

REVISION OF THE SAPOTACEAE OF THE MALAYSIAN AREA  
IN A WIDER SENSE

XIII. <sup>1)</sup> *Chrysophyllum* L.

by

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In the present study only those species of the genus *Chrysophyllum* have been incorporated which are found in the area covered by the Flora Malesiana, as well as those of Australia and New Caledonia.

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The abbreviations of the herbaria used in this paper and those on *Leptostylis*, *Pycnanandra* and *Magodendron* are those proposed by Lanjouw and Stafleu in the Index Herbariorum ed. 2.

*Chrysophyllum* L., Sp. Pl., ed. I, 1753, 192; Gen. Pl. ed. I, 1737, 361 et ed. V, 1754, 88; G. Don, Gen. Gard. Syst. Dict. IV, 1838, 31; DC., Prodr. VIII, 1844, 156; Miquel, Fl. Ind. Bat. II, 1859, 1034 et in Martius, Fl. Bras. VII, 1863, 87; Bentham & Hooker, Gen. Pl. II, 1876, 653; Burek, Ann. Jard. Bot. Buitenzorg V, 1886, 4; Engler, Bot. Jahrb. XII, 1890, 519; Boerlage, Fl. Ned. Ind. II, 1891, 306; Baillon, Hist. Pl. XI, 1891, 293; Koorders & Valetton, Bijdr. Boomsorten Java I, 1894, 128; Engler in Engler & Prantl, Nat. Pflz. Fam., ed. I, IV, 1897, 147; Bailey, Queensl. Fl. III, 1900, 953; King & Gamble, Journ. As. Soc. Beng. LXXIV, 1905, 158 et 368; H. J. Lam, Bull. Jard. Bot. Buitenzorg, sér. III, VII, 1925, 186; Baehni, Candollea VII, 1938, 429; Guillaumin, Bull. Soc. Bot. Fr. 91, 1944, 69 (key only) — *Nycterisition* Ruiz & Pav., Gen. Pl. Peruv., 1797, 30; G. Don, l. c. — *Amorphospermum* F. v. Muell., Fragm. VII, 1870, 112; Baillon, Hist. Pl. XI, 1891, 285; Engler in Engler & Prantl,

<sup>1)</sup> I—III in *Blumea* VI, 3, 1952, 547—595; IV—V in *Blumea* VII, 2, 1953, 364—412; IVa in *Blumea* VII, 3, 1954, 481—483; IIa, IVb, Va, VI—IX in *Blumea* VIII, 2, 1957, 201—513; X—XII in *Nova Guinea N.S.* 8, 1, 1957, 87—128; XIII—XVI in the present issue.

Nat. Pflz. Fam., ed. I, IV, 1897, 150; Baehni l. c. 417 — *Niemeyera* F. v. Muell., *Fragm.* VII, 1870, 114 non F. v. Muell., *Fragm.* VI, 1867, 96; Engler, l. c., 149; Baehni, l. c. 469 — *Ochrothallus* Pierre ex Planchon, *Etude sur les Prod. Sapot.*, 1888, 26, *nomen*; Baillon, *Hist. Pl.* XI, 1891, 298, *descr.* — *Trouettia* Pierre ex Baillon, *Bull. Soc. Linn. Par.* II, 1891, 903; *Hist. Pl.* XI, 1891, 295.

Shrubs and trees. *Leaves* alternate, circular to linear-oblong or obovate to oblanceolate, apex rounded to acuminate, base cuneate to rounded, chartaceous to firmly coriaceous, stipules absent; midrib flat, impressed or crested above, prominent to very prominent below, secondary nerves 6—31, straight or curved, tertiary nerves irregularly, longitudinally or transversely reticulate. Inflorescences 2 - multi-florous, in the axils of leaves or their scars. *Flowers* ♂, perhaps with one exception, pedicellate to sessile. *Calyx* with 5(—6) lobes, usually glabrous within. *Corolla* slightly shorter to thrice as long as the sepals, usually exsert, with (4—)5—11 lobes, tube as long as the lobes or shorter. *Stamens* (4—)5—10, 1 opposite each petal, usually inserted in corolla-throat. *Staminodes* none. Disk usually lacking. *Ovary* villous or glabrous, 1—10-celled, cells 1-ovuled; style 0.3—4 times as long as the ovary. *Fruits* with thick to very thin pericarp, 1—8-seeded; testa very hard and thick to papyraceous; scar narrow or broader and lateral or covering nearly the whole surface of the seed; albumen none to copious.

