

STUDIES OF PAPUASIAN PLANTS, VI

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*Continued from page 121***Elaeocarpus L.**

IN the account of the Papuan species of *Elaeocarpus* by Schlechter (in Bot. Jahrb. 54: 107–146. 1916), 57 species are discussed, although six of these species were insufficiently known to Schlechter and were not placed in sections by him. Since his treatment, 25 species have been described from Papua, mostly by R. Knuth. Thus, a total of 82 species has now been described from Papua; in the present treatment I describe 32 Papuan species as new, bringing the total known from our region to about 114 species.

It has been pointed out by Schlechter and many other writers that *Elaeocarpus* is a difficult genus to break up into groups, due to the extraordinarily complex inter-specific relationships. The classical division of the genus into four sections, apparently first proposed by Masters (in Hook. f. Fl. Brit. Ind. 1: 400–408. 1874) and later adopted by K. Schumann (in E. & P. Nat. Pfl. 3(6): 5. 1890), is scarcely useful, for such a complex mass of species is not divisible into such a small number of sections, at least if any degree of natural grouping is to be retained. On the other hand, it is found that the species of various regions fall into more or less recognizable groups, much smaller than the originally proposed sections. Nine of these groups were recognized and named as sections by Schlechter among the Papuan species, and my studies in the same region incline me to believe that these are more or less natural, although a certain degree of overlapping is evident. Schlechter's classification is extremely useful, and I am able to retain it with some modifications.

A classification of the Malayan species has recently been proposed by Corner (in Gard. Bull. Straits Settlements. 10: 308–329. 1939), without the use of sectional names. It remains for a monographer to bring together the treatments which have been suggested for various regions and to evaluate and limit the sections thus far named. It seems probable that the genus can be best treated by recognizing a greater number of sections than has as yet been proposed.

Before accepting Schlechter's sectional names, I attempted to typify the earlier-proposed sections in order to correlate them with Schlechter's. As a result, it seems that two of his names, § *Ptilanthus* and § *Papuanthus*, are referable to § *Ganitrus* and § *Monocera* respectively. The two remaining

sections of Masters, Schumann, etc., § *Dicera* and § *Acronodia*, appear not to occur in their limited sense in Papuasia.¹

In the following pages I attempt to place in Schlechter's system those species which were not so placed by him or which have been subsequently described, referring my new species to the appropriate groups. The following key to the Papuan sections is based primarily upon Schlechter's, with certain modifications made necessary by additional material.

KEY TO SECTIONS OCCURRING IN PAPUASIA

Ovary-locules with 2 collateral ovules.

Petals broad, bilobed.....1. § *Lobopetalum*.

Petals fimbriate, the lobes at least 5.

Segments of the petals digitate, thickened at apex; racemes ascending; petals more or less erect.2. § *Dactylosphaera*.

Segments of the petals not thickened; racemes horizontally spreading; petals spreading at anthesis.3. § *Chascanthus*.

Ovary-locules with 4-12 ovules (occasionally 2-ovulate in *E. roseo-albus* of § *Fissipetalum*).

Ovary 5 (rarely 4-, 6-, or 7-)-locular, each locule usually 4 (rarely 6-)-ovulate; inflorescence usually arising from branchlets below leaves, often unilateral; fruit comparatively large, thick-walled, with frequently ornamented endocarp, the original 4-7 locules apparent but often sterile; leaves and branchlets essentially glabrous at maturity, the leaf-blades usually large, glossy, and serrulate or crenate.4. § *Ganitrus*.

¹*Elaeocarpus* § *Dicera* (Brongn. & Gris in Bull. Soc. Bot. Fr. 8: 201. 1861; Mast. in Hook. f. Fl. Brit. Ind. 1: 401. 1874; K. Schum. in E. & P. Nat. Pfl. 3(6): 5. 1890) is based on *Dicera* J. R. & G. Forst. (Char. Gen. 79. t. 40. 1776), which genus was proposed with two species, *D. dentata* and *D. serrata*, both New Zealand plants further amplified by G. Forster (Fl. Ins. Austr. Prodr. 41. 1786). Since the original illustration pertains to *Dicera dentata*, this has generally been taken to typify the Forsters' genus and thus as the type of *Elaeocarpus* § *Dicera*.

Elaeocarpus dentatus (J. R. & G. Forst.) Vahl has the following essential characters: racemes associated with the leaves; flowers of average size (petals 7-10 mm. long); petals membranaceous, strictly glabrous, and 3-lobed at the apex, the lobes rounded or undulate but not fimbriate; disk continuous, hispidulous; stamens 10-20, the anthers mucronulate or with a minute awn; ovary sericeous, 2-locular, each locule 4-ovulate [in the specimens available to me, and also in Hook. Ic. Pl. 7: t. 602 (as *E. Hinau* A. Cunn.). 1844; Cheeseman, Ill. N. Zeal. Fl. 1: pl. 24. 1914, shows the ovules as 6, and some variation in this respect is probable].

The only Papuan group of *Elaeocarpus* which suggests § *Dicera* (in its narrow sense) is § *Fissipetalum* Schlechter. However, the Papuan plants of this section have smaller flowers and petals which are definitely lacinate or fimbriate rather than broadly lobed. Therefore I follow Schlechter in taking up the sectional name *Fissipetalum* for this group of Papuan *Elaeocarpi*, although it is possible that a student of the entire genus may consider the petal characters secondary and refer this group to § *Dicera*. The extent of § *Dicera* beyond New Zealand, in its limited application, is questionable, but it has obviously been much too broadly interpreted by Masters and others.

Elaeocarpus § *Acronodia* (Mast. in Hook. f. Fl. Brit. Ind. 1: 408. 1874; K. Schum. in E. & P. Nat. Pfl. 3(6): 5. 1890) is based on *E. Acronodia* Mast. (*Acronodia punctata* Bl., not *Elaeocarpus punctatus* Wall.). It is a very distinct and natural group, with tetramerous flowers and staminate and monoecious individuals. Some authors (e. g. Corner in Gard. Bull. Straits Settle. 10: 309. 1939) imply that *Acronodia* is worthy of subgeneric rank. It apparently does not extend east to Papuasia and thus does not concern the present problem.

Ovary 2- or 3-locular (said to be 5-locular in *E. sterrophyllus* of § *Oreocarpus*); fruit at maturity usually 1-locular, sometimes probably 2- or 3-locular.

Petals thinner than the sepals and usually obviously different, clearly broadened at apex.

Ovary-locules usually 4-ovulate (occasionally 2-ovulate in *E. roseo-albus* and 6-ovulate in *E. polydactylus*); inflorescences slender, associated with the leaves at anthesis; flowers small (petals up to 6 mm. long, usually essentially glabrous); stamens 10-30, erostrate; fruit comparatively thick-walled.5. § *Fissipetalum*.

Ovary-locules 6-12-ovulate (very rarely 4-ovulate; if 4- or 6-ovulate, the other characters obviously not of § *Fissipetalum*).

Flowers very large for the genus (petals often exceeding 20 mm. in length); leaves large, usually aggregated at ends of thick branchlets; flowers arranged in comparatively short few-flowered racemes arising from the branchlets below leaves; stamens numerous (frequently 50-100 or more), with conspicuously awned anthers; ovary sericeous; fruit large, somewhat flattened, the endocarp also flattened.8. § *Monocera*.

Flowers smaller (petals not exceeding 20 mm. in length, in most species much smaller); leaves not aggregated in terminal clusters; racemes often elongated and many-flowered; stamens fewer (usually 15-50); fruit round in cross-section, not flattened.

Ovary glabrous.6. § *Oreocarpus*.

Ovary sericeous.7. § *Blepharoceras*.

Petals about the size of the sepals (usually less than 8 mm. long) and often somewhat similar in texture, usually narrowed distally and subentire or obscurely toothed (in a few species broadened at apex and distinctly fimbriate), densely sericeous without and often within, often with a conspicuous swollen carina within; ovary-locules 6-12-ovulate; fruits comparatively small, the pericarp rarely exceeding 3 mm. in thickness.9. § *Coilopetalum*.

1. § LOBOPETALUM

Elaeocarpus § *Lobopetalum* Schlechter in Bot. Jahrb. 54: 109. 1916.

Based on the single species *E. bilobatus* Schlechter and its variety *acutatus* Schlechter, both entities from the Sepik region of Northeastern New Guinea, this section appears not to be represented in the material of the Archbold collections.

2. § DACTYLOSPHAERA

Elaeocarpus § *Dactylosphaera* Schlechter in Bot. Jahrb. 54: 111. 1916.

In addition to the six species upon which Schlechter originally founded this well-marked section, *E. Lamii* O. C. Schmidt and the new species described below also belong in § *Dactylosphaera*. The original six species are obviously closely related and Schlechter did not designate a type for the section. Since *E. heptadactylus* Schlechter is the only species illustrated by him, this may be designated as the lectotype of the section.

Elaeocarpus (§ *Dactylosphaera*) *myrmecophilus* sp. nov.

Arbor 5-6 m. alta, ramulis validis subteretibus fistulosis apicem versus puberulis et 7-10 mm. diametro demum glabratis; foliis apicem ramulorum versus congestis, petiolis subnullis, laminis chartaceis in sicco fusco-olivaceis anguste spathulato-obovatis, (15-) 20-30 cm. longis, 5-8.5 cm. latis, basim versus gradatim angustatis et basi ipso late obtusis vel abrupte rotundatis, apice obtusis vel rotundatis, margine apiculato-crenulatis (dentibus 1 vel 2 per centimetrum), utrinque glabris vel costa nervisque obscure

puberulis, costa valida utrinque prominente, nervis lateralibus utrinsecus 15–20 patentibus copiose anastomosantibus supra paullo subtus valde elevatis, rete venularum intricato conspicuo utrinque valde prominulo; racemis erectis 10–21 cm. longis, basi bracteis foliaceis deltoideis ad 3 cm. longis interdum subtentis, pedunculo brevi squamulis deltoideis puberulis circiter 2 mm. longis saepe vestito, rhachi angulata puberula gracili (1–1.5 mm. diametro); floribus numerosis, pedicellis curvatis gracilibus 3–5 mm. longis minute sericeo-puberulis; sepalis papyraceis deltoideo-oblongis, 3.5–4 mm. longis, 1.5–2 mm. latis, subacutis, utrinque obscure puberulis; petalis tenuiter carnosus unguiculato-cuneatis, 3.5–4 mm. longis, 1.5–2 mm. latis, intus basim versus et margine puberulis, superne in segmentis 6–8 subaequalibus circiter 1 mm. longis apice globoso-incrassatis divisis; disci lobis 5 sepalis oppositis liberis carnosus minute puberulis oblongis circiter 1 mm. longis et latis, apice truncato emarginatis; staminibus 15, glabris vel apice antherarum inconspicue setulosis, 2–2.5 mm. longis, antheris quam filamentis paullo longioribus apice truncatis; ovario conico conspicue 5-angulato minute puberulo 3-loculari, ovulis 2 in quoque loculo, stylo gracili circiter 1.5 mm. longo superne glabro.

NETHERLANDS NEW GUINEA: 4 km. southwest of Bernhard Camp, Idenburg River, alt. 850 m., *Brass* 13231 (TYPE), Mar. 1938 (tree 5–6 m. high, occasional on higher banks of river in rain-forest; branches upright, inhabited by ants; flowers green).

This species of § *Dactylosphaera* is very distinct in its sessile long narrowly spatulate-obovate leaf-blades, elongate racemes, and comparatively large flowers. In other characters it is perhaps most suggestive of *E. dolichodactylus* Schlechter.

Elaeocarpus (§ *Dactylosphaera*) *pachydactylus* Schlechter in Bot. Jahrb. 54: 113. 1916.

NETHERLANDS NEW GUINEA: Hollandia, Bernhard bivak, alt. about 55 m., *Neth. Ind. For. Serv.* 25756.

The cited specimen bears juvenile inflorescences, but in all respects agrees well with the description of *E. pachydactylus*, previously known only from the Sepik region of Northeastern New Guinea, also at low elevation.

3. § CHASCANTHUS

Elaeocarpus § *Chascanthus* Schlechter in Bot. Jahrb. 54: 115. 1916.

In proposing this very sharply marked section, based on two new species, Schlechter did not designate a type. However, since *E. multisectus* Schlechter is illustrated, this may arbitrarily be taken as the lectotype of the section. Duplicates of the type of *E. multisectus*, *Schlechter* 16521, are available at UC. Since Schlechter's treatment, no other species referable to § *Chascanthus* appear to have been described; below I propose two new species which are obviously of this relationship. In addition, *Brass* 6956 and 7282, from the Fly River region of British New Guinea, represent a new species of § *Chascanthus*; these specimens bear a manuscript name of Knuth which may already have been published.

Elaeocarpus (§ *Chascanthus*) *solomonensis* sp. nov.

Arbor ad 25 m. alta, ramulis gracilibus teretibus apicem versus puberulis cito glabratis purpurascensibus vel cinereo-fuscescentibus; petiolis conspicuis gracilibus (0.5–1 mm. diametro) canaliculatis, glabris vel incon-

spicue puberulis, 1–2 cm. longis, basi et apice paullo incrassatis; laminis papyraceis siccitate fusco-olivaceis oblongo-ellipticis, (6–) 10–13 cm. longis, (2–) 3–5 cm. latis, basi late obtusis, apice in acuminem ad 1.5 cm. longum gradatim angustatis, margine regulariter crenato-serrulatis (dentibus 3–5 per centimetrum primo saepe calloso-mucronulatis demum spinulosus vel obtusis), utrinque glabris vel costa juvenili obscure puberulo-sericeis, subtus in axillis nervorum interdum domatiiferis; racemis e ramulis infra folia ortis patentibus sub anthesi 15–30 cm. longis laxe multifloris, pedunculo brevi et rhachi gracilibus (1–1.5 mm. diametro) pedicellisque arcte cinereo-puberulis, pedicellis gracillimis subrectis 5–18 mm. longis; alabastris late conicis 3–4 mm. longis; sepalis submembranaceis elliptico-ovatis acutis, 4–5 mm. longis, 1.5–2 mm. latis, extus obscure puberulis, intus glabris; petalis submembranaceis ex ungue brevi perlate cuneatis, 6–7 mm. longis, apice 7–10 mm. latis, margine (et marginibus loborum) haud hispidulis ceterum glabris, infra medium plerumque 5- vel 6-lobatis, parte apicali in segmenta 60–90 linearia acuta copiose et irregulariter fimbriatis; disci lobis 5 sepalis oppositis oblongo-subglobosis, circiter 1 mm. diametro, minute et dense brunneo-velutinis, apice truncatis; staminibus 30–35 ubique minute hispidulis 4–4.5 mm. longis, filamentis gracilibus curvatis circiter 1.5 mm. longis, antheris erectis oblongo-subulatis 2.5–3 mm. longis apice acutis; ovario copiose et breviter pallido-sericeo 3-loculari, ovulis in quoque loculo 2 elongatis, stylo subulato circiter 1.5 mm. longo superne glabro; racemis pedicellisque sub fructu incrassatis, rhachis parte apicali interdum delapsa; fructibus ellipsoideis, maturitate 15–22 mm. longis et 8–13 mm. latis, basi et apice obtusis, pericarpio (epicarpio azureo duro et endocarpio crasso ruguloso inclusis) 2–4 mm. crasso, semine solitario oblongo-ellipsoideo.

SOLOMON ISLANDS: Bougainville: Siwai, *Waterhouse 96* (A, NY), 177 (A, NY) (trees 10–20 m. high, in jungle; native name: *ruhonai*); Kupei Gold Field, alt. 1200 m., *Kajewski 1752* (tree to 20 m. high, common in rain-forest; fruit blue); Guadalcanal: Uulolo, Tutuve Mt., alt. 1200 m., *Kajewski 2608* (common tree to 20 m. high with medium buttresses; bark fairly smooth; wood white, soft; fruit blue; native name: *chikora*); Malaita: Quoimonapu, alt. 50 m., *Kajewski 2327* (TYPE), Dec. 10, 1930 (tree to 25 m. high, common in rain-forest; trunk without prominent flanges or buttresses; flowers faintly scented, the petals white, feathery, the stamens black; native name: *isikor*); San Cristoval: Magoha River, *Brass 2751* (slender tree 20 m. high, in lowland rain-forest; bark pale brown, slightly flaky; wood soft, pale; leaf-blades smooth and shining above, paler beneath; fruit pale blue).

In spite of the altitudinal range indicated by the above-cited specimens, there can be no doubt that all are conspecific. The only specimen with mature flowers is indicated as the type, but younger inflorescences, agreeing in all details, are found on *Waterhouse 177* and *Kajewski 2608*. Fruiting specimens are *Kajewski 1752* and *2608* and *Brass 2751*.

Elaeocarpus solomonensis is a close relative of the New Guinean *E. multi-sectus* Schlechter, the two species agreeing in the texture, shape, and margins of leaves, their elongate inflorescences, copiously and irregularly fimbriate petals, erect blackish anthers on curved filaments, etc. However, the new species has the leaf-blades strictly glabrous at maturity (rather than sericeous-puberulent on both surfaces and persistently so beneath), the pedicels comparatively slender, and the petals glabrous except for a few

hairs at margins (rather than barbate on the claw without). In foliage, *E. solomonensis* suggests the specimens which I refer to *E. fauroensis* Hemsl. (see discussion below under § *Ganitrus*). However, *E. fauroensis* has a nearly globose fruit, larger and thicker-walled than that described above. Furthermore, Hemsley's species has somewhat larger leaf-blades, which are often broadest above the middle, and its petioles are shorter and much stouter than those of the new species.

Elaeocarpus (§ *Chascanthus*) *leucanthus* sp. nov.

Arbor ad 14 m. alta, ramulis subteretibus apicem versus 2–3 mm. diametro et brunneo-hirtis cito nigrescentibus glabratis; petiolis gracilibus 1.5–3.5 cm. longis ut ramulis decidue hirtis, basi et apice incrassatis; laminis chartaceis vel subcoriaceis in sicco fuscis ellipticis, 8–14 cm. longis, 3–6 cm. latis, basi late obtusis, apice in acuminem ad 1.5 cm. longum subito cuspidatis, margine recurvo obscure serrato-crenulatis (dentibus 1 vel 2 per centimetrum), supra glabris vel juventute sericeo-hirtellis, subtus praesertim nervis breviter brunneo-hirtellis, costa supra paullo subtus valde prominente, nervis lateralibus utrinsecus 5–7 arcuato-adscedentibus anastomosantibus supra subplanis subtus elevatis, rete venularum utrinque perspicue prominulo; racemis axillaribus vel infra folia orientibus sub anthesi 5–12 cm. longis, pedunculo brevi et rhachi gracilibus (0.5–1 mm. diametro) pedicellis pilis circiter 0.5 mm. longis copiose brunneo-hirtis; floribus plerumque 15–20 per inflorescentiam, pedicellis gracilibus sub anthesi 12–20 mm. longis, alabastris anguste elongatis; sepalis tenuiter papyraceis lanceolatis, 7–8 mm. longis, circiter 1.5 mm. latis, acutis, utrinque obscure puberulis; petalis membranaceis oblongo-cuneatis, 9–10 mm. longis, 3.5–4.5 mm. latis, utrinque praesertim inferne sericeis, basi angustatis, parte apicali in segmenta 19–21 linearia obtusa leviter inaequalia pectinatis; disci lobis 5 sepalis oppositis subconnatis carnosis oblongis circiter 1 mm. longis et latis, dense sericeis, apice truncatis; staminibus circiter 20, 3–3.5 mm. longis, filamentis gracilibus glabris circiter 1 mm. longis, antheris membranaceis 2–2.5 mm. longis superne obscure hispidulis apice setas 8–12 conspicuas 0.3–1 mm. longas gerentibus; ovario ellipsoideo pilis circiter 0.8 mm. longis dense aureo-sericeo 3-loculari, ovulis in quoque loculo 2, stylo subulato circiter 4 mm. longo superne glabro; fructibus paucis ut videtur saepe 1 per inflorescentiam, immaturis ellipsoideis ad 25 × 18 mm., pericarpio duro 2–3 mm. crasso extus ruguloso et pallido-lenticellato.

NETHERLANDS NEW GUINEA: 15 km. southwest of Bernhard Camp, Idenburg River, alt. 1600 m., *Brass 12229* (TYPE), Jan. 1939 (tree 14 m. high, in rain-forest on side of a ravine, the trunk 20 cm. diam.; flowers white).

Elaeocarpus leucanthus, of the alliance of *E. multisectus* Schlechter, clearly differs from that species in its thick leaf-blades with more obvious veinlets and less evident serrations, its shorter and more slender inflorescences with larger flowers, its less deeply and less copiously fimbriate petals, and its fewer stamens, which are conspicuously setose at apex.

4. § GANITRUS

Elaeocarpus § *Ganitrus* Brongn. & Gris in Bull. Soc. Bot. Fr. 8: 202. 1861; Mast. in Hook. f. Fl. Brit. Ind. 1: 400. 1874; K. Schum. in E. & P. Nat. Pfl. 3(6): 5. 1890.

Elaeocarpus b. *Ganitrus* Endl. Gen. Pl. 1011. 1840.

Elaeocarpus § *Ptilanthus* Schlechter in Bot. Jahrb. 54: 121. 1916.

Elaeocarpus § *Ganitrus* is founded nomenclaturally on *E. sphaericus* (Gaertn.) K. Schum. [*Ganitrus sphaericus* Gaertn.; *Elaeocarpus Ganitrus* Roxb.]. Gaertner (Fruct. 2: 271. t. 139, f. 6. 1791) took his generic name from *Ganitrus* Rumphius (Herb. Amb. 3: 160. t. 101. 1743), but his description was based on an actual specimen and his species must be interpreted from the material described, rather than from Rumphius' description and plate (see Merrill, Interpret. Herb. Amb. 351. 1917). *Ganitrus sphaericus* Gaertn., therefore, is an Indian species, and the identity of *Ganitrus* Rumph. (probably = *Elaeocarpus amboinensis* Merr., op. cit. 350) is not germane to an interpretation of *Elaeocarpus* § *Ganitrus*. *Elaeocarpus sphaericus* (Gaertn.) K. Schum. has been interpreted rather widely by most recent students, and its range is often stated as extending throughout Malaysia and even into New Guinea (e. g. Koorders & Valetton in Meded. Lands. Plant. 33: 419. 1900; Merrill in Contr. Arnold Arb. 8: 100. 1934; Corner in Gard. Bull. Straits Settle. 10: 326. 1939). At present I cannot express an opinion on the true extent of this Indian species, but I have seen no New Guinean material which seems conspecific with *E. sphaericus*.

