

NEW PLANTS FROM FIJI—III

BY
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INTRODUCTION

This paper is an account of new species and of observations on Fijian flowering plants. It is supplementary to the studies previously published as Bulletin 74, 1930, and Bulletin 83, 1931, of Bernice P. Bishop Museum.

The work on the paper was done during the tenure of a National Research Fellowship in the Biological Sciences, in residence at the Gray Herbarium of Harvard University. In addition to the collections made by Parks and Gillespie in 1927-1928 I was permitted to examine there the older collections in the Gray Herbarium: one made by the [Wilkes] United States Exploring Expedition of 1838-40, another by B. Seemann in 1860, and a number of specimens obtained by John Horne in 1877. Several unpublished manuscripts on Polynesian botany by A. Gray were also made available to me.

For these privileges I extend my thanks to the staff of the Gray Herbarium; especially to Dr. B. L. Robinson, Curator, to Dr. I. M. Johnston, who assisted in several difficult determinations, and to Miss Ruth Sanderson for help in the library. I am deeply grateful to the National Research Council for the award of the Fellowship, and to the Director and Trustees of the Bernice P. Bishop Museum for their willingness to publish this result of my studies.

Except as otherwise stated the types of the species here described are deposited in the herbarium of Bernice P. Bishop Museum, isotypes in the herbarium of the University of California and in the Gray Herbarium.

ZINGIBERACEAE

LANGUAS Koenig

Languas (§ Diermalpinia) parksii Gillespie, species nova (fig. 1).

Herba perennis robusta, caulibus crassissimis; foliis glabris, chartaceis, usque ad 100 cm. longis, 13 cm. latis, elongato-lanceolatis, apice acutis, basi acuminatis, ligulis coriaceis, 1.5 cm. longis; petiolo 13 cm. longo; panicula terminali, pendula, circiter 70 cm. longa, ramis infimis flexuosis, usque ad 30 cm. longis; spatha chartacea vel scariosa, subcylindrica, circiter 30 cm. longa; bracteis floralibus cylindraceis, 3 cm. longis, venosis, ad apicem subtruncatum vel erosum pubescentibus; floribus 3.5 cm. longis, ovario ellipsoideo, 6 mm. longo; calyce tubuloso, lobis obtusissime acuminatis; corolla 3 cm. longa, tubo quam calyce brevior; fructibus globosis, 12 mm. diametro.

A very robust perennial herb of banana-like habit, the stems probably 10 cm. or more thick. Leaves glabrous, as much as 100 cm. long, 13 cm. broad; blades green and shining above, paler beneath, chartaceous, elongate-lanceolate, apex acute, base acuminate, the basal sheath and ligule very coriaceous, striate, the ligule about 1.5 cm. long; petioles stout, deeply and narrowly canaliculate above, about 13 cm. long. Panicle terminal, pendulous, about 70 cm. long; spathe chartaceous or scarios, subcylindric, about 30 cm. long; rachis woody, 1 cm. thick at the base, the lowest branches flexuous, as much as 30 cm. long, each bearing 3-7 flowering spikes; primary bracts very thick, broad, about 3 mm. long, fulvous-pilose at the apex; flowering bracts 3 or 4 on each spike, cylindric, about 3 cm. long, veiny, pubescent at the subtruncate or erose apex. Flowers about 3.5 cm. long; calyx tubular, smooth or thickly papillate, about 2.5 cm. long (including the ellipsoid ovary which is about 6 mm. long), the lobes shallow, very obtusely acuminate, thickened at the tips; corolla about 3 cm. long, the tube slightly shorter than the calyx, the labellum navicular, about 1 cm. broad, lineate, notably cucullate, the callus-tipped lateral lobes oblong, about 4 mm. broad, the posterior lobe elongate, more or less unguiculate, the expanded part about 4 mm. long, notched at the apex; staminal column and styles about 4 cm. long, the style very slender. Fruiting pedicels fulvous-pubescent, flattened, about 3 cm. long; fruits globose, about 12 mm. in diameter; seeds about 3 mm. thick, angular by compression.

Fiji, Viti Levu, Namosi Province near Nakuava on the Navua River, altitude 100 meters, June 13, 1927, H. E. Parks. Type no. 20379. This differs from other Fijian species most conspicuously in the large size of the flowering bracts.

PROTEACEAE

KERMADECIA Brongniart et Gris

Kermadecia vitiensis Turrill (fig. 2).

Kermadecia vitiensis Turrill: Linnean Soc. London, Botany, Jour., vol. 43, p. 36, 1915; Hooker's Icones, vol. 31, pl. 3022, 1915.

To Dr. Turrill's original description and the published illustration of floral and vegetative parts of this interesting plant little need be added. The fruits, however, have not been described; as fruiting material closely simu-

lates characters of Sapindaceae, especially of the genus *Cupania*, an illustration of this state is considered desirable. The description of the fruits follows.

Fruits black, shining, becoming dull in age, cuneate to obcordate, about 3 cm. long and broad, 1 cm. thick, apex acuminate, apiculate, base narrowed, oblique; pericarp very hard, about 3 mm. thick; seed conforming to the cell, gray, the testa chartaceous and easily removable.

Represented by Horne no. 1000; Parks no. 20712; Gillespie nos. 3156, 3752, 4526, 5116; fairly common on Ovalau and Viti Levu (Tholo North Province) at altitudes above 600 meters. The axis of the embryo lies in the apex of the seed; the cotyledons are white and very oily. Native name: *kau mbutu*.

OLACACEAE

ANACOLOSA Blume

***Anacolosia lutea* Gillespie, species nova (fig. 3).**

Arbor parva subglabra, ramulis verrucosis subflexuosis; foliis subdistichis, 6-15 cm. longis, 3.7-5 cm. latis, coriaceis, ovatis vel oblongo-ellipticis, apice acutis vel obtusis, basi obtusis, nervis lateralibus conspicuis utroque circiter 5, secundariis indistinctis, petiolo crasso 3-7 mm. longo; floribus 3-6 in fasciculis axillaribus dispositis; calyce subglabro, turbinato, limbo obscure dentato; corolla 3 mm. longa, ad mediam partem 6-partita, lobis crassis ad basim excavatis; staminibus 1 mm. longis, apice hispidis-hirsutis; fructibus (luteis) ovoideis vel subgloboseis, 22 mm. longis, 16 mm. latis.

A small, subglabrous tree, the branchlets pale-brown to gray, verrucose, often flexuous. Leaves more or less 2-ranked, 6-15 cm. long, 3.7-5 cm. broad; blades dull-green above, brownish beneath, coriaceous, ovate to oblong-elliptic, apex acute to obtuse, base obtuse, midnerve impressed above, lateral nerves conspicuous, arcuate-ascending, about 5 on each side of the midrib, subtrinerfed at the base, anastomosing in evident loops several millimeters within the margin, the veinlets indistinct; petioles stout, 3-7 mm. long. Flowers in fascicles of 3-6 each, axillary; pedicels 2-5 mm. long, emerging from an often several-parted callus as much as 4 mm. long. Flowers about 4 mm. long, 6-merous; calyx free from the receptacle, glabrous or minutely puberulent, turbinate, the border very obscurely toothed; corolla 3 mm. long, glabrous, 6-parted about to the middle, the lobes thick, acute, each hollowed in the basal part within to receive a closely fitting stamen about 1 mm. long, the filament flattish, the anther subglobose, 2-celled, bristle-haired around the 2 apical pores, the hairs of the stamen mingling with a small tuft at the top of the cavity of the corolla-lobe; disc obconic, shallowly lobed at the top; superior part of the pistil obconic, the stigma blunt; ovary incompletely 2-celled. Fruiting pedicels stout, lepidote, as much as 13 mm. long, the calyx persisting at the base; fruits bright-yellow, ovoid to subglobose, about 22 mm. long, 16 mm. wide, more or less turbinate, subtruncate and broadly apiculate when dry, shallowly angled and lobed; seeds 1, about 17 mm. long, conforming to the shape of the fruit.

Fiji, Viti Levu, Tholo North Province, vicinity of Nandarivatu, altitude 900 meters, November 25, 1927, John W. Gillespie. Type no. 4040.

Also represented by Gillespie nos. 2133, 2824, 4213, 4265, 4314, 4377. Fairly common on Viti Levu, in Naitasiri and Tholo North provinces.

MONIMIACEAE

HEDYCARYA Forster

Hedycarya crassifolia Gillespie, species nova (fig. 4).

Arbor parva glabra, ramulis crassiusculis nodosis; foliis oppositis, 7-10 cm. longis, 3-5 cm. latis, crassis, coriaceis, rigidis, ovatis vel oblongo-ellipticis, integris, apice acutis vel paullo acuminatis, basi obtusis, nervis haud perspicuis; petiolo 1-2 cm. longo; inflorescentiis depauperato-peniculatis, usque ad 8 cm. longis; receptaculo masculino 1 cm. diametro, staminibus 1 mm. longis, capitatis; carpellis maturis sessilibus, ellipsoideis, 10 mm. longis.

A small, glabrous tree, with rather stout nodose terete branchlets. Leaves opposite, 7-10 cm. long, 3-5 cm. broad; blades pale-green, slightly shining, thick, very coriaceous, rigid when dry, ovate to oblong-elliptic, entire (very rarely indistinctly serrate), apex acute or slightly acuminate, base obtuse, lateral nerves not at all prominent, arcuate, 5 or 6 on each side of the midrib, veinlets obscure; petioles stout, 1-2 cm. long. Inflorescences depauperate-paniculate, up to 8 cm. long; peduncles and branches fleshy, shriveling in drying. Male flowers about 1 cm. in diameter; perianth-segments very obtuse; receptacle plane; stamens very numerous, about 1 mm. long, capitate. Female flowers apparently similar to the male, the carpellate structures unknown. Mature carpels sessile, about 15 in a head, green and shining, ellipsoid, about 10 mm. long; seeds yellowish, about 7 mm. long, recurved.

Fiji, Viti Levu, Tholo North Province, summit of Mount Victoria, altitude 300 meters, November 29, 1927, John W. Gillespie. Type no. 4124.

Also represented by Gillespie nos. 3157, 3266, 3299 and 5105, from Viti Levu, the summits of Vakarongasiu and Naitarandamu mountains. This species is easily distinguished from *H. dorstenioides* A. Gray and *H. sinuato-dentata* Perkins by the very coriaceous entire leaves. The drawing of the male flowers is from Gillespie no. 3266, the habit study from the type.

LAURACEAE

CINNAMOMUM (Tournefort) Linnaeus

Cinnamomum pallidum Gillespie, species nova (fig. 5).

Arbor mediocris, partibus junioribus inflorescentiisque canescenti-pubescentibus exceptis glabra; ramulis levibus, teretibus; foliis oppositis, 12-25 cm. longis, 5-10 cm. latis, crassis, coriaceis, ovatis, apice acuminatis vel longe acuminatis, basi acutis, 3- vel 5-nerviis vel plus minusve plinerviis; petiolo crasso, 1.5-2 cm. longo; inflorescentiis usque ad 20 cm. longis, pubescentibus; perianthio 4-5 mm. longo, dense argenteo-pubescente, segmentis ovatis; staminibus hirsutis; perianthio fructifero glabrescenti vel puberulo, 2 cm. longo, lobis lignosis, persistentibus, erectis.

A medium-sized tree, glabrous except the grayish-pubescent young parts and inflorescences; branchlets yellowish-brown, smooth, terete, sometimes compressed at the extremities. Leaves subopposite, 12-25 cm. long, 5-10 cm. broad; blades pale-green, shining above, dull beneath, thick, coriaceous, ovate, apex acuminate, sometimes long-acuminate, the tip rounded, base acute, 3- or 5-nerved or more or less plinerved, the main nerves extending almost to the apex of the blade, prominent beneath, canaliculate, veinlets rather obscure; petioles stout, 1.5-2 cm. long, somewhat margined near the base of the blade. Inflorescences terminal and in the uppermost axils, about 25-flowered, up

to 20 cm. long, grayish pubescent throughout; peduncles (8-12 cm. long), branches and pedicels (about 7 mm. long) moderately stout. Perianth 4-5 mm. long, densely silvery pubescent without, the segments ovate, rounded, about 2.5 mm. long, the inner whorl distinctly smaller than the outer; pistil 2.2 mm. long, the style capitate or somewhat lobed; stamens hairy, those of the third whorl about 2.4 mm. long, with 2 small subsessile glands near the middle, the others about 2 mm. long; staminodes clavate. Fruiting-peduncles glabrescent or persistently puberulent; perianth turbinate, 2 cm. long, about 9 mm. in diameter at the top, with erect persistent woody puberulent lobes.

Fiji, without exact locality, 1877-78, J. Horne. Type no. 99, in the Gray Herbarium.

Also represented by Horne no. 867a; Gillespie nos. 2273 and 3904, from Viti Levu. This large-leaved species resembles *C. zeylanicum* Blume, widely distributed in the Malay Archipelago, but differs in the more densely hairy inflorescences and the much thickened peduncles and pedicels.

***Cinnamomum pedatinervium* Meissner (fig. 6).**

Cinnamomum pedatinervium Meissner in DeCandolle's Prodrumus, vol. 15, pt. 1, p. 15, 1864.

A small tree, glabrous except the flowers, with rather slender, smooth, straight, terete, brownish branchlets. Leaves opposite, 9-18 cm. long, 4-10 cm. broad; blades pale-green, shining above, coriaceous, ovate to broadly lanceolate, apex acute to obtuse, the tip rounded, base rounded, sharply decurrent, 3- or 5-nerved (the marginals often obscure), the laterals often branching near the base, extending two-thirds of the length of the blade, transverse veinlets obscure, the very numerous reticulations more evident above than beneath; petioles stout, flattened, somewhat margined, 1.5-3 cm. long. Inflorescences terminal, many-flowered, branchy, diffuse, about 20 cm. long; peduncles flattened, canaliculate, glabrous; bracts acuminate, about 3 mm. long; pedicels about 1 cm. long, enlarging upwardly into the flower; perianth thinly silvery-haired, about 5 mm. long, the segments equal, acute, about 2 mm. long, hairy within; stamens of the first whorl clavate, about 2 mm. long, of the third whorl clavate, about 2.5 mm. long, broadened at the base, bearing 2 broad, auriculate, shortly stalked glands; all the stamens bristly-haired at the base; pistil glabrous, exceeding the fertile stamens in length; stigma capitate.

The original description of this species was made from a sterile specimen (Seemann no. 376); the habitat was said to be Kandavu (Mbuke Levu Mountain) and Viti Levu (Voma Mountain). The specimen from which the above amplified description and the illustration were made, Gillespie no. 2718, was obtained on Voma Mountain, Viti Levu. The venation of the leaves differs considerably from that of the Seemann specimen, but this is not held to be significant in *Cinnamomum*.

***Cinnamomum rigidum* Gillespie, species nova (fig. 7).**

Arbor parva subglabra, ramulis crassis canaliculatis subteretibus; foliis oppositis, glabris, pallide viridibus, erectis, supra nitidis, subtus interdum subglaucis, coriaceis, rigidis, 4-7 cm. longis, 2-4 cm. latis, late ovatis vel suborbicularibus, apice obtusis vel obtuse acuminatis, basi rotundatis, obscure 3-plinerviis; petiolo crasso, 3-7 mm. longo; inflorescentiis terminalibus, 9 cm. longis, crassis, glabris; floribus campanulatis, 4 mm.

longis, leviter sericeo-pubescentibus, perianthi segmentis subtriangularibus; staminibus sparse hirsutis; fructibus immaturis inclusis, perianthiis pubescentibus.

A small, subglabrous tree with stout, canaliculate, subterete branchlets. Leaves opposite, glabrous, pale-green, erect, shining above, occasionally slightly glaucous beneath, coriaceous, rigid, 4-7 cm. long, 2-4 cm. broad, very broadly ovate to suborbicular, apex obtuse to obtusely acuminate, base rounded, shortly decurrent, obscurely 3-plinerved, the laterals scarcely reaching the middle of the leaf, pinnate-veined in the distal part, veinlets obscure; petioles stout, flattened, 3-7 mm. long. Inflorescences terminal, about 9 cm. long, partly concealed by the leaves; peduncles stout, glabrous; bracts and bracteoles persistent, pubescent, acuminate, about 3 mm. long; flowers campanulate, about 4 mm. long (from the base of the expanded part) slightly silky-pubescent without, the perianth-segments subtriangular, hairy within, the inner whorl slightly smaller than the outer; pistil about 2.4 mm. long, the style capitate; stamens sparsely hairy, those of the third whorl about 2.5 mm. long, with 2 small sessile glands near the base, the others about 2.1 mm. long. Perianth-segments persistent, acute, about 3 mm. long, pubescent on both sides, completely enclosing the immature fruits.

Fiji, Viti Levu, Namosi Province, summit of Naitarandamu Mountain, altitude 1200 meters, September 28, 1927, John W. Gillespie. Type no. 5103.

Also represented by Horne no. 872; Gillespie no. 4118, from Tholo North Province, summit of Mount Victoria. This is essentially a high-mountain species, growing in the mossy forests with *Agathis vitiensis*, *Calycosia magnifica*, and *Elaeocarpus subcapitatus*.

CRYPTOCARYA R. Brown

Cryptocarya fusca Gillespie, species nova (fig. 8).

Arbor, ramulis teretibus; foliis 11-28 cm. longis, 4-11 cm. latis, glabris, utrinque fuscis, chartaceis, ovatis vel late ovatis, apice obtusis breviter acuminatis, basi acutis demum obtusis vel rotundatis, interdum subplinerviis, saepius nervis lateralibus 5-8 utrinque subperspicuis, venulis perspicuis areolis minutis; petiolo crasso; inflorescentiis paniculatis, multifloris, 7 cm. longis; pedunculis 4 cm. longis; alabastris clavatis; floribus turbinatis, puberulis, 2.5 mm. longis; infructescentiis usque ad 20 cm. longis; fructibus viridibus, verrucosis, subglobosis, 12-costatis, 24 mm. diametro.

A tree, glabrous except the flowers (in the Horne specimen) or the branchlets persistently adpressed-tomentose (in the Gillespie material), slender, terete. Leaves 11-28 cm. long, 4-11 cm. broad; blades dull, brown on both surfaces, chartaceous, ovate to broadly ovate, apex obtuse with a short acumen, base acutish in young leaves, becoming obtuse or even rounded, occasionally subplinerved (that is, a pair of laterals rising from the base of the blade, not from the midrib), more often the lateral nerves 5 to 8 on each side of the midrib, rather prominent, forming an acute angle with the midrib, veinlets distinct, the areoles minute; petioles stout, 1-2 cm. long. Inflorescences axillary and terminal, paniculate, many-flowered, about 7 cm. long; peduncles about 4 cm. long; pedicels 2 mm. long. Flower-buds clavate, in anthesis more or less turbinate, about 2.5 mm. long; perianth very thinly puberulent without, the segments ciliate on the margins; pistil about 1.6 mm. long; stamens hairy at the base. Infructescences as much as 20 cm. long, nodose, the branches somewhat flexuous; fruits green, somewhat shining, verrucose, subglobose to slightly ellipsoid, about 12-ribbed, produced at each end, about 24 mm. long, 15 mm. thick, the accrescent calyx rather thin and fragile, the pericarp membranaceous, reddish-brown, not at all adhering to calyx or seed; seeds brown, subglobose, about 1 cm. in diameter, the longitudinal cleft very prominent.

Fiji, Viti Levu, Namosi Province, vicinity of Namosi Village, altitude 500 meters, John W. Gillespie. Type no. 2624.

Also represented by Gillespie no. 3033, from Namosi Province (Namua-mua); and Horne no. 650. I refer these numbers to the same species on account of the unmistakable dull, brown, somewhat glaucous appearance of the leaves, although Horne no. 650, which consists of small flowering branchlets, is entirely glabrous, while the Gillespie specimens, in fruit, show a rather persistent tomentum on the branchlets and infructescences. This species is distinguished from *C. hornei* Gillespie by the larger leaves, which are not notably plinerved; from *C. turbinata* Gillespie by the larger leaves, which are obtuse or rounded at the base. Native name: *kau ri vau, kau rau*.

HERNANDIACEAE

HERNANDIA Linnaeus

***Hernandia olivacea* Gillespie, species nova (fig. 9).**

Arbor mediocris, partibus junioribus olivaceo-pulverulentis, ramulis atris, cicatricibus notatis; foliis 7-14 cm. longis, 3-5.5 cm. latis, coriaceis, ellipticis vel oblongo-ellipticis vel ovatis, apice late obtusis vel rotundatis interdum leviter retusis vel apiculatis, basi obtusis vel rotundatis, 3-nerviis, nervis supra impressis; petiolo usque ad 5 cm. longo; inflorescentiis in axillis ultimis quam foliis longioribus; bracteis (7 mm. longis) floribusque olivaceis, furfuraceo-pulverulentis; floribus masculinis 6 mm. longis, pedicellis 4 mm. longis; floribus femineis subsessilibus, 1 cm. longis; fructibus globosis, 22 mm. diametro.

A tree of medium size, the young parts olivaceous-pulverulent, the branchlets stout, dark, and verrucose, the leaf-scars large, pale, and prominent. Leaves thickly clustered at the extremities of the branchlets, the uppermost much the smallest, 7-14 cm. long, 3-5.5 cm. broad; blades brownish or olive-green, more or less shining above, dull beneath, coriaceous, glabrous excepting a rather large area of brown hairs at the base beneath, elliptic to oblong-elliptic or ovate, apex broadly obtuse to rounded, occasionally shallowly retuse or apiculate, base obtuse to rounded, 3-nerved, the midrib rather broad and prominent, the marginals less so, extending scarcely to the middle of the blade, the pinnately arranged laterals 3 to 5 pairs, all distinctly impressed above; petioles stout, straight, rather rigid, as much as 5 cm. long. Inflorescences solitary in the uppermost axils, exceeding the leaves in length, together forming a leafy cyme; peduncles stout, erect, 3-7 cm. long, once or twice di- or tri-chotomously branched, each branch subtended by a bract similar to those of the involucre; bracts of the involucre (4) thick, coriaceous, obovate, rounded, about 7 mm. long, 5 mm. broad, olive-green and densely scurfy-pulverulent on the inside, more sparingly so without. Flowers generally 3 in each involucre, of the same color and scurfiness as the bracts; both sexes are present in each involucre, the males about twice as many as the females. Male flowers campanulate, about 6 mm. long, on pedicels often 4 mm. long, the lobes 8, in 2 whorls, the outer 4 oblong-ovate, about 5 mm. long, somewhat longer than the inner 4; stamens 5, about 4 mm. long, the anthers oblong, equaling the filaments; glands small. Female flowers subsessile, broadly campanulate, 1 cm. long, about 10-lobed, the lobes (in 2 whorls) as in the male; cupule globose, truncate at the top, about 4 mm. in diameter; style cylindrical, about 4 mm. long from the top of the cupule, very broadly capitate and irregularly lobed to form the glabrous stigmas. Fruits (Gillespie no. 4139) globose, about 22 mm. in diameter, the opening at the top of the cupule about 8 mm. in diameter.

Fiji, Viti Levu, Tholo North Province, summit of Loma Langa Mountain, altitude 1,200 meters, November 16, 1927, John W. Gillespie. Type no. 3785.

Also represented by Gillespie no. 3288, from Namosi Province, Vakrongasiu Mountain, and nos. 4139 and 4401.1, from Tholo North Province. Doubtfully belonging to this species are Gillespie no. 4350, from the type locality, with cuneate leaves; Horne no. 517, without definite locality; Gillespie no. 2158, from Naitasiri Province, with leaves as much as 20 cm. long. Native names: *ndoi ni sau, wa sau li*.

RUTACEAE

EVODIA Forster

***Evodia capillacea* Gillespie, species nova (fig. 10).**

Frutex erectus subglaber, ramis gracilibus; foliis 3-1-foliolatis, petiolo gracili 1-2 cm. longo; foliolis 4-7 cm. longis, 1.3-2 cm. latis, chartaceis, haud nitidis, elongato-ellipticis vel oblanceolatis, utrinque subacuminatis, petiolulis 3-8 mm. longis; inflorescentiis paucifloris, usque ad 5 cm. longis, pedunculis gracilibus bracteis paucis foliaceis 5 mm. longis instructis, ramulis ultimis capillaceis; pedicellis 3 mm. longis; floribus 4-meris, calyce cupulato obtuse lobato sparse puberulo vix 1 mm. lato, petalis 1 mm. longis, triangulari-ovatis, ovario fere glabro, disco obtuse lobato; carpellis glabris ad basin leviter connatis.

A subglabrous shrub with long, slender, terete, ascending, nodose branches. Leaves crowded at the extremities, 3-1-foliolate, the petioles slender, about 1 (in simple leaves) or 2 cm. (in compound leaves) long; blades 4-7 cm. long, 1.3-2 cm. broad, chartaceous, not at all shining, yellowish-green, elongate-elliptic to oblanceolate, apex and base subacuminate, lateral nerves slender, about 10 pairs, veinlets obscure; petiolules 3-8 mm. long. Inflorescences as much as 5 cm. long, few-flowered; peduncles slender, bearing 1 or more pairs of foliaceous bracts about 5 mm. long, the ultimate branches capillary; pedicels about 3 mm. long. Flowers polygamous, 4-merous; calyx cupulate, obtusely lobed, sparsely puberulent, scarcely 1 mm. wide; petals triangular-ovate, cucullate, 1 mm. long; stamens about 1 mm. long, the anthers ovate; ovary nearly glabrous, often 4-celled, the style scarcely any, the stigmatose surface lobed; disc very obscurely lobed. Carpels glabrous, ovoid, about 3 mm. long, only slightly united at the base.

Fiji, Vitu Levu, Tholo North Province, 3 kilometers (2 miles) from Nandarivatu along the Mba road, altitude 1,000 meters, November 25, 1927, John W. Gillespie. Type no. 4046.

The rather scanty material upon which this species is based was not in very flourishing condition at the time of collection. It differs most strongly from *E. cucullata* in the sublanceolate leaves narrowed at each end and from *E. seemanni* in the much shorter leaflets.

***Evodia cucullata* Gillespie, species nova (fig. 11).**

Arbor parva partibus junioribus inflorescentisque exceptis glabra, ramulis crassiusculis puberulis; foliis plerumque ternatis, petiolo 3-6 cm. longo; laminis utroque coloribus, chartaceis, 6-16 cm. longis, 2-6 cm. latis, obovato-spathulatis vel ovato-lanceolatis, apice obtusis vel rotundatis, leviter retusis, basi acutis, costa media flavida; petiolulis 7-13 mm. longis; inflorescentiis, floribus puberulis exceptis, glabris, paniculatis.

usque ad 6 cm. longis, pedunculo 3 cm. longo; floribus masculinis 4-meris, calyce puberulo, 0.5 mm. longo; petalis glabris, ovatis, cucullatis, 2.2 mm. longis, disco fulvo-pubescenti; infructescentiis 6 mm. latis, pedunculo crasso; carpellis glabris vel sparse puberulis, ad basin leviter connatis, 2-6 mm. diametro.

A small tree, glabrous except the puberulent young parts and inflorescences; branchlets rather stout, brown, nodose, the leaf-scars conspicuous. Leaves for the most part ternate, 9-24 cm. long; petioles 3-6 cm. long; blades thickly dotted, nearly the same bright-green on both surfaces, not at all glaucous beneath, chartaceous, 6-16 cm. long, 2-6 cm. broad, obovate-spatulate to ovate-lanceolate, apex obtuse to rounded and slightly retuse, base acute (oblique in the lateral leaflets), only slightly decurrent, midrib (yellow or yellowish-green) and lateral nerves (about 12 pairs) prominent; petiolules slender, 7-13 mm. long. Male inflorescences axillary and lateral, puberulent except the flowers, paniculate, as much as 6 cm. long; peduncles about 3 cm. long, the branches more or less radiate and unequal; pedicels slender, about 3 mm. long. Male flowers 4-merous; calyx puberulent, cupulate, about 0.5 mm. long, the teeth obtuse; petals evidently dotted, glabrous, slightly imbricated in bud, white, ovate, the apex rounded and slightly cucullate by the thickened tips, 2.2 mm. long; stamens 2.5 mm. long; anthers broadly cordate, hanging from the center by the threadlike ends of the filaments; disc tawny-pubescent. Female flowers not seen. Infructescences dense or more or less open and extended, about 6 cm. wide; peduncles stout. Mature carpels glabrous or slightly puberulent, only slightly united at the base, about 2.6 mm. in diameter, the whole fruit about 7 mm. wide. Seeds black, polished, about 2.2 mm. in diameter.

Fiji, Viti Levu, Tholo North Province, Nandarivatu, slopes of Loma Langa Mountain, altitude 1,000 meters, November 14, 1927, John W. Gillespie. Type no. 3198.

Also represented by Gillespie nos. 3713, 3743, 3779, 3909, from near the type locality; nos. 4638, 4673, 4803, from Taviuni, in the vicinity of Waiyevo. All specimens collected in Viti Levu, Tholo North Province, bear male flowers; all from Taviuni are in fruit. The fact that the leaves of the specimens from Taviuni are much larger than those of the plants from Viti Levu, and approach lanceolate rather than obovate in outline suggests that two species are here considered, although the color, texture and venation of the leaves is nearly identical.

This species includes the "*Evodia drupacea* Labill." of A. Gray as far as can be determined from an examination of the scanty material of the United States Exploring Expedition. In the New Caledonian species the leaflets are described as "haud petiolulatis"; in the figure¹, as well as in the New Caledonian specimen at hand (Schlechter no. 15186, in the Gray Herbarium), the blade arises from the very base of the leaflet, which is, however, narrowed in that region.

In *E. vatiana* Setchell², the leaflets are glaucous beneath. It might be mentioned here that Setchell, in his discussion of that species, is misleading in his emphasis on the "lack of conspicuous hairiness of any kind on the inflorescence" of Storck no. 879 from Fiji (specimen in the Gray Herbarium), which to my observation is densely though finely pubescent through-

¹ Labillardière, J. J. H. de, Sertum Austro-Caledonicum, pl. 74, 1824.

² Setchell, W. A., American Samoa: Dept. Marine Biol., Carnegie Inst., Washington, vol. 20, p. 87, pl. 4, 1924.

out, even on the petals of the few opened flowers, by which character it differs from any other Fijian *Evodia* I have yet examined.

***Evodia seemanni* Gillespie, species nova (fig. 12).**

Frutex erectus inflorescentiis exceptis glaber, ramulis tenuibus; foliis plerumque 3-foliolatis, petiolo 3-5 cm. longo; laminis pallide viridibus, utrinque concoloribus, chartaceis, 7-14 cm. longis, 2-2.8 cm. latis, anguste oblongis vel lanceolatis, apice acutis, basi acuminatis, decurrentibus; petiolulis 3-9 mm. longis; inflorescentiis depauperato-paniculatis, paucifloris, usque ad 6 cm. longis; pedunculo erecto, crassiusculo, glabro, pedicellis sparse puberulis; floribus polygamis, 4-meris, calyce puberulo, cupulato, lobis obtusis, ciliolatis; petalis triangulari-ovatis, 2 mm. longis, cucullatis; ovario 4- vel 5-lobatis, fulvo-pubescentibus, sessilibus, disco 8- vel 10-lobato; carpellis glabris ad basin leviter connatis.

A shrub with slender, terete branchlets, glabrous except the inflorescences. Leaves for the most part 3-foliolate, 12--20 cm. long; petioles 3-5 cm. long; leaflets thickly dotted, of the same pale-green on both surfaces, chartaceous, 7-14 cm. long, 2-2.8 cm. broad, narrowly oblong to lanceolate, apex acute, base acuminate (in the lateral leaflets oblique), decurrent, midrib prominent, yellow, lateral nerves very slender, about 12 on each side of the midrib; petiolules slender, 3-9 mm. long. Inflorescences depauperate-paniculate, few-flowered, up to 6 cm. long; peduncles erect, moderately stout, glabrous, irregularly and sparingly branched; pedicels thinly puberulent, about 2 mm. long. Flowers polygamous, 4-merous; calyx puberulent, broadly cupulate, the lobes obtuse, ciliolate; petals ovate-triangular, about 2 mm. long, cucullate, the midnerve fairly conspicuous under the lens; stamens in male flowers 1 mm. long, tapering upwardly; anthers large, oblong-sagittate; ovary in female flowers 4- or 5-lobed, minutely tawny-pubescent, sessile on the 8- or 10-lobed disc; style short, cylindric; ovules 2 in each cell. Carpels (immature) obovoid, glabrous, only slightly joined at the base.