Type species: *Chrysophyllum cainito* L.

*Distr.*: Tropical and subtropical America, tropical West-Africa, 1 species in Asia, 3 in Australia, 3 in New Guinea and 16 in New Caledonia.

As Baehni (1938) already pointed out, Linnaeus' interpretation of the generic limitations of *Chrysophyllum* varied considerably in respective publications, but more recent authors agree, that this genus is characterized by 5-merous flowers, containing 5 sepals, 5 petals, 5 epipetal stamens and no staminodes.

When studying the genera *Chrysophyllum* and *Ochrothallus* of S.E. Asia and New Caledonia, and *Niemeyera* and *Amorphospermum* of Australia, it appeared to be necessary to unite them. Though there were very few deviations from the 5-merous calyx (only in two species some 6-merous calices were found), there appeared to be important differences in the corolla.

In 14 species 5 corolla-lobes were found, in 10 other species deviations from this number existed. The following list shows, that it is impossible to delimitate with this characteristic the genera *Chrysophyllum* and *Ochrothallus*, which has twice as many petals as sepals:

NUMBER OF PETALS:

<i>Chrysophyllum</i> spec. 14 .....	5 <sup>1)</sup>
<i>wagapense</i> .....	(4—)5
<i>lissophyllum</i> .....	4—6
<i>heteromerum</i> .....	5—7
<i>antilogum</i> .....	5—6(—8)
<i>gordoniaefolium</i> .....	6—8

franceii .....	7—10
lamii .....	8
sessilifolium .....	8—11
multipetalum .....	9—10
litseiflorum .....	10

In all species mentioned staminodes are lacking and the stamens are epipetalous.

As there are no other distinguishing features, the genera *Chrysophyllum* and *Ochrothallus* are to be united.

As for *Amorphospermum* and *Niemeyera*, these genera differ from *Chrysophyllum* by the much larger extension of the scar over the surface of the seed. Variations in the extension of the scar, however, are considered less important than flower-characteristics, which are the same as those of *Chrysophyllum*. For this reason *Amorphospermum* and *Niemeyera* are also inserted into *Chrysophyllum*.

Thus *Chrysophyllum* is delimited to other genera by a 5(—6) merous calyx, epipetalous stamens in the same number as the petals and by the absence of staminodes.

A disk is found in two species only: *C. novoguineense* Vink and *C. litseiflorum* (Guill.) Vink.

Only a part of the genus — those species occurring in S.E. Asia, New Caledonia and Australia — was revised, and no attempt was made to check the interrelationships. Therefore in the descriptive part the species are arranged geographically:

- I. Introduced from America:  
Species 1 and 2.
- II. India to Bismarck Arch.:  
Species 3.
- III. New Guinea:  
Species 4, 5 and 25.
- IV. New Caledonia:  
Species 6—21.
- V. Australia:  
Species 22—24.

There appears to be a correlation of transversely reticulate tertiary nerves with secondary ones diminishing near the margin and of irregularly or longitudinally reticulate tertiary nerves with secondary ones archingly joined near the margin. The exceptions are *C. novoguineense* (Guill.) Vink and *C. chartaceum* (Bailey) Vink.

#### Key to the species

- |   |    |
|---|----|
| 1a. Tertiary nerves transverse . . . . .                                      | 2  |
| b. Tertiary nerves irregularly or longitudinally reticulate . . . . .         | 13 |
| 2a. Leaf base rounded, secondary nerves curved . . . . .                      | 3  |
| b. Leaf base cuneate to obtuse, secondary nerves curved or straight . . . . . | 4  |

<sup>1)</sup> For irregular flowers in *C. oainito* L. see: Nozeran, Ann. Sc. Nat., Bot., 2me sér., 1955, 187.