The essential characters of *Elaeocarpus* § *Ganitrus*, as typified by *E. sphaericus*, agree with those of *Elaeocarpus* § *Ptilanthus*, as was realized by Schlechter (in Bot. Jahrb. 54: 121. 1916). However, Schlechter felt that § *Ganitrus* had been too broadly interpreted and that not enough weight had been given to the number of ovules in the ovary-locules, and therefore he proposed to place the New Guinean plants of this relationship in a new section, *Ptilanthus*. In the New Guinean material available to him, Schlechter found four ovules per locule to be the uniform number. However, I now find that the locules of *E. trifidus* (described below) and sometimes those of *E. kaniensis* Schlechter are 6-ovulate; nevertheless these species are definitely members of § *Ptilanthus* Schlechter. The number of ovary-locules is not necessarily uniformly five as supposed by Schlechter, but may vary from four to seven.

Elaeocarpus sphaericus has large 5-locular fruits with a strongly rugulose endocarp; the number of ovules in the ovary-locules of the flower is not stated in the treatments examined by me, but Wight's illustration (Ic. Pl. Ind. Or. 1: t. 66. 1838) shows them to be probably six, while Endlicher (Gen. Pl. 1011. 1840) states, for *Elaeocarpus* b. *Ganitrus*, ". . . loculis quadriovulatis." At any rate, I believe that variation in the ovule-number within sections is somewhat greater than implied by Schlechter. In view of the fact that all the other essential characters of the two groups agree, I believe that § *Ptilanthus* must be placed in synonymy under § *Ganitrus*. The actual limits of this group, both morphological and geographical, cannot be stated without detailed study of the genus, but it is now known from India to the Solomon Islands.

§ *Ptilanthus* was originally erected by Schlechter to include eight species; no type was designated, but the sectional name implies that *E. ptilanthus*

Schlechter was intended as the basic species. To these eight Papuan species (herewith transferred to § *Ganitrus*) must be added three others which are already described: *E. orohensis* Schlechter (originally placed in § *Blepharoceras*), *E. fauroensis* Hemsl., and *E. brevirostris* Knuth. These three species are discussed below. Here I also add six new species, so that § *Ganitrus* in Papua is now composed of 17 species.

The essential diagnostic characters of § *Ganitrus*, at least as I assume it to be represented in Papua, are as follows: branches and branchlets comparatively stout; leaves and branchlets essentially glabrous, or sericeous or closely tomentellous on young parts; leaf-blades usually large, often glossy, oblong or obovate, serrulate or crenate, rarely velutinous on nerves beneath; inflorescences usually arising from branchlets below leaves, only rarely associated with the leaves, often unilateral; petals somewhat larger and thinner than the sepals, often essentially glabrous or puberulent to short-sericeous, usually deeply lacinate; stamens often numerous, the anthers often elongate, awned or not; style long, the ovary sericeous, 5 (rarely 4–7)-locular, the ovules 4 (rarely 6) per locule; fruit comparatively large, thick-walled.

Elaeocarpus (§ *Ganitrus*) *kaniensis* Schlechter in Bot. Jahrb. 54: 123. 1916.

NORTHEASTERN NEW GUINEA: Kani-Gebirges (Minjem River region), alt. about 600 m., Schlechter 17893 (TYPE COLL.); Morobe District, alt. 250–1350 m., Sattelberg, Clemens 3095 (flowers yellowish); Salamaua, Clemens 7 (tree about 15 m. high; fruit bright blue); Yunzaing, Clemens 4142 (tree, in secondary forest; fruit blue); Boana, Clemens 41711 (fruit blue); Gaeng Station, Clemens 41295 (tall tree, the trunk up to 1 m. diam.; fruit green, immature).

Elaeocarpus kaniensis, previously reported only from the type collection, appears to be fairly common in the Morobe District. Schlechter points out that its petals are unusual in § *Ptilanthus* [i. e. § *Ganitrus*] because of their concave elliptic shape, narrowed apex, and obscure laciniae, all these points being suggestive of § *Coilopetalum*. However, the petals lack the dense sericeous pubescence and the swollen carina usually found in § *Coilopetalum*, and on the basis of all its other characters, including the 5-locular ovary, *E. kaniensis* is indubitably correctly placed in § *Ganitrus*.

The flowers of Clemens 3095 agree precisely with those of the type collection, but, being perhaps somewhat more mature, they permit an amplification of the dimensions given by Schlechter. The sepals may be up to 6×2.5 mm. and the petals to 8×3 mm.; the stamens have short filaments and anthers about 2.5 mm. long. The petals are usually lacinate to about one-third their length with 8 or 9 lanceolate teeth. The five ovary-locules may have either 4 or 6 ovules each, this number being variable even in the same flower.

All of the Clemens collections except no. 3095 are in fruit. The fruits are subglobose or slightly ellipsoid, 18–30 mm. in diameter at maturity. The epicarp is thin and brittle when dry and the mesocarp is somewhat fibrous. The endocarp is hard and bony, very thick, in larger specimens with numerous irregularly oblong processes which are 4–6 mm. long. In smaller fruits, the endocarp is merely conspicuously rugose, without ex-

tended processes. The locules are small, consistently 5, each with a single seed.

Elaeocarpus (§ *Ganitrus*) *altisectus* Schlechter in Bot. Jahrb. 54: 123. 1916.

NETHERLANDS NEW GUINEA: Bernhard Camp, Idenburg River, alt. 75 m., *Brass & Versteegh 13569* (tree 31 m. high, frequent in primary rain-forest, on the lower mountain-slopes; trunk 42 cm. diam.; crown not wide-spreading; bark 7 mm. thick, gray-brown, fissured; sap-wood light brown; heart-wood brown; fruits dark green).

The cited specimen agrees very well in foliage with Schlechter's description of *E. altisectus*, based on specimens from the Sepik region at 20–100 m. altitude. The species is characterized by its narrowly oblong-obovate obtuse leaf-blades and very short winged petioles. No. 13569 bears fruits, doubtless immature, which are subglobose, up to 12 mm. in diameter, rugulose, with a thick pericarp (2–3 mm. thick). The epicarp is hard, the endocarp bony and irregularly sulcate, the locules 5 and apparently each 1-seeded. The mature fruit is doubtless larger and probably the endocarp develops more obvious processes.

Elaeocarpus (§ *Ganitrus*) *trifidus* sp. nov.

Arbor ad 30 m. alta, ramulis juventute angulatis saepe dense tomentello-puberulis cito subteretibus cinereo-purpurascens glabris; petiolis ut ramulis saepe puberulis glabrisque supra complanatis 8–18 mm. longis; laminis chartaceis vel subcoriaceis in sicco olivaceo-fuscis ellipticis vel obovato-ellipticis, 7–12 cm. longis, 3–5 cm. latis, basi in petiolum gradatim angustatis et decurrentibus, apice breviter cuspidatis, margine serrulatis (dentibus 3–6 per centimetrum primo setulosis mox obtusis), utrinque glabris vel subtus praecipue nervis interdum supra costa dense puberulis cito glabris, costa utrinque prominente, nervis lateralibus utrinsecus 7–10 arcuato-adscendentibus anastomosantibus utrinque elevatis, rete venularum intricato utrinque prominulo; racemis in ligno vetustiore ortis vel interdum axillaribus patentibus 6–12 cm. longis plerumque 20–30-floris et secundifloris, pedunculo brevi et rhachi sub anthesi circiter 1 mm. diametro pedicellis dense hispidulo-puberulis, pedicellis gracilibus sub anthesi 10–14 mm. longis, alabastris breviter conicis ad 5 mm. longis conspicue cuspidatis; sepalis papyraceis ovato-lanceolatis, 5.5–6 mm. longis, 1.7–2 mm. latis, acuminatis, basim versus intus paullo incrassatis, utrinque puberulis; petalis subcarnosis ovato-oblongis, circiter 8 mm. longis, inferne 2–2.5 mm. latis, superne angustatis, basi ipso angustissimis, usque infra medium in lacinas 5–6 mm. longas irregulariter 2- vel 3-lacinulatas raro integras trifidis, margine inferne tomentello-ciliolatis, intus basim versus sericeis; disco annulari-pulvinato leviter crenulato minute hispidulo circiter 0.5 mm. alto; staminibus 2- vel 3-seriatis plerumque 50–60 praeter setas apicales 2.5–3.5 mm. longis, filamentis hispidulis brevibus, antheris 1.5–2.5 mm. longis ubique obscure setulosis apice in setas 1–3 ad 0.8 mm. longas productis; ovario subgloboso et styli basi dense sericeo-puberulis, loculis 6 (raro 7) 6-ovulatis, stylo crasso subulato 5–7 mm. longo; pedicellis sub fructu incrassatis, fructibus subglobosis maturitate ad 27 mm. diametro, epicarpio tenui duro, mesocarpio fibroso, endocarpio crasso osseo processibus irregularibus 3–6 mm. longis copiose ornato, loculis 6 vel 7 interdum sterilibus, semine in quoque loculo solitario.

NETHERLANDS NEW GUINEA: 2–4 km. southwest of Bernhard Camp, Idenburg

River, alt. 900–950 m., *Brass* 13290 (TYPE), Mar. 1939, *Brass & Versteegh* 13148, 13527 (trees 20–30 m. high, occasional in rain-forest, sometimes in primary mossy-forest on ridges; trunk 20–48 cm. diam.; crown not wide-spreading; bark 12–15 mm. thick, dark brown or black, scaly; sap-wood light yellow; heart-wood brown-yellow or brown-green; flowers cream-colored; fruits dark green or blue).

The only flowering specimen is designated as the type; no. 13148 bears young fruits and no. 13527 apparently mature fruits, which are described above. The fruiting specimens are glabrous throughout, whereas the flowering specimen has the branchlets, petioles, and leaf-blades puberulent, although these parts even here are glabrescent. In its deeply 3-lobed petals and its floral dimensions, *E. trifidus* suggests *E. altisectus* Schlechter, doubtless its closest relative, from which it differs in its longer-petiolate leaf-blades with cuspidate apices. The ovary-locules of the new species are 6 or 7 rather than 5, a feature which has not been otherwise noted in § *Ganitrus* but which is probably of little consequence. Furthermore, the ovules are consistently 6 per locule, and therefore the plant would fall into § *Blepharoceras* in Schlechter's key to the sections. In all its other characters of foliage, inflorescence, and fruit, *E. trifidus* obviously represents § *Ganitrus*, the characters of which must therefore be modified.

Another specimen which very possibly represents *E. trifidus* is *Brass & Versteegh* 11915, collected at 1740 m., 15 km. southwest of Bernhard Camp. This specimen bears mature fruits similar to those above-described in all respects except for having 5 locules. I do not positively refer the collection to *E. trifidus* because its leaves are also strongly suggestive of *E. acutifidus* (described below), in which the fruit is 5-locular; the two species concerned are difficult to distinguish without flowers.

Elaeocarpus (§ *Ganitrus*) *acutifidus* sp. nov.

Arbor ad 24 m. alta, ramulis juvenilibus cinereo-sericeo-puberulis angulatis mox teretibus glabratis saepe nigrescentibus; petiolis gracilibus supra canaliculatis 7–15 mm. longis ut ramulis puberulis mox glabratis; laminis in sicco fusco-olivaceis chartaceis supra nitidis utrinque glabris oblongo-ellipticis, 7–13 cm. longis, (2.5–) 3–6 cm. latis, basi acutis et in petiolum decurrentibus, apice cuspidatis, margine dentibus 3–5 per centimetrum primo spinulosis serrulatis, costa supra paullo subtus valde prominente, nervis lateralibus utrinsecus 8–12 erecto-patentibus utrinque peracute elevatis, rete venularum intricato copioso utrinque valde prominulo; racemis in ligno vetustiore ortis patentibus 4–6 cm. longis ut videtur circiter 15-floris, pedunculo brevi et rhachi angulata circiter 1 mm. diametro pedicellis breviser sericeo-puberulis, pedicellis gracilibus sub anthesi 10–14 mm. longis, alabastris ellipsoideo-conicis ad 8 mm. longis conspicue acuminatis; sepalis submembranaceis acutis oblongo-lanceolatis, 12–15 mm. longis, 2.5–3 mm. latis, utrinque minute puberulis glabratisque; petalis membranaceis anguste oblongo-cuneatis, 17–20 mm. longis, 5–6 mm. latis, basim versus margine sericeo-puberulis, ceterum glabris, in lacinias 10–14 acutas 3–9 mm. longas irregulariter fissis; disco annulari-pulvinato 1–1.5 mm. alto crenulato minute hispidulo-velutino; staminibus 40–42 plerumque biseriatis erectis 7–10 mm. longis ubique breviter setuloso-sericeis, filamentis 2–3 mm. longis, antheris 5–8 mm. longis apice setas 1–3 ad 1 mm. longas gerentibus; ovario 5-loculari et styli basi pallide sericeis, loculis 4-ovulatis,

stylo crasso-subulato 18–21 mm. longo petala conspicue superante; rhachi pedicellis sub fructu valde incrassatis, pedicellis ad 20 mm. longis et 3 mm. diametro; fructibus subglobosis maturitate 3.5–4.5 cm. diametro, basi obtuso-rotundatis, apice abrupte cuspidatis, epicarpio tenui duro valde ruguloso, mesocarpio fibroso, endocarpio crasso osseo processibus irregularibus ad 1 cm. longis implicite ornato etiam lacunis parvis hinc inde pervaso, loculis 5 interdum abortivis, semine in quoque loculo solitario.

NETHERLANDS NEW GUINEA: Bele River, 18 km. northeast of Lake Habbema, alt. 2300–2340 m., *Brass & Versteegh 11158* (TYPE), Nov. 23, 1938 (tree 24 m. high, frequent in primary forest on slope of a ridge; trunk 32 cm. diam.; crown not wide-spreading; bark 8 mm. thick, fairly smooth, brown; wood white; flowers white; young fruits dark green), *Brass & Versteegh 11136* (tree 19 m. high, common in old secondary forest on slope of a ridge; trunk 35 cm. diam.; crown not wide-spreading; bark 8 mm. thick, gray, rough; wood white; fruits dark green).

Flowers are described from the type, mature fruits from no. 11136. The closest relative of *E. acutifidus* is doubtless *E. ptilanthus* Schlechter, the two species having in common a comparatively short and few-flowered inflorescence. The type of *E. ptilanthus* is from the Sepik region of Northeastern New Guinea, and Schlechter cites 11 Ledermann collections as probably representing the species; for the purpose of interpreting it, however, only the type and two other flowering specimens need be considered. These are characterized not only by their few flowers, but also by having only about 15 stamens. From *E. ptilanthus*, as described, *E. acutifidus* differs in its longer petioles and broader and elliptic rather than oblong-spatulate leaf-blades. The flowers of the two species are quite similar in shape of parts, but those of the new species have larger sepals, petals, and stamens; its petals are more finely laciniate and its stamens are 40–42 rather than about 15. In foliage, *E. acutifidus* is suggestive of *E. trifidus* (described above), but the differences between these two species in flower-size, petal-cutting, anthers, etc., are numerous and obvious.

Elaeocarpus (§ *Ganitrus*) *aemulus* sp. nov.

Arbor ad 27 m. alta *E. acutifido* supra descripto valde affinis, foliis floribusque minoribus, staminibus paucioribus, stylo multo brevior differt; petiolis 7–10 mm. longis, laminis 7–10 cm. longis, 2.5–3.5 cm. latis, apice obtusis, nervis lateralibus utrinsecus 7–10; racemis 3–4 cm. longis 5–10-floris, pedicellis sub anthesi 7–10 mm. longis; sepalis 10–11 × 2–2.5 mm.; petalis 15–16 × 5–6 mm., in laciniis 9–12 acutis 3–8 mm. longas fassis; staminibus 30–32 erectis 7–8.5 mm. longis, antheris 5–6 mm. longis; stylo 9–10 mm. longo quam petalis valde brevior; fructibus (unico viso) subglobosis circiter 2 cm. diametro.

NORTHEASTERN NEW GUINEA: Morobe District, Ogeramng, alt. about 1780 m., *Clemens 5019* (TYPE), Jan. 16, 1937; above Kaile, enroute to Sarawaket, alt. 1650–1800 m., *Clemens 4910* (tree 25–27 m. high, in wet forest by stream; fruit blue).

In many respects, *E. aemulus* is intermediate between *E. ptilanthus* Schlechter and *E. acutifidus* (described above), its closest allies. The possibility that this species and *E. acutifidus* are only varietally distinct is to be considered, but for the time being I think it best to designate them as species. The differentiating floral characters are matters of degree, the

most marked difference being in length of style. The diagnostic characters of these three closely related species are as follows:

Petiole 5–8 mm. long; leaf-blades oblong-spatulate, 5–9 × 2–3.5 cm., obtuse; sepals about 10 mm. long; petals about 13 mm. long, fimbriate with 7–9 teeth; stamens about 15, about 6 mm. long; style exceeding the petals. *E. ptilanthus*.

Petiole 7–10 mm. long; leaf-blades oblong-elliptic, 7–10 × 2.5–3.5 cm., obtuse; sepals 10–11 mm. long; petals 15–16 mm. long, fimbriate with 9–12 teeth; stamens 30–32, 7–8.5 mm. long; style 9–10 mm. long, shorter than petals. *E. aemulus*.

Petiole 7–15 mm. long; leaf-blades oblong-elliptic, 7–13 × 3–6 cm., cuspidate; sepals 12–15 mm. long; petals 17–20 mm. long, fimbriate with 10–14 teeth; stamens 40–42, 7–10 mm. long; style 18–21 mm. long, exceeding the petals. . . . *E. acutifidus*.

Elaeocarpus (§ *Ganitrus*) *chloranthus* sp. nov.

Arbor ad 25 m. alta ubique inflorescentiis exceptis glabra (partibus juvenilibus forsan puberulis), ramulis subteretibus crassis apicem versus saepe ad 7 mm. diametro dense foliatis; petiolis brevibus late alatis 2–5 mm. longis; laminis papyraceis in sicco fusco-viridibus anguste obovatis, (7–) 11–20 cm. longis, (3–) 4–7 cm. latis, basi in petiolum conspicue decurrentibus, apice rotundatis vel late obtusis, margine inconspicue crenulato-denticulatis (dentibus 3–6 per centimetrum primo spinulosis), supra nitidis, costa valida supra subplana vel elevata subtus prominente, nervis lateralibus utrinsecus 15–20 patentibus curvatis anastomosantibus utrinque peracute prominulis, rete venularum intricato utrinque valde prominulo; racemis in ligno vetustiore ortis patentibus 5–9 cm. longis secundifloris, pedunculo brevi et rhachi robusta striata pedicellis breviser sericeo-puberulis, floribus confertis, bracteis oblongo-linearibus 4–6 mm. longis puberulis mox caducis, pedicellis gracilibus sub anthesi 5–9 mm. longis; sepalis papyraceis lanceolatis acutis, 8–9 mm. longis, circiter 2 mm. latis, utrinque obscure puberulis; petalis membranaceis anguste oblongo-cuneatis, 15–16 mm. longis, 4–5 mm. latis, intus et margine basim versus sericeo-puberulis, in lacinias 13–20 acutas 3–6 mm. longas irregulariter fissis; disco annulari-pulvinato obscure crenulato circiter 0.7 mm. alto minute hirtello; staminibus 27–32 plerumque biseriatis 7–10 mm. longis ubique minute setulosis, filamentis 1.5–3 mm. longis, antheris 5–7 mm. longis in apicem acutum gradatim angustatis; ovario 5-loculari et styli basi breviter sericeis, loculis 4-ovulatis, stylo crasso 7–11 mm. longo superne glabro.

NETHERLANDS NEW GUINEA: 4 km. southwest of Bernhard camp, Idenburg River, alt. 850 m., *Brass 13287* (TYPE), Mar. 1939 (tree 18–20 m. high, with umbrella crown, occasional in seral rain-forest on sandy flood-banks of river; flowers green); 15 km. southwest of Bernhard Camp, alt. 1770 m., *Brass & Versteegh 11939* (tree 25 m. high, occasional in forests of slopes; trunk 50 cm. diam.; crown not wide-spreading; bark 18 mm. thick, black, fairly smooth; sap-wood white; heart-wood brown-green; flower-buds green).

Elaeocarpus chloranthus is probably most closely related to *E. terminalioides* Schlechter, differing in its glabrous and obtuse or rounded rather than short-acuminate leaf-blades, its shorter and more compact inflorescences, its much larger petals with acute rather than obtuse and somewhat dilated segments, and its longer stamens.

Elaeocarpus (§ *Ganitrus*) *orohensis* Schlechter in Bot. Jahrb. 54: 130. 1916.

NETHERLANDS NEW GUINEA: Valley of Oroh River, alt. 1300 m., *Pulle 1133* (TYPE COLL.), Feb. 24, 1913.

This is one of the species which Schlechter described very briefly, referring to a number of Nova Guinea which has not been published. Since he gives a few notes and dimensions, however, the species must be considered validly published. The exact locality is in doubt, "Oroh" being taken from a hand-written label and probably not accurate; the specimen was collected in the region south of Mt. Wilhelmina.

Schlechter's examination of the specimen must have been superficial, for he refers it to § *Blepharoceras*, a section characterized by having trilocular ovaries with the locules at least 6-ovulate. *Pulle 1133* has the locules 4-ovulate and either 4 or 5 in number; 4- and 5-locular ovaries occur about equally in the several flowers I have dissected. The species is clearly a member of § *Ganitrus*, in which it is probably related to *E. cuneifolius* Schlechter. The leaf-blades of *E. orohensis* are peculiarly rugulose on both surfaces with scattered elevations having the appearance of blisters. Because of the inadequacy of the original publication, I here redescribe the species.

Arbor ad 20 m. alta (ex Schlechter), ramulis teretibus brunneis juvenilibus puberulis mox glabris; petiolis supra complanatis mox glabratis 1-1.5 cm. longis; laminis chartaceis utrinque glabris et disperse rugulosis, siccitate viridi-olivaceis, obovato-ellipticis, 12-15 cm. longis, 5-7.5 cm. latis, basi et apice obtusis, margine anguste recurvato inconspicue crenulato-serratis (dentibus circiter 2 per centimetrum), costa supra elevata interdum canaliculata subtus prominente, nervis lateralibus utrinsecus 7-10 arcuatis utrinque elevatis, rete venularum copioso intricato utrinque valde prominulo; racemis axillaribus vel infra folia orientibus subrectis 10-15 (ad 20 ex Schlechter) cm. longis, pedunculo brevi et rhachi striata circiter 1.5 mm. diametro pedicellis minute puberulis; floribus numerosis, pedicellis gracilibus sub anthesi 6-10 mm. longis, alabastris angustis 4-5 mm. longis; sepalis papyraceis acutis deltoideo-lanceolatis, 4-5 mm. longis, circiter 1.5 mm. latis, utrinque puberulis, intus glabratis; petalis membranaceis e basi angustata cuneatis, 5.5-6 mm. longis, 3-4 mm. latis, margine inferne puberulis ceterum glabris, in segmenta 25-30 linearia acuta irregularia circiter 2 mm. longa profunde fimbriatis; disco annulari-pulvinato circiter 0.5 mm. alto minute velutino-puberulo, lobis 5 oblongis confluentibus; staminibus 15-17 erectis 2.5-3 mm. longis ubique obscure setuloso-puberulis, filamentis brevibus gracilibus, antheris circiter 2 mm. longis apice acutis et minute hispidulis; ovario pallide sericeo 4- vel 5-loculari, loculis 4-ovulatis, stylo subulato circiter 4 mm. longo basim versus sericeo superne glabro.