Fiji, without exact locality, collected in 1860, Seemann no. 90, type, in the Gray Herbarium.

The type has been referred to *E. drupacea* Labillardière, a species of doubtful occurrence in Fiji. (See p. 11.) It cannot be matched in the considerable collection of Polynesian *Evodias* which I have examined, differing from all by the narrow leaflets and in certain details of the flowers.

EUPHORBIACEAE

ANTIDESMA Linnaeus

***Antidesma* (§ *Venosa*) *insulare* Gillespie, species nova (fig. 13).**

Arbor parva floribus exceptis glabra; ramulis gracilibus, rectis; foliis paucis, 8-20 cm. longis, 4.5-11 cm. latis, nitidis, chartaceis vel tenuiter coriaceis, ellipticis vel oblongo-ellipticis vel lanceolatis, acutis vel breviter acuminatis utrinque, nervis lateralibus in axillis haud glandulosis, rectis; petiolo crasso, lato, 3-14 mm. longo, stipulis integris, ovatis, leviter puberulis, 5 mm. longis; spicis femineis 4-6 cm. longis, omnino floriferis, pedicello 1-2 mm. longo, perianthio cupulato, 1 mm. longo et lato, dentibus obtusissimis, disco cupulato ad marginem fimbriato-ciliato; spicis masculinis usque ad 7 cm. longis, disco cupulato stamina (3-5) exserta intus gerente, filamentis crassis; fructibus mollibus, lenticellatis.

A small tree, glabrous, except the flowers, with gray or brown, slender, nearly straight, lenticellate branchlets, the internodes rather long. Leaves few, 8-20 cm. long, 4.5-11 cm. broad; blades dull-green and shining on both surfaces, brownish when dry,

chartaceous to thinly coriaceous, elliptic to oblong-elliptic or lanceolate, acute to shortly acuminate at each end, lateral nerves prominent on each surface, not at all glandular in the axils, nearly straight, ascending and anastomosing near the margin, the few veinlets forming loose reticulations; petioles stout, broad, concave on the upper side, 3-14 mm. long; stipules entire, ovate, very slightly puberulent, about 5 mm. long. Female spikes axillary and lateral, 4-6 cm. long, the rachis rigid, angular-caniculate, minutely bracteate, floriferous for nearly the entire length; pedicels stout, 1-2 mm. long, enlarged into the flowers; perianth about 1 mm. long and wide, cupulate, subtruncate, the very obtuse (generally 4) teeth minutely tufted at their tips; disc hypogynous, produced from the base to form a cupule within the calyx, the margin subtruncate and densely fimbriate-ciliate; ovary glabrous, oblong-ellipsoid, about 2 mm. long, much protruding from the calyx, often curved, narrowed upwardly but scarcely forming a style, the terminal stigmas rarely lobed, rather large. Male spikes exceeding the female in length, as much as 7 cm. long, occasionally branching from the base; the rachis, bracts and pedicels as in the female; perianth broadly cupulate, about 1 mm. long and wide, the margin subtruncate, ciliate; ovary (rudimentary) more or less cylindrical, the top exerted and slightly hairy; disc cupulate, the margin truncate and fimbriate-ciliolate, bearing on the inside at the base the 3-5 generally exerted stamens, the filaments stout, the subcordate anthers large, curved. Fruits apparently ellipsoid, soft, 15 mm. long, compressed, lenticellate, obtusely echinate when dry.

Fiji, Viti Levu, Rewa Province, slopes of Korombamba Mountain, altitude 250 meters, August 15, 1927, John W. Gillespie. Type no. 2292. Also represented by Parks no. 20538; Gillespie nos. 2030, 3255, 3316, 4071, 4330. from Viti Levu, Naitasiri, Namosi and Tholo North provinces, from low altitudes to the summits of the mountain ranges. The montane specimens tend to have smaller leaves, approaching lanceolate in shape, with shorter petioles, than those from lower altitudes, as represented by the type.

CLAOXYLON A. Jussieu

Claoxylon vitiense Gillespie, species nova (fig. 14).

Arbor parva, partibus junioribus et petiolis et inflorescentiis fulvo-pubescentibus; foliis 12-30 cm. longis, 4-10 cm. latis, viridibus, fere glabris supra haud scabris, subtus flavido-velutinis, oblongo-ellipticis, subintegris vel minute denticulatis, apice acutis vel acuminatis, basi acutis costa sinuosa, petiolo 2-8 cm. longo; racemis fulvo-hirsutis, 3-6 cm. longis; floribus masculinis breviter pedicellatis, segmentis 1.5 mm. longis, pubescentibus; staminibus 8-30, glandulis pilosis vel glabris; floribus femineis 2 mm. latis, ovario pubescenti; fructibus depresso-globosis, 5 mm. diametro, seminibus echinato-tuberculatis.

A shrub or small tree, the young parts, petioles and inflorescences tawny-pubescent; branchlets angular-compressed, becoming terete. Leaves variable in size, 12-30 cm. long, 4-10 cm. broad; blades bright-green and nearly glabrous and not at all scabrous above, somewhat yellowish and distinctly velvety beneath especially on the nerves and veinlets, often bullate when dry, minutely punctate, oblong-elliptic, subentire or distinctly but minutely denticulate, apex acute to acuminate, acute at the base, laxly reticulate, the midrib more or less sinuate in such a way that the strongly ascending arcuate lateral nerves (7-10 pairs) emerge on the concave side of the curved portions; petioles moderately stout, 2-8 cm. long. Racemes 3-6 cm. long, erect or subax, the rachis tawny-hirsute. Male flowers shortly pedicellate, thickly clustered along the axis, turbinate in bud, the segments spreading or reflexed in anthesis, pubescent without, glabrous within, acute, about 1.5 mm. long; stamens 8-30, 1.5-2 mm. long, glabrous, the juxtastaminal glands glabrous or pilose. Female flowers crowded, about 2 mm. wide; segments

broadly ovate, obtuse, thinly hispid without, glabrous within, alternating with the rather prominent obtuse lobes of the pulvinate disc; ovary depressed-globose, densely pubescent with pale-yellow ascending hairs; style very short, the lobes thick, diverging, conspicuously papillate on the stigmatose surfaces. Fruits depressed-globose, slightly 3-lobed, about 5 mm. in diameter; seeds echinate-tuberculate.

Native name: *male ni via*.

Fiji, Viti Levu, Namosi Province, vicinity of Namosi, altitude 400 meters, September 5, 1927, John W. Gillespie. Type no. 2623.

The distinctions between the Fijian species of *Claoxylon* are not very evident. The two previously known were originally distinguished by Müller³ primarily on the presence or absence of the juxtastaminal glands, said to be present in *C. fallax* and absent in *C. echinospermum*. Pax and Hoffmann⁴ point out that they are present in both species, having found them in the immature male flowers of the specimen collected by the Wilkes Expedition, the type of *C. echinospermum*. But the number of stamens in the two species, the character used in the more recent monograph as the chief distinction, likewise proves of little or no significance, *C. echinospermum* being reported with 30, *C. fallax* with 30-40.

Whatever views be held as to the identity of the two species previously proposed, the present one differs in having the young parts densely pubescent when young and leaves persistently velvety-pubescent on the lower surface, rather than the subglabrous and scabridulous leaves of *C. echinospermum* and *C. fallax*. Three of the collections included here were from male plants. In nos. 3477 and 3516 the stamens number about 30, with pilose glands; in no. 2580, five counts of unopened buds gave the number of stamens as follows: 8, 9, 9, 11, 12, and the glands are glabrous. If the small number of stamens and glabrous glands be accepted as specific characters, then nos. 3477 and 3516 would be conspecific with *C. fallax*, although their leaves are as velvety-pubescent as any. The size of the leaves and length of petioles varies too much to be of weight in distinguishing species.

The female flowers and habit sketch (fig. 14) were drawn from Gillespie no. 2623, the male flowers from Gillespie no. 2580, the fruits from Gillespie no. 3565.

EXCOECARIA Linnaeus

Excoecaria (§ *Commia*) acuminata Gillespie, species nova (fig. 15).

Arbor parva glabra, ramulis gracilibus, flexuosis; foliis alternis, 5.5-13 cm. longis, 2-4.5 cm. latis, integris, tenuiter chartaceis, ellipticis vel ovatis, apice acuminatis, basi acutis vel obtusis, nervis lateralibus gracilibus, petiolo gracili, 1-2 cm. longo; inflorescentio simpliciter spicato, interdum a basin 1- vel 2-furcato, 1-2 cm. longo, axillari, basi flores femineos paucos gerente, deinde masculinos; floribus femineis interdum racemosis, perianthi lobis triangulari-ovatis, crenatociliatis, stylo usque ad 1 mm. longo, lobis stigmatosis acuminatis.

³ Müller, J., in DeCandolle's Prodrromus, vol. 15, pt. 2, 1866.

⁴ Pax, F., and Hoffmann, K., in Engler's Das Pflanzenreich, IV, fam. 147, pt. 7, 1914.

A small, glabrous tree, the branchlets slender, gray, striate, somewhat flexuous. Leaves alternate, 5.5-13 cm. long, 2-4.5 cm. broad; blades entire, pale-green, slightly shining above, dull beneath, thinly chartaceous, elliptic to ovate, apex acuminate, the tip rounded, base acute to obtuse, lateral nerves slender, nearly straight, anastomosing with an inframarginal nerve, veinlets obscure; petioles slender, 1-2 cm. long. Inflorescences spicate, occasionally once or twice forked from the base, 1-2 cm. long; female flowers 1 or 2 at the base of the male spike, or borne separately subsessile on short racemes. Bracts of the male flowers densely imbricate, almost as wide as the spike, rounded, crenulate, minutely cuspidate at the apex; perianth-segments (3) lanceolate, shorter than the 2 or 3 stamens, often laciniate near the base. Female flowers about 3 mm. long, the perianth-segments triangular, ovate, crenate-ciliate, nearly equaling the globose ovary; styler column distinct, nearly 1 mm. long, the lobes acuminate, recurved. Capsule about 12 mm. long, 16 mm. broad, the valves woody; seeds subglobose, brown, more or less lined and spotted, about 5 mm. in diameter.

Fiji, Viti Levu, Tholo North Province, vicinity of Nandarivatu, altitude 900 meters, November 22, 1927, John W. Gillespie. Type no. 3965.

Also represented by Seemann no. 414, an unnamed specimen in the Gray Herbarium; Gillespie nos. 2900, 2905, 3965, 4066, from Viti Levu, in Namosi and Tholo North provinces. The Namosi specimens (of which Seemann no. 414 is probably one) are more robust than the typical form, having larger leaves and flowers.

GLOCHIDION Forster

Glochidion (§ Hemiglochidion) bracteatum Gillespie, species nova (fig. 16).

Arbor parva floribus exceptis glabra, ramulis gracilibus, flexuosis; foliis 6-14 cm. longis, 2-4 cm. latis, chartaceis, elongato-ellipticis vel lanceolatis, apice acuminatis, basi acutis vel obtusis, stipulis 2 mm. longis, petiolo 2-5 mm. longo; inflorescentiis masculinis amentiformibus, usque ad 4 mm. longis, dense imbricato-bracteatis, bracteis lanceolatis, acuminatis, pedicellis gracilibus 1-3 mm. longis, perianthi segmentis 2 mm. longis, antheris 3, connectivo producto; floribus femineis sessilibus, perianthi segmentis scariosis, elongato-ovatis, 2.5-3 mm. longis, ovario pubescenti.

A small tree, glabrous except the flowers, with very slender, terete, flexuous, few-leaved branchlets. Leaves 6-14 cm. long, 2-4 cm. broad; blades chartaceous, pale-green and shining above, yellowish or brown, and occasionally glaucous beneath, elongate-elliptic to lanceolate, apex acuminate, often curved toward the sharp tip, base acute to obtuse, rarely rounded, lateral nerves inconspicuous above, subprominent beneath, strongly arcuate, 5-7 on each side of the midrib, veinlets subprominent; stipules about 2 mm. long; petioles 2-5 mm. long. Male racemes ament-like, about 4 mm. long or less, densely imbricate-bracteate, the bracts lanceolate, acuminate; pedicels slender, 1-3 mm. long; perianth-segments about 2 mm. long, triangular-ovate, obtuse; staminal column scarcely 2 mm. long; anthers 3, the connective produced, 3-lobed (the lobes connivent). Female flowers sessile, 2-10 on very short axillary peduncles; perianth-segments brown, scarios, elongate-ovate, concave within, 2.5-3 mm. long; pistil cylindrical, the ovary fulvo-pubescent with ascending hairs, 3-celled (?), 6-ovulate; styler column obtuse. Capsules depressed-globose, about 5 mm. long, 11 mm. wide, 3-lobed, the lobes themselves obscurely 2-lobed near the base, the style and calyx subpersistent; seeds brown, subhemispheric, about 2 mm. long.

Fiji, Viti Levu, Rewa Province, slopes of Korombamba Mountain, altitude 150 meters, August 7, 1927, John W. Gillespie. Type no. 2169.

A common species on Viti Levu in Rewa, Naitasiri, and Namosi prov-

inces. Also represented by Parks no. 20593 (?); Gillespie nos. 2031, 2169, 2272, 2336, 2396, 2443, 2907, 3265, 3500, 3530. The densely bracteate ament-like form of the male inflorescences is similar to that of *Phyllanthus* (*Glochidion*) *amentuliger* Müller-Argau, but differs in such character as having leaves that are entirely glabrous and elongate-elliptic or lanceolate instead of ovate.

***Glochidion* (§ *Hemiglochidion*) *manono* Baillon⁵ (fig. 17).**

Glochidion manoun Baillon: Étude générale du groupe des Euphorbiacées, p. 637, 1858 (*nomen*).—Müller-Argau: Linnaea, vol. 32, p. 65, 1863.

Phyllanthus manono Müller-Argau, in DeCandolle's Prodrromus, vol. 15, pt. 2, p. 296, 1866.

An amplified description of this species, based on Fijian specimens, follows:

A small, glabrous tree with very dark, slender, flexuous branchlets. Leaves 7-11 cm. long, 3-5.5 cm. broad; blades dark-green and shining above, paler, atroglaucous beneath, thickly chartaceous, elliptic to oblong-ovate, apex acuminate, the tip very sharp, base generally obtuse or occasionally rounded, lateral nerves distinct above, very prominent beneath, arcuate, 6-9 on each side of the midrib, veinlets rather few but prominent; stipules ovate, about 2 mm. long; petioles 4-7 mm. long. Flowers of both sexes from the same leaf-axils. Racemes very small, short, bracteate; male flowers cupulate, about 2 mm. long and wide; pedicels slender, as much as 4 mm. long; perianth about 2 mm. long, the segments nearly equal, ovate, the outer segments carinate on the back near the base, the inner distinctly emarginate; staminal column 1.5 mm. long, the anthers (3) 1 mm. long, the connective produced, 3-lobed (the lobes connivent). Female flowers longer and narrower, the perianth similar to that of the male; pedicels rather stout, about 3 mm. long; ovary globose, glabrous, apparently 3-celled, the stylar column greatly exerted, clavate, often curved, as much as 5 mm. long, the apex toothed. Capsules depressed-globose, about 5 mm. long, 8 mm. wide, obscurely lobed; seeds about 4 mm. long, pointed, brown, longitudinally streaked and lined.

Represented by a specimen collected by the United States Exploring Expedition, without definite locality, and by Gillespie nos. 3161 and 3343, from Viti Levu, Namosi Province, summit of Naitarandamu Mountain, altitude 1,200 meters.

Whether or not these plants really belong to the Tahitian species can be determined only by study of material from that island which is not now available to me. The agreement with the original description is fairly close. The extraordinary development in the length of the stylar column is probably due to the parasitism of a fungus. Pycnidial stages of a rust are probably to be seen causing deformities on the perianth-lobes and pedicels of the female flowers, the aecidia of which are notably erumpent on the lower surfaces of the leaves.

⁵ The adoption of the corrected form of a specific name asserted by Müller-Argau to contain a typographic error seems justified by the fact that the original binomial is a *nomen nudum*, the species having been first described under the name *manono*.

Glochidion (§ Hemiglochidion) vitiense (Müller-Argau) Gillespie, combination nova (fig. 18).

Phyllanthus vitiensis Müller-Argau: Flora, vol. 48, p. 374, 1865; DeCandolle's Prodrromus, vol. 15, p. 290, 1866.

A much branched subglabrous shrub, the young parts often minutely puberulent, glabrescent; branchlets light-brown, very slender, terete, somewhat flexuous, the internodes 1.5-3 cm. long. Leaves very glabrous, 3.5-6 cm. long, 2-3.5 cm. broad; blades very thinly membranaceous, flexible and reddish when young, at maturity light-green and glaucous beneath, suborbicular to subcordate or broadly elliptic or obovate, apex rounded, minutely retuse, broadly rounded or somewhat narrowed toward the base, there sharply truncate or slightly retuse, lateral nerves very slender, nearly straight, curved toward the margin, subprominent beneath, 6-8 on each side of the midrib, veinlets distinct; stipules minutely puberulent, about 1 mm. long; petioles dark-brown, 1-2 mm. long. Flowers of both sexes glabrous, on capillary pedicels as much as 5 mm. long, several from very short bracteate peduncles, the bracts imbricate, puberulent. Perianth of male flowers about 2 mm. long, the outer segments ovate, about 1.6 mm. long, the inner whorl slightly smaller; staminal column about 0.8 mm. long, anthers 3, the connective produced, 3-lobed (the lobes connivent). Perianth of female flowers scarcely 1 mm. long, the segments obovate, obtuse, the margin ciliate near the base; pistil glabrous, conical, about 1.5 mm. long, the 6 lobes distinct at the apex; ovary 6-celled, 12-ovulate. Capsules obovoid, slightly depressed, apiculate, lightly 12-sulcate, about 4 mm. long, 7 mm. wide, the perianth persistent; seeds red-brown, triangular-ovoid, about 2 mm. long.

The resemblance between the specimen collected by the United States Exploring Expedition, preserved at the Gray Herbarium, and Gillespie no. 4411 (from Ovalau, vicinity of Levuka, altitude 200 meters) is so exact as to leave little doubt that they were collected near the same place. Advantage is taken of the recent more complete material to elucidate the floral parts of this little-known species.

MACARANGA Thouars

Macaranga sanguinea Gillespie, species nova (fig. 19).

Arbor parva, partibus junioribus fulvo-pubescentibus, glabrescentibus; ramulis levibus, succo sanguineo; laminis foliorum supra nitidis, chartaceis, 18-40 cm. longis, 6-19 cm. latis, subintegris vel obscure et remote denticulatis, subtriangularibus, apice obtusis vel longo-acuminatis, basi rotundatis, rariter subtruncatis, late peltatis, palmatinerviis; petiolo 15-23 cm. longo; stipulis ovato-lanceolatis, acuminatis, dense fulvo-pubescentibus, deciduis, usque ad 7 cm. longis; paniculis masculinis fere glabris e basi ramosis, bracteis spathulatis, 6 mm. longis, intus 2-5-patellari-glandulosis; paniculis femineis erectis, 6-9 cm. longis, bracteis parce pilosis extus dense granuloso-glandulosis intus 2-5-patellari-glandulosis, calyce 1 mm. longo, basi pubescenti, ovario 2-locellato, sparse papillato; fructibus sparse echinatis.

A small tree, the young parts fulvous-pubescent, glabrescent, a few scattered hairs often persistent on the petioles and leaf-blades beneath, especially on the midrib near the base; branchlets generally smooth, sparingly lenticellate, red-brown, with large pith, the juice reddish when fresh. Leaf-blades smooth and shining above, dull beneath, chartaceous, 18-40 cm. long, 6-19 cm. broad, subentire or obscurely and remotely denticulate, subtriangular, the base peltate (in young states epeltate), rounded, rarely subtruncate, palmate-nerved, obscurely lobed, the pinnate nerves 12-18 on each side of the midrib, veinlets subprominent, the areoles very thinly granulose-glandular beneath, the

lateral margins remarkably straight nearly the entire length of the leaf, apex obtuse to rather long-acuminate; petioles 15-23 cm. long; stipules ovate-lanceolate, acuminate, densely fulvous-pubescent, deciduous, up to 7 cm. long. Male panicles reddish, nearly glabrous, many-flowered, branching from the base, the branches long, slender, sublaev, somewhat pilose at the nodes, as much as 10 cm. long; bracts more or less spatulate, granulose-glandular without, as much as 6 mm. long, the expanded part bearing on the inside 2-5 large patelliform glands; calyx cupulate or vesicular, scarcely 1 mm. long, 2- or 3-lobed, the lobes acute and thinly granulose-glandular, especially near the margin; stamens generally 3, the filaments cylindric, the anthers 2-loculed. Female panicles reddish, nearly glabrous, rather many-flowered, erect, branching near the base, 6-9 cm. long, the rachis and rather short branches flattened and angular; bracts 4-5.5 mm. long, slightly pilose and densely granulose-glandular without, narrowed at the base to form a sort of petiole, the expanded part lanceolate, irregularly serrate, acuminate, bearing on the inside 2-5 large patelliform glands; calyx about 1 mm. long, about 3-lobed, pubescent at the base; ovary subglobose, somewhat compressed, 2-celled, thickly granulose-glandular and sparsely soft-papillate; styles about 1.5 mm. long, diverging, retrorse, strongly papillate on the stigmatose surfaces. Fruits black (by the very numerous shining glands), rather sparsely echinate, the spines more or less ascending, nearly 1 mm. long; seeds pale-yellow, subglobose or ovoid, about 4 mm. in diameter, the surface roughened but scarcely rugose.

Fiji, Viti Levu, Naitasiri Province, vicinity of Nasinu, 14 kilometers (9 miles) from Suva, altitude 150 meters, October 29, 1927, John W. Gillespie. Type no. 3625.4.

Also represented by Horne no. 1044; Parks no. 20143; Gillespie nos. 2040, 2087, 2092, 2271, 3566, 3567; all, unless the Horne specimen, from Naitasiri and Rewa provinces in Viti Levu, at altitudes up to 200 meters. With its papillate 2-celled ovary and 2-loculed anthers it can not be placed properly in any of the sections as defined by Pax and Hoffmann.⁶ Except for the armed ovary and more elongated leaves, it has a superficial resemblance to *M. seemannii* Müller-Argau.

PHYLLANTHUS Linnaeus

Phyllanthus (§ Gomphidium) pergracilis Gillespie, species nova (fig. 20).

Arbor parva glabra, ramulis pergracilibus, flexuosis; foliis subdistichis, 6-12 cm. longis, 3-8 cm. latis, supra nitidis, subtus pallidis, membranaceis vel tenuiter chartaceis, ovatis vel late ovatis, apice longiuscule acuminatis, basi late rotundatis, rariter subtruncatis, nervis lateralibus supra impressis, subtus conspicuis; petiolo 5-10 mm. longo; racemis masculinis amentiformibus, usque ad 6 mm. longis, imbricato-bracteatis, bracteis ovato-lanceolatis, pedicellis gracilibus, 1 cm. longis, floribus 2 mm. latis, staminibus 3, glandulis disci (3) 2-lobatis; floribus femineis quam masculinis brevioribus, pedicellis gracilibus, 1.8-3 cm. longis.

A small, glabrous tree with dark-brown, very slender, tapering, flexuous branchlets. Leaves more or less distichous, 6-12 cm. long, 3-8 cm. broad; blades green and shining above, paler beneath, membranaceous to thinly chartaceous, ovate to broadly ovate, apex rather long-acuminate, the tip rounded or sharp, base very broadly rounded, rarely subtruncate, lateral nerves slightly impressed, not at all prominent above but very much so beneath, 6-8 on each side of the midrib, the veinlets dark and very prominent against the paler parenchymatous areoles; stipules lanceolate, about 2 mm. long, rarely thinly bristly-haired; petioles dark-brown, 5-10 mm. long. Male racemes

⁶ Pax, F., and Hoffmann, K., in Engler's Das Pflanzenreich, IV, fam. 147, pt. 7, pp. 298-395, 1914.

imbricate-bracteate, ament-like, as much as 6 mm. long, bracts ovate-lanceolate, longer than broad; pedicels slender, as much as 1 cm. long; flowers 2 mm. wide; perianth-segments triangular-ovate, of nearly the same size, about 1.6 mm. long; stamens (3) about 1.2 mm. long, the 3 glands of the disc more or less 2-lobed (the cavities receiving the rounded bases of the anthers). Female flowers slightly shorter than the male, on slender, upwardly thickened pedicels 1.8-3 cm. long from the axils of very short bracteate cushions; lobes of the style divergent, reflexed, the stigmatose surfaces papillate. Capsules depressed-globose, about 3 mm. long, 7 mm. wide, shallowly 3-lobed; seeds pale-brown, 2 mm. long.

Fiji, Viti Levu, Naitasiri Province, Tamavua woods, 11 kilometers (7 miles) from Suva, altitude 150 meters, August 9, 1927, John W. Gillespie. Type no. 2122.

Related to *P. heterodoxus* Müller-Argau, but the leaves are acuminate at the apex, not rotund-obtuse. The drawings of the male flowers are from Gillespie no. 2424; the habit study, female flowers, and fruits from the type.

TILIACEAE

TRICHOSPERMUM Blume

Trichospermum calyculatum (Seemann) Burret (fig. 21).

Graeffea calyculata Seemann: Flora Vitiensis, p. 27, pl. 4, 1865.

Trichospermum calyculatum Burret: Notizblatt, vol. 9, p. 848, 1927.

The following description is based on more complete material than has hitherto been available:

A spreading tree of medium size, the leaves and branchlets of very robust appearance, the branchlets strongly compressed, flexuous, fulvous-hirsute when young, the bark easily peeling. Leaves 20-40 cm. long, 10-17 cm. broad; blades green, glabrescent and slightly scabrous above, whitish beneath by the persistent densely matted stellate tomentum, chartaceous, obscurely denticulate, apex subacuminate, base obtuse to rounded, strongly triplinerved, the pinnately arranged laterals about 5 on each side of the midrib; stipules pubescent, at first connate to form sheaths, as much as 2 cm. long, subsistent, at length splitting and often caducous or partly so; petioles tomentose, 3-5 cm. long. Inflorescences greatly extended, as much as 30 cm. long, the peduncles and branches long and persistently villous; bracts membranaceous, acute, often 4 mm. long, irregularly splitting but remaining more or less connate at the base; pedicels densely stellate-tomentose, stout, about 3 mm. long. Buds obovate; flowers stellate-tomentose externally (the hairs very closely adpressed); sepals oblong-spatulate, reflexed, about 10 mm. long, 3 mm. wide, thinly hairy internally; petals oblong, membranaceous, veiny, glabrous except the thickened base, about 7 mm. long, the apex rounded; stamens very numerous, the filaments slender 4-5 mm. long, the anthers small; pistil conic, pubescent, compressed, about 3 mm. long, the stigma capitate, the ovary strongly compressed. Fruits appressed-pubescent, 2-valved, fan-shaped to subcordate, about 15 mm. long, 20 mm. broad; seeds discoid, 3 mm. in diameter, with a small incision at one side, girdled by silky hairs about 3 mm. long.

Represented by Parks no. 20386; Gillespie, nos. 2082, 3514, from Viti Levu, in Naitasiri, Rewa, and Navua provinces. Although he had seen no specimens of this species, Burret correctly reduced the genus *Graeffea* to

Trichospermum, pointing out that the "outer calyx" of Seemann was composed merely of bracts in the young state, from which the pedicels had not yet lengthened out. But Burret's conjecture that *T. calyculatum* is a large-leaved form of *T. richii* (A. Gray) Seemann is not sustained by the material at hand, *T. calyculatum* having not only larger leaves but much more extended inflorescences, stouter peduncles and branches, and larger flowers; the fruits are smaller. I have not seen the type of *T. calyculatum*, a specimen collected by Graeffe. The plate in the *Flora Vitiensis* gives far too much emphasis to the stipules, which in the robust shoots of our material are relatively inconspicuous.

VIOLACEAE

MELICYTUS Forster

Melicytus fasciger Gillespie, species nova (fig. 22).

Arbor parva glabra, ramulis teretibus, gracilibus, canescentibus; foliis 5-12 cm. longis, 3-6.5 cm. latis, tenuiter chartaceis, late ellipticis vel obovatis, minute denticulatis (denticulis callosis) apice subacuminatis, basi acutiusculis, petiolo 5-9 mm. longo; fasciculis masculinis extra-axillaribus circiter 8-floris, pedicellis tenuissimis, laxis, 8-11 mm. longis; floribus 7 mm. longis, calyce late turbinato, 1.2 mm. longo et lato, lobis ad basin connatis, crenato-ciliatis, petalis lanceolatis, acuminatis, 7 mm. longis, antheris sessilibus, late ovatis, 1.2 mm. longis, connectivo breviter subulato; ceteris ignotis.

A small, glabrous tree, with terete, rather slender, gray branchlets, angled at the extremities. Leaves 5-12 cm. long, 3-6.5 cm. broad; blades pale-green, somewhat paler and yellowish beneath, thinly chartaceous, broadly elliptic to obovate, minutely denticulate with thickened teeth, apex subacuminate, base broadly acute, midrib yellowish, very prominent beneath, lateral nerves prominent, arcuate-ascending, about 8 on each side of the midrib, veinlets very numerous, finely reticulated; petioles 5-9 mm. long. Male fascicles borne on branches below the leaves or sometimes among the lower leaves, about 8-flowered; pedicels and flowers white, the pedicels very slender, lax, flattened, enlarged upwardly, 8-11 mm. long, the flowers about 7 mm. long; calyx broadly turbinate, about 1.2 mm. long and wide, the lobes united at their bases, crenate-ciliate; petals lanceolate, acuminate, about 7 mm. long, about 1 mm. wide at the broadened base; anthers broadly ovate, about 1.2 mm. long, sessile, the dorsal nectary scalelike, about half the length of the anther, the connective short-subulate, ovary rudimentary. Female flowers and fruits unknown.

Fiji, Viti Levu, Tholo North Province, Nandarivatu, on a high ridge-forest, altitude 1,200 meters, July, 1927, H. E. Parks. Type no. 20645.

Represented also by Gillespie no. 3851, from the same locality, a juvenile stage without flowers, the leaves being distinctly double-serrate with shortly spinose teeth. Although the material available is incomplete, it seems advisable to record the occurrence of another Fijian species of a genus whose center of development is New Zealand. Perhaps the specimen collected by Gibbs⁷ was this species instead of *M. ramiflorus* Forster, which has differently shaped flowers.

⁷ Gibbs, L. S., *Linnean Soc., London, Botany, Jour.*, vol. 39, p. 140, 1909.

THYMELAEACEAE

PHALERIA W. Jack

Phaleria pulchra Gillespie, species nova (fig. 23).

Frutex erectus floribus exceptis glaber, ramulis flexilibus; foliis 7.5-10 cm. longis, 2.3-3 cm. latis, crasse chartaceis, utrinque nitidis, oblongis vel oblongo-lanceolatis ad apicem acutum gradatim angustatis, basi rotundatis vel leviter cordatis, petiolo 1 mm. longo; inflorescentiis in axillis superioribus, circiter 5-floris; bracteis floralibus late ovatis obtuse acuminatis, 11 mm. diametro; floribus rubidis, perianthi tubo extus glabro, intus hirsuto, infundibuliformi, 3 cm. longo, lobis (4) 6 mm. longis, acutis staminibus (8) 3 mm. longis, squamis faucialibus parvis, ovatis; stigmatibus clavato.