- 3a. Leaves glabrous on either side; pedicels filiform, 12—14 mm long; corolla ca. 3 mm long, glabrous, lobes (4—)5; ovary glabrous. *New Caledonia*  
10. *C. wagapense* Guill.
- b. Leaves brown woolly, glabrescent on either side, indumentum longer persistent below, turning grey; pedicels 5—10 mm long, not filiform; corolla 6—7 mm long, on the back of the lobes light brown tomentose, lobes 8—11; ovary villous. *New Caledonia* . . . . . 9. *C. sessilifolium* Pancher & Sébert
- 4a. Flowers sessile . . . . . 5  
b. Flowers petioled . . . . . 9
- 5a. Leaves with a closely appressed indumentum below . . . . . 6  
b. Leaves patently hairy or glabrous below . . . . . 7
- 6a. Petioles 1.5—2 cm long; corolla-lobes 9—10; ovary villous. *New Caledonia*  
11. *C. multipelatum* Vink  
b. Petioles 2—3 cm long; corolla-lobes 5; ovary glabrous. *New Caledonia*  
12. *C. gatopense* Guill.
- 7a. Sepals with indumentum within. *New Guinea*  
5. *C. papuanicum* (Pierre) van Royen  
b. Sepals glabrous within . . . . . 8
- 8a. Fruit 15—30 by 15—25 mm; testa papyraceous. *Australia*  
22. *C. chartaceum* (Bailey) Vink  
b. Fruit 30—50 by 25—50 mm; testa hard, bony. *Australia*  
23. *C. pruniferum* F. v. M.
- 9a. Pedicels 1—2 mm long . . . . . 10  
b. Pedicels 5—12 mm long . . . . . 11
- 10a. Indumentum on lower side of the leaves patent; petioles 0.7—1.5 cm long; calyx-lobes with indumentum on either side. *New Guinea*  
5. *C. papuanicum* (Pierre) van Royen  
b. Indumentum on lower side of the leaves appressed; petioles 2—3 cm long; calyx-lobes glabrous within. *New Caledonia* . . . . . 12. *C. gatopense* Guill.
- 11a.<sup>1)</sup> Secondary nerves 10—14, curved; leaves 14—19.5 by 4—6.5 cm; petioles 1.5—2.5 cm long. *New Caledonia* . . . . . 7. *C. gordoniaefolium* Moore  
b. Secondary nerves 20—30, straight or very slightly curved; leaves 15—48 by 6—18 cm; petioles 2—4.5 cm long . . . . . 12
- 12a. Sepals 3.0—3.5 by 2.0—3.5 mm; pistil 9 mm long. *New Caledonia*  
6. *C. balansae* Baillon  
b. Sepals 2 by 1.5 mm; pistil 4 mm long. *New Caledonia* . . . . . 8. *C. comptonii* Moore
- 13a. Flowers sessile . . . . . 14  
b. Flowers long or shortly petioled . . . . . 19
- 14a. Calyx patently hairy . . . . . 15  
b. Calyx appressedly hairy . . . . . 16
- 15a. Leaves ferruginous-hirsute below; petioles 3—4 cm long; sepals with indumentum within. *New Guinea* . . . . . 5. *C. papuanicum* (Pierre) van Royen  
b. Leaves glabrous below; petioles 0.5—2 cm long, sepals glabrous within. *Australia*  
22. *C. chartaceum* (Bailey) Vink
- 16a. The leaves circular or elliptical to obovate . . . . . 17  
b. The leaves oblong or linear-oblong to oblanceolate . . . . . 18
- 17a. Corolla 3—4 mm long; petioles 0.3—1.5 cm long; midrib minutely crested above. *Australia* . . . . . 24. *C. antilogum* (F. v. M.) Vink  
b. Corolla 2 mm long; petioles 1.1—2.4 cm long; midrib not crested above. *New Caledonia* . . . . . 16. *C. sarlinii* Guill.
- 18a. Secondary nerves minutely impressed to invisible above; corolla-tube glabrous without; style 1.5—2.0 mm long; ovary 4—5-celled; fruit ellipsoid-obovoid, without gynophore; scar covering less than half of the surface of the seed. *New Caledonia* . . . . . 14. *C. lissophyllum* Pierre  
b. Secondary nerves slightly prominulous above; corolla-tube with some scattered appressed colourless hairs without (magnification 30 ×); style 3.5—4.0 mm long; ovary 1—3-celled; fruit almost globular, with a 5—20 mm long gynophore; scar covering nearly the whole surface of the seed. *Australia*  
24. *C. antilogum* (F. v. M.) Vink

<sup>1)</sup> See also p. 73 where a new species, closely related to *C. gordoniaefolium* Moore, is described after this publication was made ready for printing.