Elaeocarpus (§ *Ganitrus*) *leptopus* sp. nov.

Arbor ubique partibus juvenilibus puberulis inflorescentiisque exceptis glabra, ramulis gracilibus subteretibus vel primo leviter angulatis; petiolis gracilibus 15-18 mm. longis supra complanatis et obscure sericeo-puberulis; laminis chartaceis in sicco fusco-olivaceis ellipticis, 8-11 cm. longis, 3-4.5 cm. latis, basi obtusis et in petiolum decurrentibus, in apicem brevem obtusum vel minute emarginatum cuspidatis, margine inconspicue crenato-serrulatis (dentibus 2-4 per centimetrum), supra nitidis, costa supra leviter subtus valde prominente, nervis lateralibus utrinsecus 8-12 patentibus anastomosantibus utrinque valde prominulis subtus in axillis saepe domatiiferis, rete venularum utrinque prominulis; racemis e ramulis infra folia ortis

sub anthesi 10–20 cm. longis multifloris, pedunculo brevi et rhachi gracili striata 0.5–1 mm. diametro pedicellis que sparse puberulis mox glabratis, pedicellis gracillimis sub anthesi 5–8 mm. longis; sepalis submembranaceis deltoideo-lanceolatis acutis, circiter 3.5 mm. longis et 1 mm. latis, extus sparse puberulis glabratis, intus glabris; petalis membranaceis obovato-cuneatis, circiter 4.5 mm. longis, 2.5–3 mm. latis, margine medium versus ciliolatis ceterum glabris, in lacinias 15–17 inaequales 1–2 mm. longas lineares obtusas fissis; disco annulari-pulvinato indistincte 5-lobato circiter 0.4 mm. alto minute hispidulo; staminibus circiter 15 erectis 2–2.8 mm. longis, filamentis gracilibus ad 1 mm. longis, antheris 1.5–1.8 mm. longis apice obtusis et setas 1–3 breves gerentibus; ovario subgloboso obscure hispidulo-sericeo 4- vel 5-loculari, loculis 4-ovulatis, stylo subulato glabro 2–2.5 mm. longo.

NORTHEASTERN NEW GUINEA: Morobe District, Sattelberg, alt. about 1000 m., *Clemens 2022* (TYPE), Mar. 12, 1936.

Although clearly a member of § *Ganitrus*, *E. leptopus* has flowers unusually small for the section. They approach those of *E. orohensis* Schlechter in size and shape of parts, but they are even smaller and have the petals less copiously laciniate. The rhachises and pedicels of the new species are much more slender than those of *E. orohensis*, while the leaves are smaller and different in shape and texture. Like *E. orohensis*, *E. leptopus* has its ovaries either 4- or 5-locular.

Elaeocarpus (§ *Ganitrus*) *savannarum* sp. nov.

Arbor ad 7 m. alta, ramulis juvenilibus angulatis sericeo-puberulis mox subteretibus glabratis que; petiolis gracilibus 8–15 mm. longis ut ramulis puberulis glabratis supra complanatis; laminis chartaceis fusco-viridibus oblongo-ellipticis, 7–11 cm. longis, 2–4 cm. latis, basim versus attenuatis et in petiolum decurrentibus, apice breviter et obtuse cuspidatis, margine inconspicue crenulato-serrulatis (dentibus 3–5 per centimetrum), costa supra saepe subplana subtus prominente, nervis lateralibus utrinsecus 6–10 adscendentibus supra leviter subtus valde prominulis et in axillis interdum domatiiferis, rete venularum utrinque prominulo vel supra subimmerso; racemis axillaribus sub anthesi 7–12 cm. longis multifloris, pedunculo brevi et rhachi striata circiter 0.5 mm. diametro pedicellis que arcte puberulis, pedicellis gracilibus sub anthesi 5–6 mm. longis; sepalis papyraceis deltoideo-lanceolatis acutis, circiter 3 mm. longis et 1 mm. latis, utrinque minute puberulis et glabratis; petalis membranaceis obovato-cuneatis, circiter 4 mm. longis, 2–2.5 mm. latis, praeter marginem medium versus puberulum ubique glabris, in lacinias 13–17 inaequales lineari-lanceolatas 1–2 mm. longas apice obtusas et paullo incrassatas fissis; disco annulari-pulvinato 5-lobato circiter 0.5 mm. alto minute hispidulo; staminibus 12 vel 13 uniserialis 1.5–1.8 mm. longis, filamentis gracilibus brevibus, antheris 1.2–1.3 mm. longis apice obtusis et setas 1–3 circiter 0.5 mm. longas gerentibus; ovario subgloboso minute hispidulo 4-loculari, loculis 4-ovulatis, stylo subulato glabro circiter 2 mm. longo.

NETHERLANDS NEW GUINEA: Vicinity of Hollandia, alt. 20–100 m., *Brass 8814* (TYPE), June 14, 1938 (tree 6–7 m. high, common in small forest clumps on secondary savannas; flowers white).

Like the preceding new species (*E. leptopus*), *E. savannarum* has un-

usually small flowers for § *Ganitrus*, and in this species the ovaries are apparently uniformly 4-locular. *Elaeocarpus savannarum* has the sepals, petals, and anthers slightly smaller than those of *E. leptopus*, while its racemes are shorter and its leaf-blades are duller, with more ascending secondaries and less obvious veinlet-reticulation. The two species are very closely allied.

Elaeocarpus (§ *Ganitrus*) *fauroensis* Hemsl. in Kew Bull. 1896: 159. 1896; Schlechter in Bot. Jahrb. 54: 143. 1916.

SOLOMON ISLANDS: Bougainville: Kugumaru, Buin, alt. 150 m., *Kajewski 1900* (tree to 25 m. high, common in rain-forest; fruit blue; wood used for house-building by natives; native name: *ou-kari-pe*); Guadalcanal: Uulolo, Tutuve Mt., alt. 1200 m., *Kajewski 2495* (tree up to 30 m. high, common in rain-forest; trunk straight; fruit purple, eaten by cockatoos and pigeons; native name: *hy-cundi*).

Hemsley's brief description of the type specimen, collected on Fauro Island, applies very well to the above-cited specimens, both of which, like the type, are in fruit. The leaf-blades of the *Kajewski* specimens are mostly slightly smaller than those described by Hemsley, averaging about 15×4.5 cm., but some of them attain the dimensions of 18×5.5 cm., very close to the $7-8 \times 2-2.5$ inches stated in the original description. The available fruits are subglobose-ellipsoid, 2-3 cm. in diameter, with a comparatively thick and hard rugulose epicarp (often 1 mm. thick). The endocarp is very hard and bony, with numerous irregular processes 2-4 mm. long. The locules are 5, but sometimes all except 1 or 2 are small and empty. The seeds are dark brown and glossy, about 1 cm. long, and acute at both ends.

Schlechter saw no material of this species and did not attempt to place it. The characters of the foliage and fruit are unmistakably those of § *Ganitrus*, but without flowers I cannot indicate the immediate alliance of the plant.

Elaeocarpus (§ *Ganitrus*) *breviracemosus* Knuth in Rep. Sp. Nov. 48: 73. 1940.

BRITISH NEW GUINEA: Middle Fly River, Lake Daviumbu, *Brass 7654* (TYPE COLL.) (spur-buttressed canopy tree, common in rain-forest; bark brown, thin, marked with shallow longitudinal fissures; fruit blue).

The fruits of this species, not described by Knuth, are borne on slender spreading racemes up to 9 cm. long, arising from the older parts of branchlets. The pedicels are 15-18 mm. long and fairly thick. The fruits are subglobose, about 2 cm. in diameter, with a smooth hard epicarp about 0.5 mm. thick and a somewhat fibrous mesocarp about 2 mm. thick. The endocarp is hard and bony, irregularly rugulose but without conspicuous processes; the locules are 5, each 1-seeded, but it is likely that sometimes fewer locules are fertile.

The species is unmistakably a member of § *Ganitrus*, but it cannot be more definitely placed without flowers.

5. § FISSIPETALUM

Elaeocarpus § *Fissipetalum* Schlechter in Bot. Jahrb. 54: 118. 1916.

Schlechter originally based this section on five species, among which *E. arfakensis* Schlechter (inadequately described) is anomalous because of its

densely tomentellous lower leaf-surface. The remaining four species have glabrous leaves. The only species illustrated is *E. polydactylus* Schlechter, and this obviously has all the characters which Schlechter intended to apply to the section. Therefore it seems advisable to designate *E. polydactylus* as the lectotype of § *Fissipetalum*.

Since Schlechter's work, several other species have been described which may be referred to § *Fissipetalum*: *E. Pulleanus* O. C. Schmidt, *E. azaleifolius* Knuth, and *E. Brassii* Knuth. These species are discussed below, and under the discussion of *E. azaleifolius* I also suggest that *E. crenulatus* Knuth may belong to this section. From the description, it seems probable that *E. koebrensis* Gibbs also belongs to § *Fissipetalum*, in which case its alliance may be with *E. Pulleanus* and its relatives or possibly with *E. arfakensis*. This latter species and two relatives described below as new differ from the remaining species of § *Fissipetalum* in the close tomentellous indument of their lower leaf-surfaces and inflorescences. In habit, they thus suggest certain species of § *Blepharoceras* (*E. latescens* F. v. Muell. and its allies, discussed below), but in essential floral characters *E. arfakensis* and its relatives appear to belong in § *Fissipetalum*.

To the eight or ten species which thus already constitute § *Fissipetalum*, I herewith add seven new species below. The section is fairly coherent, in spite of a great range of variation in leaf-size, as indicated by the extremes of *E. myrtoides* and *E. decorus*, both proposed as new. Its diagnostic characters are as follows: inflorescence slender, axillary, associated with the leaves (at least at anthesis), ascending; flowers small, the petals up to 6 mm. long, more or less equally 5–36-fimbriate in the distal half or third, usually essentially glabrous; stamens 10–30, erostrate but often apiculate or hispid-setulose at apex; ovary sericeous, puberulent, or glabrous, 2- or 3-locular, each locule 4-ovulate (occasionally 2-ovulate in *E. roseo-albus* and 6-ovulate in *E. polydactylus*, both discussed below); fruit globose to ellipsoid, comparatively thick-walled, usually unilocular at maturity, the endocarp rugulose or sulcate or pitted but not conspicuously ornamented (except in *E. sericoloides*, an aberrant new species with ornamented endocarp, discussed below).

Elaeocarpus (§ *Fissipetalum*) *roseo-albus* Schlechter in Bot. Jahrb. 54: 119. 1916.

NETHERLANDS NEW GUINEA: 15 km. southwest of Bernhard Camp, Idenburg River, alt. 1800 m., *Brass 12015* (slender subsidiary tree 12–15 m. high, frequent in mossy-forest; leaves convex; calyx red; petals white).

The cited collection is referred to *E. roseo-albus* with reasonable certainty, in spite of minor differences in dimensions, etc. The type of the species was obtained in the Sepik region of Northeastern New Guinea at 2070 m. The most striking difference between the *Brass* plant and Schlechter's description lies in the fact that the ovules are predominantly two in each of the three locules in our specimen; occasionally the ovules are three, and rarely four. Four is the only number mentioned in the original description, and indeed this number of ovules was considered uniform for § *Fissipetalum* by Schlechter. However, it is obvious that *Brass 12015* cannot belong to any of Schlechter's first three sections, in which paired

ovules are universal; just as obviously, § *Fissipetalum* is the proper place for this collection, and therefore one must assume that the number of ovules is more variable than indicated by Schlechter.

The leaf-blades of *Brass 12015* sometimes attain the dimensions of 5.5×2.5 cm., but as a rule they approximate the size of 5×1.5 cm. indicated for *E. roseo-albus*. The petals of our collection, fully mature, measure about 3×1.5 mm. and are 9–11-laciniate; the disk is 5-lobed with each lobe slightly grooved; the stamens are 12–14, with anthers 0.8–1 mm. long and obscurely setulose at apex; the flowers are very rarely 4-merous. These slight variations, as compared with Schlechter's description, indicate the only points in which our plant differs from his. The fruits of *Brass 12015*, which may not be fully mature, are ellipsoid, up to 8×5 mm., with a pericarp about 1.5 mm. thick and a single seed. The epicarp is thin and rugulose when dry; the endocarp is thick and woody, with longitudinal grooves.

Elaeocarpus (§ *Fissipetalum*) *myrtoides* sp. nov.

Arbor 5–6 m. alta multiramosa dense foliata, ramis ramulisque subteretibus glabris cinereis copiose et conspicue verrucoso-lenticellatis, ramulis hornotinis rubris gracillimis; petiolis gracilibus canaliculatis 1–3 mm. longis; laminis parvis coriaceis saepe convexis obovato-ellipticis, 10–20 mm. longis, 5–8 mm. latis, basi gradatim angustatis et in petiolum decurrentibus, apice obtusis vel rotundatis, margine utrinsecus dentibus 3–5 crenulato-serratis, utrinque glabris (juventute sericeo-puberulis), costa supra impressa subtus prominente, nervis lateralibus utrinsecus plerumque 3 adscendentibus et rete venularum subtus prominulis; racemis axillaribus 1–2 cm. longis paucifloris, rhachi gracili glabra leviter angulata, pedicellis 6–8 mm. longis obscure sericeis vel glabris; sepalis papyraceis acutis oblongo-lanceolatis, circiter 4×1.5 mm., extus inconspicue pallido-sericeis, intus glabris et carinatis; petalis submembranaceis obovato-oblongis circiter 4×1.5 mm., extus copiose sericeis, intus glabris, apice in segmenta circiter 6 subaequalia 0.6–1 mm. longa obtusa dissectis; disci lobis 5 late oblongis circiter 0.5 mm. altis, superne hispidulis; staminibus circiter 15 erectis 2.8–3 mm. longis, filamentis gracilibus glabris, antheris 1.7–2 mm. longis apice acutis et obscure hispidulis; ovario glabro biloculari, loculis 4-ovulatis, stylo brevi; fructibus ovoideo-ellipsoideis ad 10×6 mm. (immaturis?), basi rotundatis, apice obtusis et basi styli subpersistente coronatis, pericarpio (epicarpio ruguloso et endocarpio osseo inclusis) 1.5–2 mm. crasso, semine solitario.

BRITISH NEW GUINEA: Central Division, Murray Pass, Wharton Range, alt. 2840 m., *Brass 4505* (A, NY, TYPE), July 15, 1933 (much-branched shapely tree 5–6 m. high, common in forests; branchlets, petioles, leaf-margins, rachises, and pedicels red; leaf-blades with nerves impressed above; sepals yellow-brown; petals pale yellow; fruit olive-green).

Elaeocarpus myrtoides is clearly distinguished by its very small leaves, much smaller than those of any other species of § *Fissipetalum*. Its petals, with few and short teeth, suggest those of *E. roseo-albus* Schlechter but are larger. The glabrous bilocular ovary and the very short few-flowered inflorescences further distinguish the new species from its close relatives.

Elaeocarpus (§ *Fissipetalum*) *polydactylus* Schlechter in Bot. Jahrb. 54: 119. fig. 6. 1916.

NORTHEASTERN NEW GUINEA: Morobe District, Yunzaing, alt. 1650 m., *Clemens* 3731; Busu, alt. 1800–2400 m., *Clemens* 6275.

The cited specimens appear to fall into a reasonable concept of Schlechter's species, although the leaf-blades are sometimes larger (up to 7.5×2.5 cm.) than those originally described, while the petals at maturity are larger (up to 5 mm. long) and only 10- or 11-lacinate (rather than 12–15-lacinate). Otherwise our specimens agree precisely with the description and illustration. Schlechter has described a var. *podocarpoides* with leaf-blades up to 12×4 cm. Both the species and the variety are based on material from the Sepik region, at elevations of 1000–1350 m.

Clemens 3731 may have the locules either 4- or 6-ovulate, both conditions having been observed in a single flower. Therefore the 4-ovulate characterization of § *Fissipetalum* must be modified to permit the inclusion of occasional plants with 6-ovulate ovary-locules.

Elaeocarpus (§ *Fissipetalum*) *azaleifolius* Knuth in Rep. Sp. Nov. 48: 72. 1940.

BRITISH NEW GUINEA: Central Division, Mt. Tafa, alt. 2400 m., *Brass* 5002 (A, NY) (tree 12–13 m. high, uncommon in ridge-crest forests; crown flat, spreading, thinly foliated; branchlets, petioles, leaf-costas, and rhachises reddish; flowers cream-colored; fruits blue-green).

The cited specimens precisely agree with the original description of *E. azaleifolius*, reported from the nearby Mt. Victoria at 2300 m. The ovary, not described in detail by Knuth, is 3-locular, with 4 ovules in each locule. Although the leaf-blades of the Brass specimen average in size, as those of Mt. Victoria material, about 3.5×1.3 cm., some of them attain a size of 5×2.2 cm. The fruits of *Brass* 5002 are ellipsoid, up to 12×10 mm., with a pericarp about 3 mm. thick and a single seed. The endocarp is hard and woody, with narrow grooves. *Elaeocarpus azaleifolius* is a very close relative of *E. polydactylus* Schlechter, differing principally in its more obtuse and more obscurely crenate leaf-blades, shorter pedicels, and larger sepals and petals.

It seems probable that *E. crenulatus* Knuth (in Rep. Sp. Nov. 48: 74. 1940) also belongs in § *Fissipetalum*; it is based on a sterile specimen also from Mt. Victoria. According to the description, the leaves differ from those of *E. azaleifolius* only in having slightly longer petioles and broader blades.

Elaeocarpus (§ *Fissipetalum*) *mundulus* sp. nov.

Arbor 12 m. alta partibus juvenilibus inflorescentiisque exceptis glabra, ramulis teretibus gracilibus cinereis; petiolis leviter canaliculatis gracilibus 4–10 mm. longis; laminis coriaceis saepe convexis anguste obovato-ellipticis, (3–) 4.5–6 cm. longis, (1–) 1.5–2.5 cm. latis, basi attenuatis et in petiolum decurrentibus, apice obtusis vel rotundatis, margine recurvato obscure crenulato-serratis (dentibus 2 vel 3 per centimetrum), costa supra paullo subtus valde elevata, nervis lateralibus utrinsecus 4–7 brevibus adscendentibus et rete venularum copioso utrinque prominulis; racemis axillaribus erectis 4–9.5 cm. longis multifloris, pedunculo brevi et rhachi angulata minute sericeo-puberulis, floribus subconfertis saepe secundis, pedicellis gra-

cilibus 3–5 mm. longis glabris; sepalis papyraceis deltoideo-lanceolatis circiter 4.5×1.5 mm. acutis, extus sparse puberulo-sericeis, intus glabris; petalis submembranaceis ex ungue parvo obovato-cuneatis, 5–6 mm. longis, 2–3 mm. latis, in segmenta 11–13 lineari-lanceolata obtusa 1.5–2.5 mm. longa irregulariter dissectis, margine basim versus minute puberulis, ceterum glabris; disco annulari-pulvinato circiter 0.5 mm. alto superne hirsutulo, lobis 5 oblongis confluentibus; staminibus 17–20 erectis 2–2.8 mm. longis, filamentis gracilibus glabris, antheris 1.5–1.8 mm. longis apice obtuso obscure hirtellis; ovario breviter sericeo 3-loculari, loculis 4-ovulatis, stylo subulato 3.5–4 mm. longo glabro; fructibus (unico viso) globoso-ellipsoideis ad 11×9 mm., pericarpio crasso, epicarpio ruguloso.

NETHERLANDS NEW GUINEA: 9 km. northeast of Lake Habbema, alt. about 2800 m., *Brass & Versteegh 10496* (TYPE), Nov. 1, 1938 (tree 12 m. high, frequent in mossy-forest; trunk 27 cm. diam.; crown small; bark 6 mm. thick, dark brown, fairly rough; flowers white).

Elaeocarpus mundulus is most closely allied to *E. azaleifolius* Knuth, from which it differs in its longer petioles and longer and proportionately narrower leaf-blades, which are somewhat thicker in texture, more convex, and with less obvious crenulations. The flowers of the two species are very similar, those of *E. mundulus* being slightly the larger in sepals and petals.

Elaeocarpus (§ *Fissipetalum*) *Brassii* Knuth in Rep. Sp. Nov. 48: 73. 1940.

BRITISH NEW GUINEA: Western Division, Middle Fly River, Lake Daviumbu, *Brass 7450* (TYPE COLL.) (tree 10 m. high, common on small pieces of dry ground in marshes; flowers cream-colored), *Brass 7566* (tree to 25 m. high, plentiful in thin fringing forests of drier lake-shores; stem deeply fluted, covered with gray lenticellate bark; flowers cream-colored); Wuroi, Oriomo River, alt. 30 m., *Brass 5802* (A, NY) (tree 10 m. high, in small isolated forest patch on savanna; foliage pale, shining; fruit bright blue).

The species is clearly a member of § *Fissipetalum*, related to *E. polydactylus* Schlechter; its two ovary-locules contain four ovules each. *Brass 7566* has been reported by Knuth as the type collection of an unpublished species, but I fail to find any consequential differences between it and the type of *E. Brassii*, from the same locality. The leaf-blades of no. 7566 are slightly narrower than those of no. 7450 and have more ascending nerves and more obvious crenations, but these appear to be minor individual points; in inflorescence the two plants scarcely differ. *Brass 5802*, a fruiting specimen, precisely matches the type collection in foliage. The fruits are ellipsoid, up to about 15×10 mm. when fresh, with a pericarp 3–4 mm. thick and a solitary seed. The epicarp is bright blue and thin, becoming coarsely wrinkled when dry. The endocarp is hard and somewhat woody, with inconspicuous irregular lobes.

Elaeocarpus (§ *Fissipetalum*) *nubigenus* Schlechter in Bot. Jahrb. 54: 120. 1916.