An erect shrub, glabrous except the flowers; branchlets grayish to black, flexible but tough, terete, slender and more or less compressed at the extremities, the bark peeling. Leaves 7.5-10 cm. long, 2.3-3 cm. broad; blades thickly chartaceous, almost rigid when dry, shining on both surfaces, oblong to oblong-lanceolate, gradually narrowed to the acute apex, base rounded or slightly cordate, lateral nerves subprominent on both sides, 7-10 on each side of the midrib, veinlets indistinct; petioles stout, 1 mm. long. Inflorescences in the uppermost axils, about 5-flowered; peduncles 1-1.5 mm. long, bearing a few pairs of linear bracts about 6 mm. in length or less, the floral bracts green, broadly ovate, obtusely acuminate, the base rounded, about 11 mm. in diameter. Flowers red; perianth glabrous without, hairy within, the tube funnelliform, about 3 cm. long, the lobes (4) about 6 mm. long, acute, slightly oblique; stamens (8) about 3 mm. long, the oblong anthers somewhat shorter than the filaments, attached at the base, the upper 4 slightly exerted; scales small, ovate; ovary ovoid, about 2 mm. long, the style nearly 3 cm. long, the stigma clavate.

Fiji, Viti Levu, Naitasiri Province, Tamavua woods, 11 kilometers (7 miles) from Suva, altitude 150 meters, August 9, 1927, John W. Gillespie. Type no. 2141.

RHIZOPHORACEAE

HAPLOPETALON A. Gray

Haplopetalon parksii Gillespie, species nova (fig. 24).

Arbor parva, partibus junioribus pubescentibus; foliis paucis supra nitidis, subtus fulvo-hirsutulis, 6-9 cm. longis, 2-3.3 cm. latis, chartaceis, rigidis, lanceolatis vel oblongo-ellipticis, integris vel obscure dentatis, apice breviter acuminatis, basi rotundatis sed cuneatim decurrentibus; petiolis pubescentibus; stipulis 12 mm. longis dense fulvo-pubescentibus; pedunculo glabro, crassiusculo, 5 mm. longo, 1-3-floro, pedicellis tenuibus, sparse hirsutis, circiter 5 mm. longis; calyce campanulato-turbinato, 5 mm. lato, tubo 1 mm. longo, lobis crassis, ovato-triangularibus, valde reflexis; petalis 3 mm. longis, unguiculatis; ovario semi-inferiori, parte superiori hirsuto, stylo crasso, lobis 4 cruciatis elongatis stigmatosis; staminibus 12; fructibus ovoideo-cylindraceis, 12 mm. longis.

A small tree, the young parts and leaves beneath fulvous-pubescent; branchlets rather slender, nodulose, at first compressed, becoming terete. Leaves few, 6-9 cm. long, 2-3.3 cm. broad; blades shining and glabrous above, fulvous beneath, thickly chartaceous, rigid when dry, lanceolate to oblong-elliptic, entire or very obscurely toothed above the middle, apex shortly acuminate, the tip rounded, base rounded, sharply decurrent, midrib prominent, lateral nerves (about 8 on each side of the midrib) and the few veinlets obscure above, prominent beneath; petioles pubescent, 7-10 mm. long; stipules about 12 mm. long, very densely pubescent with pale-tan hairs.

Peduncles axillary, glabrous, moderately stout, about 5 mm. long, 1-3-flowered, equaling or somewhat exceeded by the slender sparsely hairy pedicels. Calyx campanulate-turbinate, about 5 mm. wide at the top, the tube about 1 mm. long, the lobes thick, ovate-triangular, strongly reflexed; petals (4) caducous, about 3 mm. long, unguiculate, the claw narrow, equaling the ovate expanded part; ovary semi-inferior, the superior part tawny-hirsute, style short, cylindrical, with 4 cruciate-spreading, elongate, stigmatose lobes; stamens 12, the anthers ovate, the filaments 1 mm. long. Fruits ovoid-cylindric, about 12 mm. long, apiculate by the very short persistent cleft style, 4- or 5-striate, splitting from the truncate base into 4 or 5 rather thin fleshy valves, the thin calyx-lobes persistent and reflexed. Seeds ovoid, apiculate at the funicular end, 4 mm. long, the testa thin, brown, sculptured; embryo green, elongate-clavate, embedded in the oily endosperm.

Fiji, Viti Levu, Tholo North Province, vicinity of Nandarivatu, summit of Loma Langa Mountain, altitude 1,250 meters, November 16, 1927, John W. Gillespie. Type no. 3802.

Also represented by Parks no. 20775 from the same locality. Named in honor of Mr. H. E. Parks, who has probably collected more specimens of *Haplopetalon* than any other individual.

Haplopetalon seemanni A. Gray (fig. 25).

Haplopetalon seemanni A. Gray: Am. Acad. Arts and Sci., Proc., vol. 5, p. 318, 1861.

The short original characterization of this species, copied by later authors without additional information, is as follows:

"A. H. Richii differt foliis majoribus obovatis subtus cum ramis novellis molliter pubescentibus; alabastris hirsutis; calycis segmentis petalisque saepius 5; styli lobis 7."—A. Gray.

A small tree, the young parts, inflorescences, and leaves beneath softly pubescent; branchlets rather stout, with conspicuous nodes about 1.5 cm. (or more) apart. Leaves 11-20 cm. long, 5-11 cm. broad; blades bright-green and shining above, yellowish beneath (the pubescence also of tawny hue), chartaceous, broadly elliptic to obovate, irregularly undulate-serrulate in the apical part, the apex obtuse to rounded, rarely subacuminate, base acute to obtuse, lateral nerves prominent, about 12 on each side of the midrib; petioles stout, pubescent, 1.5-3.5 cm. long; stipules tawny-pubescent, 1.5-2.5 cm. long. Flowers in simple subsessile axillary and lateral fascicles, at first enclosed by an involucre of caducous scales. Pedicels stout, hispid, about 5 mm. long; calyx rotate, 6-7 mm. wide, canescent-puberulent without and on the upper third within, 4-, 5-, or 6-parted, the lobes about 3 mm. long, subtriangular, shortly acuminate, their tips thickened and hispidulous; petals reddish, early deciduous, about 3 mm. long, glabrous within, puberulent without especially on the midnerve and at the apex, unguiculate, the claw narrow, about equaling in length the ovate expanded part; stamens 4 times as many as the petals, inserted within the margin of the short squared or quinquelateral disc, the filaments very short, all equal or nearly so; anthers ovate, about 0.5 mm. long; pistil densely hirsute, conical, the top somewhat elongated, the style stout, capitate with 5-7 oblong, glabrous, retrorse, stigmatose lobes. Fruits (Gillespie no. 3504) fleshy, greenish, pubescent or glabrescent, ovoid, about 9 mm. long, 6 mm. thick, 6- or 7-striate, the apex produced into the persistent style, the base truncate, rising from the woody disc; sepals persistent, woody, retrorse, and strongly costate. Seeds 10-14, embedded in a thin pulp (aril ?), hard, black, ovoid, about 3 mm. long, the upper end shortly apiculate, the testa sculptured, the embryo elongate, green, slightly curved, embedded in the soft, very oily endosperm.

Represented by Seemann no. 184 (type, in the Gray Herbarium), from Kandavu; Parks nos. 20161, 20164, 20253, 20374; Gillespie nos. 2072, 2627, 3020, 3463, 3504. All recent collections are from Viti Levu in Rewa, Naitasiri, and Namosi provinces, where it is common from sea level to an elevation of 500 meters. Parks collected a fine series of this species from the vicinity of Namosi; from his no. 20374 figure 25 was drawn. Native name: *wai ni mara*.

ALANGIACEAE

ALANGIUM Lamarck

Alangium vitiense (A. Gray) Baillon (fig. 26).

Rhytidandra vitiensis A. Gray: U. S. Expl. Exped., Botany, Phanerogamia, vol. 1, p. 303, pl. 28, 1854.

Alangium vitiense Baillon ex Harms: Engler and Prantl, Die natürlichen Pflanzenfamilien, Teil 3, Abt. 8, p. 262, 1898.

A small, unarmed tree, the young parts and inflorescences cinereous-puberulent; branchlets subterete, somewhat flexuose, the nodes 2-4 cm. apart. Leaves 7-20 cm. long, 5-9 cm. broad; blades thinly chartaceous, dull-green and glabrous above, somewhat paler and often thinly and minutely puberulent or glabrous beneath, oblong-elliptic to ovate, apex obtuse or shortly acuminate, base rounded, very shortly decurrent and always inequilateral, lateral nerves pinnate, prominent, 6-8 on each side of the midrib, reticulations minute; petioles cinereous-puberulent, 1-2 cm. long. Cymes axillary and terminal, 3-5 cm. long, few-flowered; peduncles stout, irregularly angled and compressed, about 2 cm. long. Flowers yellowish, sessile or short-pedicellate, cinereous-silky externally; calyx cupulate, about 4 mm. long, the limb short, obscurely toothed; petals most often 6 or 7, elongate, about 10 mm. long, 15 mm. wide at the base, glabrous within, recurved; stamens as many as the petals, about 12 mm. long, the filaments (about 2 mm. long) pubescent ventrally, the anthers elongate, slender; style about 4 mm. long, the lobes about 1 mm. long. Fruits green, ellipsoid, about 16 mm. long, 12 mm. thick, the exocarp soft, the endocarp very hard, bony, shallowly pitted; seeds compressed, ovate, with thin testa and oily albumen, the embryo large.

The original description of *A. vitiense* was based on a single specimen with unexpanded flowers. It was said to be "glabrous, or the young parts more or less cinereo-puberulent." An Australian plant described by F. Müller⁸ as *Pseudalangium polyosmoides* was stated to have "young parts sericeous . . . corolla united below the middle." Bentham⁹ referred both to the same species, using the earlier specific name; but is clear that the description applied principally to the Australian plants: "leaves slightly puberulent in the normal form . . . petals connected by the stamens up to from $\frac{1}{4}$ to $\frac{1}{2}$ their length," although in var. *tomentosa* Bentham were found "petals more deeply free than usual." Wangerin,¹⁰ still knowing little of

⁸ Müller, F., *Fragmenta phytographiae Australiae*, vol. 2, p. 84, 1860.

⁹ Bentham, G., *Flora australiensis*, vol. 3, p. 386, 1866.

¹⁰ Wangerin, W., in Engler's *Das Pflanzenreich*, IV, fam. 220b, p. 19, 1910.

the Fijian plants, which must be held typical of the species, made no changes in the status of this series of plants as previously understood.

The present description and the illustration (fig. 26) are made entirely from a fine suite of Fijian specimens which fully accord with the type collection, Gillespie nos. 2822, 2836, 3047, 4756, 4787, from Viti Levu and Tavuni. They emphasize the glabrous character of the plant as a whole, such hairs as are present on leaves and stems being sparse and minute. In expanded corollas the petals are free entirely from the base. From these characters it seems certain that none of the fulvo-pubescent forms of Australia (or Java) with corollas united at the base, can be properly referred to *Alangium vitiense*. Native names: *kau ni sau*, *ai oola ni sali*.

ARALIACEAE

HEPTAPLEURUM Gaertner

Heptapleurum vitiense (Seemann) Bentham et Hooker f. ex Drake (fig. 27).

Agalma vitiensis Seemann: Flora Vitiensis, p. 116. 1865.

Heptapleurum vitiense Bentham et Hooker f. ex. Drake: Illustrationes florae insularum maris Pacifici, p. 183, 1890.

The original description of this plant, drawn up from a specimen collected by Graeffe, is as follows:

"Glabra; foliis digitatim 4-5- rarissime 1-foliolatis, foliolis obovato-oblongis obtusis in petiolum attenuatis integerrimis penninerviis, nervis horizontaliter divaricatis; floribus in umbellas pauci-(3-7-) floras dispositas; ovario 5-loculari."—Seemann.

A small, glabrous tree with slender, unbranched trunk, the twigs gray, about 1 cm. thick shortly below the extremities, the crescent-shaped leaf-scars large and conspicuous. Leaves clustered at the ends of the twigs, digitate, the stout petioles 9-17 cm. long, broadened at the base into lamellate clasping stipules, the ligule entire, about 3 mm. long; leaflets 3 to 5, rarely 1, 8-13 cm. long, 3-7 cm. broad; blades dull-green on both surfaces or paler beneath, thick, coriaceous, rigid when dry, obovate to broadly elliptic, apex obtuse, rounded, or retuse, base broadly obtuse, sharply decurrent, lateral nerves about 30 pairs, equally obscure on both surfaces, lightly impressed above; petiolules about 3 cm. long. Inflorescences equaling the petioles; peduncles axillary, stout, about 4 cm. long; primary rays few, diverging, the ultimate rays (pedicels) about 8 mm. long. Flowers about 10 in each umbellet; calyx cupulate, about 4 mm. wide at the top, subtruncate or obscurely lobed; petals (5) triangular-ovate, thick, the apex slightly cucullate, as is common in the genus, about 3.3 mm. long, 2 mm. broad; anthers large, ovate, the filaments broad at the base, upwardly narrowed; ovary semisuperior, the top extending slightly above the calyx; style stout, cylindrical, about 1.4 mm. long, the stigma not at all capitate. Fruits few in each umbellet, green (probably black at maturity), ellipsoid, about 15 mm. long (including the persistent style), 10 mm. wide, 5-7-ribbed when dry, the annulus, or line marking the base of the free part of the ovary, conspicuous, about 7 mm. in diameter.

Represented by Gillespie no. 2357 (Viti Levu, Rewa Province, Korom-bamba Mountain, altitude 400 meters) and 2668 (Viti Levu, Namosi Province, Voma Mountain, altitude 800 meters). The length of the inferior part of the ovary varies in different flowers, which might indicate a difference in degree of fertility, but I was not able to make out the detail structure of the ovary nor to examine the ovules.

LOGANIACEAE

GENIOSTOMA Forster

Geniostoma macrophyllum Gillespie, species nova (fig. 28).

Arbor glabra, ramulis sursum compressis 1 cm. crassis, cicatricibus magnis instructis; foliis in siccitatem nigrescentibus, 25-50 cm. longis, 10-25 cm. latis, tenuiter chartaceis, ellipticis vel ovatis, apice obtusis vel rotundatis, basi attenuatis, petiolo plus minusque alato, stipulis vaginantibus cymis caulinis sublaxis multifloris, usque ad 10 cm. longis, pedunculo crasso, ligneo, usque ad 3 cm. longo, dichotome furcato, pedicellis crassis; calyce cupulato 2 mm. lato, lobis deltoideis, ciliatis, corolla subcylindrica, 2.6 mm. longa, intus dense hirsuta, lobis triangulari-ovatis, crenato-ciliatis, antheris ad basin versus hispidis, ovario hirsuto, stigmatibus capitato, dense echinato-papillato; fructibus ellipsoideis 8 mm. longis.

A small, subglabrous tree, with stout branchlets compressed at the extremities, about 1 cm. thick, becoming terete; leaf-scars very large. Leaves glabrous, blackening in drying, 25-50 cm. long, 10-25 cm. broad; blades thinly chartaceous, elliptic to ovate, apex obtuse to rounded, base produced along the edges of the stout petiole (as much as 5 cm. long), sometimes forming broad wings along its entire length, those of opposite pairs joining to form prominent sheathing stipules, lateral nerves prominent, about 20 on each side of the midrib, veinlets subprominent. Cymes cauline, sublax, many-flowered, as much as 10 cm. long; peduncles stout, woody, as much as 3 cm. long to the first repeatedly dichotomous-forking branches; pedicels stout, the bracteoles ovate, thick at the base, the margin thin, ciliolate. Calyx cupulate, about 2 mm. wide, divided about to the middle, the lobes deltoid, obscurely 5-nerved, stellate-spreading in age, the margin ciliolate, corolla subcylindric, about 2.6 mm. long, divided to the middle, the tube hirsute within nearly to the base, the lobes triangular-ovate, 3-nerved, stellately spreading in age, the margins crenate-ciliolate; stamens about 0.8 mm. long, the anthers ovoid, bristly in the lower part, the connective slightly produced; ovary depressed, about 1.2 mm. wide, densely hirsute on the upper part with ascending hairs; style cylindrical; stigma capitate, depressed-globose, densely echinate-papillate. Fruits black, ellipsoid, apiculate, about 8 mm. long, the calyx persistent; seeds rather numerous.

Fiji, Viti Levu, Naitasiri Province, vicinity of Nasinu, 14 kilometers (9 miles) from Suva, altitude 150 meters, October 29, 1927, John W. Gillespie. Type no. 3638.

Also represented by Parks nos. 20317, 20461, 20870; Gillespie nos. 2109, 2297, 3638, 4449; from Viti Levu and Ovalau. Amply distinguished from other Polynesian species by the very large size of the leaves.

APOCYNACEAE

ALYXIA R. Brown

Alyxia bracteolosa Rich ex A. Gray (fig. 29).

Alyxia bracteolosa Rich ex A. Gray: Am. Acad. Arts and Sci., Proc., vol. 5, p. 332, 1862 (including varieties *macrocarpa*, *angustifolia*, and *parvifolia*).

A study of the Fijian species of *Alyxia*, incident to the preparation of a proposed flora of the archipelago, showed that the characters of this variable species are too poorly known. A more extended description than has yet appeared follows.

A scandent shrub, glabrous except the flowers, the branchlets slender, angled at the extremities, becoming terete, pale-gray, thinly lenticellate. Leaves generally in threes, but also in twos and fours, 3-15 cm. long, 1.2-3.5 cm. broad; blades green and shining above, dull and yellowish or brown beneath, chartaceous, elongate-oblong or sometimes narrowly elliptic or spatulate, apex obtuse to acuminate or subcaudate, the tip rounded, often shallowly retuse, base acute, midrib channeled above, prominent beneath, lateral nerves entirely obscure (especially in the narrow-leaved forms) or moderately conspicuous, then numerous, occasionally forking, emerging nearly at right angles with the midrib; an inframarginal nerve is sometimes to be seen; petioles 6-12 mm. long. Cymes axillary, contracted, few-flowered; peduncles about 1 cm. long, the short branches and the short pedicels imbricated with pairs of bracteoles; these are thick, triangular-ovate, appressed, ciliolate, and carinate on the back. Calyx about 4 mm. long, the lobes erect, ciliolate; corolla yellow, the tube narrow, about 12 mm. long, thinly pilose within in the upper portion, the lobes ovate, about 3 mm. long. Stamens slightly exerted; anthers cordate-lanceolate, about 1 mm. long; filaments very short. Ovary glabrous, as is the small disc; style slender, about 10 mm. long; stigma small, capitate. Drupes simple, ellipsoid to subglobose, about 2 cm. in diameter, the stipe about 2 mm. long.

The Samoan islands, especially Tutuila, is properly considered the type locality for this very variable species, for it is clear that of the four or five sheets collected by the U. S. Exploring Expedition and preserved at the Gray Herbarium, the original description, especially as regards floral characters, refers to the specimen from Samoa, a flower of which is represented in fig. 29, *c*. The leaves of this specimen are about 6 cm. long and 2.7 cm. broad. The same species, with leaves up to 15 cm. long, is represented by Graeffe nos. 230 and 1470. A parallel series of leaf-forms is exhibited by the Fijian material at hand, especially of the large-leaved variety (Gillespie no. 4752, from Taviuni, the subject of fig. 29); there also is found a form with leaves scarcely 15 mm. broad (var. *angustifolia* Gray), represented by Seemann no. 310 and Gillespie no. 3978; and one with leaves about 5 cm. long (var. *parvifolia* Gray). All have bracteolate pedicels, by this amply distinguished from other Polynesian species.

ACANTHACEAE

CALOPHANES D. Don

Calophanes repandus (A. Gray) Bentham et Hooker f. (fig. 30).

Chaetacanthus repandus A. Gray: Am. Acad. Arts and Sci., Proc., vol. 5, p. 349, 1861.

Calophanes repandus Bentham et Hooker f. ex Drake: Illustrationes florae insularum maris Pacifici, p. 257, 1892.

The short original description of this species follows:

"Glaber, elatus (fruticosus?); foliis ovato-lanceolatis seu oblongis acumine obtuso repandis sinuatisve membranaceis; pedunculis cymoso-paucifloris; corolla extus calyceque minutim pubescentibus."—A. Gray.

A low delicate shrub of much branched habit, glabrous except the flowers; branchlets slender, smooth, terete, zigzag, with straight internodes. Leaves 2.5-8 cm. long, 0.8-1.8 cm. broad; blades membranaceous to thinly chartaceous, dark-green above, somewhat paler beneath, narrowly elliptic to lanceolate or oblong-lanceolate, distantly and irregularly repand-undulate, narrowed toward the apex, the tip rounded, base acute, lateral nerves indistinct above, subprominent beneath, about 5 on each side of the midrib, veinlets obscure; petioles slender, 3-15 mm. long. Flowers inconspicuous, solitary or in few-flowered axillary cymes, the pedicels slender, hispidulous, up to 3 mm. long; bracts lanceolate, hispidulous, about 1.5 mm. long; calyx about 3 mm. long, thinly hispidulous without, the lobes linear-lanceolate, acuminate, about 2 mm. long; corolla slightly curved, funnellform, thinly incanescent-puberulent without, arachnose at the throat, pale-pink, 7-9 mm. long, the lobes nearly equal, slightly imbricated in aestivation, oblong-ovate, 2-3 mm. long, rounded at the apex, conspicuously nerved; stamens (2) about 2.5 mm. long, the anthers about 1 mm. long, didymous, oblong, the connective broadly lanceolate, the filaments flattened and slender; pollen grains perfectly globose, minutely verrucose with 5-8 protruding knobs; ovary glabrous, ovoid, about 1 mm. long, surrounded at the base by a small cylindrical disc; style slender, about 6 mm. long, thinly hispidulous on the proximal half; stigma minutely lobed. Capsules minutely puberulent, woody, clavate, pointed at the apex, about 1 cm. long, the jaculators hooklike; seeds (apparently 2 in each of the 2 diverging valves) discoid, about 1 mm. in diameter.

I am unable to place this very obscure plant with certainty in Lindau's¹¹ system. The corolla is imbricated in aestivation, although lightly so, and the pollen grains are perfectly globose—characters which do not lead to any reasonable disposition in the system. I retain it under the last published name until its true congeners may become known. Graeffe (December, 1864), Horne no. 238, Gillespie no. 4443, are conspecific with the collection of the United States Exploring Expedition, all, unless the Horne specimen, coming from the island of Ovalau.

RUBIACEAE

ABRAMSIA Gillespie, genus novum

Calycis tubus subcylindræus, limbo brevi chartaceo 5-dentato. Corollæ tubus cylindræus, fauce nuda, lobis 5 ovatis, obliquis, patulis, quam tubo longioribus et cum

¹¹ Lindau, G., in Engler and Prantl's Die natürlichen Pflanzenfamilien, Teil 4, Abt. 3b, Acanthaceae, pp. 274-354, 1895.

calycis dentibus alternantibus, contortis. Stamina 5, fauci corollae inserta, filamentis brevibus; antherae oblongae, basifixae. Discus carnosus, elevatus. Ovarium 2-loculare; stylus brevis, glaber, ramis 2 crassis; ovula in loculis solitaria ab apice pendula, clavata. Fructus carnosus, ovoideus, in siccitate longitudinaliter constrictus, calyce persistente. Semina 2, clavato-cylindracea, albumine aequabili, coriaceo; embryo magnus, rectus, cotyledonibus late ovatis radiculam teretem aequantibus. Arbor vel frutex. Folia opposita, petiolata. Stipulae interpetiolares, caducae. Flores in cymis terminalibus et lateralibus dispositi.

In habit, in form of leaves and inflorescences, in shape and size of the flowers and fruits, in the 2-celled ovary (the cells uniovulate), the single species of *Abramsia* resembles many Fijian representatives of *Psychotria*. It is realized that the difference between valvate and contorted (twisted) aestivation of the corolla lobes is not always a safe guide in separating groups, but in this material the corollas are without exception so strongly contorted as to cause doubts of its being a *Psychotria*. These doubts are confirmed by the ovules (and seeds), which are not erect and ascending from the base as in the Psychotriaceae, but pendulous, attached to the cross-wall at or very near the top of the cells.

Uniovulate forms with contorted imbrication were placed by Hooker¹² in the genus *Webera* Shreber, section *Pseudixora*, a group which (as to Philippine species) Merrill¹³ places under *Pavetta* Linnaeus. These plants differ strongly from the ones under consideration in having, for the most part, salverform corollas, with narrow corolla-tubes in proportion to their length, long-exserted styles, and, especially significant, ovules (and seeds) peltately attached to the cross-wall of the ovary, the seeds becoming hemispheric or plano- or concave-convex, often embedded in a thin endocarp. Contrasting characters of *Abramsia* are: short, broad corolla-tubes, shortly exserted styles, ovules (pendulous) attached at the top of the cell, seeds distinctly clavate, the larger end at the base of the cell, not at all embedded in a placenta.

Schumann's¹⁴ interpretation of *Stylocoryne* emphasizes the fact that seeds are embedded in a placenta. Furthermore, in all the species considered except *S. wallichii* (Hooker f.) K. Schumann (with peltate ovules) of Schumann's section *Microsiphonia*, the tube of the corolla greatly exceeds the lobes.

Valeton¹⁵ includes 1- to several-ovulate forms in *Tarenna* Gaertner, but it is clear that his section Pauciovulatae is made up of *Ixora*-like plants: thus *Tarenna zippeliana* (Miquel) Valeton has "ovulum singulum . . . placentae immersa"; *T. warburgiana* Valeton, with "Samen halbkugelig";

¹² Hooker, J. D., The flora of British India, vol. 3, p. 101, 1880.

¹³ Merrill, E. D., Studies on Philippine Rubiaceae: Philippine Jour. Sci., vol. 17, p. 474, 1920.

¹⁴ Schumann, K., in Engler and Prantl's Die natürlichen Pflanzenfamilien, Teil 4, Abt. 4, p. 107, 1897.

¹⁵ Valeton, T., Nova Guinea, vol. 14, 1924.

T. gülcherianus, "ovula medio dissepimento peltatim adnata." No congeners of *Abramsia* are to be found in this group.

The characters of the genus *Abramsia* are known singly among several genera of somewhat varying degree of affinity in the Rubiaceae; its nearest relatives are probably among the Ixoreae.

The genus is named in honor of Professor LeRoy Abrams, Curator of the Dudley Herbarium of Stanford University, my esteemed friend, advisor, and former teacher.

***Abramsia trichotoma* Gillespie, species nova (fig. 31).**

Arbor parva subglabra; foliis 10-25 cm. longis, 4.5-10 cm. latis, tenuiter chartaceis, flavido-viridibus, ellipticis vel ovatis vel obovatis, utrinque acuminatis, petiolis gracilibus usque ad 7 cm. longis; inflorescentiis multifloris, trichotome ramosis; calyce sparse puberulo obtuse 5-dentato, corollae tubo 1.5 mm. longo, lobis 2.7 mm. longis, ovatis, obliquis; fructibus subglobosis vel ellipsoideis, 2 cm. longis, 1.4 cm. crassis, calycis dentibus persistentibus coronatis.

A shrub or small tree, subglabrous, with glabrous, terete, and very smooth twigs. Leaves 10-25 cm. long, 4.5-10 cm. broad; blades thinly chartaceous, very glabrous, yellowish-green on both sides, elliptic to ovate or obovate, apex acuminate, rarely shortly caudate, base acuminate, decurrent, lateral nerves prominent, about 7 on each side of the midrib, veinlets subprominent; petioles slender, as much as 7 cm. long; stipules somewhat ciliate. Inflorescences lateral and terminal (more commonly terminal), many-flowered, about a third as long as the leaves; peduncles 1-3 cm. long, several times trichotomously branched; pedicels slender. Calyx subcylindric, minutely and sparsely puberulent without, 3-4 mm. long, 1-2 mm. wide, the limb 0.5 mm. long, obtusely 5-toothed; corolla thick, almost fleshy, pale-yellow, entirely glabrous, 6 mm. in diameter across the expanded lobes, the tube 1.5 mm. long, cylindric, the lobes (5) strongly contorted in bud, about 2.7 mm. long, 2 mm. broad, ovate, apex obtuse, slightly oblique; ovary slightly enlarged, 2.5 mm. long, the disc elevated; style stout, about 2 mm. long, lobes (2) fleshy, flattened; anthers oblong, 1 mm. long, exceeding the filaments. Fruits soft, pale-yellow or whitish, subglobose or ellipsoid, produced at the apex and crowned by the minute calyx-teeth, about 2 cm. long, 1.4 cm. thick, much smaller when dry, with a marked longitudinal constriction between the 2 very hard locules of the ovary.

Fiji, Viti Levu, Naitasiri Province, vicinity of Nasinu, 14 kilometers (9 miles) from Suva, altitude 150 meters, October 22, 1927, John W. Gillespie. Type no. 3388.

Also represented by Parks nos. 20275, 20577; Gillespie nos. 2652, 3315, 3686, 4065, 4364, from Viti Levu, in Rewa, Namosi, and Tholo North provinces, where it is common. The high-mountain specimens, from Voma, Naitarandamu, and Loma Langa peaks, have larger leaves and more ample inflorescences than the coastal form represented by the type.

GUETTARDA Linnaeus

***Guettarda inconspicua* Seemann (fig. 32).**

Guettarda inconspicua Seeman: Flora Vitiensis, p. 131, 1866.

Guettarda (?) *vitiensis* A. Gray, in Gray Herbarium (name published without description by Seemann in Flora Vitiensis, 1866).

The original description of this species is as follows:

"Fruticosa; ramulis petiolis pedunculisque fusco-hirsutis; foliis ovatis acuminatis, supra glabriusculis, subtus adpresse pubescentibus; pedunculis dichotomis, ramis 5-6-floris; calycibus dentatis pubescentibus; corolla (teste J. Storck rubescente-violacea) extus albo-sericea; drupa 4-loculari."

A tree of medium size, the young parts adpressed-pubescent; branchlets fulvo-pubescent and compressed at the extremities, becoming terete, glabrous, slender, black, white-dotted, the nodes about 1 cm. apart, the leaf-scars white, between semicircular and circular, prominent. Leaves clustered at the ends of the twigs, 3-8 cm. long, 2-3.5 cm. broad; blades glabrescent, dark-green above, paler, thinly pilose beneath, elliptic to ovate, apex acuminate, very sharply pointed, base obtuse to rounded, lateral nerves 6-8 on each side of the midrib, veinlets faint; stipules lanceolate, pubescent, 4 mm. long; petioles 4-10 mm. long. Cymes thinly adpressed-pubescent, 3-6 cm. long, about 12-flowered; peduncles and branches lax, filiform; bracts linear-subulate, deciduous, about 2 mm. long; pedicels 0-2 mm. long. Flowers about 5 mm. long, thinly albedo-pubescent externally; calyx 1.5 mm. long, evidently toothed, the limb equaling the ovary in length; corolla salverform, the lobes (imbricate) short, rounded; style cylindric, about 3 mm. long, shortly bifid at the apex; anthers slightly exerted, about 2.2 mm. long, attached near the middle by a very short filament. Fruits black, glabrescent, ellipsoid, 4- or 5-celled, slightly 4-sided and bony when dry, the style persistent.

The name *Guettarda* (?) *vitiensis* A. Gray is found on a herbarium sheet collected by the United States Exploring Expedition and preserved in the Gray Herbarium, but never published by its author, although Seemann included it, without description, in the *Flora Vitiensis*. The specimen so named is the same as Storck no. 893, the type of *Guettarda inconspicua* Seemann, a published species, and is mounted on the same sheet with it. Other specimens of this species are Horne nos. 385 and 401, from Fiji, and Whitmee, without number, from Samoa. Although strongly resembling *Timonius*, the imbricate lobes of the corolla place this plant in *Guettarda*.

PSYCHOTRIA Linnaeus

Psychotria caldwelli Gillespie, species nova (fig. 33).