- 19a. Leafbase rounded. *New Caledonia* . . . . . 18. *C. francii* Guill. & Dub.  
 b. Leafbase cuneate to obtuse . . . . . 20
- 20a. Stigma distinctly 5—11-lobed . . . . . 21  
 b. Stigma not lobed . . . . . 22
- 21a. Leaves reddish ferruginous-sericeous below, turning greyish brown; stigma 7—11-lobed; ovary 7—10-celled; fruit up to 55 by 40 mm, 4—8-seeded. *America, introduced in Java* . . . . . 1. *C. cainito* L.  
 b. Leaves ferruginous-sericeous below, quickly turning greyish brown, later on smoke-grey-sericeous, ultimately glabrescent; stigma 5-lobed; ovary 5-celled; fruit 15—21 by 8—11 mm, 1-seeded. *America, introduced in Malay Peninsula*  
 2. *C. oliviforme* L.
- 22a. Ovary glabrous . . . . . 23  
 b. Ovary villous . . . . . 27
- 23a. Secondary nerves curved . . . . . 24  
 b. Secondary nerves straight . . . . . 25
- 24a. Leaves chartaceous; sepals with indumentum within; disk cupuliform, appressed to ovary. *New Guinea* . . . . . 4. *C. novoguineense* Vink  
 b. Leaves firmly coriaceous; sepals glabrous within; no disk present. *New Caledonia*  
 12. *C. gatopense* Guill.
- 25a. Leaves oblanceolate, 2.0—2.5 cm wide; secondary nerves 15—17; pedicels 4—7 mm long, glabrous; corolla ca. 10-lobed. *New Caledonia*  
 15. *C. litseiflorum* (Guill.) Vink  
 b. Leaves linear-oblong to oblong-obovate or oblong to obovate, (2.5—)3—5.5 cm wide; secondary nerves 8—14 or 21—31; pedicels 1—3 mm long, with indumentum; corolla 5—7-lobed . . . . . 26
- 26a. Secondary nerves 21—31, archingly joined. *New Caledonia*  
 13. *C. heteromerum* Vink  
 b. Secondary nerves 8—14, diminishing near margins, sometimes connected by tertiary nerves. *New Caledonia* . . . . . 12. *C. gatopense* Guill.
- 27a. Secondary nerves diminishing near margins; sepals with indumentum within. *New Guinea* . . . . . 5. *C. papuanicum* (Pierre) van Royen  
 b. Secondary nerves archingly joined; sepals glabrous within . . . . . 28
- 28a. Petioles 1 cm or more long . . . . . 29  
 b. Petioles less than 1 cm long . . . . . 30
- 29a. Leaves (2.5—)3.0—4.5(—5) cm wide; secondary nerves 21—31, angle with midrib 70°—85°; petioles 1—3 cm long; pedicels more than 2 mm long. *New Caledonia*  
 13. *C. heteromerum* Vink  
 b. Leaves 1—3.5 cm wide; secondary nerves 15—25, angle with midrib 55°—70°; petioles 0.7—1.2 cm long; pedicels 0—2 mm long. *New Caledonia*  
 14. *C. lissophyllum* Pierre
- 30a. Corolla ferruginous- to dark brown sericeous without. *New Caledonia*  
 17. *C. deplanchei* Baill.  
 b. Corolla glabrous without . . . . . 31
- 31a. Leaves usually acuminate, chartaceous, dark coloured above; pedicels 3—6 mm long; fruit 5—4(—1)-seeded. *India to Bismarck Arch.* 3. *C. lanceolatum* (Bl.) DC.  
 b. Leaves not acuminate, coriaceous, light coloured above; pedicels less than 3 mm long . . . . . 32
- 32a. Leaves oblong to linear-oblong, sometimes oblanceolate, 4—15 cm long; secondary nerves 15—25, angle with midrib 55°—70°; branchlets 3—6 mm thick. *New Caledonia*  
 14. *C. lissophyllum* Pierre  
 b. Leaves elliptical to obovate, 1.5—5.0 cm long; secondary nerves 8—13, angle with midrib 40°—60°; branchlets 1—4.5 mm thick . . . . . 33
- 33a. The leaves 0.6—1.3 cm wide, apex acute to rounded; angle between secondary nerves and midrib 40°—50°; leaves purple to reddish brown below. *New Caledonia*  
 19. *C. intermedium* Baill.  
 b. The leaves 1.8—5.0 cm wide, apex broadly rounded to obtuse; angle between secondary nerves and midrib 50°—60°; leaves light greyish brown below. *New Caledonia* . . . . . 20. *C. cochleare* Vink