NETHERLANDS NEW GUINEA: 9 km. northeast of Lake Habbema, alt. 2800 m., *Brass 10576* (slender tree 10–15 m. high, common along banks of streams; sepals brown; petals white; unripe fruit green). BRITISH NEW GUINEA: Central Division, Murray Pass, Wharton Range, alt. 2840 m., *Brass 4510* (A, NY), *4540* (A, NY), *4545* (A, NY) (straggling large shrubs or small trees, sometimes up to 13 m. high, often common in forests or more frequently on forest-borders; leaf-blades shining above; branchlets, petioles, leaf-margins and nerves, and rachises red or reddish brown; pedicels and calyx pale greenish yellow or yellow-brown; petals cream-colored; fruit blue).

The cited specimens can be referred with reasonable confidence to *E. nubigenus*, based on *Schlechter 18791* from the Bismarck Mts. of North-eastern New Guinea at 2500 m. Naturally a considerable range of dimensions is evident in the several available specimens. The leaf-blades were originally described as $6-8 \times 3.2-5$ cm., and this is about the average size, but our specimens have leaf-blades up to 10×6.2 cm. (*Brass 4510*). *Schlechter* states that the blades are "subintegra," but ours would be better described as definitely crenate, at first spinulosely so, with the crenulations 2 or 3 per centimeter. Our specimens have racemes up to 13 cm. long; the sepals and petals are as described by *Schlechter*, the latter having 16-18 lacinae. The stamens (lacking in the type collection) are about 13-17 in number, 2-3 mm. long, with short filaments and anthers 1.5-2.3 mm. long and obscurely hispidulous at the blunt apex. The fruits (*Brass 4510* and *10576*) are ellipsoid, up to 18×12 mm. at apparent maturity, with a pericarp 2-3 mm. thick and 1 or 2 seeds; the epicarp is conspicuously rugulose when dry, and the endocarp is thick and irregularly shallowly lobed.

Elaeocarpus (§ *Fissipetalum*) *Pulleanus* O. C. Schmidt in *Nova Guin. Bot.* 14: 154. *pl. 16B, f. 1-8.* 1924.

NETHERLANDS NEW GUINEA: 9 km. northeast of Lake Habbema, alt. 2900 m., *Brass 10640* (tree 5-6 m. high, in disturbed forest on edge of a native rest clearing; leaves stiff, convex; fruit blue).

The cited specimen agrees well with the original description of this species, which is based on a collection from the northern slope of the central range of Netherlands New Guinea at 1450-3260 m. altitude. Schmidt describes the leaf-blades as being $4-5.5 \times 2.6-3.5$ cm., but his plate shows a blade up to 6 cm. long. *Brass 10640* has the leaf-blades 4-8 cm. long and 2.5-4.5 cm. broad. The flowers of our specimen are mostly immature, but they agree well with those described, except that the ovary appears to be 3- rather than 2-locular. The mature fruits accompanying no. *10640* are ellipsoid, up to 17×12 mm., obtuse at base and apiculate at apex. The epicarp is hard and comparatively thick, the mesocarp is sparsely fibrous, and the endocarp is bony, 2-3 mm. thick, and irregularly sulcate; the locule is single and 1-seeded. The species appears to be more closely related to *E. nubigenus* *Schlechter* than to *E. polydactylus* *Schlechter*, as suggested by Schmidt.

Elaeocarpus (§ *Fissipetalum*) *Archboldianus* sp. nov.

Arbor ad 19 m. alta, ramulis crassis apicem versus ad 5 mm. diametro valde angulatis strigoso-puberulis, mox glabratis, ramulis vetustioribus subteretibus cinereis; petiolis rugulosis crassis canaliculatis cito glabratis 8-17 mm. longis; laminis subcoriaceis in sicco olivaceis obovato-vel elliptico-oblongis, 7-13.5 cm. longis, 2.5-6.5 cm. latis, basi subacutis et in petiolum decurrentibus, apice obtuse cuspidatis vel rotundatis, margine anguste recurvatis et crenulato-serratis (dentibus 3 vel 4 per centimetrum), supra glabris nitidisque, subtus brunneo-punctatis et costa nervisque primo saepe strigoso-hirtellis cito glabratis, costa supra elevata subtus prominente, nervis lateralibus utrinsecus 6-12 erecto-patentibus anastomosantibus

supra prominulis subtus valde elevatis et in axillis saepe domatiiferis, rete venularum copiose intricato supra paullo subtus valde prominulo; racemis axillaribus 11–18 cm. longis erectis multifloris, pedunculo brevi et rhachi leviter angulata 1–2 mm. diametro pedicellisque dense tomentello-puberulis demum glabratis, pedicellis saepe curvatis sub anthesi 5–8 mm. longis; sepalis papyraceis acutis deltoideo-lanceolatis, 4.5–5.5 mm. longis, 1.5–1.8 mm. latis, extus breviter sericeis, intus obscure puberulis glabratis carinatis; petalis membranaceis basim versus carnosio-incrassatis, obovato-cuneatis, 5–6 mm. longis, 2–3 mm. latis, apice rotundatis et in lacinias 18–36 lineares obtusas 1–2 mm. longas irregulariter fissis, praeter marginem medium versus tomentello-ciliolatum glabris; disco carnosio annulari-pulvinato 5-lobato circiter 0.8 mm. alto minute hispidulo; staminibus 25–30 erectis 2.5–3 mm. longis, antheris 1.7–2.3 mm. longis apice obtusis et setas 1–3 ad 0.2 mm. longas gerentibus vel ebarbellatis; ovario conico-ellipsoideo 3-loculari et styli basi breviter sericeis, loculis 4-ovulatis, stylo subulato 2.5–3 mm. longo; rhachi pedicellisque sub fructu valde incrassatis, fructibus ellipsoideis ad 20 mm. longis et 11 mm. latis, basi obtusis, apice cuspidatis, epicarpio duro crasso, mesocarpio subnullo, endocarpio 2–4 mm. crasso osseo extus profunde et irregulariter sulcato, loculo plerumque unico, semine solitario.

NETHERLANDS NEW GUINEA: Bele River, 18 km. northeast of Lake Habbema, alt. 2300 m., *Brass & Versteegh 11127* (TYPE), Nov. 16, 1938 (tree 19 m. high, common in old secondary forest; trunk 38 cm. diam.; crown not wide-spreading; bark 8 mm. thick, black-brown, rough, shallowly fissured; outer wood white; inner wood dark brown; flowers white; fruits green), *Brass 11414* (substage tree 14 m. high, in fagaceous forest; flowers greenish white).

Elaeocarpus Archboldianus is a species of the relationship of *E. nubigenus* Schlechter and *E. Pulleanus* O. C. Schmidt, differing from both in its larger leaf-blades, longer inflorescences, and more copiously lacinate petals, from the former also in its thicker and sometimes pilosulous leaf-blades, and from the latter also in its longer petioles. The petal-segments are 30–36 in the type collection and usually 18–20 in no. 11414, but the plants are otherwise identical.

Elaeocarpus (§ *Fissipetalum*) *decorus* sp. nov.

Arbor, ramulis crassis apicem versus valde angulatis 3–6 mm. diametro, juvenilibus dense brunneo-tomentellis, vetustioribus glabratis subteretibus cinereis; petiolis crassis supra complanatis 7–15 mm. longis ut ramulis tomentellis demum glabratis; laminis subcoriaceis siccitate fusco-olivaceis obovato-ellipticis, 10–22 cm. longis, 3.5–8 (–11) cm. latis, basim versus gradatim angustatis et basi in petiolum decurrentibus, apice rotundatis vel late obtusis interdum paullo emarginatis vel minute cuspidatis, margine leviter recurvatis et dentibus 3–6 per centimetrum primo spinuloso-serrulatis demum inconspicue crenulatis, supra costa interdum tomentella excepta glabris et subnitidis, subtus obscure punctatis et praecipue costa nervisque hirtellis demum subglabratis, costa supra leviter elevata subtus prominente, nervis lateralibus utrinsecus 13–20 erecto-patentibus valde anastomosantibus supra prominulis subtus peracute elevatis, rete venularum copioso utrinque prominulo; racemis axillaribus vel interdum e ramulis infra folia orientibus sub anthesi 14–22 cm. longis multifloris, pedunculo ad 2 cm. longo et rhachi angulata 1–2 mm. diametro pedicellisque arcte tomentellis,

bracteis oblongo-linearibus obtusis 5–7 mm. longis extus puberulis mox caducis, pedicellis gracilibus sub anthesi 5–11 mm. longis; sepalis papyraceis subacutis oblongo-lanceolatis, 3.5–4 mm. longis, 1.2–1.5 mm. latis, extus tomentello-puberulis, intus glabris; petalis membranaceis basim versus paullo incrassatis, anguste oblongo-cuneatis, 5–5.5 mm. longis, 1.7–2.5 mm. latis, praeter marginem medium versus puberulum glabris, in laciniis 10–16 lineares inaequales 1–2 mm. longas obtusas fimbriatis; disco annulari-pulvinato 5-lobato circiter 0.8 mm. alto dense hispidulo; staminibus 14–16 uniseriatis 2.2–3 mm. longis, filamentis gracilibus, antheris 1.7–2 mm. longis apice subacutis et setis 3–6 ad 0.15 mm. longis barbellatis; ovario conico-ellipsoideo 3-loculari et styli basi tomentello-puberulis, loculis 4-ovulatis, stylo subulato circiter 3 mm. longo superne glabro; rhachi pedicellisque sub fructu paullo incrassatis, fructibus ellipsoideis ad 16×13 mm., basi et apice rotundatis, epicarpio duro crasso ruguloso, mesocarpio subnullo, endocarpio osseo 3–4 mm. crasso profunde sulcato, maturitate loculo et semine solitario.

NORTHEASTERN NEW GUINEA: Morobe District, alt. 1200–1800 m.: Yunzaing, *Clemens* 2420 (TYPE), Apr. 23, 1936, 3745; Ogeramngang, *Clemens* 4799 (tree 11 m. high, in forest; fruit blue), 5398; Matap, *Clemens* 11165 (tree, the trunk 20–25 cm. diam.; flower-buds with a dull purplish tinge; petals white); A-mieng, on Yaneng River, tributary of Buso River, *Clemens* 12323 (sepals pink; petals dull white).

The type and no. 12323 bear inflorescences at anthesis, while nos. 3745 and 4799 are in fruit; the remaining collections bear immature inflorescences. Although no. 12323 has broader leaf-blades than the other specimens, there seems no doubt that all are conspecific. It seems that a plant so common in the Morobe District should have been described, but this well-marked species appears to be without a name. From its closest relatives, *E. Pulleanus* O. C. Schmidt and *E. Archboldianus* (above described), it differs in its substantially larger leaf-blades with more numerous secondary nerves, its fewer stamens, and its comparatively broader fruits; the fruits of both *E. Pulleanus* and *E. Archboldianus* are narrower, obtuse at base, and cuspidate or apiculate at apex. *Elaeocarpus decorus* is further differentiated from *E. Pulleanus* by its longer petioles and racemes, and from *E. Archboldianus* by its less copiously laciniate petals.

Elaeocarpus (§ *Fissipetalum*) *arfakensis* Schlechter in Bot. Jahrb. 54: 118. 1916.

This species, based on *Gjellerup* 1198 from the Arfak Mts. of Netherlands New Guinea, was inadequately described, but nevertheless it must be considered validly published because of Schlechter's notes. It is said to differ from the other species of § *Fissipetalum* in its thickly tomentellous lower leaf-surfaces.

Kanehira & *Hatusima* 14031 and 14072, also from the Arfak Mts., are probably correctly referred to *E. arfakensis* by the collectors, although, in the absence of an adequate description and without consultation of an isotype, such identification is open to question.

Elaeocarpus (§ *Fissipetalum*) *alpestris* sp. nov.

Arbor ad 25 m. alta dense foliata, ramulis subteretibus apicem versus 3–5 mm. diametro densissime brunneo-tomentello-velutinis, ramulis vetustioribus demum cinereis glabratisque; petiolis crassis 2–7 mm. longis ut ramulis dense tomentellis; laminis coriaceis in sicco fuscis ellipticis vel

obovato-ellipticis, 2.5–6 cm. longis, 1.7–3.8 cm. latis, basi et apice rotundatis vel late obtusis, margine leviter recurvatis et dentibus 2–5 per centimetrum serrulatis, supra primo cano-sericeis cito glabratis, subtus densissime brunneo-tomentello-velutinis demum interdum subglabratis, costa supra leviter elevata subtus prominente, nervis lateralibus utrinsecus 5–7 erecto-patentibus supra leviter subtus conspicue elevatis, rete venularum utrinque prominulo subtus indumento occulto; racemis axillaribus suberectis angustis 15–20-floris, pedunculo brevi et rhachi subteretibus robustis 4–7 cm. longis cum bracteis pedicellisque ut ramulis densissime tomentellis, bracteis lanceolatis acutis ad 7 mm. longis mox caducis, pedicellis saepe reflexis sub anthesi 3–5 mm. longis; sepalis tenuiter carnosus oblongo-lanceolatis, 3–4.5 mm. longis, 1.2–1.5 mm. latis, acutis, extus dense et arcte tomentellis, intus carinatis et sericeo-puberulis vel glabratis; petalis membranaceis obovato-cuneatis, 3.5–5 mm. longis, 2–2.5 mm. latis, in segmenta 14–20 filiformia obtusa subaequalia circiter 1 mm. longa laciniatis, margine puberulo excepto glabris vel extus basim versus sparse sericeis; disco continuo 5-lobato 0.4–0.6 mm. alto copiose brunneo-hispidulo; staminibus 14–20 circiter 2.5 mm. longis, filamentis gracilibus circiter 0.7 mm. longis glabris, antheris 1.5–1.8 mm. longis ubique obscure hispidulo-papillosis apice obtusis et setas 1–3 minutas interdum gerentibus; ovario ovoideo 3-loculari et styli basi copiose brunneo-sericeis, loculis 4-ovulatis, stylo subulato 1.5–2 mm. longo superne glabro; pedicellis sub fructu ad 1 cm. longis; fructibus coriaceis ellipsoideis maturitate ad 18 × 13 mm., pericarpio 3–4 mm. crasso, epicarpio duro ruguloso, mesocarpio subnullo, endocarpio osseo ruguloso et leviter sulcato, loculo unico, semine solitario.

NETHERLANDS NEW GUINEA: Lake Habbema, alt. 3225 m., *Brass 9092* (TYPE), Aug. 1938 (densely foliated tree 4–10 m. high, plentiful in closed forest and sometimes in the taller mossy thickets of peat ridges; petals white; mature fruit blue), *Brass & Myer-Drees 10434* (tree 8 m. high, in forest; trunk 31 cm. diam. [sterile]); 9 km. northeast of Lake Habbema, alt. 2900 m., *Brass & Versteegh 10460* (tree about 25 m. high, rare in mossy-forest; trunk 45 cm. diam.; crown very small, dark; bark 16 mm. thick, black, rough; outer wood white; inner wood brown; flowers pale yellow).

Among described species, *E. alpestris* is to be compared only with *E. arfakensis* Schlechter, with which it has in common densely tomentellous leaves and inflorescences and a type of flower suggesting § *Fissipetalum*, with 4-ovulate ovary-locules. The only definite statement about the flowers of *E. arfakensis* given by Schlechter indicates that the petals have about 10 segments; those of *E. alpestris* have 14–20 segments. If the Kanehira and Hatusima specimens mentioned above are correctly referred to *E. arfakensis*, that species further differs from *E. alpestris* in its smaller and less obviously toothed leaves with closer tomentum.

Elaeocarpus (§ *Fissipetalum*) *dasycarpus* sp. nov.

Arbor ad 16 m. alta dense foliata, ramis ramulisque subteretibus, ramulis juvenilibus circiter 2.5 mm. diametro densissime brunneo-tomentello-velutinis, ramulis vetustioribus glabratis; foliis confertis, petiolis inconspicuis 1–2 mm. longis ut ramulis tomentellis anguste alatis, laminis coriaceis in sicco fuscis ellipticis, 1.5–3.5 cm. longis, 1–2 cm. latis, basi obtusis et in petiolum decurrentibus, apice rotundatis vel late obtusis, margine dentibus 6–8 per centimetrum obscure spinuloso-serrulatis, supra glabris vel cito glabratis, subtus indumento ferrugineo arcto dense tomentellis, costa supra

leviter subtus valde elevata, nervis lateralibus utrinsecus 6–9 brevibus patentibus supra subplanis subtus elevatis, rete venularum supra immerso subtus prominulo vel indumento occulto; racemis axillaribus sub alabastro 3–4 cm. longis ut videtur circiter 10-floris, rhachi robusta leviter angulata et bracteis pedicellisque densissime tomentellis, bracteis lanceolato-ellipticis circiter 6 mm. longis mox caducis, pedicellis visis circiter 2 mm. longis; floribus eis *E. alpestris* similibus, sepalis in alabastro ad 4.5×2 mm., segmentis petalorum circiter 20, staminibus circiter 25, antheris 1.7–2 mm. longis, ovario etiam 3-loculari et loculis 4-ovulatis; inflorescentiis sub fructu valde incrassatis, pedicellis ad 6 mm. longis et diametro; fructibus plerumque solitariis coriaceis obovoideo-ellipsoideis, maturitate ad 5.5×4.8 cm., pericarpio crassissimo, epicarpio tenui ruguloso, mesocarpio 1.5–2 mm. crasso fibroso, endocarpio lignoso 10–12 mm. crasso lacunis parvis hinc inde pervaso extus disperse scrobiculato, loculis 2 (vel interdum 1?), semine in quoque loculo solitario elongato utrinque subacuto.

BRITISH NEW GUINEA: Central Division, Murray Pass, Wharton Range, alt. 2840 m., *Brass* 4742 (A, NY, TYPE), Aug. 7, 1933 (tree up to 16 m. high, with straight bole and dense crown; one of the principal trees in range-top forests; leaf-blades smooth and bluish green above, brown-pubescent beneath; fruits usually solitary, erect on thick stiff peduncles, bluish green, the putamen hard and pitted; native name: *oriso* [Kuama dialect]).

Elaeocarpus dasycarpus is closely allied to *E. alpestris* (described above), from which it differs in its sessile leaf-blades, which are smaller, more finely and copiously serrulate, more closely tomentellous beneath, and with more immersed venation. Although only immature inflorescences of *E. dasycarpus* have been seen, it is probable that they will prove to be shorter and with fewer flowers than those of *E. alpestris*, while the sepals appear to be slightly broader and the stamens more numerous. Apparently mature fruits of both species are available, those of *E. dasycarpus* being much the larger and with a very thick hard pitted endocarp.

From *E. arfakensis* Schlechter, the new species differs in its more copiously fimbriate petals and doubtless in other characters, an analysis of which must await examination of the type of *E. arfakensis*.

Elaeocarpus (§ *Fissipetalum*) *sericoloides* sp. nov.

Arbor ad 30 m. alta, ramulis subteretibus fuscis juventute puberulis demum glabratis; foliis saepe oppositis vel suboppositis, interdum alternantibus, petiolis gracilibus canaliculatis puberulis 1–3 mm. longis, laminis chartaceis glabris (vel costa substrigosis) ovato-ellipticis, 4–7 cm. longis, 1.5–3 cm. latis, basi rotundatis vel late obtusis, ad apicem obtusum gradatim acuminatis, margine inconspicue crenulato-serratis (dentibus 2–4 per centimetrum), costa supra leviter subtus valde elevata, nervis lateralibus utrinsecus 5–8 patentibus anastomosantibus et rete venularum intricato utrinque prominulis; racemis axillaribus sub anthesi 2–4 cm. longis, pedunculo brevi et rhachi gracili pedicellisque minute cano-puberulis, floribus bracteis membranaceis lanceolatis caducis 2–3 mm. longis subtentis, pedicellis gracillimis sub anthesi 3–8 mm. longis; sepalis membranaceis glabris ovato-deltaideis, 3.5–4 mm. longis, circiter 1.7 mm. latis, acutis; petalis membranaceis glabris obovato-cuneatis, 3.5–4 mm. longis, circiter 1.5 mm. latis, dimidio superiore segmentis 10–12 linearibus obtusis regulariter laciniatis; disco continuo annulari-pulvinato circiter 0.5 mm. alto 5-crenulato minute

velutino; staminibus 12 vel 13 erectis 2–2.5 mm. longis, filamentis gracilibus minute setulosis glabratisve, antheris circiter 1.5 mm. longis ubique minute setulosis apice obscure mucronulatis; ovario glabro subgloboso 3-loculari, loculis 4-ovulatis, stylo subulato circiter 1.5 mm. longo; fructibus globosis 25–32 mm. diametro, epicarpio tenui fragili, mesocarpio ut videtur carnosio, endocarpio duro crasso lignoso processibus numerosis irregularibus 4–8 mm. longis profunde lobato, semine parvo solitario.

NETHERLANDS NEW GUINEA: 6 km. southwest of Bernhard Camp, alt. 1000–1230 m., Brass & Versteegh 12558 (TYPE), Feb. 22, 1939, 13110 (trees 30 m. high, rare in primary forest, on the slope of a ridge [12558] or along a small stream [13110]; crown not wide-spreading; bark 8 mm. thick, gray or brown, fairly smooth or fairly rough; wood white; flowers white).

At first glance this plant may be taken for a species of *Sericolea*, because of the predominantly opposite or subopposite leaves and the narrow small-flowered racemes. However, the continuous disk and the lacinate petals preclude this disposition, while the fruit is clearly of *Elaeocarpus*. This species demonstrates that *Elaeocarpus* may include species with opposite leaves, a fact that does not greatly weaken the status of *Sericolea*, which is well-characterized by its disk, petals, and fruit. The new species is placed in § *Fissipetalum* with hesitation, its fruit, with unusually long and irregular endocarpic processes, being quite different from that of other species of the section. The floral characters are excellent for § *Fissipetalum* and in this respect *E. sericoloides* is suggestive of *E. polydactylus* Schlechter, *E. azaleifolius* Knuth, and their allies, differing in obvious foliage characters, its setulose-pubescent anthers, glabrous ovary, etc. It is possible that *E. sericoloides* should be placed alone in an anomalous section.

6. § OREOCARPUS

Elaeocarpus § *Oreocarpus* Schlechter in Bot. Jahrb. 54: 127. 1916.

This small section was founded by Schlechter with five species, but one of these, *E. sterrophyllus* Schlechter, according to the few inadequate notes, has a 5-loculed ovary and is thus aberrant in the section. In the remaining species the ovary is bilocular and they seem correctly placed together; selection of a lectotype must be arbitrary. Since *E. populneus* Schlechter is the only species fully described in his treatment, I suggest taking this as the lectotype of the section.

Since Schlechter's work the following species have been described which are referable to § *Oreocarpus*: *E. sogerensis* Bak. f., *E. de Bruynii* O. C. Schmidt, *E. populneoides* Knuth, and *E. patens* Knuth; the last of these is discussed below as a synonym of *E. viscosus* Warb.

