5–7 mm. longa et lata, hispidula etiam parce puberula; seminibus 3.2–4 mm. longis, nucella obovoidea 2–2.3 mm. longa et circiter 1.3 mm. lata, ala deltoidea 1.2–1.7 mm. longa et 1–1.3 mm. lata in marginem ventralem nucellae decurrente.

VITI LEVU: Mba: Northern portion of Mt. Evans Range, between Mt. Vatuyanitu and Mt. Natondra, alt. 700–900 m., May 12, 1947, *Smith 4361* (A TYPE, US) ("vuvundi"; shrub or small tree 2–4 m. high, in grassland-forest transition; pedicels and calyx deep pink; petals and stigmas rich pink, slightly paler than calyx; anthers yellow); summit of Mt. Koroyanitu, high point of Mt. Evans Range, alt. 1165–1195 m., *Smith 4236* (A, US) (tree 8 m. high, in dense ridge forest and thickets; calyx deep pink; petals bright pink; filaments nearly white; anthers yellow).

This very distinct species differs from the other known Fijian entities in its combination of pink petals and very short petioles. Its essential characters are: petioles of mature leaves 0.5–2 cm. long; leaf-blades elliptic-ovate, 7–9 cm. long, 5–7 cm. broad, rounded or faintly subcordate at base, glabrous except for the stellate-tufted pubescence along the nerves; inflorescence compact; petals pink, 6–9 mm. long; seed-wing slightly shorter than nucellus in length.

As far as known at present, this species is limited to the isolated Mt. Evans Range in northwestern Viti Levu, where I noted it as a common component of the wind-swept thickets on the main ridge; no other species of *Melochia* were collected on this range. It is characterized not only by the combination of characters mentioned above, but also by the comparatively harsh pubescence of the young branchlets and inflorescence, and by the frequent occurrence of simple gland-tipped hairs among the more characteristic stellate eglandular ones. The length and degree of coherence of the filaments is a very variable character, as in other species of *Melochia*.

The six Fijian species discussed above may be distinguished from one another by the following artificial key:

Petals yellow.

Petioles of mature leaves 6–11 cm. long, the blades broadly ovate, 10–15 cm. long, 8–14 cm. broad, cordate, essentially glabrous except for costa and secondaries beneath; seed 3–4 mm. long, the wing (1.5–2 mm. long), not exceeding the nucellus in length.....*M. vitiensis*.

Petioles of mature leaves less than 5 cm. long, the blades not more than 9 cm. broad; seed (not known for *M. Grayana*) at least 5 mm. long, the wing equalling or exceeding the nucellus in length.

Mature leaf-blades ovate or oblong-ovate, 7–13 cm. long, 3–9 cm. broad, obtuse to subcordate at base, the petioles 1–5 cm. long; calyx-lobes 2–3 mm. long, acute.

Young branchlets and petioles sparsely stellate-pilose or puberulent; mature leaf-blades subglabrate, usually obtuse to truncate-rounded at base, the petioles 1–4 cm. long; pedicels at anthesis 4–7 mm. long.....*M. Degeneriana*.

Young branchlets and petioles copiously tomentellous; mature leaf-blades persistently soft-stellate-pilose beneath, usually subcordate at base, the petioles 2–5 cm. long; pedicels at anthesis 1–4 mm. long.....*M. mollipila*.

Mature leaf-blades oblong-lanceolate, 5–8 cm. long, 2–2.5 cm. broad, acute or obtuse at base, the petioles 0.3–2 cm. long; calyx-lobes 3–3.5 mm. long, acuminate.....*M. Grayana*.

Petals pink.

Petioles of mature leaves 9–20 cm. long, the blades 17–25 cm. long, 14–22 cm. broad, deeply cordate; peduncle of inflorescence 7–11 cm. long; calyx large, the lobes 5–6 mm. long; seed with a wing about 2.5 mm. long.....*M. longepetiolata*.

Petioles of mature leaves 0.5–2 cm. long, the blades 7–9 cm. long, 5–7 cm. broad, rounded or subcordate at base; peduncle of inflorescence 2–4 cm. long; calyx comparatively small, the lobes 2–3 mm. long; seed with a wing 1.2–1.7 mm. long.....*M. rosiflora*.

SAURAUACEAE

Saurauia rubicunda (A. Gray) Seem. Fl. Vit. 14. 1865.