Insufficiently known :

21. *C. glabrisepalum* Guill. (*New Caledonia*)

1. *C. cainito* L., Sp. Pl. ed. 1, 1753, 192; DC., Prodr. 8, 1844, 157; De Vriese, Tuinb. fl. 3, 1856, 220; Miquel in Martius, Fl. Bras. 7, 1863, 94; Koorders & Valenton, Atl. Baumart. 4, 1915, t. 617; Merrill, Enum. Phil. Flow. Pl. III, 3, 1923, 288.

Trees, up to 20 m high. Branchlets terete, 2.5—6 mm in diam., light brown to ash-grey, reddish ferruginous-sericeous, glabrescent. *Leaves* diffuse, oblong to obovate, (5.5—)6.5—11(—15.5) by 3—6 cm, apex obtuse, shortly acuminate, acumen up to 0.8 cm long, or sometimes emarginate, base broadly cuneate, often shortly decurrent; reddish ferruginous-sericeous on either side, very quickly glabrescent above, becoming nitidous, turning dark reddish ferruginous-sericeous below, ultimately greyish brown coloured, chartaceous; midrib impressed above, very prominent below, secondary nerves 16—24, ascending at an angle of 70°—85°, straight or very slightly curved, archingly joined, prominulous to faint on either side, tertiary nerves longitudinally reticulate, reticulation near margins more or less irregular, faint to very faint above, inconspicuous to very faint below, often between every two secondary nerves one or two tertiary ones somewhat more distinct and subparallel to secondary ones; petioles 0.6—1.7 cm long, canaliculate above, rounded below, ferruginous- to brownish subsericeous. *Inflorescences* 5—35-florous, in the axils of leaves or their scars; pedicels 5—15 mm long, ferruginous- to brownish sericeous; bracteoles basal, circular, ca 0.5 by 0.5 mm, indumentum as sepals. *Sepals* 5, circular to ovate, apex rounded to obtuse, ferruginous-sericeous without, margins laying inside in bud with a glabrous border, with some scattered hairs within. *Corolla* ca 4 mm long, tube ca 2 mm long, glabrous, lobes 5, ovate, 1.5—2 by 1.7—2.3 mm, rounded to obtuse, brown sericeous without, margins with a glabrous border, glabrous within. *Stamens* 5, inserted in corollathroat, filaments deltoid, apex filiform, ca 0.6 mm long, anthers ovoid, ca 0.8 by 0.4 cm, apex obtuse, base cordate. *Staminodes* none. *Ovary* conoidal, 7—10-ribbed, ca 1.5 by 1 mm, ferruginous-villous, 7—10-celled, ovules inserted in lower half of the cells; style cylindrical, ca 0.4 mm long, glabrous; stigma 7—11-lobed. *Fruits* obovoid-globose, up to 55 by 40 mm, purplish brown, glabrous, pericarp up to 10 mm thick, 4—8-celled; seeds 4—8, obovate, up to 9 by 4 by 2.5 mm, apex broadly rounded, base rounded, testa chartaceous, purplish black, scar oblanceolate, ca 5.5 by 2.5 cm, hilum apical; albumen membranaceous to none; cotyledons thick, flattened, obovate, radicle basal, subglobose.

Vern. names: Bantam: Sawoe kadoe; Bogor: Sawo idjo, Sawo hidjo.

Distr.: West Indian Islands and Central America, cultivated throughout the tropics.

CEYLON. *Herb. v. Royen s.n.* = *H. L. B. 904.3.383* (L).