Arbor parva glabra, ramulis gracilibus; foliis 7-12 cm. longis, 1.7-3 cm. latis, chartaceis, oblongis vel oblongo-ellipticis, apice subacuminatis, basi acuminatis, nervis primariis utrinque 9-12, perspicuis, secundariis paucis, indistinctis; petiolo 5-15 mm. longo; inflorescentiis terminalibus; pedunculis circiter 5, tenuissimis, sublaxis, 3-5-floris; pedicellis brevibus, divaricatis; floribus inconspicuis, calyce 2 mm. longo, subtruncato; corolla 3 mm. longa, antheris exertis, stylo clavato; fructibus globosis, 1 cm. diametro; seminibus intus planis, extus tricostatis, albumine aequabili.

A small tree, glabrous throughout, with slender, terete twigs. Leaves 7-12 cm. long, 1.7-3 cm. broad; blades dull-green above and beneath, chartaceous, oblong to oblong-elliptic or very slightly obovate, apex subacuminate, the tip rounded, base acuminate, lateral nerves 9-12 on each side of the midrib, prominent above and beneath, somewhat arcuate toward the extremities, veinlets few and indistinct; petioles 0.5-1.5 cm. long. Inflorescences terminal; peduncles about 5, very slender, almost filiform, somewhat lax, 1-1.5 cm. long, 3-5-flowered; pedicels 2-3 mm. long, divaricate. Flowers inconspicuous; calyx turbinate, about 2 mm. long, subtruncate with generally 5, short, abruptly acuminate lobes; corolla-tube subcylindric, about 2 mm. long, 1 mm. thick, the lobes often 1.5 mm. long, acute, spreading or reflexed; anthers oblong-ovate, about 0.8 mm. long, exerted, equaling the slender filaments; disc slightly elevated; style clavate,

about 1.5 mm. long, the lobes short and thick. Fruits orange to red, globose, about 1 cm. in diameter, crowned by the persistent calyx-limb; seeds shield-shaped, plane within, thinnish, externally with 3 thin ribs, which are prominent (the middle one especially) toward the summit; endosperm brown, horny, uniform.

Fiji, Viti Levu, Namosi Province, near the summit of Naitarandamu Mountain, altitude 1,000 meters, September 29, 1927, John W. Gillespie. Type no. 3346.

Also represented by Gillespie nos. 3393, from Tholo North Province, vicinity of Nandarivatu, and 4895, from the type locality. The habit study and flowers were drawn from the type; the fruit and seed from Gillespie no. 3993. Named in honor of Mr. C. V. Caldwell, District Commissioner of Tholo North Province during the time of my visit.

***Psychotria forsteriana* A. Gray (fig. 34).**

Psychotria forsteriana A. Gray: Am. Acad. Arts and Sci., Proc., vol. 4, p. 44, 1858. (Including variety *vitiensis*.)

The original description of this species, and of the variety *vitiensis*, is as follows:

"Glabra; stipulis tenuiter scariosis caducis; foliis membranaceis oblongo-lanceolatis nunc obovato-oblongis utrinque acuminatis modice petiolatis, venis primariis 9-11-jugis; cyma multiflora terminati composita tripartita vel tripla, pedunculis radiisve petiololum aequantibus; floribus confertis pedicellatis parvis; calycis limbo expanso integerrimo ovario aequilongo; corolla brevi usque ad medium 5-fida fauce villosissima; fructibus obovatis retusis, junioribus fere obcordatis; pyrenis dorso obtuse costatis subrugosis intus concaviusculis. *P. Asiatica*, Forst. Prodr. p. 16?—Var. *Vitiensis*; foliis longius petiolatis nunc undulatis; fructu vix retuso.—Tahiti; Samoan or Navigators' Islands: and the variety from the Feejee Islands."—A. Gray.

A small tree or shrub, sometimes simple and unbranched, glabrous except the flowers; twigs moderately stout, very straight, pale-green or straw-colored, internodes on fast-growing shoots as much as 10 cm. long. Leaves 10-22 cm. long, 4-7 cm. broad; blades membranaceous, green to yellowish-green, entire or more or less undulate, oblong-lanceolate to obovate-oblong, apex abruptly acuminate or subcuspidate, the tip often very sharp, mucronate or almost spinescent, base acute to acuminate, lateral nerves fairly prominent, 9-11 on each side of the midrib, veinlets obscure; stipules thinly scariosus, about 7 mm. long; peduncles 0.3-2 cm. long, 3-branched, often from the very base, the two laterals half as long to nearly as long as the central branch, secondary branches and pedicels radiately disposed, the latter 1-2 mm. long. Flowers inconspicuous; calyx cupulate, about 2 mm. long, subtruncate or evidently toothed, the teeth very obtuse; corolla pale cream-colored to pinkish, tube cylindric, about 3 mm. long, very hairy in the throat with white or tawny hairs, the lobes usually 5, spreading, about 1.5 mm. long, acute; ovary very small, disc hemispheric; style moderately stout, 1.7 mm. long, stigma clearly lobed; anthers oblong, slightly exerted, often 0.6 mm. long, longer than the slender filaments. Fruits bright-red, shining, about 4 mm. in diameter, obovate to subglobose, somewhat retuse, when young almost obcordate; seeds obtusely ribbed on the back, subrugose, somewhat concave within.

Represented by Gillespie nos. 2245, 2431, 3433, 3536, 3582, all from Viti Levu, Rewa and Naitasiri provinces, where it is fairly common. Both entire- and undulate-leaved forms are found in Fiji. Fig. 34 is drawn from Gillespie no. 2245.

***Psychotria hemisphaerica* Gillespie, species nova (fig. 35).**

Arbor parva foliis exceptis glabra, ramulis junioribus nitidis, compressis, demum teretibus; foliis 6-13 cm. longis, 3-6 cm. latis, membranaceis vel chartaceis, late ellipticis vel obovatis, apice obtuse acuminatis vel subcuspidatis, ad basin versus angustatis, acuminatis, leviter decurrentibus, nervis lateralibus prominentibus, subrectis, 6-10 utrinque, petiolo 1-2.5 cm. longo; inflorescentiis terminalibus usque ad 6 cm. longis, circiter 2-floris, pedunculo compresso, pedicellis 3 mm. longis, calyce viride sparse puberulento, 4 mm. longo et lato, limbo expanso cupulato obtuse 4-lobato, ovario 2 mm. longi, disco hemisphaerico, corolla albida, 12 mm. longa, tubo cylindrico, lobis (4) ovatis, 3 mm. longis; fructibus ellipsoideis vel subgloboseis, 10 mm. longis, limbo calycis persistenti coronato.

A shrub or small tree, glabrous except the flowers; branchlets green, generally compressed when young, at length terete, the nodes distant. Leaves 6-13 cm. long, 3-6 cm. broad; blades bright-green on both sides, membranaceous to chartaceous, broadly elliptic to obovate, apex obtusely acuminate or subcuspidate, base narrowed, slightly decurrent, lateral nerves rather prominent, slender, straightish, anastomosing near the margin, 6-10 on each side of the midrib, reticulations obscure; stipules caducous; petioles 1-2.5 cm. long. Inflorescences terminal, as much as 6 cm. long, about 20-flowered; peduncles 2-4 cm. long, compressed; bracts acute, persistent, about 2 mm. long; pedicels about 3 mm. long, enlarged upwardly into the calyx. Flowers rather conspicuous but seldom found; calyx green, sparsely and minutely puberulent, about 4 mm. long and broad, the limb expanded, cupulate, with 4 somewhat uneven broadly obtuse ciliate lobes; ovary obconic, 2 mm. long, the disc hemispheric; corolla white, glabrous, about 12 mm. long, the tube cylindric, the lobes (4) ovate, about 3 mm. long; anthers elongate, sessile, about 3 mm. long, attached near the base; style stout, about 3 mm. long; stigma-lobes short. Fruits ellipsoid to subglobose, about 10 mm. long, crowned by the persistent calyx-limb; seeds shield-shaped, thinnish, very hard, obscurely 1-ribbed toward the summit; albumen apparently ruminant.

Represented by Parks nos. 20069, 20121, 20226, 20265, 20315, 20465; Gillespie nos. 2208, 2260, 2353, 2457, 2975-1, 3300, 3425, 3467, 3519, 3793, 4592; common in Viti Levu and Ovalau in every altitude and habitat. A species recognized with certainty by the very broad, thin, cuspidate leaves, the few but prominent nerves, and the persistent calyx-limb crowning the fruits.

***Psychotria levuensis* Gillespie, species nova (fig. 36).**

Frutex erectus, floribus exceptis glaber, ramis crassiusculis nodosis; foliis 10-18 cm. longis, 1.2-3 cm. latis, supra nitidis, subtus densissime lepidotis seu farinosis, coriaceis, ad marginem revolutis, oblongis vel oblanceolatis apice acutis basi angustatis longo-acuminatis, nervis primariis utrinque 9-12 gracillimis arcuatis, secundariis obscurissimis, petiolo 2-3 cm. longo; inflorescentiis terminalibus multifloris 3-8 cm. longis saepe a basi ramosis, pedicellis 2-3 mm. longis; calycibus extus hispidulis chartaceis venosis obconicis 6 mm. longis, limbo 4 mm. longo irregulariter 5-lobato, lobis patulis obtusis vel rotundatis, corollis membranaceis extus hispidulis intus arachnoideis tubuloso-cylindricis, 13 mm. longis, antheris 2 mm. longis a basi tubi 5 mm. insertis, ovario 2 mm. longo, stylo gracili, stigmatibus leviter bilobato breviter exserto.

An erect shrub, glabrous except the flowers, the branchlets rather stout, nodose. Leaves 10-18 cm. long, 1.2-3 cm. broad; blades coriaceous, yellowish-green, rather rigid when dry, shining above but not beneath, sometimes resinous-punctate, oblong or oblanceolate, strongly revolute, acute at the apex, base narrowed, long-acuminate, lateral nerves slender, arcuate, 9-12 on each side of the midrib, veinlets very obscure, the upper surface shining, often obscurely striate with numerous nervilliform lines, the lower

surface dull, very densely lepidote under the lens, the adpressed scales appearing somewhat farinose; stipules ovate, erose, subsistent, 2-3 mm. long; petioles 2-3 cm. long. Inflorescences terminal, many-flowered, 3-8 cm. long, often branching from the base; pedicels 2-3 mm. long. Flowers whitish; calyx hispid without, glabrous internally, chartaceous, veiny, obconic, about 6 mm. long, the limb (4 mm. long) irregularly 5-lobed, the lobes spreading, obtuse or rounded; corolla membranaceous, hispidulous externally, arachnoid within, tubular-cylindric, about 13 mm. long, the lobes acute, about 2 mm. long; anthers oblong-lanceolate, about 2 mm. long; filaments very short, inserted about 5 mm. from the base of the tube; ovary about 2 mm. long, the style slender, the stigma shortly bilobate, slightly exserted.

Fiji, Viti Levu, Rewa Province, summit of Korombamba Mountain, altitude 500 meters, August 23, 1927, John W. Gillespie. Type no 2332.

Also represented by Parks no. 20911; Gillespie no. 2397. This species, recognized by the oblong-obovate yellowish leaves with revolute margins, has not been noticed elsewhere than on the summit and slopes of Korombamba Mountain, in shaded localities.

Psychotria macrocalyx A. Gray (fig. 37).

Psychotria macrocalyx A. Gray: Am. Acad. Arts and Sci., Proc., vol. 4, p. 46, 1858.

The original description follows:

"Glabra; ramis gracilibus foliosissimis; stipulis ovatis mucronatis caducis; foliis lanceolatis seu oblongo-lanceolatis longe acuminatis chartaceis basi in petiolum attenuatis; pedunculis 1-3 terminalibus 1-5-floris pedicellis filiformibus; calycis limbo tubuloso angusto breviter 5-dentato persistente drupa ovoidea subaequilongo; pyrenis compressis intus planis dorso 1-3-carinatis.—Feejee Islands and Tongatabu."—A. Gray.

A small tree, glabrous except the flowers, branchlets grayish, terete, nodose, compressed at the extremities. Leaves often thickly clustered at the ends of the branchlets, 6-11 cm. long, 1.4-4 cm. broad; blades chartaceous to thinly coriaceous, pale, yellowish-green, becoming dark or even black when dried, oblong to narrowly elliptic or lanceolate or rarely obovate, apex acute to acuminate, base acute, lateral nerves slender, sub-prominent, 8-11 on each side of the midrib, veinlets obscure; stipules bifid, caducous, as much as 15 mm. long; petioles 4-15 mm. long. Inflorescences terminal, 5-8 cm. long; peduncles (1-3) 3-5-flowered, slender, longer than the very slender branches, the pedicels subla. Flowers white; calyx slightly hispidulous externally, about 8 mm. long, the ovary ovoid, scarcely 2 mm. long, the limb cylindric or slightly saccate, obtusely and irregularly (but often 5-) toothed; corolla narrowly funnelliform, about 22 mm. long. Fruits oblong-ovoid, about 1 cm. long, crowned with the calyx-limb, which often splits down one side and is finally deciduous. Seeds oblong, about 6 mm. long, with a salient dorsal rib and often 2 smaller ribs.

Considerable difficulty has been experienced in determining, among recent collections, the representatives of *P. macrocalyx* A. Gray. The type came from Fiji (although Tongatabu was also given as a habitat), at Sandalwood or Mbua Bay on the island of Vanua Levu. The specimen at the Gray Herbarium collected on the United States Exploring Expedition has rather small, thin, lanceolate, pointed leaves; in Seemann no. 243, mounted on the same sheet, the leaves are larger and broader but the young fruits are of

the same oblong-ovoid shape, with a long, persistent calyx. In Gillespie no. 3922 (shown in fig. 37), the leaves are still larger, but the form of the fruiting-calyx is the same. Parks no. 20685 and Gillespie nos. 3922 and 4111, all from Viti Levu, Tholo North Province, represent similar types.

In elaborating the specific description on the basis of the collections cited, it is held that the essential character of the species is the unusually large calyx and that the type represents a very small-leaved plant. Since no additional collections have been made at the type locality it is not known whether or not this typical form is common; future explorations on Vanua Levu should provide evidence on this point.

***Psychotria neurocalyx* Gillespie, species nova (fig. 38).**

Arbor parva floribus exceptis glabrescens, ramulis gracilibus nodosis foliosissimis; foliis 4-9 cm. longis, 1-2.7 cm. latis, pallide viridibus nitidis chartaceis, oblongo-ellipticis vel oblongo-obovatis vel oblanceolatis, apice acutis vel acuminatis, basi breviter acuminatis, nervis lateralibus utroque 7-10, petiolo 5-8 mm. longo, stipulis caducis; inflorescentiis terminalibus 3 cm. longis, pedunculis 1-3 gracilibus circiter 5-floris, pedicellis gracilibus 2-4 mm. longis, interdum hispidis; calycibus chartaceis late campanulatis 8 mm. longis, limbo venoso irregulariter lobato, lobis saepissime 5, obtus, apiculatis, ovario hispidulo, 1 mm. longo, corolla extus hispida, antheris oblongis; fructibus subglobosis, 8 mm. diametro, conspicue (ex siccationem) obovoideis 8-costatis, seminibus subhemisphaericis 6 mm. diametro, ad basim tenuibus, superne conspicue tricostatis.

A small, subglabrous tree, the branchlets glabrous, gray, slender, nodose, very leafy. Leaves glabrous, 4-9 cm. long, 1-2.7 cm. broad; blades pale-green on both surfaces, darker when dry, shining, chartaceous, often rather thick and rigid, oblong-elliptic to oblong-obovate or oblanceolate, apex acute to acuminate, base shortly acuminate, the midrib broad, prominent, the lateral nerves slender, arcuate, 7-10 on each side of the midrib, veinlets indistinct; stipules bifid, caducous, about 4 mm. long. Inflorescences terminal, partly concealed by the leaves, about 3 cm. long; peduncles (1-3) slender, about 5-flowered, the branches radiate; pedicels slender, 2-4 mm. long, rarely more or less hispid. Calyx broadly campanulate, about 8 mm. long and wide, the ovary hispid, about 1 mm. long, the limb chartaceous, veiny, shallowly and irregularly lobed, the lobes generally 5, obtuse, apiculate; corolla hispid externally, the anthers oblong. Fruits green or reddish, subglobose, about 8 mm. in diameter, after drying stipitate, obovoid, 8-ribbed; seeds subhemispheric, about 8 mm. in diameter, thin at the base, in the apical part distinctly tricostate.

Fiji, Viti Levu, Tholo North Province, vicinity of Nandarivatu, altitude 1,250 meters, July, 1927, H. E. Parks. Type no. 20613.

Also represented by Parks nos. 20692, 20774, 20780; Gillespie nos. 3778, 3907, 4337; all from the same vicinity, and particularly common on the higher ridges rising above the broad valley of the Singatoka River. The larger-leaved forms approach in general appearance the specimens I have referred to *P. macrocalyx* A. Gray, but differ in having globose fruits much more strongly ribbed when dry, and in the campanulate instead of tubular or cylindrical limb of the subsistent calyx.

***Psychotria setchelli* Gillespie, species nova (fig. 39).**

Frutex parvus subglaber, ramulus gracilibus teretibus; foliis 5-9 cm. longis, 1.5-2.5 cm. latis, pallidis, nitidis, subcoriaceis, lanceolatis vel oblongo-ellipticis, utrinque acuminatis, nervis lateralibus subtus conspicuis; petiolo 1 cm. longo; inflorescentiis terminalibus plurifloris, 6 cm. longis; pedunculis crassis, 1-2 cm. longis; floribus inconspicuis, calycibus 2 mm. longis, obscure 5-dentatis; corolla pruinosa, extus papillata, intus dense pilosa, 6 mm. longa; fructibus 5 mm. diametro.

A shrub, 3-4 meters tall (Setchell and Parks), glabrous except the flowers; twigs slender, terete, sometimes appearing as if scandent. Leaves 5-9 cm. long, 1.5-2.5 cm. broad; blades pale-green, shining, subcoriaceous, lanceolate to oblong-elliptic, apex acuminate, base narrowed, attenuate, lateral nerves indistinct above, rather prominent beneath, about 9 on each side of the midrib; stipules deciduous; petioles about 1 cm. long. Inflorescences terminal, many-flowered, about 6 cm. long and wide; peduncles stout, 1-2 cm. long, with 2 to 5 branches which emerge at right angles to the main axis; pedicels often 3 mm. long, enlarged at the extremities; bracts minute. Flowers inconspicuous; calyx about 2 mm. long and broad, obscurely 5-toothed and minutely ciliolate at the margin; corolla yellowish when young, red at maturity, pruinose without, the throat densely pilose with whitish hairs, tube often 3 mm. long, lobes 3 mm. long, acute; disc hemispheric, 1 mm. high; style narrowly clavate, about 3.5 mm. long; stigma obtuse; anthers about 1.3 mm. long, exerted on very slender filaments about 2 mm. long. Fruits red, subglobose, about 5 mm. in diameter. Seeds more or less hemispheric, about 3 mm. long, 2 mm. broad, plano-convex, shallowly 3-ribbed on the back.

Fiji, Viti Levu, Naitasiri Province, on the Tamavua Road, altitude 200 meters, May, 1926, Setchell and Parks. Type no. 15118.

The leaves of this plant are much larger and thicker than those of *P. gracilis* A. Gray, although similar in shape. The pruinose corolla, which is densely hairy in the throat affords ample means of distinguishing the species, which is rather rare in Fiji. It is named in honor of Dr. W. A. Setchell, Professor of Botany in the University of California.

***Psychotria tephrosantha* A. Gray (fig. 40).**

Psychotria tephrosantha A. Gray: Am. Acad. Arts and Sci., Proc., vol. 4, p. 45, 1858.

The original description of this plant is as follows:

"*Stipulis caducis; foliis ovalibus utrinque abrupte acutis vel acuminatis petiolatis ramisque glabris; cyma terminali pedunculata effusa decomposita, pedicellis gracilibus flore brevioribus; calycis limbo subintegerrimo cupulato ovario turbinate brevioris; corolla infundibuliformi extus pruinoso-canescente. Feejee Islands.*"

A shrub, erect or scandent, glabrous except the flowers, branchlets green, compressed and channeled when young, later terete, and occasionally rooting at the nodes, which are 2-3 cm. apart. Leaves 7-14 cm. long, 2.5-4.5 cm. broad; blades thinly chartaceous, bright-green on both sides, oblong-elliptic, each end abruptly acute to acuminate, lateral nerves prominent, especially beneath, arcuate, anastomosing near the margin, about 10 on each side of the midrib, veinlets few, indistinct; stipules caducous; petioles 1.5-3 cm. long. Inflorescences terminal, effuse, compound, many-flowered, as much as 10 cm. long; peduncles compressed, about 5 cm. long, sparingly branched, the branches extending at right angles to the main axis; pedicels very slender, about 5 mm. long; bracts persistent, acute, about 2 mm. long. Flowers inconspicuous; calyx cupulate, about 1.5 mm. long, subentire or shortly toothed; corolla gray or greenish, pruinose-canescent without, funnel-shaped, tube very narrow, about 5 mm. long, slightly arachnose within,

the lobes about 3 mm. long, oblong, erect; ovary small, disc 1.5 mm. long; style about 4 mm. long, thickened upwardly, the stigma-lobes spreading; anthers exerted, about 1 mm. long, exceeding the filaments, which are attached near the summit of the tube. Fruits obovate to globose, about 4 mm. long, 8-ribbed when dry; seeds ovate, thin, prominently 3-ribbed on the back; albumen uniform.

Represented by Parks no. 20252; Gillespie nos. 2242, 2270, 3089, 3101, 3129. The species is fairly common in the forests of southeastern Viti Levu, in Rewa, Naitasiri, and Namosi provinces. Figure 40 is drawn from Gillespie no. 2242.

***Psychotria turbinata* A. Gray (fig. 41).**

Psychotria turbinata A. Gray: Am. Acad. Arts and Sci., Proc., vol. 4, p. 45, 1858.

The original description of the species is as follows:

"Fere glabra; stipulis caducis; foliis obovato-oblongis nunc oblongo-lanceolatis basi in petiolum longiusculum attenuatis submembranaceis, venis primariis 9-10-jugis; cyma terminali multiflora petiolos vix superante; fructibus turbinatis vertice planis; pyrenis 2 vel 3 ventre inferne planis superne profunde exsculptis dorsoque tuberculato-incrasatis.—Feejee Islands. (In fruit: flowers not seen)."—A. Gray.

A subglabrous shrub, with thick, terete stems. Leaves glabrous, dull-green above and beneath, 14-23 cm. long, 4-8 cm. broad; blades submembranaceous to chartaceous, elliptic to obovate-oblong, apex acute to obtuse or rounded, base acuminate, attenuate, lateral nerves subprominent above, conspicuous beneath, about 11 on each side of the midrib, veinlets few, obscure; stipules caducous; petioles stout, as much as 4 cm. long. Inflorescences terminal, about 20-flowered, scarcely 3 cm. long; peduncles stout; pedicels 1-2 mm. long; calyx broadly conic to subcylindric, glabrous within, hispidulous without, limb about 3 mm. long, 2 mm. thick, broadly flared, the lobes very uneven, generally obtuse; corolla white, funnel-shaped, hispidulous without, pubescent within with white hairs, especially at the middle of the tube, the lobes about 2 mm. long, acute; ovary about 2 mm. long, the disc black, hemispheric, about 1 mm. high; style slender, about 7 mm. long, stigma-branches often 1 mm. long; anthers oblong, slightly exerted, about 2 mm. long, equaling the slender filaments. Fruits turbinate, truncate at the apex; seeds 2 or 3, plane within, the dorsal side deeply sculptured toward the apex.

Because the original collection was of fruiting stages only, the description has been amended from Gillespie no. 3535, from Viti Levu, Naitasiri Province, vicinity of Nasinu, 14 kilometers (9 miles) from Suva. The species is rather rare in Fiji.

***Psychotria umbraticola* Gillespie, species nova (fig. 42).**

Arbor parva glabra, ramulis crassis; foliis 10-18 cm. longis, 5-7.5 cm. latis, membranaceis vel tenuiter chartaceis, oblongo-ellipticis vel obovatis, apice rotundatis vel obtusis, interdum breviter et obtuse acuminatis, basi angustatis, acutis vel breviter acuminatis, nervis lateralibus 10-15 utrinque, petiolo 12-20 mm. longo; cymis terminalibus, paucifloris, usque ad 5 cm. longis, pedunculo vix 1 cm. longo, pedicellis 1-6 mm. longis; calyce turbinato 8 mm. longo, stipitato, limbo 5-dentato; corollae tubo angustissimo intus extusque glabro, 2.5 cm. longo, lobis oblongis, 1 cm. longis; fructibus subglobosis vel ellipsoideis, plus minusque 4-lateralibus, 2 cm. diametro, calycis limbo persistenti.

A small, glabrous tree, the branchlets gray, nodose, stout, compressed at the extremities, becoming terete. Leaves few, 10-18 cm. long, 5-7.5 cm. broad; blades green and shining above, dull beneath, membranaceous to thin chartaceous, oblong-elliptic to

obovate, apex rounded to obtuse, sometimes shortly and obtusely acuminate, base narrowed, acute to shortly acuminate, lateral nerves prominent, 10-15 on each side of the midrib, veinlets very few; stipules glabrous, ovate, about 5 mm. long, 2 mm. wide, the apex rounded; petioles 12-20 mm. long. Inflorescences terminal, few-flowered, as much as 5 cm. long; peduncles stout, about 1 cm. long, or scarcely any, the branches emerging at the base; pedicels 1-6 mm. long. Calyx turbinate, chartaceous, about 8 mm. long, the basal stipe equaling in length the shortly 5-lobed cylindrical limb; corolla-tube very narrow, glabrous without and within, or sometimes minutely hispid externally on the lower part, about 2.5 cm. long, the lobes (5 in specimens examined) oblong, about 1 cm. long, 3 mm. wide; style very slender, at least 1.5 cm. long, the stigma-lobes broad, about 1 mm. long; anthers oblong, exserted, about 2 mm. long, the short filaments attached near the base. Fruits wine-red, subglobose to ellipsoid, more or less 4-sided, about 2 cm. in diameter, notably 4-angled when dry, crowned by the persistent cylindrical calyx-limb; seeds suborbicular in outline, acuminate, subtriangular in transverse section, about 11 mm. long, 9 mm. wide, 3 mm. thick, the margin slightly winged.

Fiji, Viti Levu, Naitasiri Province, shaded forests in vicinity of Nasinu, 14 kilometers (9 miles) from Suva, altitude 150 meters, October 24, 1927, John W. Gillespie. Type no. 3525.

Also represented by Parks nos. 20115, 20392, 20395, 20586; Gillespie nos. 3392, 3525, 3661.1, 3844, 4607; from Viti Levu, in Naitasiri, Rewa, and Tholo North provinces. Flowers are rare even in the abundant material at hand; the diagnosis above was made from two dried corollas found among a cluster of the rapidly enlarging young ovaries. The valvate aestivation of the corolla is ascertained by the somewhat cucullate thickening of the border and tips of the lobes. The fruits are the largest of any species of *Psychotria* yet known in Fiji; they are sometimes eaten by natives. Native name: *ndoodle levu*.

***Psychotria vomensis* Gillespie, species nova (fig. 43).**

Arbor parva subglabra, ramulis gracilibus; foliis glabris 5-10 cm. longis, 2.5-4.5 cm. latis, saepe pallidis subtus, chartaceis, ellipticis vel obovato-ellipticis vel obovatis, apice late acutis vel obtusis, rariter rotundatis; petiolis 1-1.5 cm. longis; inflorescentiis terminalibus; pedunculis circiter 5, tenuibus, divaricatis, minute pubescentibus, 1.5-3 cm. longis, ad apicem 3-floris; floribus sessilibus; calyce cupulato, extus pubescenti, 2 mm. longo, lobis deltoideis; corolla infundibuliformi, 12 mm. longa, utrinque glabra, lobis 2.5 mm. longis; antheris exsertis.

A small, subglabrous tree with slender, terete branches and rather hard wood. Leaves glabrous, 5-10 cm. long, 2.5-4.5 cm. broad; blades often pallid beneath, chartaceous, elliptic to obovate-elliptic or obovate, apex broadly acute to obtuse or even rounded, base acute, lateral nerves 7 to 11 on each side of the midrib, obscure above but prominent beneath, arcuate toward the extremities and anastomosing about 1 mm. from the margin, veinlets indistinct; stipules caducous, about 7 mm. long, bifid about to the middle, the lobes oblong-elliptic, with erose ciliate margins; petioles 1-1.5 cm. long. Inflorescences terminal; peduncles about 5, slender, unbranched, minutely pubescent, divaricate, some almost lax, 1.5-3 cm. long, mostly 3-flowered. Flowers sessile; calyx cupulate, brownish pubescent without, glabrous within, about 2 mm. long and thick, the lobes deltoid, usually 5; corolla reddish, funnel-shaped, about 12 mm. long, glabrous within and without, the lobes about 2.5 mm. long, acute, reflexed; anthers oblong, about 2 mm. long, exserted on very short filaments; disc hemispheric; style about 8 mm. long,

upwardly thickened, the lobes flattened, about 1 mm. long, erose at the margin. Fruits unknown.

Fiji, Viti Levu, Namosi Province, slopes of Voma Mountain, altitude 600 meters, September 11, 1927, John W. Gillespie. Type no. 2901. Also represented by Gillespie nos. 3088 and 3304, from Namosi Province, Naitarandamu Mountain.

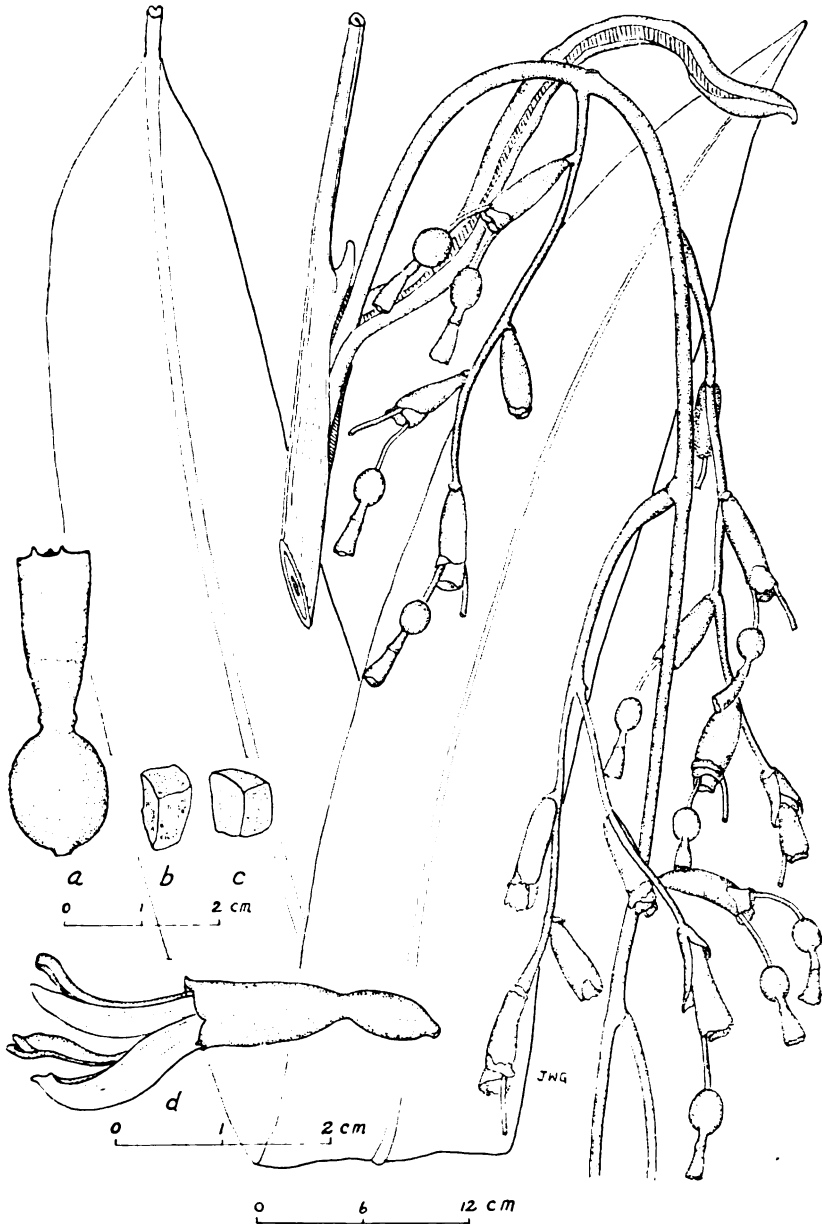


FIGURE 1.—*Languas parksii* Gillespie: a. fruit; b, c, seeds, enlarged; d, flower.



