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IV

IGNEOUS PLANTS COLLECTED  
FOR  
THE ARNOLD ARBORETUM  
IN NORTH QUEENSLAND  
BY S. F. KAJEWSKI IN 1929

BY

CYRIL T. WHITE

WITH NINE PLATES



PUBLISHED BY  
THE ARNOLD ARBORETUM OF HARVARD UNIVERSITY  
JAMAICA PLAIN, MASS., U.S.A.

1933

CONTRIBUTIONS FROM THE ARNOLD ARBORETUM  
OF HARVARD UNIVERSITY

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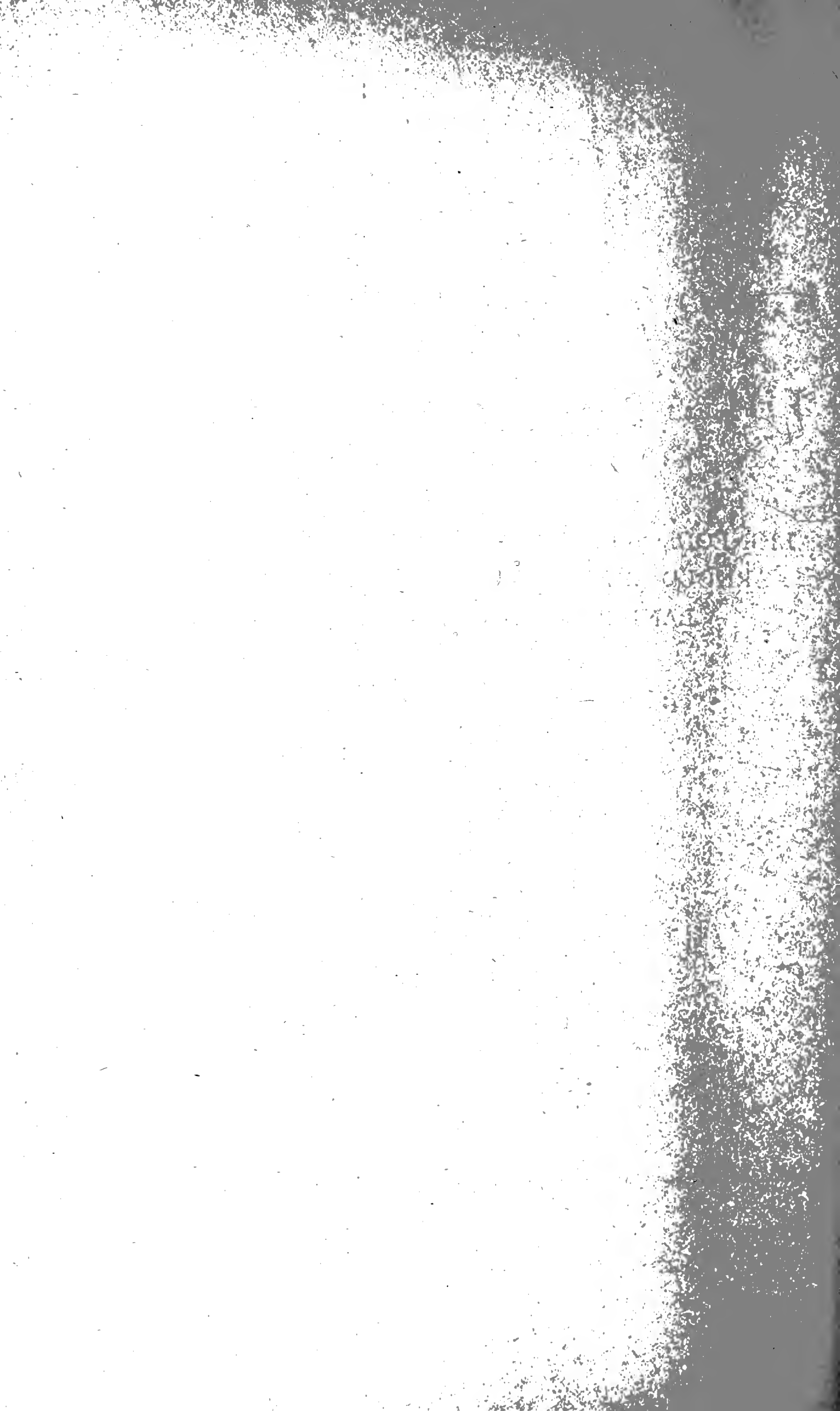
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LIGNEOUS PLANTS COLLECTED FOR THE  
ARNOLD ARBORETUM IN NORTH QUEENS-  
LAND BY S. F. KAJEWSKI IN 1929



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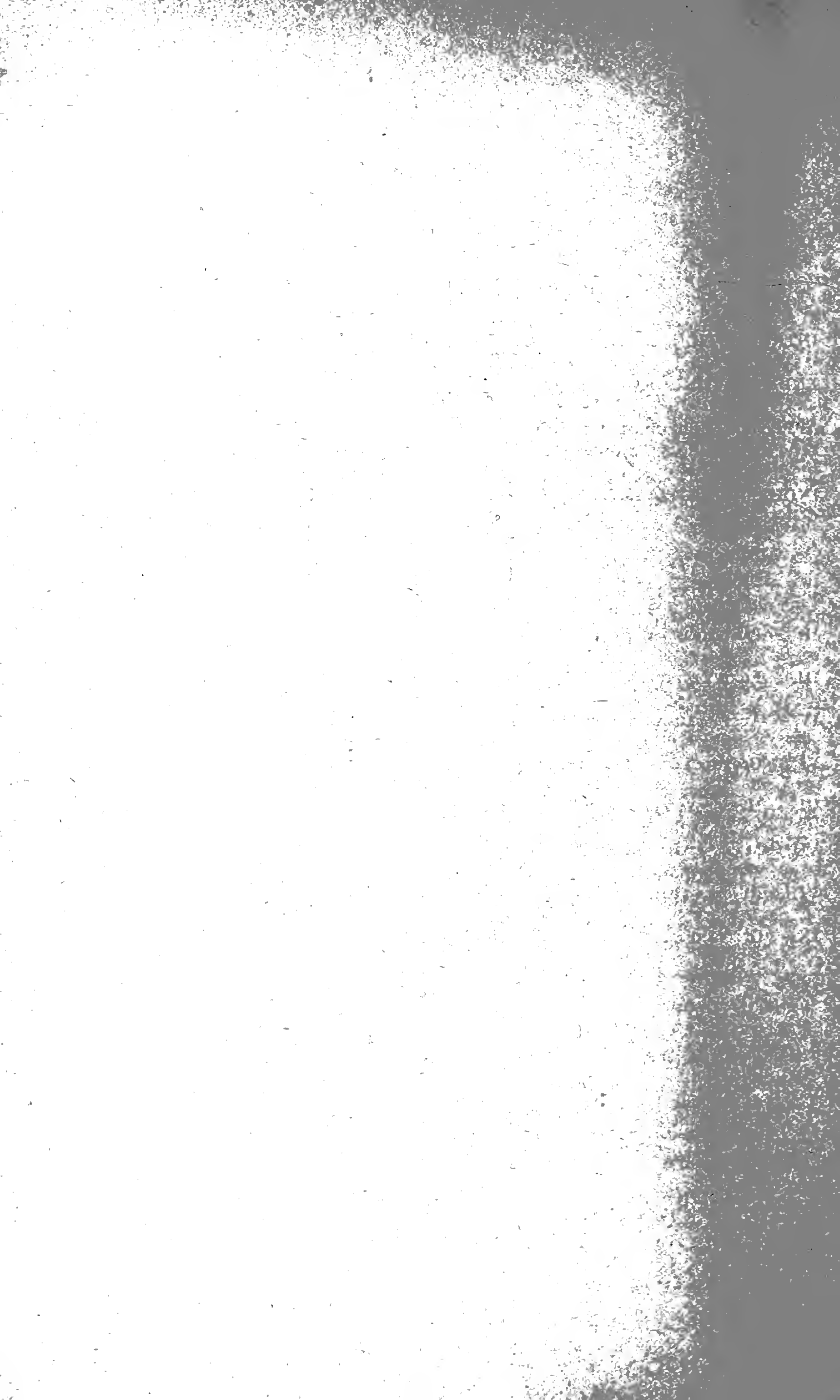
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LIGNEOUS PLANTS COLLECTED FOR  
THE ARNOLD ARBORETUM  
IN NORTH QUEENSLAND BY  
S. F. KAJEWSKI IN 1929

INTRODUCTION

On Mr. S. F. Kajewski's return to Australia from the New Hebrides early in 1929<sup>1</sup> I suggested to him the desirability of spending some months collecting in the rain-forests of North Queensland, particularly in the wetter parts of the Atherton Tableland, Mt. Bartle Frere and the Daintree River.

Mr. Kajewski expressed himself as anxious to take on the work and towards the end of April, 1929, left Brisbane for Gadgarra, via Atherton. He returned to Brisbane at the end of December. The collections made proved to be exceedingly valuable and were instrumental in adding considerably to our knowledge of the flora of the northeastern part of Australia in addition to extending the known range of several genera not previously recorded for Australia. Genera not previously recorded as Australian were *Rinorea* (pantropical), *Corynocarpus* (New Hebrides, New Caledonia and New Zealand), *Microsemma* (New Caledonia) and *Paratrophis* (Malaya and Pacific Islands). Species not previously recorded as Australian were *Casuarina nodiflora* Forst. (Malaya and Western Pacific), *Erythroxylum ecarinatum* Hochr. (New Guinea), *Cerbera floribunda* K. Schum. (New Guinea), and *Schizomeria floribunda* Schltr. (New Guinea). Of some of these plants we previously had specimens but the material was too scrappy for the purpose of satisfactory determination.

In addition to those named above, three new genera and a number of new species are described in the following pages. Practically the whole of the collection has been determined with the exception of some half dozen numbers, the material of which is not complete.

Speaking of the regions he visited Mr. Kajewski says:—

“Rain-forests cover the greater portion of the Atherton Tableland and, I think, are the finest of their kind in Queens-

<sup>1</sup>See Vol. x. 279.

land, consisting as they do of large towering trees shading a huge variety of small trees, vines, ferns and *Calamus* species. These rain-forests yield the bulk of the cabinet woods produced in Queensland. The rain-forest plateau has an altitude varying from two thousand to four thousand feet. The rainfall ranges from fifty inches per annum at Atherton to one hundred and fifty inches at Boonjie. The climate in my opinion is one of the finest in the world with warm days and cool nights in summer time, while in winter the air is decidedly bracing.

“The height of the rain-forest is from 90 to 120 feet and as far as my observations go seems much greater than that of the tropical rain-forests of the seaboard. Many trees are common to both areas and many of them when growing on the plateau are of much larger proportions than when found growing on the coast, e. g. *Cardwellia sublimis* (Silky Oak or Bull Oak), *Flandersia Pimenteliana* F. v. M. (Silkwood, no. 1144), *Endiandra Palmerstoni* (Bail.) White & Francis (Black Walnut), *Dysoxylum Pettigrewianum* Bail. (Spurwood, no. 1014), *Dysoxylum* spp., *Eugenia* spp. (Water Gums) etc.

“A remarkable fact is the great depth of rich, red volcanic soil which supports such a wonderful and tall forest, the soil in many places being over forty feet deep. Largely owing to this valuable feature the rain-forest is being rapidly felled for agricultural and dairying purposes.

“It is noticed after the rain-forest has been felled that the climate is altered and that the soil that supported a rain-forest decidedly tropical in character becomes subject to severe frosts. The rain-forests are tropical in character not on account of the climate but because of the tropical trees inhabiting them, together with *Calamus* spp. (Lawyer Canes), *Musa* spp. (Wild Bananas) and Zingiberaceae (Wild Gingers) found in the undergrowth.

“The underlying rocks are mainly basaltic particularly where the soil is rich and deep. The approaches to the Tableland from Cairns are of a granitic formation, consequently the soil is very poor and porous. The vegetation of this part consists mainly of stunted Eucalypts with *Cycas media* (no. 1308) growing profusely among them. In some of the damper places such as the bottoms of gorges there is a poor type of rain-forest.



“There are two small fresh water lakes—Lakes Eacham and Barrine—of great depth on this plateau and these occupy the craters of extinct volcanoes. They are exceptionally beautiful as the rain-forest grows right down to the edges and as these waters are sheltered from the strong winds, the clear waters give beautiful forest reflections towards sunrise and sunset and on cloudy days. These lakes are visited by thousands of tourists every year but a regrettable feature is the continual cutting down of the giant timbers for revenue purposes and the consequent spoiling of the beautiful rain-forest round the lakes.

“From Gadgarra to the coast, the rain-forest is interspersed with patches of fairly tall Eucalyptus forest mingling with a tall Cypress Pine (*Callitris Macleayana* F. v. M.; no. 1000).

“At Boonjie, *Garcinia Gibbsae* S. Moore (no. 1201) is very common in the poorer types of rain-forest and extends three thousand feet up the slopes of Mt. Bartle Frere. Boonjie is the wettest portion of the Atherton Tableland, having an annual rainfall of approximately 150 inches per annum. It is also noted for the large size of the trees of *Cardwellia sublimis* F. v. M.; nowhere else do these trees attain such large dimensions as in the Boonjie area. Boonjie has been an old mining field and I have noticed where small patches of rain-forest have been cut down forty or fifty years ago they have grown up again and almost concealed the original clearing. Where any area has been grassed the regeneration of the rain-forest is very slight, occurring very slowly only at the edges bordering on the pasture land.

“Mt. Bartle Frere, the highest mountain in Queensland, is over 5,000 ft. high. The country around the base is very heavily timbered, and the soil is exceptionally fertile. The easiest ascent is from the Tableland side as there is a gradual slope up the mountain for about three miles making for easy climbing. After this the soil becomes very porous and small *Flindersia Pimenteliana* F. v. M. (Silkwood), *Guioa* sp. (no. 1286) and *Agathis* sp. (Kauri) are typical trees of this type of country.

“The next type of country encountered is close to the top of the first ranges which take the form of peaks made up of gigantic masses of boulders, the largest of which are forty

or fifty feet high, piled one on top of the other. The soil has long since been washed away from these boulders which maintain their position by their own weight. Great yawning crevices are everywhere and it is just as well for the climber to be very cautious. The surface of these rocks has a papillate appearance and they are exceptionally rough on the hands when it is necessary to catch hold of them. They are evidently weathering very rapidly under the influence of the heavy rainfall.

“The rain-forest has by this time gradually dwindled to a small type of scrub, with gnarled and twisted branches and very much wind blown. In fact some of the trees are so small that they are dwarfed to nothing more than shrubs. Quite a number have showy flowers and these with the different colored leaf growths in spring time make a very pretty picture. *Garcinia Gibbsae* S. Moore is met with to about an altitude of three thousand five hundred feet. A stunted *Eugenia* with blue fruit is common on top together with *Rhododendron Lockae* F. v. M. (no. 1278) which has vivid red flowers making with the white flowering shrub *Quintinia Fawkneri* (no. 1275) a pleasing blend of colors. There is also a handsome red flowering vine climbing over the rocks, *Agapetes Meiniana* F. v. M. (no. 1280). On account of the porous nature of the soil ferns are very scarce.

“The next place I went to was the Daintree River. This is a new settlement and the vegetation is decidedly tropical. As there is a mountain nearly 5,000 feet above sea level close by, there is a big range of vegetation for the collector to botanize over. The vegetation both on the coast and the mountains reminds one very much of that of New Guinea and the Pacific Islands.

“The Calamus palms are very thick in the rain-forests of the Daintree River and the only way to penetrate them is with the aid of a scrub knife. Daintree is very rich in palms, both on the river flats and the mountain elevations and in this respect is quite the opposite of the Atherton Tableland. The rain-forest has not the tall timbers of the Tableland and the average height is from 70 to 90 feet with patches occasionally higher. There is a blue fruited *Garcinia* (no. 1418) growing on the lowlands. There are no *Garcinias* on Mt. Alexander above the

500 foot level. The rain-forest on Mt. Alexander is very poor and the soil is decidedly porous.

“On the top is an elevated plateau of about 250 acres having an altitude of about 4,500 feet with a beautiful creek flowing through it. I gathered some interesting plants there, one *Casuarina nodiflora* Forst. (no. 1492) not before recorded as Australian. This *Casuarina* was found growing only on this creek and was not very plentiful. On the banks of the creek are numerous palms and in fact the small elevated plateau carries a good growth of them. This plateau reminds one of an elevated saucer as it is sunken in the centre and protected by numerous little peaks all round, making it very beautiful and picturesque.

“Quite a number of proteaceous plants extend to the top of the mountain among the most interesting being *Orites excelsa* R. Br. (no. 1486) and *Musgravea stenostachya* F. v. M. (no. 1413). As a matter of fact Mt. Alexander represents a very interesting field for further study particularly in the spring as I saw quite a number of interesting plants that were in neither flower nor fruit during my visit.”

BOTANIC MUSEUM AND HERBARIUM,  
BRISBANE.

## ENUMERATION OF THE PLANTS COLLECTED

## CYCADACEAE

**Cycas media** R. Brown, Prodr. 348 (1810).

Range Road, Atherton Tableland, alt. 300 m., common in open Eucalyptus forest, no. 1308 (male flowers and ripe seeds), Oct. 30 (Cycad up to 4 m. high; leaves up to 1.75 m. long; seeds 4 cm. long, 3.5 cm. diam., testa orange).

**Macrozamia Hopei** W. Hill apud C. Moore in Proc. Roy. Soc. N. S. Wales, xvii. 116 (1884).

Daintree River, common in the rain-forest, no. 1484 (male cones and young female cones), Dec. 13 (tall Cycad up to 15 m. high; very stately and beautiful).

## PODOCARPACEAE

**Podocarpus amarus** Blume, Enum. Pl. Javae, 88 (1827).

Range Road, Atherton Tableland, alt. 250 m., common in the rain-forest, no. 1338 (fruiting specimens), Nov. 11 (tall to medium-sized tree up to 20 m. high; leaves dark glossy green; seed 3.5 cm. diam.).

**Podocarpus dispermus**, sp. nov. Plate I.

Arbor parva ad 17 m. alta (Kajewski); gemmae perulis angustis acutis ad 6 mm. longis. Folia recta, late linearia vel anguste lanceolata, apice pungentia, acuta, basi in petiolum brevem sensim angustata, 10-20 cm. longa, 2-3 cm. lata; costa media utrinque prominula. Flores masculi sessiles, ca. 3 cm. longi et 3 mm. lati, basi squamis acutis circumdati; antherae dense imbricatae, apiculo brevi lato acuto. Flores feminei axillares; pedunculus crassiusculus 0.5-1.5 cm. longus; receptaculum carnosum, basi foliolis 2 parvis acutis perdeciduis instructum. Semina plerumque 2 evoluta, ellipsoidea, 2.5 cm. longa, 1.7 cm. diam.; receptaculum sub seminibus carnosum rubrum, subpyriforme, subapplanatum, ca. 2.5 cm. longum, apicem versus 2 cm. latum, 1.5 cm. crassum.

Johnstone River, *Rev. N. Michael* (male flowers). *Millaa Millaa*, Atherton Tableland, rare, *J. L. Tardent*, Oct. 28, 1930

(fruits, nearly ripe). Tarzali, Atherton Tableland, Mrs. *Steinhardt*. Gadgarra, Atherton Tableland, alt. 800 m., *S. F. Kajewski*, no. 1167 (very immature seeds), June 13 (small tree). Gadgarra Reserve, Atherton Tableland, alt. 800 m., in rain-forest, not plentiful, no. 1192 (type; ripe seeds) Aug. 10 (small tree up to 17 m. high, bark light brown-grey, slightly flaky, the flakes about as thick as ordinary writing paper; leaves dark glossy green; ripe seeds inserted on a fleshy scarlet peduncle).

Among previously described Australian species it comes closest to *P. elatus* R. Br. which differs in having smaller leaves, a smaller receptacle and seeds and in the receptacle being pruinose and bluish-black, not red.

#### ARAUCARIACEAE

***Agathis microstachya*** J. F. Bailey & C. T. White in Queensl. Dept. Agric. Bot. Bull. xviii. 14 (1916).

Range Road, Atherton Tableland, alt. 800 m., common in the rain-forest, no. 1183 (largest tree in the rain-forest).

#### CUPRESSACEAE

***Callitris Macleayana*** (Parlat.) F. v. Mueller, Rep. Burdekin Exped. 19 (1860).

Gadgarra Reserve, Atherton Tableland, alt. 500 m., in rain-forest, no. 1000 (cone-bearing material), May 17 (medium sized tree up to 20 m. high and 50 cm. diam.; local name "Cypress Pine," said to produce exceptionally durable wood, resistant to the attacks of termites).

#### PANDANACEAE

***Freycinetia excelsa*** F. v. Mueller, Fragm. Phytogr. Austr. v. 89 (1865).

Boonjie, Atherton Tableland, alt. 700 m., no. 1199 (common climber on the rain-forest trees).

***Freycinetia propinqua*** Domin in Bibl. Bot. xx. (Heft 85<sup>1</sup>) 250 (1915).

*F. Gaudichaudii* Bentham, Fl. Austr. vii. 151 (1878) et auct. plurim austr. vix *F. Gaudichaudii* Br. & Benn.

*F. Mülleri* Martelli in Webbia, iii. 313 (1910), name only.

*F. gonocarpa* S. Moore in Jour. Bot. lv. 309 (1917).

Daintree River, common in rain-forest, no. 1415 (fruiting

specimens), Nov. 30 (clinging vine, growing up trees; fruit red when ripe, 4 cm. long, 2 cm. diam.).

I was inclined to accept the name *F. Mülleri* Martelli for this species but Dr. T. A. Sprague of Kew to whom I wrote about the matter replied through the Director, Sir A. W. Hill, "The name *Freycinetia Mülleri* Martelli is invalid because it is not accompanied by, nor is it apparently associable with, a *description* of the new species concerned. The description of "*Freycinetia Gaudichaudii*" given by Bentham (Fl. Austr. VII. 151) covers the Javan species as well as Australian material, and therefore cannot diagnose the new species *F. Mülleri*. Hence, on the facts as given by Mr. White, the earliest name for the species accompanied by a description, is *F. propinqua* Domin (1915), which should accordingly be accepted."

#### PALMAE

**Licuala Ramsayi** F. v. Mueller, Fragm. Phytogr. Austr. VIII. 221 (1874).

Daintree River, common in rain-forest, no. 1503 (fruiting specimens), Dec. 18 (large palm up to 20 m. high; fruit orange when ripe).

**Normanbya Muelleri** Beccari in Agric. Colon. x. 615 (1916).

Daintree River, common in rain-forest, no. 1502 (fruiting specimens), Dec. 20 (tall graceful palm up to 20 m. high; fruit purple-brown when ripe).

#### ARACEAE

**Pothos longipes** Schott, Aroid. I. 23, t. 47 (1853).

Daintree River, common in rain-forest, no. 1432 (fruiting specimen), Dec. 3 (vine; fruit bright shiny red, oval with a fleshy cream pulp, 11-20 on a single spike).

#### LILIACEAE

**Schelhammera pedunculata** F. v. Mueller in Victor. Naturalist, VII. 182 (1891).

Foothills of Bartle Frere, alt. 800 m., common in the rain-forest, no. 1254 (flowering specimens), Oct. 1 (shrub up to 3 m. high; flowers purple; a handsome plant).

**Cordyline terminalis** Kunth, Enumer. v. 25 (1850).

Boonjie, Atherton Tableland, alt. 700 m., common in the rain-forest, no. 1235 (flowering specimens), Sept. 28 (plant up to 3 m. high; petals purple with white base; stamens yellow).

**Eustrephus latifolius** R. Brown, Prodr. 281 (1810).

Daintree River, common in the rain-forest, no. 1406 (flowers and unripe fruits), Dec. 10.

**Rhipogonum album** R. Brown, Prodr. 293 (1810), vel aff.

Ghurka Pocket, Boonjie, Atherton Tableland, alt. 700 m., common in rain-forest, no. 1224 (old flowers), Sept. 24 (vine, leaves dark green).

A form with lanceolate or elliptic lanceolate leaves, comparatively short racemes and the flowers more densely crowded than in typical *R. album* R. Br. Judging from the range of variation as shown by the herbarium specimens at my disposal, as understood at present this is a polymorphic species and Kajewski's no. 1224 with several others will probably later have to be split off as distinct species.

**Smilax australis** R. Brown, Prodr. 293 (1810).

Lake Eacham, alt. 800 m., common in rain-forest on edge of the lake, no. 1172 (immature fruits), Aug. 4 (vine growing over rain-forest trees). Boonjie, Atherton Tableland, alt. 700 m., common in the rain-forest, no. 1196 (flowering specimens), Sept. 18 (vine; leaves dark green; petals cream-green).

#### ZINGIBERACEAE

**Alpinia modesta** F. v. Mueller apud K. Schumann in Engler, Pflanzenr. iv.-46 (Zingib.), p. 318 (1904).

Daintree River, common in rain-forest, no. 1481 (flowering specimens), Dec. 13 (plant about 1.5 m. high; flower with a white labellum with yellow stripe and bordered with pink radiating lines).

#### ORCHIDACEAE

**Dipodium ensifolium** F. v. Mueller, Fragm. Phytogr. Austr. v. 42 (1865).

Mt. Alexander, alt. 1350 m., common in poor scrub on top of the mountain, no. 1496 (flowering specimens), Dec. 17 (plant up to 60 cm. high, growing in the bracken; flower very showy, white with purple spots and a purple labellum).

## CASUARINACEAE

**Casuarina Cunninghamiana** Miquel, Revis. Casuar. 56 t. 6 (1848).

Daintree River, common on river bank, no. 1504 (fruiting specimens) Dec. 18 (medium-sized tree up to 17 m.).

**Casuarina torulosa** Aiton, Hort. Kew. III. 320 (1789).

Gadgarra, Atherton Tableland, alt. 800 m., common in the open Eucalyptus forest, no. 1066 (cones), May 29 (tall tree up to 25 m. high).

**Casuarina nodiflora** Forster, Fl. Ins. Austr. Prodr. 64 (1786).

Mt. Alexander, common in poor scrub on top of the mountain, no. 1492 (cone bearing specimens), Dec. 17 (small tree up to 7 m. high).

For further notes on this record see C. G. G. van Steenis in Jour. Arnold Arb. XII. 197 (1931).

**Casuarina suberosa** Otto & Dietrich in Allgem. Gartenzeit. 155 (1841).

Daintree River, common on the ridges in open Eucalyptus forest, no. 1482 (fruits and female flowers), Dec. 13 (small tree up to 15 m. high).

## PIPERACEAE

**Piper Banksii** Miquel in Versl. Meded. Akad. Wetensch. Amsterd. Afd. Natuurk. ser. 2, II. 61 (Piper. Nov. Holl.) (1866).

Daintree River, common in the rain-forest, no. 1402 (fruiting specimens), Nov. 29 (vine, fruit brown red when ripe).

**Piper Novae-Hollandiae** Miquel, l. c. 60 (1866).

Gadgarra Reserve, Atherton Tableland, alt. 800 m., common in the rain-forest, no. 1124 (immature fruits), July 10 (vine growing up rain-forest trees).

**Piper triandrum** F. v. Mueller, Fragm. Phytogr. Austr. v. 197 (1866).

Gadgarra, Atherton Tableland, alt. 800 m., common in the rain-forest, no. 1054 (immature fruits), May 28 (vine climbing up the sides of large rain-forest trees).

## BALANOPSIDACEAE

**Balanops australiana** F. v. Mueller, Fragm. Phytogr. Austr. x. 114 (1877).



Range Road, Atherton Tableland, alt. 800 m., common in the rain-forest, no. 1187 (fruiting specimens), Aug. 5 (medium sized tree; fruit brown-green when ripe).

***Balanops montana*, sp. nov.**

Arbor parva, ramis irregulariter patentibus, ramulis robustis glabris; foliis sparsis haud ad apices ramulorum congestis coriaceis ellipticis vel elliptico-obovatis apice obtusis vel subobtusis, basim versus in petiolum 0.7-1 cm. gradatim angustatis, margine recurvulis subincrassatis, cum petiolo ad 13.5 cm. longis et ad 5 cm. latis, nervis vix conspicuis; floribus ignotis; drupis aurantiacis 1.9 cm. longis et 1.4 cm. diam. (Kajewski) lateralibus solitariis ellipsoideis ad apicem stigmatibus duobus persistentibus coronatis breviter pedicellatis, pedicellis robustis 0.5 cm. longis, bracteis ad basim et ad marginem minute ciliolatis, exterioribus ovatis subacutis, interioribus suborbicularibus sensim paulo majoribus.

Mt. Alexander, alt. 1300 m., common in stunted scrub on top of the mountain, no. 1485 (fruiting specimens), Dec. 17 (small tree, all twisted and gnarled; fruit orange color when ripe, 1.9 cm. long, 1.4 cm. diam., slightly flattened top and bottom).

*Balanops australiana* F. v. Muell., the only other Australian representative of the genus, differs in having narrower leaves, sessile fruits and the bracts of the capsule more or less canescent over the whole outside.

MORACEAE

***Paratrophis australiana*, sp. nov.**

Plate II.

Arbor mediocris ad 20 cm. alta, ramulis gracilibus, partibus junioribus pubescentibus mox glabris vel glabrescentibus. Folia alterna, petiolata, elliptico-vel oblongo-lanceolata, basi cuneata, apice longe et obtusiuscule acuminata, supra nitida, subtus subopaca, in sicco papyracea, nervis lateralibus subparallelibus subtus prominulis 15-20 in utroque latere; laminae 5-11 cm. longae, 1.5-3 cm. latae; petiolus ca. 1 cm. longus. Florum masculorum spicae pedunculatae, densiflorae, cum pedunculo 0.5-1 cm. longo 3-3.5 cm. longae; rhachi pubescente, bracteis numerosis minimis obtecta. Perianthium 4-partitum, segmentis ovatis ca. 1 cm. longis. Stamina 4, filamentis 2.5 mm. longis, in parte inferiore applanatis, antheris

magnis vix 1 mm. latis. Spicae foemineae pauciflorae, cum pedunculo 3-4 mm. longo 5-7 mm. longae, rhachi pubescente bracteis minimis obiecta. Perianthium 4-partitum, segmentis late ovatis basi 2 mm. latis; ovario glabro; stylo 2-partito, ramis stigmatosis linearibus. Achaenium subdrupaceum, ovoideum (immaturum?) ca. 0.5 cm. diam.; semen pendulum, cotyledonibus carnosis aequalibus contortuplicatis.

Herberton Range, alt. 900 m., common in rain-forest, no. 1378 (**type**; immature fruit), Nov. 19 (medium-sized tree up to 20 m. high); no. 1383 (male flowers), Nov. 19 (medium-sized tree up to 15 m. high; bark dark grey, with raised pustules here and there, cream when cut; leaves dark glossy green; flowers green).

**Ficus casearia** F. v. Mueller apud Bentham, Fl. Austr. vi. 177 (1873).

Gadgarra, Atherton Tableland, alt. 800 m., common in the rain-forest, no. 1021 (immature fruits), May 21 (large tree up to 20 m. high, fruit spotted immature). Ghurka Pocket, Boonjie, Atherton Tableland, alt. 700 m., common in rain-forest, no. 1225 (immature fruits), Sept. 24 (medium-sized tree of spreading habit, limbs with a characteristic droop; fruit immature, green with small white elongated pustules).

**Ficus crassipes** F. M. Bailey, Report Govt. Sc. Exped. Belenden Ker, 60 (1889).

Gadgarra, Atherton Tableland, alt. 800 m., common in the rain-forest, no. 1097 (large tree up to 30 m. high; fruit orange-green, apparently full grown but not quite mature).

**Ficus destruens** F. v. Mueller in herb., sp. nov. Plate III.

*Ficus Johnstoni* F. v. Muell. herb., non *F. Johnstonii* Stapf.

Arbor magna 30 m. alta, ramulis robustis dense ferrugineo-hirsutis. Folia petiolata, elliptico-lanceolata, apice subobtusata, basi subacuta, 9-15 cm. longa, 2-4.5 cm. lata, subcoriacea, supra glabra, nitida, costa media sulcata, prominula, nervis subobscuris subtus plus minusve ferrugineo-pubescentibus, costa media elevata nervis lateralibus utrinsecus 11-13 prominulis e costa media angulo ca. 50° exeuntibus prope marginem arcuatim conjunctis; petiolus 3-4 cm. longus; stipulae 2 cm. longae, dense hirsutae. Receptacula breviter pedunculata, axillaria, gemina, globosa, glabra, castanea, ostiolo nitido;

pedunculus hirsutus, crassus 3 mm. longus. Flores masc. numerosi, monandri, stipitati, cum stipite ca. 2.5 mm. longi, perianthii segmentis atrofuscis; anthera rotundato-reniformis fere 1 cm. lata; flores fem. (an cecidiophori?) stipitati, cum stipite 3 mm. longi, stipite crasso angulato, pallido, perianthii segmentis atrofuscis linearibus liberis; ovarium ellipsoideum vel subglobosum, fuscum, stylo elongato gracili terminali sed excentrico.