Saurauia rubicunda is one of the most abundant and striking small trees of the forest of the larger Fijian islands, occurring from near sea-level to the summits of the higher peaks; it is commonly known on Viti Levu as "mimila" and on Vanua Levu as "susu." The species is spectacular by reason of its masses of rich pink blossoms. With some surprise I noted a white-flowered form on Vanua Levu, and an attempt was made to learn whether the color character was associated with any combination of morphological characters. No characters of indument or foliage seem to differentiate the white-flowered form. In general its flowers are comparatively small, as regards petals and stamens, and its stamens are fewer than the average for the species. However, some of the characteristic pink-flowered specimens also tend to have smaller than average flowers. Both the pink- and white-petalled forms were found growing together in Thakaundrove (*Smith* 362, with white petals, and 364, with pink petals);

these two specimens are indistinguishable except for the flower color. It seems inadvisable at present to apply a name to the white-flowered form, which is represented by:

VANUA LEVU: Mathuata: Southern base of Mathuata Range, north of Natua, alt. 100–250 m., *Smith 6832* (A, US) (spreading tree 8 m. high, in dense forest; sepals, petals, filaments, and style white; anthers yellow); Thakaundrove: Southern slope of Valanga Range, alt. 50 m., *Smith 362* (GH, NY, US, etc.) (“susu”; tree 12 m. high, in woods; petals white; anthers yellow).

GUTTIFERAE

Calophyllum (§ *Apoterium*) *leucocarpum* sp. nov.

Arbor gracilis ad 4 m. alta, ramulis gracilibus juventute rugulosis subquadrangularibus pilis simplicibus patentibus 0.3–0.5 mm. longis hispidulis, demum subteretibus cinereis glabrescentibus; gemmis copiose hispidulis; petiolis gracilibus (8–)10–15 mm. longis canaliculatis primo parce hispidulis mox glabris; laminis coriaceis in sicco fusco-olivaceis, glabris vel juventute subtus costa parce hispidulis, oblongo-lanceolatis, (4–)5–7.5 cm. longis, (1.5–)2–3 cm. latis, basi attenuatis et in petiolum decurrentibus, apice obtuse cuspidatis, margine paullo incrassatis, costa utrinque peracute elevata, nervis lateralibus subrectis patentibus numerosis (12–15 per centimetrum) supra leviter impressis subtus haud prominulis; inflorescentiis valde reductis axillaribus 2- vel 3-floris, pedunculo subtereti sub anthesi 2–3 mm. longo (sub fructu ad 8 mm. longo) pilis patentibus fuscis 0.2–0.3 mm. longis subpersistenter piloso, floribus apice pedunculi subsessilibus, pedicellis gracilibus glabris sub anthesi 0.5–2 mm. longis; sepalis 4 papyraceis margine obscurissime ciliolatis, 2 exterioribus suborbicularibus circiter 2.5 mm. longis et 3.5 mm. latis utrinque rotundatis, 2 interioribus obovatis circiter 4 mm. longis et 3.5 mm. latis apice rotundatis basi angustatis; petalis nullis; staminibus 40–45 plerumque biseriatis, filamentis filiformibus sub anthesi circiter 2 mm. longis basi subcohaerentibus, antheris oblongis 0.6–0.8 mm. longis; ovario subgloboso glabro, stylo crasso tereti circiter 1 mm. longo, stigmatate peltato; pedicellis sub fructu ad 5 mm. longis apice incrassatis, fructibus ut videtur maturis albis subglobosis vel ellipsoideis circiter 12×10 mm., utrinque rotundatis, stylo saepe subpersistente, pericarpio levi in sicco subcoriaceo 1–1.5 mm. crasso.

VANUA LEVU: Mathuata: Seanggangga Plateau, in drainage of Korovuli River, vicinity of Natua, alt. 100–200 m., Dec. 4, 1947, *Smith 6820* (A TYPE, US) (slender tree 4 m. high, in patches of forest in open rolling country; sepals and filaments white, the anthers yellow; fruit white).