Elaeocarpus (§ *Oreocarpus*) *viscosus* Warb. in Bot. Jahrb. 18: 201. 1893; K. Schum. & Lauterb. Fl. Deutsch. Schutzgeb. Südsee 432. 1901; Schlechter in Bot. Jahrb. 54: 127. 1916.

Elaeocarpus patens Knuth in Rep. Sp. Nov. 48: 77. 1940, syn. nov.

NORTHEASTERN NEW GUINEA: Morobe District: Sattelberg, alt. 1050–1200 m., Clemens 1062 (large tree, in forested hills; trunk 30–60 cm. diam.; flower cream-colored); Ogeramrang, alt. about 1750 m., Clemens 5149 (type coll. of *E. patens*).

Clemens 1062, a flowering specimen from the type locality, agrees precisely with the description of *E. viscosus* in all respects, including floral

dimensions, except that the sepals are scarcely puberulent without when young and are soon glabrate rather than “. . . extus appresse sericeo-pubescentibus . . .” The fruiting specimen cited above, the type collection of *E. patens*, agrees precisely with no. 1062 in vegetative characters. The viscid nature of the young branchlets and inflorescence, emphasized by Warburg and Schlechter, is apparently reflected in dried specimens by the shining surfaces of these parts. Scattered immersed yellow glands are also perceptible on the young branchlets, pedicels, and sepals.

Ridley (in Trans. Linn. Soc. II. Bot. 9: 21. 1916) has reported *E. viscosus* from the southern slopes of Mt. Carstensz, Netherlands New Guinea.

Elaeocarpus (§ *Oreocarpus*) *populneoides* Knuth in Rep. Sp. Nov. 48: 78. 1940.

BRITISH NEW GUINEA: Western Division: Lake Daviumbu, middle Fly River, Brass 7865 (TYPE COLL.) (common canopy tree in rain-forest; trunk flanged at base; bark thin, brown, marked with slight horizontal ridges; flowers white, sweet-scented); Tarara, Wassi Kussa River, Brass 8705 (tree 8 m. high, in gallery rain-forest; bark close, gray, the inner bark green).

This species, based on the above-cited specimens, was described by Knuth without indication of relationship. Its ovary is glabrous and bilocular, each locule being 10-ovulate; thus it doubtless belongs in § *Oreocarpus*, where it seems closest to *E. populneus* Schlechter, a position doubtless implied by Knuth in his choice of an epithet. Several important details, which are not brought out in the original description, separate *E. populneoides* from Schlechter's species; for instance, the racemes are 7-14-flowered rather than 4-7-flowered, the laciniae of the petals are 25-30 rather than 12-15, and the stamens are about 35 in number rather than about 15.

Elaeocarpus (§ *Oreocarpus*) *culminicola* Warb. in Bot. Jahrb. 16: 23. 1892; K. Schum. & Lauterb. Fl. Deutsch. Schutzgeb. Südsee 432. 1901; Schlechter in Bot. Jahrb. 54: 128. 1916.

NORTHEASTERN NEW GUINEA: Morobe District, Busu, alt. 1800-2400 m., Clemens 6269. BRITISH NEW GUINEA: Central Division, Mt. Tafa, alt. 2300-2400 m., Brass 4069 (A, NY) (sparsely branched slender shrub about 2 m. high, rare in mossy-forest; leaves glossy, paler beneath; flowers pale pink), Brass 4918 (A, NY) (very slender small tree, in dense forest; leaves smooth and shining; flower-buds brown; immature fruit smooth, up to 25 × 15 mm.), Brass 5016 (A, NY) (weak bush or slender tree 2-3 m. high, in undergrowth of forest; young growth red; leaf-margins and midribs above very pale; pedicels and calyx brownish pink; petals cream-colored; fruit smooth, blue-green, about 2 cm. long).

The above-cited specimens are referred to *E. culminicola* with reasonable confidence, as they agree with the original description in such essential details as the entire and prominently veined leaf-blades, few-flowered inflorescences, comparatively large flowers, and pilose long-awned stamens. The type collection, from the Finisterre Mts. of Northeastern New Guinea at 2300 m. altitude, consists of sparse and inferior material, according to Schlechter. Therefore it is not surprising that the ample material now available discloses that the specific concept needs amplification. The species appears remarkably variable in the size of its parts; even on the

same specimen the petiole may vary from 8 to 40 mm. in length, the leaf-blades being 8–19 × 2.5–7 cm. The dimensions given by Warburg are similar to those of the smaller leaves available to me. The inflorescences are 3–8 cm. long and 5–12-flowered. The pedicels vary from 15 to 35 mm. in length, and mature flowers are larger than those described by Warburg, with sepals 16–19 × 2–3.5 mm., petals 17–20 × 7–10 mm. and lacinate into 20–26 segments which are 4–6 mm. long, about 25 stamens with filaments 2–2.5 mm. long, and a style 12–13 mm. long. The anther-dimensions given by Warburg are about correct. The ovary is glabrous and 2-locular, each locule being 8–12-ovulate.

7. § BLEPHAROCERAS

Elaeocarpus § *Blepharoceras* Schlechter in Bot. Jahrb. 54: 129. 1916.

In basing § *Blepharoceras* upon three species, Schlechter remarks that its limits are not entirely satisfactory. One of the three original species, *E. orohensis* Schlechter, definitely represents § *Ganitrus*, and as such it has been discussed above. The two remaining species, *E. blepharoceras* Schlechter (the type species of the section) and *E. coloides* Schlechter, are quite different in vegetative characters, but they agree in the fundamental floral characters; as thus delimited the section appears quite recognizable and useful, although perhaps not natural.

Since Schlechter's work two other species have been proposed which are referable to § *Blepharoceras*: *E. ihuensis* O. C. Schmidt and *E. filiformidentatus* Knuth. The first of these certainly belongs here and the second probably, although I have not seen material of it and the description lacks verifying details of the ovary-structure.

A new species related to *E. blepharoceras* is described below, and I also propose to add to § *Blepharoceras* a group of five montane species (*E. latescens* F. v. Muell. and four new species) which differ sharply from other members of the section in having the lower leaf-surfaces and inflorescences densely tomentellous. These five species form a closely knit group which, in Schlechter's system, can be referred only to § *Blepharoceras*, although in appearance the plants do not suggest this section. Actually, they bear a much closer superficial resemblance to certain species of § *Fissipetalum* (*E. arfakensis*, *E. alpestris*, and *E. dasycarpus*, discussed above) than to any species of § *Blepharoceras*, but in floral characters these two groups of tomentellous-leaved species do not seem closely related. If floral characters are to be used as the principal basis of sectional grouping in *Elaeocarpus*, as seems most practical, it thus becomes necessary to place in widely separated sections two species-groups which are vegetatively quite similar. A further relationship should be noted between *E. latescens* and its four close allies on the one hand and certain species of § *Coilopetalum* (e. g. *E. fuscus* Schlechter and *E. fuscoides* Knuth) on the other. These two species have all the characters of § *Coilopetalum* except for their copiously tomentellous leaves and inflorescences, in which they suggest the above-mentioned members of § *Blepharoceras*. The complex inter-relationship of the species of *Elaeocarpus* is here well illustrated.

As now constituted, § *Blepharoceras* consists of ten species, of which five are described as new in the present treatment. The fruits of only four species (*E. tafaensis*, *E. erianthus*, *E. latescens*, and *E. whartonensis*) of § *Blepharoceras* are thus far known. Although widely divergent in size, these fruits agree in having an unusually dry and strongly fibrous mesocarp. The significance of this as a sectional character is as yet doubtful.

Elaeocarpus (§ *Blepharoceras*) *tafaensis* sp. nov.

Arbor dense foliata ad 25 m. alta, ramulis gracilibus juventute angulatis cano-sericeo-puberulis demum subteretibus cinereis glabratis; foliis apicem ramulorum versus confertis, petiolis gracilibus supra complanatis dense sericeis glabratisve (5-) 10-18 mm. longis, laminis subcoriaceis in sicco fuscis obovato-ellipticis, (4-) 6-9 cm. longis, (1.5-) 2-4 cm. latis, basi acutis et in petiolum gradatim decurrentibus, in apicem 2-5 mm. longum abrupte cuspidatis, margine anguste recurvatis et integris vel inconspicue undulato-crenatis, supra praecipue costa nervisque primo sericeis cito glabratis, subtus dense et persistenter pallido-brunneo-sericeis, costa supra paullo elevata subtus prominente, nervis lateralibus utrinsecus 5-8 adscendentibus supra leviter subtus peracute elevatis, rete venularum intricato supra prominulo subtus indumento occulto; racemis axillaribus patentibus gracilibus laxis sub anthesi 6-9 cm. longis 8-15-floris, pedunculo et rhachi 0.7-1 mm. diametro pedicellisque primo sericeo-puberulis mox glabratis, bracteis parvis caducis, pedicellis striatis sub anthesi 11-15 mm. longis, alabastris anguste conicis, 8-11 mm. longis, circiter 2 mm. latis, acutis; sepalis submembranaceis lanceolatis, 12-13 mm. longis, basi 2-2.5 mm. latis deinde ad apicem subacutum gradatim angustatis, utrinque minute pallido-sericeis glabratisque, intus carinatis; petalis membranaceis oblongis, 13-17 mm. longis, 2-3 mm. latis, extus glabris, intus infra medium praecipue margine et carina prominente copiose pallido-tomentellis, in segmenta 15-35 filiformia apice obtusa et paullo incrassata 2-4 mm. longa irregulariter laciniatis; disco annulari-pulvinato 1.2-1.5 mm. alto, irregulariter sulcato, apice crenulato, minute hispidulo; staminibus 15-20 uniseriatis erectis gracilibus 7-9 mm. longis, filamentis glabris 2.5-3 mm. longis, antheris arista copiose hispidula 1-1.5 mm. longa excepta 3.5-4.5 mm. longis obscure sericeis; ovario ellipsoideo 3-loculari et styli basi copiose sericeis, loculis 6(raro 4)-ovulatis, stylo subulato 11-12 mm. longo superne glabro; rhachi pedicellisque sub fructu incrassatis, fructibus subglobosis 30-42 mm. diametro, epicarpio tenui sublevi, mesocarpio conspicue fibroso 5-10 mm. crasso, endocarpio osseo 1-3 mm. crasso ut videtur sine processibus, loculis 3 vel abortu 1 vel 2.

BRITISH NEW GUINEA: Central Division, Mt. Tafa, alt. 2300-2350 m., *Brass* 4102 (A, TYPE, NY), May 27, 1933 (dense-foliaged tree up to 25 m. high, one of the largest mossy-forest trees; bark dark, furrowed, scaly; wood hard, yellowish; leaf-blades convex, dark green and glossy above, pale brown and shining beneath; peduncles, pedicels, and calyces reddish; petals pale yellow; anthers pale purple; style yellow), *Brass* 5058 (A, NY), Sept. 17, 1933 (dense-foliaged tree 10-15 m. high, common in substage of tall forests; leaf-blades convex, thinly pale-pubescent above, brown-silky-pubescent beneath; pedicels and sepals reddish brown; petals pale green; fruit glaucous-green, apparently not quite mature, up to 42 × 40 mm.).

Elaeocarpus tafaensis appears to be closely related to *E. blepharoceras* Schlechter, from the Sepik region of Northeastern New Guinea at about 1000 m. altitude. As Schlechter's type had only immature flowers, a com-

parison of the two plants cannot be entirely satisfactory, but it seems likely that the new species has substantially larger flowers than *E. blepharoceras*. The pedicels of Schlechter's species, from not wholly mature flowers, are said to be 4 mm. long, and the sepals are 5 mm. long, whereas even the buds of *E. tafaensis* have dimensions exceeding these. The petals of the new species are copiously tomentellous within rather than merely ". . . marginibus medio barbellata, caeterum subglabra." In foliage, *E. tafaensis* has the leaf-blades obovate rather than elliptic, definitely broadest above the middle, merely cuspidate rather than acuminate at apex, and with the margins essentially entire.

The fact that the ovary-locules of *E. tafaensis* are sometimes 4-ovulate suggests § *Fissipetalum*. However, as now constituted, § *Fissipetalum* has much smaller flowers (petals not exceeding 6 mm. in length), with erostrate anthers. Therefore I place *E. tafaensis* in § *Blepharoceras*, but it should be noted that the line between the two sections is not entirely satisfactory. Both the cited numbers are accompanied by fruits, which are remarkable for their thick and fibrous mesocarp, somewhat similar to that of the fruits of *Aceratium*.

Elaeocarpus (§ *Blepharoceras*) *coloides* Schlechter in Bot. Jahrb. 54: 130. 1916.

NETHERLANDS NEW GUINEA: Northern slope of Gautier Mts., alt. about 400 m., Gjellerup 898 (TYPE COLL.), Nov. 1911.

Elaeocarpus coloides clearly has the floral characters which Schlechter intended to include in his § *Blepharoceras*, although in vegetative characters it is not very suggestive of *E. blepharoceras* Schlechter. The closest ally of *E. coloides* is *E. ihuensis* O. C. Schmidt, as pointed out by Schmidt (in Jour. Arnold Arb. 10: 80. 1929). As Schlechter's original publication of *E. coloides* consists of only a few brief notes, I herewith re-describe the species from an isotype.

Frutex 4 m. altus ubique partibus juvenilibus sparse puberulis et florum partibus exceptis glaber, ramulis subteretibus cinereis apicem versus 3-5 mm. diametro; petiolis rectis leviter canaliculatis 2-3 cm. longis basi et apice incrassatis; laminis chartaceis anguste obovato-ellipticis, 10-17 cm. longis, 4-6 cm. latis, basi obtusis, apice in acuminem ad 1 cm. longum cuspidatis, margine inconspicue et remote serrulato-crenulatis, costa utrinque prominente, nervis lateralibus utrinsecus 9-11 arcuato-adscendentibus supra prominulis subtus peracute elevatis, rete venularum intricato utrinque leviter prominulo; racemis gracilibus ad 5 cm. longis circiter 8-12-floris, pedunculo brevi et rhachi gracili pedicellisque obscure puberulis glabratibus, bracteis oblongis cuspidatis circiter 1 mm. longis, pedicellis sub anthesi 5-7 mm. longis; sepalis subcarnosis lanceolatis, circiter 7 mm. longis et 1.7 mm. latis, subacutis, extus glabris, intus cano-puberulis; petalis membranaceis ubique glabris oblongo-cuneatis, 8-9 mm. longis, 3-4 mm. latis, 3-lobatis, in segmenta 12-17 breves irregulariter laciniatis; disco annulari circiter 0.7 mm. alto superne puberulo; staminibus 25-30 erectis 3.5-3.8 mm. longis, filamentis glabris, antheris ubique setuloso-puberulis circiter 2 mm. longis apiculo brevi (ad 0.3 mm. longo) excepto; ovario sericeo 2-loculari, loculis ut videtur 8-ovulatis, stylo deciduo.

Elaeocarpus (§ *Blepharoceras*) *trichophyllus* sp. nov.

Arbor ad 18 m. alta, ramulis subteretibus, hornotinis 3–5 mm. diametro densissime ferrugineo-tomentellis, annotinis glabratis cinereis lenticellatis; petiolis robustis (circiter 2 mm. diametro) 1–2 cm. longis subteretibus ut ramulis tomentellis; laminis subcoriaceis in sicco supra viridibus subtus ferrugineis, ellipticis vel obovato-ellipticis, 6–11 cm. longis, 4–7 cm. latis, basi et apice rotundatis vel basi late truncatis, margine dentibus 2–4 per centimetrum obscure spinuloso-serrulatis, supra costa tomentella excepta glabris vel mox glabratis, subtus densissime et persistenter ferrugineo-tomentellis, costa supra elevata subtus prominente, nervis lateralibus utrinsecus 6–11 patentibus in dentibus marginis exeuntibus supra prominulis subtus prominentibus in axillis saepe obscure domatiiferis, rete venularum intricato utrinque leviter prominulo vel subtus indumento occulto; racemis axillaribus suberectis 7–12 cm. longis plerumque 10–18-floris, pedunculo subtereti 1–2 cm. longo et rhachi leviter angulata pedicellisque densissime ferrugineo-tomentellis, pedicellis curvatis sub anthesi 10–15 mm. longis, alabastris ovoideis breviter cuspidatis; sepalis tenuiter carnosis lanceolatis, 8–9 mm. longis, 2.5–3 mm. latis, extus copiose tomentellis, intus breviter sericeis, margine incrassato farinoso-puberulis; petalis membranaceis late obovato-cuneatis, 10–12 mm. longis, 8–10 mm. latis, apice profunde 3–5-lobatis etiam in segmenta 35–45 lanceolata acuta 2–4 mm. longa irregulariter fimbriatis, utrinque copiose sericeis (pilis intus brevioribus); disci lobis 5 reniformi-oblongis copiose hispidis, circiter 1 mm. altis et 2 mm. longis; staminibus circiter 45 erectis 4.5–5.5 mm. longis, filamentis gracilibus 1–1.5 mm. longis glabris vel obscure hispidulis, antheris ubique hispiduloso-papillosis arista subulata erecta 1.5–2 mm. longa excepta 2–2.5 mm. longis; ovario ovoideo 2-loculari dense sericeo, loculis 10-ovulatis, stylo subulato glabro circiter 4 mm. longo.

NETHERLANDS NEW GUINEA: Bele River, 18 km. northeast of Lake Habbema, alt. about 2300 m., *Brass & Versteegh 11118* (TYPE), Nov. 14, 1938 (tree about 18 m. high, rare in substage of primary forest; trunk 34 cm. diam.; crown small; bark 5 mm. thick, dark brown, fairly rough; outer wood white; inner wood brown; flowers white).

Elaeocarpus trichophyllus is the first of a group of five montane species with tomentellous lower leaf-surfaces and inflorescences, referred to § *Blepharoceras* because of a similarity of essential floral characters rather than because of any habital resemblance. The complex relationships of this group are discussed above under the sectional name.

Elaeocarpus (§ *Blepharoceras*) *erianthus* sp. nov.

Arbor ad 8 m. alta vel ultra, ramulis subteretibus apicem versus 2.5–4 mm. diametro densissime ferrugineo- vel canescenti-tomentellis demum cinereis glabratisque; petiolis validis 5–8 mm. longis ut ramulis tomentellis; laminis coriaceis oblongo-ellipticis, 2.5–5 cm. longis, 1.5–4 cm. latis, basi subcordatis vel rotundatis, apice rotundatis vel late obtusis, margine dentibus 5–7 per centimetrum obscure calloso-serrulatis, supra in sicco olivaceis primo puberulis demum costa tomentella excepta glabratis, subtus densissime ferrugineo- vel demum cano-tomentellis, costa supra elevata subtus prominente, nervis lateralibus utrinsecus 6–8 patentibus in dentibus marginis exeuntibus supra immersis vel impressis subtus valde elevatis, rete venularum supra immerso subtus inconspicue prominulo; racemis axillaribus suberectis 4–7 cm. longis circiter 10-floris, pedunculo 1–2.5 cm. longo

et rhachi subteretibus pedicellisque copiose tomentellis, pedicellis curvatis validis 6–9 mm. longis, alabastris ovoideis obtusis; sepalis carnosis acutis ovato-lanceolatis, 7–8 mm. longis, circiter 3 mm. latis, extus dense tomentellis, intus carinatis et breviter sericeis; petalis late obovato-cuneatis, 7–8 mm. longis, 4–6 mm. latis, utrinque dense sericeis, saepe concavis vel margine anguste involutis, apice in segmenta 30–40 lanceolata acuta 1–1.5 mm. longa irregulariter fimbriatis; disci lobis 5 late oblongis circiter 1×2 mm. copiose sericeis; staminibus 40–50 erectis 4–4.5 mm. longis, filamentis gracilibus subteretibus glabris 0.8–1 mm. longis, antheris minute hispidulo-papillosis arista subulata erecta vel reflexa 1.5–1.8 mm. longa excepta 1.7–2 mm. longis; ovario ovoideo 2-loculari dense sericeo-hispidulo, loculis 12-ovulatis, stylo subulato glabro circiter 2 mm. longo; fructibus ovoideis ad 12×9 mm., pericarpio 2–3 mm. crasso, epicarpio tenui ruguloso, mesocarpio conspicue fibroso, endocarpio osseo extus leviter et irregulariter sulcato, loculo unico, semine solitario.

BRITISH NEW GUINEA: Central Division, Murray Pass, Wharton Range, alt. 2840 m., *Brass* 4537 (A, NY) (tree 7–8 m. high, abundant in forests on south side of pass; crown dense, rounded, composed of short stiff branches; leaves very stiff, pale brown beneath; fruit bluish green), *Brass* 4767 (NY, TYPE), Aug. 8, 1933 (large dense-crowned forest tree; only one flowering specimen found).

Elaeocarpus erianthus is closely related to the preceding new species, *E. trichophyllus*, from which it differs in its smaller leaf-blades, which are more finely serrulate and have the secondaries and veinlets immersed rather than prominulous above, its shorter pedicels, and its smaller floral parts. The petals of *E. erianthus* are fimbriate with comparatively short segments and are not divided into lobes, as are those of *E. trichophyllus*.

Elaeocarpus (§ *Blepharoceras*) *eximius* sp. nov.

Arbor ad 30 m. alta, ramulis subteretibus apicem versus 2.5–3 mm. diametro primo cano-tomentellis vel laxe squamulosis mox glabris, annotinis nigrescentibus vel cinereis; petiolis ut ramulis saepe squamulosis mox glabris supra complanatis 1–2.5 cm. longis; laminis coriaceis obovato-ellipticis, (5–) 7–10 cm. longis, (3–) 4–5.5 cm. latis, ad basim obtusum vel subacutum gradatim angustatis, apice rotundatis vel late obtusis, margine dentibus 3 vel 4 per centimetrum minute calloso-serrulatis, supra in sicco olivaceis glabris vel juventute indumento cano-squamuloso-tomentello indutis, subtus dense cano-tomentellis vel -lanatis demum subglabris, costa supra valde elevata subtus prominente, nervis lateralibus utrinsecus 8–13 patentibus in margine exeuntibus supra prominulis subtus valde elevatis, rete venularum utrinque prominulo vel subtus subimmerso; racemis apicem ramulorum versus axillaribus vel in ramulis brevibus 2 vel 3 aggregatis 5–9 cm. longis 8–14-floris, pedunculo brevi et rhachi angulata pedicellisque dense cano-tomentellis, bracteis ovatis acutis ad 4 mm. longis cito caducis, pedicellis curvatis sub anthesi 4–7 mm. longis, alabastris ovoideis obtusis; sepalis carnosis lanceolatis acutis, 8–9 mm. longis, 2–2.5 mm. latis, extus copiose et arcte tomentellis, intus breviter sericeis; petalis submembranaceis vel tenuiter carnosis obovato-cuneatis, 8–9 mm. longis, 3.5–4.5 mm. latis, extus dense sericeis, intus copiose tomentellis, apice in segmenta 10–15 lanceolata acuta 1–3 mm. longa irregulariter fimbriatis; disci lobis 5 carnosis late oblongis circiter 0.8×1.3 mm. dense sericeis; staminibus 30–35 ubique minute hispidulis 4.5–5.5 mm. longis, filamentis

gracilibus subteretibus 2–2.5 mm. longis, antheris arista erecta subulata 1.2–1.5 mm. longa excepta 1.2–1.5 mm. longis; ovario ovoideo 2-loculari et styli basi copiose sericeis, loculis 10-ovulatis, stylo subulato 2.5–3 mm. longo superne glabro; fructibus immaturis ellipsoideis ad 10×8 mm. dense tomentellis demum forsan glabratis, epicarpio ruguloso.