FIGURE 2.—*Kermadecia viticensis* Turrill: a, b, fruits; c, transverse section through fruit; d, e, seeds; f, portion of embryo (a.x, axis).

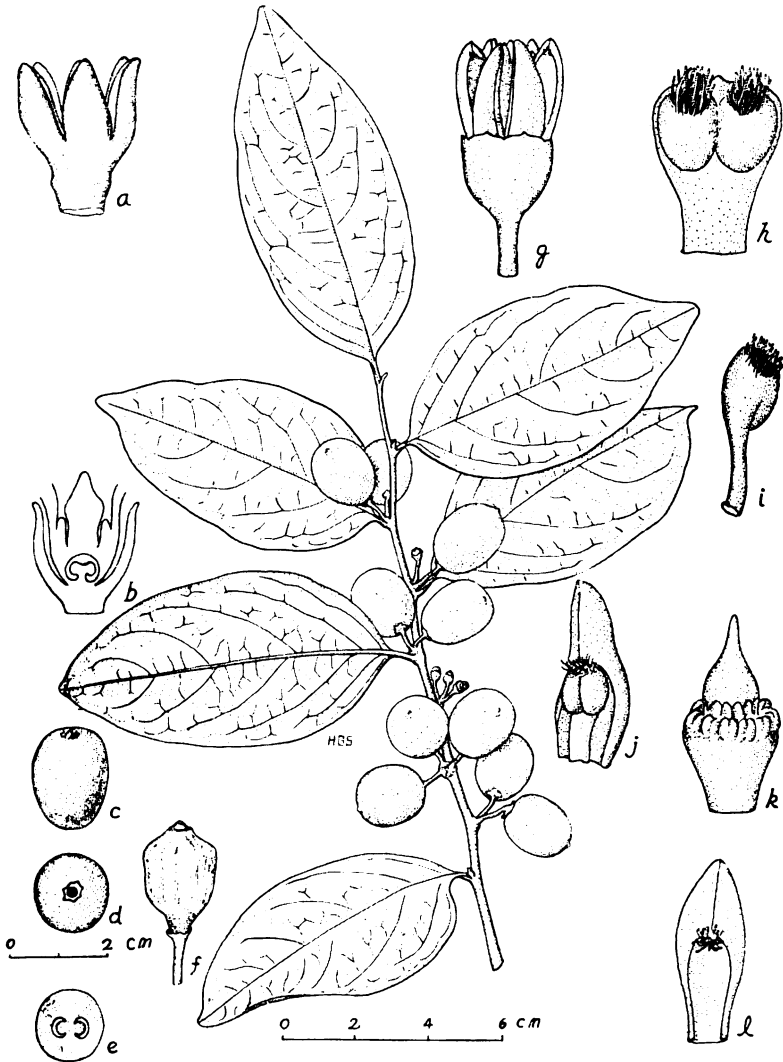


FIGURE 3.—*Anacolosia lutea* Gillespie: *a*, corolla, enlarged; *b*, longitudinal section through flower; *c*, fruit; *d*, fruit, seen from beneath; *e*, transverse section through fruit; *f*, dried fruit; *g*, flower, enlarged; *h*, *i*, stamens; *j*, perianth-segment showing anther; *k*, pistil; *l*, perianth-segment.

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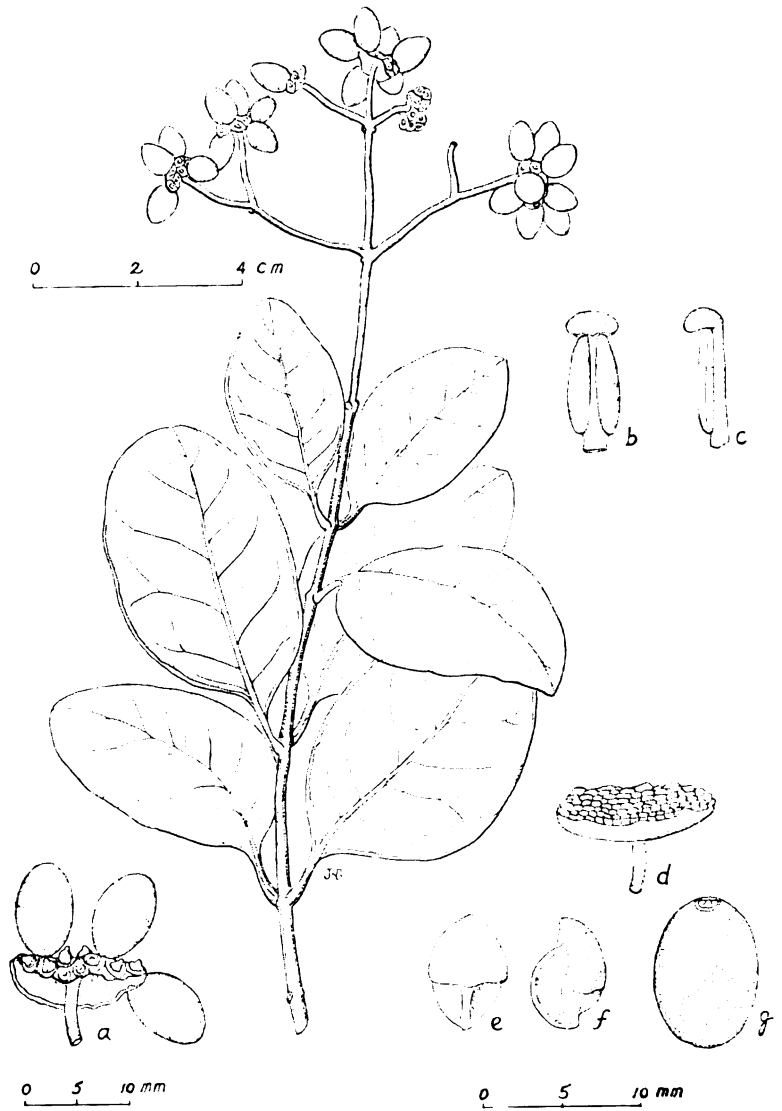


FIGURE 4.—*Hedycarya crassifolia* Gillespie: a, group of mature carpels; b, c, stamens, enlarged; d, male flower; e, f, seeds; g, mature carpel.

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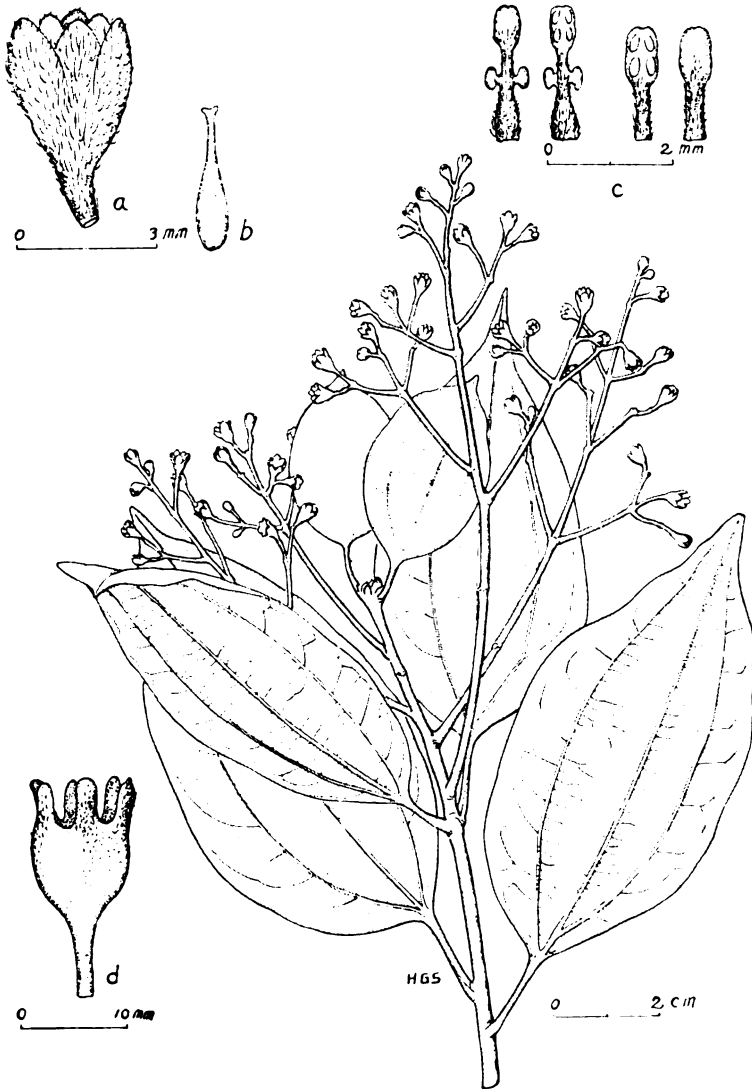


FIGURE 5.—*Cinnamomum pallidum* Gillespie: a, flower; b, pistil; c, stamens; d, fruit.

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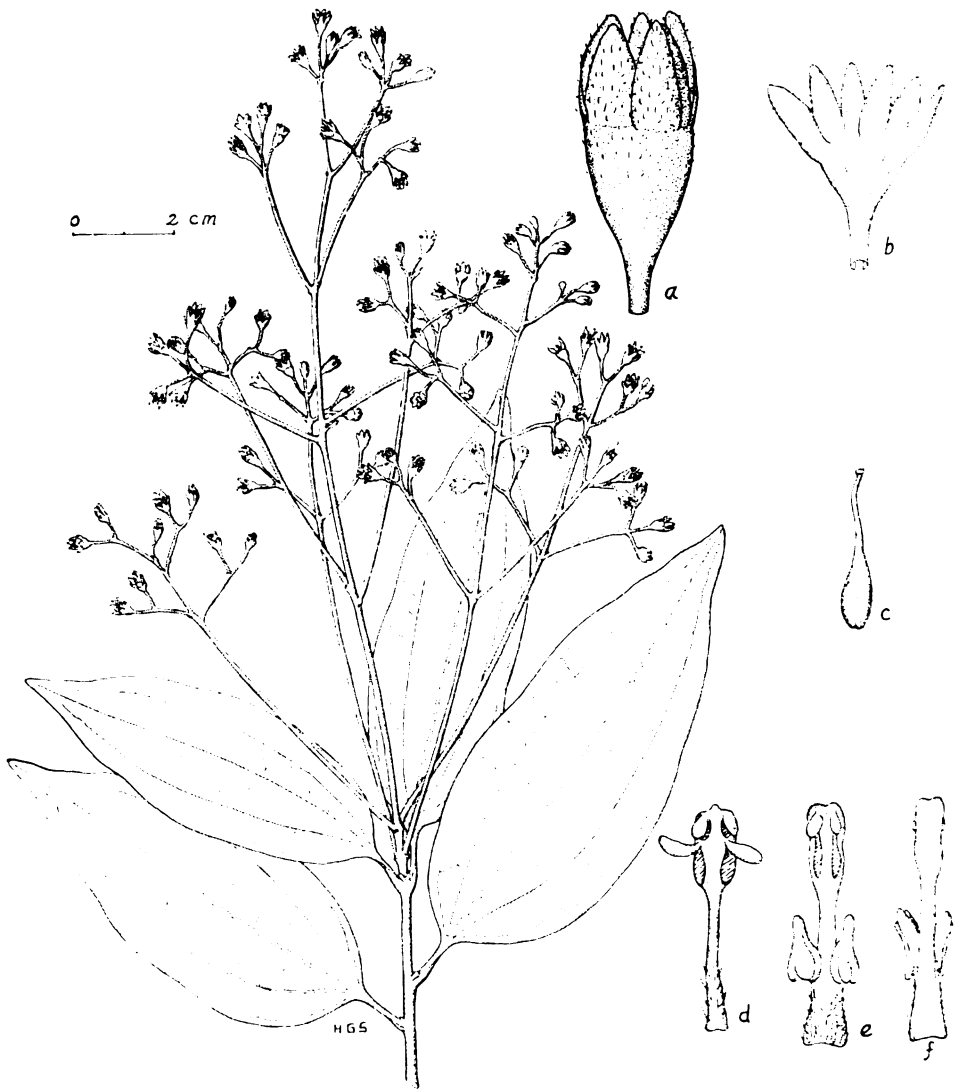


FIGURE 6.—*Cinnamomum pedunculatum* Meissner: a, flower; b, corolla laid open, seen from without; c, pistil; d, e, f, stamens. (All enlarged.)

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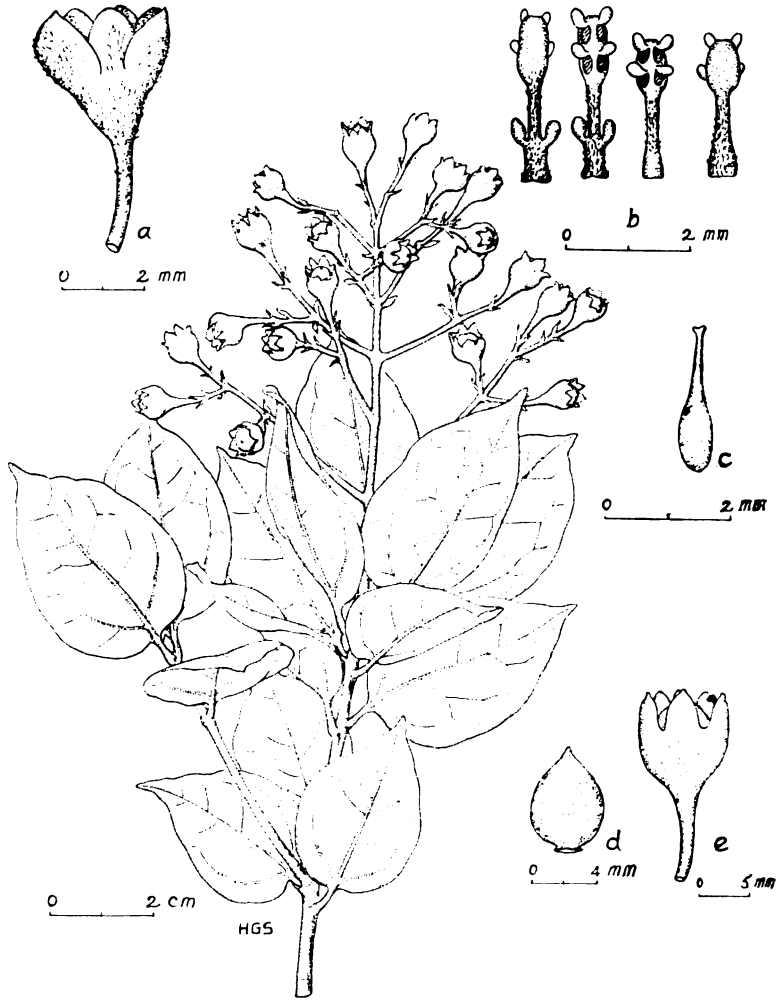


FIGURE 7.—*Cinnamomum rigidum* Gillespie: a, flower; b, stamens; c, pistil; d, seed; e, fruit.

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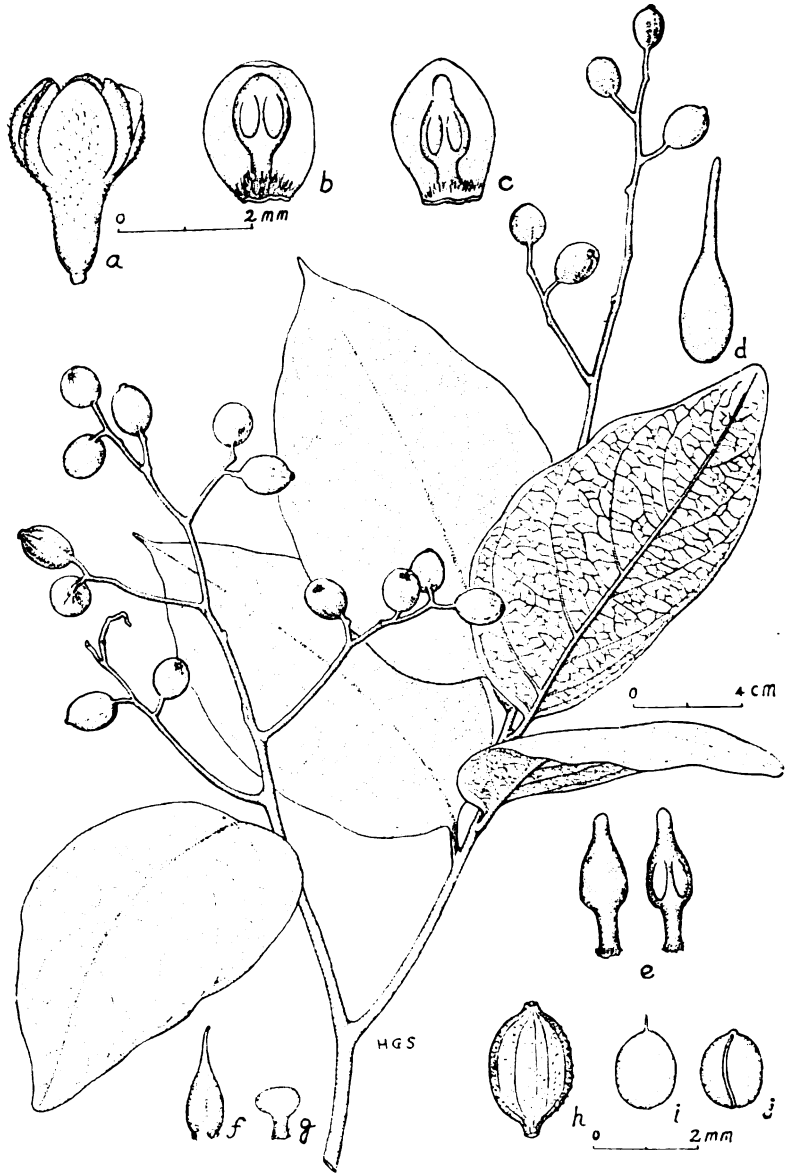


FIGURE 8.—*Cryptocarya fusca* Gillespie: *a*, flower; *b*, perianth-segment of outer whorl, enlarged; *c*, perianth-segment of inner whorl, enlarged; *d*, pistil, enlarged; *e*, stamens, enlarged; *f*, *g*, staminodes, enlarged; *h*, fruit; *i*, seed enclosed in the pericarp; *j*, seed with pericarp removed.

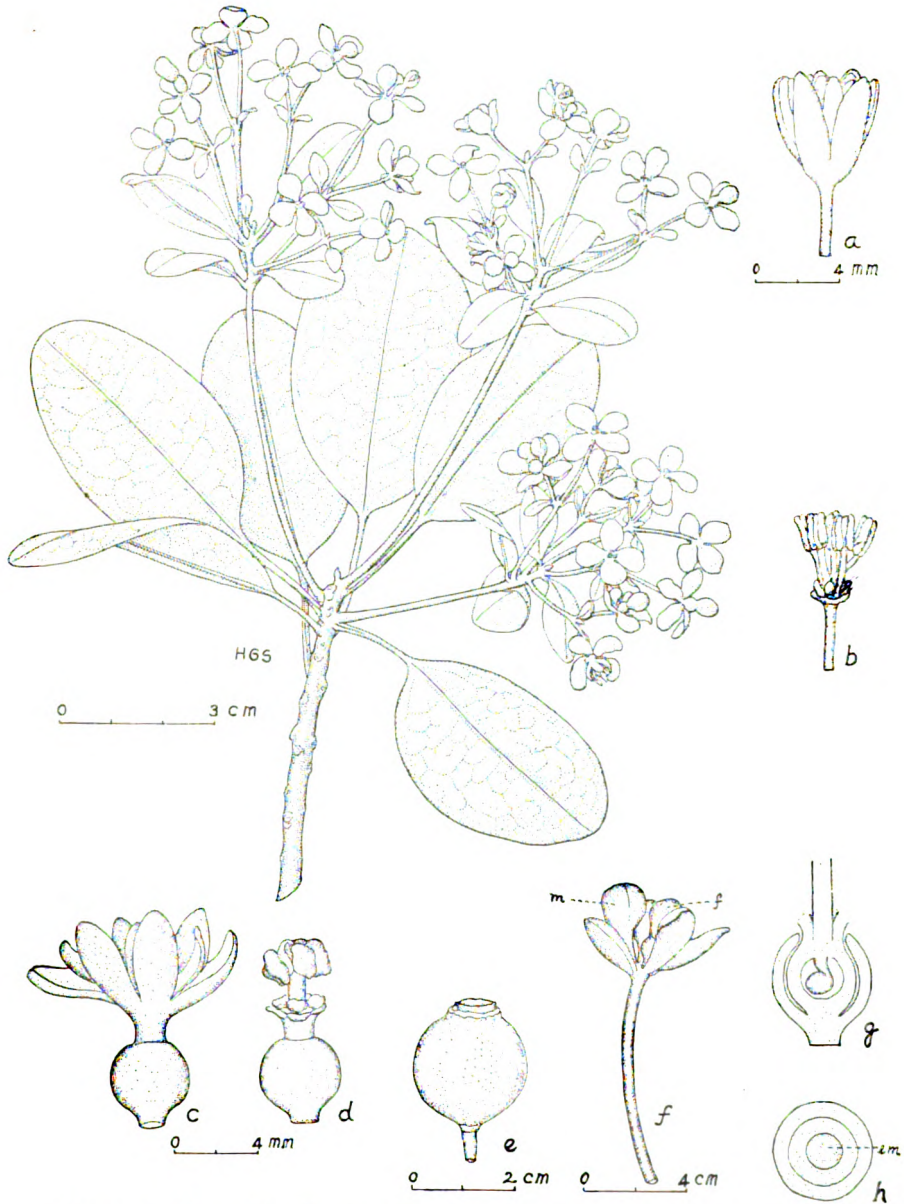


FIGURE 9.—*Hernandia olivacea* Gillespie: a, b, male flower; c, female flower; d, female flower with perianth removed; e, fruit; f, partial inflorescence (m, male flower; f, female flower); g, longitudinal section through female flower; h, transverse section through female flower (cm, embryo).

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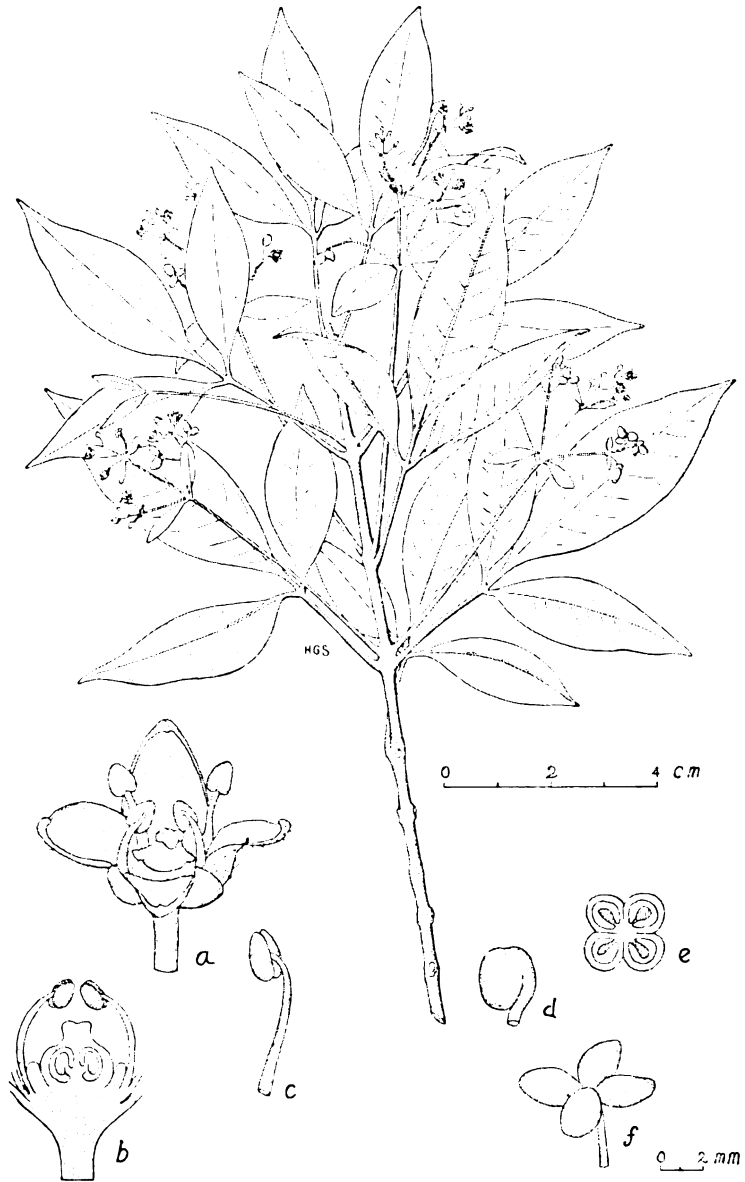


FIGURE 10.—*Exodia capillacea* Gillespie: *a*. flower, enlarged; *b*. longitudinal section through flower; *c*. stamen, enlarged; *d*. ovule, greatly enlarged; *e*. transverse section through ovary; *f*. group of mature carpels.

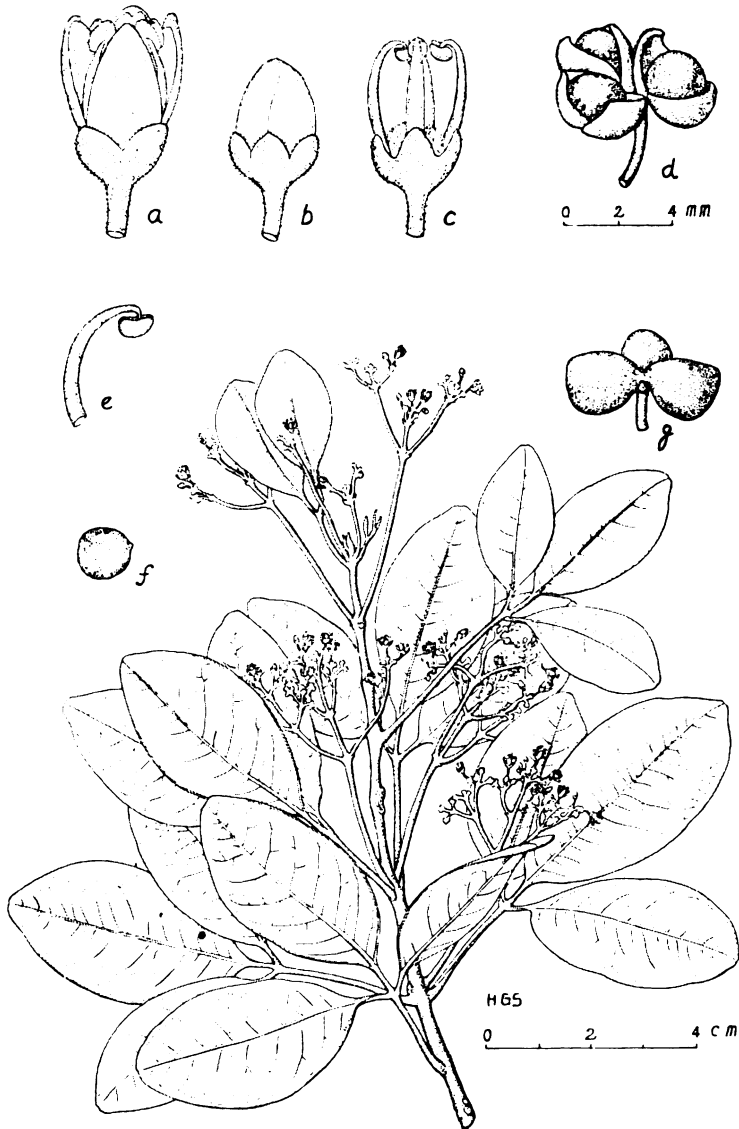


FIGURE 11.—*Evodia cucullata* Gillespie: a, flower, enlarged; b, flower-bud, enlarged; c, flower with corolla removed, enlarged; d, group of dehiscent carpels; e, stamen, enlarged; f, seed; g, group of mature carpels.

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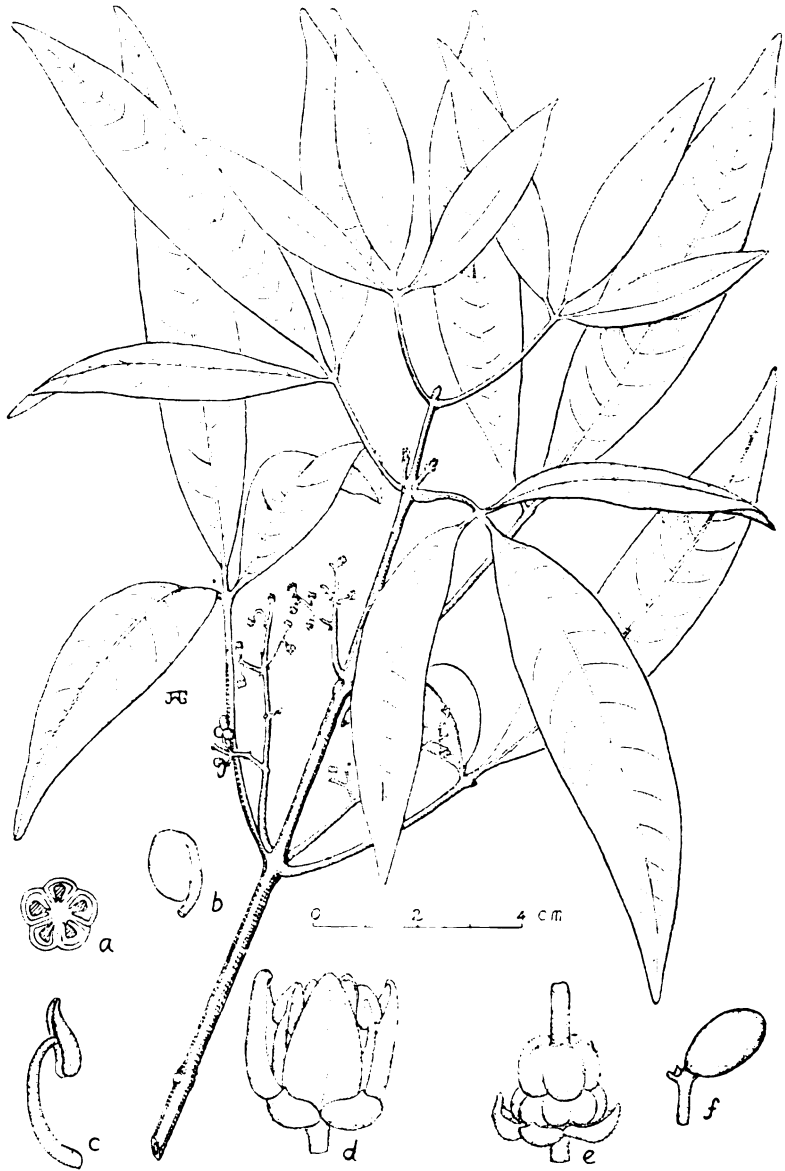


FIGURE 12.—*Ecodia secmanni* Gillespie: a, transverse section through ovary; b, ovule, enlarged; c, stamen, enlarged; d, male flower, enlarged; e, female flower with corolla removed, enlarged; f, mature carpel, enlarged.