Calophyllum leucocarpum is readily recognized by its small leaves, hispidulous gemmae and young parts, compact few-flowered inflorescences, small flowers without petals, and apparently small, white fruits. It is not closely related to the common upland Fijian species, *C. vitiense* Turrill, which belongs in § *Inophyllum*. *Calophyllum cerasiferum* Vesque, known only in fruit, has leaves fairly similar to those of the new species, but its petioles are considerably shorter, its gemmae and young parts are glabrous

or merely puberulent, and its fruits are reddish and 1.5–2 cm. in diameter. I doubt the close relationship of *C. leucocarpum* with *C. cerasiferum*, nor is there any certainty that Vesque's species belongs in § *Apoterium*.

***Garcinia* (§ *Discostigma*) *myrtifolia* sp. nov.**

Arbor ad 25 m. alta ubique glabra, ramulis hornotinis gracilibus ruguloso-striatis, ramulis vetustioribus cinereis leviter quadrangulatis; petiolis rugulosis leviter canaliculatis 1.5–2 mm. diametro 4–12 mm. longis; laminis tenuiter coriaceis in sicco fusco-viridibus ellipticis, (6–)9–14 cm. longis, (3.5–)5–7 cm. latis, basi obtusis et in petiolum decurrentibus, apice obtusis vel obtuse breviterque cuspidatis interdum paullo emarginatis, costa supra subplana vel paullo elevata et obscure sulcata subtus prominente, nervis lateralibus principalibus numerosis 2–5 per centimetrum (cum nervis paullo debilioribus interspersis) e basi valde curvata patentibus utrinque valde prominulis nervo marginali inconspicuo conjunctis rete venularum irregulari interconnexis; floribus ♀ solitariis vel 2–4 ex pulvinis inconspicuis in axillis foliorum mox delapsorum orientibus, bracteis coriaceis minutis subtentis; pedicellis crassis sub anthesi apicem versus circiter 2 mm. diametro et 7–12 mm. longis; segmentis perianthii parvis valde imbricatis mox caducis, sepalis ut videtur 4 subaequalibus tenuiter coriaceis suborbicularibus integris 3–4 mm. diametro, petalis 2 (?) sepalis similibus sed tenuioribus et margine erosulis; staminodiis 2 carnosius oblongis circiter 0.7 mm. longis gynoecei faciei ventrali appressis; ovario oblongo-subglobose, stigmate peltato sessili carnosio integro obscurissime scrobiculato in faciem ventralem inconspicue decurrente demum terminali, loculis 2 uniovulatis; fructibus maturis (vel submaturis) ellipsoideis ad 3×2 cm. apice stigmate peltato circiter 7 mm. diametro coronatis, pericarpio coriaceo ruguloso 1–2 mm. crasso, dissepimento persistente, seminibus 2.

VITI LEVU: N a n d r o n g a & N a v o s a : Southern slopes of Nausori Highlands, in drainage of Namosi Creek above Tumbenasolo, alt. 300–450 m., May 29, 1947, *Smith 4573* (A TYPE, US) (tree 25 m. high, in dense forest; trunk 30 cm. diam.); M b a : Western slopes of Mt. Tomanivi [Mt. Victoria], alt. 850–1000 m., *Smith 5128* (A, US) ("laumbu"; tree 25 m. high, with pale yellow latex, in dense forest).

Although ♂ flowers are not available, the plant described above may be confidently referred to § *Discostigma*, being characterized by a 2-loculed ovary with a sessile discoid stigma. In this it is very similar to *G. vitiensis* (A. Gray) Seem., a species which is smaller in habit (not exceeding 7 m. in height in my observation, although the original description mentions "35 feet"). *Garcinia vitiensis*, in comparison with the new species, has smaller leaf-blades (maximum size observed 11×4 cm., but the average size is about 6×2.5 cm.) with less conspicuous, less obviously interconnected, and more definitely ascending secondary nerves. Apparently mature fruits of *G. vitiensis* (those of *Smith 6690* and *6818*) are subglobose and about 1.5 cm. in diameter.

The two other species of *Garcinia* thus far known from Fiji, *G. sessilis* (Forst.) Seem. and *G. pseudoguttifera* Seem., are not closely related to

G. myrtifolia, the first falling into § *Tetraclinia* and the second being probably best referred to § *Mangostana*, in Engler's treatment of the genus (Engl. & Prantl, Nat. Pfl. ed. 2. 21: 211–229. 1925).

FLACOURTIACEAE

Xylosma simulans sp. nov.