Gadgarra, Atherton Tableland, alt. 800 m., common in rain-forest, no. 1087 (type; nearly ripe receptacles), June 8 (large tree up to 30 m. high). Rockingham Bay, *Dallachy* (ex Herb. Melb. as *F. destruens* F. v. Muell., ined.). Mount Macalister, *Dallachy*, April 4, 1869 (grows in old trees and sends its roots down the trunk to the ground, it soon kills the tree) (ex Herb. Melb. as *F. Johnstonii* F. v. M. ms. and marked "Not matched at Kew"). Herbert River, *R. Johnstone* (ex Herb. Melb. as *F. platypoda* A. Cunn.). Near Peeramon, Atherton Tableland, *W. D. Francis*, May 5, 1928; Eungella Range, the commonest Fig in the forests, *W. D. Francis*, Oct. 1922; Greenhills near Cairns, parasitic on Eucalypts, *A. P. Dodd*, Jan. 1921; Herbert River, *F. M. Bailey*; Mackay, *F. M. Bailey* (all the last ex Herb. Brisbane as *F. platypoda* A. Cunn. var. *subacuminata* Benth?).

A very distinctive species recognized at once by its elliptic-lanceolate leaves, covered on the under side in the young stages with a dense ferruginous pubescence. In botanical sequence it comes between *F. platypoda* A. Cunn. and *F. macrophylla* Desf.

***Ficus ehretioides*** F. v. Mueller apud Bentham, Fl. Austr. vi. 171 (1873).

Daintree River, common in rain-forest, no. 1416 (fruits immature), Nov. 11 (tree on creek banks; fruits growing from the trunk, immature, brown-green with brown spots).

***Ficus eugenioides*** F. v. Mueller apud Bentham, Fl. Austr. vi. 166 (1873).

Lake Eacham, Atherton Tableland, alt. 800 m., common in rain-forest on edge of the lake, no. 1179 (very young fruits) Aug. 4 (medium-sized tree up to 20 m.). Range Road, Atherton Tableland, alt. 300 m., common in open Eucalyptus forest,

no. 1314 (young fruits) Oct. 30 (small tree up to 15 m. high, with drooping branches).

**Ficus infectoria** Roxburgh, Hort. Beng. 66 (1814), nomen; Fl. Ind. ed. 2, III. 310 (1832).

Lake Barrine, Atherton Tableland, alt. 800 m., common in rain-forest on edge of the lake, no. 1120 (fruiting specimens), July 10 (large tree leaning out over the water; fruit purple-green when ripe); no. 1132 (fruiting specimens), July 16 (giant tree overhanging the edge of the lake; fruit purple-cream when ripe with a few light brown dots); no. 1340 (fruiting specimens), Sept. 29 (deciduous tree common in rain-forest on edge of the lake; fruit pink-purple when ripe, young fruit appearing before the leaves).

I have placed all the above specimens under *F. infectoria* Roxb. (s. lat.) without endeavoring to place them varietally.

**Ficus magnifolia** F. v. Mueller, Fragm. Phytogr. Austr. IV. 50 (1863).

Lake Eacham, Atherton Tableland, alt. 800 m., common in rain-forest on edge of the lake, no. 1178 (fruiting specimens), Aug. 4 (small tree).

**Ficus mollior** F. v. Mueller apud Bentham, Fl. Austr. VI. 173 (1873).

Gadgarra, Atherton Tableland, alt. 800 m., common in rain-forest, no. 1022 (immature fruits), May 21 (large tree up to 25 m. high, easily identifiable by its bright pink young leaves). Gadgarra, Atherton Tableland, alt. 800 m., common in rain-forest, no. 1190 (immature fruits), Aug. 6 (small tree 10 m. high; leaves dull dark green). Range Road, Atherton Tableland, alt. 300 m., common in rain-forest on creek bank, no. 1306 (immature fruits), Oct. 30 (small tree up to 15 m. high).

Number 1022 represents a glabrescent form but I think it belongs here.

**Ficus Nugentii** Domin in Bibl. Bot. XXII. (Heft 89<sup>1</sup>) 567 (1921).

*F. scandens* Roxb. var. *australis* F. M. Bailey in Queensl. Agric. Jour. I. 370 (1897).

Daintree River, common in rain-forest, no. 1431 (fruit nearly ripe), Dec. 3 (vine climbing to the tops of rain-forest trees; almost mature fruits pink-green).

**Ficus opposita** Miquel in Hook. Lond. Jour. Bot. vii. 426 (1848).

Range Road, Atherton Tableland, alt. 200 m., common in Eucalyptus forest, no. 1320 (immature fruit), Nov. 1 (specimens gathered off small tree 5 m. high; immature fruit green-brown on side exposed to sunlight). Daintree River, common in rain-forest, no. 1421 (fruit rather immature), Nov. 30 (small tree up to 15 m.; young fruit green with light pink pustules).

**Ficus philippinensis** Miquel, l. c. 435 (1848).

Range Road, Atherton Tableland, alt. 200 m., common in rain-forest on creek banks, no. 1327 (fruiting specimens), Nov. 2 (small to medium-sized tree up to 10 m. high; fruits orange when ripe). Daintree River, North Queensland, common in rain-forest, no. 1411 (fruiting specimens), Nov. 29 (noble spreading Fig with drooping branches, particularly noticeable in the smaller trees, fruits orange when ripe, irregularly globose).

Only previously known in Australia from a single specimen in Herb. F. Mueller; Kajewski's specimens, particularly those of no. 1327, are a good match for Malayan material.

**Ficus platypoda** A. Cunningham apud Miquel in Hook. Lond. Jour. Bot. vi. 561 (1847) var. **mollis** Bentham, Fl. Austr. vi. 170 (1873).

Range Road, Atherton Tableland, alt. 250 m., common in Eucalyptus forest, no. 1330 (fruiting specimens), Nov. 7 (specimens gathered off small tree about 6 m. high; fruit orange when ripe, 1 cm. diam.).

**Ficus stenocarpa** F. v. Mueller apud Bentham, Fl. Austr. vi. 174 (1873).

Scrubby Creek, Herberton Range, alt. 600 m., common in poor rain-forest, no. 1362 (fruit immature), Nov. 14 (small tree up to 25 m.; immature fruit oblong, green, with pink green bracts). Daintree River, common in rain-forest, no. 1455 (fruiting specimens), Dec. 10 (specimens gathered off small tree about 12 m. high; fruit reddish brown when ripe).

**Ficus Watkinsiana** F. M. Bailey in Queensl. Dept. Agric. Bull. vii. 18 (1891).

Lake Barrine, Atherton Tableland, alt. 800 m., common in

rain-forest on edge of the lake, no. 1122 (fruit immature), July 10 (large tree; leaves dark glossy green).

This handsome Fig is a very common tree in the rain-forests of northern New South Wales and southern Queensland but has not previously been recorded from tropical Australia. The present record extends its previously known range about 800 miles northwards.

#### URTICACEAE

**Pipturus argenteus** (Forst. f.) Weddell in DC. Prodr. xvi. pt. 1. 235<sup>19</sup> (1869).

Gadgarra Reserve, Atherton Tableland, alt. 800 m., rain-forest creek banks, no. 1032 (common; leaves silvery underneath; fruit when ripe white, fleshy, 8 mm. in diam.).

#### PROTEACEAE

**Persoonia falcata** R. Brown, Prodr. 373 (1810).

Daintree River, common in open Eucalyptus forest, no. 1483 (fruiting specimens), Dec. 13 (small tree up to 8 m. high).

**Darlingia spectatissima** F. v. Mueller, Fragm. Phytogr. Austr. v. 152 (1886) var. **ferruginea** C. T. White in Jour. Arnold Arb. xi. 231 (1930).

Gadgarra Reserve, Atherton Tableland, alt. 800 m., common in the rain-forest, no. 1127 (flowering specimens), July 12 (medium-sized tree up to 25 m.; flowers cream with a delightful perfume).

**Musgravea stenostachya** F. v. Mueller in Proc. Linn. Soc. N. S. Wales, ser. 2, v. 186 (1890).

Daintree River, common in rain-forest, no. 1436 (fruiting specimens), Dec. 4 (tall tree up to 30 m. high, with small to medium buttresses; bark lightly fissured; light to medium grey).<sup>1</sup> Mt. Alexander, alt. 1500 m., common in poor scrub on top of the mountain, no. 1493 (fruiting specimens), Dec. 17 (small gnarled tree up to 3 m. high).

The two gatherings represent extreme forms of the same species. Number 1436 represents a very robust lowland form

<sup>1</sup>Mr. Kajewski remarks "This is an excellent timber and has the reputation of being the most durable of the 'Silky Oaks,'" a name applied to a number of proteaceous woods in the Queensland timber trade, the one most abundantly cut being *Cardwellia sublimis* F. v. Muell.

with leaf-blades up to 24 cm. long and 9.5 cm. broad, on petioles 4 cm. long, the capsules measure up to 8 cm. including the short stipes. Number 1493 represents an extremely reduced mountain form, the leaf-blades reduced to an average of about 5 cm. long and 2.5-3 cm. broad, on petioles 0.5 cm. long, the capsules including the stipes measure only about 5.5 cm. The species is well represented in the Queensland Herbarium and specimens from the type locality (Bellenden Ker) are intermediate between Kajewski's two gatherings.

**Grevillea glauca** Knight, Prot. 121 (1809).

*Grevillea gibbosa* R. Brown, Prodr. 380 (1810).

Range Road, Atherton Tableland, alt. 250 m., common in Eucalyptus forest, no. 1329 (fruiting specimens), Nov. 7 (small tree up to 8 m.).

**Grevillea pinnatifida** F. M. Bailey, Occas. Papers Queensland Fl. 6 (1886).

Daintree River, common in rain-forest, no. 1435 (immature fruits), Dec. 4 (small to medium-sized tree; leaves very pretty with golden hair underneath; when green with a nice scent reminding one of ripe apples. The larger trees have a "White Oak" timber cut and used commercially).

**Grevillea polystachya** R. Brown in Trans. Linn. Soc. x. 177 (1809).

Range Road, Atherton Tableland, alt. 200 m., common in Eucalyptus forest, no. 1321 (flowering and fruiting specimens), Nov. 1 (small tree up to 10 m. high; flowers cream, very showy; fruit brown when ripe).

**Orites excelsa** R. Brown, Prot. Nov. 32 (1832).

Mt. Alexander, alt. 1300 m., common in poor scrub on top of the mountain, no. 1486 (fruiting specimens), Dec. 17 (small tree up to 7 m. high, trunk twisted and gnarled).

The present specimens are in fruit only and it is with some hesitation I refer them to *O. excelsa* R. Br., only previously known from coastal New South Wales and a few mountain localities in the extreme southeast of Queensland. However, they seem to agree better with this species than with *O. fragrans* F. M. Bailey from the neighboring Bellenden Ker Range and Mt. Bartle Frere. When flowers are collected the Mt. Alexander tree may be found to be a distinct species. If it is

really *O. excelsa* R. Br. the above record extends the known range of the species nearly eight hundred miles northwards.

***Helicia diversifolia*** C. T. White in Queensl. Dept. Agric. Bot. Bull. xx. 18, fig. (1917).

Gadgarra Reserve, Atherton Tableland, alt. 800 m., common in the rain-forest, no. 1048 (rather old flowers and very young fruits), May 27 (medium-sized tree up to 25 m. high; leaves with a brown midrib underneath, heterophyllous; wood light-colored; local name "White Oak"). Boonjie, Atherton Tableland, alt. 850 m., common in the rain-forest, no. 1075 (very immature fruits), May 30 (medium-sized tree up to 25 m. high; leaves medium, glossy-green, with a slightly brown midrib underneath, not heterophyllous like those of the other species). Gadgarra Reserve, Atherton Tableland, no. 1169 (half-developed fruits), Aug. 2 (leaves on this tree are not heterophyllous and much smaller than those on previous examples).

The character of heterophylly noted by the collector is a very variable one in Australian Proteaceae and has little or no value as a specific or varietal distinction.

***Helicia ferruginea*** F. v. Mueller, Fragm. Phytogr. Austr. III. 37 (1862).

Gadgarra, Atherton Tableland, alt. 800 m., common in the rain-forest, no. 1039 (flower buds, flowers and fruit in various stages), Aug. 9 (medium-sized tree up to 23 m. high; fruit purple when ripe, with a fleshy purple pulp).

***Helicia Heyana*** F. M. Bailey, Queensland Fl. iv. 1329 (1901).

Ghurka Pocket, Boonjie, Atherton Tableland, alt. 700 m., common in the rain-forest, no. 1290 (flowering specimens), Sept. 24 (medium-sized tree up to 20 m. high with a very dark colored bark; leaves dark green; flowers sweetly scented in pendulous racemes; petals light purple outside, cream inside; rhachis dark purple).

A very interesting find, apparently the first time gathered since Bailey originally obtained his specimens in 1889. Kajewski's specimens match the type perfectly. Bailey described the racemes as 2.5-3 in. long but they are really 5-6.5 in. long, the type consisting of a few leafy shoots and a loose



portion of a single raceme; the author in drawing up his description evidently mistook this small portion for a complete inflorescence.

**Helicia Youngiana** Moore & Mueller apud F. v. Mueller, *Fragm. Phytogr. Austr.* iv. 84 (1864).

*Macadamia Youngiana* F. v. Mueller apud Bentham, *Fl. Austr.* v. 406 (1870).—F. M. Bailey in *Queensl. Dept. Agric. Bull.* xviii. (Bot. Bull. v.) 51 (1892).

Recently when working in the herbaria at Melbourne and Sydney on some critical plants in the Kajewski collection from North Queensland I was able to see a good series of specimens of this species. It is a shrub or small tree common in New South Wales and coastal Queensland and seems to be represented by three distinct varieties, more or less readily separable in herbarium material though the differences are rather difficult to express in actual terms. They may, however, be distinguished as follows:—

1. var. **typica**. Leaves sometimes entire but more often toothed often deeply so towards the apex, up to 14 cm. long and 4 cm. wide, often bullate above. Racemes up to 7 cm. long; pedicels up to 4 cm. long, densely hirsute; buds ovoid, 1.5 cm. long, individual bracts 5 mm. long and about as long as broad. Fruits (in the dried state) globose, 1.5 cm. diam.

DISTRIBUTION: Northeastern New South Wales and southeastern Queensland.

LOCALITY RECORDS:—New South Wales. Duck Creek, Richmond River, *C. Moore* (type); Richmond River, *Henderson*; Lismore, *Miss Rothwell*; Alstonville, *Dr. Tomlinson*; Mt. Warning, *W. Forsyth* (with leaves approaching var. *robusta*); Dorrigo, *J. L. Boorman*, *W. Heron*; Dorrigo State Forest Reserve, *J. H. Maiden*, *C. T. White*, no. 7490; Murwillumbah, *W. Bauerlen*; Upper Eungella, Tweed River, *C. T. White*, no. 3278; Bellingen River, *I. B. Slater*. Queensland. Lamington National Park, Macpherson Range, *C. T. White*, *T. O'Reilly*; Upper Tallebudgera, *C. T. White*; Springbrook, *C. T. White*; Nerang Creek, *H. Schneider* (most northerly record).

2. var. **robusta**, n. var. Leaves mostly entire but sometimes toothed and deeply so towards the top, up to 20 cm. long and 5.5 cm. wide, smooth and very shining above.

Racemes up to 10 cm. long; pedicels up to 7 mm. long, hairy but much less so than in the type, buds cylindrical 1.5 cm. long, individual bracts up to 1 cm. long and 4 mm. wide. Fruits (in the dried state) subglobose, 2.5 cm. long, 2 cm. diam.

This is the form the fruits of which are described by Bailey, l. c. According to him they measure in the fresh state  $1\frac{3}{4}$  in. (4.5 cm.) long and  $1\frac{1}{2}$  in. (3.8 cm.) diam.

**DISTRIBUTION:** This variety is confined to the subtropical rain-forests of Queensland. East Malanda lies within the tropics but its alt. 700 m., gives the forests a subtropical rather than a tropical character.

**LOCALITY RECORDS:** Maroochy (most southerly record), *F. M. Bailey, J. Low*. Yandina Eumundi, *F. M. Bailey, J. F. Bailey, J. H. Simmonds, J. B. Staer*. East Malanda, Atherton Tableland, alt. 700 m., common in rain-forest, *S. F. Kajewski*, no. 1219 (flower buds), Sept. 22 (small to medium-sized tree; bark dark grey with numerous small white corky pustules, when cut light pink).

3. var. *montana*, n. var. Leaves entire, elliptic or elliptic-lanceolate, up to 11 cm. long and 5 cm. wide, apex acuminate often lengthily so, coriaceous, smooth and glossy on both surfaces. Racemes up to 6 cm. long, pedicels up to 5 mm. long, rhachis and pedicels densely hirsute as in the typical form. Buds not seen. Individual bracts (described from a few persistent ones in old inflorescences) 1 cm. long, 5 mm. broad. Fruit not seen.

**DISTRIBUTION:** So far as known confined to the higher parts of the Bellenden Ker Range, northeastern Queensland.

**LOCALITY RECORDS:** Bellenden Ker, Palm Camp, *F. M. Bailey* (Meston's Bellenden Ker Exped. 1889). Bellenden Ker (near the summit), *C. T. White*, Jan. 1923.

*Banksia integrifolia* Linnaeus f., Suppl. 127 (1781) var. *compar* *F. M. Bailey*, *Compreh. Cat. Queensl. Pl.* 455, fig. 443 (1913).

Gadgarra, Atherton Tableland, alt. 800 m., common in open Eucalyptus forest, no. 1067 (flowering specimens), May 29 (medium-sized tree up to 18 m.; leaves silvery beneath with a brown midrib).

## OLACACEAE

**Apodytes brachystylis** F. v. Mueller, *Fragm. Phytogr. Austr.* ix. 149 (1875).

Range Road, Atherton Tableland, alt. 800 m., common in rain-forest, no. 1184 (very young flower buds), Aug. 5 (medium-sized tree 20 m. high; leaves dull dark green). Boonjie, Atherton Tableland, alt. 700 m., common in the rain-forest, no. 1194 (flower buds), Sept. 15 (medium-sized tree up to 20 m. high, bark grey, light brown when cut; leaves dark glossy green); no. 1272 (flower buds), Oct. 11 (small to medium-sized tree up to 25 m. high, easily told by the drooping habit of the branches). Herberton Range, common in rain-forest, alt. 900 m., no. 1380 (flowering specimens), Nov. 19 (small tree up to 15 m. high, bark light grey, pink when cut; flowers light white-green).

## LORANTHACEAE

**Korthalsella rubra** (Van Tiegh.) Engler in Engler & Prantl, *Nat. Pflanzenf. Nachtr.* i. 38 (1897).

*Viscum articulatum* F. v. Mueller, *Rept. Burdekin Exped.* 12, (1860); non Burmann.

*Bifaria rubra* Van Tieghem in *Bull. Soc. Bot. France*, XLIII. 173 (1896).

*Korthalsella articulata* Blakely in *Proc. Linn. Soc. N. S. Wales*, LIII. 33 (1928).

Mt. Alexander, Daintree River, alt. 1300 m., common on branches of trees in poor scrub on top of the mountain, no. 1490 (fruiting specimens), Dec. 18 (small parasite, fruit minute, semi-transparent).

**Notothixos leiophyllus** K. Schumann, *Nachtr. Fl. Deutsch. Schutzg. Süds.* 260 (1905).

Lake Barrine, Atherton Tableland, alt. 800 m., no. 1137 (fruiting specimens), July 17 (Loranth common on rain-forest trees; fruit pink, transparent). Range Road, Atherton Tableland, alt. 800 m., no. 1188 (flowering and fruiting specimens), Aug. 5 (Loranth common on rain-forest trees; petals pink; fruit transparent, water-pink color).

Both these specimens agree well with the others from Australia quoted by Blakely in *Proc. Linn. Soc. N. S. Wales*, LIII. 41.

**Notothixos subaureus** Oliver in Jour. Linn. Soc. VII. 103 (1864) var. **cinerea** W. F. Blakely in Proc. Linn. Soc. N. S. Wales, LIII. 40 (1928).

Range Road, Atherton Tableland, alt. 800 m., common, no. 1182 (flowers and immature fruits), Aug. 5 (Loranth common on rain-forest trees; petals green).

**Loranthus congener** Sieber apud Schultes, Syst. VII. 1, p. 114 (1829); Sieber apud De Candolle, Prodr. IV. 295 (1830).

*Amyema congener* (Schult.) Van Tieghem in Bull. Soc. Bot. France, XLI. 507 (1894).

Lake Eacham, Atherton Tableland, common on rain-forest trees, no. 1173 (flowering specimens), Aug. 4 (petals light green, base deep red).

**Loranthus dictyophlebus** F. v. Mueller, Rep. Burdekin Exped. 14 (1860).

*Amylothea dictyophleba* Van Tieghem in Bull. Soc. Bot. France, XLI. 262 (1894).

Gadgarra, Atherton Tableland, alt. 800 m., a common parasite on rain-forest trees, no. 1043 (flowering specimens), May 24 (flower red in the lower three-fourths of the corolla tube, yellow-green in the upper fourth). Lake Barrine, Atherton Tableland, alt. 800 m., common in rain-forest on edge of the lake, no. 1117 (fruiting specimens), July 10 (specimens gathered off small tree growing over the water's edge; fruit purple-black when ripe).

**Loranthus queenslandicus** Blakely in Proc. Linn. Soc. N. S. Wales, XLVIII. 130, pl. 3 (1923).

*Amyema queenslandica* Danser in Bull. Jard. Bot. Buitenz. ser. 3, X. 298 (1929).

Gadgarra Reserve, Atherton Tableland, alt. 800 m., common on rain-forest trees, no. 1166 (flowering specimens), Aug. 23 (flowers yellow-orange).

**Loranthus vitellinus** F. v. Mueller, Rep. Burdekin Exped. 12 (1860).

*Dendrothoë vitellinus* Van Tieghem in Bull. Soc. Bot. France, XLII. 86 (1895).

Gadgarra Reserve, Atherton Tableland, alt. 800 m., a common parasite on rain-forest trees, no. 1163 (flowering specimens), July 27 (flowers red with a slightly yellow ring below the stamens). Scrubby Creek, Herberton Range, alt. 600 m.,

common on Eucalyptus trees, no. 1365 (flowering specimens), Nov. 14 (corolla yellow with red lobes).

Two widely different forms but which in view of the wide variation generally accepted for this species I have placed both under *L. vitellinus* F. v. M.; no. 1163 has a differently colored corolla from the usual form; no. 1365 has the usual coloring to the corolla but the leaves are exceptionally long and narrow, tapering into a very long petiole.

**Loranthus vitellinus** F. v. M. var. *inflata* W. F. Blakely in Jour. Arnold Arb. XIII. 298 (1932).

Gadgarra Reserve, Atherton Tableland, no. 1163 (flowering specimens), July 27 (common parasite on rain-forest trees; flowers a pretty red with a slight yellow ring below the stamens).

**Loranthus Whitei** Blakely in Proc. Linn. Soc. N. S. Wales, XLVII. 400, pl. 44 (1922).

*Amyema Whitei* Danser in Bull. Jard. Bot. Buitenz. ser. 3, x. 299 (1929).

Lake Barrine, Atherton Tableland, common on rain-forest trees, no. 1121 (flowering specimens), July 10 (flowers cream with pink base).

#### AMARANTACEAE

**Deeringia arborescens** (R. Br.) Domin in Bibl. Bot. XXII. (Heft 89<sup>1</sup>) 628 (1921).

Lake Barrine, Atherton Tableland, alt. 500 m., common in the rain-forest, no. 1344 (flowering specimens), Nov. 8 (vine growing on rain-forest trees; flower, perianth segments and stamens, light green).

A rather slender glabrescent form approaching *D. amaranthoides* (Lam.) Merr.

#### RANUNCULACEAE

**Clematis glycinoides** De Candolle, Syst. Veg. I. 145 (1818).

Lake Barrine, Atherton Tableland, alt. 800 m., common in the rain-forest, no. 1138 (flowering specimens), July 17 (vine, petals light green with purplish green base).

Domin (in Bibl. Bot. XXII. 663) attempts to divide this variable plant into several named varieties. Kajewski's no. 1138 represents his var. *normalis*.

## MENISPERMACEAE

**Hypserpa laurina** (F. v. Muell.) Diels in Engler, Pflanzenr. iv.-94 (Menisp.), p. 209 (1910).

Lake Barrine, Atherton Tableland, alt. 500 m., common in the rain-forest, no. 1342 (flowering specimens), Nov. 8 (vine, leaves light green; petals light green, ends of stamens purple).

## MAGNOLIACEAE

**Drimys insipida** (R. Br.) Domin in Bibl. Bot. xxii. (Heft 89<sup>2</sup>) 669 (1925).

Mount Bartle Frere, common in rain-forest, alt. 1600 m., no. 1291 (flowering specimens), Oct. 24 (small tree up to 10 m. high; leaves dark green; sepals and petals green).

**Drimys membranacea** F. v. Mueller, Fragm. Phytogr. Austr. v. 175 (1866).

Gadgarra, Atherton Tableland, alt. 800 m., common in the rain-forest, no. 1065 (fruiting specimens), May 29 (small tree up to 15 m. high; young leaves purple, when older with purple and green patches; berries black when ripe, 1.2 cm. long, 0.8 cm. diam.).

Ripe fruits not previously collected, only known before from two gatherings, the type, Rockingham Bay (Dallachy) and Hills about the Mulgrave River (Bailey).

**Drimys semecarpoides** F. v. Mueller in Victor. Naturalist, VIII. 15 (1891).

East Malanda, Atherton Tableland, alt. 700 m., common in the rain-forest, no. 1216 (immature fruits), Sept. 22 (small tree up to 20 m. high; bark light grey with small longitudinal lines, light yellow when cut; leaves dull dark green). Mt. Alexander, alt. 1300 m., common in poor scrub on top of the mountain, no. 1495 (flowering and fruiting specimens), Dec. 17 (small gnarled tree up to 8 m. high; leaves silvery underneath; petals cream; fruit black when ripe, 1 cm. diam.).

This species was described from very fragmentary material. Kajewski's no. 1216 is in fruit and shows in some cases the whole of the five carpels ripening. Number 1495 is in flower and fruit. As the flowers were previously unknown a description of the inflorescence and floral characters is given herewith:

Flowers solitary on peduncles of 1 cm. or in pairs on short pedicels 0.5 cm. long on peduncles 1 cm. long; peduncles lengthening in fruit to 6 cm. and pedicels to 1.5 cm. Sepals 2, suborbicular, 2 mm.; petals 5, cream (Kajewski), 4 mm. long; carpels 5 but commonly only one maturing.

**Austrobaileya**, gen. nov.

Sepala et petala ca. 12 ab extimo minimo ad intima petaloidea gradatim mutata. Stamina ca. 12, petaloidea, exteriora fertilia, interiora gradatim minora, sterilia; antherarum loculi filamento adnati. Carpella plura.—Frutex scandens. Folia opposita, subopposita vel alterna. Stipulae parvae, deciduae. Flores hermaphroditi, axillares, solitarii, pedunculati, pedunculo bracteato.

Species unica in Australia septentrionali crescens.

**Austrobaileya scandens**, sp. unica.

Plate IV.

Frutex glaber, scandens; ramulis angularibus in partibus junioribus saepe anguste alatis; foliis oppositis suboppositis vel alternis, petiolis 1.5-2.5 cm. parte majore anguste alatis, laminis 8-12 cm. longis et 5-6 cm. latis coriaceis supra nitidis utrinque reticulatis ellipticis ad lanceolatis ad apicem plus vel minus abrupte acuminatis, apice ipso 0.7-1 cm. longo; floribus axillaribus solitariis; pedunculis 0.7-1 cm., sparse bracteatis; bracteis ovatis 1 mm. longis; sepalis et petalis ca. 12, ab extimis sepaloideis minimis ad intimos petaloideos gradatim amplificatis, extimis suborbicularibus, intimis ad 3 cm. longis et 1.5 cm. latis; staminibus petaloideis, ca. 12 exterioribus fertilibus, interioribus (staminodiis) sterilibus, anthera filamento adnata 5 mm. longa in loculis parallelis dehiscente, filamentis staminum exteriorum 1.2 cm. longis et 0.6 cm. latis, filamentis sterilibus (staminodiis) linearibus; carpellis pluribus ca. 7 mm. longis (ovario 3 mm. stylo 4 mm.); fructu ignoto.

Boonjie, Atherton Tableland, alt. 700 m., common in the rain-forest, no. 1269 (flowering specimens), Oct. 10 (vine, growing on rain-forest trees; flower with an overpowering putrid smell; sepals green, petals light green).

When I first saw this extremely interesting plant, I took it to be an undescribed species of *Calycanthus*, a genus only known from Australia from Dr. Diels' rather fragmentary gathering of his *C. australiensis* but examination soon showed

it to have no connection with this genus. As Dr. Diels has done considerable work on the Magnoliales and allied groups, particularly those of the Papuan region, I sent specimens to him. He wrote me that he regarded the plant as undoubtedly belonging to the Magnoliaceae and allied to *Drimys*. He further suggested, though the fruits were unknown, that I should publish a provisional description in the account of Kajewski's collection. Unfortunately though Kajewski's specimens consist of several sheets of flowering specimens, the material has become extremely brittle in the process of drying with the result that the flowers are very difficult to soften and describe. It seems impossible also to section one of the carpels to see the number of ovules. Until living or spirit material of the flowers and ripe fruits can be obtained it will be impossible to place the plant in its correct botanical position. For the time being it is probably best placed at the end of the Magnoliaceae—even in a restricted sense—with position uncertain.

#### ANNONACEAE

**Melodorum Leichhardtii** (F. v. Muell.) Bentham, Fl. Austr. I. 52 (1863).

Daintree River, common in rain-forest, no. 1426 (fruiting specimens), Dec. 2 (vine; fruits orange when ripe with a fruity smell; eaten by the natives who prize it very much though there is only a small amount of pulp).

These specimens extend the known range of the species considerably northwards; they differ from the more southern and typical specimens in their larger and more glossy leaves and in the generally more elongated and more seeded character of the carpels; the number of seeds is sometimes as many as 7 though 1-4 is the usual number.

Some specimens from Malanda, Atherton Tableland, North Queensland (*C. T. White*, January 1923, sine no.) are identical with Kajewski's no. 1426. Both specimens are in fruit and it is possible that when flowers are collected these northern specimens will be seen to constitute a distinct species.

**Melodorum Maccraei** F. v. Mueller, Fragm. Phytogr. Austr. VI. 176 (1868).

Daintree River, common in rain-forest in swampy country close to mangroves, no. 1470 (fruiting specimens), Dec. 13



(small to medium-sized tree up to 20 m. high; wood very white, fruit 4 cm. long, 2 cm. diam., orange colored when ripe, covered with brown hair).

## EUPOMATIACEAE

**Eupomatia laurina** R. Brown in Flinders Voy. II. 597, t. 2 (1814).

Scrubby Creek, Herberton Range, alt. 600 m., common in poor rain-forest, no. 1360 (flowering specimens), Nov. 14 (small tree up to 15 m. high; flower waxy white).

## MYRISTICACEAE

**Myristica cimicifera** R. Brown, Prodr. 400 (1810) var. **Muelleri** Domin in Bibl. Bot. xxii. (Heft 89<sup>2</sup>) 672 (1925).

*Myristica Muelleri* Warburg in Verh. Leop.-Carol. Akad. Naturf. LXVIII. 502 (Monogr. Myrist.) (1897).

Gadgarra Reserve, Atherton Tableland, alt. 800 m., common in the rain-forest, no. 1007 (immature fruits), May 19 (large tree up to 30 m. high; fruit immature, covered with coarse brown hair). Gadgarra Reserve, no. 1168 (additional fruiting material), Aug. 2. Daintree River, common in rain-forest, no. 1392 (flowers), Nov. 28 (large tree up to 20 m. high; bark dark grey, slightly scaly and fairly thick; flowers cream, covered with brown hair).

Judging from the material in the Queensland Herbarium this is the common form in the rain-forests of northeastern Queensland.

## MONIMIACEAE

**Hedycarya loxocarya** (Benth.) W. D. Francis in Kew Bull. Misc. Inf. 1931, p. 458.

Gadgarra Reserve, Pearamon, alt. 800 m., common in rain-forest, no. 1062 (fruiting specimens), May 29 (large tree up to 25 m. high; leaves dark glossy green above, slightly silvery beneath; fruit red-yellow when ripe, 4 carpels in the receptacle).

**Levieria acuminata** (F. v. Muell.) Perkins in Engler, Pflanzenr. iv.-101 (Monim.) 21 (1901).

Daintree River, common in rain-forest, no. 1439 (immature fruits), Dec. 5 (small tree 15 m. high).

**Tetrasynandra laxiflora** (Benth.) Perkins in Bot. Jahrb. xxv. 569 (1898).

Gadgarra Reserve, Atherton Tableland, alt. 800 m., common in rain-forest, no. 1161 (fruits immature), July 27 (medium-sized tree up to 25 m. high).