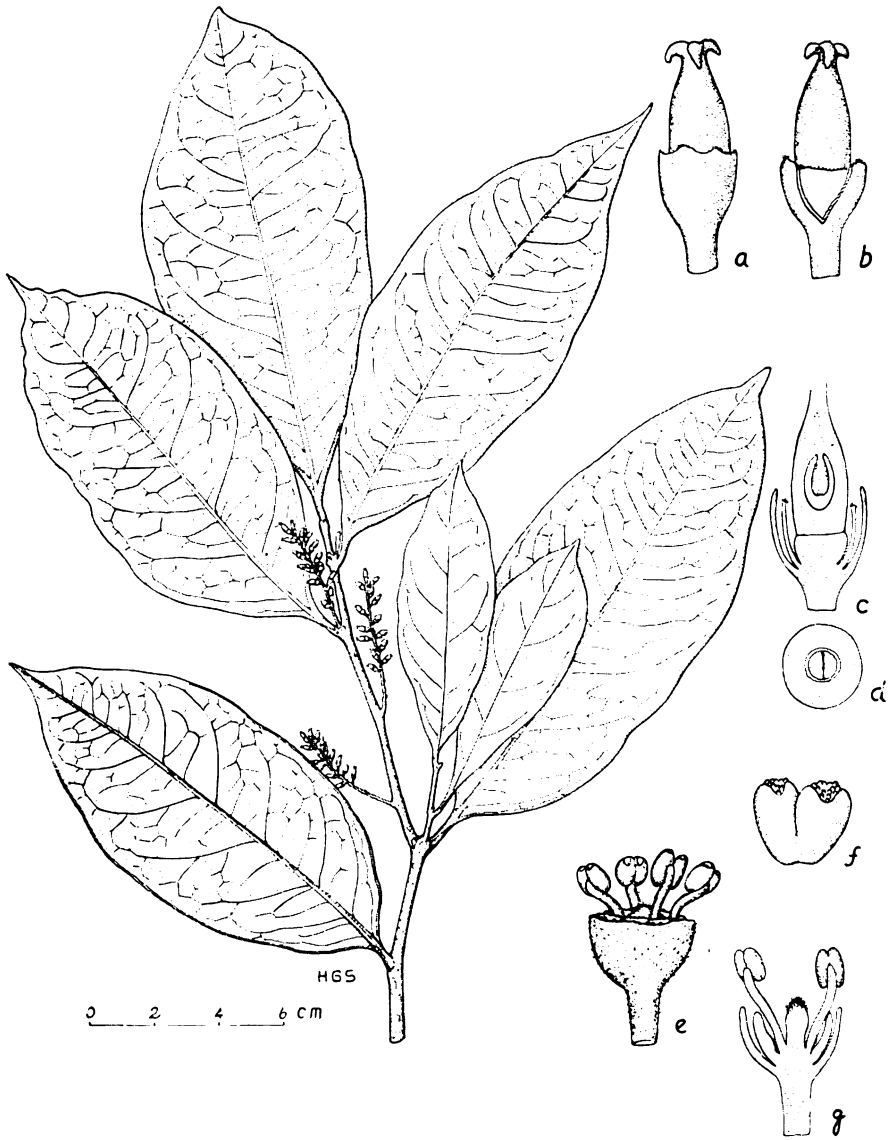


FIGURE 13.—*Antidesma insulare* Gillespie: a, female flower; b, female flower with calyx laid open, showing disc; c, longitudinal section through female flower; d, transverse section through ovary; e, male flower; f, anther; g, longitudinal section through male flower. (All enlarged.)

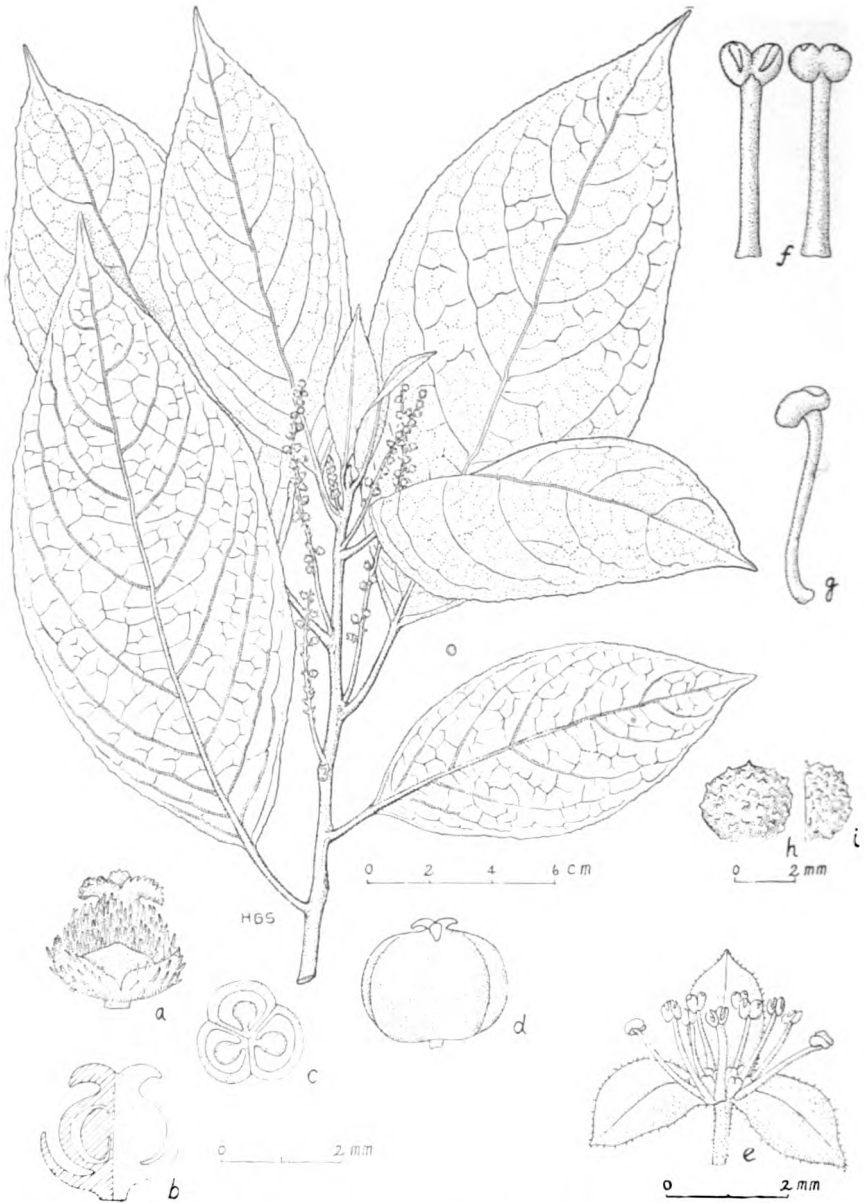


FIGURE 14.—*Claoxylon vittense* Gillespie: a, female flower; b, longitudinal section through female flower; c, transverse section through female flower; d, fruit; e, male flower; f, g, stamens enlarged; h, i, seeds.

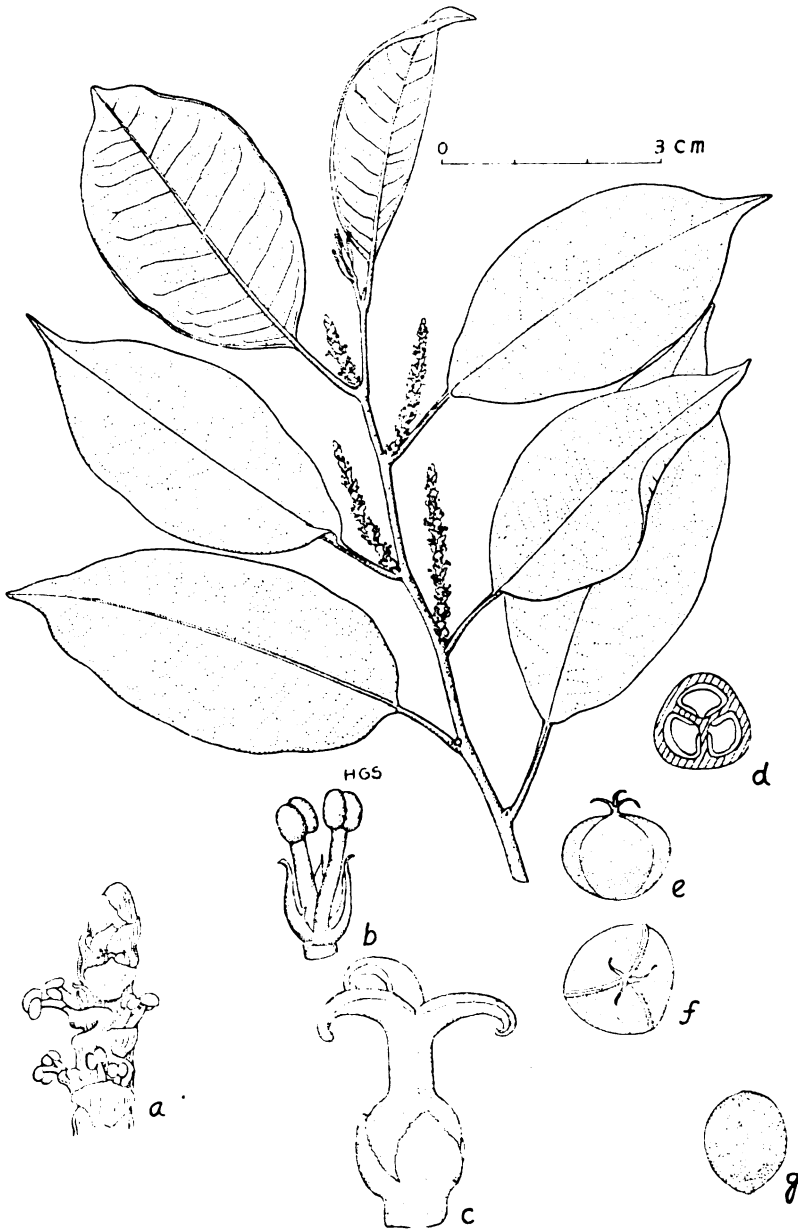


FIGURE 15.—*Excoecaria acuminata* Gillespie: a, tip of male inflorescence; b, male flower; c, female flower; d, transverse section through ovary; e, f, fruit; g, seed. (All enlarged.)

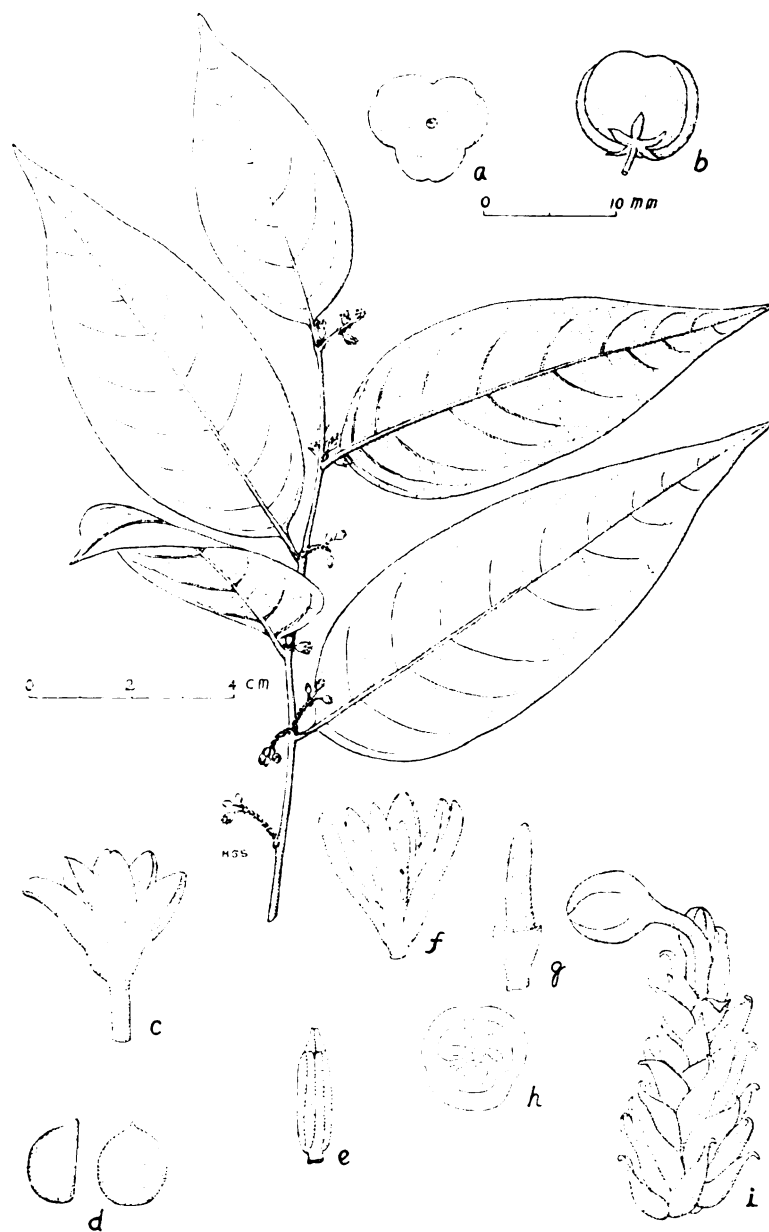


FIGURE 16.—*Glochidion bracteatum* Gillespie: *a*, *b*, fruits; *c*, male flower; *d*, seeds; *e*, staminal column; *f*, female flower; *g*, pistil; *h*, transverse section through ovary; *i*, male inflorescence. (All enlarged.)

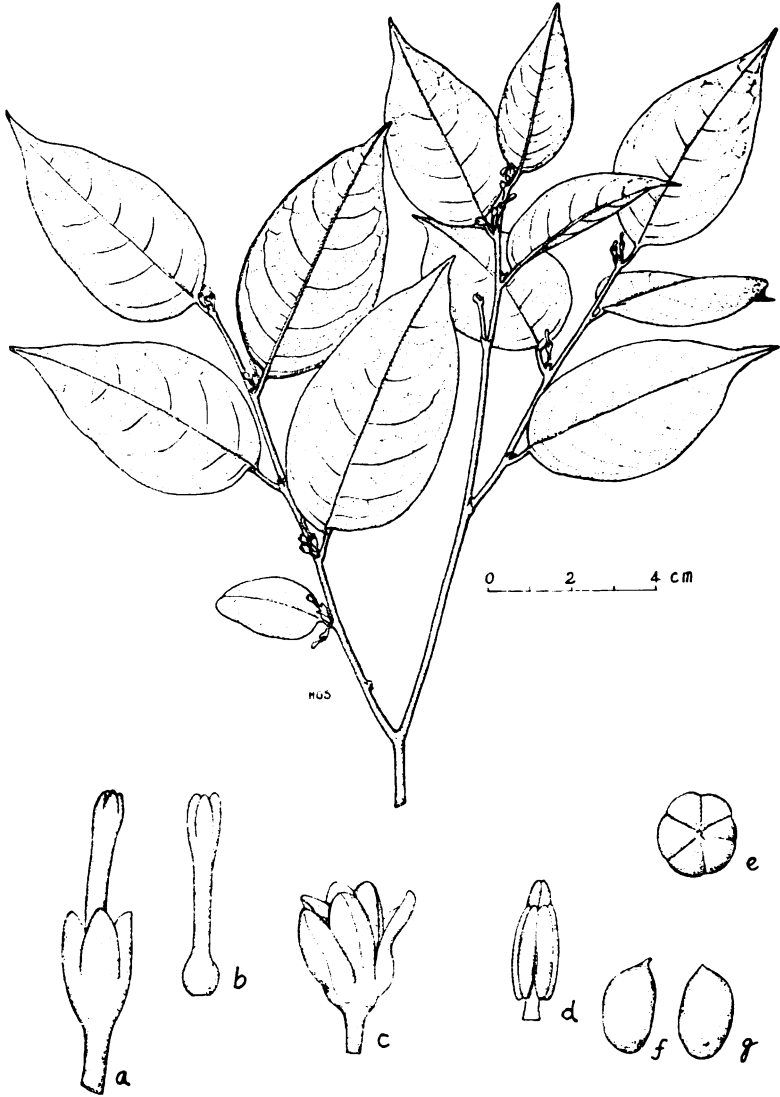


FIGURE 17.—*Glochidion manono* Baillon: a, female flower; b, pistil; c, male flower; d, staminal column; e, fruit; f, g, seeds. (All enlarged.)

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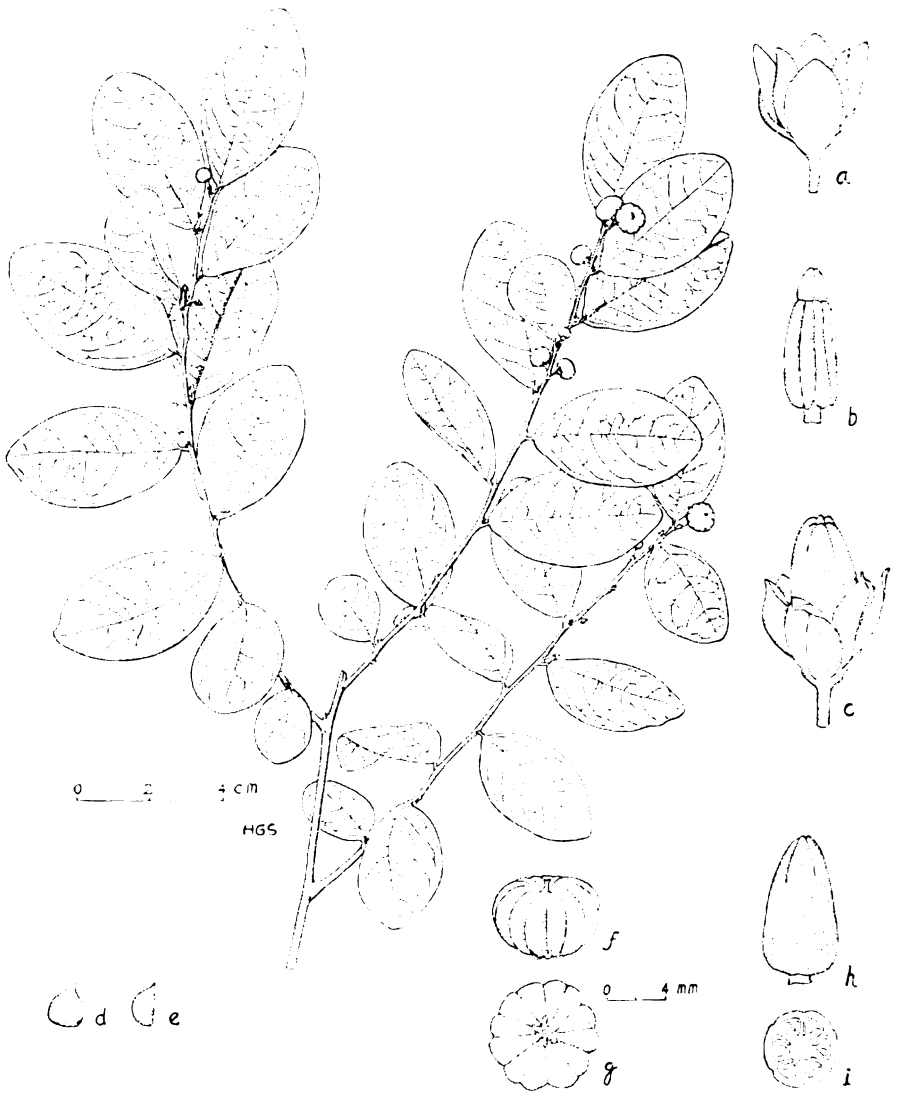


FIGURE 18.—*Glochidion vitifense* (Müller-Argau) Gillespie: *a*, male flower, enlarged; *b*, staminal column, enlarged; *c*, female flower, enlarged; *d*, *e*, seeds, enlarged; *f*, *g*, fruits; *h*, female flower, enlarged; *i*, transverse section through ovary.

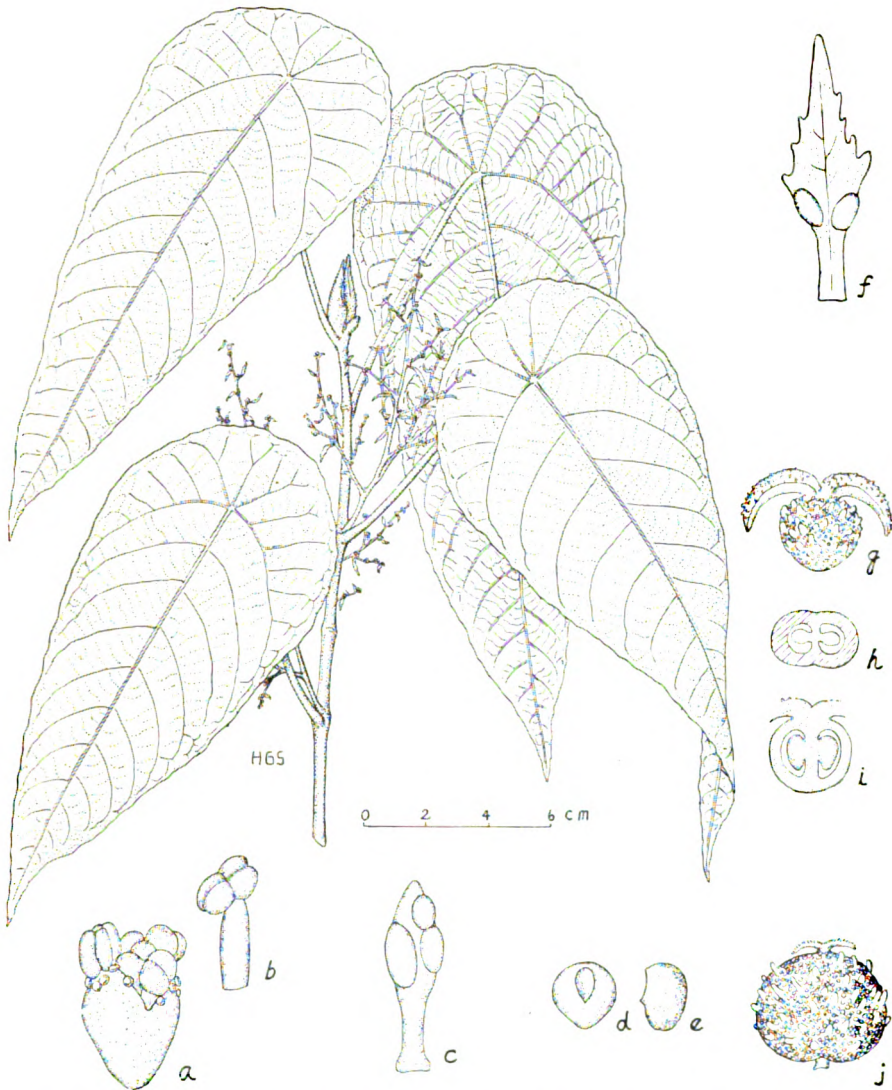


FIGURE 19.—*Macaranga sanguinea* Gillespie: *a*, male flower, enlarged; *b*, stamen, enlarged; *c*, bract of male inflorescence, enlarged; *d*, *e*, seeds; *f*, bract of female inflorescence, enlarged; *g*, female flower, enlarged; *h*, transverse section through ovary; *i*, longitudinal section through ovary; *j*, fruit.

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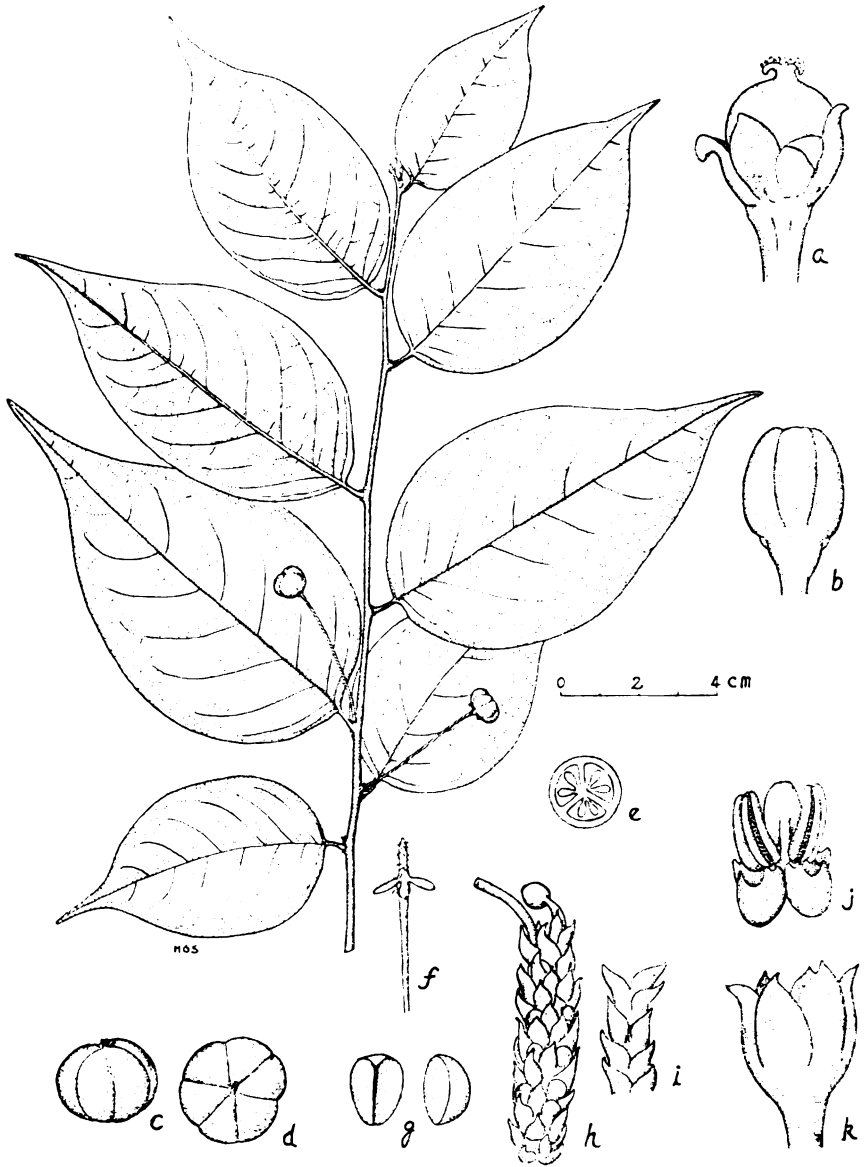


FIGURE 20.—*Phyllanthus pergracilis* Gillespie: *a*, female flower shortly after fertilization; *b*, male flower-bud; *c*, *d*, fruits; *e*, transverse section through ovary; *f*, pedicel after carpels have fallen; *g*, seeds; *h*, *i*, male aments from opposite sides; *j*, stamens showing glands; *k*, male flower. (All enlarged.)

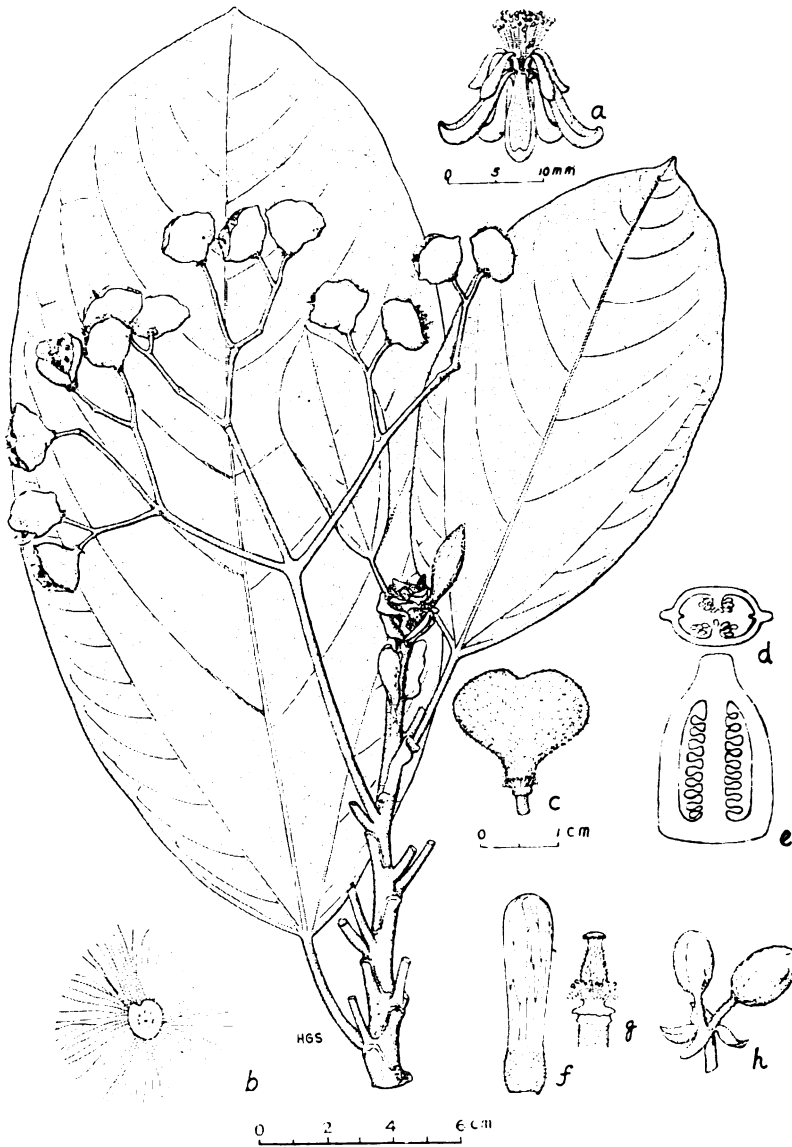


FIGURE 21.—*Trichospermum calyculatum* (Seemann) Burret: a, flower; b, seed, enlarged; c, fruit; d, e, transverse and longitudinal sections through ovary; f, petal, enlarged; g, pistil; h, group of buds.

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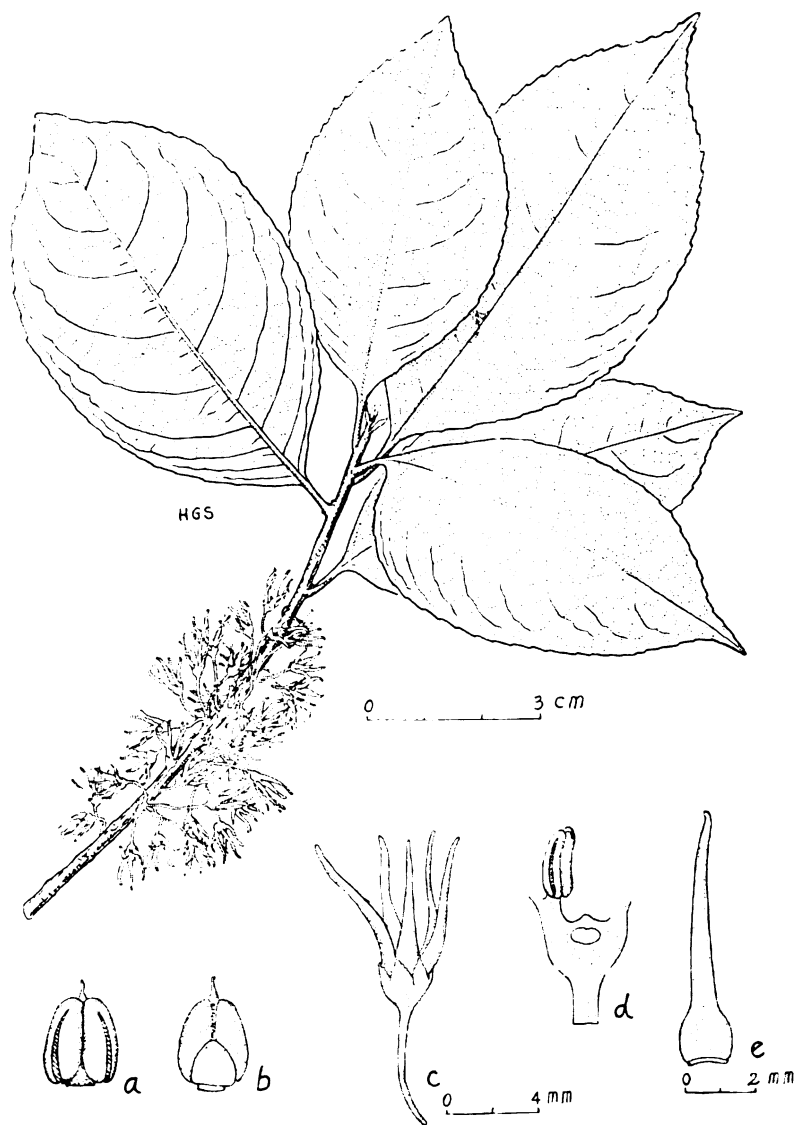


FIGURE 22.—*Melicytus fasciger* Gillespie: *a, b*, stamens; *c*, male flower; *d*, longitudinal section through base of male flower; *e*, petal of male flower.