BRITISH NEW GUINEA: Central Division, Mt. Tafa, alt. 2400 m., *Brass* 4954 (A, TYPE, NY), Sept. 2, 1933 (tree to 30 m. high, with rather open crown of pale scurfy foliage, pale slightly scaly bark, and white wood; one of the commonest and most striking trees in the sheltered valley forests; flowers pale brown).

Closely related to the two preceding new species (*E. trichophyllus* and *E. erianthus*), *E. eximius* differs from them in its somewhat canescent and scurfy tomentum, obtuse or subacute leaf-bases, narrower perianth-segments, less copiously fimbriate petals, and longer filaments. In leaf-venation, the new species resembles *E. trichophyllus* more closely than *E. erianthus*.

Elaeocarpus (§ *Blepharoceras*) *latescens* F. v. Muell. in Trans. Roy. Soc. Vict. 1(2): 2. 1889; Schlechter in Bot. Jahrb. 54: 143. 1916.

BRITISH NEW GUINEA: Central Division, Mt. Tafa, alt. 2350–2400 m., *Brass* 4078 (A, NY) (compact small tree or tall shrub of erect branching habit, in small patch of burnt-over mossy-forest; leaf-blades brown beneath; sepals brown; petals paler brown, with whitish tips), *Brass* 4896 (A, NY) (tree 10–15 m. high, with compact rounded crown, common in forests; leaf-blades gray underneath when old, brown in young stages; flowers pale yellow-brown).

Elaeocarpus latescens is based on a collection made by MacGregor on the Musgrave Range, and the original description, although inadequate in detail and lacking dimensions, indicates that a species with the leaf-blades rounded at apex and closely brown-tomentellous beneath is represented. In attempting to match this description among the plants collected by Brass in the nearby Wharton Range and the Mt. Tafa region, I conclude that nos. 4078 and 4896 best represent Mueller's concept. In all essential characters these collections agree with Mueller's description, whereas the species which I describe above as *E. dasycarpus*, *E. erianthus*, and *E. eximius* each have several features which are less well suited to the description. Furthermore, nos. 4078 and 4896 bear a striking resemblance to the plate of *E. coriaceus* (in Hook. Ic. Pl. 2: pl. 154. 1837) which, according to Mueller, "approaches in form of leaves and in several other characteristics to this Papuan subalpine species."

Schlechter saw no material of *E. latescens* and did not attempt to place the species. If correctly interpreted by me, it is clearly related to the three new species described above (*E. trichophyllus*, *E. erianthus*, and *E. eximius*), differing from them in the closer and somewhat farinose tomentum of the lower leaf-surfaces and inflorescences, the smaller floral parts, the fewer stamens with shorter-awned anthers, and the fewer ovules. The following description is based entirely upon the two Brass collections.

Frutex vel arbor ad 15 m. alta, ramulis gracilibus subteretibus apicem versus 1–2 mm. diametro densissime et arcte ferrugineo-tomentellis, annuinis glabratis cinereis; petiolis gracilibus 4–10 mm. longis primo tomentellis cito glabratis; laminis coriaceis obovato-ellipticis, (2–) 3–5 cm. longis, (1.3–) 2–3 cm. latis, basi obtusis vel subacutis, apice rotundatis vel sub-

truncatis, margine dentibus 4–6 per centimetrum obscure calloso-serrulatis, supra in sicco olivaceis costa interdum tomentella excepta glabris, subtus densissime et arcte ferrugineo-tomentellis, costa supra leviter elevata subtus prominente, nervis lateralibus utrinsecus 4 vel 5 suberectis supra subplanis subtus valde elevatis, rete venularum intricato supra obscure prominulo subtus indumento occulto; racemis axillaribus suberectis 3–9 cm. longis 10–17-floris, pedunculo ad 2 cm. longo demum subglabrato, rhachi gracili et bracteis pedicellisque densissime ferrugineo-tomentellis, bracteis lanceolatis 3–4 mm. longis mox caducis, pedicellis gracilibus curvatis sub anthesi 5–7 mm. longis, alabastris ovoideis obtuse cuspidatis; sepalis papyraceis acutis oblongo-lanceolatis, 4.5–6 mm. longis, 1.3–1.5 mm. latis, extus ut pedicello tomentellis, intus minute sericeis; petalis membranaceis obovato-cuneatis, 5–7 mm. longis, 2.5–3.5 mm. latis, extus dense sericeis, intus sparse sericeis glabratisve, apice in segmenta 12–25 lanceolata acuta 1–2 mm. longa irregulariter fimbriatis; disci lobis 5 subreniformibus vel late oblongis circiter 0.5×0.7 mm. conspicue sericeis interdum bilobatis; staminibus 20–25 ubique obscure hispidulo-papillosis 3–3.5 mm. longis, filamentis gracilibus subteretibus 1.2–1.7 mm. longis, antheris arista inconspicua 0.3–0.5 mm. longa excepta 1–1.3 mm. longis; ovario ovoideo 2-loculari et styli basi copiose brunneo-sericeis, loculis 8-ovulatis, stylo subulato 2–2.5 mm. longo superne glabro; fructibus submaturis ellipsoideis ad 10×8 mm., basi et apice rotundatis, pericarpio 2–3 mm. crasso, epicarpio tenui ruguloso, mesocarpio ad 1 mm. crasso fibroso, endocarpio duro inconspicue sulcato, loculo unico, semine ut videtur solitario.

Elaeocarpus (§ *Blepharoceras*) *whartonensis* sp. nov.

Arbor ad 7 m. alta dense foliata, ramulis teretibus, hornotinis 1.5–2 mm. diametro dense ferrugineo- vel cano-tomentellis, annotinis fusco-cinereis glabratis; petiolis gracilibus 9–15 mm. longis tomentellis demum glabratis; laminis coriaceis convexis ovato-ellipticis, (3.5–) 4–7 cm. longis, 2–4 cm. latis, basi late obtusis, apice in acuminem 3–6 mm. longum angustatis, margine recurvatis et dentibus 3–5 per centimetrum calloso-serrulatis, supra olivaceis mox glabratis, subtus indumento arcto ferrugineo dense indutis, costa supra elevata subtus prominente, nervis lateralibus utrinsecus 7–11 erecto-patentibus in dentibus marginis exeuntibus supra leviter prominulis subtus valde elevatis, rete venularum supra paullo prominulo subtus occulto; racemis axillaribus 2–6 cm. longis 5–10-floris, pedunculo brevi et rhachi gracili pedicellisque arcte ferrugineo-tomentellis, pedicellis curvatis sub anthesi 6–8 mm. longis, alabastris ovoideis obtuse cuspidatis; sepalis tenuiter carnosus acutis oblongo-lanceolatis, 6–7 mm. longis, 1.5–2.5 mm. latis, extus ut pedicello tomentellis, intus valde carinatis et breviter sericeis; petalis submembranaceis oblongo-cuneatis, 6–7 mm. longis, 2–3 mm. latis, utrinque copiose sericeis, apice in segmenta 10–16 lanceolata acuta circiter 1.5 mm. longa subaequalia laciniatis; disco continuo 5-lobato circiter 0.8 mm. alto dense sericeo; staminibus circiter 25 ubique minute hispidulosus 3.5–4 mm. longis, filamentis gracilibus subteretibus 1.5–2 mm. longis, antheris arista erecta subulata circiter 0.5 mm. longa excepta 1.3–1.5 mm. longis; ovario 2-loculari et stylo infra medium copiose sericeis, loculis 6-ovulatis, stylo subulato circiter 2.5 mm. longo superne glabro; fructibus submaturis ellipsoideis ad 14×10 mm., basi rotundatis, apice styli basi apiculatis, pericarpio eo *E. latescentis* simili, loculis saepe 2, seminibus in quoque loculo solitariis.

BRITISH NEW GUINEA: Central Division, Murray Pass, Wharton Range, alt. 2840 m., *Brass* 4559 (A, TYPE, NY), July 19, 1933 (dense-foliaged small tree 5-7 m. high, common in forests; leaves convex, stiff, dull green above, pale brown beneath; sepals, pedicels, and rachises dark brown; petals pale brown; fruits green-blue).

Elaeocarpus whartonensis is obviously a close relative of *E. latescens* F. v. Muell., as interpreted above, differing in its longer petioles, ovate- rather than obovate-elliptic leaf-blades which are acuminate rather than rounded or subtruncate at apex and have more numerous secondaries, shorter and fewer-flowered racemes, slightly larger sepals and stamens, proportionately narrower petals which are more regularly fimbriate and densely sericeous rather than glabrate within, and 6- rather than 8-ovulate ovary-locules. Although most of these differences are minor in nature, those pertaining to the leaf-apex, the number of secondary nerves, and the petal-pubesence appear to be of specific consequence.

8. § MONOCERA

Elaeocarpus § *Monocera* Brongn. & Gris in Bull. Soc. Bot. Fr. 8: 201. 1861; Benth. & Hook. f. Gen. Pl. 1: 240. 1862; Mast. in Hook. f. Fl. Brit. Ind. 1: 404. 1874; K. Schum. in E. & P. Nat. Pfl. 3(6): 5. 1890.

Monocera Jack in Malay. Misc. 1(5): 42. 1820 [repr. in Hook. Bot. Misc. 2: 85. 1830; in Calcutta Jour. Nat. Hist. 4: 225. 1843; et in Miscel. Papers Indo-China II. 2: 243. 1887].

Elaeocarpus § *Papuanthus* Schlechter in Bot. Jahrb. 54: 130. 1916.

Elaeocarpus § *Monocera* has been very broadly interpreted by most recent students, to such an extent that its true characters and limitations have been overlooked; doubtless for this reason Schlechter did not attempt to correlate the name with any group of Papuan *Elaeocarpi*. However, the section is easily typified, since it rests solely upon the genus *Monocera* Jack. The original publication of *Monocera* states: "This genus, whose characters appear to be sufficiently distinct, will include, besides the following new species, several hitherto referred to *Elaeocarpus*, viz. *E. Monocera* Cavanilles, the separation of which has already been suggested, and of which the specific name may be appropriately adopted for the genus, . . ." It is therefore obvious that *Elaeocarpus* § *Monocera* is typified by *E. monocera* Cav., regardless of the breadth of interpretation applied to the concept by Jack, Bentham & Hooker, Masters, or any subsequent students.

Elaeocarpus monocera Cav. (Ic. 6: 1. t. 501. 1801) is a well-known Philippine species, of which ample herbarium material is available (see Merr. Enum. Philip. Fl. Pl. 3: 18. 1923). Its essential characters are as follows: leaves large, aggregated at the ends of thick branchlets; flowers large (sepals to 13 mm. long; petals to 16 mm. long), arranged in comparatively short few-flowered racemes arising from branchlets below leaves; petals copiously and irregularly laciniate, sericeous without, glabrous within; disk annular, 5-lobed, hispid; stamens numerous, with conspicuously awned anthers; ovary elongate-ovoid, densely sericeous, 2-locular, the locules usually 6-ovulate (rarely 4- or 5-ovulate), the style slender; fruit large (up to 7 × 5 cm.), ellipsoid, somewhat flattened, with fibrous mesocarp and very thick bony endocarp, which is slightly rugulose but

without conspicuous processes, the locule apparently single at maturity, with one large flattened seed.

The concept thus typified by *E. monocera* in my opinion definitely includes the Papuanian § *Papuanthus* Schlechter, originally based on eight species, among which a type species was not designated. This oversight is not important, as the original eight species obviously form a coherent section. The only important characters which might be used to separate § *Papuanthus* from § *Monocera* (restricting the latter, for the purpose of clarification, solely to *E. monocera*) are: flowers usually larger, ovules 10–12 per ovary-locule rather than 6 (or 4 or 5), and fruits (in the few species for which they are known) tomentellous or pulverulent. As to the number of ovules, this is known to vary in other coherent groups (e. g. § *Coilopetalum*) between 6 and 12, and therefore great weight cannot be attached to it in the present case. The pubescence of the fruits in § *Papuanthus* does not seem very significant—at least not as significant as other fruit characters such as the large size, the somewhat flattened shape (especially obvious as regards the endocarp and seed), the fibrous mesocarp, and the fairly smooth endocarp without notable processes. These fruit characters are emphasized by Schlechter as distinguishing characters for § *Papuanthus*.

In view of the facts brought out above, I herewith propose to reduce § *Papuanthus* to § *Monocera*, delimiting the latter much more strictly than is currently done. Its geographic limits probably extend considerably beyond the Philippines and Papuasia, but to what extent cannot yet be said. Since Schlechter's work, three other Papuanian species referable to § *Monocera* have been described: *E. comatus* White & Francis, *E. boridensis* Knuth, and *E. lamekotensis* Knuth; although I have seen no collections of the last two, their descriptions indicate that they belong in this section. Below I propose two new species of § *Monocera*, which thus now consists of 13 species in Papuasia.

Elaeocarpus (§ *Monocera*) *Schlechterianus* nom. nov.

Elaeocarpus megacarpus Schlechter in Bot. Jahrb. 54: 131. 1916; non Elmer in Leaf. Philip. Bot. 7: 2627 (as *E. megacarpa*). 1915.

NETHERLANDS NEW GUINEA: 6 km. southwest of Bernhard Camp, Idenburg River, alt. 1200 m., Brass & Versteegh 12538 (tree 27 m. high, frequent in primary forest of a valley; trunk 57 cm. diam.; crown fairly wide-spreading; bark 9 mm. thick, gray, fairly smooth; wood white; flowers white); Bernhard Camp, Idenburg River, alt. 350 m., Brass & Versteegh 13592 (tree 28 m. high, occasional in primary rain-forest on slope of a ridge; trunk 43 cm. diam.; crown not wide-spreading; bark 9 mm. thick, gray-brown, fairly smooth; wood rose; sterile).

Elaeocarpus megacarpus Schlechter was based on *Ledermann* 9439, from the Sepik region of Northeastern New Guinea at about 850 m. altitude, and it has also been reported from the Central Division of British New Guinea by Lane-Poole (Rep. For. Res. Papua 111. 1925) and White and Francis (in Proc. Roy. Soc. Queensl. 38: 238. 1927). Although the Brass and Versteegh specimens are referred here with reasonable confidence, the determination remains questionable because the type lacked sepals and petals and these organs have not yet been described. In characters of

foliage and stamens, *Brass & Versteegh 12538* agrees precisely with the original description; no. *13592* is sterile but has identical foliage.

The sepals of no. *12538* are $22-23 \times 5-6$ mm. and densely tomentellous without; the petals are oblong, $23-25 \times$ about 10 mm., unequally laciniate with about 25 short segments, and very densely golden-sericeous without; the stamens are about 90 in number and agree with those discussed by Schlechter in dimensions, the anthers being sericeous along the dorsal midline; the densely sericeous ovary is 2-locular, each locule being 10-ovulate, and the style is sericeous except at apex and is subequal to the petals.

Elaeocarpus (§ *Monocera*) *leiophyllus* sp. nov.

Arbor ad 21 m. alta, ramis ramulisque validis teretibus cinereis lenticellatis glabris, ramulis apicem versus 6-9 mm. diametro; foliis ad apices ramulorum aggregatis, petiolis validis puberulis glabratique supra complanatis 1-4 cm. longis, basi et apice incrassatis, laminis coriaceis in sicco fuscis obovato-ellipticis, (10-) 15-20 (-25) cm. longis, (4-) 7-9 cm. latis, basim versus angustatis et basi ipso anguste rotundato-subcordatis, apice obtusis vel inconspicue mucronulato-cuspidatis, margine remote undulato-crenulatis, utrinque glabris vel costa obscure puberulis, costa valida utrinque prominente, nervis lateralibus utrinsecus 9-13 erecto-patentibus anastomosantibus supra subplanis subtus valde elevatis, rete venularum intricato supra immerso subobscuris subtus leviter prominulo; racemis in ligno vetustiore ortis abbreviatis 3-7-floris, pedunculo brevi et rhachi 1.5-4 cm. longis teretibus validis (2-3.5 mm. diametro) pedicellis dense et arcte brunneo-tomentello-velutinis, bracteis mox caducis, pedicellis validis sub anthesi 12-25 mm. longis; sepalis crasse carnosis oblongo-lanceolatis acutis, 17-21 mm. longis, 4-5 mm. latis, extus et marginibus latis dense velutino-puberulis, intus sparse pilosis glabratique; petalis submembranaceis saepe leviter concavis et margine basim versus involutis, oblongo-cuneatis, 20-23 mm. longis, 8-11 mm. latis, extus dense aureo-sericeis, intus glabris vel superne obscure sericeis basim versus incrassato-carinatis, apice inconspicue 3-lobatis et in segmenta 25-30 deltoideo-lanceolata 1-3 mm. longa irregulariter fimbriatis; disco annulari circiter 1 mm. alto sericeo-hispido; staminibus circiter 100 pluriseriatis 16-20 mm. longis ubique minute papillois, filamentis gracilibus teretibus 8-9 mm. longis, antheris arista exclusa 6-9 mm. longis dorso linea mediana sericeis, arista 1.5-2.5 mm. longa; ovario ellipsoideo 2-loculari et stylo copiose sericeis, loculis 10- vel 12-ovulatis, stylo crasso subulato 15-18 mm. longo superne glabro.

NETHERLANDS NEW GUINEA: 4 km. southwest of Bernhard Camp, Idenburg River, alt. 900 m., *Brass & Versteegh 13525* (TYPE), Mar. 30, 1939 (tree 21 m. high, occasional in primary mossy-forest on the slope of a ridge; trunk 39 cm. diam.; crown not wide-spreading; bark 9 mm. thick, black; wood light yellow; flowers light yellow).

Elaeocarpus leiophyllus appears most closely related to *E. Schlechterianus* A. C. Sm. (*E. megacarpus* Schlechter, non Elmer), at least as that species is interpreted above. Like the new species, *E. Schlechterianus*, as I understand it, is characterized by its essentially glabrous petioles, large flowers, and densely sericeous petals. *Elaeocarpus leiophyllus* differs from this in its shorter petioles, narrower leaf-blades with the veinlet-reticulation immersed and obscure above rather than obviously prominulous, more compact inflorescences, smaller flowers in all parts, and more deeply laciniate petals.

The new species differs from *E. Nouhuysii* Koorders (to which it may be keyed in Schlechter's treatment) in obvious foliage characters and in its sericeous rather than essentially glabrous petals.

Elaeocarpus (§ *Monocera*) *Nouhuysii* Koorders in Nova Guin. Bot. 8: 173. 1909; Schlechter in Bot. Jahrb. 54: 131. 1916.

BRITISH NEW GUINEA: Western Division, Palmer River, 2 miles below junction with Black River, alt. 100 m., *Brass* 7074 (large canopy tree attaining 30 m. or more in height, common on low ridges near river; trunk spur-buttressed; bark thick, gray, somewhat flaky; leaf-blades glabrous and shining, with undulate margins; flowers greenish white, in numerous lateral racemes below the leaves).

The cited specimen agrees very well with the original description of the type, obtained in southern Netherlands New Guinea near Van Weelskamp in the upper Lorentz River region. Our specimen is also a good match for *Schlechter* 16144 (UC), from the Minjem region of Northeastern New Guinea, cited by Schlechter as representing the species. The Brass specimen has occasional leaf-blades up to 25 × 13 cm., and its rachises are sometimes up to 13 cm. long; in general, however, the dimensions of its leaves and flowers approximate those given by Koorders.

Elaeocarpus (§ *Monocera*) *polyandrus* sp. nov.

Arbor ad 20 m. alta, ramis ramulisque validis fusco-nigrescentibus teretibus glabratis, ramulis annotinis cicatricibus foliorum delapsorum conspicue ornatis, ramulis hornotinis 4–5 mm. diametro cano-puberulis; foliis subaggregatis, petiolis subteretibus striatis mox glabratis (4–) 6–9 cm. longis, 2–3 mm. diametro, basi et apice incrassatis, laminis papyraceis in sicco fusco-olivaceis utrinque glabris late ovatis, (8–) 15–23 cm. longis, (5–) 10–15 cm. latis, basi rotundatis, apice ut videtur obtusis, margine anguste revolutis et remote undulato-crenulatis, costa valida utrinque prominente, nervis lateralibus utrinsecus 8–10 subrectis erecto-patentibus supra leviter subtus valde elevatis, rete venularum intricato utrinque prominulo; racemis in axillis foliorum delapsorum ortis abbreviatis 4–6-floris, pedunculo brevi et rhachi 2.5–4 cm. longis teretibus validis (2 mm. diametro) pedicellis minute sericeo-puberulis mox glabratis, pedicellis validis sub anthesi 2.5–3.7 cm. longis; sepalis crassissimis alutaceis lanceolatis, 20–22 mm. longis, 3–4.5 mm. latis, peracutis, extus sparse sericeo-puberulis glabratis, intus sericeis carinatis; petalis membranaceis oblongo-ellipticis, 23–26 mm. longis, 7–8 mm. latis, basim versus concavis vel involuto-marginatis, extus sparse sericeis, intus glabris et basim versus incrassatis, apice profunde 3-lobatis, quoque lobo 4–8 mm. longo deltoideo integro et acuto vel in segmenta 2 vel 3 brevia inconspicue fimbriato; disco annulari erecto-patente carnosissimo superne hispidulo glabrato 1–1.5 mm. alto 10-crenulato; staminibus numerosissimis (circiter 150) pluriseriatis gracilibus 17–20 mm. longis, filamentis teretibus hispido-sericeis 7–9 mm. longis, antheris ubique minute papillois aristis exclusis 7–8 mm. longis, dorso linea mediana sparse sericeis, biaristatis, aristis circiter 2 mm. (interiore) et 3 mm. (exteriore) longis erectis; ovario ellipsoideo 2-loculari arcte sericeo, pariete crassissimo, loculis 12-ovulatis, stylo crasso subulato 17–19 mm. longo inferne sericeo-puberulo superne glabro.