Arbor ad 8 m. alta sub fructu calyce excepto ubique glabra, ramulis gracilibus teretibus fusco-brunneis copiose tuberculato-lenticellatis; petiolis rugulosis canaliculatis 13–25 mm. longis; laminis chartaceis in sicco viridi-fuscis ovatis vel deltoideo-ovatis, (6–)8–13.5 cm. longis, (3–)4–8 cm. latis, basi truncato-rotundatis vel late obtusis et in petiolum decurrentibus, in acuminem obtusum inconspicue cuspidatum gradatim angustatis, margine inconspicue remote undulato-crenulatis et supra petiolum obscure biglandulosis, costa supra haud elevata subtus prominente, nervis secundariis (basalibus 2 vel 4 inclusis) utrinsecus 5 vel 6 arcuato-adscendentibus anastomosantibus et rete venularum intricato utrinque prominulis vel supra subplanis; inflorescentiis sub fructu solis visis apicem ramulorum versus axillaribus breviter racemosis, fructibus 8–10, rhachi paullo angulata 5–20 mm. longa tuberculis infra articulationem pedicelli inconspicuis haud 0.5 mm. longis ornata; pedicellis sub fructu gracilibus teretibus 7–10 mm. longis, bracteis subcoriaceis deltoideis circiter 0.3 mm. longis acutis mox caducis subtentis; calyce sub fructu subrotato circiter 2 mm. diametro intus dense et breviter sericeo, lobis (3–)4 vel 5 late ovatis mucronulatis margine ciliolatis, circiter 0.5 mm. longis et 1–1.5 mm. latis; disco persistente carnosio profunde lobato; fructibus obovoideo-subglobosis maturitate ad 13 mm. diametro stigmate sessili 3- vel 4-lobato coronatis, lobis reniformibus 1–1.5 mm. latis, pericarpio carnosio circiter 1.5 mm. crasso, placentis 3 vel 4 incrassatis, seminibus 12–16 ellipsoideis irregulariter angulatis circiter 5×3.5 mm. basi et apice obtusis.

VANUA LEVU: Mathuata: Southern base of Mathuata Range, north of Natua, alt. 100–250 m., Dec. 4, 1947, *Smith 6851* (A TYPE, US) (spreading tree 7 m. high, in dense forest; fruit at length red); southern slopes of Mt. Numbuiloa, east of Lambasa, alt. 100–300 m., *Smith 6400* (A, US) (“tui ni nduna”; tree 8 m. high, in open forest).

The species here described bears a striking similarity in foliage to *Flacourtia subintegra* A. C. Sm., which occurs in the same general localities, but its fruit is entirely different. It may be expected that floral characters will provide other differences, although in general *Xylosma* and *Flacourtia* are unsatisfactorily separable in flowering condition. The pedicel of the new species, in fruit, is jointed only at the very base, whereas in both fruits and staminate flowers of *Flacourtia subintegra* it is jointed toward the middle. Gilg (in Engl. & Prantl, Nat. Pfl. ed. 2. 21: 439. 1925) points out that the only decisive distinction between *Xylosma* and *Flacourtia* is in the ovary and fruit. The fruit of *Xylosma* is a berry without dissepiments or pyrenes, whereas that of *Flacourtia* contains 1-seeded pyrenes. On this basis the new species is distinctly a *Xylosma*, whereas

the fruiting material I have referred to *F. subintegra* just as certainly belongs to *Flacourtia*.

Xylosma simulans is of the general relationship of *X. orbiculatum* (Forst.) Forst. f., differing in its larger and distinctly ovate leaf-blades with obviously narrowed apices, and in having its disk in fruit more copiously lobed. The two other species of the genus which I have described from Fiji, *X. Archboldianum* and *X. Bryanii*, are not of this immediate alliance.

Casearia Parhamii sp. nov.