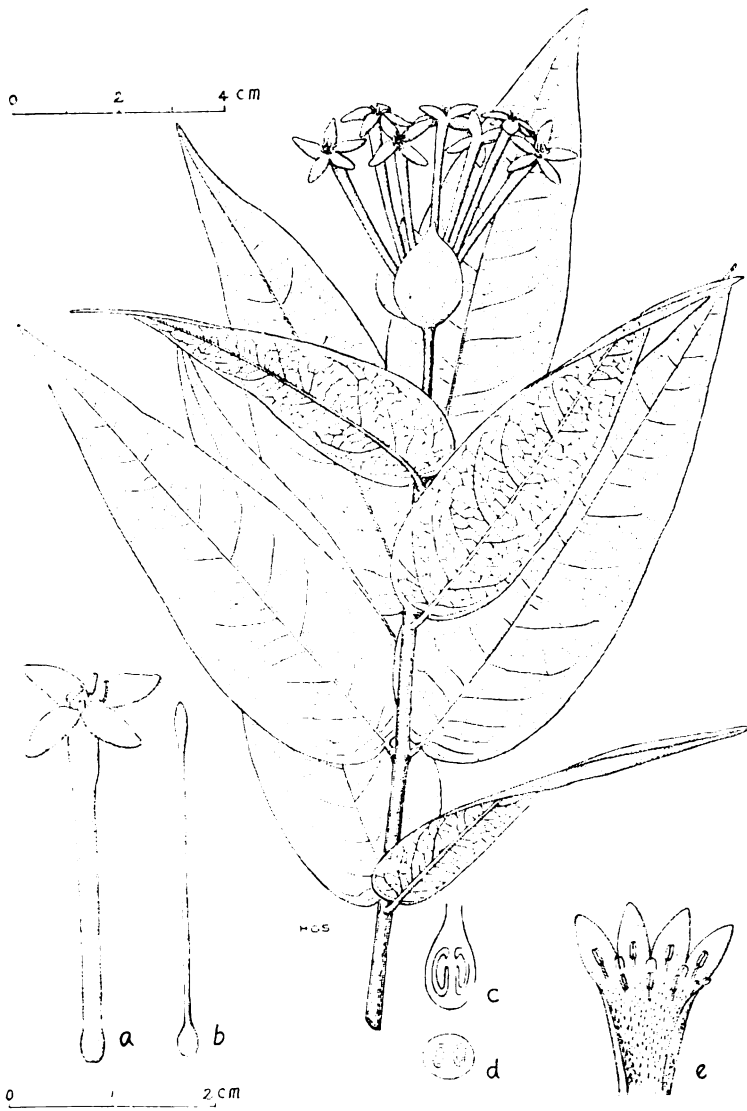


FIGURE 23.—*Phaleria pulchra* Gillespie: a, flower; b, pistil; c, d, longitudinal and transverse sections through ovary; e, portion of corolla.

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FIGURE 24.—*Haplopetalon parksii* Gillespie: *a*, fruit; *b*, portion of seedcoat, greatly enlarged; *c*, seeds, enlarged; *d*, longitudinal section through seed; *e*, flower-bud; *f*, flower; *g*, receptacle; *h*, longitudinal section through receptacle.

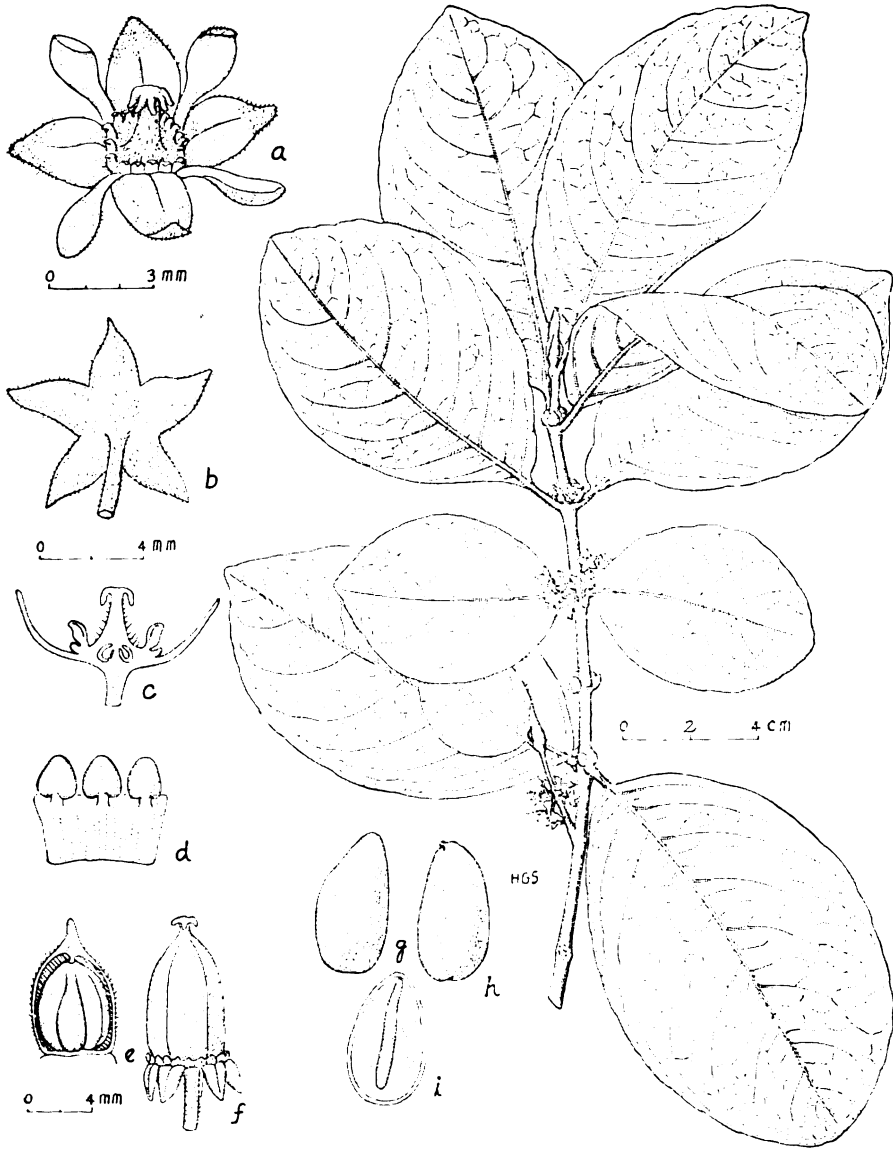


FIGURE 25.—*Haplopetalon secmani* A. Gray: a, flower; b, calyx seen from beneath; c, longitudinal section through receptacle; d, portion of staminal disc with stamens, enlarged; e, portion of fruit showing seeds; f, fruit; g, h, seeds; i, section through seed showing embryo.

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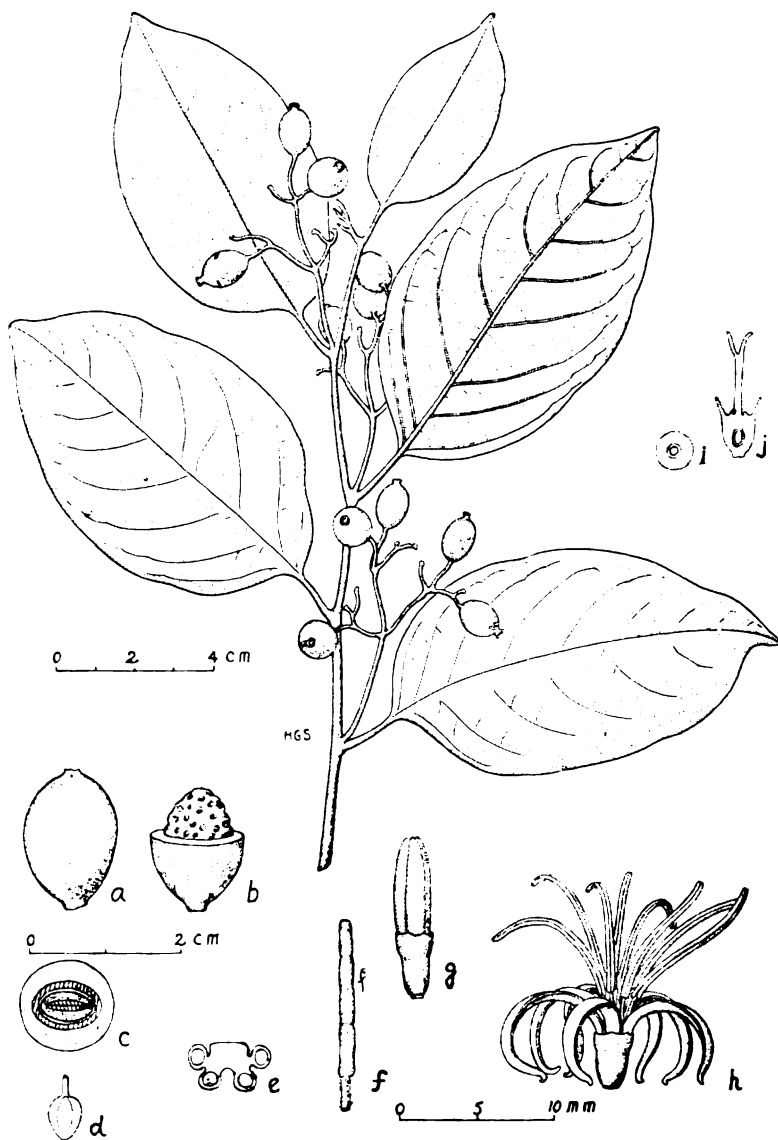


FIGURE 26.—*Mangium vitifense* (A. Gray) Baillon: a, fruit; b, fruit cut open showing seed; c, transverse section through seed; d, embryo; e, transverse section through anther; f, anther, enlarged; g, flower-bud; h, flower; i, transverse section through ovary; j, longitudinal section through ovary.

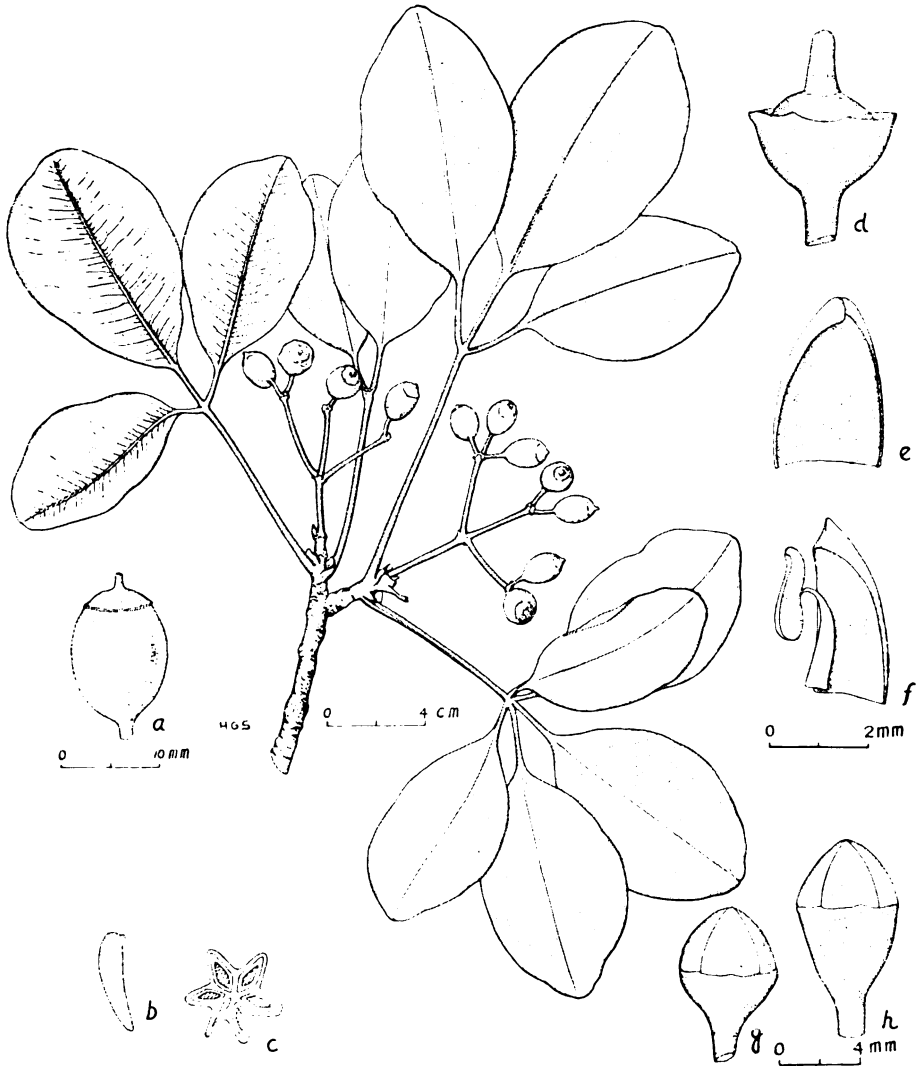


FIGURE 27.—*Heptapleurum vitense* (Seemann) Benth.: a, fruit; b, seed; c, transverse section through dried fruit; d, flower with corolla removed; e, petal; f, petal and stamen; g, h, flower-buds.

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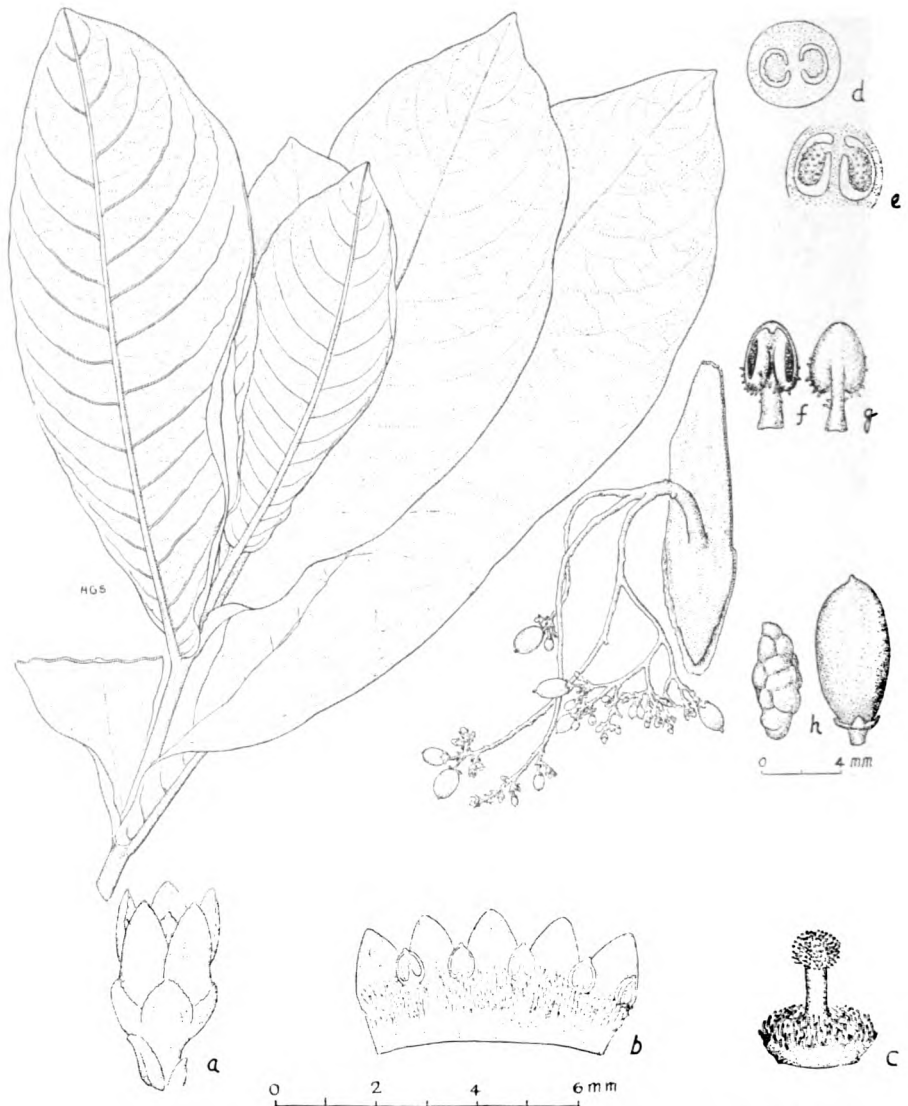


FIGURE 28.—*Geniostoma macrophyllum* Gillespie: a, flower; b, corolla laid open; c, pistil, enlarged; d, e, transverse and longitudinal sections through ovary; f, g, stamens, enlarged; h, mass of seeds; i, fruit.

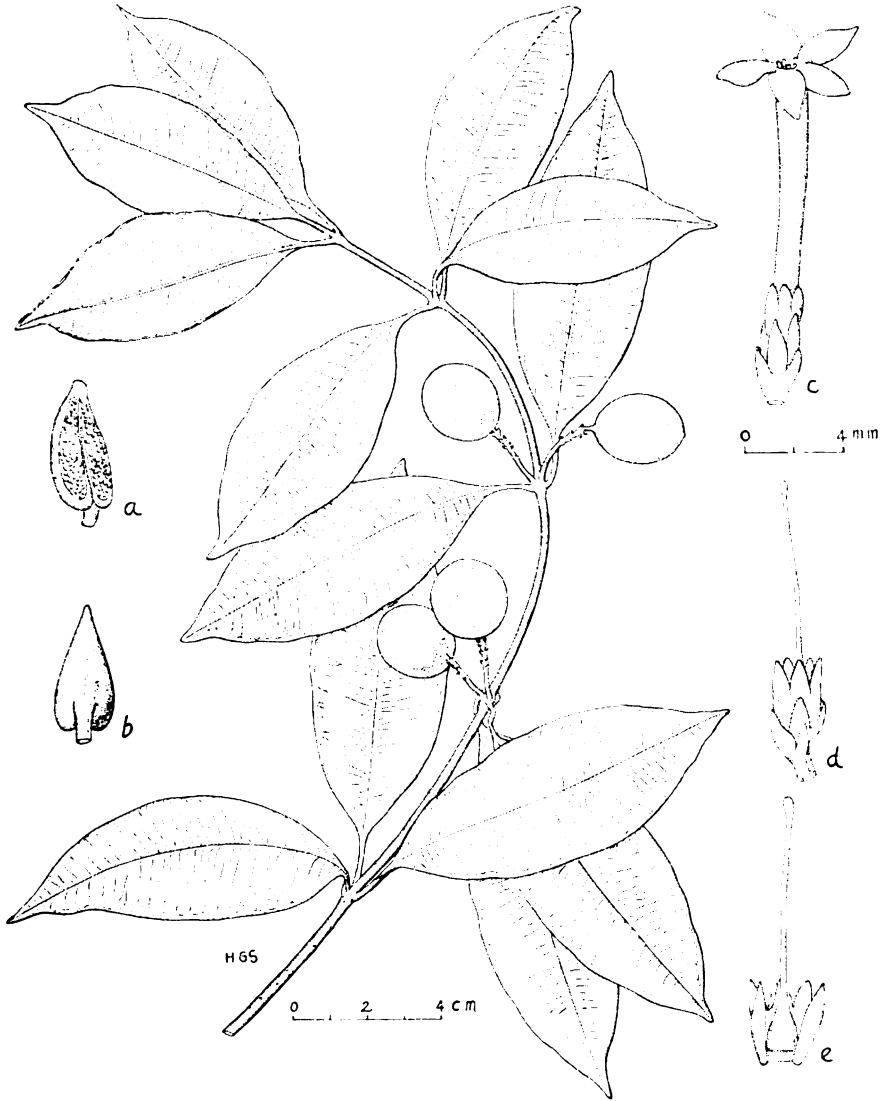


FIGURE 29.—*Mlyxia bracteolosa* Rich: a, b, stamens, enlarged; c, flower; d, flower with corolla removed; e, flower with corolla removed, calyx laid open.

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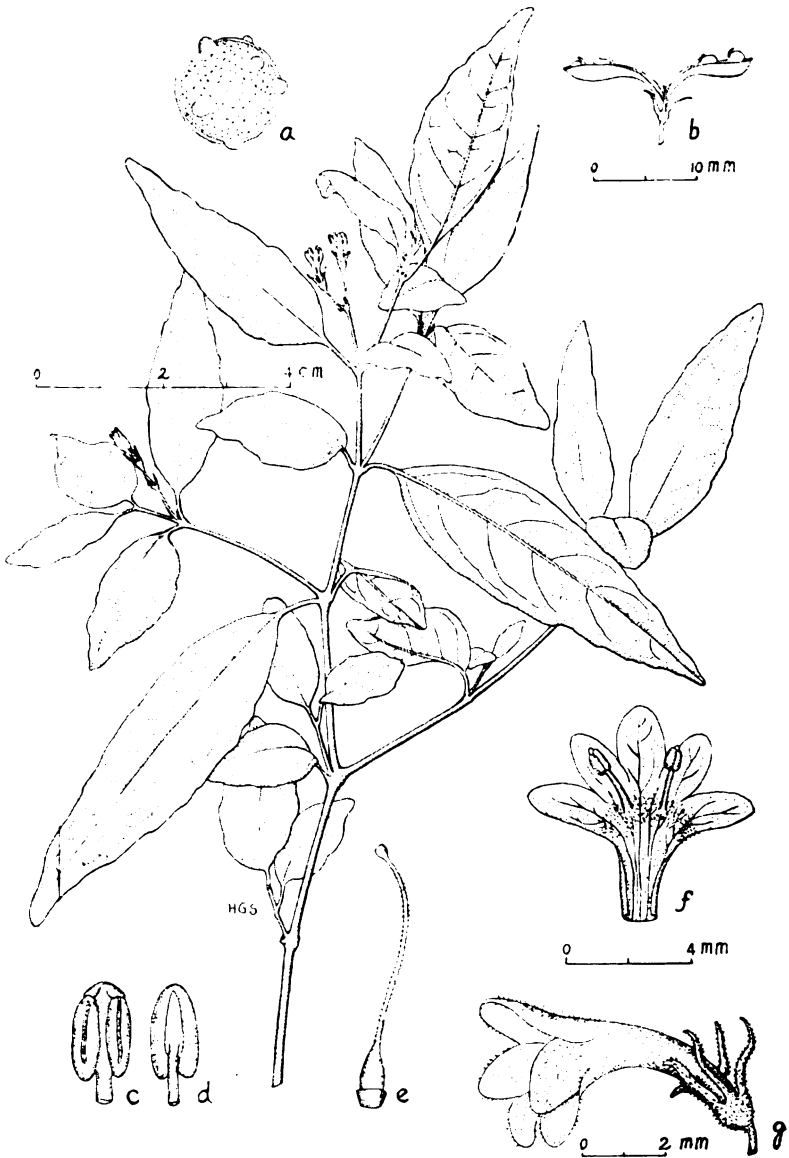


FIGURE 30.—*Calophanes repandus* (A. Gray) Benth. et Hooker: a, pollen grain; b, fruit, the valves opened; c, d, stamens; e, pistil; f, corolla laid open; g, flower.

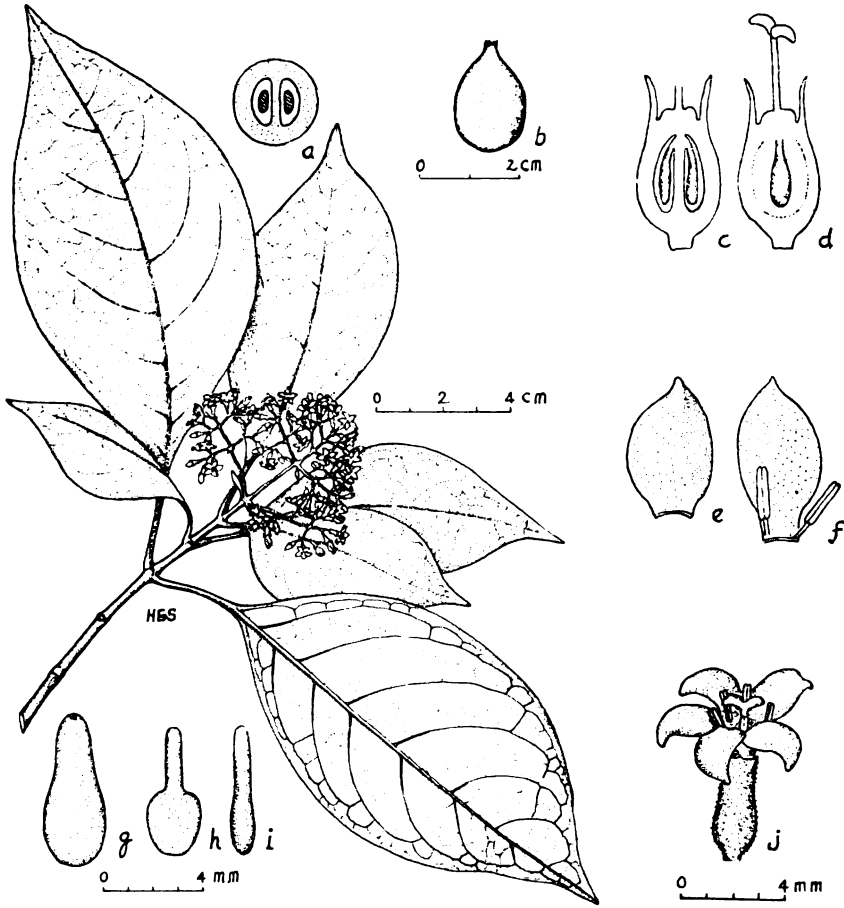


FIGURE 31.—*Abramsia trichotoma* Gillespie: a, transverse section through ovary; b, fruit; c, d, longitudinal sections through ovary; e, petal, dorsal surface, enlarged; f, petal, ventral surface, showing stamens, enlarged; g, seed; h, i, embryo; j, flower.

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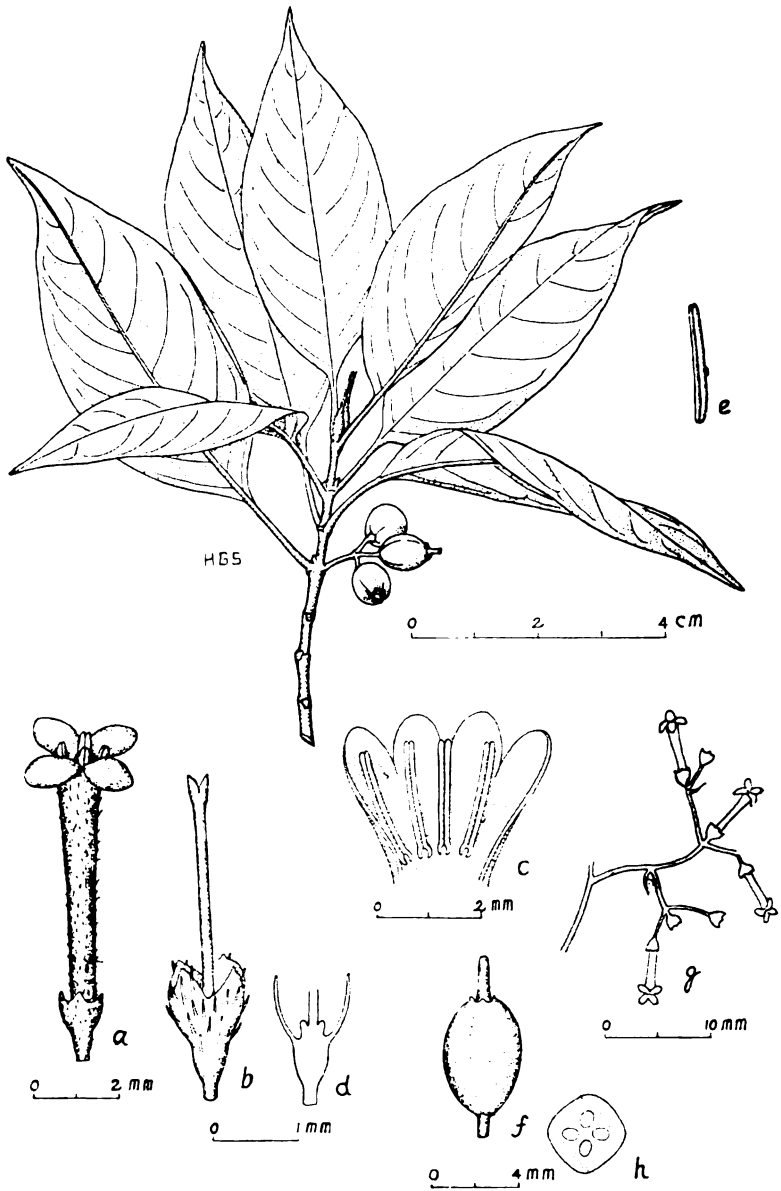


FIGURE 32.—*Guettarda inconspicua* Seemann: *a*, flower; *b*, flower with corolla removed; *c*, portion of corolla; *d*, longitudinal section through ovary; *e*, stamen; *f*, fruit; *g*, portion of inflorescence; *h*, transverse section through fruit.

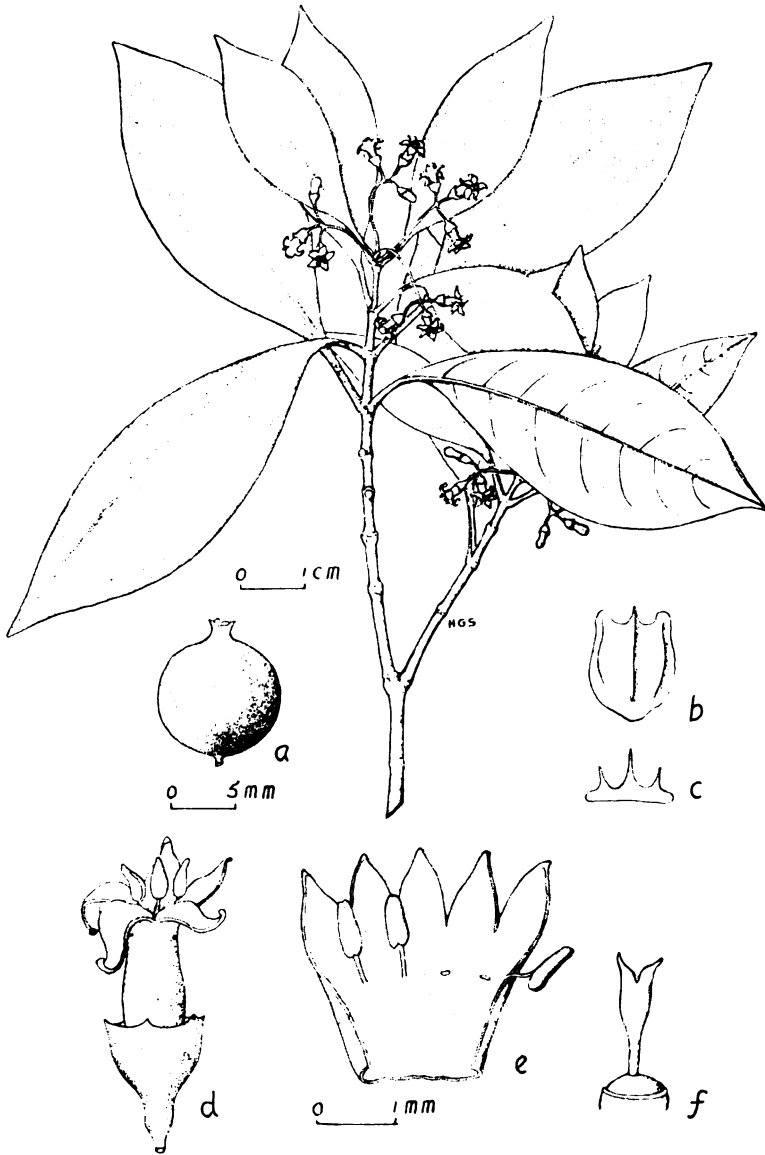


FIGURE 33.—*Psychotria caldwelli* Gillespie: a, fruit; b, seed; c, transverse section through seed; d, flower; e, corolla laid open; f, pistil.