**Tetrasynandra pubescens** (Benth.) Perkins in Bot. Jahrb. xxv. 569 (1898).

Gadgarra, Atherton Tableland, alt. 800 m., common in rain-forest, no. 1063 (young male flowers and very immature fruits), May 29 (small tree 10 m. high).

**Wilkiea macooraia** (Bail.) Perkins in Engler, Pflanzenr. iv.-101 (Monim. Nachtr.) 26 (1911).

Herberton Range, alt. 900 m., common in rain-forest, no. 1376 (young flowers), Nov. 19 (small tree 6 m. high).

**Wilkiea macrophylla** (A. Cunn.) A. De Candolle in De Candolle, Prodr. xvi. pt. 2, 669 (1868).

Gadgarra Reserve, Atherton Tableland, alt. 800 m., common in rain-forest, no. 1144 (fruiting specimens), July 24 (small tree 6 m. high; fruit black when ripe).

**Daphnandra repandula** F. v. Mueller, Fragm. Phytogr. Austr. x. 105 (1877).

Gadgarra, Atherton Tableland, alt. 800 m., common in rain-forest, no. 1005 (ripe fruits), May 19 (large tree up to 25 m. high).

#### LAURACEAE

**Cinnamomum propinquum** F. M. Bailey in Queensl. Dept. Agric. Bull. xviii. (Bot. Bull. v.) 25 (1892); Queensl. Fl. iv. 1309 (1901).

Mt. Bartle Frere, alt. 1650 m., common in small scrub on top of the mountain, no. 1281 (small tree up to 10 m. high; leaves dark green above, silvery underneath).

The silvery nature of the under surface of the leaves mentioned by the collector is not discernible in his dried specimens; the character evidently tends to disappear in the dried specimens though it is more or less marked in some other material I have seen from Bellenden Ker and Bartle Frere.

**Beilschmiedia obtusifolia** (F. v. Muell.) F. M. Bailey, Syn. Queensl. Fl. 424 (1883).

Gadgarra, Atherton Tableland, alt. 800 m., common in the rain-forest, no. 1029 (large tree up to 26 m. high with small buttresses about 1 m. high).

***Litsea dealbata*** Nees, Syst. Laurin. 630 (1836).

Boonjie, Atherton Tableland, alt. 800 m., common in the rain-forest, no. 1074 (flowering specimens), May 31 (medium-sized tree up to 25 m. high). Boonjie, Atherton Tableland, alt. 700 m., common in the rain-forest, no. 1203 (old flowers), Sept. 18 (medium-sized tree up to 20 m. high; bark light grey; leaves dark glossy green above, silvery beneath). Daintree River, common in the rain-forest, no. 1467 (fruiting specimens), Dec. 12 (small to medium-sized tree up to 25 m. high; leaves silvery with brown veins underneath).

***Litsea reticulata*** (Meisn.) F. v. Mueller, Syst. Census, i. 4 (1882).

Range Road, Atherton Tableland, alt. 250 m., common in rain-forest on creek, no. 1339 (fruiting specimens), Nov. 7 (medium-sized tree up to 20 m. high; bark light grey, clinging persistently to wood when cut, 7 mm. thick; fruit black when ripe).

***Litsea zeylanica*** Nees, Cinnam. Disp. 58, t. 5 (1823).

Lake Eacham, Atherton Tableland, alt. 800 m., common in rain-forest, nos. 1175 and 1181 (immature fruits), Aug. 4 (medium- to large-sized tree; leaves with a decided camphor odor).

***Cryptocarya angulata***, sp. nov.

Arbor magna ad 30 m. alta, partibus novellis minute adpresse pilosis, ramulis robustis perangulatis. Folia subcoriacea, elliptica, apice subacuta, basi angustata, acuta, utrinque glabra, supra atroviridia, subtus pallidiora, 7-10 cm. longa, 3-3.5 cm. lata; costa media supra impressa, infra prominens, elevata; nervi laterales utrinque 5-6, supra leviter impressi, parum prominentes, infra prominentes; nervuli paralleli, supra obscuri, infra parum prominentes; petiolus crassus, 5 mm. longus. Paniculae axillares, 3-5 cm. longae, ramulis robustis tomentosus. Perianthii lobi 6, aequales, anguste elliptici, puberuli, 1.25 mm. longi. Stamina ignota. Fructus purpureus, ovoideus, 2.3 cm. longus, 1.2 cm. diam.

Gadgarra, Atherton Tableland, alt. 800 m., common in rain-forest, no. 1069 (type, young fruits), May 30 (medium-sized tree to 20 m. high; leaves the darkest green imaginable, light green beneath, midrib cream beneath). Gadgarra, Forest Overseer *T. Fuller*, 1G and 44G. Eungella Range, *W. D. Francis*, October 1922 (leaves only; large tree, surface of sapwood wrinkled). Boonjie, Atherton Tableland, alt. 700 m., common in rain-forest, no. 1202 (ripe fruits), Sept. 19 (large tree up to 30 m. high with small buttresses; bark dark grey with circular lines at irregular intervals; fruit purple when ripe).

Among previously described Australian species *C. angulata* comes closest to *C. hypospodia* F. v. Muell. which differs in having larger more prominently veined leaves, and smaller globose or subglobose fruits.

**Cryptocarya Bowiei** (Hook.) Druce in Rep. Bot. Exch. Club Brit. Isles, 1916, p. 618 (1917).

Daintree River, common in rain-forest, no. 1397 (flowers and fruits), Dec. 2 (tall tree up to 20 m. high; perianth lobes white; stamens yellow; fruit red when ripe, 2.3 cm. long, 2 cm. diam.).

**Cryptocarya cinnamomifolia** Bentham, Fl. Austr. v. 298 (1870).

Herberton Range, alt. 900 m., common in the rain-forest, no. 1385 (flowering and fruiting specimens), Nov. 19 (medium-sized tree up to 20 m. high; leaves silvery underneath; flowers light brown-green; fruit brown-black when ripe, flattened top and bottom).

**Cryptocarya Mackinnoniana** F. v. Mueller, Fragm. Phytogr. Austr. v. 169 (1866).

Gadgarra, Atherton Tableland, alt. 800 m., in rain-forests, no. 1011 (flowering specimens), May 17 (medium-sized tree up to 25 m. high; fruit green-purple with brown spots when ripe, 3 cm. long, 1.7 cm. broad, oblong, bluntly pointed at the top, more sharply pointed at the base). Gadgarra Reserve, Pearamon (Atherton Tableland), alt. 800 m., common in the rain-forest, no. 1025 (very young fruits), May 5 (large tree up to 35 m. high. Gathered to show difference in fruiting time on different trees of the same species).

Some of the leaves in the above specimens are very large, the blade up to 29 cm. long and 10 cm. broad. Judging from the number of specimens in the Queensland Herbarium this tree is fairly common in the rain-forests of northeast Queensland.

**Cryptocarya pleurosperma** White & Francis in Proc. Roy. Soc. Queensl. xxxv. 77, fig. 7 (1923).

Gadgarra, Atherton Tableland, alt. 800 m., common in the rain-forest, no. 1008 (young fruits), May 19 (a large tree growing up to 30 m. high; young fruits light green, said by the natives to be red when ripe).

**Cryptocarya triplinervis** R. Brown, Prodr. 402 (1810).

Daintree River, common in rain-forest, no. 1399 (immature fruits), Nov. 28 (medium-sized tree up to 15 m. high).

**Endiandra acuminata** White & Francis in Queensl. Dept. Agric. Bot. Bull. xxii. 31 (1920).

Daintree River, North Queensland, common in rain-forest, no. 1442 (fruiting specimens), Dec. 5 (specimens gathered off a small tree about 10 m. high; fruit dark purple when ripe, covered with a whitish bloom, oval, 2.8 cm. long, 2.1 cm. diam.).

Only previously known from the type gathering which is in flower only, the fruit previously being unknown. Kajewski's no. 1442 bears no flowers but the leaves are such a good match for the type as to leave little doubt about the identification.

**Endiandra dichrophylla** F. v. Mueller in Victor. Naturalist, ix. 12 (1892).

Gadgarra, Atherton Tableland, alt. 800 m., common in the rain-forest, no. 1079 (very immature fruits and old buds), June 4 (medium-sized tree up to 25 m. high; leaves dark green on top; silvery green underneath, midrib underneath light brown).

Only previously known from the type gathering on the Russell River.

**Endiandra discolor** Bentham, Fl. Austr. v. 301 (1870).

*E. Cowleyana* F. M. Bailey in Queensl. Dept. Agric. Bot. Bull. v. 23 (1892).

Gadgarra Reserve, Atherton Tableland, alt. 800 m., com-

mon in the rain-forest, no. 1052 (immature fruits), May 28 (tall tree up to 30 m. high; leaves brown-green).

These specimens are identical with the type material of *E. Cowleyana* Bail. which, however, seems to differ from *E. discolor* Benth. only in the non-glaucous or a very slightly glaucescent under-surface of the leaves. A constant feature in all our material of *E. discolor* Benth. (including *E. Cowleyana* Bail.) is the presence of large domatia in the axils of some of the principal veins of the under-surface of the leaf, a feature stressed by Maiden in his "Forest Flora of New South Wales" Vol. iv. 153, pl. 150 (1911).

**Endiandra hypotephra** F. v. Mueller, *Fragm. Phytogr. Austr.* v. 166 (1866).

Gadgarra Reserve, Atherton Tableland, alt. 800 m., common in rain-forest, no. 1040 (very young fruits), May 24 (large tree up to 30 m. high; leaves dark green above, silvery underneath with light brown hairs). Daintree River, no. 1443 (flowering specimens), Dec. 5, and 1471 (flowering specimens), Dec. 13 (small to medium-sized tree up to 20 m. high).

**Endiandra montana**, sp. nov.

Arbor parva ad 6 m. alta, ramulis glabris; gemmae minute adpresse pilosae. Folia subcoriacea, elliptica, apice obtuse acuminata, basi acuta, utrinque glabra, supra nitida, reticulata, 8-11 cm. longa, 2.5-4 cm. lata; nervi laterales utrinque 6-8; petiolus ad 1 cm. longus, glaber. Paniculae axillares, racemosae, pauciflorae, pedicellis pubescentibus 2 mm. longis. Perianthii tubus turbinatus, basin versus adpresse pilosus; lobi 6 extus glabri, intus puberuli, subaequales, ovati, 3 mm. longi, 2 mm. lati. Stamina ordinum I et II nulla, ordinis III 3, bilocularia, extrorsa, filamentis crassis minute puberulis; staminodia ordinis IV 3, magna, crassa, subclavata. Ovarium glabrum, ovatum. Fructus ovoideus vel subglobosus, leviter complanatus, 4 cm. longus, 3 cm. diam.

Mt. Alexander, alt. 1300 m., common in poor scrub on top of the mountain, no. 1497 (flowering and fruiting specimens), Dec. 18 (small twisted and gnarled tree up to 6 m. high; flowers cream; fruit yellow when ripe, slightly flattened on both sides).

Among previously described Australian species this new

species is most closely allied to *E. Sieberi* Nees which differs in having narrower, more lanceolate leaves, a more branched inflorescence, small or obsolete staminodia and smaller fruit.

**Endiandra pubens** Meisner in De Candolle, Prodr. xv. 509 (1864).

Gadgarra, Atherton Tableland, alt. 800 m., common in the rain-forest, no. 1068 (young fruits), May 30 (medium-sized tree 25 m.).

**Endiandra Sankeyana** F. M. Bailey in Queensl. Dept. Agric. Bot. Bull. viii. 82 (1893).

Gadgarra, Atherton Tableland, alt. 800 m., common in rain-forest, no. 1026 (immature fruits), May 22; no. 1072 (more mature fruits), May 30 (large tree up to 35 m. high).

**Endiandra tooram** F. M. Bailey, Queensl. Fl. iv. 1308 (1901).

Gadgarra Reserve, Atherton Tableland, alt. 800 m., common in the rain-forest, no. 1023 (ripe fruits), May 25 (tall tree up to 35 m. high; leaves with a light brown midrib underneath; fruit 3 cm. long, 2 cm. diam., brown-purple when ripe). Boonjie, Atherton Tableland, alt. 700 m., common in the rain-forest, no. 1220 (ripe fruits), Sept. 23 (fairly large tree up to 30 m. high; bark medium grey; inner bark brown when cut; fruit black when ripe, spade-shaped, flattened on both sides, surface rough, 4.5 cm. long, 2 cm. diam.).

Only previously known from the type material which consists of three leaves and a few detached fruits. The leaves in Kajewski's no. 1220 match the type perfectly, those of no. 1023 are slightly larger, especially where the blade measures up to 17 cm. long and 5.5 cm. broad, approaching *E. Sankeyana* F. M. Bail. (Kajewski's nos. 1026 and 1072); perhaps the two species are really identical.

#### SAXIFRAGACEAE

**Argophyllum cryptophlebium** M. Zemann in Ann. Naturh. Hofmus. Wien, xxii. 283 (1907).

Mt. Alexander, common in poor scrub on top of the mountain, alt. 1300 m., no. 1489 (flowering specimens), Dec. 17 (small shrub up to 2 m. high; petals white).

**Argophyllum Lejournani** F. v. Mueller, *Fragm. Phytogr. Austr.* iv. 33 (1863) vel aff.

Gadgarra, Atherton Tableland, alt. 800 m., common on edge of rain-forest bordering Eucalyptus forest, no. 1090 (flower buds), June 8 (shrub, 4 m. high; leaves dark green on top, silvery underneath).

Leaves larger, veins less conspicuous underneath than in the type and the young shoots and inflorescence rusty. When better known may prove a distinct species.

**Abrophyllum ornans** Hooker f. apud Bentham, *Fl. Austr.* ii. 437 (1864) var. **microcarpum** F. M. Bailey, *Queensl. Agric. Jour.* xxiv. 221 (1910).

*Abrophyllum microcarpum* Domin in *Bibl. Bot.* xxii. (Heft 89<sup>2</sup>) 705 (1925).

Gadgarra, Atherton Tableland, alt. 800 m., common in the rain-forest, no. 1064 (fruiting specimens), May 29 (small tree 15 m. high, leaves dark glossy green; fruit fleshy, black when ripe, 8 mm. long, 6 mm. diam., slightly flattened at both ends with a small hole at the base).

This variety differs from the type in its smaller fruit, more glabrous character, thinner textured leaves and generally smaller in all its parts. None of these characters, however, seem of specific value and therefore I have followed Bailey in retaining it as a variety. The measurement of the fruits "vix 5 mm. longis" given by Domin are based on dried specimens, those given above by Kajewski on living material.

**Quintinia Fawkneri** F. v. Mueller, *Fragm. Phytogr. Austr.* vi. 92 (1867).

Mt. Bartle Frere, alt. 1500 m., common in stunted scrub on top of the mountain, no. 1275 (flowering specimens), Oct. 24 (small tree up to 10 m. high, petals white and very showy). The collector adds "This plant makes a wonderful sight when in bloom. It sometimes adopts a procumbent habit, rooting and climbing over the rocks."

#### PITTOSPORACEAE

**Pittosporum revolutum** Aiton, *Hort. Kew.* ed. 2, ii. 27 (1811).

Scrubby Creek, Herberton Range, alt. 600 m., common in



rain-forest, no. 1370 (fruiting specimens), Nov. 14 (small tree up to 5 m. high).

**Pittosporum Wingii** F. v. Mueller in South. Sci. Record, n. ser., i. 49 (1885).

Lake Barrine, Atherton Tableland, alt. 800 m., common in rain-forest on edge of lake, no. 1341 (flowering specimens), Sept. 29 (shrub or small tree up to 6 m. high; petals cream).

**Pittosporum** sp.

Lake Barrine, Atherton Tableland, alt. 500 m., common in rain-forest, no. 1352 (fruiting specimens), Nov. 9 (medium-sized tree up to 20 m. high; bark smooth light grey; fruit orange colored 2 cm. diam.; seeds black).

There are specimens of the same species in the Queensland Herbarium from near Lake Barrine (J. F. Bailey) and Boonjie (C. T. White) both like Kajewski's no. 1352 in fruit. It evidently represents an undescribed species but in the absence of flowers it does not seem advisable to name it.

**Hymenosporum flavum** (Hook.) F. v. Mueller, Fragm. Phytogr. Austr. ii. 77 (1860).

Glen Allyn, Atherton Tableland, alt. 700 m., common in the rain-forest, no. 1257 (flowering specimens), Oct. 9 (specimens gathered from small tree growing on cleared rain-forest land; flowers pleasantly scented; petals yellow with purple bases but a few of the flowers pure white).

These specimens represent the common form in North Queensland characterized by having a much more dense covering of silky hairs than the more southern and typical form. This form is referred to by White & Francis in Proc. Roy. Soc. Queensl. xxxv. 63 (1923). Dallachy's specimens from Rockingham Bay referred to by Mueller in Fragm. Phytogr. Austr. v. 210 and vi. 168 belong here. After some consideration I have refrained from giving this form a varietal name.

**Bursaria tenuifolia** F. M. Bailey, Queensl. Fl. i. 72 (1899).

Range Road, Atherton Tableland, alt. 200 m., common in Eucalyptus forest country close to edge of rain-forest on creek banks, no. 1326 (fruiting specimens), Nov. 2 (medium-sized tree up to 20 m., with a rough, dark grey bark; fruits brown-black when ripe).

## CUNONIACEAE

**Gillbeea adenopetala** F. v. Mueller, *Fragm. Phytogr. Austr.* v. 17 (1865).

Daintree River, common in rain-forest, no. 1429 (flowering and fruiting specimens), Dec. 2 (large tree up to 20 m. high; bark dark grey, fairly smooth with very small pustules dotted on it; petals cream).

**Schizomeria floribunda** Schlechter in *Bot. Jahrb.* LII. 106 (1914).

Lake Barrine, Atherton Tableland, alt. 800 m., common in rain-forest on edge of the lake, no. 1136 (flowers and immature fruits), July 18 (medium-sized tree leaning out over the water's edge; leaves dark green; flowers white). Range Road, Atherton Tableland, alt. 200 m., common in rain-forest, no. 1336 (flowers and immature fruits), Nov. 7 (medium-sized tree up to 15 m. high).

Not previously recorded from Australia. It is, however, a fairly common tree on the Atherton Tableland and specimens from this region represented in the Queensland Herbarium are:— Yungaburra, *C. T. White*, Jan. 1918 (fruits); Atherton, short shrubby tree commonly occurs on poor soils, suckers profusely, a red gum exudes from the bark, Forest Factor *D. Fraser*, no. 11; Malanda, specimens from tree about 9 in. in diam., found in most northern "scrubs" (rain-forests) but cannot be classed as plentiful, Forest Foreman *R. F. Martin*, no. 20; Danbulla, *R. H. Doggrell*, no. A19 (flowering specimens), Oct. 19, 1929 (fairly common on scrub edge, on water's edge, flats and lower slopes; tree about 40 feet high, 3 ft. girth, crown rather dense and spreading, outer bark grey, inner reddish, wood white, soft and close-grained; flowers waxy white, fruit light brown).

**Callicoma Stutzeri** F. v. Mueller, *Fragm. Phytogr. Austr.* v. 31 (1865).

Gadgarra, Atherton Tableland, alt. 800 m., common in the rain-forest, no. 1033 (a large tree up to 30 m. high; young leaves pink-green; calyx lobes persistent cream-green, with base of stamens pink). Daintree River, common in rain-forest, no. 1474 (flowering specimens), Dec. 13 (small tree up to 15 m. high; young leaves pink; flowers white).

Of the above specimens no. 1033 from the Atherton Tableland represents the form recognized by Domin (Bibl. Bot. xxii. 709) as the form (vel var.) *subpubescens* and no. 1474 from the Daintree River the form (vel var.) *glabrifolia*. The former is evidently the common upland one as all the specimens I have seen from the Atherton Tableland have been more or less pubescent on the under surface of the leaves while all the lowland ones I have seen have been glabrous or nearly so.

**Ackama quadrivalvis** White & Francis in Queensl. Dept. Agric. Bot. Bull. xxii. 15 (1920).

Gadgarra, Atherton Tableland, alt. 800 m., common in the rain-forest, no. 1085 (fruiting specimens), June 4 (large tree up to 30 m. high).

#### ROSACEAE

**Rubus Hillii** F. v. Mueller in Trans. Philos. Inst. Victoria, III. 67 (1859).

Daintree River, common in rain-forest, no. 1406 (fruiting specimens), Nov. 29 (vine; leaves green above, brown-green beneath; fruit red).

**Rubus Muelleri** F. M. Bailey in Proc. Roy. Soc. Queensl. I. 9 (1884).

Gadgarra, Atherton Tableland, alt. 800 m., common, no. 1146 (flowering specimens), July 26 (prickly shrub growing on creek banks and wherever there is a clearing; petals white).

**Pygeum Turnerianum** F. M. Bailey in Queensl. Dept. Agric. Bot. Bull. VIII. 75 (1893).

Gadgarra Reserve, Atherton Tableland, alt. 800 m., common in the rain-forest, no. 1189 (medium- to large-sized tree). Boonjie, Atherton Tableland, alt. 700 m., common in the rain-forest, no. 1221 (ripe fruits), Sept. 22 (tall tree up to 30 m. high; bark grey-brown, inclined to be slightly scaly, has a distinctive strong almond flavor when cut; fruit purple when ripe, 2.5 cm. long, 2.2 cm. diam.). Boonjie, Atherton Tableland, alt. 700 m., common in the rain-forest, no. 1346 (ripe fruits), Sept. 30 (medium-sized tree up to 20 m. high with a mottled grey bark, pink when cut; fruit purple-black, 2.2 cm. long, 3 cm. broad, with a split going right round the fruit).

#### LEGUMINOSAE

**Acacia aulacocarpa** A. Cunningham apud Bentham in Hook. Lond. Jour. I. 378 (1842).

Gadgarra, Atherton Tableland, alt. 800 m., common in Eucalyptus forest and bordering rain-forest, no. 1083 (medium-sized tree up to 17 m. high).

**Acacia Mangium** Willdenow, Sp. Pl. iv. 1053 (1805) var. **holosericea**, n. var.

Varietas ramulis phyllodiisque molliter sericeo-pubescentibus.

Range Road, Atherton Tableland, alt. 300 m., common in Eucalyptus forest, no. 1310 (fruiting specimens), Oct. 30 (small tree about 5 m. high).

Kajewski's specimens represent typical *A. holosericea* A. Cunn. which is made a synonym by Merrill (Interpret. Herb. Amboin. 251) with *A. Mangium* Willd. As there seems to have been some confusion with respect to *A. Mangium* Willd. and *A. holosericea* A. Cunn. I offer herewith what I think is the correct synonymy:—

**Acacia Mangium** Willdenow, Sp. Pl. iv. 1053 (1805).

*A. neurocarpa* A. Cunningham in Hooker's Icon. Pl. II. t. 168 (1837).

*A. holosericea* A. Cunn. var. *glabrata* Maiden in Proc. Roy. Soc. Queensl. xxx. 48 (1918).

*A. holosericea* A. Cunn. var. *neurocarpa* Domin in Bibl. Bot. xxii. (Heft 89<sup>3</sup>) 824 (1926).

*A. holosericea* A. Cunn. var. *multispirea* Domin, l. c. (*A. multispirea* Domin in sched.).

The last variety listed is unknown to me but the description would fit the type specimens of *A. holosericea* A. Cunn. var. *glabrata* Maid. which I have interpreted as synonymous with *A. Mangium* Willd.

DISTRIBUTION: Northern Australia, Malaya.

**Acacia Mangium** A. Cunn. var. **holosericea** C. T. White.

*A. holosericea* A. Cunningham apud G. Don, Gen. Syst. II. 407 (1832).

*A. holosericea* A. Cunn. var. *typica* Domin in Bibl. Bot. xxii. (Heft 89<sup>3</sup>) 824 (1926).

DISTRIBUTION: North Australia.

**Pithecolobium sapindoides** (A. Cunn.) Domin in Bibl. Bot. xxii. (Heft 89<sup>3</sup>) 831 (1926).

Lake Barrine, Atherton Tableland, alt. 800 m., common in rain-forest, no. 1131 (very young flower buds), July 16, no.

**1343** (flowering specimens), Sept. 29 (medium-sized tree up to 20 m. high, deciduous, losing its leaves during the winter; bark grey-brown, mottled with grey patches; stamens cream-yellow, very showy).

**Archidendron Lucyi** F. v. Mueller, *Fragm. Phytogr. Austr.* VI. 201 (1868).

Daintree River, common in rain-forest, no. 1420 (flowers and ripe pods), Nov. 30 (medium-sized tree up to 20 m. high; calyx dark green, petals light green, stamens white, the whole flower showy and conspicuous; pods red when ripe, seed black covered with a whitish bloom).

**Mezoneurum robustum**, sp. nov.

Frutex alte scandens, ramulis robustis ferrugineo-pubescentibus aculeis curvis dense armatis. Folia magna bipinnata, plerumque 5-juga, rhachi pubescente aculeata 30-45 cm. longa, pinnis 3-5-jugis pubescentibus aculeolatis 5-12 cm. longis, foliolis oppositis breviter (1.5 mm.) petiolulatis ovatis vel ovato-ellipticis apice acuminatis papyraceis in sicco utrinque reticulatis supra nitidis glabris subtus glabris costa media et saepe nervis praecipuis exceptis, plerumque ca. 4.5 cm. longis et ca. 2 cm. latis. Inflorescentiae supraaxillares, simpliciter racemosae vel racemis in paniculis dispositis; ramulis dense ferrugineo-pubescentibus et in parte inferiori dense aculeatis 15-20 cm. longis; pedicellis calycibusque dense ferrugineo-pubescentibus, pedicellis tenuibus ca. 5 mm. longis; sepalis basi in tubum brevem (2.5 cm. altum) coalitis, parte libera 6 mm. longa; petalis 5 luteis venosis intus ad basem pubescentibus fere aequilongis (ca. 8 mm. longis); staminibus 10, filamentis incarnatis in parte inferiori subapplanatis et dense hirsutis 7 mm. longis, antheris umbrinis 2 mm. longis; ovario parvo in tubo calycis incluso.

Boonjie, Atherton Tableland, alt. 700 m., common in rain-forest, no. 1206 (type; flowering specimens), Nov. 19 (prickly vine growing on rain-forest trees; petals yellow, filaments bright pink, anthers brown). Danbulla, Atherton Tableland, alt. 2300 ft., fairly common, *R. H. Doggrell*, no. A14 (flowering specimens), Oct. 5, 1929 (large woody vine, stems reaching 3 inches in diameter with persistent spines; flowers yellow).

**Hovea longifolia** R. Brown apud Aiton, *Hort. Kew.* ed. 2, iv. 275 (1811).

Gadgarra, Atherton Tableland, alt. 800 m., common in Eucalyptus brush (or light rain-forest), no. 1091 (shrub about 1 m. high).

**Indigofera sericovexilla**, sp. nov.

Frutex 2 m. altus, undique pubescens; ramulis junioribus angularibus; foliis 15-21- (plerumque 17-) foliolatis, foliolis oppositis vel suboppositis oblongis apice obtusis mucronulatis ca. 1 cm. longis et 0.5 cm. latis; petiolulis 1.5 mm.; racemis axillaribus folia superantibus (ad 14 cm. longis) densifloris; floribus purpureis, calycibus 3.5 mm. longis, tubo brevi, lobis linearibus, lobo inferiore 2 mm., lateralibus 1.5 mm., superioribus 1 mm.; vexillo sessili extus dense sericeo ca. 1 cm. longo, alis et carina paulo longiore; antheris apiculatis; legumine recto, deflexo dense et molliter pubescente.

Range Road, Atherton Tableland, alt. 300 m., common in Eucalyptus forest, no. 1312 (flowers and immature pods), Oct. 30 (plant up to 2 m. high; petals purple).

Among species previously recorded for Australia closest to *I. viscosa* Lam. from which it is distinguished by its very much smaller flowers.

**Dioclea reflexa** Hooker f., Niger Fl. 306 (1849).

A climber, the whole plant more or less densely ferruginous-pilose; stipules 5 mm., petioles 4.5-6.5 cm.; leaflets oblong or elliptic, 5-8 cm. long, 3-5 cm. broad, base rounded, apex shortly and abruptly acuminate, the point itself 2-4 mm. long, lateral ones oblique, stipellae setaceous 3 mm. long; flowers purple, sweetly scented; racemes up to 50 cm. long, nodes 2-3-flowered; pedicels 5 mm. long; calyx bi-labiate, tube 5 mm., 2 upper lobes united to near the top, the lowermost 1 cm. long, lateral lobes somewhat shorter; corolla glabrous, lamina of the standard about 1 cm. broad, thickened at the base, claw 0.5 cm. long; wing and keel petals similar, about 2 cm. long; perfect stamens 6, one free, 3 reduced to small staminodia. Pod not known.

Daintree River, common in rain-forest, no. 1424 (flowering specimens), Dec. 2 (vine; flowers purple, nicely scented).

Domin (Bibl. Bot. xxii. 777) has described a variety (var. *australiensis*) of the widely distributed *D. reflexa* Hook. f. from North Queensland but it seems much less hairy than our

plant. I had drawn up a description of Kajewski's no. 1424 as a new species but as very little *Dioclea* material was available to me for comparison I sent specimens to the Royal Botanic Gardens, Kew, where they were reported on by Mr. V. S. Summerhayes as follows:—

“I have examined the *Dioclea* collected in North Queensland by Mr. Kajewski and after careful comparison can find no difference between it and the widely spread and very polymorphic *Dioclea reflexa* Hook. f. Admittedly the Queensland specimen differs considerably from the West African ones from which the species was first described and from American specimens. In the Malayan specimens, however, the leaves tend to be much more silky pubescent and to retain the hairs much longer. The silky form has been separated off by some as *D. javanica* Benth. This species was founded on a specimen collected by Junghuhn and this is more like the typical *D. reflexa* than are some of the other specimens. I am not prepared to say without a much more detailed study of the species, whether these forms with leaves silky-pubescent on both sides can be considered distinct or not, but in any case the separation is a very difficult one. In this connection it is unfortunate that no adult leaves of the Australian plant are available since they may become glabrescent later. Koorders in his ‘Exkursions Flora’ reduces *D. javanica* to *D. reflexa*.

“Another respect in which Kajewski's specimen differs from normal *D. reflexa* is in the size of the flower, but I find considerable variation in this respect as also in the degree of pubescence of the calyx.

“The Queensland plant does not match any of the endemic South American species which are represented at Kew.

“In conclusion I may state that in my opinion the Daintree River specimen falls well within the limit of *D. reflexa* Hook. f. as recognized as including *D. javanica* and the pubescent Malayan forms. That these may be separated at a later date is a possibility but it is a question which requires careful investigation of more complete material than we possess at present.”

**Lonchocarpus Blackii** (F. v. Muell.) Bentham, Fl. Austr. II. 271 (1864).

Lake Barrine, Atherton Tableland, alt. 800 m., common in rain-forest on the edge of the lake, no. 1292 (flowering specimens), Oct. 29 (vine; flowers puce-colored).

**Lonchocarpus stipularis**, sp. nov.

Frutex alte scandens, ramulis junioribus pubescentibus, adultis glabris lenticellatis; foliis 9-13- (plerumque 11-) foliolatis, rhachi 4-7 cm. dense hirsuta, stipulis rotundis 4 mm. diam. peltatis margine ciliatis; foliolis obovato-oblongis vel oblongis basi angustatis rarius obtusis apice obtusis mucro-

nulatis plerumque 2 cm. longis et 0.8 cm. latis utrinque tenuiter pubescentibus; petiolulis hirsutis 2 mm. longis; floribus in paniculis amplis dispositis; paniculis e ramis senioribus orientibus, ramulis gracilibus pubescentibus 6-8 cm. longis, pedicellis pubescentibus 3 mm.; calyce tenuiter pubescente, vexillo cremeo purpureo-striato extus in parte superiore et intus ad basin pubescente, 1 cm. diam., ungue 2 mm. longo, alis glabris parvis; carina vexilla paulo brevior, staminibus alternis brevioribus; antheris uniformibus minute apiculatis; ovario dense hirsuto.

Lake Barrine, Atherton Tableland, alt. 500 m., common in rain-forest, no. 1348 (flowering specimens), Nov. 8 (vine growing on rain-forest trees; leaves light green, calyx green-purple, covered with short hair, upper two petals (standard? C. T. W.) white-cream with purple lines from base radiating upwards, other petals purple).

The only other Australian member of the genus, *L. Blackii* (F. v. Muell.) Benth. differs in being of a more glabrous character, in the leaves being pointed or bluntly acuminate, in the absence of peltate stipules and in the flowers being puce, not white and purple.

There are in the Queensland Herbarium fragmentary specimens in fruit of a *Lonchocarpus* collected at Behana Creek (leg. Rev. N. Michael, 1539) which may be *L. stipularis* C. T. White; the pods are 8.5 cm. long and 2-2.5 cm. broad, much broader than those of *L. Blackii* which are up to 13 cm. long but only 1.7 cm. broad.

**Derris trifoliata** Loureiro, Fl. Cochinch. 433 (1790) var. **macrocarpa** Domin in Bibl. Bot. xxii. (Heft 89<sup>3</sup>) 786 (1926).