MALAY PENINSULA. Singapore Island, Garden of Chia Peng, Meng, 237 Kampong Teban: *S. F. 38595* (L).

SUMATRA. Medan, ca 15 m alt.: *Lörzing 9174* (L); ibidem, fruit-gardens of natives: *Lörzing 13078* (P), rare, tree, crippled, 6—10 m high, fruit ellipsoid, green, 5—6 cm long, "ein Obst von wenig Bedeutung".

JAVA. Bantam: Pandeglang, 250 m alt.: *Backer 7500* (BO, L), y. fl. March, cult., native yard; Batavia: Batavia (now Djakarta), Kampong Lima: *Backer 33386* (BO), cult.; Batavia: *Backer 33387* (BO, L), fl. March, cult.; Meester Cornelis: *Ochse s.n.* (BO), buds Nov., cult.; ibidem: *Weehuizen 23* (BO), y. fl., native yard; Buitenzorg (now Bogor) 240 m alt.: *Bakhuizen v. d. Brink fil. 2452* (BO, U), y. fl. March,

one specimen in scrub; ibidem, Tjomas, 250 m alt.: *Backer 36377* (L), fl. March, cult.; ibidem: *Backer s.n.* (L), fl. April; Buitenzorg, 250 m alt.: *Ochse s.n.* (L), y. fl. March, cult.; Batavia without locality: *Backer s.n.* (L), fl. March; Preanger: Tjibadak: *Backer 35219* (BO), cult., european yard; Soekaboemi, 600—700 m alt.: *Backer 15207* (BO, L), fr. Aug., gardens, cult.; between Bandoeng and Preanger: Soemedang, Tandjoengsari, 900 m alt.: *Witkamp s.n.* (BO) buds, fr. May, in a garden; Besoeki, Djember, Setadjek, 200 m alt.: *Koorders 21846*  $\beta$  (BO), cult.; Onderneming Kali Baroe, 400 m alt.: *Backer 36353* (L), fl. March, european yard, cult.

Cultivated at Hort. Bot. Bogor: *sub no. IV—C—5* (BO, L), fl. Oct.; *sub no. IV—C—7* (BO, L, U), fr. Jan.; *sub no. IV—C—7a* (BO, L) fl. Jan., March; *sub no. XII—B (IX)—35* (BO, L), fl. Dec.; *without number* (BO, L); *Beccari s.n.* (BO, FI, P); *Dooters v. Leeuwen & Dakkus s.n.* (L), fl. March.

TIMOR. (Portuguese part). Dili, near or behind seashore: *v. Steenis 18332* (BO), fl. Dec., tree, 15 m high, apparently cult., corolla yellow green.

Remarks: The description is drawn from the specimens mentioned above. Eyma (Fl. of Suriname, 1936, 390) mentions: "corolla 3.5—5.5 mm long, lobes 5(—7); ovary subglobose, 6—11-celled; fruit 5—8 cm long, fleshy, edible pericarp, not all ovules developing into seeds. A rather variable species".

Pierre depicts (ms) two anthers on one bifid filament and two connected anthers on one filament. The drawing belongs to *Beccari s.n.* (P), which is a cultivated specimen.

Nozeran (Ann. Sc. Nat., Bot., 2me sér., 1955, 187) describes irregularities in the number of flowerparts in a specimen of this species, among which even those of coalescence of flowers.

2. *C. oliviforme* L., Syst. Nat. ed. 10, II, 1759, 937; Lam. Enc. I, 1783, 552 (excl. var.); Pierre & Urban, Symb. Ant. V, 1904, 156; Cronquist, Bull. Torr. Bot. Cl. 72, 1945, 199; [Plumier, Pl. Am., 1756, 57, fig. 69] — *C. monopryrenum* Sw., Prodr., 1788, 49 et Fl. Ind. Occ. I, 1797, 480; Curtis, Bot. Mag. 8, 1834, t. 3303; Miquel in Martius, Fl. Bras. 7, 1863, 95; Milsum, Fruit Cult. in Malaya, Dept. Agric. F. M. S. Bull. 29, 1919, 87; H. J. Lam, Bull. Jard. Bot. Buitenzorg, sér. 3, VII, 1925, 189; Burkill, Dict. econ. prod. Malay Peninsula, 1935 — *Sideroxylon derryanum* King & Gamble, Journ. As. Soc. Beng. 74, II, 1905, 163 and 373; Gamble, Kew Bull., 1907, 109; Ridley, Fl. Mal. Pen. 2, 1923, 259.