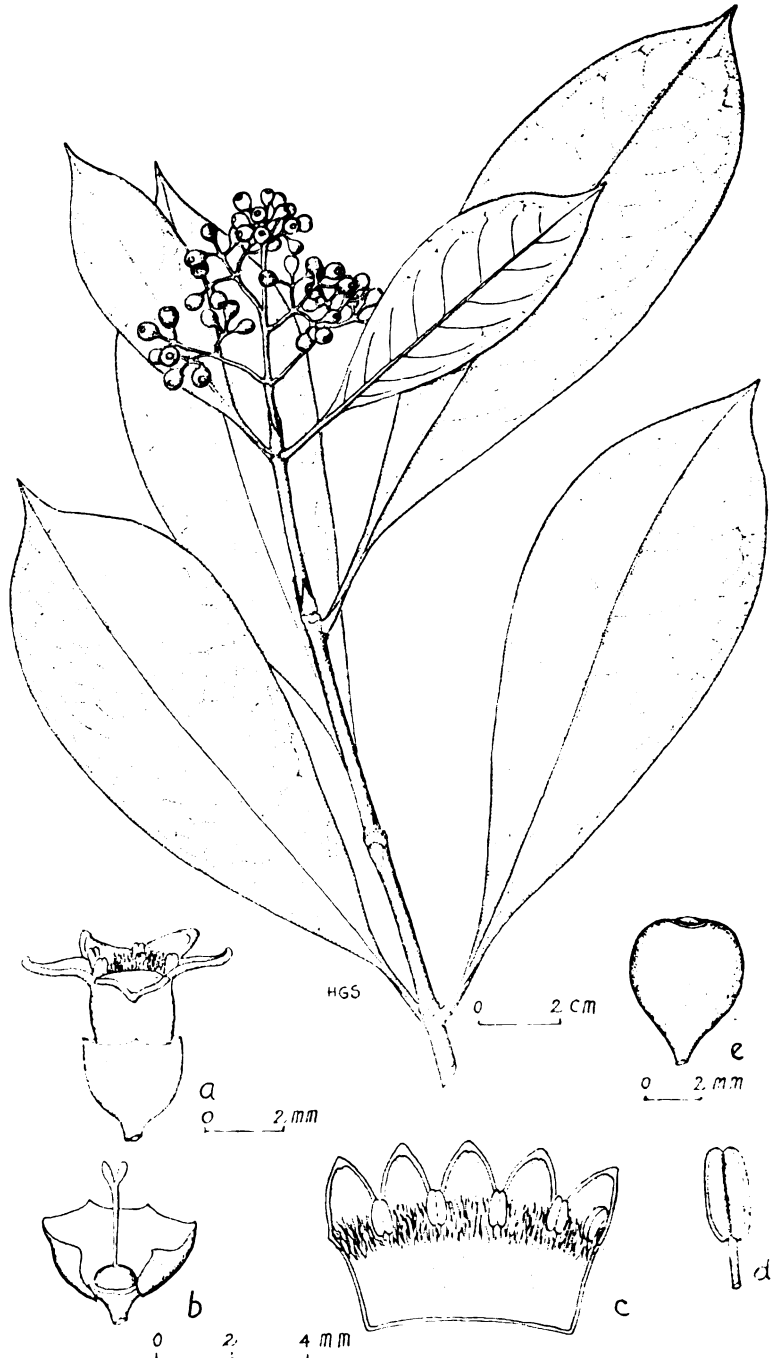


FIGURE 34.—*Psychotria forsteriana* A. Gray: a, flower; b, flower with corolla removed, calyx laid open; c, corolla laid open; d, stamen, enlarged; e, fruit.

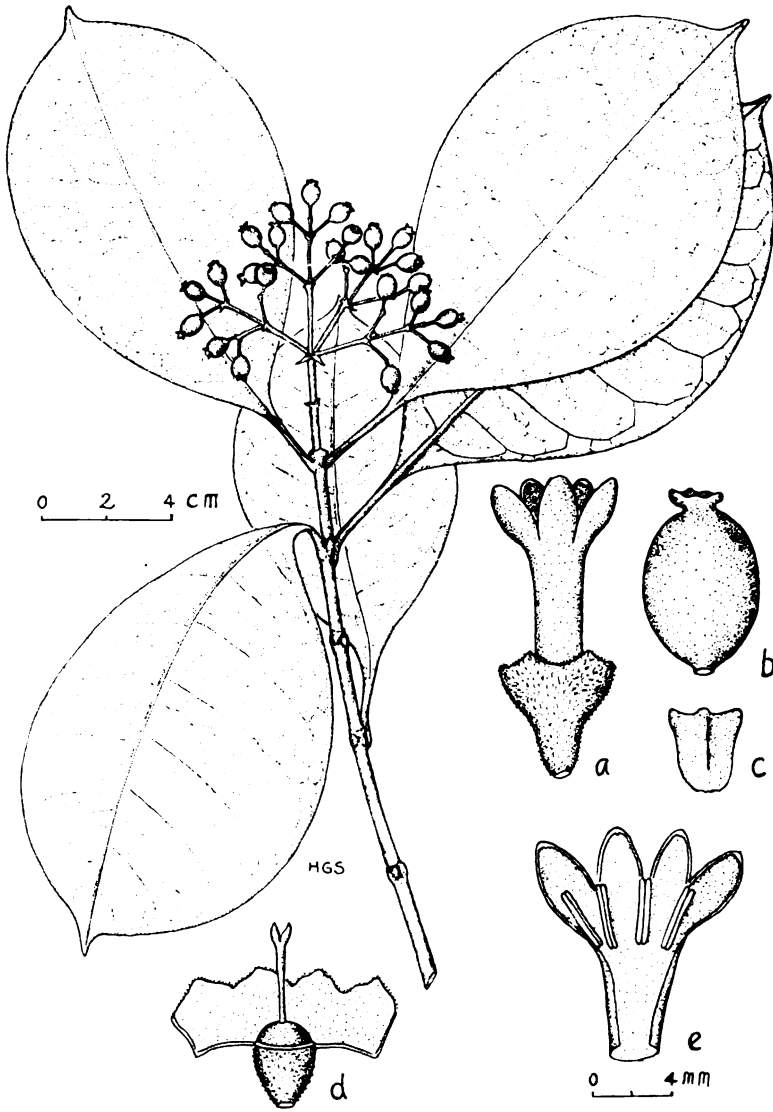


FIGURE 35.—*Psychotria hemisphaerica* Gillespie: a, flower; b, fruit; c, seed; d, flower with corolla removed, calyx laid open; e, corolla laid open.

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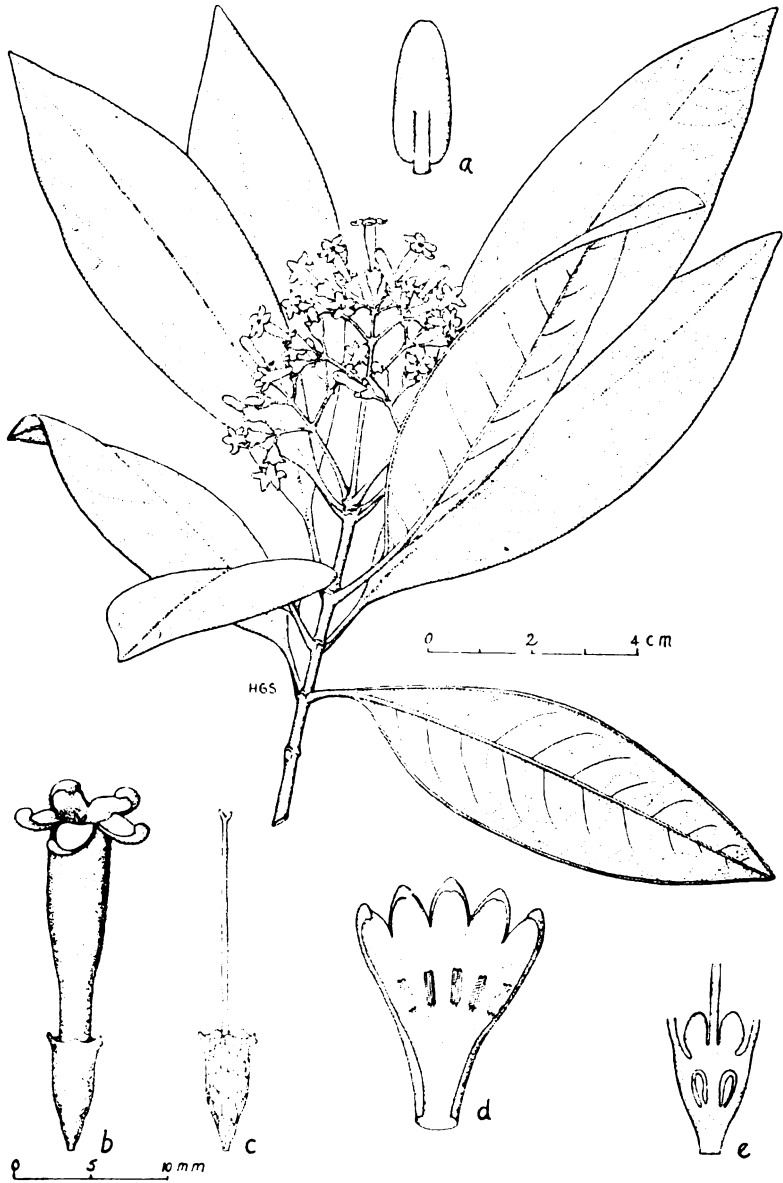


FIGURE 36.—*Psychotria leuensis* Gillespie: *a*, anther, enlarged; *b*, flower; *c*, flower with corolla removed; *d*, corolla open; *e*, longitudinal section through ovary.

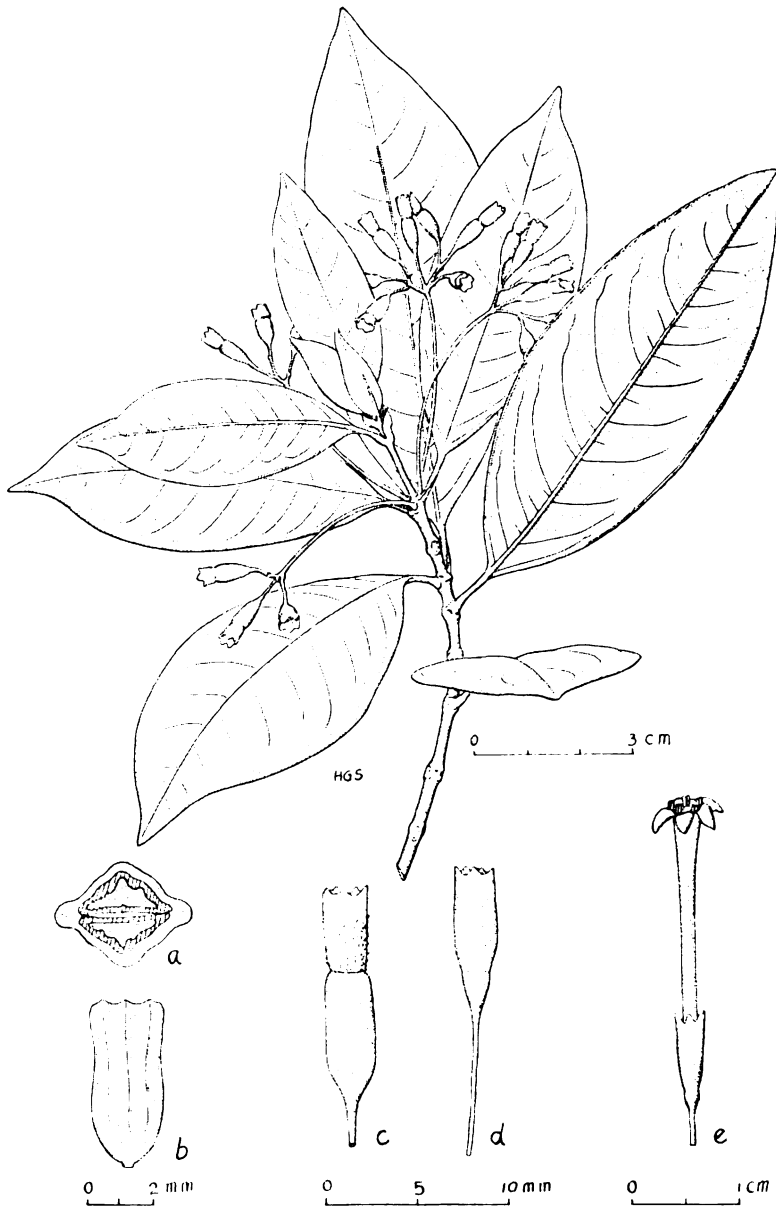


FIGURE 37.—*Psychotria macrocalyx* A. Gray: a, transverse section through dried fruit; b, seed; c, fruit; d, very young fruit; e, flower.

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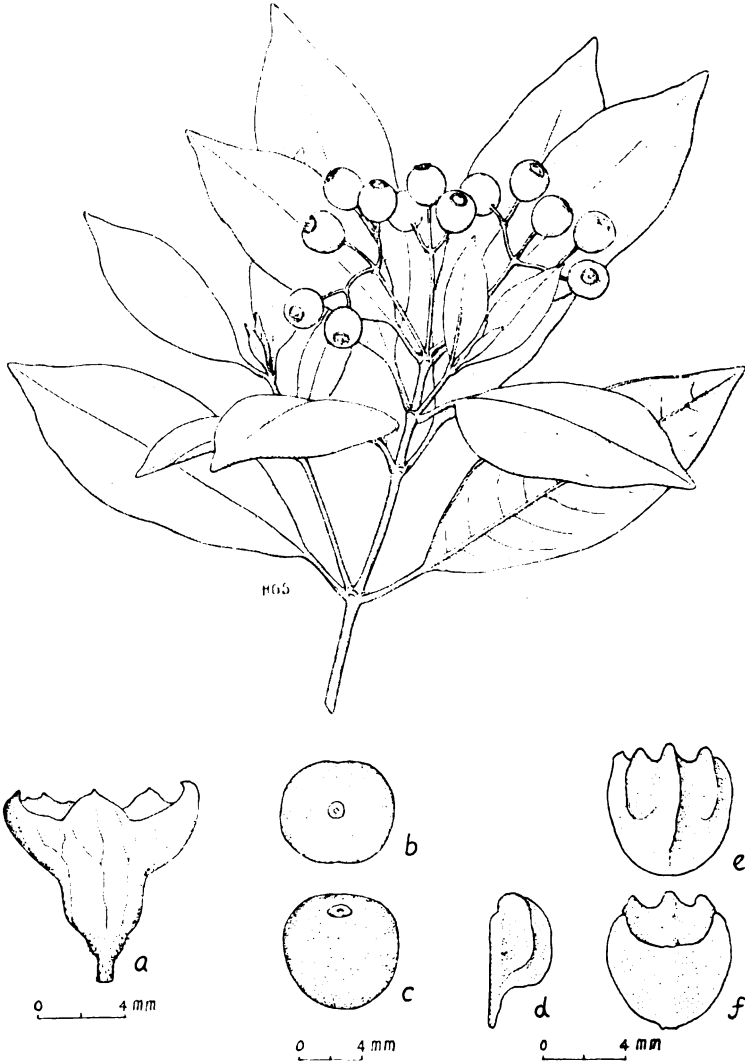


FIGURE 38.—*Psychotria neurocalyx* Gillespie: a, calyx; b, c, fruits; d, e, f, seeds.

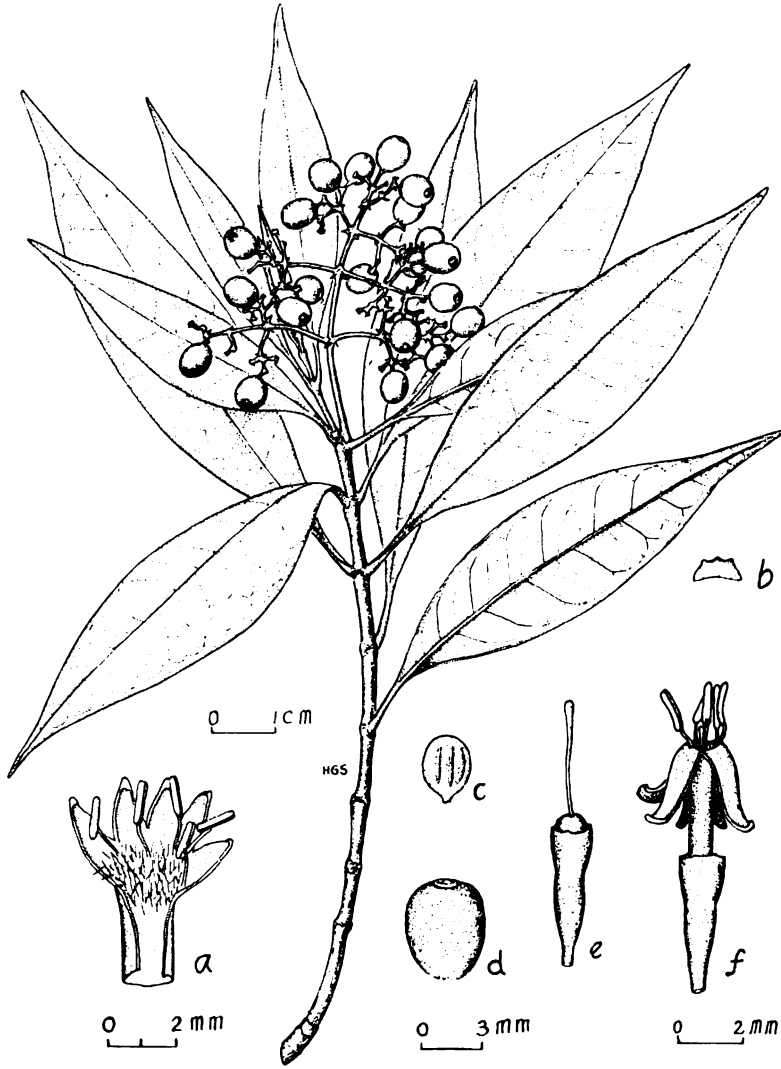


FIGURE 39.—*Psychotria setchelli* Gillespie: a, corolla, laid open; b, transverse section through seed; c, seed; d, fruit; e, flower with corolla removed; f, flower.

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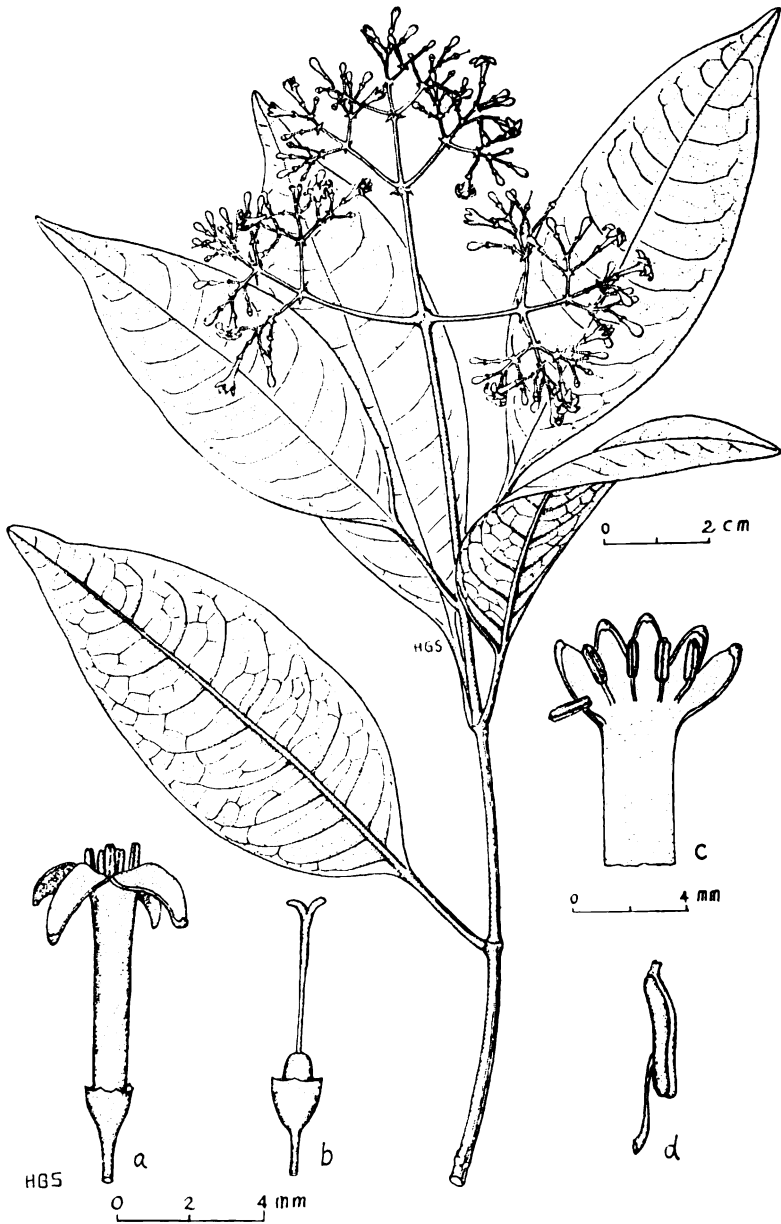
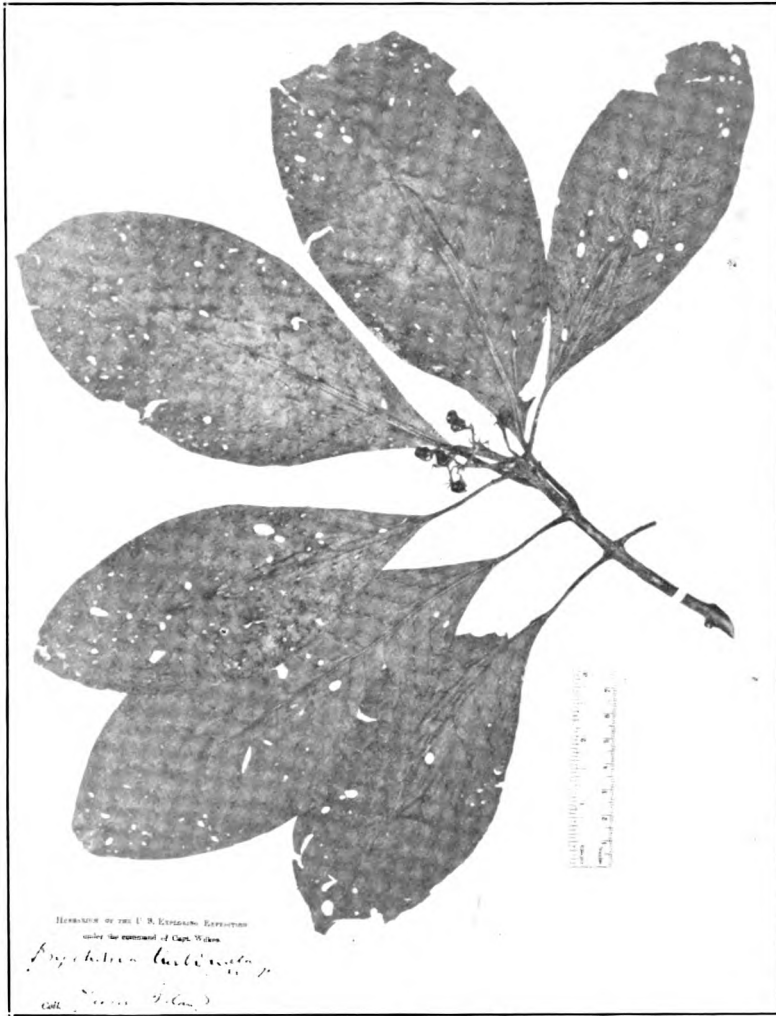
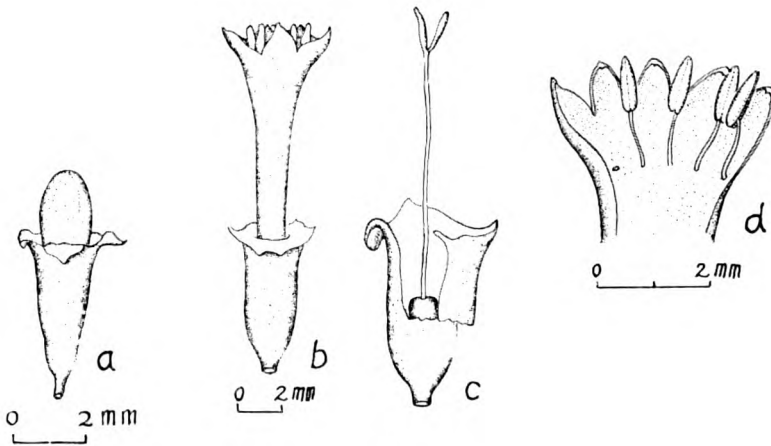


FIGURE 40.—*Psychotria tephrosantha* A. Gray: a, flower; b, flower with corolla removed; c, corolla laid open; d, stamen, enlarged.



A



B

FIGURE 41.—*Psychotria turbinata* A. Gray: A, isotype from the New York Botanical Garden, photograph by Dr. Ira L. Wiggins; B, details of flower: a, flower-bud, b, flower; c, flower with corolla removed, calyx laid open, d, portion of corolla.

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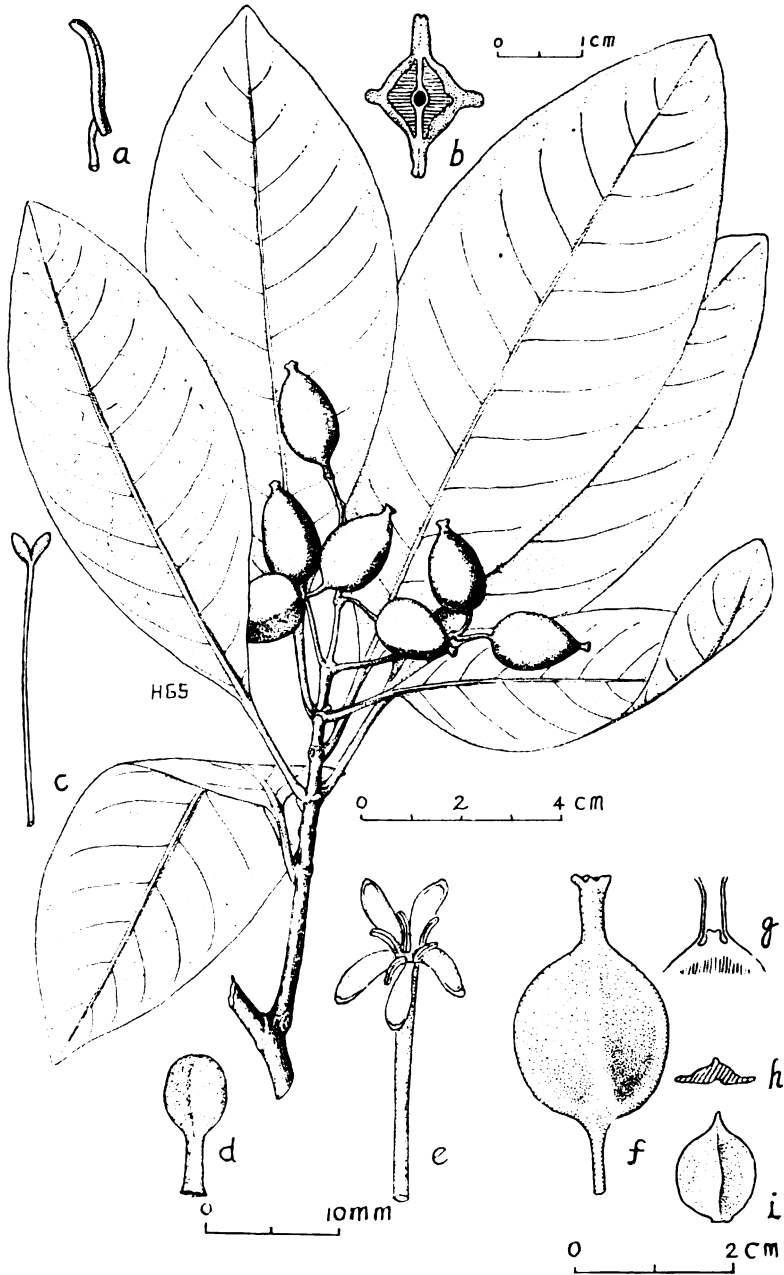


FIGURE 42.—*Psychotria umbraticola* Gillespie: a, stamen, enlarged; b, transverse section through dried fruit; c, style; d, young fruit (inverted); e, flower; f, fruit; g, longitudinal section through apical part of fruit; h, transverse section through seed; i, seed.

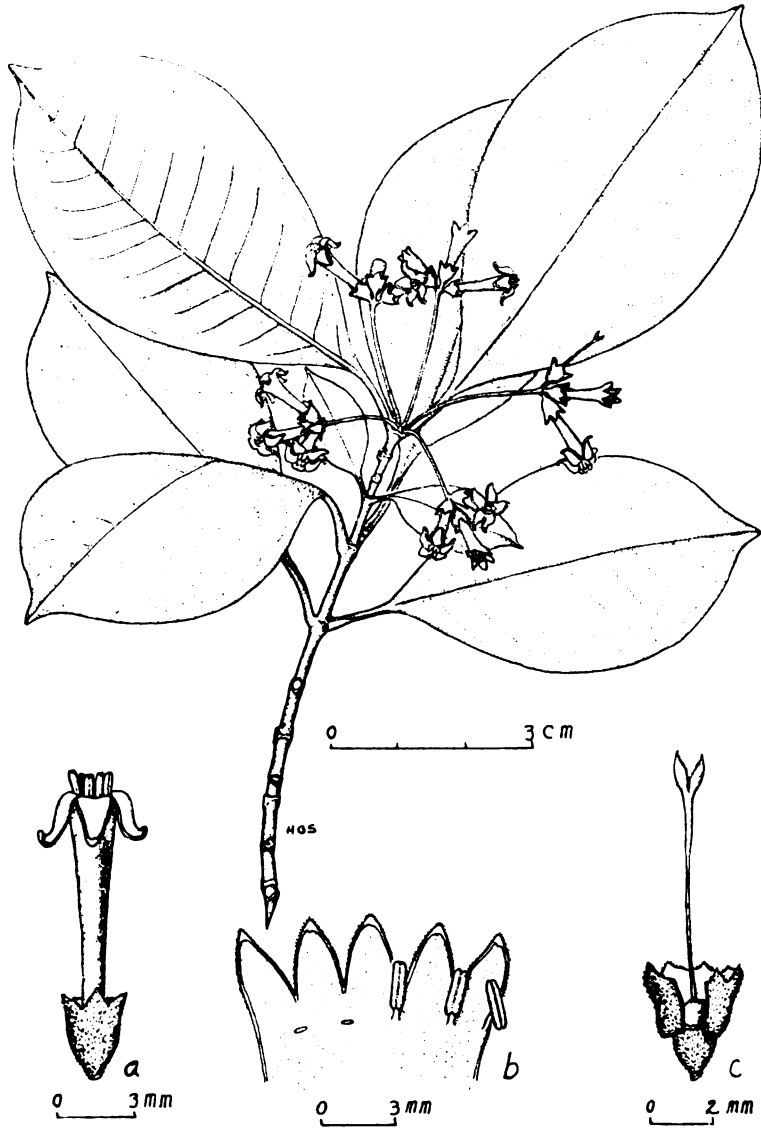


FIGURE 43.—*Psychotria tomensis* Gillespie: a, flower; b, portion of corolla; c, flower with corolla removed, calyx laid open.

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