Lake Barrine, Atherton Tableland, alt. 800 m., common in rain-forest, no. 1298 (flowering specimens), Oct. 29 (vine growing over rain-forest trees; petals pink).

**Pongamia pinnata** (L.) Merrill, Interpret. Herb. Amboin. 271 (1917).

Daintree River, common in rain-forest, no. 1447 (immature and ripe fruits), Dec. 7 (specimens gathered off small tree overhanging the river; attains a height of 15 m.).

**Castanospermum australe** A. Cunningham & Fraser in Hook. Bot. Miscell. i. 241, t. 51, 52 (1830).



Daintree River, common in rain-forest, no. 1390 (flowering specimens), Nov. 28 (tall tree up to 20 m. high; flowers light red growing out from the branches).

## ERYTHROXYLACEAE

**Erythroxylum ecarinatum** Burck apud Hochreutiner, Pl. Bogor. Exsicc. 39 (1904).

Gadgarra Reserve, Atherton Tableland, alt. 800 m., common in rain-forest on creek, no. 1162 (flowering specimens), July 27 (medium-sized tree; flowers cream). Boonjie, Atherton Tableland, alt. 700 m., common in rain-forest, no. 1274 (flowering specimens), Oct. 11 (medium-sized tree up to 20 m. high; flowers inconspicuous, petals cream, light brown on outside).

Not previously recorded for Australia.

This tree is known locally on the Atherton Tableland as Brown Plum. Specimens in leaf only were first received from Mr. C. Dillon, Pearamon, Aug. 5, 1929, who wrote "The tree is called 'Brown Plum' owing to the color of the wood, average size 9-10 in. diam., height 45 ft. to first limb. Our best timber here to stand underground for tank-stands, fence posts, etc." Flowering specimens were later, Oct. 18, 1929, collected at Gadgarra by Forest Factor J. L. Tardent (no. 190A) who wrote "Wood chops and saws easily and is very durable in the ground." Some of Mr. Tardent's material was forwarded to the Royal Botanic Gardens, Kew, where it was reported on by Mr. W. D. Francis as follows:—

"E. sp. The Atherton Tableland species is very closely allied to or identical with *E. ecarinatum* Hochr. from Amboina, Celebes and the Sogeri region of Papua. The only differences between the species are in the pedicels and number of flowers. In *E. ecarinatum* there are only 1-2 flowers in each axil and the pedicels (3-6 mm.) are longer than those of the Atherton Tableland specimens. Possibly differences may be found in the fruit when these are collected from the species in North Queensland. The fruits of the Amboina plant are obliquely ovate or obovate, dark red or almost black and sometimes pruinose, 5 lines long. *E. ecarinatum* is described as a tree of 12-15 metres with a cylindrical stem 1 metre in circumference."

## RUTACEAE

**Evodia Bonwickii** F. v. Mueller, Fragm. Phytogr. Austr. v. 56 (1865).

Gadgarra Reserve, Atherton Tableland, alt. 800 m., common in the rain-forest, no. 1013 (flowering period just over), May 19 (large tree up to 35 m. high; leaves dark glossy green; wood free-splitting).

**Evodia vitiflora** F. v. Mueller, *Fragm. Phytogr. Austr.* vii. 144 (1871).

Lake Barrine, Atherton Tableland, alt. 500 m., common in rain-forest, no. 1357, Nov. 10 (medium-sized tree up to 20 m. high; bark medium grey, slightly fissured; wood with a strong nauseating smell; fls. light green).

**Melicope Broadbentiana** F. M. Bailey in *Queensl. Dept. Agric. Bull.* vii. 9 (1891).

Boonjie, Atherton Tableland, alt. 800 m., common in the rain-forest, no. 1076 (flowering specimens), May 30 (specimens gathered from a small coppice shoot about 4 m. high; flowers white); no. 1212 (fruiting specimens), Sept. 21.

Number 1212 is represented by a number of sheets; one is interesting as some of the shoots bear unifoliolate leaves, these are mostly opposite with the leaflet about the same size as the terminal leaflet of an ordinary trifoliolate leaf or less frequently are opposite an ordinary trifoliolate leaf; in one case the unifoliolate leaf is opposite a trifoliolate one in which one of the lateral leaflets is suppressed giving a 2-foliolate leaf.

**Melicope erythrococca** (F. v. Muell.) Bentham, *Fl. Austr.* i. 360 (1863).

Scrubby Creek, Herberton, alt. 700 m., common in poor rain-forest, no. 1358 (fruiting specimens), Nov. 14 (small tree 8 m. high; leaves with a citron scent).

**Melicope stipitata** White & Francis in *Proc. Roy. Soc. Queensl.* xxxvii. 153 (1926).

Ghurka Pocket, Boonjie, Atherton Tableland, alt. 800 m., common in rain-forest, no. 1223 (fruiting specimens), Sept. 24 (specimens gathered off small tree about 15 m. high).

**Brombya platynema** F. v. Mueller, *Fragm. Phytogr. Austr.* v. 4 (1865).

Daintree River, common in rain-forest, no. 1461 (flower buds), Dec. 13 (specimens gathered off a small tree 10 m. high).

**Zieria Smithii** Andrews, Bot. Repos. ix. t. 606 (1810).

Gadgarra, Atherton Tableland, alt. 800 m., common in Eucalyptus forest on edge of rain-forest, no. 1143 (flowering and fruiting specimens), July 24 (small shrub up to 1.75 m. high; petals white; capsules red-green).

Rather a small-leaved form and evidently the same as that referred to from Rockingham Bay by Mueller (Fragm. Phytogr. Austr. ix. 116). *Zieria Smithii* is a very common shrub in southern Queensland. It occurs on the better class Eucalyptus forest, on the edge of the rain-forest and as secondary growth in clearings; these specimens from the north agree quite well with many of the southern ones.

**Acronychia acidula** F. v. Mueller, Fragn. Phytogr. Austr. iv. 154 (1864).

Gadgarra, Atherton Tableland, common in rain-forest, alt. 800 m., no. 1049 (fruiting specimens), May 27 (medium-sized tree up to 20 m. high; leaves with a citron scent; fruit cream when ripe, 2 cm. long, 2.4 cm. diam., with a strong citron taste).

**Acronychia chooreechillum** C. T. White, comb. nov.

*Melicope chooreechillum* F. M. Bailey in Rept. Govt. Sci. Exped. Bellenden Ker, 33 (1889).

Arbor parva ad 8 m. alta (Kajewski), glabra floribus exceptis; foliis trifoliolatis, vel in parte inferiore ramulorum unifoliolatis, petiolo in foliis trifoliolatis 2.5-3.5 cm., in foliis unifoliolatis 0.3-1 cm., foliolis ellipticis elliptico-obovatis vel obovatis ad apicem subobtusis basim versus in petiolulum brevem gradatim angustatis utrinque reticulatis supra subnitidis subtus pallidioribus et opacis 4-7 cm. longis et 1.5-3 cm. latis; cymis in axillis superioribus dispositis, pedunculo ca. 2 cm., pedicellis 2 mm., sepalis late deltoideis ca. 1 mm. diam., petalis linearibus 5-6 mm. longis et 1.5 mm. latis extus glabris intus in parte inferiore pubescentibus, filamentis appianatis in parte inferiore margine dense pilosis 4 mm. longis, antheris 1 mm., ovario glabro; stylo 3 mm. basim versus piloso, stigmatе parvo capitato; fructu carnosio.

Summit of Mt. Bartle Frere, *F. M. Bailey*; Mt. Bellenden Ker, alt. 5200 ft., *W. A. Sayer* (in Nat. Herb. Melbourne); Mt. Alexander, alt. 1300 m., common in poor scrub on top of the mountain, *S. F. Kajewski*, no. 1491 (flowering specimens),

Dec. 17 (small tree up to 8 m. high; leaves inclined to be glossy; flowers light green).

Among previously described trifoliolate Australian species *A. melicopoides* F. v. Muell. differs in being larger in all its parts, in the young parts being pubescent, in the petals being glabrous except for a few hairs on the margin towards the base and in the ovary being densely pilose. *Acronychia suberosa* C. T. White differs in the young parts being puberulous, having rather narrow lanceolate leaves, and in the petals being puberulous outside.

After I had drawn up a description of the above as a new species I chanced to see F. M. Bailey's type of *Melicope chooreechillum* and came to the conclusion that Kajewski's no. 1491 was the same. When working at the National Herbarium, Melbourne, recently I saw the same plant labelled *Acronychia* sp. in Mueller's handwriting and collected at Belenden Ker by W. A. Sayer. Some of Sayer's specimens bear young fruits which though insufficient for determination show clearly the plant to be an *Acronychia*. Bailey's type is a mere fragment, a branchlet with three leaves and no flowers, but after careful comparison I feel convinced that both Sayer's and Kajewski's plants are the same.

***Acronychia haplophylla*** (F. v. Muell.) Engler in Engler & Prantl, Nat. Pflanzenfam. III.-4, p. 180 (1896).

Gadgarra Reserve, Atherton Tableland, alt. 800 m., common in rain-forest, no. 1113 (fruiting specimens), July 16 (specimens gathered off small tree 13 m. high; fruits oval, black when ripe); no. 1153 (flowering and fruiting specimens), July 27 (medium-sized tree up to 25 m. high; flowers cream; fruit black when ripe). Boonjie, Atherton Tableland, alt. 700 m., common in rain-forest, no. 1236 (flowering specimens), Sept. 28 (specimens gathered from small tree 7 m. high; flowers cream-yellow).

***Acronychia melicopoides*** F. v. Mueller, Fragm. Phytogr. Austr. v. 3 (1865).

Gadgarra, Atherton Tableland, alt. 800 m., common in the rain-forest, no. 1078 (immature fruits), June 4 (medium-sized tree up to 25 m. high). Gadgarra, no. 1151 (riper fruits), July 26 (medium-sized tree, fruits yellow-green when ripe, 1

cm. diam.). Lake Barrine, Atherton Tableland, alt. 700 m., common in rain-forest on edge of the lake, no. 1244 (ripe fruits), Sept. 29 (medium-sized tree up to 20 m. high, fruit yellow when ripe, 1 cm. diam., slightly flattened at both ends).

***Acronychia parviflora*** C. T. White, sp. nov.

Frutex vel arbor parva ad 8 m. alta, partibus junioribus breviter tomentosis; foliis unifoliolatis, petiolis breviter tomentosis 5-8 mm.; laminis glabris lanceolatis magnitudine variabilibus ad 8.5 cm. longis et 2.5 cm. latis apice acutis vel breviter et obtuse acuminatis supra subnitidis utrinque reticulatis; cymis in axillis superioribus dispositis, pedunculo pedicellis bracteisque dense tomentosis, pedunculo perbrevis 1-2.5 mm., pedicellis 2 mm.; bracteis 0.5 mm.; sepalis extus tomentosis intus glabris rotundis ca. 1 mm. diam., petalis linearibus utrinque glabris 3 mm. longis et 1 mm. latis, filamentis applanatis margine ciliatis, antheris late ovatis magnis; disco glabro; ovario glabro profunde 4-gono, stylo glabro 4-gono; fructu nitido purpureo 1 cm. diam.

East Malanda, Glen Allyn, Atherton Tableland, alt. 700 m., common in rain-forest, no. 1214 (flowering and fruiting specimens), Sept. 22.

A very distinct species, among previously described Australian ones most closely allied to *A. laevis* Forst. which, however, differs in being glabrous in all parts (except the stamens), in having obovate to elliptic leaflets, in the very much longer peduncle and pedicels and in very much larger flowers.

***Acronychia vestita*** F. v. Mueller, Fragm. Phytogr. Austr. iv. 155 (1864).

Boonjie, Atherton Tableland, alt. 700 m., common in rain-forest, no. 1210 (fruiting specimens), Sept. 21 (medium-sized tree up to 20 m. high; fruit lemon colored when ripe, 2.2 cm. long and 1.7 cm. diam.).

***Halfordia scleroxyla*** F. v. Mueller, Fragm. Phytogr. Austr. vii. 142 (1871).

Gadgarra, Atherton Tableland, alt. 800 m., common in the rain-forest, no. 1037 (fruiting specimens), May 24 (tall tree up to 25 m. high; fruit puce-red, apple-shaped with small irregularities, about 1 cm. diam., hanging in panicles with ten to thirty fruits in a panicle).

**Flindersia Bourjotiana** F. v. Mueller, *Fragm. Phytogr. Austr.* x. 133 (1875).

Gadgarra, Atherton Tableland, alt. 800 m., common in the rain-forest, no. 1140 (flowers and immature fruits), July 24 (large tree up to 30 m. high; leaves dull dark green; flowers whitish green).

**Flindersia Pimenteliana** F. v. Mueller, *Fragm. Phytogr. Austr.* ix. 132 (1875).

Lake Barrine, Atherton Tableland, alt. 800 m., common in the rain-forest, no. 1114, July 10 (large tree up to 20 m. high; specimens gathered from tree leaning over the lake).

#### BURSERACEAE

**Canarium australasicum** F. v. Mueller, *Fragm. Phytogr. Austr.* iii. 15 (1862).

Range Road, Atherton Tableland, alt. 200 m., common in the Eucalyptus forest, no. 1319 (fruiting specimens), Nov. 1 (medium-sized tree up to 20 m., high; bark rough and scaly; leaves scanty, tree looking bare; fruit abundant, purple when ripe, 2.2 cm. long, 1.1 cm. diam.).

#### MELIACEAE

**Aglaia ferruginea** White & Francis in *Proc. Roy. Soc. Queensl.* xxxv. 66 (1923).

Gadgarra Reserve, Atherton Tableland, alt. 800 m., common in rain-forest, no. 1108 (very immature fruits), May 3 (specimens gathered off small tree about 12 m. high).

**Aglaia sapindina** (F. v. Muell.) Harms in *Engler & Prantl, Nat. Pflanzenfam.* iii.-4, p. 298 (1896).

Lake Barrine, Atherton Tableland, alt. 500 m., common in rain-forest, no. 1345 (flowering specimens), Nov. 8 (specimens gathered off medium sized tree about 20 m. high; flowers cream). Daintree River, common in rain-forest, no. 1393 (flowering specimens), Nov. 28 (tree up to 20 m. high; bark light grey; flowers cream with a very pleasing scent). Daintree River, common in rain-forest no. 1480 (fruiting specimens), Dec. 13 (tall tree up to 25 m.; fruit orange color when ripe).

**Dysoxylum Klanderii** F. v. Mueller, *Fragm. Phytogr. Austr.* v. 176 (1866).

Gadgarra, Peeramon, alt. 800 m., common in rain-forest, no. 1020 (flowers in advanced bud stage), May 21 (large tree 35 m. high; flower buds pink).

**Dysoxylum Muelleri** Bentham, Fl. Austr. i. 381 (1863).

Daintree River, common in rain-forest, no. 1427 (fruiting specimens), Dec. 2 (large tree up to 20 m. high; durable cabinet timber; local name "Red Bean").

**Dysoxylum Nernstii** F. v. Mueller, Fragm. Phytogr. Austr. v. 177 (1866).

Daintree River, common in rain-forest, no. 1434 (flowering specimens), Dec. 3 (specimens gathered off small tree 10 m. high; flower light green).

**Dysoxylum Pettigrewianum** F. M. Bailey in Queensl. Dept. Agric. Bull. xviii. (Bot. Bull. v.) 9 (1892).

Gadgarra Reserve, Atherton Tableland, alt. 800 m., common in rain-forest, no. 1014 (immature fruits), May 19 (very large tree up to 35 m. high).

**Synoum Muelleri** C. De Candolle in De Candolle, Monogr. Phanerog. i. 593 (1878).

Gadgarra, Atherton Tableland, alt. 800 m., common in the rain-forest, no. 1126 (flower buds), July 10 (large tree up to 25 m. high; leaves dark green; wood useful for fence posts; local name "Rosewood").

This tree is evidently fairly common on the Atherton Tableland as we have specimens in the Queensland Herbarium from Head of Rocky Creek, Atherton District, June 29, 1889, Atherton (without no. and date) and near Lake Barrine, June 26, 1929, all in flower and collected by J. F. Bailey who in his report on the Timber Trees of the Herberton District, North Queensland, refers to it as *S. glandulosum* A. Juss. On some co-type material in the Queensland Herbarium from Rockingham Bay F. v. Mueller has written "I regard this as a pentamerously flowering var. of *Synoum glandulosum*." In this and all the other material seen by me the leaflets bear tufts of hairs in the axils of the principal veins on the under surface, a feature not mentioned by De Candolle, though he mentions it under *S. glandulosum* A. Juss.

## POLYGALACEAE

**Xanthophyllum octandrum** (F. v. Muell.) Domin in *Bibl. Bot.* xxii. (Heft 89<sup>4</sup>) 860 (1927).

Boonjie, Atherton Tableland, alt. 800 m., common in the rain-forest, no. 1073. Daintree River, common in rain-forest, no. 1391 (flowering specimens), Nov. 28 (tall tree up to 20 m. high; calyx brown, covered with short hairs; petals white with yellow bases).

## EUPHORBIACEAE

**Antidesma erostre** F. v. Mueller apud Bentham, *Fl. Austr.* vi. 87 (1873).

Gadgarra, Atherton Tableland, alt. 800 m., common in the rain-forest, no. 1045 (medium-sized tree up to 20 m. high; fruit black when ripe, 4-15 in a raceme, length when fresh 7 mm., diam. 5 mm.). Daintree River, common in rain-forest, no. 1458 (flowering specimens), Dec. 12 (small tree, 10 m. high).

**Glochidion Harveyanum** Domin in *Bibl. Bot.* xxii. (Heft 89<sup>4</sup>) 873 (1927).

Lake Eacham, Atherton Tableland, common in rain-forest on edge of the lake, no. 1174 (fruiting specimens), Aug. 4 (specimens gathered off small tree leaning over the water; fruit light pink when ripe).

**Glochidion supra-axillare** Domin in *Bibl. Bot.* xxii. (Heft 89<sup>4</sup>) 872 (1927).

Scrubby Creek, Herberton Range, alt. 600 m., common in poor rain-forest, no. 1364 (flowering and fruiting specimens), Nov. 14 (small tree up to 15 m. high; petals light yellow; fruit purple-green when mature and covered with short hair).

**Phyllanthus hypospodius** F. v. Mueller in *Victor. Naturalist*, viii. 177 (1892).

Bartle Frere, alt. 800 m., common in foothill rain-forest, no. 1250 (small tree growing erect after the style of a palm; young leaves with light pink edge, all leaves silvery underneath; buds and flowers cream-green).

**Cleistanthus apodus** Bentham, *Fl. Austr.* vi. 122 (1873).

Daintree River, common in rain-forest, no. 1410 (flowers and nearly ripe fruits), Nov. 29 (small tree up to 10 m. high; flowers light green, fruit immature).



***Croton insularis*** Baillon in *Adansonia*, II. 217 (1862).

Scrubby Creek, Herberton Range, common in poor rain-forest, alt. 600 m., no. 1363 (small tree 10 m. high).

***Aleurites moluccana*** (L.) Willdenow, *Spec. Pl.* IV. 590 (1805).

Lake Eacham, Atherton Tableland, alt. 800 m., common in rain-forest on edge of the lake, no. 1180 (large-sized tree up to 30 m. high; local name "Candle-nut").

***Mallotus angustifolius*** Bentham, *Fl. Austr.* VI. 141 (1873).

Boonjie, Atherton Tableland, alt. 700 m., common in the rain-forest, no. 1267 (small to medium sized tree up to 20 m. high).

***Mallotus philippinensis*** Mueller Arg. in *Linnaea*, XXXIV. 196 (1866).

Lake Eacham, Atherton Tableland, alt. 800 m., no. 1176 (medium-sized tree up to 25 m.).

***Mallotus polyadenus*** F. v. Mueller, *Fragm. Phytogr. Austr.* VI. 184 (1868).

Lake Barrine, Atherton Tableland, alt. 800 m., common in the rain-forest, no. 1356 (flower buds), Nov. 9 (large tree up to 25 m. high).

***Fontainea picrosperma***, sp. nov.

Arbor mediocris ad 25 m. alta, ramulis junioribus dense fusco-tomentosis. Folia alterna, lanceolata vel elliptico-lanceolata, basi acuta, apice acuminata, supra glabra, subtus ad nervos pubescentia; petiolus pubescens, 1-2.5 cm. longus; lamina 7-16 cm. longa, 3-6 cm. lata; nervi secundarii 7-10 in utroque latere, venae in sicco utrinque conspicuae. Inflorescentia paniculata; paniculae terminales ca. 5 cm. diam., ramulis dense fusco-tomentosis, bracteis ad 1 cm. longis extus dense fusco-pilosis intus glabris nitidis mox deciduis, pedicellis molliter pilosis 3-5 mm. longis. Calyx 5-lobatus, extus tomentosus, intus glaber, nitidus, tubo late campanulato 5 mm. diam., lobis vel dentibus parvis late triangularibus. Petala 5 alba, imbricata, utrinque tomentosa, 7 mm. longa, 3.5 mm. lata. Discus carnosus, irregulariter lobatus. Stamina 25-30, filamentis liberis ad 3 mm. longis in parte inferiori pilis longis dense vestitis, antherarum loculis distinctis extrorsis. Ovarii

rudimentum O. Flores foeminei ignoti. Drupa ovoidea vel suboliviformis, rubra, pilosa; endocarpio osseo prominenter 5-(vel rarius 6-) gono. Semen unicum perfectum, testa crustacea; albumen copiosum, oleosum, acerbum; cotyledones planae, latae.

Boonjie, alt. 700 m., common in rain-forest, no. 1197 (very young inflorescences), Sept. 18 (medium-sized tree up to 20 m. high; bark dark grey exuding a brown sap when cut). Foothills of Mt. Bartle Frere, alt. 800 m., common in rain-forest, no. 1253 (flowering specimens), Oct. 1 (small tree 15 m.; bark dark grey, light brown when cut exuding a brown sap; petals white, inserted on a pink thalamus). Boonjie, Atherton Tableland, alt. 700 m., common in rain-forest, no. 1262 (type; flowering specimens), Oct. 9 (medium-sized tree up to 25 m. high; bark dark grey, light brown when cut; calyx cream-green; petals white). Glenallyn, via Malanda, *H. C. Hayes* (tree; fruit red and hairy with a peach-bloom when ripe; kernel has a burning poisonous taste). Boonjie, *C. T. White* (fruiting specimens), January 1923.

***Bertya polystigma*** Grüning in Engler, Pflanzenr. iv.-147 (Euphorb.-Poranth. et Ricinocarp.) 57 (1913).

Range Road, Atherton Tableland, alt. 500 m., common in open Eucalyptus forest, no. 1311 (flowering specimens), Oct. 30 (shrub up to 6 m. high; petals cream yellow, stamens cream).

***Homalanthus populifolius*** Graham in Edinb. N. Philos. Jour. II. 175 (1827).

Daintree River, common in rain-forest on creek banks, no. 1459 (fruiting specimens), Dec. 10 (medium-sized tree up to 20 m. high).

#### ANACARDIACEAE

***Euroschinus falcatus*** Hooker f. in Bentham & Hooker f., Gen. Pl. I. 422 (1862).

Range Road, Atherton Tableland, alt. 250 m., common in the rain-forest, no. 1340 (flowering specimens), Nov. 7 (medium-sized tree up to 20 m. high; bark corky, dark grey, brown when cut, very thick, 1.2 cm. thick in tree of 40 cm. diam.; fls. cream-green).

## CORYNOCARPACEAE

**Corynocarpus australasica**, sp. nov. Plate V.

Arbor ad 35 m. alta, glabra. Folia alterna vel ad apices ramulosum opposita, petiolata, elliptica, basi subcuneata, apice breviter et obtuse acuminata, in sicco papyracea, costa media valida infra elevata, venis et venulis utrinque prominulis; laminae 10-17 cm. longae, 5-7.5 cm. latae; petiolus 1-1.5 cm. longus. Paniculae laxiflorae, per anthesin quam folia dimidio breviores, ramulis patentibus. Flores 5-6 mm. diam., pedicellati, fasciculati vel ramorum apices versus singulares; bracteis subtriangularibus 0.5-1 mm. longis; pedicellis 3-4 mm. longis. Sepala crassa, subrotunda, ca. 2 mm. diam. Petala alba (in sicco submembranacea) late ovata, 2.5 cm. longa. Staminodia petaloidea, oblongo-spathulata, margine supra medium obscure denticulata, apice dentata. Stamina 5, filamentis planis, petala aequantia vel leviter excedentia. Nectaria 5, solida. Fructus subglobosus, 3.5 cm. diam.

Gadgarra, Atherton Tableland, alt. 800 m., common in rain-forest, no. 1010 (flower buds), May 19; no. 1024 (type; flowers and fruits), Aug. 22 (large tree up to 35 m. high; flowers white; fruit globular, flattened slightly top and bottom).

The genus previously was known to consist of only three species: *C. laevigata* Forst. from New Zealand, *C. similis* Hemsl. from the New Hebrides and *C. dissimilis* Hemsl. from New Caledonia. The Australian species comes closest to the imperfectly known *C. similis* Hemsl. of which I have not seen specimens. Judging from Hemsley's description and figures, however, it differs in the leaves being thick-coriaceous, in the petals being narrower and longer, and the stamens being markedly shorter than the petals.

## AQUIFOLIACEAE

**Ilex peduncularis** F. v. Mueller, Fragm. Phytogr. Austr. vii. 105 (1870).

Range Road, Atherton Tableland, alt. 300 m., no. 1301 (immature fruits), Oct. 30 (medium-sized tree up to 20 m. high; bark grey, corky, 1.5 cm. thick, pink on the inside near sapwood; leaves dark glossy green; fruits immature, green with small light colored dots).

## CELASTRACEAE

**Hexaspora**, gen. nov.

Calyx 5-fidus. Petala 5, sessilia, patentia. Stamina 5, margini disci inserta, filamentis brevibus complanatis basi dilatatis, antheris late didymis. Discus carnosus, late explanatus, margine undulato. Ovarium conicum vel pyramidatum, 3-loculare, stigmatate sessili indistincte 3-lobo; ovula in loculis 2, pendula, funiculo incrassato. Fructus ignotus.—Arbuscula, foliis alternis exstipulatis. Cymae axillares. Flores parvi, virides vel flavescentes.

**Hexaspora pubescens**, sp. unica.

Plate VI.

Arbor parva vel mediocris, 15 cm. alta; ramulis dense pubescentibus; foliis breviter (4-6 mm.) petiolatis utrinque pubescentibus papyraceis lanceolatis basi rotundis vel subacutis apice acutis margine undulatis 9-14.5 cm. longis et 2-4 cm. latis; cymis axillaribus laxifloris, ramulis dense pubescentibus; floribus parvis flavo-virentibus, pedicellis calycibusque pilis longis paucis obsitis, pedicellis gracilibus 3 mm. longis ad apicem leviter incrassatis. Calycis lobis rotundis; petalis subrotundis margine ciliolatis 1 mm. diam.; staminibus 5 petalis alternis, filamentis brevibus complanatis basim versus dilatatis; disco carnosio margine undulato, ovario glabro conico vel pyramidato, stigmatate indistincte 3-lobo.

Foothills of Mount Bartle Frere, alt. 800 m., common in rain-forest, no. 1352 (flowering specimens), Oct. 1 (small to medium-sized tree, 15 m. high; bark light grey; flowers cream-green, inconspicuous).

The new genus here proposed is closely allied to *Gymnosporia* Wight et Arn. which differs, however, in having stamens with subulate filaments and in the ovules being erect, not pendulous. Kajewski's specimens bear no fruits but I was fortunate enough to find one very well developed ovary in which it was easy to see the two ovules pendulous by a thickened funicle in each loculus.

**Hypsophila Halleyana** F. v. Mueller, Victor. Naturalist, III. 168 (1887).

Mt. Bartle Frere, alt. 1600 m., common in poor scrub on top of the mountain, no. 1290, Oct. 24 (small tree up to 10 m. high; leaves dark green; petioles light red; petals dark velvety red).

F. M. Bailey (Queensl. Fl. i. 257) under *Hypsophila Halleyana* F. v. Muell. adds "This shrub is also abundant at Pimpama and on Tambourine Mountain; flowers minute deep red." This note obviously should have been placed under *Hedraianthera porphyropetala* F. v. Muell., a small tree fairly common in southeastern Queensland. *Hypsophila Halleyana* F. v. M., so far as we know, is confined to the higher parts of the Bellenden Ker and Bartle Frere Mountains, North Queensland.

**Elaeodendron melanocarpum** F. v. Mueller, *Fragm. Phytogr. Austr.* III. 62 (1862).

Range Road, Atherton Tableland, alt. 300 m., common in the rain-forest, no. 1334 (flowering and fruiting specimens), Nov. 7 (medium-sized tree up to 20 m. high; bark dark grey, red when cut, 6 mm. thickness on tree about 19 m. high; flower minute, petals green; fruit black, 1.7 cm. long, 1.2 cm. diam.).

**Siphonodon membranaceum** F. M. Bailey in *Queensl. Agric. Jour.* v. 388 (1899).

Boonjie, Atherton Tableland, alt. 700 m., common in the rain-forest, no. 1271 (medium-sized tree up to 20 m. high; fruit apple-shaped, 5.5 cm. diam.).

#### ICACINACEAE

**Chariessa Moorei** (F. v. Muell.) Engler in Engler & Prantl, *Nat. Pflanzenfam.* III.-5, 245 (1893).

Gadgarra, alt. 800 m., common in rain-forest, no. 1015 (flower buds), May 19; no. 1125 (flowering specimens), July 13 (large tree up to 35 m. high, leaves dark glossy green; flowers light green).

**Chariessa Smythii** (F. v. Muell.) Beccari, *Malesia*, I. 118 (1877).

Daintree River, common in the rain-forest, no. 1408 (flowering specimens), Nov. 29 (medium-sized tree up to 20 m. high with a fissured bark; flowers cream, highly scented).

**Phlebocalymna lobospora** F. v. Mueller, *Fragm. Phytogr. Austr.* IX. 151 (1875).

Gadgarra, Atherton Tableland, alt. 800 m., common in rain-forest, no. 1081 (immature fruits), June 4 (medium-sized tree

25 m. high; bark brown-grey with large raised pustules on it; leaves dull dark green; young fruit pink). Boonjie, Atherton Tableland, alt. 700 m., common in rain-forest, no. 1198 (ripe fruits), Sept. 18 (medium-sized tree up to 20 m. high; leaves dull dark green; fruit black when ripe).

**Tylecarpus australis** C. T. White in Queensl. Dept. Agric. Bot. Bull. xx. 12, fig. (1917).

Boonjie, Atherton Tableland, alt. 700 m., common in the rain-forest, no. 1195 (flowering specimens), Sept. 10 (medium-sized tree up to 20 m. high; leaves dark glossy green and sparsely placed on the tree; flowers light green; stamens covered with white down); no. 1232 (flowering and fruiting specimens), Sept. 25 (specimens gathered from a medium-sized tree about 20 m. high; bark thick, dark grey-brown with irregular lines and small corky particles intermingled with numerous smaller pustules, when freshly cut cream color with irregular broad patches or lines; petals cream-green; fruit consisting of a hard green portion and a creamy fleshy portion, hard part 3.5 cm. long, 1 cm. diam., fleshy portion 2.5 cm. long, 0.5 cm. diam.).

Mr. Kajewski says that if the fruit is lying on the ground, the creamy fleshy part gets much larger than the hard green one, becoming parasitised by an insect and swelling tremendously.

#### SAPINDACEAE

**Castanospora Alphandi** F. v. Mueller, Fragm. Phytogr. Austr. ix. 92 (1875).

Boonjie, Atherton Tableland, alt. 700 m., common in the rain-forest, no. 1268 (immature fruits), Oct. 10 (medium-sized tree up to 25 m.).

**Guioa acutifolia** Radlkofer in Sitzungsber. Bayer. Akad. Wiss. ix. 608 (1879).

Lake Barrine, Atherton Tableland, alt. 800 m., common in rain-forest on edge of the lake, no. 1342 (immature fruits), Sept. 29 (medium-sized tree up to 20 m. with a light mottled grey bark).

**Guioa lasioneura** Radlkofer in Sitzungsber. Bayer. Akad. Wiss. ix. 608 (1879).

Boonjie, Atherton Tableland, alt. 700 m., common in the

rain-forest, no. 1209 (flowering specimens), Sept. 29 (small tree 8 m. high; petals cream; filaments cream; anthers violet).