Frutex gracilis ad 4 m. altus, ramulis stipulis petiolisque pallide puberulis, ramulis gracilibus apicem versus subflexuosis angulatis purpureis demum cinereis teretibus, lenticellis inconspicuis; stipulis 2–5 mm. longis linearibus, saepe in lobos 2–4 inaequales profunde fissis; petiolis gracilibus 1.5–3 mm. longis; laminis membranaceis in sicco fuscis ovato-oblongis, (4–)5–9 cm. longis, (1.5–)2–2.8 cm. latis, basi truncato-rotundatis vel leviter subcordatis, in acuminem obtusum ad 1 cm. longum gradatim attenuatis, margine crenulato-serratis (dentibus plerumque 3–5 per centimetrum antrorse spinulosis), primo utrinque copiose puberulis demum praeter costam et nervos secundarios glabrescentibus, punctis striulisque pellucidis instructis, costa utrinque valde elevata, nervis secundariis utrinsecus 5–7 curvato-adscendentibus anastomosantibus cum rete venularum intricato utrinque plus minusve prominulis; floribus numerosis in fasciculos axillares dispositis, bracteis inflorescentiae numerosis papyraceis deltoideo-ovatis 1–1.5 mm. longis obtusis dorso copiose strigillosis; pedicellis gracilibus sub anthesi 2–3 mm. longis in parte inferiore articulatis, infra articulationem puberulis supra glabris; sepalis 5 membranaceis oblongo-ellipticis, circiter 1.5 mm. longis et 1 mm. latis, apice rotundatis, margine scariosis, copiose fusco-glandulosis; staminibus 10 alternatim inaequalibus, longioribus quam sepalis paullo brevioribus, filamentis gracilibus ligulatis alternatim circiter 1 mm. et 0.7 mm. longis minute pilosis, antheris oblongis circiter 0.3 mm. longis; disci lobis 10 linearibus circiter 0.7 mm. longis apice obtuse superne barbellatis; ovario elongato-ovoideo, stigmate capitato; fructibus juvenilibus anguste ovoideis ad 7 mm. longis et 1 mm. latis basim versus puberulis.

VITI LEVU: Tailavu: Waindina Falls, June, 1936, *B. E. Parham* 25 (A TYPE); Wailotua, Wainimbuka River, *B. E. Parham s. n.*, Apr. 13, 1936 (A) (shrub 3–4 m. high, in forest). Duplicates in herbarium of the Department of Agriculture, Suva.

The new species bears a strong resemblance to *C. adiantoides* Sleumer, known only from the type collection from Vanua Levu, but it has leaf-blades more definitely oblong rather than elongate-ovate, and its flowers are slightly smaller. *Casearia Parhamii* is more dependably distinguished by having its branchlets, stipules, petioles, and young leaf-blades copiously puberulent, by its large and deeply cleft stipules (those of *C. adiantoides* being deltoid-oblong and scarcely 1 mm. long), and by its obviously strigillose rather than glabrous inflorescence-bracts.

Casearia procera sp. nov.

Arbor ad 20 m. alta, ramulis gracilibus rugulosis subteretibus juventute pallide puberulis mox glabrescentibus et fusco-cinereis, lenticellis inconspicuis; stipulis minutis deltoideis circiter 0.7 mm. longis acutis dorso sericeis caducis; petiolis gracilibus canaliculatis 5–10 mm. longis primo puberulis mox glabrescentibus; laminis papyraceis siccitate fusco-olivaceis ellipticis, 3–4.5 cm. longis, 1.2–2 cm. latis, basi attenuatis et in petiolum decurrentibus, apice obtuse breviterque cuspidatis, margine leviter recurvatis subintegris vel obsolete calloso-crenulatis, utrinque glabris vel juventute secus costam inconspicue puberulis, obscurissime pellucido-punctatis, costa supra leviter subtus valde elevata, nervis secundariis utrinsecus 3–5 pari basali debili incluso adscendentibus superne curvatis supra prominulis subtus acute elevatis, rete venularum utrinque leviter prominulo; floribus in fasciculos axillares congestis, bracteis inflorescentiae numerosis deltoideis subacutis circiter 1 mm. longis glabris vel dorso apicem versus paullo strigillosis; pedicellis gracilibus teretibus sub anthesi 4–5 mm. longis minute sed copiose puberulis basim versus articulatis; sepalis 5 membranaceis oblongo-ellipticis, circiter 2.5 mm. longis et 1.5 mm. latis, extus obscure puberulis, inconspicue luteo-glandulosis, margine scariosis; staminibus 10 alternatim paullo inaequalibus quam sepalis brevioribus, filamentis gracilibus subteretibus alternatim circiter 1.3 mm. et 1 mm. longis copiose breviter pilosis, antheris late oblongis circiter 0.3 mm. longis; disci lobis subcarnosis oblongo-linearibus circiter 0.8 mm. longis apice obtusis superne pilis ad 0.3 mm. longis conspicue pallido-barbellatis; ovario elongato-ovoideo ubique piloso in stylum brevem contracto, stigmate capitato.