SOLOMON ISLANDS: Bougainville: Kugumaru, Buin, alt. 150 m., *Kajewski* 1866 (TYPE), June 28, 1930 (tree up to 20 m. high, common in rain-forest; petals

yellowish green, tipped with pink; native name: *tu-ah-lu*; timber said by natives to be very durable).

Elaeocarpus polyandrus is very well characterized by its long glabrous petioles, broadly ovate leaf-blades, very thick sepals, few-lobed petals, biaristate anthers, and thick-walled ovary. In foliage the new species suggests *E. lamekotensis* Knuth, of New Ireland, but that species has comparatively short and slender pedicels, much smaller flowers, and more copiously fimbriate petals.

Elaeocarpus (§ *Monocera*) *comatus* White & Francis ex Lane-Poole, Rep. For. Res. Papua 111. 1925, in Proc. Roy. Soc. Queensl. 38: 238. f. 6. 1927.

BRITISH NEW GUINEA: Northern Division, Kumusi River, *Lane-Poole 185* (TYPE COLL.).

This well-marked species of § *Monocera*, referred by its authors to the relationship of *E. amplifolius* Schlechter, is apparently closer to *E. finisterrae* Schlechter, from which it differs in its longer petioles and much smaller flowers.

9. § COILOPETALUM

Elaeocarpus § *Coilopetalum* Schlechter in Bot. Jahrb. 54: 134. 1916.

§ *Coilopetalum* was founded by Schlechter with 13 species, among which no type species was designated. From Schlechter's discussion it appears that he was uncertain of the place of his last four species in this section. Furthermore, he states (l. c.) that "Die typischen, d. h. die dickblättrigen, langstieligen Arten bilden stets grosse Bäume, . . .," indicating that the nucleus of the section, in his concept, was composed of his species numbered 40–42. Of these, *E. clethroides* Schlechter is the only species illustrated, and therefore I believe that it may be designated as the lectotype of § *Coilopetalum*.

It should be pointed out that *E. fuscus* Schlechter and to a certain extent *E. pachyanthus* Schlechter and *E. mallotoides* Schlechter (ex char., none of these three species being available to me) are unusual in the tomentum of their lower leaf-surfaces and inflorescences; in this they strongly suggest a group of five species (*E. trichophyllus* A. C. Sm. and its allies) referred above to § *Blepharoceras*. The line between these two sections becomes weak at this point and the species are divided rather arbitrarily upon characters of petal-shape, texture, and degree of laciniation.

Other described species belonging to § *Coilopetalum* are *E. floridanus* Hemsl., *E. pseudosepicanus* O. C. Schmidt, *E. confertifolius* Knuth, *E. lingualis* Knuth, *E. fuscoides* Knuth, and probably *E. novo-mecklenburgensis* Knuth; some of these are discussed below. To this section I here-with add nine new species, making a total of 28 Papuan species now known in § *Coilopetalum*. The section doubtless extends beyond Papua, but I cannot indicate its geographic limits at present.

The more important diagnostic characters of § *Coilopetalum* are as follows: habit usually glabrous or subglabrous, the leaves sometimes hirsute beneath and in a few species closely tomentellous; inflorescences usually associated with leaves or slightly below them; flowers comparatively small

(sepals and petals usually less than 8 mm. long, rarely up to 12 mm. long); petals about the size of the sepals and often somewhat similar in texture, usually narrowed distally and subentire or obscurely toothed (in a few species broadened at apex and distinctly fimbriate), densely sericeous without and often within, often with a conspicuous swollen carina within; stamens comparatively small, variable in number, awned or not; ovary 2- or 3-locular, pubescent (apparently glabrous only in *E. habbemensis*, an aberrant species described below), each locule 6–12-ovulate; fruits comparatively small, the pericarp rarely exceeding 3 mm. in thickness, with thin epicarp, sparse mesocarp, and hard verrucose or rugulose endocarp, the locule solitary and at length apparently 1-seeded.

Elaeocarpus (§ *Coilopetalum*) *sepikanus* Schlechter in Bot. Jahrb. 54: 135. 1916.

NETHERLANDS NEW GUINEA: Bernhard Camp, Idenburg River, alt. 120 m., Brass & Versteegh 13549 (tree 22 m. high, rare in primary rain-forest on slopes of a ridge; trunk 43 cm. diam.; crown not wide-spreading; bark 10 mm. thick, brown; wood red-brown; flowers dark yellow).

The cited specimen agrees excellently with the original description, based on several Ledermann collections from the Sepik region of Northeastern New Guinea at low elevations, differing only in its slightly longer pedicels and fewer stamens (about 35 rather than about 50). The species has also been reported from the Northern Division of British New Guinea by Lane-Poole and White and Francis, but I believe that the specimen cited by them represents a new species, described below as *E. elatus*.

Elaeocarpus (§ *Coilopetalum*) *fluviatilis* sp. nov.

Arbor ad 25 m. alta inflorescentiis exceptis glabra, ramulis crassis apicem versus 5–6 mm. diametro et dense foliatis; petiolis rectis 3–4.5 cm. longis supra complanatis; laminis papyraceis vel chartaceis siccitate olivaceis ellipticis, 9–15.5 cm. longis, 4–6 cm. latis, basi anguste rotundatis vel late obtusis, apice in acuminem 1–2 cm. longum obtusum abrupte angustatis, margine dentibus circiter 2 per centimetrum conspicue crenatis, costa et nervis secundariis utrinsecus 5–7 adscendentibus supra paullo elevatis subtus prominentibus, rete venularum intricato utrinque prominulo; racemis axillaribus subrectis 5–10 cm. longis plerumque 15–20-floris, pedunculo 1.5–3 cm. longo et rhachi angulatis robustis pedicellisque dense et breviter argenteo-sericeis, pedicellis gracilibus sub anthesi 5–7 mm. longis, alabastris ovoideis circiter 5 mm. longis cuspidatis angulatis; sepalis 5 papyraceis vel subcarnosis ovato-ellipticis, 6–7 mm. longis, circiter 3 mm. latis, breviter acuminatis, extus puberulis, intus glabris; petalis 5 papyraceis ovato-ellipticis circiter 5 × 2.5 mm., apice acutis et integris, utrinque dense aureo-sericeis, pilis intus retrorsis, carina inconspicua; disco inconspicuo 10-lobato, lobis circiter 0.2 mm. altis superne hirtellis; staminibus 65–70 pluriseriatis 3–4 mm. longis, filamentis 0.4–1.2 mm. longis sericeo-hispidis, antheris dorso sericeis arista 0.5–0.8 mm. longa excepta circiter 2 mm. longis; ovario ovoideo 2-loculari dense sericeo, loculis 12-ovulatis, stylo subulato glabro circiter 2 mm. longo.

BRITISH NEW GUINEA: Central Division, Kubuna, alt. 100 m., Brass 5569 (A, TYPE, NY), Nov. 25, 1933 (tree 20–25 m. high, common in riverine rain-forests; trunk raised above ground on an irregular mass of prop-roots about 1 m. high).

From the closely related *E. sepikanus* Schlechter, *E. fluviatilis* differs in its more distinctly toothed leaf-margins, more copiously flowered racemes, and more numerous and shorter stamens with longer awns.

Elaeocarpus (§ *Coilopetalum*) *confertifolius* Knuth in Rep. Sp. Nov. 48: 74. 1940.

BRITISH NEW GUINEA: Central Division, Koitaki, alt. about 450 m., Carr 12697 (NY).

Elaeocarpus confertifolius is based on Carr 12067, a flowering specimen not available to me, also from Koitaki. No. 12697 agrees precisely with the original description except for its slightly smaller leaf-blades. The fruits are ellipsoid, about 10×7 mm. at apparent maturity, rugulose when dried, with a pericarp about 2 mm. thick, a verrucose endocarp, and a single one-seeded locule. The habit and fruit of no. 12697 are obviously of § *Coilopetalum*, and the original description of the flower also implies this section; the species appears to be of the general relationship of *E. clethroides* Schlechter.

Elaeocarpus (§ *Coilopetalum*) *idenburgensis* sp. nov.

Arbor ad 16 m. alta inflorescentiis exceptis glabra, ramulis subteretibus superne 3–5 mm. diametro brunneis copiose lenticellatis; foliis apicem ramulorum versus confertis, petiolis gracilibus 3–5 cm. longis leviter canaliculatis, laminis chartaceis in sicco fusco-viridibus ellipticis, 8–13 cm. longis, 4–6 cm. latis, basi anguste rotundatis vel obtusis, apice in acuminem ad 1 cm. longum obtusum cuspidatis, margine dentibus 2 vel 3 per centimetrum inconspicue serrulato-crenulatis, costa supra elevata subtus prominente, nervis lateralibus utrinsecus 5–7 adscendentibus supra prominulis subtus elevatis et in axillis saepe domatiiferis, rete venularum copioso utrinque prominulo; racemis axillaribus 3–8 cm. longis 8–15-floris, pedunculo brevi et rhachi angulatis pedicellisque pallide puberulis demum glabratis, pedicellis gracilibus curvatis sub anthesi 6–7 mm. longis, alabastris ovoideis 4–5 mm. longis cuspidatis leviter angulatis; sepalis 5 papyraceis crasso-marginatis ovato-oblongis, circiter 6 mm. longis et 2 mm. latis, apice breviter acuminatis, extus breviter sericeis, intus glabris carinatis, petalis 5 carina intus incrassata excepta submembranaceis, oblongis, 5.5–6 mm. longis, circiter 2 mm. latis, apice truncato irregulariter et minute 3–5-denticulatis, margine involutis, utrinque dense sericeis (pilis margine et intus carina retrorsis); disco 10-lobato, lobis deltoideo-oblongis 0.2–0.3 mm. altis et latis superne hispidulis; staminibus 36–39, 2–3-seriatis, 3–3.5 mm. longis, filamentis sericeis 0.7–1.3 mm. longis, antheris oblongis circiter 2 mm. longis minute hispidulo-papillosis apice obscure mucronulatis; ovario ovoideo 2-loculari dense sericeo, loculis 12-ovulatis, stylo subulato glabro circiter 2.5 mm. longo.

NETHERLANDS NEW GUINEA: 4 km. southwest of Bernhard Camp, Idenburg River, alt. 850 m., Brass 13458 (TYPE), Mar. 1939 (subsidiary tree 16 m. high, in rain-forest of the ridges; trunk 20 cm. diam.; flowers numerous, pale yellow, sweet-scented).

Elaeocarpus idenburgensis is a species of the general relationship of *E. clethroides* Schlechter, from which it differs in its shorter-petiolate and smaller leaf-blades with crenulate margins, its shorter racemes, its slightly larger and 5- rather than 4-merous flowers, and its fewer stamens and more numerous ovules. *Elaeocarpus flavescens* Schlechter, another related

species, differs from *E. idenburgensis* in its short-petiolate obovate subentire leaf-blades, obtuse flower-buds, smaller flowers, and fewer stamens.

Elaeocarpus (§ *Coilopetalum*) *brevirostris* sp. nov.

Arbor inflorescentiis exceptis ubique glabra, ramulis teretibus apicem versus 5–6 mm. diametro cicatricibus foliorum delapsorum conspicue ornatis; foliis apicem ramulorum versus confertis, petiolis gracilibus (ad 1 mm. diametro) 3–4 cm. longis supra paullo complanatis, laminis chartaceis vel papyraceis in sicco viridibus oblongo- vel obovato-ellipticis, 10–12 cm. longis, 4–5.3 cm. latis, basi anguste rotundatis, apice obtusis vel obtuse cuspidatis, margine obscure undulato-crenulatis, costa supra elevata subtus prominente, nervis lateralibus utrinsecus 5–7 adscendentibus supra prominulis subtus valde elevatis in axillis saepe domatiiferis, rete venularum intricato utrinque prominulo; racemis apicem ramulorum versus confertis saepe in axillis foliorum delapsorum ortis ut videtur 10–20-floris, pedunculo brevi et rhachi leviter angulata (3–) 6–8 cm. longis gracilibus pedicellisque arcte sericeis, pedicellis sub anthesi 5–8 mm. longis saepe curvatis, alabastris ovoideis 5 mm. longis peracute cuspidatis; sepalis papyraceis ovato-lanceolatis, 6–6.5 mm. longis, 2–2.3 mm. latis, cuspidatis, extus pallide breviter sericeis, intus glabris carinatis; petalis subcarnosis et intus bulboso-incrassato-carinatis, in sicco roseo-purpureis, oblongo-ellipticis, 5.5–6 mm. longis, 2–2.5 mm. latis, margine valde involutis, apice in segmenta 4–6 ad 0.5 mm. longa obscure fimbriatis, utrinque dense aureo-sericeis (pilis intus et margine retrorsis); disco inconspicuo dense hispidulo; staminibus 50–60 pluri-seriatis 3–4 mm. longis, filamentis 1.5–2 mm. longis dense sericeo-hispidulis, antheris obscure papillois arista rigida 0.3–0.5 mm. longa inclusa 1.5–2 mm. longis; ovario ellipsoideo 2-loculari et styli basi pallide sericeis, loculis 10-ovulatis, stylo crasso 2.5–3 mm. longo superne glabro.

NORTHEASTERN NEW GUINEA: Morobe District, Sattelberg, alt. 900 m., *Clemens* 2270 (TYPE), Apr. 9, 1936.

Elaeocarpus brevirostris is closely related to *E. sarcanthus* Schlechter, which, according to the description, has coriaceous and slightly smaller leaf-blades, shorter petioles and pedicels, and obtusish sepals which are densely puberulent within. The new species also bears a close superficial similarity to *Clemens* 195, from the Morobe District, which Knuth has cited as representing his *E. novo-mecklenburgensis*. From this specimen and the description of *E. novo-mecklenburgensis*, the new species differs in its longer and more slender petioles, shorter racemes, sericeous rachis, pedicels, and sepals, ovoid flower-bud, densely sericeous petals, aristate anthers, and sericeous ovary. The fact that the petals of *E. novo-mecklenburgensis* are described as “. . . extus basin versus sparsim pilosa, ceterum glabra . . .” does not suggest § *Coilopetalum*, but in other respects the species appears to belong here, especially if *Clemens* 195 has been correctly referred to it.

Elaeocarpus (§ *Coilopetalum*) *elatus* sp. nov.

Elaeocarpus sepikanus sensu Lane-Poole, Rep. For. Res. Papua 111. 1925; White & Francis in Proc. Roy. Soc. Queensl. 38: 239. 1927; non Schlechter.

Arbor grandis inflorescentiis exceptis glabra, ramulis subfuscis superne 3–5 mm. diametro; petiolis ad 1.5 mm. diametro 4–6 cm. longis leviter canaliculatis; laminis papyraceis in sicco fusco-viridibus oblongo-ellipticis,

10–14.5 cm. longis, 5.5–8 cm. latis, basi rotundatis vel late obtusis, apice in acuminem ad 1 cm. longum obtusum abrupte angustatis, margine evidenter crenulato-undulatis, costa supra valde elevata subtus prominente, nervis lateralibus utrinsecus 7–9 arcuato-patentibus supra prominulis subtus conspicue elevatis in axillis plerumque domatiiferis, rete venularum copioso utrinque valde prominulo; racemis axillaribus brevipedunculatis ad 11 cm. longis (vel ultra?) ut videtur 15–20-floris, rhachi crassa (2–3 mm. diametro) pedicellisue pallide farinoso-puberulis, pedicellis sub anthesi 7–9 mm. longis, alabastris ovoideis obtusis; sepalis crasso-carnosis oblongo-lanceolatis, circiter 7 mm. longis, 2.5–3 mm. latis, subacutis, extus et margine incrassato arcte puberulis, intus glabris et valde carinatis; petalis carina incrassato-carnosa intus excepta papyraceis oblongo-ellipticis, circiter 7 mm. longis, 2–3 mm. latis, margine saepe involutis, apice in dentes circiter 0.5 mm. longos acutos inconspicue lobatis, utrinque dense sericeis (pilis intus retrorsis); disco 10-lobato, lobis carnosus patulis deltoideo-oblongis circiter 0.6 mm. longis sparse hispidulis; staminibus circiter 80 pluriseriatis 4.5–5 mm. longis, filamentis circiter 1.5 mm. longis subteretibus glabris, antheris minute papillosis arista erecta 0.5–0.7 mm. longa excepta 2.5–3 mm. longis; ovario ellipsoideo 2-loculari et styli basi breviter sericeis, loculis 10-ovulatis, stylo crasso circiter 2.5 mm. longo superne glabro.

BRITISH NEW GUINEA: Northern Division, Buna District, in forests near village of Wasida and along main path to Wire Rope, alt. up to 450 m., *Lane-Poole 178* (TYPE), July 1922 (large tree, with 60-ft. bole and 8-ft. girth; bark about 6 mm. thick, gray mottled with brown; wood white to cream-colored; flowers cream-colored; native name: *tangere* [notes from Lane-Poole, l.c.]).

Elaeocarpus elatus clearly differs from *E. sepikanus* in its toothed petals, among other characters, and is more closely allied to *E. sarcanthus* Schlechter and *E. brevirostris* (described above). From both of these, the new species differs in its larger leaves and flowers, longer leaf-apices, more numerous stamens, and in other details of foliage and inflorescence. Although White and Francis (l. c.) state that the ovary of *Lane-Poole 178* is 3-celled, it appears to be 2-celled in the flowers dissected by me, but this character may not be stable.

Elaeocarpus (§ *Coilopetalum*) *lingualis* Knuth in Rep. Sp. Nov. 48: 76. 1940.

NORTHEASTERN NEW GUINEA: Morobe District: Yoangen, alt. about 1250 m., *Clemens 6597* (COTYPE COLL.); Ogeramngang, alt. about 1750 m., *Clemens 4833* (COTYPE COLL.) (large tree, on forested hill; fruit slate-blue), *5463* (COTYPE COLL.); Matap, alt. 1500–1800 m., *Clemens 11103* (tree, the trunk 15–25 cm. diam.; fruit lead-blue), *11220* (tree, the trunk 30 cm. diam.; fruit slate-blue); Wantoat, *Clemens 41193* (tree, the trunk 25 cm. diam.; fruit lead-blue). NETHERLANDS NEW GUINEA: 18 km. southwest of Bernhard Camp, Idenburg River, alt. 1800 m., *Brass & Versteegh 12510* (rare tree 34 m. high; trunk 42 cm. diam.; crown not wide-spreading; bark 12 mm. thick, gray; sap-wood white; heart-wood brown-yellow; flowers orange-brown); Bele River, 18 km. northeast of Lake Habbema, alt. about 2300 m., *Brass & Versteegh 11125* (tree 15 m. high, common in old secondary forest; trunk 29 cm. diam.; crown not wide-spreading; bark 4 mm. thick, fairly smooth, gray-brown; wood white; fruits blue); Balim River, alt. 2050 m., *Brass & Versteegh 11186* (tree 9 m. high, in low open forest on a sandy slope; trunk 34 cm. diam.; crown fairly wide-spreading; bark 6 mm. thick, gray, smooth; wood white; fruits dark green).

The first three collections cited above were listed by Knuth without designation of the type; *Clemens 6579* and *Brass & Versteegh 12510* bear

flowers and the remaining specimens fruits. Clearly a member of § *Coilopetalum*, this well-marked species is probably most closely allied to *E. sarcanthus* Schlechter, differing in its longer petioles, larger leaf-blades, anthers which are minutely apiculate at apex but scarcely “. . . in setam brevem subulatam exeunte . . .,” and more numerous ovules. The sepals and petals are up to 8 mm. long, the latter being obscurely denticulate at apex; the stamens are about 50, and the ovary is 2-locular, each locule having 12 ovules. Although the specimens from Netherlands New Guinea have the leaves averaging smaller than those from the Morobe District, the differences among the cited specimens appear no more than individual. The fruiting inflorescences of *Brass & Versteegh 11186* are up to 18 cm. long, while the remaining specimens, both flowering and fruiting, have the inflorescences only 3–11 cm. long.

Elaeocarpus (§ *Coilopetalum*) *floridanus* Hemsl. in Kew Bull. 1896: 158. 1896; Schlechter in Bot. Jahrb. 54: 143. 1916.

SOLOMON ISLANDS: Bougainville: Kugumaru, Buin, alt. 150 m., *Kajewski 1896* (tree up to 20 m. high, common in rain-forest; fruit black when ripe, about 12 × 7 mm.; native name: *nor-kiri-tor*); Koniguru, Buin, alt. 950 m., *Kajewski 2085* (tree up to 20 m. high, common in rain-forest; fruit black when ripe, up to 11 × 8 mm.; native name: *gucana*); Marmaromino, alt. 50 m., *Kajewski 2201* (tree up to 15 m. high, common in rain-forest; flowers fragrant, cream-colored; fruit shiny, dark green or bluish, up to 13 × 9 mm.; native name: *bi-ri-gimor*); Olevunga, N'Gela (Florida Islands): *Brass 3490* (pale-barked small tree, in coastal rain-forest; leaf-blades with pale costa and nerves; fruit immature); Guadalcanal: Quoi-mon-apu, alt. sea-level, *Kajewski 2349* (tree up to 30 m. high, common in rain-forest; flower-buds green; native name: *isikor*).

Elaeocarpus floridanus, based on *Guppy 231* from Florida Island, was not placed by Schlechter, but the above-cited specimens agree excellently with the original description, and the place of the species in § *Coilopetalum* is certain. The ovary is 3-locular and each locule is 6-ovulate (in *Kajewski 2201*, which has mature flowers). The relationship of Hemsley's species is probably with *E. sarcanthus* Schlechter, which has on the average shorter petioles and smaller leaf-blades, much shorter racemes and pedicels, and fewer flowers.

Elaeocarpus (§ *Coilopetalum*) *microdontus* Schlechter in Bot. Jahrb. 54: 140. 1916.

NETHERLANDS NEW GUINEA: Behind Hollandia, alt. 300 m., *Gjellerup 678* (TYPE COLL.), Sept. 1911.

As this species was only very briefly discussed by Schlechter, I offer a more complete description below. As indicated in the original publication, the species is close only to *E. subinteger* Schlechter, differing in its shorter petioles and racemes, slightly smaller flowers, truncate and obscurely toothed rather than subentire and obtusish petals, and fewer stamens. It should be noted that the characters of “. . . Stamina ca. 15, ca. 3 mm. lang . . .,” mentioned in Schlechter's key, are not entirely accurate.