**Guioa montana**, sp. nov.

Arbor parva vel mediocris, ramulis tomentosis. Folia abrupte pinnata, 2-4 foliolata, rachi 2-4 cm.; foliolis lanceolatis utrinque subacutis vel raro apice obtusis basi in petiolulos breves basi tumidos gradatim attenuatis aequilateris integris margine subrevolutis subcoriaceis supra glabris in sicco prominenter reticulatis subtus opacis pallidioribus punctulatis tenuiter et minute tomentosis, petiolulis 2-3 mm. longis inclusis 6-9 mm. longis et 2-3.5 mm. latis. Paniculae axillares 3-4 cm. longae, ca. 2 cm. latae, ramulis pedicellisque tomentosis; pedicellis gracilibus 2-4 mm. longis. Sepala late imbricata, extus tenuiter pilosa, inaequalia 2 exteriora minora, late ovata 2 mm. longa, 3 interiora majora, rotunda vel subrotunda, 3 mm. diam. Petala lanceolata 4 mm. longa, 1.5 mm. lata, margine pilis longis albis adpersa; squamis cristatis dense albo-pilosis. Stamina 8, filamentis tenuibus applanatis 2.5 mm. longis in parte inferiore pilis albis adpersis; antheris pilis paucis adpersis. Discus crassus, completus, annularis, glaber. Ovarium sessile, triloculare, glabrum.

Mt. Bartle Frere, alt. 1200 m., common in rain-forest on side of the mountain, no. 1286 (flowering specimens), Oct. 24 (small to medium-sized tree up to 20 m. high; petals cream).

Very distinct in general appearance from previously described Australian species.

**Cupaniopsis serrata** Radlk. var. **tomentella** Radlkofer in Sitzungsber. Bayer. Akad. Wiss. ix. 585 (1879).

Boonjie, Atherton Tableland, alt. 700 m., common in rain-forest, no. 1258 (flowering specimens), Oct. 8 (medium sized tree 25 m., bark medium grey, when cut has a faint melon odor; petals pink, stamens cream).

**Sarcopteryx stipitata** (F. v. Muell.) Radlkofer in Sitzungsber. Bayer. Akad. Wiss. ix. 659 (1879).

Range Road, Atherton Tableland, alt. 200 m., common in rain-forest on creek, no. 1325 (immature fruits), Nov. 2 (specimens gathered off small tree about 7 m. high).

**Jagera pseudorhus** Radlkofer in Sitzungsber. Bayer. Akad. Wiss. ix. 621 (1879).

Lake Barrine, Atherton Tableland, alt. 500 m., common in the rain-forest, no. 1354 (fruiting specimens), Nov. 9 (specimens gathered off a small tree about 8 m. high; fruits covered with coarse brown prickly irritating hair).

These specimens represent Radlkofer's forma *pilosiuscula* which is the common form in North Queensland; it extends a little distance outside the tropics, the farthest south specimens I have seen being from Fraser Island, Wide Bay (C. T. White, 2506). It varies somewhat as regards vestiture; the branchlets and leaves being sometimes almost quite glabrous; the forma *genuina* Radlk. is the common one in southern Queensland and northern New South Wales, it apparently does not extend into the tropics, the farthest north specimens I have seen being from Baffle Creek (C. T. White, April 1920 sine no.).

**Toechima erythrocarpum** (F. v. Muell.) Radlkofer in Sitzungsber. Bayer. Akad. Wiss. ix. 671 (1879).

Gadgarra Reserve, Atherton Tableland, alt. 800 m., common in rain-forest, no. 1142 (flowers in bud only), July 24 (specimens gathered off small tree about 15 m. high).

**Toechima lanceolatum**, sp. nov.

Arbor ad 30 m. alta, partibus junioribus dense tomentosis. Folia abrupte pinnata, 4-6-foliolata, rachi 2.5-7 cm.; foliolis lanceolatis apice obtusiuscule acuminatis basi in petiolulos breves basi tumidos gradatim attenuatis aequilateris integris firme papyraceis supra nitidis subtus opacis pallidioribus, petiolulis 2-3 mm. longis inclusis 7-11 cm. longis et 2-3 cm. latis. Thyrsi paniculati, folia subaequantur vel rare simpliciter racemosi et folia dimidia aequantur; ramis tomentosis cinnos numerosos breviter (0.5-1 mm.) pedunculatos 2-3-floros gerentibus; floribus pedicellatis, pedicellis 1 mm. longis pilis stramineis paucis adpersis. Calyx 5-partitus, extus pilis paucis adpersus; lobis ovatis 1 mm. longis. Petala calycis lobis breviora, 2-5-squamata, squamis cristatis petala fere aequantibus. Stamina 8, 2 mm. longa, filamentis gracilibus, in parte inferiori applanatis et tenuiter pilosis. Ovarium pilis paucis adpersum. Capsula bilocularis, obovato-cuneata, vix stipitata, 1.3 cm. diam. (in sicco vix 1 cm.), extus glabra, intus dense fusco-pilosa; pericarpio carnosum. Semen oblonge ellipsoideum, 6 mm. longum, nigro-castaneum opacum, basi arillo parvo cinctum.



Gadgarra Reserve, Atherton Tableland, alt. 800 m., common in rain-forest, no. 1038 (**type**, flowering specimens), May 24; no. 1084 (old flowers and young fruit), June 4; no. 1150 (fruiting specimens), July 26 (medium to large tree up to 30 m. high; flowers inconspicuous; fruits yellow-green with a plum colored patch).

Very distinct in appearance from any previously described Australian species.

**Synima Cordieri** Radlkofer in Sitzungsber. Bayer. Akad. Wiss. ix. 513, 539 (1879).

Daintree River, common in rain-forest, no. 1472 (flowering specimens), Dec. 13 (small to medium-sized tree up to 20 m. high).

**Arytera divaricata** F. v. Mueller in Trans. Philos. Inst. Victoria, III. 25 (1859).

Lake Barrine, Atherton Tableland, alt. 800 m., common in rain-forest, no. 1129 (old flowers and very young fruits), July 17 (medium-sized tree up to 15 m. high, leaning out over the water).

A very broad-leaved form; the material is unfortunately rather scrappy but I think the specimens belong without doubt to the above.

**Arytera Lautereriana** (F. M. Bail.) Radlkofer in Fedde, Repert. Spec. Nov. xx. 37 (1924).

Gadgarra, Atherton Tableland, alt. 800 m., common in the rain-forest, no. 1050 (flowers in bud only), May 28 (medium-sized tree up to 25 m. high; leaves dark glossy green).

**Mischocarpus lachnocarpus** (F. v. Muell.) Radlkofer in Sitzungsber. Bayer. Akad. Wiss. ix. 647 (1879).

Gadgarra Reserve, Atherton Tableland, alt. 800 m., common in the rain-forest, no. 1041 (tall tree up to 20 m. high; fruit reddish brown when ripe).

**Mischocarpus pyriformis** (F. v. Muell.) Radlkofer in Sitzungsber. Bayer. Akad. Wiss. ix. 647 (1879).

Lake Barrine, Atherton Tableland, alt. 800 m., common in rain-forest, no. 1116, July 10; no. 1128, July 16; no. 1255, Sept. 29 (all in fruit; medium-sized tree leaning out over the water; fruit light red when ripe).

**Dodonaea lanceolata** F. v. Mueller, *Fragm. Phytogr. Austr.* i. 73 (1859).

Range Road, Atherton Tableland, alt. 300 m., common in open Eucalyptus forest, no. 1313 (fruiting specimens), Oct. 30 (small shrub up to 2 m. high; fruit brown when ripe).

**Harpullia rhyticarpa** White & Francis in *Queensl. Dept. Agric. Bot. Bull.* xxii. 10 (1920).

*Harpullia angustialata* White & Francis, l. c. 12 (1920).

Gadgarra, Atherton Tableland, alt. 800 m., common in rain-forest, no. 1147 (flowering specimens), July 26 (specimens gathered off small tree about 6 m. high; calyx covered with light brown hair; petals waxy white).

These specimens differ from the type of *H. rhyticarpa* White & Francis in that neither the petiole nor leaf rachis are winged but this is now known to be an extremely variable character in the species; some specimens in the Queensland Herbarium collected at Freshwater Creek, near Cairns (W. D. Francis, June 7, 1928, sine no.) show both winged and wingless leaf-rachises on the one shoot. Under the circumstances I have reduced *H. angustialata* White & Francis to a synonym.

#### RHAMNACEAE

**Dallachya vitiensis** (Seem.) F. v. Mueller, *Fragm. Phytogr. Austr.* ix. 140 (1875).

Daintree River, common in the rain-forest, no. 1401 (fruiting specimens), Nov. 29; no. 1464 (fruiting specimens), Dec. 12 (vine growing on rain-forest trees; fruit black when ripe).

**Emmenosperma alphonsoioides** F. v. Mueller, *Fragm. Phytogr. Austr.* iii. 63 (1862).

Gadgarra, Atherton Tableland, alt. 800 m., common in the rain-forest, nos. 1109 and 1154 (large tree up to 25 m. high; fruit yellow when ripe).

**Schistocarpha Johnsoni** F. v. Mueller in *Victor. Naturalist*, vii. 183 (1891).

Boonjie, Atherton Tableland, alt. 700 m., common in rain-forest, no. 1194 (flower buds), Sept. 18 (medium-sized tree up to 20 m. high; leaves dark green with light patches in them); no. 1205 (flowering specimens), Sept. 19 (specimens gathered on small bush 5 m. high; leaves dark glossy green; petals cream; pedicels light pink); Ghurka Pocket, Boonjie,

Atherton Tableland, alt. 700 m., common in rain-forest, no. 1225 (flowering and fruiting specimens), Sept. 24 (small to medium-sized tree growing in the rain-forest; petals white-purple; fruit green-purple when ripe).

A very interesting plant previously known only from the original gathering on Mt. Bartle Frere by Stephen Johnson forty years ago.

**Colubrina asiatica** Brongniart in Ann. Sci. Nat. ser. 1, x. 369 (1827).

Daintree River, common in mangrove swamps, no. 1453 (flowers and immature fruits), Dec. 9 (spreading shrub up to 2 m. high; flowers cream).

**Alphitonia Whitei** Braid in Kew Bull. Misc. Inform. 1925, p. 184.

Daintree River, common in the rain-forest, no. 1477 (immature fruits), Dec. 13 (small to medium-sized tree up to 20 m. high; leaves silvery underneath with brown veins).

#### VITACEAE

**Cissus antarctica** Ventenat, Choix de Pl. 21, t. 21, (1803)  
var. **pubescens** Domin in Bibl. Bot. xxii. (Heft 89<sup>4</sup>) 920 (1927).

Gadgarra, Atherton Tableland, alt. 800 m., no. 1070 (fruiting specimens), May 30 (vine common in the rain-forest; fruit black when ripe, fleshy, 1.2 cm. diam., flattened at the top, rounded at the base).

**Tetrastigma nitens** Planchon in De Candolle, Suites Prodr. v. 427 (1887).

*Vitis nitens* F. v. Mueller, Fragm. Phytogr. Austr. II. 73 (1860).

Gadgarra, Atherton Tableland, alt. 800 m., common in the rain-forest, no. 1158 (immature fruits), July 29 (vine growing on rain-forest trees; fruit immature, hanging in bunches of up to 15 fruits in a bunch); Lake Eacham, Atherton Tableland, alt. 800 m., common in the rain-forest, no. 1177 (flowering specimens), Aug. 4 (vine over rain-forest trees overhanging the lake; petals pale cream-green with a touch of pink at the base; pistil pink).

#### ELAEOCARPACEAE

**Sloanea australis** F. v. Mueller, Fragm. Phytogr. Austr. IV. 91 (1864).

East Malanda, Atherton Tableland, alt. 700 m., common in the rain-forest, no. 1218 (flowering specimens), Sept. 22 (large tree up to 40 m., with fairly prominent buttresses; bark dark grey and inclined to be slightly flaky; flowers sweetly scented, petals white, stamens yellow).

**Sloanea Langii** F. v. Mueller, *Fragm. Phytogr. Austr.* v. 28 (1865).

Gadgarra Reserve, Atherton Tableland, alt. 800 m., common in the rain-forest, no. 1044 (large rain-forest tree up to 35 m. high).

**Sloanea Macbrydei** F. v. Mueller, *Fragm. Phytogr. Austr.* VI. 170 (1868).

Boonjie, Atherton Tableland, alt. 700 m., common in rain-forest, no. 1264 (flowering specimens), Sept. 10 (large-sized tree up to 25 m. high, prominently buttressed; bark medium grey, inclined to be slightly flaky; petals cream with green centres).

**Elaeocarpus ferruginiflorus**, sp. nov.

Arbor parva, ramulis junioribus ferrugineo-tomentosis; petiolis et laminis subtus primum tomento floccoso ferrugineo dense obsitis; foliis adultis glabris nervo medio et ad nervorum axillas exceptis; petiolis ad 1.5 cm. longis; laminis elliptico-oblongis, 4-5.5 cm. longis, 2.5-3 cm. latis, margine crenulato-dentatis, reticulatione utrinque prominente, subtus in nervorum axillis prominenter foveolatis; racemis axillaribus 4-7 cm. longis; rhachi pedicellis sepalis petalisque dense ferrugineo-pubescentibus; pedicellis 3-5 mm.; sepalis et petalis 3-5 mm.; antheris pubescentibus obtusis; ovario dense fusco-piloso; drupis ovoideis vel ellipsoideis ad 1.8 cm. longis et 1.5 cm. diam.

Mt. Bellenden Ker, alt. 5200 ft., *W. Sayer* (type), distributed by F. v. Mueller as *E. foveolatus* F. v. M.; Bellenden Ker, summit of Central Peak, alt. 5400 ft., *C. T. White*, January 1923 (flowering specimens); Mt. Alexander, alt. 1300 m. common in poor scrub on top of mountain, *S. F. Kajewski*, no. 1498 (flowering and fruiting specimens), Dec. 18 (small gnarled twisted tree up to 8 m. high; petals cream, covered on the outside with brown hair; fruit light blue-green when ripe).

This species was included by Mueller under *E. foveolatus*

F. v. Muell. and Sayer's specimens were referred to in a brief notice in the Victorian Naturalist, III. 170 (1887). In general facies it is very distinct from *E. foveolatus* F. v. Muell. and can be distinguished as follows:—

Under surface of the leaves with a close fixed tomentum, base very acute, veins ascending, margin minutely crenulate-dentate. . . . . *E. foveolatus*  
 Under surface of the leaves in the young stage clothed with a floccose easily rubbed off ferruginous tomentum, older leaves glabrous except for the midrib and leaf-axils; veins divergent, margin prominently crenulate-serrate. . . . . *E. ferruginiflorus*

***Elaeocarpus foveolatus*** F. v. Mueller, Fragm. Phytogr. Austr. v. 157 (1866).

Range Road, Atherton Tableland, alt. 800 m., common in the rain-forest, no. 1186 (immature fruits), Aug. 5 (medium-sized tree); Daintree River, common in rain-forest, no. 1441 (flower buds), Dec. 5 (small tree 15 m. high); no. 1476 (flowering specimens), Dec. 13 (medium-sized tree 20 m. high; petals cream inside).

The specimens contained under no. 1186 are an exact match for the type, those under nos. 1441 and 1476 represent a glabrescent form of somewhat different facies but scarcely worthy of distinctive varietal or specific name.

***Elaeocarpus grandis*** F. v. Mueller, Fragm. Phytogr. Austr. II. 81 (1860).

Gadgarra, Atherton Tableland, alt. 800 m., common in the rain-forest, no. 1034 (fruiting specimens), May 23 (large tree up to 35 m. high).

***Elaeocarpus Johnsonii*** F. v. Mueller, in herb.

Arbor mediocris ad 20 m. alta, ramulis dense et molliter ferrugineo-tomentosis; foliis obovatis vel obovato-oblongis, denticulatis reticulatione (in sicco) utrinque prominulis, supra glabris, subtus margine costa media et nervis praecipuis dense ferrugineo-tomentosis, laminis 9-12.5 cm. longis plerumque duplo longioribus quam latae; petiolis dense pubescentibus 1.5-3 cm.; racemis brevibus plerumque ca. 4 cm. longis; rhachi et pedicellis dense ferrugineo-pubescentibus, pedicellis (in fructu) 2 cm.; drupa cyanea, lenticellata, apicem versus puberula, 5 cm. longa, 2 cm. diam.

North Queensland (without precise locality), *Johnson* (Nat. Herb. Melbourne, **type**); (tree 20 ft. high; the blacks eat the fruit). Gadgarra, Atherton Tableland, alt. 800 m., common in the rain-forest, *S. F. Kajewski*, no. 1082 (medium-sized tree 20 m. high; young leaves pink; fruit covered with a waxy bloom dark blue when ripe and covered with brown dots).

There are several sheets of Johnson's specimens at the National Herbarium, Melbourne. In the herbarium catalogue the species is entered as "*Elaeocarpus Johnsonii* F. v. Muell. Pap. Pl. II. (1891)" but I cannot find that the name was ever published. I might mention here that the last part of Vol. II. of Mueller's "Descriptive Notes on Papuan Plants" was not published so it was probably the author's intention to publish a description of *E. Johnsonii* therein.

***Elaeocarpus largiflorens*, sp. nov.**

Arbor mediocris; ramulis junioribus ferrugineo-tomentosis; foliis glabris petiolis et costa media exceptis; petiolis 3-4.5 cm. longis ad apicem incrassatis; laminis ellipticis obovatis vel raro ovatis 11-14.5 cm. longis et 4.5-7.5 cm. latis apice obtuse acuminatis acumine ipso 0.5 cm. longo, basi cuneatis vel raro subrotundis margine crenulato-dentatis in sicco plerumque leviter recurvis, venis et venulis utrinque prominulis; racemis axillaribus, rhachi pedicellis bracteisque ferrugineo-pubescentibus, rhachi 5.5-7 cm.; pedicellis 5-8 mm., bracteis 3 mm., sepalis ovatis 4-5 mm. longis primum dense ferrugineo-pubescentibus, petalis 6 mm. longis lanceolatis dense ferrugineo-pubescentibus margine in sicco incurvatis; antheris obtusis puberulis; ovario dense fulvo-piloso.

Malanda, Atherton Tableland, *C. T. White*, January 1923 (**type**); Lake Barrine, Atherton Tableland, *N. L. Kelly*; Timber Reserve 315, Smithfield, Atherton Tableland, alt. 1000 ft. *R. H. Doggrell*, no. A45 (flower buds), Dec. 26 (tree about 35 ft. high, bark grey with prominent lines of brown lenticels); Johnstone River, *Rev. N. Michael*, Nov. 1915; Gadgarra, Atherton Tableland, alt. 800 m., common in the rain-forest, *S. F. Kajewski*, no. 1051 (very young fruits), May 28 (medium-sized tree up to 30 m. high).

***Aristotelia megalosperma* F. v. Mueller**, *Fragm. Phytogr. Austr.* ix. 84 (1875).

Boonjie, Atherton Tableland, alt. 700 m., common in the rain-forest, no. 1211 (flowering and fruiting specimens), Sept. 21 (small tree up to 10 m.; flowers light green; fruit dark red when ripe, 2.3 cm. long, 1.2 cm. diam.); Daintree River, common in rain-forest along fresh water creeks, no. 1445 (fruits), Dec. 5 (small tree up to 15 m. high; branches with a decidedly drooping habit; fruit red when ripe, globular with a pointed end).

#### GONYSTYLACEAE

**Microsemma setosa**, sp. nov.

Plate VII.

Arbor ad 15 m. alta, cortice griseo leviter sulcato, partibus novellis dense tomentosis. Folia alterna, petiolata, elliptica vel elliptico-lanceolata, basi cuneata vel subrotunda, apice acuminata, margine integra, leviter undulata, supra glabra, subtus tenuiter pubescentia, laminis 8-14 cm. longis et 2.5-5 cm. latis; petiolis ad 1.5 cm. longis dense tomentosis. Flores axillares singuli vel pauci, pedicellati; pedicellis ad 1 cm. longis dense tomentosis. Flores masc.(?): sepala 5, valde imbricata, rotunda vel subrotunda ca. 4 mm. lata, extus dense tomentosa, intus glabra. Glandulae hypogynae 5, episepalae. Stamina numerosa (ca. 80), filamentis basi leviter connatis vel in phalanges 5 irregulariter connatis superne liberis in alabastro valde contortis, antheris dorsifixis parvis, loculis parallelis; ovarii rudimentum minutum. Fl. fem. (vel hermaph.): Calyx maris; petala glabra, inaequalia, parva; ovarium dense hirsutum, 7-loculare, stylo indiviso glabro in alabastro valde contorto. Staminodia (vel stamina ?) numerosa; sepala et staminodia sub fructu persistentia. Capsula globosa, dense setosa, ca. 2 cm. diam. Semina ellipsoidea, cum arillo 1 cm. longo; testa atro-grisea, opaca, arillo carinato carnosio atro-roseo.

East Malanda, Atherton Tableland, alt. 700 m., common in rain-forest, *S. F. Kajewski*, no. 1215 (male flower buds), Sept. 22 (small tree about 15 m. high, bark medium grey with a slight disposition towards scaliness, white when cut). Mt. Molloy, *L. J. Brass*, no. 2413 (ripe and nearly ripe capsules), April 8, 1932 (tree 40-50 ft., with a brown or grey slightly furrowed bark, inner bark pale, fibrous and very tough, branches more or less horizontal). Street's Creek, Kuranda,

*R. H. Doggrell*, no. A.43 (**type**; female flowers and nearly ripe capsules), Dec. 26, 1929.

The material at my disposal of this very interesting plant is not altogether satisfactory. The flowers as represented by Kajewski's no. 1215 are very young but seem to me to be males and of different structure to those in Doggrell's specimens. Only a few flowers were available in Doggrell's specimens but they are either hermaphroditic or female. In Brass's no. 1213 most of the fruits were immature and only one ripe seed—already shed from the capsule—was available to me. From an examination of the fruits I am inclined to believe that the capsule is always 7-celled but only one cell develops a ripe seed, the other seeds remaining undeveloped. It is highly desirable that more flowering material should be obtained.

In my opinion the nearest affinity of the genus *Microsemma* lies with *Solmsia* Baill. It possesses many of the characters of the Euphorbiaceae and exhibits clearly the affinities between that family and some of the more simple members of the Tiliaceae. On this account I think both it and *Solmsia* should be placed in the Gonystylaceae and that the correct position of the family is immediately after Tiliaceae as suggested by Hutchinson.

#### MALVACEAE

**Hibiscus notho-Manihot** F. v. Mueller, *Fragm. Phytogr. Austr.* v. 57 (1865).

Daintree River, common in rain-forest, no. 1428 (flowering and fruiting specimens), Dec. 2 (shrub up to 3 m. high; flowers cream-yellow, petals with dark brown-red base).

**Hibiscus tiliaceus** Linnaeus, *Spec. Pl.* 694 (1753).

Daintree River, common in rain-forest along creeks and close to the sea, no. 1422 (flowers), Dec. 1 (bark used by the natives for binding spears; petals yellow, the base brown-red. Local name "Cottonwood").

#### STERCULIACEAE

**Abroma fastuosa** Jacquin, *Hort. Vindob.* III. 3, t. 1 (1776).

Daintree River, common in rain-forest, no. 1400 (flowering and fruiting specimens), Dec. 1 (shrub up to 3 m. high).

**Tarrietia trifoliolata** F. v. Mueller, *Fragm. Phytogr. Austr.* IX. 43 (1875).



Lake Barrine, Atherton Tableland, alt. 800 m., common in rain-forest, no. 1353 (flowering specimens), Nov. 9 (medium-sized tree up to 20 m. high, buttressed; bark rough in fairly long tessellated lines; leaves dark green above, golden-brown beneath; calyx lobes with light brown spots on outside, faded cream inside).

**Tarrietia peralata** Domin in *Bibl. Bot.* xxii. (Heft 89<sup>5</sup>) 970 (1928).

Gadgarra, Atherton Tableland, alt. 800 m., common in the rain-forest, no. 1036 (flowering specimens), May 24 (one of the tallest trees growing on the Atherton Tableland, up to 40 m. high, has the largest buttresses of any tree in the rain-forest; leaves dark green on top, silver-brown beneath; flowers light yellow. A good timber for indoor work taking a high polish; local name "Crow-foot Elm").

#### DILLENACEAE

**Tetracera Nordtiana** F. v. Mueller, *Fragm. Phytogr. Austr.* v. 1 (1865).

Daintree River, common in rain-forest, no. 1412 (immature fruits), Nov. 29 (vine on rain-forest trees).

**Tetracera Daemeliana** F. v. Mueller, *Fragm. Phytogr. Austr.* v. 191 (1866).

Daintree River, common in rain-forest, no. 1473 (flowering specimens), Dec. 13 (vine; flowers very sweetly scented, petals cream, stamens green).

**Hibbertia scandens** F. v. Mueller, *Fragm. Phytogr. Austr.* iv. 116 (1864) var. **oxyphylla** Domin in *Bibl. Bot.* xxii. (Heft 89<sup>5</sup>) 977 (1928).

Scrubby Creek, Herberton, alt. 600 m., common in rain-forest on creek bank, no. 1368 (flowering specimens), Nov. 14 (flowers yellow, very showy, possessing a very nauseating smell).

Domin l. c. is quite right in stating that as far as Queensland is concerned his two varieties (var. *normalis* and var. *oxyphylla*) are very distinct. The former is abundant on the sea-coast, especially on the sand dunes, the latter in the rain-forest. In the field the two varieties look quite different though it is hard to find distinctions of specific value. Maiden's var. *glabra*

represents apparently a similar form but still further glabrous even to the sepals.

**Saurauja Andreana** (F. v. Muell.) Oliver apud F. M. Bailey, First Suppl. Syn. Queensl. Fl. 7 (1886).

Boonjie, Atherton Tableland, alt. 700 m., common in the rain-forest, no. 1260 (flowering specimens), Oct. 9 (tall shrub or small tree growing on creek banks; petals white).

#### OCHNACEAE

**Brackenridgea australiana** F. v. Mueller, Fragm. Phytogr. Austr. v. 29 (1865).

Boonjie, Atherton Tableland, alt. 700 m., common in the rain-forest, no. 1273 (flowering specimens), Oct. 11 (medium-sized tree up to 20 m. high, sparsely leaved for a rain-forest species).

#### CAMELLIACEAE

**Ternstroemia Cherryi** (F. M. Bail.) E. D. Merrill apud J. F. Bailey & C. T. White, Queensl. Dept. Agric. Bot. Bull. XIX. 1 (1917).

Gadgarra, Atherton Tableland, alt. 800 m., common in rain-forest, no. 1170 (flower buds), Aug. 2 (small to medium-sized tree of 20 m.).

#### GUTTIFERAE

**Garcinia Gibbsiae** S. Moore in Jour. Bot. LV. 302 (1917).

Boonjie, Atherton Tableland, alt. 700 m., common in the rain-forest, no. 1201 (immature fruits), Sept. 19 (small tree up to 15 m.; bark dark grey, exuding a yellow sap when cut; young leaves light pink; fruit immature, top-shaped).

This tree is very common in the rain-forests of the Bellen-den Ker Range and at Boonjie on the Atherton Tableland near the western ascent of Mount Bartle Frere. I gathered ripe fruits in these two places in January 1923; they are depressed, globular, 6.5-8 cm. in diameter, greenish yellow in color; the seeds are light brown, smooth, 1.5-1.7 cm. diam.

**Garcinia Kajewskii**, sp. nov.

Arbor mediocris, foliis late ellipticis apice obtusis basi acutis vel subrotundis coriaceis, nervis lateralibus in utroque latere ca. 20 irregulariter pallelis modice obliquis prope marginem in nervo intramarginali conjunctis, cum nervis brevioribus

interpositis laxe reticulatis, nervis et venis in sicco utrinque prominulis, petiolis 1.5 cm. longis, laminis ad 14 cm. longis et 11 cm. latis, plerumque ca.  $13 \times 7$  cm.; inflorescentia terminali; floribus ignotis; sepalis (sub fructu) late rotundatis ca. 5 mm. diam.; fructibus subglobosis plerumque ca. 4.3 cm. diam. atro-vinosis (Kajewski), stigmatate late applanato-glaboso granuloso subintegro vel vix 4-lobulato coronato; seminibus 4 irregulariter ellipsoideis vel subglobosis in sectione transversa irregulariter triangularibus, dorso convexis, lateribus subapplanatis.

Daintree River, common in rain-forest, no. 1418 (ripe fruits), Nov. 30 (medium-sized tree up to 20 m. high; leaves dark glossy green; fruit purple black when ripe, the size varies according to the type of soil where they are grown, averaging 4.5 cm. long with a diameter of 4.3 cm., almost globular except for a slight elongation at the base, exceptionally acid).

This makes the fourth species of *Garcinia* to be found in northeastern Australia. Among previously described Australian species it most closely resembles *G. Gibbsiae* S. Moore. which is distinguished by somewhat narrower leaves, the fruits yellowish-green when ripe and crowned by a very irregularly 6-8-lobed tuberculate stigma.

#### VIOLACEAE

**Rinorea australasica**, sp. nov.

Plate VIII.

Arbor parva ad 17 m. alta, partibus novellis pubescentibus. Folia alterna, elliptica vel elliptico-lanceolata, basi cuneata vel subrotunda, apice obtuse acuminata, margine crenulata, nervis lateralibus 6-9 in utroque latere, nervis et venis utrinque prominulis, laminis 8-15 cm. longis, petiolis 5 cm. longis, stipulis oppositis tenuiter pubescentibus 7 mm. longis mox deciduis. Flores fasciculati; fasciculi axillares; pedicellis 3-6 mm. longis breviter pubescentibus. Sepala late ovata vel subrotunda, leviter pubescentia, ca. 1 mm. lata. Petala oblonga, 3 mm. longa, apice recurva. Tubus stamineus brevis, filamentorum pars libera applanata; antherae thecae sessiles, connectiva laminatim ultra thecas producta. Ovarium glabrum. Capsula subglobosa, reticulata, ca. 7 mm. diam.; seminibus castaneis ca. 3 mm. diam.

Daintree River, common in rain-forest, no. 1403 (flowering

specimens), Dec. 2; no. 1425 (type; flowering and fruiting specimens) Dec. 2 (small tree up to 17 m. high; flowers light green).

The genus has not previously been recorded for Australia. The present plant comes into the sect. *Violanthus* *Engl.* subsect. *Subintegrifoliae* *Engl.* As this contains species in Timor, New Guinea and the Western Pacific the occurrence of one in northeastern Australia was to be expected.

#### THYMELAEACEAE

##### **Oreodendron**, gen. nov.

Flores hermaphroditi. Perianthii tubus cylindraceus elongatus; lobi 4 patentes, stamina 8, 2-seriatim, 4 superiora fauci affixa, lobis opposita, breviter exserta, 4 inferiora inclusa, infra faucem affixa; antherae sessiles vel subsessiles. Ovarium 2-loculare; stylus filiformis, stigmatate 2-lobo. Fructus drupaceus, 2-spermus vel abortu 1-spermus; semina in loculis solitaria.—Arbor. Folia opposita. Flores pedicellati, in umbellis paucifloris ad axillas pedunculatis. Bractee involucrales O.

##### **Oreodendron biflorum**, sp. unica.

Plate IX.

Arbor parva glabra. Folia opposita, breviter (3-4 mm.) petiolata, ovata vel elliptico-ovata, in sicco papyracea, utrinque laxe reticulata, basi obtusa vel subobtusa, apice obtuse acuminata, 6-8 cm. longa et 3-4 cm. lata. Inflorescentiae axillares pedunculatae; pedunculis tenuibus ca. 1 cm. longis bifloris basi bracteatis, bracteis minutis (ca. 0.5 mm. longis). Flores ebracteati, breviter (1 mm.) pedicellati; calycis tubo ca. 1 cm. longo, lobis 2 mm. longis extus apicem versus dense tomentosus intus dense tomentosus. Stamina 8, 4 superiora fauci affixa breviter exserta, lobis opposita, 4 inferiora inclusa, infra faucem affixa; antheris oblongo-linearibus sessilibus vel subsessilibus ca. 1 mm. longis. Ovarium 2-loculare apicem versus hirsutum, stylo tenui, 7 mm. longo; stigmatate 2-lobo. Drupa ovoidea, apice acuta, 2-sperma vel saepe abortu 1-loculare.

Mt. Alexander, alt. 1200 m., common in poor scrub on top of the mountain, no. 1499 (flowering and fruiting specimens), Dec. 18 (small gnarled and twisted tree up to 5 m. high; perianth lobes cream; tube pink).

This new genus is closely allied to *Phaleria* but differs in the

absence of involucre bracts at the top of the peduncle, in the flowers being pedicellate not sessile and in the anthers being arranged in two very distinct series, the lower series being included.

## ELAEAGNACEAE

**Elaeagnus latifolia** Linnaeus, Spec. Pl. 121 (1753).

Gadgarra, Atherton Tableland, alt. 800 m., common in the rain-forest, no. 1071 (flowering specimens), May 30 (vine growing on forest trees; leaves silvery beneath; petals cream). Lake Barrine, Atherton Tableland, alt. 800 m., common in the rain-forest, no. 1296 (fruiting specimens), Oct. 29 (vine over rain-forest trees; leaves golden underneath; fruit dark brown when ripe, 1.5 cm. long, 5 mm. diam.).

## RHIZOPHORACEAE

**Carallia brachiata** (Lour.) Merrill in Philipp. Jour. Sci. xv. 249 (1919).

Range Road, Atherton Tableland, alt. 250 m., common in rain-forest, no. 1335 (small to medium-sized tree).