VITI LEVU: Mba: Western slopes of Mt. Tomanivi [Mt. Victoria], alt. 850–1000 m., July 7, 1947, *Smith 5119* (A TYPE, US) ("mbonukiwambu"; tree 20 m. high, in dense forest; sepals and filaments white).

Casearia procera is larger in stature than the other Fijian *Caseariae*, being a fairly large tree with copiously branching crown and compact delicate foliage. It is characterized by its very small and few-nerved leaf-blades, with attenuate bases and bluntly cuspidate apices. Although the flowers are typical for § *Pitumba*, the pubescence of the filaments and ovary and the long hairs of the disk-lobes may be noted as characteristic of the species. It need be compared only with such small-leaved Fijian species as *C. myrsinoides* Sleumer and *C. adiantoides* Sleumer, from both of which it differs markedly in leaf-shape.

Casearia stenophylla sp. nov.

Frutex ad 2 m. altus, ramulis gracilibus subteretibus juventute et petiolis parce puberulis mox glabrescentibus, lenticellis inconspicuis; stipulis papyraceis lanceolatis 3–5 mm. longis praeter marginem ciliolatum glabris caducis; petiolis sat validis canaliculatis 3–5 mm. longis, laminis chartaceis in sicco viridi-olivaceis oblongo-lanceolatis, (6–)8–14 cm. longis, (1.2–)1.5–3 cm. latis, basi attenuatis et in petiolum longe decurrentibus, in apicem subacutum gradatim acuminatis, margine subintegris vel remote

et obscure callosa-crenulatis, utrinque praeter axillas nervorum subtus domatiiferas et interdum obscure pilosas glabris, manifeste punctis striulisque pellucidis instructis, costa supra elevata et canaliculata subtus prominente, nervis secundariis utrinsecus 5–7 adscendentibus marginem versus valde curvatis supra leviter subtus conspicue elevatis, rete venularum supra subimmerso subtus prominulo; floribus in fasciculos axillares aggregatis, bracteis inflorescentiae numerosis oblongis obtusis circiter 1.5 mm. longis dorso parce strigillosis; pedicellis teretibus glabris vel obscure puberulis basim versus articulatis sub anthesi 2–3 mm. sub fructu ad 5 mm. longis; sepalis 5 papyraceis oblongis 2–2.5 mm. longis latisque, apice rotundatis, margine scariosis, ciliis paucis exceptis glabris, obscure sed copiose glanduloso-punctatis; staminibus 10 quam sepalis brevioribus alternatim leviter inaequalibus, filamentis gracilibus alternatim circiter 1.2 mm. et 1 mm. longis minute hispidulis, antheris late oblongis circiter 0.2 mm. longis; disci lobis subcarnosis deltoideo-oblongis circiter 0.5 mm. longis apice obtusis et copiose barbellatis; fructibus (submaturis) ellipsoideis glabris circiter 12 mm. longis et 10 mm. latis, basi et apice rotundatis, inconspicue 3-costatis, pericarpio subcarnoso ruguloso, seminibus 16–20 ellipsoideis 3–3.5 mm. longis circiter 2 mm. latis utroque obtusis, arillo membranaceo cupulari copiose fimbriato.

VANUA LEVU: Mathuata: Seanggangga Plateau, in drainage of Korovuli River, vicinity of Natua, alt. 100–200 m., Nov. 28, 1947, *Smith 6701* (A TYPE, US) (shrub 1–2 m. high, in patches of forest in open rolling country).

In its oblong-lanceolate leaf-blades this new species resembles, in Fiji, only *C. angustifolia* A. C. Sm. and *C. longifolia* A. C. Sm., differing from both in its larger and lanceolate stipules. From *C. angustifolia* the present species also differs in having its leaf-blades attenuate rather than rounded or broadly obtuse at base, with essentially entire rather than serrulate margins, and with the nerve-axils domatia-bearing but only very obscurely pilose, and in its longer pedicels and slightly larger flowers. *Casearia stenophylla* is readily distinguished from *C. longifolia* by its shorter petioles and its comparatively few and more sharply ascending secondary nerves with domatia in the axils.

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Smith, A C. 1950. "Studies of Pacific Island plants, VII. Further notes on Fijian flowering plants." *Journal of the Arnold Arboretum* 31(3), 288–319.

<https://doi.org/10.5962/p.333928>.

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