Arbor gracilis (?), ramis ramulisque gracilibus nigrescentibus subteretibus, juventute sericeis et cicatricibus confertis foliorum delapsorum ornatis, squamulis coriaceis 2–3 mm. longis plus minusve persistentibus; foliis apicem ramulorum versus aggregatis, petiolis gracilibus 5–7 mm. longis supra complanatis sericeis mox glabratibus, laminis subcoriaceis glabris obo-

vatis, 5–7 cm. longis, 2.5–3.5 cm. latis, basim versus gradatim angustatis, apice rotundatis vel breviter et obtuse cuspidatis, margine integris vel obscure undulatis, costa utrinque valde elevata, nervis lateralibus utrinsecus 4 vel 5 arcuatis supra subplanis subtus elevatis, rete venularum laxo supra leviter subtus valde prominulo; racemis axillaribus patentibus gracilibus 6–8-floris, pedunculo brevi et rhachi 2.5–3.5 cm. longis pedicellisque breviter argenteo-sericeis, pedicellis sub anthesi circiter 5 mm. longis; sepalis tenuiter carnosus deltoideo-lanceolatis, 5–6 mm. longis, 1.3–1.7 mm. latis, acutis, utrinque breviter sericeis, intus glabratis carinatis; petalis carina intus bulboso-carnosa excepta membranaceis, ovato-oblongis, 4.5–5 mm. longis, circiter 1.5 mm. latis, utrinque breviter sericeis, carina intus copiose longe sericeis, margine valde involutis et hispidulis, apice angustato subtruncatis, dentibus 3 vel 4 obtusis inconspicuis; disco pulvinato carnosus circiter 0.4 mm. alto conspicue 10-lobato minute hispidulo; staminibus circiter 20 uniseriatis 3.5–4.5 mm. longis ubique minute hispidulis, filamentis gracilibus teretibus 1.5–2.5 mm. longis, antheris (arista 0.4–0.7 mm. longa excepta) 1.3–1.5 mm. longis; ovario 2-loculari copiose hispido-sericeo, loculis 8-ovulatis, stylo subulato circiter 3 mm. longo glabro.

Elaeocarpus (§ *Coilopetalum*) *fuscoides* Knuth in Rep. Sp. Nov. 48: 75. 1940.

NORTHEASTERN NEW GUINEA: Morobe District, Ogeramang, alt. about 1800 m., *Clemens 4599, 4681A* (TYPE COLL.).

This very well marked species, as indicated by Knuth's choice of a specific epithet, suggests *E. fuscus* Schlechter in its indument; the differences between the two species, both foliar and floral, are conspicuous. The petals of *E. fuscoides* are conspicuously carinate within and sericeous on both surfaces, divided into three main lobes and quite obviously fimbriate; the sericeous ovary is 2-locular, each locule being 12-ovulate.

Elaeocarpus (§ *Coilopetalum*) *pycnanthus* sp. nov.

Arbor ad 26 m. alta, ramulis teretibus apicem versus 3–4 mm. diametro primo puberulis mox glabratis, squamulis subpersistentibus lanceolatis 3–4 mm. longis squarrosis, cicatricibus foliorum delapsorum ornatis; foliis apicem ramulorum versus confertis, petiolis gracilibus inconspicue canaliculatis (1.5–) 2–3 cm. longis glabris vel cito glabratis, laminis subcoriaceis in sicco fuscescentibus anguste oblongis, 7–12 cm. longis, (1.5–) 2–3.3 cm. latis, basi late obtusis vel anguste rotundatis, apice in acuminem obtusum 5–10 mm. longum gradatim angustatis, margine leviter recurvatis et inconspicue undulato-crenulatis, utrinque glabris vel costa et interdum lamina disperse sericeo-puberulis, costa supra elevata subtus prominente, nervis lateralibus utrinsecus 7–9 brevibus erecto-patentibus supra subplanis subtus valde elevatis et in axillis saepe conspicue domatiiferis, rete venularum intricato utrinque leviter prominulo; racemis axillaribus 7–12-floris, pedunculo conspicuo ad 2.5 cm. longo et rhachi 3–5 cm. longis pedicellisque dense breviter sericeis, pedunculo demum glabrato, bracteis subcoriaceis tripartitis, dentibus lateralibus subpersistentibus subulatis circiter 2 mm. longis, pedicellis 6–8 mm. longis; sepalis tenuiter carnosus acutis oblongo-lanceolatis, 6–7 mm. longis, 2–2.5 mm. latis, extus breviter pallido-sericeis, intus margine incrassato copiose puberulo excepto glabris carinatis; petalis subcarnosus et intus bulboso-incrassato-carinatis, oblongis, 7–8 mm. longis, 2.5–3.5 mm. latis, margine basim versus involutis, apice in segmenta 9–11 lanceolata

acuta 1–1.5 mm. longa subaequalia laciniatis, extus copiose pallido-sericeis, margine retrorse sericeis, intus basim versus praecipue carina antrorse sericeis superne glabris; disci lobis 10 patulis deltoideis circiter 0.7 mm. longis superne hispidulis; staminibus 35–40 ubique minute sericeo-hispidulis 4–4.5 mm. longis, filamentis teretibus 1.5–2 mm. longis, antheris arista 0.2–0.5 mm. longa saepe recurva inclusa 2.5–2.8 mm. longis; ovario ellipsoideo 3-loculari et styli basi dense sericeis, ovarii pariete crasso, loculis 8-ovulatis, stylo crasso 3–3.5 mm. longo superne glabro; fructibus ellipsoideis submaturis ad 11×7 mm., apice obtusis, pericarpio in sicco circiter 2 mm. crasso, epicarpio tenui ruguloso, mesocarpio fibroso, endocarpio verrucoso, loculo et semine solitariis.

NETHERLANDS NEW GUINEA: 15 km. southwest of Bernhard Camp, Idenburg River, alt. 1780–1800 m., *Brass & Versteegh 11903* (tree 26 m. high, rare in primary forest on slope of a ridge; trunk 51 cm. diam.; crown fairly wide-spreading; bark 10 mm. thick, fairly rough; sap-wood yellow-brown; heart-wood dark brown; fruits green), *Brass 12146, 12148* (common subsidiary trees in mossy-forest of upper slopes, up to 20 m. high; trunk 20 cm. diam.; tips of branchlets exuding a gray resin; leaves concave; fruits immature), *Brass 12292* (TYPE), Jan. 1939 (common subsidiary tree in lower edges of mossy-forest; tips of branches resinous; flowers cream-colored).

The petals of *E. pycnanthus* at anthesis are oblong and clearly laciniate, but the place of the species in § *Coilopetalum* is indicated by the densely sericeous character of the petals and their swollen carina. The closest relative of the new species appears to be *E. Ledermannii* Schlechter, from which it differs in its proportionately much narrower leaf-blades which are subglabrate beneath, longer pedicels, oblong rather than ovate petals, and 3- rather than 2-locular ovary.

Elaeocarpus (§ *Coilopetalum*) *poculiferus* sp. nov.

Arbor ad 29 m. alta partibus juvenilibus puberulis inflorescentiisque exceptis glabra, ramulis apicem versus 3–5 mm. diametro, squamulis parvis interdum squarrosis; foliis apicem ramulorum versus confertis, petiolis gracilibus canaliculatis 7–15 mm. longis, laminis coriaceis in sicco fuscescentibus anguste elliptico-oblongis, 4–9 cm. longis, 1.2–2.5 cm. latis, basi acutis vel obtusis et in petiolum decurrentibus, apice obtusis, margine saepe valde recurvatis et dentibus 3–5 per centimetrum crenulatis, costa supra elevata subtus prominente, nervis lateralibus utrinsecus 5–8 brevibus arcuatis supra subprominulis subtus acute elevatis et in axillis plerumque conspicue domatiiferis, rete venularum intricato utrinque prominulo; racemis axillaribus erectis 5–10 cm. longis 4–8-floris, pedunculo conspicue elongato ad 7 cm. longo subtereti mox glabrato, rhachi brevi pedicellisque breviter sericeo-puberulis, bractearum dentibus lateralibus coriaceis subpersistentibus subulatis circiter 2 mm. longis, pedicellis 7–16 mm. longis, alabastris elongato-conoideis acutis; sepalis subcarnosis lanceolatis, 10–11 mm. longis, basim versus 2–3 mm. latis, deinde ad apicem acuminatum gradatim angustatis, extus breviter sericeis, margine puberulis, intus glabris carinatis; petalis submembranaceis vel tenuiter carnosis et intus bulboso-incrassato-carinatis, oblongo-cuneatis, 9–12 mm. longis, 3–5 mm. latis, saepe concavis, extus copiose pallido-sericeis, intus carina basim versus sericeo-tomentella excepta glabris, apice in segmenta 9–15 lanceolata acuta 2–4 mm. longa conspicue patenti-fimbriatis; disci lobis 10 carnosis deltoideo-oblongis patentibus circiter 0.5 mm. diametro sparse hispidulis; staminibus 30–40

erectis 6–7 mm. longis, filamentis teretibus glabris gracilibus 1.5–2 mm. longis, antheris minute papillosis dorso sparse sericeis arista rigida interdum reflexa 1.5–2 mm. longa excepta 2–3 mm. longis; ovario ovoideo-subgloboso 3-loculari et styli basi sericeis, ovarii pariete crasso, loculis 8-ovulatis, stylo subulato 4.5–5 mm. longo superne glabro; fructibus ellipsoideis ad 12 × 8 mm., apice subacutis, pericarpio in sicco 2–3 mm. crasso, epicarpio tenui ruguloso, mesocarpio inconspicue fibroso, endocarpio verrucoso, loculo et semine solitariis.

NETHERLANDS NEW GUINEA: 9 km. northeast of Lake Habbema, alt. 2700–2820 m., *Brass & Versteegh 10451, 10451A* (trees up to 21 m. high, frequent in forest of valleys; trunk about 29 cm. diam.; crown not wide-spreading; bark 6 mm. thick, brown, shallowly fissured; wood white; flowers yellowish green; young fruits green), *Brass 10767* (TYPE), Oct. 1938 (profusely flowering tree up to 25 m. high, common in forest of lower slopes and valley bottoms; flowers greenish yellow); 18 km. southwest of Bernhard Camp, Idenburg River, alt. 2200 m., *Brass & Versteegh 11991* (tree 29 m. high, frequent in primary forest on slope of a ridge; trunk 53 cm. diam.; crown not wide-spreading; bark 12 mm. thick, black; sap-wood white; heart-wood red-brown; fruits blue-green).

Although obviously related to the preceding new species (*E. pycnanthus*), *E. poculiferus* differs from it in its shorter petioles, smaller leaf-blades with obtuse rather than acuminate apices, longer-pedunculate and fewer-flowered inflorescences, substantially larger flowers, more deeply fimbriate petals, and stamens with more elongate awns. Although the petals of *E. poculiferus* are not of the type commonly occurring in § *Coilopetalum*, its relationships are definitely with this section.

Elaeocarpus (§ *Coilopetalum*) *habbemensis* sp. nov.

Arbor ad 25 m. alta inflorescentiis exceptis ubique glabra, ramulis hornotinis subangulatis flavo-brunneis 2–3 mm. diametro, ramulis annotinis teretibus cinereis verrucoso-lenticellatis; petiolis gracilibus canaliculatis 10–22 mm. longis; laminis subcoriaceis in sicco flavescentibus ellipticis, 5–9 cm. longis, 2.5–4.5 cm. latis, basi late obtusis, apice rotundatis vel late obtusis, margine dentibus 3–5 per centimetrum conspicue crenulato-serratis, costa supra elevata subtus prominente, nervis lateralibus utrinsecus 5–7 erecto-patentibus anastomosantibus supra paullo insculptis subtus elevatis et in axillis saepe conspicue domatiiferis, rete venularum intricato utrinque prominulo; racemis axillaribus suberectis 4–10 cm. longis 6–12-floris, pedunculo 2–4 cm. longo et rhachi gracilibus leviter angulatis pedicellisque minute sericeo-puberulis demum subglabris, pedicellis gracilibus curvatis 10–16 mm. longis, alabastris anguste ovoideis acutis; sepalis papyraceis acutis oblongo-lanceolatis, 7–8 mm. longis, circiter 2 mm. latis, utrinque breviter sericeis, intus glabris, margine incrassato puberulis; petalis submembranaceis, basim versus paullo incrassatis et intus inconspicue carinatis, obovato-cuneatis, 6–8 mm. longis, 2.5–3 mm. latis, in segmenta 10–12 lanceolata 1.5–2 mm. longa irregulariter fimbriatis, extus dense sericeis, intus carina sericeo-hispidula excepta glabris; disco annulari-pulvinate crenulato circiter 0.7 mm. alto sparse hispidulo; staminibus 22–27 ubique minute hispidulis 4–4.5 mm. longis, filamentis gracilibus subteretibus 0.7–1.3 mm. longis, antheris apiculo inconspicuo 0.3–0.5 mm. longo incluso 3–3.5 mm. longis; gynaecio glabro, ovario ellipsoideo 2-loculari, loculis 8–10-ovulatis, stylo subulato circiter 3.5 mm. longo; fructibus ellipsoideis

ad 16×10 mm., apice basi styli apiculatis, pericarpio 1–1.5 mm. crasso, epicarpio et endocarpio extus rugulosis, mesocarpio subnullo, loculo solitario vel dissepimento interdum subpersistente.

NETHERLANDS NEW GUINEA: 9 km. northeast of Lake Habbema, alt. 2700–2840 m., *Brass & Versteegh 10444* (tree 22 m. high, rare in mossy-forest, on a ridge; trunk 37 cm. diam.; crown not wide-spreading; bark 9 mm. thick, smooth, brown; outer wood white; inner wood gray-green; fruits green), *Brass & Versteegh 11101* (TYPE), Oct. 29, 1938 (tree 25 m. high, frequent in mossy-forest; trunk 35 cm. diam.; crown not wide-spreading; bark 6 mm. thick, gray, fairly smooth; outer wood white; inner wood brown; flowers white; young fruits green).

Although the petals of this species are broader and more copiously lacinate than in most species of § *Coilopetalum*, while the glabrous ovary is also aberrant in this section, nevertheless this seems the best place for it. Its relationship is doubtless with *E. Ledermannii* Schlechter and the two new species described above (*E. pycnanthus* and *E. poculiferus*), from all of which its glabrous ovary and its petals, which are subglabrous and obscurely carinate within, readily distinguish it. *Elaeocarpus habbemensis* is further differentiated by its elliptic obtuse leaf-blades, glabrous habit, subentire disk, and many minor characters.

Elaeocarpus (§ *Coilopetalum*) *luteolus* sp. nov.

Arbor ad 15 m. alta copiose ramosa, ramulis hornotinis leviter angulatis 1.5–2 mm. diametro pallide sericeis squamulis minutis saepe squarrosis, ramulis annotinis glabratis teretibus verrucoso-lenticellatis; petiolis gracilibus canaliculatis 4–9 mm. longis mox glabratis; laminis chartaceis vel subcoriaceis in sicco pallide viridibus vel fuscescentibus ellipticis, (2–) 3–7 cm. longis, (1.2–) 1.5–3 cm. latis, basi obtusis vel acutis, apice obtusis vel obtuse breviter cuspidatis, margine recurvatis et dentibus 3–6 per centimetrum spinuloso-serrulatis, supra costa interdum puberula excepta glabris, subtus nervis venulisque sparse sericeo-hispidulis demum glabratis, costa supra acute prominula subtus valde elevata, nervis lateralibus utrinsecus 4 vel 5 adscendentibus supra leviter impressis subtus elevatis, rete venularum intricato utrinque prominulo vel supra subplano; racemis axillaribus 3–6 (–11) cm. longis 6–9 (–15)-floris, pedunculo conspicuo ad 3 (–4) cm. longo glabrato, rhachi gracillima pedicellisque breviter sericeo-puberulis, bracteis oblongis 2–3 mm. longis mox caducis basi dentes 2 laterales subulatos gerentibus, pedicellis gracilibus 5–11 mm. longis, alabastris ovoideis subacutis; sepalis papyraceis acutis oblongo-lanceolatis, 5–6 mm. longis, 1.3–1.8 mm. latis, extus dense sericeis, intus puberulis carinatis; petalis tenuiter carnosis obovato-cuneatis, 5–6 mm. longis, 2–2.3 mm. latis, utrinque dense pallido-sericeis, intus planis, apice rotundatis et in segmenta 9–18 lanceolato-linearibus 0.7–1.2 mm. longa fimbriatis; disco annulari crenulato circiter 0.5 mm. alto brunneo-hispidulo; staminibus 15–18 ubique minute sericeo-hispidulis 2.5–3.2 mm. longis, filamentis gracilibus 1–1.5 mm. longis, antheris mucrone obscuro circiter 0.15 mm. longo incluso 1.4–1.7 mm. longis; ovario ellipsoideo 2-loculari et styli basi dense sericeis, loculis 8 (raro 6- vel 7-)-ovulatis, stylo subulato 2.5–3 mm. longo superne glabro; fructibus ellipsoideis submaturis ad 10×7 mm., apice obtusis et stylo subpersistente saepe mucronulatis, pericarpio 1.5–2 mm. crasso, epicarpio tenui ruguloso, mesocarpio fibroso, endocarpio ut videtur sublevi, loculo et semine solitariis.

NETHERLANDS NEW GUINEA: Bele River, 18 km. northeast of Lake Habbema, alt. 2200–2300 m., *Brass* 11073 (TYPE), Nov. 1938 (small bushy tree 3 m. high, on edge of a forest clearing; flowers yellow; fruits immature), *Brass* 11334 (tree 15 m. high, in old secondary forest; trunk 20 cm. diam.; flowers brown; fruits blue-green).

From *E. altigenus* Schlechter, its only close ally, *E. luteolus* differs in its shorter petioles, obtuse or obtusely cuspidate (rather than long-acuminate) leaf-blades, which are thicker in texture and have the veinlet-reticulation less obvious, and mucronulate rather than obviously aristate anthers. Examination of an isotype of *E. altigenus* (*Schlechter* 18793 [UC], from the Bismarck Mts., Northeastern New Guinea) shows that the anthers of that species bear conspicuous awns at least 1 mm. long. These two species form a compact group and, in spite of the plane rather than carinate inner surfaces of their petals, their position in § *Coilopetalum* is unquestionable. Number 11334 has smaller leaves than the type of *E. luteolus*, but in other respects the cited specimens are identical; my description is inclusive.

Elaeocarpus (§ *Coilopetalum*) *fulgens* sp. nov.

Arbor ad 30 m. alta, ramulis apicem versus 2–4 mm. diametro striatis dense brunneo-sericeis, ramulis annotinis subteretibus fusco-cinereis glabratibus; petiolis gracilibus supra complanatis 1–2 cm. longis breviter sericeis; laminis chartaceis vel subcoriaceis in sicco supra fusco-viridibus subtus pallidioribus fulgentibusque, oblongo-ellipticis, 4–7 cm. longis, 1.5–3 cm. latis, basi late obtusis, apice in acuminem ad 1 cm. longum saepe mucronulatum angustatis, margine dentibus 5–7 per centimetrum nigro-mucronulatis obscure serrulatis, supra costa interdum puberula excepta glabris, subtus densissime et persistenter argenteo-sericeis, costa supra peracute prominula subtus prominente, nervis lateralibus utrinsecus 5–7 adscendentibus supra subplanis subtus elevatis, rete venularum intricato supra leviter prominulo subtus indumento occulto; racemis axillaribus 5–10-floris, pedunculo brevi et rhachi gracilibus pedicellisque dense et breviter sericeo-hispidulis, pedicellis 3–8 mm. longis; sepalis petalisque non visis; disci lobis 5 carnosis oblongis bilobatis circiter 0.4 mm. altis sparse hispidulis; staminibus sub fructu juvenili saepe persistentibus circiter 2 mm. longis, filamentis gracilibus hispidulis 0.8–1 mm. longis, antheris anguste ellipsoideo-oblongis 1–1.2 mm. longis dorso sparse sericeis apice obtusis; ovario ellipsoideo pallide sericeo 2-loculari, pariete valde incrassato, loculis ut videtur 8-ovulatis, stylo mox caduco non viso; fructibus ellipsoideis maturitate ad 8 × 6 mm., basi et apice rotundatis, pericarpio circiter 1.5 mm. crasso, epicarpio tenui ruguloso, mesocarpio sparso fibroso, endocarpio verruculoso, loculo et semine solitariis.

NETHERLANDS NEW GUINEA: 6 km. southwest of Bernhard Camp, Idenburg River, alt. 1150 m., *Brass & Versteegh* 12551 (TYPE), Feb. 20, 1939 (tree 24 m. high, occasional in primary forest on a ridge; trunk 61 cm. diam.; crown not wide-spreading; bark 8 mm. thick, dark brown; sap-wood brown; heart-wood dark brown; fruits green), *Brass & Versteegh* 13107 (tree 30 m. high, frequent in primary forest on slope of a ridge; trunk 61 cm. diam.; crown not wide-spreading; bark 10 mm. thick, gray; wood white; young fruits green, the ripe ones blue).

In spite of the lack of perianth-parts, the cited specimens are sufficiently ample to permit recognition and description of this new species. The maturing ovaries of no. 12551 are accompanied by a few stamens. The relation-

ship of the new species is obviously with *E. altigenus* Schlechter and *E. luteolus* (described above), from both of which it differs in the dense and persistent pubescence of the lower leaf-surfaces, the short peduncles and pedicels, and the separate disk-lobes. In the length of its petioles and in its acuminate leaf-blades, *E. fulgens* resembles *E. altigenus*, while in its unawned anthers it resembles *E. luteolus*. The stamens of *E. fulgens* are shorter than those of its allies, indicating that the other floral parts may also prove to be smaller.

It is quite possible that *E. Ledermannii* var. *timoniifolius* Schlechter (in Bot. Jahrb. 54: 142. 1916) will prove to be identical with the new species.

PAPUASIAN ELAEOCARPI NOT PLACED IN SECTIONS

In the preceding pages I have attempted to place in Schlechter's system all the species not so placed by him and also those species described since his work in 1916. There remains a residue of species for which I can suggest no definite place in the system. Two of these species (*E. Muellerianus* Schlechter [*E. Ganitrus* sensu F. v. Muell. in Jour. Bot. 31: 321. 1893, non Roxb.] and *E. Reedyi* F. v. Muell. [*E. Arnhemicus* F. v. Muell. Pap. Pl. 1: 6. 1875, pro parte novo-guin., excl. typo austral.]) have never been properly described and may be dismissed as *nomina subnuda*. *Elaeocarpus aberrans* Brandis is a species of *Sloanea*, as which it will be discussed below.

The remaining unplaced species are *E. Sayeri* F. v. Muell., *E. florulentus* Ridley, *E. firmus* Knuth, *E. Peekelii* Knuth, and *E. rugulosus* Knuth. A careful perusal of the descriptions of these species convinces me that they are not represented in the Papuan material now available, but critical points are sometimes omitted from the descriptions. An isotype of *E. firmus* is available but is not in condition to place.

(*To be concluded*)