## ALANGIACEAE

**Alangium vitiense** (A. Gray) Harms in Engler & Prantl, Nat. Pflanzenfam. III.-8, p. 263 (1898).

Gadgarra Reserve, Atherton Tableland, alt. 800 m., common in the rain-forest, no. 1148 (flower buds), July 26 (specimens gathered off a small tree 8 m. high but probably growing much larger).

## COMBRETACEAE

**Lumnitzera racemosa** Willdenow in Verh. Naturf. Freunde Berlin, iv. 186 (1803).

Daintree River, common in mangrove swamp, no. 1452 (flowers and young fruits), Dec. 9 (small tree up to 7 m. high; petals white, calyx green).

## LECYTHIDACEAE

**Barringtonia longiracemosa** C. T. White in Proc. Linn. Soc. N. S. Wales, XLIV. 823 (1919).

Daintree River, common in rain-forest in swampy places, no. 1413 (flowering specimens), Nov. 29 (small to medium-sized tree; petals and stamens white, falling off soon after the flower opens).

**Careya australis** F. v. Mueller, *Fragm. Phytogr. Austr.* v. 183 (1866).

Range Road, Atherton Tableland, alt. 200 m., common in the Eucalyptus forest, no. 1317 (flowers), Nov. 1 (small tree up to 6 m. high; flowers very showy and strongly though unpleasantly scented; stamens pink for one half their length, white the other half).

#### MYRTACEAE

**Rhodamnia sessiliflora** Bentham, *Fl. Austr.* III. 277 (1866).

Gadgarra, Atherton Tableland, alt. 800 m., common in the rain-forest, no. 1095 (fruiting specimens), June 8 (small shrub 3 m. high, growing on creek bank; fruit purple-black when ripe, about 1 cm. long and 9 mm. diam.). Daintree River, common in rain-forest, no. 1437 (flowering specimens), Dec. 4 (small tree up to 7 m. high; sepals light pink at base and green near the top; petals white).

**Rhodamnia trinervia** F. v. Muell. var. **macrophylla** Domin in *Bibl. Bot.* XXII. (Heft 89<sup>5</sup>) 1028 (1928).

Daintree River, common in rain-forest, no. 1438 (flowering specimens), Dec. 5 (small tree 6-7 m. high); *L. J. Brass*, no. 2212 (young fruit), Feb. 29, 1932 (very slender much branched tree with long thin drooping branches; leaves dull dark green, paler on the under surface).

I had named Kajewski's specimens at first as a new variety differing from Domin's var. *macrophylla* in the much shorter, broader leaves, but the several sheets of Brass' no. 2212 show the leaves to be more approaching the size described by Domin but still somewhat broader. When working at the National Herbarium recently I found specimens of this variety collected on the Daintree River by Theo. Pentzcke in 1890 and labelled "*Rhodamnia*."

**Myrtus acmenioides** F. v. Mueller, *Fragm. Phytogr. Austr.* I. 77 (1859).

Gadgarra, Atherton Tableland, alt. 800 m., common in rain-forest, no. 1053 (flowering specimens), May 28 (small tree 15 m. high). Lake Barrine, Atherton Tableland, alt. 800 m., common in rain-forest, no. 1343 (ripe fruits), Nov. 8 (small tree up to 10 m. high; fruits purple when ripe).

**Myrtus lasioclada** F. v. Mueller, *Fragm. Phytogr. Austr.* IX. 148 (1875).

Herberton Range, alt. 900 m., common in rain-forest, no. 1382 (flowering period just passed), Nov. 19 (small tree up to 6 m. high).

***Myrtus rhytisperma*** F. v. Mueller, *Fragm. Phytogr. Austr.* i. 77 (1859) var. ***grandifolia*** Bentham, *Fl. Austr.* III. 274 (1866).

Boonjie, Atherton Tableland, alt. 700 m., common in rain-forest, no. 1265 (flower buds), Oct. 9 (small tree up to 17 m. high).

This variety is described in some detail by Mueller in *Fragm. Phytogr. Austr.* ix. 77 (1875). The type of it comes from the Clarence River, New South Wales, and the same form is common in southeastern Queensland. We have a number of specimens the same as Kajewski's from North Queensland and when better known it may be found distinct. A characteristic feature of Kajewski's and other tropical specimens is that the flowers though simple are usually borne on short axillary leafless branches which simulate 2-4-flowered cymes or racemes. A specimen from Boonjie in fruit (C. T. White, Jan. 1923) which may be the same has seeds of *Eugenia* rather than *Myrtus*. Both *M. rhytisperma* F. v. Muell. (type) and the var. *grandifolia* from New South Wales and southern Queensland have seeds typical of *Myrtus*.

***Rhodomyrtus macrocarpa***, Bentham, *Fl. Austr.* III. 273 (1866).

Gadgarra Reserve, Atherton Tableland, alt. 800 m., common in the rain-forest, no. 1057 (very young fruits), May 28 (small to medium-sized tree up to 20 m. high).

***Rhodomyrtus trineura*** F. v. Mueller apud Bentham, *Fl. Austr.* III. 272 (1866).

Herberton Range, alt. 900 m., common in rain-forest, no. 1379 (small tree up to 10 m., found in clearing and open places as a shrub; flower showy, petals white, stamens cream, style light pink). Mt. Bartle Frere, alt. 1650 m., common in small scrub on top of mountain, no. 1282 (flowering specimens), Oct. 24.

Number 1282 represents a rather small leaved mountain form with the leaves densely silky pubescent beneath giving the plant rather a characteristic appearance. It was labelled

var. *sericea* by F. v. Mueller on herbarium sheets but I cannot find that the name was ever published.

***Eugenia angophoroides*** F. v. Mueller, *Fragm. Phytogr. Austr.* v. 33 (1865).

Lake Barrine, Atherton Tableland, alt. 800 m., common in rain-forest, nos. 1112, July 10, and 1238, Sept. 29 (trees growing on the edge of the lakes).

In both specimens the fruits are transformed into galls.

***Eugenia cormiflora*** F. v. Mueller, *Fragm. Phytogr. Austr.* v. 32 (1865).

Gadgarra Reserve, Atherton Tableland, alt. 800 m., common in rain-forest, no. 1056 (fruiting specimens), May 28 (medium-sized tree up to 30 m. high; flowers growing from the main trunk).

***Eugenia cryptophlebia*** F. v. Mueller, *Fragm. Phytogr. Austr.* ix. 144 (1875).

Gadgarra, Atherton Tableland, alt. 800 m., common in the rain-forest, no. 1149 (flowering specimens), July 26; no. 1155 (flower buds), July 27 (medium-sized tree up to 25 m. high; calyx cream-green, stamens white). Daintree River, no. 1425 (fruiting specimens), Dec. 2 (small tree up to 10 m. high; fruit purple when ripe; calyx lobes on end of fruit green).

***Eugenia Dallachiana*** F. v. Mueller apud Bentham, *Fl. Austr.* III. 297 (1866).

Gadgarra, Atherton Tableland, alt. 800 m., common in rain-forest, no. 1086 (young fruits), June 6 (specimens gathered off small tree 7 m. high).

***Eugenia*** (sect. *Jambosa*) ***erythrocalyx***, sp. nov.

Arbor mediocris, ad 20 m. alta, ramulis robustis. Folia elliptica, basi rotundata vel subcordata, apice acuta, supra atro-viridia, subtus pallidiora, in sicco subcoriacea, nervis lateralibus subtus prominentibus 16-18 in utroque latere, venis transversis prominulis, vena intramarginali 5 mm. a margine remota subtus conspicue prominula; laminae 20-25 cm. longae et 7-10 cm. latae; petiolus robustus, perbrevis. Flores ampli, speciosi, 1-3 plerumque inter folia suprema subterminales (vel e trunco orti—Kajewski), pedunculati, pedunculo tenui ca. 1 cm. longo. Calyx ruber (Kajewski) late campanulatus, tubo



in pedicellum gracilem attenuato, cum pedicello 1.5 cm. longo, lobis inaequalibus magnis persistentibus. Petala suborbicularia ca. 1 cm. diam. Stamina numerosa, ca. 2 cm. longa.

Boonjie, Atherton Tableland, alt. 700 m., common in rain-forest, no. 1204 (flowering specimens), Sept. 19 (medium-sized tree up to 20 m. high; leaves dark green; calyx bright red, stamens cream; flowers sometimes on the trunk and sometimes at the nodes of the opposite leaves).

The present species shows no very close relationship with any previously described Australian species. Among extra-Australian ones it comes close to *E. nutans* K. Schum. which differs in having more lanceolate leaves, acute at the base, on longer petioles, with the veins less conspicuous beneath and larger flowers.

**Eugenia gustavioides** F. M. Bailey in Queensl. Agric. Jour. v. 389 (1899).

Inflorescences terminal, forming very densely flowered panicles about 10 cm. diameter, ultimate peduncles 3-flowered, individual flowers shortly pedicellate; buds 0.8 cm. long, strongly apiculate, the apical 3 mm. falling calyptrately, leaving a truncate margin; the flower including the stamens in anthesis about 1 cm. long, calyx tube campanulate much narrowed towards the base, petals 4 (?), free, inconspicuous, strap-shaped 3 mm. long, stamens numerous, filaments 2-3 mm., flattened, anthers minute.

Range Road, Atherton Tableland, alt. 800 m., common in rain-forest, no. 1185 (fruiting specimens), Aug. 5 (large tree up to 30 m. high with medium buttressed roots; bark light brown; fruit green mottled with purple when ripe; local name "Water Gum"). Daintree River, common in rain-forest, no. 1398 (flowering specimens), Nov. 28 (large tree up to 30 m. high; bark slightly scaly and fibrous, wood cut for timber; buds silvery before they open; stems white and showy).

A description of the flowers is here given as this interesting species was only known previously from fruiting material.

**Eugenia hemilampra** F. v. Mueller, Fragm. Phytogr. Austr. ix. 145 (1875).

Herberton Range, alt. 900 m., common in rain-forest, no. 1386 (fruiting specimens), Nov. 19 (medium-sized tree up to

20 m. high; fruit plum-colored when ripe). Mt. Alexander, alt. 1350 m., common in poor scrub on side of the mountain, no. 1494 (flowering specimens), Dec. 18 (small stunted tree up to 4 m. high; leaves dark glossy green; flower cream).

Number 1494 represents a mountain form with leaves considerably reduced in size.

**Eugenia kuranda** F. M. Bailey, Queensl. Fl. II. 658 (1900).

Gadgarra, Atherton Tableland, alt. 800 m., common in the rain-forest, no. 1047 (fruiting specimens), May 27 (one of the largest trees in the rain-forest; up to 40 m. high; wood durable; fruit growing out from the branches just below the leaves, 4-5 cm. diam.; local name "Cherry Penda").

**Eugenia oleosa** F. v. Mueller, Fragm. Phytogr. Austr. v. 15 (1865).

Gadgarra, Atherton Tableland, alt. 800 m., common along rain-forest creeks, no. 1094 (small tree up to 10 m. high; flowers with protruding cream-colored stamens; fruit when ripe purple, 2.3 cm. long, 2 cm. diam.).

**Eugenia paniculata** Banks apud Gaertner, Fruct. I. 167 (1788).

Scrubby Creek, Herberton Range, alt. 600 m., common in rain-forest, no. 1369 (flowering specimens), Nov. 14 (small tree up to 15 m. high, leaning over the water; flower white, very showy).

**Eugenia Smithii** Poiret, Encycl. Méth. XI. 126 (1813).

Gadgarra, Atherton Tableland, alt. 800 m., common along rain-forest creeks, no. 1092 (fruiting specimens), June 8 (shrub up to 6 m. high; fruit purple when ripe, apple-shaped, 1.6 cm. diam.).

**Eugenia Tierneyana** F. v. Mueller, Fragm. Phytogr. Austr. v. 14 (1865).

Daintree River, common in rain-forest on creek banks, no. 1396 (flowering specimens), Nov. 28 (tall tree; petals cream; stamens white and very showy).

**Eugenia trachyphloia**, sp. nov.

Arbor mediocris, cortice corrugata. Folia late elliptica, basi acuta, apice breviter et obtuse acuminata, supra subnitida, subtus opaca, distincte pallidiora, in sicco papyracea vel

tenuiter coriacea, nervis lateralibus tenuibus utrinque prominulis 9-11 in utroque latere, vena intramarginali ca. 2.5 mm. a margine remota; laminae 5-6 cm. longae et 2.5-3.5 cm. latae; petiolus 7-8 mm. longus. Cymae terminales pauciflorae, 3-3.5 cm. longae. Flores parvi in alabastro juniore bracteolati; bracteolae ca. 1 mm. longae, mox deciduae, sessiles vel calycis tubus in pedicellum brevem attenuatus. Calyx campanulatus, 5 mm. longus, 4 mm. latus, 4-lobatus, lobis rotundis margine roseis. Petala 4, alba, suborbicularia, 3 mm. diam. Stamina numerosa, filamentis 3 mm. longis, antheris fere 0.5 mm. longis. Fructus ruber, ellipsoideus, 1.5 cm. longus, 6 mm. diam.; semen 1, cotyledonibus crassis, radícula stricta ca. 2 mm. longa.

Gadgarra Reserve, Atherton Tableland, alt. 800 m., common in rain-forest, no. 1164 (flowers mostly in bud only), Aug. 2 (medium to large tree). Lake Barrine, Atherton Tableland, alt. 800 m., common in rain-forest, no. 1351 (type; flowering specimens), Nov. 9 (small tree up to 15 m.; bark rough and fissured; petals white). Lake Barrine, Atherton Tableland, alt. 800 m., no. 1355 (fruiting specimens), Nov. 9 (medium-sized tree up to 20 m. high; fruit red when ripe).

Among previously described Australian species most closely allied to *E. Hodgkinsoniae* F. v. Muell. which differs in having very much larger flowers.

***Syncarpia procera*** (Salisb.) Domin in *Bibl. Bot.* xxii. (Heft 89<sup>5</sup>) 1026 (473) (1928).

*Syncarpia laurifolia* Tenore, *Ind. Sem. Hort. Neap.* 1839, p. 12; *Ann. Sci. Nat. sér. 2*, xiii. 381 (1840).

Gadgarra, Atherton Tableland, alt. 800 m., common in the Eucalyptus forest, no. 1077 (fruiting specimens), June 4 (large tree up to 35 m. high; local name "Turpentine").

***Xanthostemon pubescens*** C. T. White in *Proc. Roy. Soc. Queensl.* xxix. 57, fig. 13 (1917); *Queensl. Dept. Agric. Bot. Bull.* xx. 14 (1917).

Gadgarra, Atherton Tableland, alt. 800 m., common in the rain-forest, no. 1046 (flowering specimens), May 24 (tree; petals small, bright yellow, stamens prominent, yellow; wood very hard to cut, durable and used for timber; local name "Penda").

**Tristania exiliflora** F. v. Mueller, *Fragm. Phytogr. Austr.* v. 11 (1865).

Daintree River, common in rain-forest on creek bank, no. 1394 (flowering specimens), Nov. 28 (medium-sized tree up to 15 m. high; wood very tough, used for mallets; petals white, stamens yellow; buds pink).

**Tristania suaveolens** Smith in Rees, *Cyclop.* xxxvi. n. 2 (1817).

Range Road, Atherton Tableland, alt. 300 m., common in open Eucalyptus forest, no. 1307 (flowering specimens), Oct. 30 (small tree up to 15 m. high).

**Eucalyptus acmenioides** Schauer apud Walpers, *Repert. Bot. Syst.* ii. 924 (1843) var. *carnea* Maiden, *Crit. Rev. Genus Eucalyptus*, i. 264 (1909).

*Eucalyptus carnea* R. T. Baker in *Proc. Linn. Soc. N. S. Wales*, xxxi. 303 (1906).

Range Road, Atherton Tableland, alt. 250-500 m., common in Eucalyptus forest, nos. 1316 and 1333 (flowering specimens), Oct. 30 and Nov. 7 (medium-sized tree up to 20 m. high; bark "stringy"; flowers white).

**Eucalyptus crebra** F. v. Mueller in *Jour. Linn. Soc.* iii. 87 (1859).

Range Road, Atherton Tableland, alt. 250 m., common in Eucalyptus forest, no. 1328 (young fruits), Nov. 7 (small to medium-sized "Ironbark" up to 20 m. high; bark black, rough and very deeply furrowed).

**Eucalyptus pellita** F. v. Mueller, *Fragm. Phytogr. Austr.* iv. 159 (1864).

Gadgarra Reserve, Atherton Tableland, alt. 800 m., common in open Eucalyptus forest, no. 1059 (flowering specimens), May 29 (large tree up to 25 m. high; bark rough on lower part of trunk; smooth on the upper); common in rain-forest, no. 1060, May 29 (large "stringybark" tree up to 30 m. high; bark used sometimes for roofing huts).

**Eucalyptus tereticornis** Smith, *Specim. Bot. N. Holl.* 41 (1793).

Gadgarra Reserve, Peeramun, common in open Eucalyptus forest, no. 1061 (flower buds), May 29 (large tree up to 35 m. high; bark smooth).

**Callistemon viminalis** (Gaertn.) Cheel in Austral. Naturalist, II. 185 (1913).

Range Road, Atherton Tableland, alt. 300 m., common in open Eucalyptus forest, no. 1309 (flowering specimens), Oct. 30 (small tree up to 10 m. high; flowers with vivid red stamens, very showy).

**Melaleuca Leucadendron** L. var. **mimosoides** (A. Cunn.) E. Cheel in Ewart & Davies, Fl. North Territory, 295 (1917).

Range Road, Atherton Tableland, alt. 300 m., common in open Eucalyptus forest, no. 1303 (tree up to 15 m. high with a leaning habit and drooping leaves; an erect tree is rarely seen).

#### MELASTOMACEAE

**Melastoma malabathricum** Linnaeus, Spec. Pl. 390 (1753).

Range Road, Atherton Tableland, alt. 200 m., common in the Eucalyptus forest, no. 1318, Oct. 30 (flowering specimens), Nov. 1 (small shrub up to 1.5 m. high, always in flower and very showy; petals purple).

**Medinilla Balls-Headleyi** F. v. Mueller in Australas. Jour. Pharm. II. 125 (1887).

Daintree River, common in rain-forest, no. 1388 (fruiting specimens), Nov. 28 (vine growing on rain-forest trees; fruit light pink, bell-shaped).

#### ARALIACEAE

**Polyscias elegans** (F. v. Muell.) Harms in Engler & Prantl, Nat. Pflanzenfam. III.-8, p. 45 (1894).

Gadgarra Reserve, Atherton Tableland, alt. 800 m., common in the rain-forest, no. 1009, June 9 (large tree up to 30 m. high).

**Kissodendron australianum** (F. v. Muell.) Seemann in Jour. Bot. III. 201 (1865).

Daintree River, common in rain-forest, no. 1475 (flowering specimens), Dec. 13 (small tree growing very erect with large "fronded" leaves, petals white).

**Kissodendron australianum** (F. v. Muell.) Seem. var. **furfuraceum**, var. nov.

A typo recedit partibus junioribus dense ferrugineo-furfuraceis; rhachi et ramulis paniculae ad nodos ferrugineo-furfuraceis.

Boonjie, Atherton Tableland, alt. 700 m., common in rain-forest, no. 1256 (type; flowering specimens), Oct. 8 (medium-sized tree up to 25 m. high; bark dark brown, covered with small pustules, dark brown when epidermis is rubbed off; has a faint odor resembling that of celery). Barron River, *E. Cowley*, October 1892. Byfield, near Keppel Bay, *C. T. White*, no. 8207 (flower buds), Sept. 23, 1931 (slender tree 3-4 m. high, very common in light rain-forest).

**Pentapanax Willmottii** F. v. Mueller in Australas. Jour. Pharm. II. 125 (1887).

Mt. Bartle Frere, alt. 1650 m., common in small scrub on top of the mountain, no. 1277 (flowering specimens), Oct. 24 (small tree up to 7 m.; leaves aromatic with a crinkly edge; flowers green).

#### UMBELLIFERAE

**Didiscus geraniifolius** (Bail.) Domin in Sitzungsber. K. Böhm. Gesellsch. Wissensch. Prag, 1908, p. 69 (1908).

Mt. Alexander, alt. 1300 m., common in poor scrub on top of the mountain, no. 1487 (flowering and fruiting specimens), Dec. 17 (small plant up to 30 cm. high, growing in shade of the trees; flowers white).

**Siebera valida** Bentham, Fl. Austr. III. 355 (1866).

Range Road, Atherton Tableland, alt. 200 m., common in Eucalyptus forest, no. 1323 (flowering and fruiting specimens), Dec. 1 (shrub up to 3 m. high; flowers cream-green).

#### ERICACEAE

**Rhododendron Lochae** F. v. Mueller in Victor. Naturalist, III. 157 (1887).

Mt. Bartle Frere, alt. 1500 m., common in small scrub on top of the mountain, no. 1278 (flowering specimens), Oct. 24 (small tree up to 6 m. high; leaves dark glossy green; flowers very showy, a vivid red on dark red stem).

#### VACCINIACEAE

**Agapetes Meiniana** F. v. Mueller in Victor. Naturalist, III. 158 (1887).

Mt. Bartle Frere, alt. 1650 m., common on top of the mountain, no. 1280 (flowering and fruiting specimens), Oct. 24 (vine creeping on the tops of rocks; flower red and very showy; fruit purple when ripe, 1.2 cm. long, 1.1 cm. diam.).

## EPACRIDACEAE

**Trochocarpa laurina** R. Brown, Prodr. 548 (1810).

*Trochocarpa bellendenkerensis* Domin in Bibl. Bot. xxii. (Heft 89<sup>6</sup>) 1050 (1928).

Mt. Bartle Frere, alt. 1650 m., common in poor scrub on top of the mountain, no. 1276 (flowering and fruiting specimens), Oct. 24 (shrub or small tree; petals white; fruit purple-black, flattened top and bottom, 7 mm. diam.). Mt. Alexander, alt. 1500 m., common in poor scrub on top of the mountain, no. 1488 (flowering specimens), Dec. 17 (small handsome looking tree up to 5 m. high; flowers green-white).

The two specimens are rather dissimilar in appearance. Number 1276 represents Domin's *T. bellendenkerensis* with rigidly coriaceous lanceolate or ovate-lanceolate leaves; it seems to me, however, untenable as a species, the differences quoted being due to habitat. Number 1488 has equally thick leaves but mostly broadly ovate in outline. *Trochocarpa laurina* R. Br. is a very common tree in Queensland and is represented in the Queensland Herbarium by a large series of specimens showing variation in leaf shape and texture.

## MYRSINACEAE

**Rapanea achradifolia** (F. v. Muell.) Mez in Engler, Pflanzenr. iv.-236 (Myrsinac.) 354 (1902).

*Myrsine achradifolia* F. v. Mueller, Fragm. Phytogr. Austr. vi. 164 (1868).

Lake Barrine, Atherton Tableland, alt. 800 m., common in rain-forest on edge of the lake, no. 1136 (flowering specimens mostly in bud), July 17 (medium-sized tree up to 18 m. high; base of petiole brown-purple and continuing so on upper surface three parts of the length of the petiole; flowers cream-pink).

**Rapanea porosa** (F. v. Muell.) Mez in Engler, Pflanzenr. iv.-236 (Myrsinac.) 355 (1902).

Lake Barrine, Atherton Tableland, alt. 800 m., common in the rain-forest, no. 1115 (flower buds), July 10; no. 1294 (flowers and immature fruits), Oct. 29 (small tree up to 5 m. high, growing on edge of the lake; flower greenish-white; young fruit light green).

**Rapanea variabilis** Mez in Engler, Pflanzenr. iv.-236 (Myrsinac.) 355, fig. 59 (1902).

Mt. Bartle Frere, alt. 1650 m., common in small scrub on top of the mountain, no. 1279 (fruiting specimens), Oct. 24 (small tree up to 8 m. high; fruit black-purple).

**Ardisia brevipedata** F. v. Mueller, *Fragm. Phytogr. Austr.* VI. 163 (1868).

Boonjie, Atherton Tableland, alt. 700 m., common in rain-forest, no. 1234 (flower buds), Sept. 28 (small tree 5 m.; young stems purple; buds green; pedicels purple).

**Ardisia pachyrhachis** F. v. Mueller in *Victor. Naturalist*, VIII. 15 (1891).

Ghurka Pocket, Boonjie, Atherton Tableland, alt. 700 m., common in a rain-forest swamp, no. 1228 (flowering specimens), Sept. 24 (specimens gathered from a small tree about 10 m. high; leaves dark green, leathery; young branches purple; flowers light green).

**Tapeinosperma pseudojambosa** (F. v. Muell.) Mez in *Engler, Pflanzenr.* iv.-236 (Myrsinac.) 170 (1902).

Gadgarra Reserve, Atherton Tableland, alt. 800 m., common in the rain-forest, no. 1152 (fruiting specimens), July 26 (small tree; leaves dark green; fruit red when ripe, 7 mm. diam.). Lake Barrine, Atherton Tableland, alt. 800 m., common in the rain-forest, no. 1299 (flowering and fruiting specimens), Oct. 30 (gathered from a small tree 9 m. high; petals white; fruit red when ripe with a green patch 7 mm. diam.).

**Aegiceras corniculatum** Blanco, *Fl. Filip.* 79 (1837).

Daintree River, common in mangrove swamp, no. 1454 (germinating fruits), Dec. 9 (small mangrove up to 6 m. high).

#### SAPOTACEAE

**Lucuma castanosperma** White & Francis in *Proc. Roy. Soc. Queensl.* xxxv. 74 (1923).

Lake Barrine, alt. 800 m., common in the rain-forest, no. 1350, Nov. 9 (small sized tree up to 15 m. high; bark slightly tessellated; fruit dark purple when ripe, oval, 3.5 cm. long, 2.2 cm. diam.; local name "Milky Plum").

**Planchonella obovata** (R. Br.) H. J. Lam in *Bull. Jard. Bot. Buitenzorg*, ser. 3, VII. 209 (1925).

Daintree River, common in rain-forest, no. 1433 (flower



buds), Dec. 3 (tall tree up to 25 m. high with slightly flanged buttresses).

The above specimens possess somewhat narrower leaves than usual. They are in young bud only but I think there is little doubt they represent this species.

**Sideroxylon Brownlessianum** F. v. Mueller, Census Austr. Pl. 92 (1882).

*Achras Brownlessiana* F. v. Mueller, Fragm. Phytogr. Austr. VII. 111 (1870).

Gadgarra Reserve, Atherton Tableland, alt. 800 m., common in rain-forest, no. 1167 (flower buds), Aug. 2 (medium-sized tree up to 25 m. high).

**Niemeyera chartacea**, n. comb.

*Lucuma chartacea* F. M. Bailey, Queensl. Fl. III. 955, pl. 39 (1900).

*Seralisia Baileyana* Domin in Bibl. Bot. XXII. (Heft 89<sup>6</sup>) 1062 (1928).

Boonjie, Atherton Tableland, alt. 800 m., common in rain-forest, no. 1200 (fruiting specimens), Sept. 24 (medium-sized tree 15 m. high; leaves dark green; fruit purple when ripe, 4 cm. diam.). East Malanda, Atherton Tableland, alt. 700 m., common in rain-forest, no. 1213 (fruiting specimens), Sept. 22 (medium-sized trees up to 25 m. high; bark dark grey, light pink-brown when cut; fruit purple-black when ripe, 3.3 cm. diam.). Daintree River, common in rain-forest, no. 1440 (flowering specimens), Dec. 5 (small tree about 8 m. high; flowers inconspicuous; calyx covered with brown hair; corolla lobes green).

Kajewski's specimens represent a form common in North Queensland and represented in the Queensland Herbarium from a number of localities. The leaves are usually somewhat obovate and very much broader than the type, measuring up to 7 cm. across. The fruits also seem larger and more globose than those of the southern tree. The species has not been recorded for North Queensland before but apart from the characters mentioned the northern specimens agree with those from the type locality. The floral and carpological characters are those of *Niemeyera* to which genus the species is here transferred.

## EBENACEAE

**Diospyros hebecarpa** A. Cunningham apud Bentham, Fl. Austr. III. 286 (1869).

Daintree River, common in rain-forest, no. 1449 (immature fruits), Dec. 7 (small tree about 6 m. high).

As the *D. hebecarpa* material in the Queensland Herbarium seemed to me to show considerable variation I sent the whole of it along with a sheet of Kajewski's no. 1449 to the Royal Botanic Gardens, Kew, England, for comparison with type material. The specimens were examined by Mr. V. S. Summerhayes who remarks (in letter of March 12, 1932).

"The description of the leaves of this species in Flora Australiensis is incorrect since those on the specimen collected by Cunningham on the Endeavour River are up to 12 cm. long and similar in almost every respect to those on that collected by Kajewski on the Daintree River. The fruits are not very well preserved in any of the specimens cited by Bentham, but on the whole they do seem to agree with the specimens sent by Mr. White except the Kajewski specimen. This certainly has longer calyx lobes but apart from size I do not see anything essentially different in the lobes which are of the same type and similarly reflexed.

"In any case I do not think that the total material available, which all seems to lack flowers, is sufficient to permit of any segregation being made. For the moment it appears best to regard the Daintree River specimen as a striking variant from the usual type."

**Diospyros pentamera** F. v. Mueller & Wools, Docum. Intercol. Exhib. 35 (1866).

*Cargillia pentamera* F. v. Mueller & Wools apud F. v. Mueller, Fragm. Phytogr. Austr. IV. 82 (1864).

Lake Barrine, Atherton Tableland, alt. 800 m., common in rain-forest, no. 1341 (flowering specimens), Nov. 8 (small tree 8 m. high; bark light pink-brown when first cut, light yellow near sap wood). Scrubby Creek, Herberton Range, alt. 600 m., common in poor rain-forest, no. 1359 (flowering specimens), Nov. 14 (small tree 8 m. high, bark dark grey).

**Maba rufa** Labillardière, Sert. Austr. Caled. 33, t. 36 (1824).

Lake Barrine, Atherton Tableland, alt. 800 m., common in rain-forest on edge of the lake, no. 1134 (fruiting specimens), July 16 (medium-sized tree; leaves yellow-green underneath; fruits covered with light brown hair). Daintree River, common in rain-forest, no. 1448 (immature fruits), Dec. 7 (small tree up to 15 m. high).

## SYMPLOCACEAE

**Symplocos paucistaminea** F. v. Mueller & F. M. Bailey apud F. M. Bailey, Third Suppl. Syn. Queensl. Fl. 46 (1890).

Boonjie, Atherton Tableland, alt. 700 m., common in the rain-forest, no. 1208 (young fruits), Sept. 20 (small tree about 15 m. high; bark mottled light and dark grey, watery when cut; inner bark with fairly large longitudinal spongy cells near the cambium ring; young fruits light green, crowned with pink calyx lobes).

**Symplocos spicata** Roxburgh, Hort. Beng. 40 (1814) var. **australis** Bentham, Fl. Austr. iv. 292 (1869).

Gadgarra, Atherton Tableland, alt. 800 m., common in the rain-forest along creek banks, no. 1093 (old flowers and very immature fruit), June 8 (specimens gathered from a small tree 10 m. high; flowers white). Gadgarra Reserve, Atherton Tableland, common in the rain-forest, no. 1156 (flowering specimens), July 27 (large tree up to 30 m. high; leaves dark glossy green; flowers white; anthers yellow). Lake Barrine, Atherton Tableland, alt. 800 m., common in rain-forest on edge of the lake, no. 1237 (immature fruits), Sept. 29 (medium-sized tree; bark dark grey with light grey spots; leaves dark glossy green).

## OLEACEAE

**Mayepea axillaris** F. v. Mueller, Census Austr. Pl. 92 (1882).

Herberton Range, alt. 900 m., common in rain-forest, no. 1384 (flowering and fruiting specimens), Nov. 19 (small tree up to 15 m. high; flowers green, inconspicuous; fruit purple when ripe, 0.75 in. long, 0.5 in. diam.).

**Olea paniculata** R. Brown, Prodr. 523 (1810).

Lake Barrine, Atherton Tableland, alt. 800 m., common in rain-forest on edge of the lake, no. 1133, July 16 (medium-sized tree up to 15 m. high).

**Ligustrum australianum** F. v. Mueller, Fragm. Phytogr. Austr. v. 20 (1865).

Range Road, Atherton Tableland, alt. 250 m., common in rain-forest along creek, no. 1331 (flowering specimens), Nov. 7 (shrub up to 6 m. high; flowers cream-white, very showy and nicely scented).

This is the first time this interesting plant has been collected since the type gathering.

**Jasminum Kajewskii**, sp. nov.

Frutex glaber, alte scandens ramis griseo-corticatis, ramulis cortice brunneo cinctis; foliis simplicibus, subcoriaceis ovatis vel ovato-ellipticis, basi obtusis vel rarius cuneatis apice peracutis supra nitidis et reticulatis subtus opacis ad 11.5 cm. longis plerumque 2-plo longioribus quam lata, petiolis ad 1.5 cm., infra medium articulatis; cymis terminalibus vel axillariibus in paniculas patentes laxifloras dispositis 10-15 cm. in diametro, bracteis subulatis, inferioribus 0.5 cm.; pedicellis gracilibus 0.5-1 cm.; floribus albis suaveolentibus; calycis tubo 0.7 cm. longo basim versus perangusto, lobis subulatis 0.7 cm.; corollae tubo 1.2 cm., lobis 7-9 1.5 cm. longis et 3-4 mm. latis; antheris inclusis 0.5 cm. longis.

Lake Barrine, Atherton Tableland, alt. 800 m., common in rain-forest, no. 1346 (flowering specimens), Nov. 8 (vine growing on rain-forest trees; flowers white, sweetly scented).

Very distinct from any previously described Australian species. Its affinities lie with the Asiatic and Papuan species with trinerved leaves from most of which it differs in its very long subulate calyx lobes.

LOGANIACEAE

**Geniostoma australianum** F. v. Mueller, *Fragm. Phytogr. Austr.* v. 19 (1865).

Range Road, Atherton Tableland, alt. 300 m., common in rain-forest, on creek bank, no. 1302 (flowering specimens), Oct. 30 (shrub up to 5 m. high; flowers light green).

**Fagraea Muelleri** Bentham, *Fl. Austr.* iv. 368 (1869).

*Gardneria fagraeacea* F. v. Mueller, *Fragm. Phytogr. Austr.* vi. 130 (1868).

Gadgarra, Atherton Tableland, alt. 800 m., common in the rain-forest, no. 1018 (very young fruits), May 21 (specimens gathered from a small tree about 6 m. high; immature fruit with a gummy juice). Herberton Range, alt. 700 m., common in rain-forest, no. 1371 (ripe or nearly ripe fruits), Nov. 18 (specimens gathered from a small tree 7 m. high; fruit bright purple, 1.5 cm. long, 1 cm. diam.). Daintree River, common in rain-forest, no. 1417 (flowering specimens, mostly in bud

only), Nov. 30 (medium to tall tree; flowers white to cream; bark of green trees used as torches by aborigines as it burns freely).

Number 1417 represents a very large-leaved robust form.

#### APOCYNACEAE

**Alstonia angustifolia** Wallich, Cat. 1650 (1829), nomen.—  
A. De Candolle, Prodr. VIII. 409 (1844).

Daintree River, common in rain-forest, no. 1469 (flowering specimens), Dec. 12 (medium-sized tree about 20 m. high). Mourilyan, C. T. White, Jan. 1923.

Not previously recorded for Australia. A feature of the Australian specimens is that the leaves are usually in whorls of four.

**Alstonia villosa** Blume, Bijdr. 1038 (1826).

Gadgarra, Atherton Tableland, alt. 800 m., common in the rain-forest, no. 1080 (fruiting specimens), June 4 (medium-sized tree up to 25 m. high with a milky sap).

**Alyxia orophila** Domin in Bibl. Bot. XXII. (Heft 89<sup>6</sup>) 1077 (1928).

Mt. Bartle Frere, alt. 1500 m., common in small rain-forest, no. 1283 (small tree up to 5 m. high; leaves dark green, fruit orange color when ripe, 1 cm. long, 0.5 cm. diam.).

The fruits were previously unknown and differ from those of *A. ruscifolia* R. Br. in being oblong, not globose. Domin describes the leaves as obovate-orbicular or rhomboid- or ovate-suborbicular; some of the leaves in the large series of specimens represented by Kajewski's no. 1283, however, are oblong-lanceolate or even lanceolate in outline, though most would come under Domin's description. *Alyxia ruscifolia* R. Br. as understood at present is a polymorphic species and is represented in the Queensland Herbarium by a great number of specimens, some of these approach *A. orophila* Domin very closely, in some cases the branchlets are quite asperulous, in others perfectly smooth.

**Ochrosia Newelliana** F. M. Bailey in Queensl. Agric. Jour. v. 389 (1899).

East Malanda, Atherton Tableland, alt. 700 m., common in the rain-forest, no. 1217 (specimens gathered from a small tree

about 15 m. high; bark dark grey, inner bark light brown; fruit with a milky sap, oval but with a long point, when mature 3.5-4 cm. long, 1.5 cm. diam.). Herberton Range, alt. 700 m., common in rain-forest, no. 1374 (small tree up to 10 m. high).

***Cerbera floribunda*** K. Schumann in Schumann & Hollrung, Fl. Kais.-Wilh.-Land, 111 (1889).

Daintree River, common in rain-forest, no. 1389 (flowering specimens), Nov. 28 (tall tree up to 20 m. high; flowers white, faintly scented; timber cut and used to make butter boxes; local name "Milky Pine").

Not previously recorded for Australia. The identification was kindly verified for me by Dr. Fr. Markgraf after comparison with Papuan material at Berlin.

***Cerbera manghas*** Linnaeus, Spec. Pl. 208 (1753).

Gadgarra Reserve, Atherton Tableland, alt. 800 m., common in the rain-forest, no. 1141 (flowering specimens), July 24 (large tree up to 30 m. high; flowers sweetly scented; petals cream; local name "Milky Pine").

***Ichnocarpus frutescens*** R. Brown in Mem. Wern. Soc. i. 62 (1809).

Daintree River, common in rain-forest, no. 1419 (flowering specimens), Nov. 30 (vine; flowers white).

***Wrightia millgar*** F. M. Bailey in Queensl. Dept. Agric. Bull. XXI. (Bot. Bull. VII.) 65 (1893).

Daintree River, common in rain-forest, no. 1409 (flowering specimens), Nov. 29 (tall tree up to 30 m.; bark medium grey, slightly corky, sap milky; flowers cream-green).

***Parsonsia densivestita***, sp. nov.

Frutex alte scandens, ramulis robustis ferrugineo-velutinis. Folia opposita, ovalia, basi rotunda vel subcordata, apice breviter acuminata, utrinque molliter ferrugineo-pubescentia; petiolus ferrugineo-velutinus, 1.5-4 cm. longus; lamina 9-13 cm. longa, plerumque ca. 8 cm. lata, nervi secundarii 6-8 in utroque latere; venae subtus conspicuae. Cymae axillares, densiflorae, pedunculatae, pedunculis 2-4 cm. longis; pedunculis ramulis pedicellis calycibusque dense ferrugineo-velutinis; pedicellis ca. 5 mm. longis. Sepala linearia, 6 mm. longa, basi breviter connata. Corolla cremea, extus dense pubescens,

tubo 2 mm. alto, in fauce longe piloso, lobis lanceolatis 5 mm. longis intus glabris. Antherae exsertae, sagittatae, hispidae, 4 mm. longae, filamentis pubescentibus; squamae hypogynae 5, glabrae, liberae, 2 mm. longae. Ovarium in parte superiori longe pilosum; stylo glabro apicem versus leviter incrassato, stigmatate glabro subclavato.

Boonjie, alt. 700 m., common in rain-forest, no. 1347 (flowering specimens), Sept. 30 (vine growing on rain-forest trees; flowers cream, faintly sweet-scented).

Among previously described Australian species most closely allied to *P. velutina* R. Br. which, however, is much smaller in all its parts, particularly the floral ones.

**Lyonsia Langiana** F. v. Mueller, Fragm. Phytogr. Austr. vi. 128 (1868).

Gadgarra Reserve, Atherton Tableland, alt. 800 m., common in rain-forest, no. 1017 (flowering specimens), May 21 (vine growing in "scrub" (rain-forest) on the top of the small undergrowth, flowers creamy).

**Lyonsia reticulata** F. v. Mueller in Essay Pl. Coll. E. Fitzalan Smith's Exped. Burdekin, 16 (1860).

Gadgarra Reserve, Atherton Tableland, alt. 800 m., common in rain-forest, no. 1002 (flowering specimens), May 17 (vine climbing up dead trees in rain-forest; leaves dark green on top, very light green beneath; flowers inconspicuous; corolla lobes light purple-green). Scrubby Creek, Herberton Range, alt. 600 m., no. 1367 (fruiting specimens), Nov. 14 (common vine in rain-forest on creek banks).

These specimens represent a form, apparently common in North Queensland, with a very widely spreading inflorescence with scattered flowers.

#### ASCLEPIADACEAE

**Marsdenia rostrata** R. Brown, Prodr. 461 (1810).

Boonjie, Atherton Tableland, alt. 700 m., common in rain-forest, no. 1207 (flowering specimens), Sept. 19 (vine; corolla lobes cream with light blue edges).

#### CONVOLVULACEAE

**Ipomaea peltata** Choisy, Convol. Orient. 70 (1834).

Daintree River, common in rain-forest, no. 1404 (fruiting specimens), Nov. 29.

Domin in describing his *I. menispermacea* (Bibl. Bot. xxii. 1089) has suggested that the plant recorded for Australia as *I. peltata* Choisy is a distinct species. Kajewski's no. 1404 differs from Domin's description of *I. menispermacea* in the nerves of the leaves being pubescent underneath, in the smaller sepals and longer peduncles. The plants are very poorly represented in herbaria but when better known it may be found that all the Australian forms should go under *I. menispermacea* Domin. I have seen the Rockingham Bay plant collected by Dallachy and recorded by Bentham (Fl. Austr. iv. 418) and it is the same as Kajewski's no. 1404.

#### BORAGINACEAE

***Ehretia timorensis*** Decaisne, Nouv. Ann. Mus. Hist. Nat. III. 395 (1834).

Scrubby Creek, Herberton Range, alt. 600 m., common in the rain-forest, no. 1366 (flowering specimens), Nov. 14 (specimens gathered off a small tree; bark rough and furrowed; flowers white).

A very interesting find only previously known from Australia by a single gathering at Cape York by W. Hill. I have followed Ridley (Fl. Malay Penin. II. 422) in retaining *E. timorensis* as a distinct species. Kajewski's specimens consist of several sheets and show great variation in the leaf shape—ovate, elliptical or broadly lanceolate—the base is mostly quite blunt but in some specimens is decidedly cuneate.

#### VERBENACEAE

***Callicarpa pedunculata*** R. Brown, Prodr. 513 (1810).

Range Road, Atherton Tableland, alt. 600 m., common in poor rain-forest, no. 1361 (small tree up to 10 m. high; petals and stamens mauve, anthers yellow).

***Callicarpa longifolia*** Lamarck, Encyl. Méth. I. 563 (1783).

Daintree River, common in rain-forest, no. 1408 (flowering specimens), Nov. 29 (shrub or small tree up to 6 m. high; calyx green; corolla, style and stamens white; anthers cream).

***Gmelina Dalrympleana*** (F. v. Muell.) H. J. Lam, Verben. Malay Archip. 223 (1919).

Daintree River, common in the rain-forest, no. 1466 (flowering specimens), Dec. 12 (specimens gathered from a small tree



about 10 m. high; calyx dark blue; corolla lilac, the lower lip a darker blue with yellow stripe down the centre).

**Gmelina fasciculiflora** Benth., Fl. Austr. v. 65 (1870).

Range Road, Atherton Tableland, alt. 250 m., common in the rain-forest, no. 1337 (flowering specimens), Nov. 7 (medium-sized tree up to 20 m. high; corolla velvety brown outside, cream spotted with blue inside).

**Faradaya splendida** F. v. Mueller, Fragm. Phytogr. Austr. v. 21 (1865).

Lake Barrine, Atherton Tableland, alt. 800 m., common in rain-forest, on edge of lake, no. 1293 (flowering specimens), Oct. 29 (vine growing on rain-forest trees; flowers white, very showy, faintly scented).

**Clerodendron floribundum** R. Brown, Prodr. 511 (1810).

Lake Barrine, Atherton Tableland, alt. 800 m., common in rain-forest on edge of the lake, no. 1130 (fruiting specimens), July 16 (specimens gathered from small tree overhanging the lake; calyx large, dark red; fruit purple when ripe).

#### SOLANACEAE

**Solanum auriculatum** Aiton, Hort. Kew. i. 246 (1789).

Gadgarra Reserve, Atherton Tableland, alt. 800 m., in rain-forest, no. 1003 (flowers and immature fruits), May 17 (common troublesome weed pest growing up to 6 m. high; leaves dark green; petals purple; anthers bright yellow).

**Solanum hamulosum**, sp. nov.

Frutex subscandens; rami pilis stellatis densis tomentosi, aculeis crebris recurvis 3-4 mm. longis a latere compressis armati; internodia elongata, ca. 7-10 cm. longa. Folia ad nodos conferta; petioli 1.5-2.5 cm. longi, sicut rami pilis stellatis tomentosi et aculeis retrorsis muniti; lamina oblique elliptica, repanda, apice acuta, 8-11 cm. longa et 4-5 cm. lata, supra pilis stellatis crebris obsita, inermis vel aculeis gracilibus rectis paucis armata, subtus pilis stellatis densis molliter tomentosa, in costa media aculeis brevibus retrorsis armata. Inflorescentia simpliciter racemosa, inermis, 7-9-flora, rachis ad 2 cm. longa dense stellato-tomentosa; pedicelli ad 1.5 cm. longi, tenues, apicem versus incrassati sicut rachis dense stellato-pubescentes. Calyx campanulatus, extus dense stellato-tomen-

tosus, distincte 5-costatus, intus glaber, 5 mm. diam., lobi ovato-lanceolati 1.5-2 mm. longi. Corolla purpurea, campanulato-stellata, ca. 2 cm. diam., in lobos lanceolatos 5 extus dense stellato-tomentosos supra in vena media sparse stellato-pilosos divisa, membranea, inter petala glabra. Stamina glabra, supra corollae basim inserta; filamenta brevia, applanata; antherae 6 mm. longae. Ovarium pilis stellatis crebris obsitum.

Boonjie, Atherton Tableland, alt. 700 m., common in rain-forest, no. 1222 (type; flowering specimens), Sept. 23 (low climbing shrub, a terrible weed quickly choking up timber tracks, etc. if left undisturbed; flowers purple). Tarzali, Atherton Tableland, *C. T. White*, February 1918 (very bad weed in rain-forest clearings; flowers light purple; local name "The Dirran Curse").

Among previously described Australian species most closely allied to *S. Dallachii* Benth. which differs in habit, being a shrub or small tree, in having none or very few prickles and in being much less pubescent.

***Solanum pseudo-capsicum*** Linnaeus, Spec. Pl. 184 (1753).

Boonjie, Atherton Tableland, alt. 700 m., common on roadsides in the rain-forest area, no. 1266 (weed up to 1 m. high, growing on the wayside).

***Solanum viride*** R. Brown, Prodr. 445 (1810).

Lake Eacham, Atherton Tableland, alt. 800 m., common in rain-forest on edge of the lake, no. 1171 (flowering and fruiting specimens), July 4 (small tree; flowers light purple; anthers yellow; fruit red when ripe, 7 mm. long, 6 mm. diam.). Herberton Range, alt. 700 m., common in the rain-forest, no. 1373 (flowers and young fruit), Nov. 18 (small tree 10 m.; petals lilac-colored; immature fruit green with white veins).

***Duboisia myoporoides*** R. Brown, Prod. 448 (1810).

Gadgarra, Atherton Tableland, alt. 800 m., common on the edge of the rain-forest, no. 1001 (flowers and young fruits), May 17 (specimens gathered off small tree 10 m. high).

#### BIGNONIACEAE

***Pandorea nervosa*** Van Steenis in Jour. Arnold Arb. xii. 149, pl. 35 (1931).

Ghurka Pocket, Boonjie, Atherton Tableland, alt. 700 m.,

common in rain-forest, no. 1227 (flowering specimens), Sept. 24 (vine growing over small trees; leaves dark green; stems purple; flower white with light yellow inside near the base, very showy but no perfume).

**Pandorea pandorana** (Andr.) Van Steenis in Bull. Jard. Buitenzorg, ser. 3, x. 198 (1928).

Gadgarra Reserve, Atherton Tableland, alt. 800 m., common in the rain-forest, no. 1165 (flowering specimens), Aug. 2 (vine growing well into the tops of rain-forest trees; flower yellow, the inside spotted with maroon; very pretty and worthy of cultivation).

**Hausmanianthes jucunda** (F. v. Muell.) Van Steenis in Proc. Roy. Soc. Queensl. xli. 51 (1929).

Boonjie, Atherton Tableland, alt. 700 m., common in the rain-forest, no. 1348 (flowering specimens), Sept. 30 (climber; leaves dark glossy green; flowers pink-purple, very showy; plant well worthy of cultivation).

#### GESNERIACEAE

**Cyrtandra Baileyi** F. v. Mueller apud F. M. Bailey, Third Suppl. Syn. Queensl. Fl. 51 (1890).

Boonjie, Atherton Tableland, alt. 700 m., common on creek banks in rain-forest, no. 1261 (flowering specimens), Oct. 9 (small shrub up to 4 m. high; flowers light green).

#### ACANTHACEAE

**Acanthus ilicifolius** Linnaeus, Spec. Pl. 639 (1753).

Daintree River, common in swamp on salt-water creek, no. 1451 (flowering specimens), Dec. 7 (prickly plant up to 1.75 m. high, growing in large clumps; flowers blue).

#### MYOPORACEAE

**Myoporum ellipticum** R. Brown, Prodr. 371 (1810).

Range Road, Atherton Tableland, alt. 200 m., common in Eucalyptus forest, no. 1332 (flowers and fruits), Nov. 7 (shrub up to 3 m. high; fruit purple when ripe, 6 mm. diam.).

#### RUBIACEAE

**Sarcocephalus orientalis** (L.) Merrill in Philipp. Jour. Sci. III. 436 (1902).

Daintree River, common in rain-forest, no. 1395 (flower buds), Nov. 28 (tall tree up to 20 m. high); no. 1446 (flowering specimens), Dec. 7 (tall tree up to 30 m. high, wood used for timber; local name "Leichhardt Tree").

**Randia disperma** S. Moore in Jour. Bot. LV. 305 (1917).

Mt. Alexander, alt. 1200 m., common in poor scrub (rain-forest) on side of the mountain, no. 1501 (flowers), Dec. 18 (small tree up to 5 m. high; young stems pink; flowers white, sweetly scented, the corolla lobes with uneven edges).

**Randia Fitzalani** F. v. Mueller apud Bentham, Fl. Austr. III. 411 (1866).

Range Road, Atherton Tableland, alt. 300 m., common in rain-forest on creek bank, the creek itself surrounded by Eucalyptus forest, no. 1300 (fruiting specimens), Oct. 30 (small tree up to 10 m. high; leaves dark glossy green; fruit 8 × 6 cm.). Range Road, Atherton Tableland, alt. 300 m., same habitat as no. 1300, no. 1305 (flowering specimens), Oct. 30 (small tree up to 15 m. high; leaves dark glossy green; flowers white). Daintree River, common in rain-forest, no. 1462 (flowering specimens), Dec. 10 (specimens gathered off small tree about 12 m. high; flowers white).

**Randia hirta** F. v. Mueller, Syst. Census Austr. Pl. 74 (1882).

*Gardenia hirta* F. v. Mueller, Fragm. Phytogr. Austr. VII. 46 (1869).

Boonjie, Atherton Tableland, alt. 700 m., common in the rain-forest, no. 1251 (flowering specimens), Sept. 25 (small shrub up to 4 m. high; flower waxy-white, very showy).

**Randia sessilis** F. v. Mueller, Fragm. Phytogr. Austr. VII. 47 (1869).

Daintree River, common in rain-forest, no. 1478 (fruiting specimens), Dec. 13 (small tree up to 6 m. high; fruit light brown, 4 cm. diam.).

**Gardenia ovularis** F. M. Bailey in Queensl. Dept. Agric. Bot. Bull. VII. 64 (1893).

Boonjie, Atherton Tableland, alt. 700 m., common in rain-forest, no. 1259 (flowering specimens), Oct. 9; no. 1345 (flowering specimens), Sept. 30 (medium-sized tree 25 m.; bark dark grey, mottled with light patches; flowers white (no. 1259)

or cream (no. 1345), with a very strong sweet overpowering perfume).

**Canthium coprosmoides** F. v. Mueller in Trans. Phil. Instit. Victoria, III. 47 (1859).

Daintree River, common in rain-forest, no. 1465 (flowering specimens), Dec. 12 (small tree up to 10 m. high; corolla lobes white, tube light green-brown).

**Canthium costatum**, sp. nov.

Arbor parva, glabra; ramulis junioribus subangulatis; stipulis aequalibus subulatis vix persistentibus ad 7 mm. longis. Folia brevi-petiolata, elliptica, acuta vel subacuminata, basi sensim in petiolum attenuata, subcarnosa (in sicco crasse membranacea), supra nitida, subtus opaca, costa media tenui utrinque prominula, nervis et reticulatione obtectis, petiolo ca. 2 mm. longo, lamina 5-7 cm. longa et 2-3.5 cm. lata. Flores in tuberculis parvis axillaribus pauci-(2-5-)umbellatis, pedicellis gracilibus. Calyx 5-dentatus, dentibus vix 1 mm. longis, tubo in pedicellum gracilem complanatum (vel subalatum) sensim attenuato cum pedicello 1.2 cm. longo. Corollae tubus 1 cm. longus; lobi ovati, extus glabri, tricostati, intus furfuracei, apice acuminati, 3 mm. longi; ostium barbatum. Antherae oblongae, vix 1 mm. longae, minute apiculatae. Stylus tenuis; stigma subglobosa (?) 1 mm. diam. Drupae rubrae, dispermae (vel abortu 1-spermae), prominenter costatae, complanatae, 1.5 cm. latae.

Daintree River, common in rain-forest, no. 1450 (flowering and fruiting specimens), Dec. 7 (small tree 8 m. high; fruit red when ripe, flattened, with 8 or 9 ridges running down it); *L. J. Brass*, no. 2248 (flowering specimens), March 7, 1932 (tall shrub or small tree); *L. J. Brass*, no. 2261 (type; flowering and fruiting specimens), March 11, 1932 (small horizontally branched tree with a brown slightly fissured bark; leaves pale green, fleshy, glossy above; flowers pale yellow, very heavily scented; fruit pendulous, red, deeply angled).

Remarkable on account of its flattened, almost winged pedicels and prominently ribbed fruit (the ribs not very prominent in the dried specimens but very noticeable in formalin material). It seems to come closest to *Plectronia longiflora* Val. which has longer, more prominently veined and coriaceous leaves and shorter pedicels.

**Canthium odoratum** Seemann, Fl. Vit. 132 (1873).

Herberton Range, common in rain-forest, alt. 900 m., no. 1377 (flowering specimens), Nov. 19 (medium-sized tree up to 20 m. high; flowers cream-yellow, strongly scented).

**Timonius sericeus** (Desf.) Schumann in Engler & Prantl, Nat. Pflanzenfam. iv.-4, p. 98 (1891).

Range Road, Atherton Tableland, alt. 200 m., common in rain-forest on creek bank, surrounded by Eucalyptus forest, no. 1304 (flowering specimens), Oct. 30 (medium-sized tree up to 20 m. high; flowers white). Daintree River, common in both open Eucalyptus forest and rain-forest on creek banks, no. 1468 (flowers and fruits), Dec. 12 (small tree up to 10 m. high; flowers cream; fruit purple when ripe).

**Abbottia singularis** F. v. Mueller, Fragm. Phytogr. Austr. ix. 181 (1875).

Gadgarra Reserve, Atherton Tableland, alt. 800 m., common in rain-forest, no. 1191 (immature fruits), Aug. 6 (medium-sized tree).

**Stylocoryne Dallachyana** (F. v. Muell.) Domin in Bibl. Bot. xxii. (Heft 89<sup>7</sup>) 1171 (1929).

Gadgarra Reserve, Atherton Tableland, alt. 800 m., common in rain-forest, no. 1019 (immature fruits), May 25 (specimens gathered off small tree about 10 m. high). Lake Barrine, Atherton Tableland, alt. 800 m., common in the rain-forest, no. 1349 (fruiting specimens), Nov. 9 (specimens gathered off a small tree about 15 m. high; bark with a rough granular surface, light brown when rubbed, inner bark full of moisture and assuming a purple hue when cut; fruit black when ripe, globular slightly flattened at each end, 6 mm. diam.).

In Kajewski's specimens the fruits are two-celled with 4-5 seeds in each cell; the species is very common in North Queensland and is represented by a big series of specimens in the Queensland Herbarium; all the fruits examined by me agree in possessing 4-5 seeds in each cell.

**Psychotria Dallachiana** Bentham, Fl. Austral. iii. 427 (1866).

Range Road, Atherton Tableland, alt. 200 m., common in rain-forest on creek bank, no. 1324 (flowering specimens), Nov. 2 (small tree up to 7 m. high; flowers white).

**Psychotria nematopoda** F. v. Mueller, *Fragm. Phytogr. Austr.* VII. 48 (1869).

Herberton Range, alt. 900 m., common in the rain-forest, no. 1381 (flowering specimens), Nov. 19 (small tree up to 7 m. high; flowers white). Mt. Bartle Frere, alt. 1500 m., common in small scrub on top of the mountain, no. 1285 (fruiting specimens), Oct. 24 (small tree 7 m. high; fruit cream when ripe, 0.8 cm. long, 1.5 cm. diam., globular, flattened at the base and marked with angular lines).

**Lasianthus strigosus** Wight in *Calcutta Jour. Nat. Hist.* VI. 512 (1846).

Daintree River, common in the rain-forest, no. 1444 (flowers and immature fruits), Dec. 5 (specimens gathered from a bush about 3 m. high growing in wet places along a creek; flowers white).

**Coelospermum reticulatum** (F. v. Muell.) Benth, *Fl. Austral.* III. 425 (1866).

Range Road, Atherton Tableland, alt. 200 m., common in the Eucalyptus forest, no. 1322 (flowers and young fruits), Nov. 1 (shrub up to 3 m. high; flowers white).

**Morinda jasminoides** A. Cunningham apud Hooker in *Bot. Mag.* LXI. t. 3351 (1834).

Lake Barrine, Atherton Tableland, alt. 800 m., common in the rain-forest, no. 1347 (flowering specimens), Nov. 8 (vine growing on rain-forest trees; corolla white, stamens yellow).

#### CAPRIFOLIACEAE

**Sambucus australasica** (Lindl.) Fritsch in Engler & Prantl, *Nat. Pflanzenfam.* IV.-4, p. 162 (1891).

Herberton Range, alt. 700 m., common in the rain-forest, no. 1372 (flowers and immature fruits), Nov. 18 (small tree up to 8 m. high; flowers light green with an overpowering perfume).

#### GOODENIACEAE

**Scaevola enantophylla** F. v. Mueller, *Fragm. Phytogr. Austr.* VIII. 58 (1873).

Boonjie, Atherton Tableland, alt. 700 m., common in rain-forest, no. 1193 (flowering specimens), Sept. 18 (vine growing over rain-forest trees; leaves dark green; flowers light yellow, each lobe of the corolla with a yellow base).





## APPENDIX

### BOTANICAL COLLECTING IN THE TROPICS<sup>1</sup>

S. F. KAJEWSKI

Collecting in the tropics is very much more difficult than collecting in the cooler and more temperate regions. In the tropics the worst factor with which the collector has to contend is the high humidity of the atmosphere. Ordinary drying methods cannot take away the moisture quickly enough from the specimens and moisture-sodden papers. Some form of artificial heat is necessary and it is desirable to have apparatus that is light and portable, foolproof and that will work day and night with very little attention. I have experimented and found that very satisfactory results can be obtained with a hot-air drier. First I will give directions for making a drier of this type and then for a steam drier.

As the standard size of herbarium sheets is 17 inches by 11 inches, make a galvanized iron rectangular box 20 inches long, 13 inches wide and 16 inches deep. This is the interior box shown in Figures 2 and 3 and labelled in Figure 2 "Oven for Botanical Specimens." The extra length and breadth allow the dryers to fit nicely in case of bulging and to admit the sticks that go down to allow the hot air and steam to get away from the specimens. These small sticks are shown in Figure 3.

The outer box is made two inches larger than the "Oven." This is to allow plenty of room for the circulation of the hot air from the chimney. The outer box will accordingly be 22 inches long, 15 inches wide and 18 inches deep.

<sup>1</sup>Mr. S. F. Kajewski collected for the Arnold Arboretum in the New Hebrides and Banks and Santa Cruz Groups from February, 1928, to March, 1929, in North Queensland from May to December, 1929, and in Bougainville and the British Solomon Islands from February, 1930, to May, 1932. During that time he experimented a good deal with different methods of drying specimens in a tropical, moisture laden atmosphere and finally decided to use the hot air tank here described. As his specimens have been for the most part excellently preserved and each number represented by numerous sheets it is thought that a few notes on his methods might be of interest to botanists contemplating extensive collecting in tropical regions.—EDITOR.

In the centre of the bottom of the larger box cut a circular hole to fit the top of the funnel of a Perfection Kerosene Stove. This is shown clearly in Figure 1. These figures are not drawn to scale, but are illustrative only.

Next is required a Perfection Kerosene Stove, a camp model which is a single burner type with a circular galvanized iron

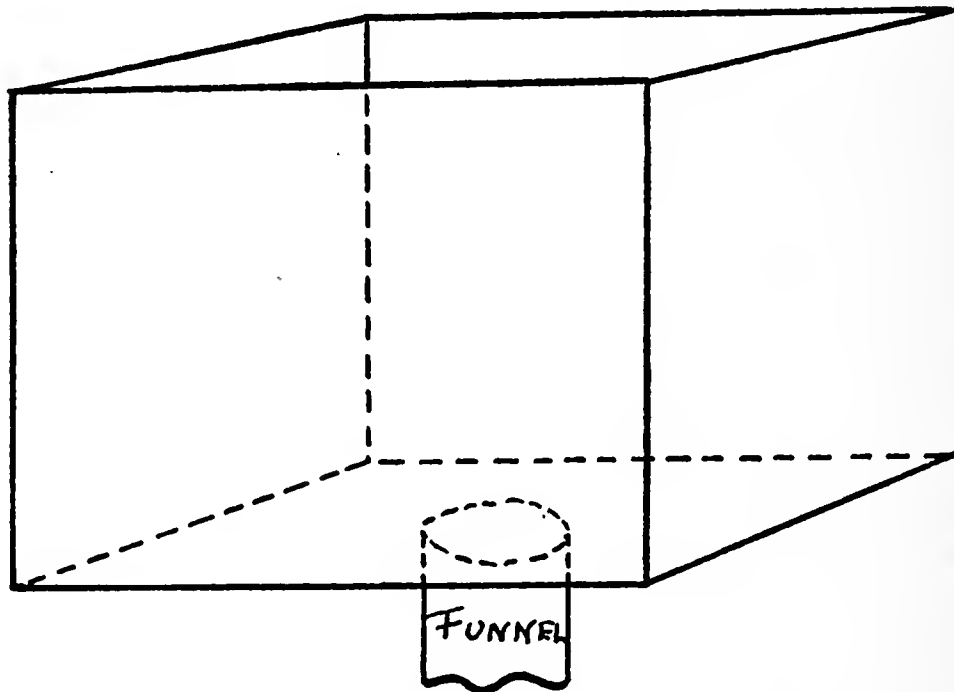


FIGURE 1. OUTER BOX OF THE DRYING STOVE.

shield to protect the flame from the wind. The grates supplied are not needed. There will be noticed a circular platform which supports the grating for the pots and pans and also a couple of screws that hold the iron together which supports this platform. Undo these screws, take the platform off and cut off enough iron all round to enable the draught funnel to protrude about one-quarter of an inch above the platform. This can be done with an ordinary pair of tinsnips. The idea is for the quarter of an inch of the funnel to go inside the hole cut in the large outer box as shown in Figure 1.

A stand is next required; two empty kerosene cases are ideal for this purpose as they are the same height as the Perfection Stove. A little packing may be necessary if the ground is not level but that is quickly done. If no empty kerosene cases are available almost any small cases will suffice. If too small they can be packed up off the ground, if too large they can be sunk in the earth. Figure 4 gives some idea of the appearance of the stove when mounted on its stand.

The outer box is now mounted on a stand with the stove funnel just protruding one-quarter of an inch above the bottom. Four blocks or anything, say empty tobacco tins, about two inches square to support the weight of the inner box or oven are laid close to the corners of the outer box and the oven or inner box is laid on top. See Figure 2 for details.

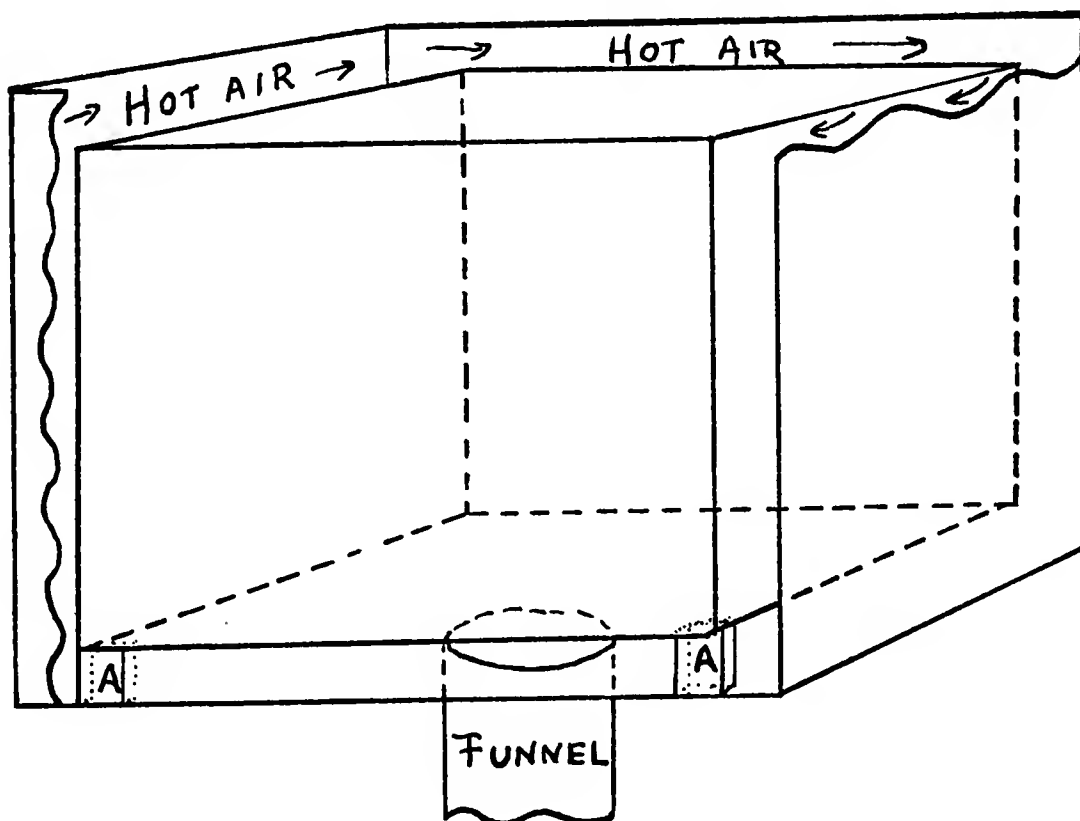


FIGURE 2. DRYING STOVE WITH THE FRONT WALL AND LID REMOVED SHOWING INTERIOR OVEN SUPPORTED BY BLOCKS (A).

Before putting specimens in the inner oven it is necessary to put four small blocks (river pebbles will do) about 1.5 inches in diameter and a sheet of galvanized iron, about 1 inch smaller all round than the bottom of the stove, on top of these four small blocks or pebbles as in the illustration. Small sticks are inserted down the sides of the inner box or oven as in Figure 3. The idea of the sticks is to allow the steam to escape rapidly from the drying specimens. The stove is now ready to be filled with specimens.

When filling the oven or inner box put in the specimens in bundles of six to ten. Between each bundle lay small sticks horizontally (casing split up is excellent as it is flat) to allow the steam to escape and for the circulation of hot air. This can be repeated until the oven is full. Put stones on top to press the specimens, put the lid on the outer stove (it is not

necessary to have a lid for the inner oven) and light the burner. The lid can be left with an opening of about a quarter of an inch on one side to let the hot air escape and assist the draught of the funnel. The lid I had was not a tight fit around the seams so I could clamp it down tightly and it retained the heat well without interfering with the flame. The idea is to have a small area for the combusted gases to escape so that the stove is kept at a high even temperature.

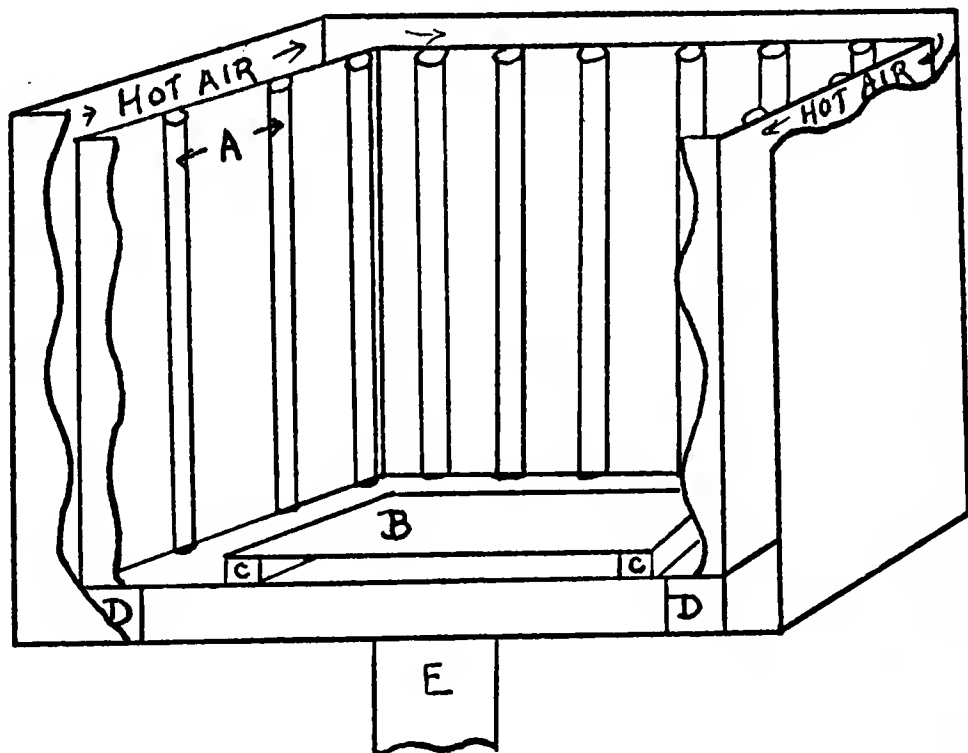


FIGURE 3. INTERIOR OF DRYING STOVE WITH THE FRONT WALL OF THE OUTER AND INNER BOX AND THE LID REMOVED.

A. Small sticks placed on sides to permit evaporation from packs.—  
 B. Small sheet of galvanized iron.—C. Blocks to support inside sheet of iron.—D. Blocks to support inside oven.—E. Funnel.

The wick of the stove is kept very low, just a small circle of flame about 0.25 inch long, but this is a matter of experience and the type of oven used. One tin (four gallons) of kerosene keeps two stoves burning for a week. I had my stoves burning day and night. The only danger is incomplete combustion which makes the wick sooty and the flame may then become too hot and burn the specimens.

Where the ovens are being used day and night the golden rule is to free the wick of carbon *every morning*. My method of work was to take out the specimens every morning and every night, as those nearest the bottom dry more quickly than those at the top. I would then put those not finished

drying back in the oven. The dried specimens are very brittle and it is necessary to let them absorb a little moisture from the air so that they are more pliable for packing.

When I was working at full speed I had specimens on the top of the oven (after putting the lid on) and half-dried ones

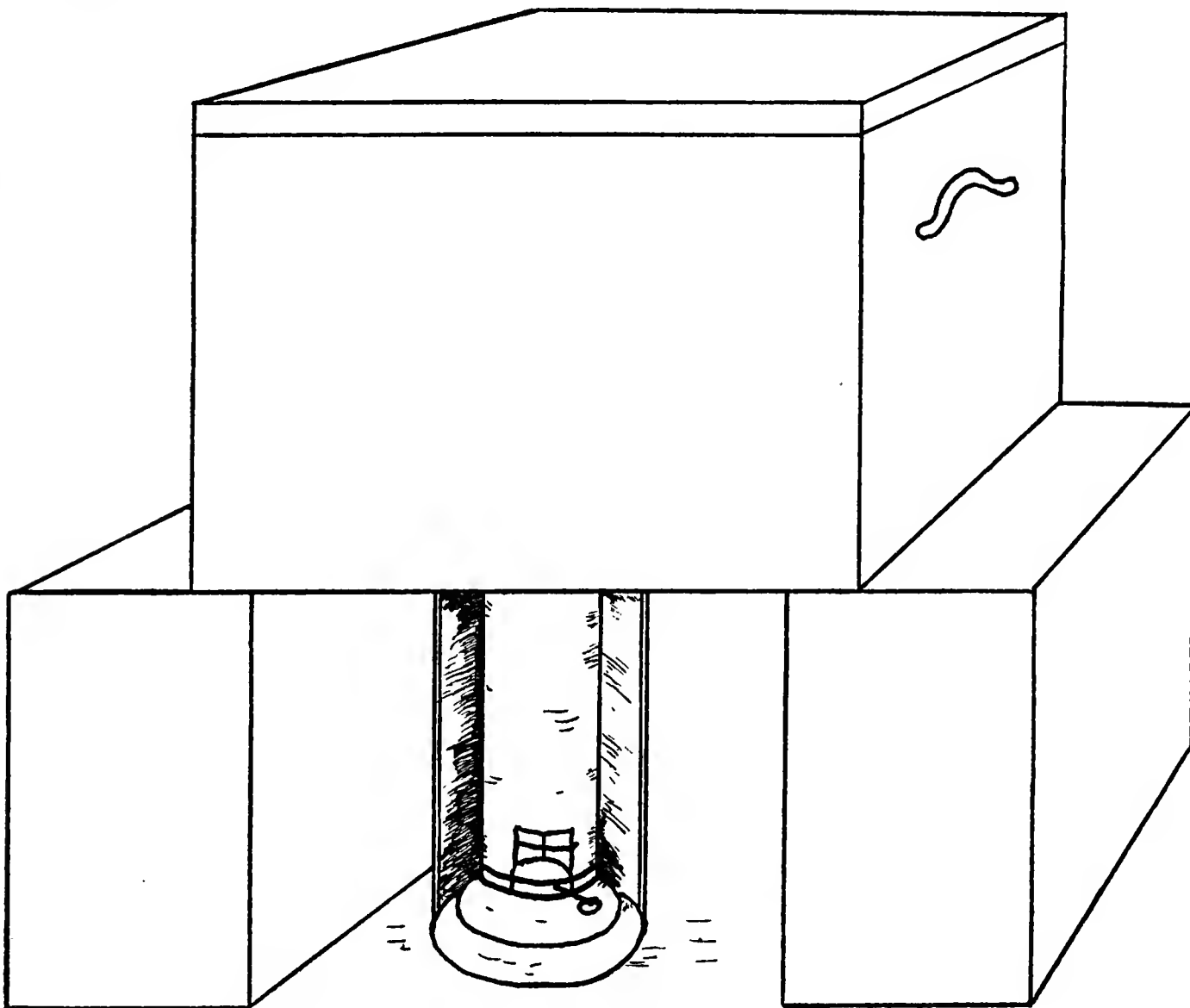


FIGURE 4. DRYING STOVE MOUNTED ON ITS STAND.

fastened on to the sides, as the whole stove is a great radiator of heat.

Two stoves or four galvanized boxes constituting them can be made so that three boxes fit inside the fourth, which can have small handles attached, so that its outside appearance is that of a galvanized iron trunk.

For steam jacket ovens the air spaces in Figure 2 could be made so that they would hold water. This would mean no hole in the large trunk. The drying and heating methods would be the same. The steam jacket is very messy and the

condensation drops are liable to fall on the specimens. Personally I found the hot air method the better of the two.

The stoves can be made of dimensions to suit the collector, and they can be larger or smaller as the case may be.

When working in humid tropical atmospheres it is a good plan to have tins in which one might pack the dried specimens immediately after drying; then seal hermetically or solder these tins. They could then be sent safely to any part of the world. A difficulty with even bone-dry specimens is to keep them from absorbing moisture and the consequent growth of mildew.

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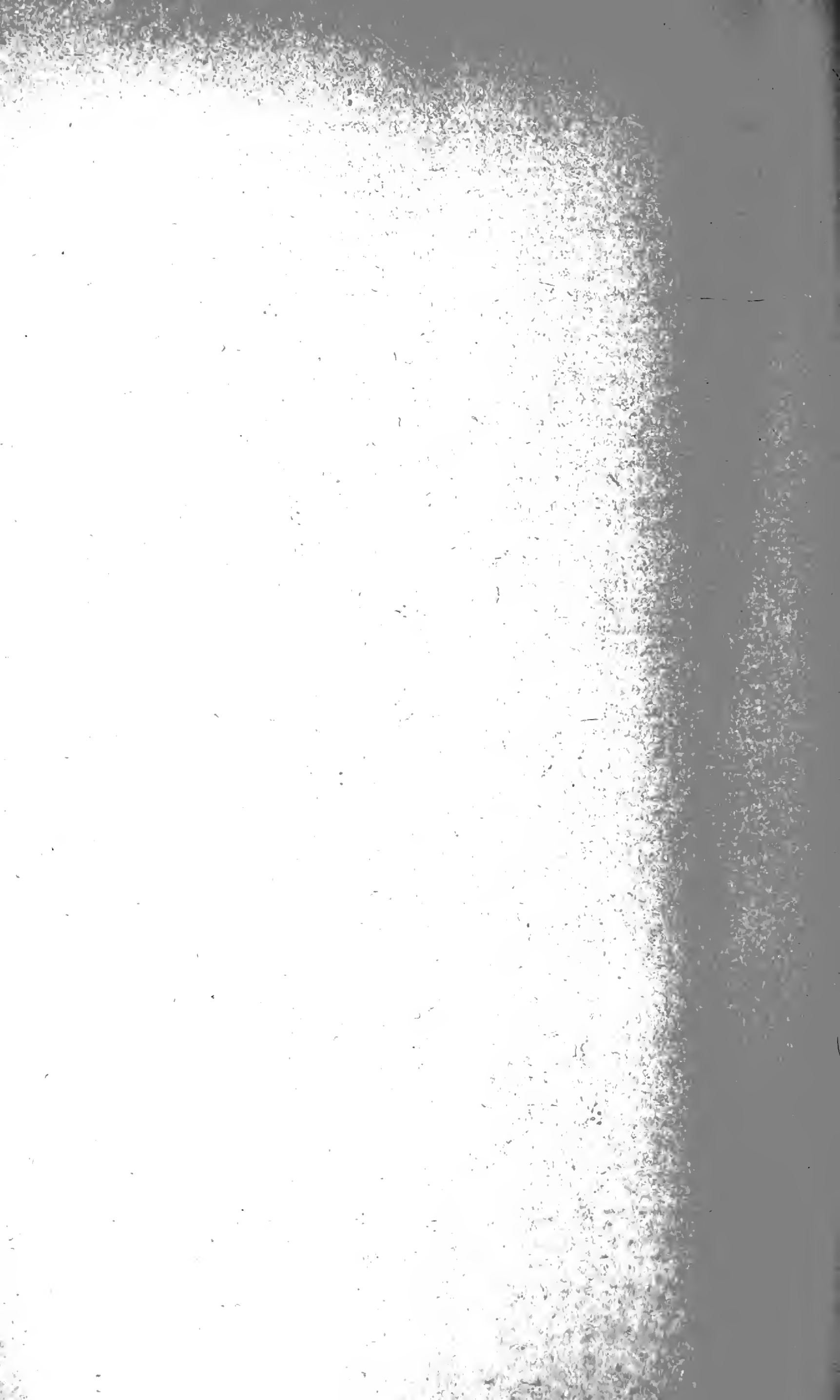
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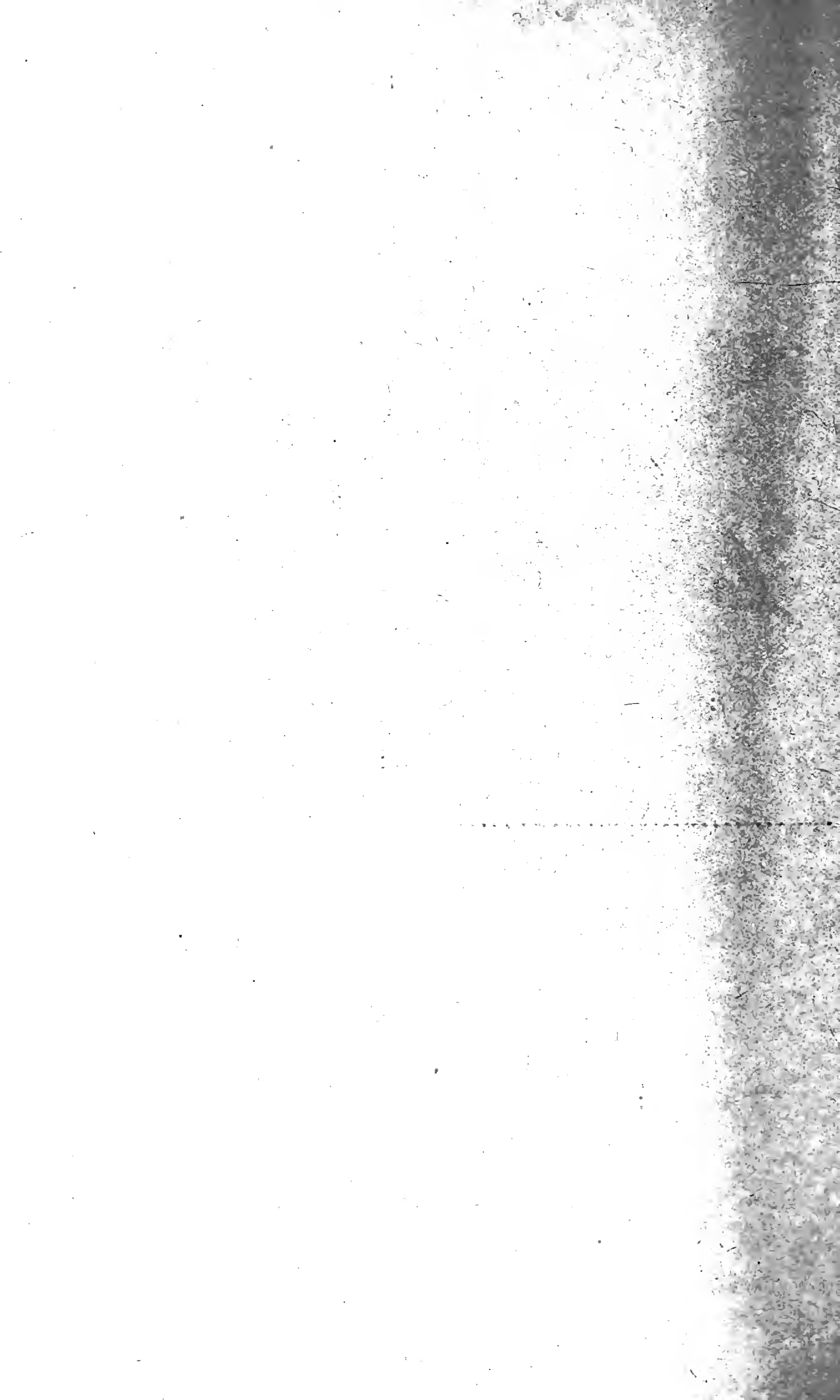
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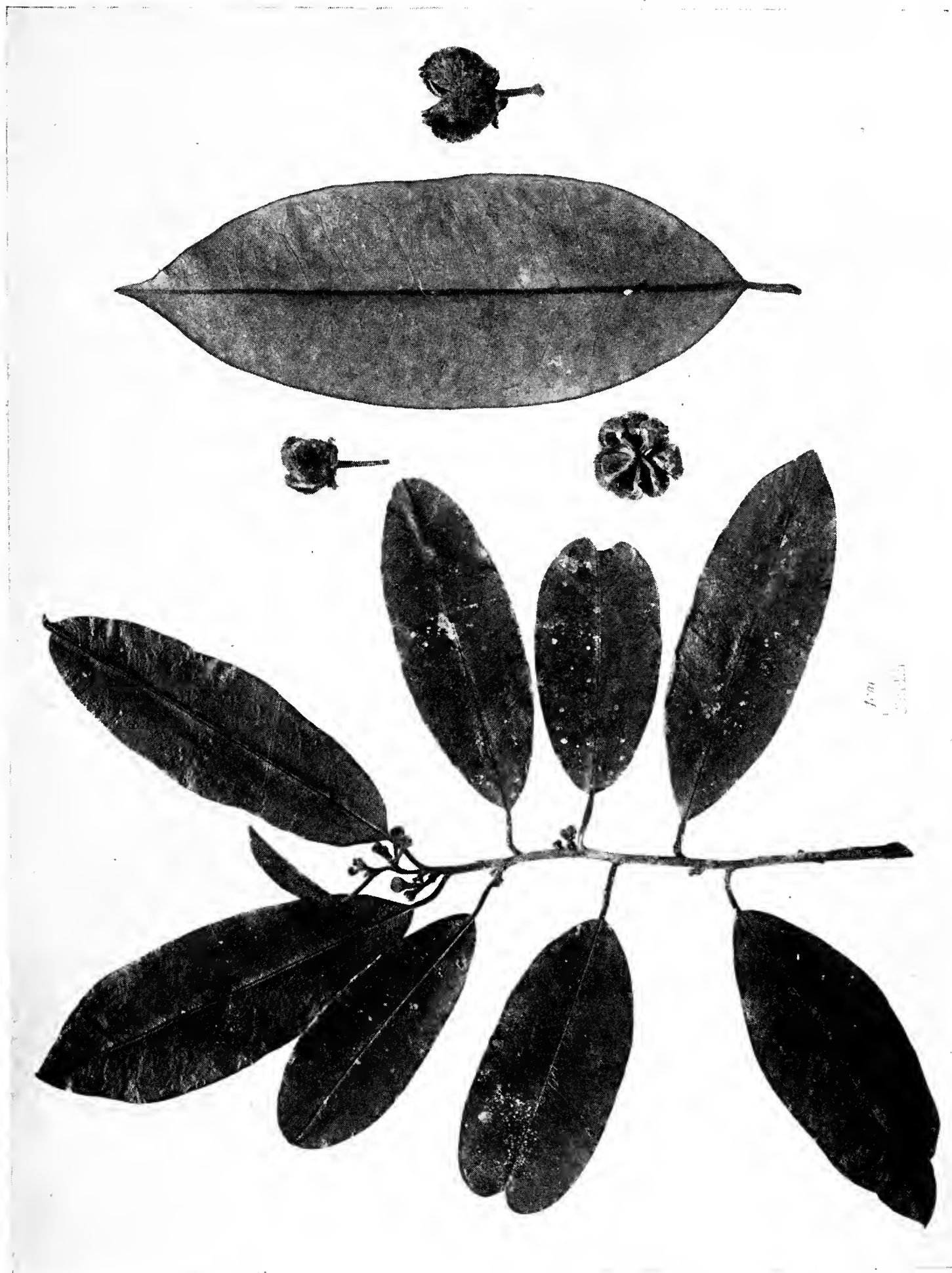






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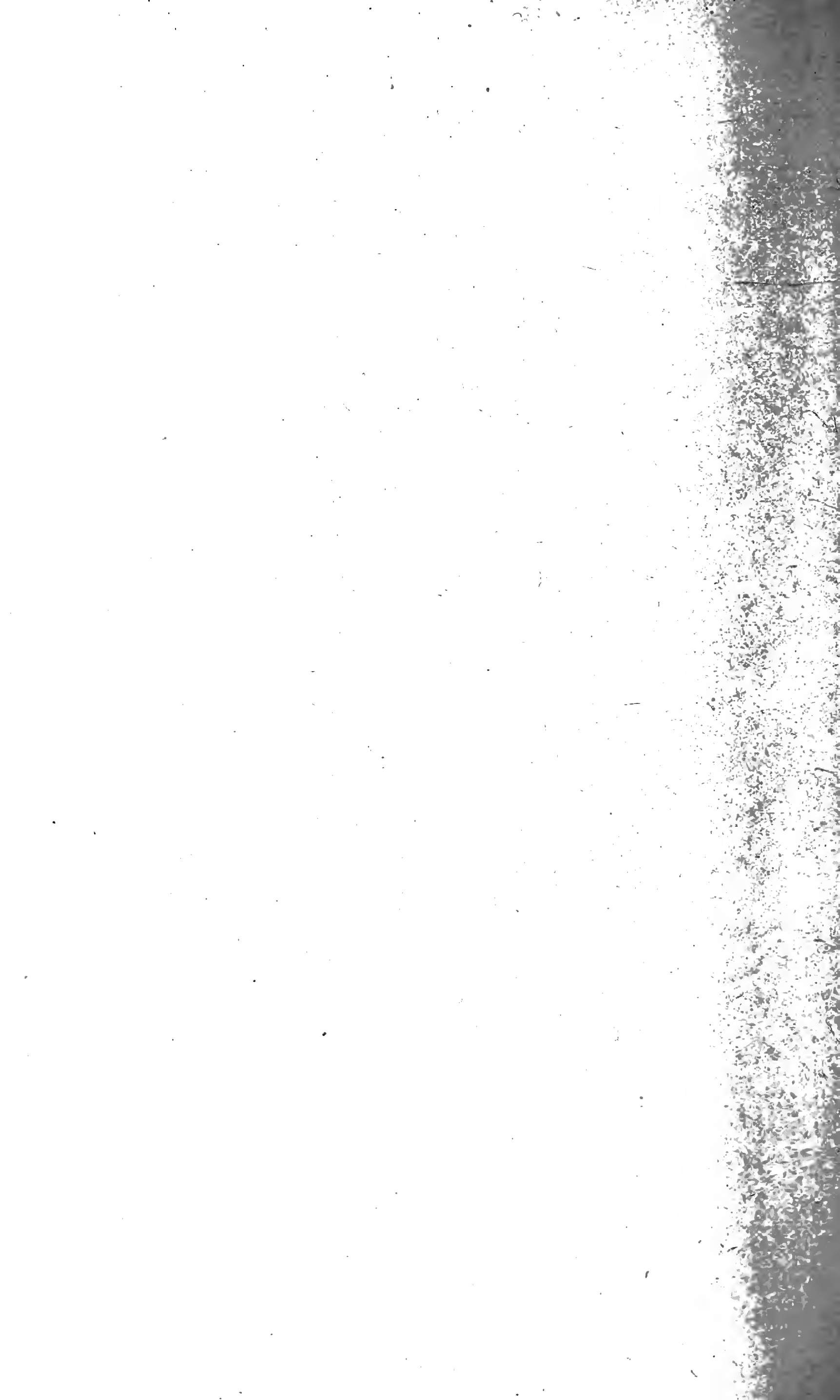


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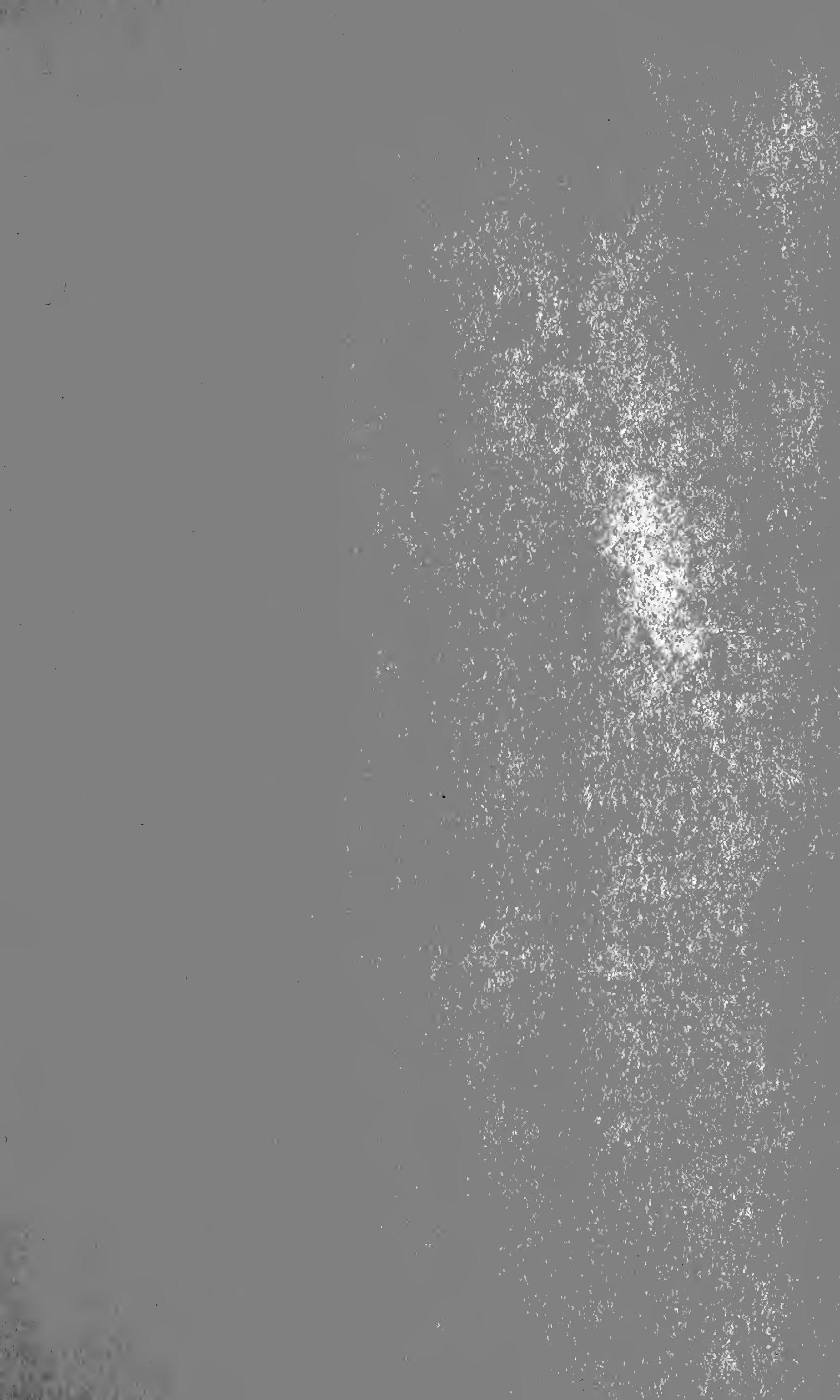
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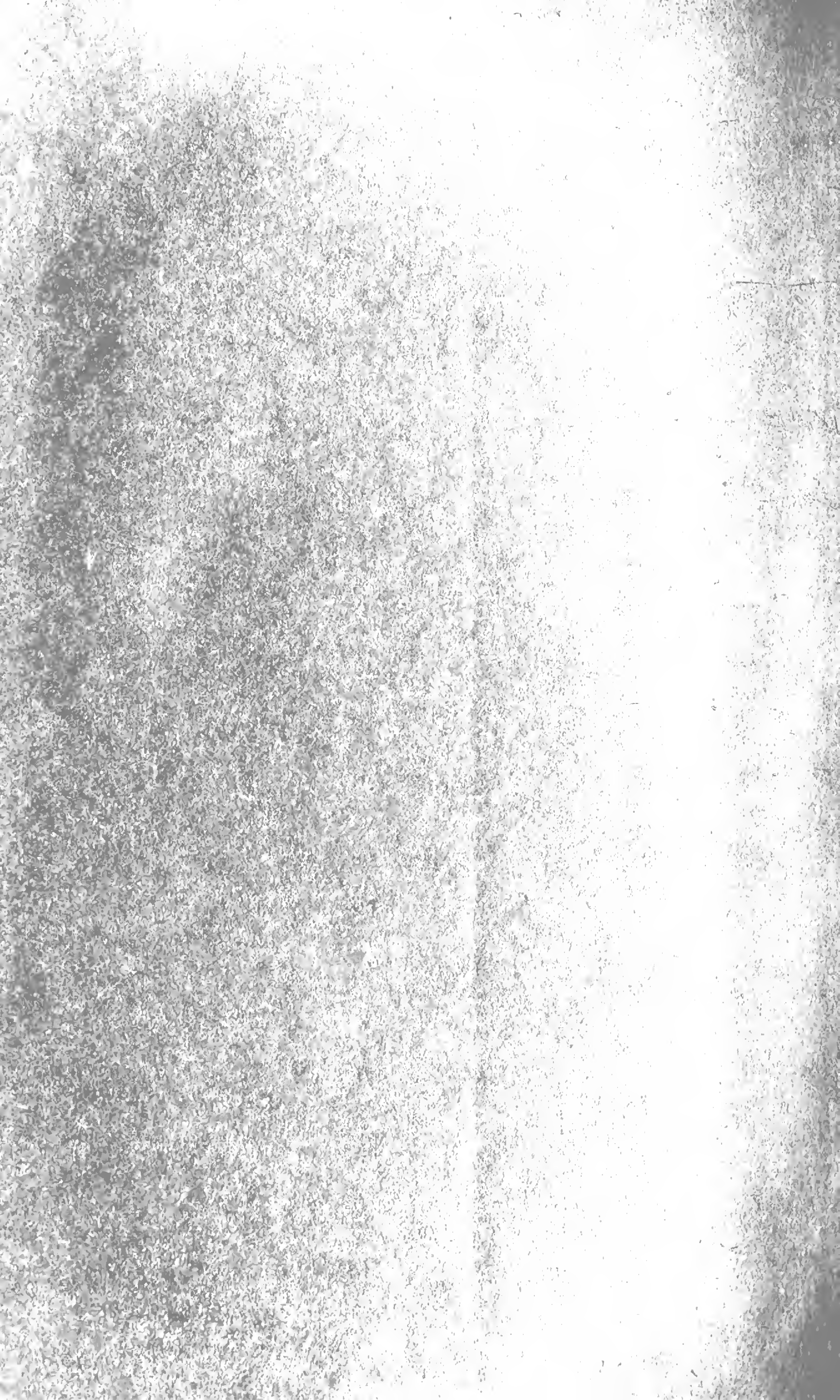
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