Trees, up to 15 m high. Branchlets terete, 2—4 mm in diam., light brown to brownish grey, appressedly ferruginous-tomentose, quickly glabrescent. *Leaves* diffuse, elliptical to oblong, 5—13 by 3—6.5 cm, apex abruptly shortly acuminate, acumen ca 0.2 cm long, base obtuse, often shortly decurrent; ferruginous-sericeous on either side, quickly glabrescent above, becoming nitidulous to nitidous, quickly becoming greyish brown to smoke-grey sericeous below, ultimately glabrescent, chartaceous; midrib impressed above, very prominent below, secondary nerves 10—20, ascending at an angle of 70°—75°, straight or very slightly curved, archingly joined, faint to prominulous above, prominulous below, tertiary nerves laxly longitudinally reticulate, reticulation near margins more or less irregular, faint to very faint above, inconspicuous to very faint below, often between every two secondary nerves one tertiary one somewhat more distinct and subparallel to secondary ones; petioles 0.5—1(—1.8) cm long, canaliculate above, rounded below, brownish to ferruginous-sericeous. *Inflorescences* 5—10-florous, in the axils of leaves or their scars; pedicels 6—9 mm long,

appressedly ferruginous- or brownish tomentose; bracteoles basal, ovate to lanceolate, 0.5—1.5 by 0.5 mm, apex acute, indumentum as petioles. *Sepals* 5, rotundate to ovate, 2—3 by 2—2.5 mm, apex rounded to obtuse, brownish to ferruginous-subsericeous without, margins laying inside in bud with a glabrous border, with some scattered hairs to thinly sericeous within. *Corolla* 4.7—5.4 mm long, brownly sericeous without, but glabrous at the base of the tube and along margins of the lobes, glabrous within, tube 3—3.5 mm long, lobes 5, ovate, 1.5—2 by 1—1.5 mm, apex rounded to subacute. *Stamens* 5, inserted in corolla-throat, filaments short, deltoid, apex filiform, 0.5—0.7 mm long, anthers ovoid, ca 1 by 0.5 mm, apex obtuse, base cordate. *Staminodes* none. *Ovary* ovoid to conoidal, 5-ribbed, ca 1—1.5 by 1—1.5 mm, ferruginous-villous, 5-celled, ovules inserted in lower half of the cells; style 0.5(—1) mm long, glabrous; stigma 5-lobed. *Fruits* ovoid, 15—21 by 8—11 by 8—10 mm, apex obtuse, crowned with the remains of the style, base obtuse, glabrous, purplish black, exocarp thin; seeds one, ovoid to ellipsoid, 13—19 by 6—9 by 6—9 mm, apex and base rounded, testa light brown, dull, striate, along scar nitidous, ca 1 mm thick, scar basi-lateral, obovate to rotundate, ca 7—8.5 by 6—8 mm, apex rounded to emarginate, base rounded to acute; albumen copious, cotyledons flat, thin to moderately thick, radicle basal, cylindrical, ca 1.5 mm long.

Type figure: Plumier, Pl. Am., 1756, t. 69.

Vern. name: Pulau Penang: buah susu.

Distr.: Tropical America, imported in Malay Peninsula and Hawaii.

MALAY PENINSULA. Pulau Penang, Ayer Etam, Kampong Bharu: *Moh. Haniff s.n.* (BO, K, KEP), fl. & fr. May; ibidem, Thean Tek Road: *Moh. Haniff s.n.* (BO, K, SING), tree, 7.5—10 m high, leaves dark green above, shining, corolla greenish yellow, fr. May; Perak: *Derry-Curtis 8641* (BO, K, SING) type specimen of *Sideroxylon derryanum* King & Gamble, fl. & fr. Dec. (BO, K, SING); Singapore, Botanical Gardens: Old Jamil Limes: *M. Nur s.n.* (SING), fl. June; Arboretum: *M. Nur s.n.* (SING); ibidem, *Gardens 833*, *M. Nur s.n.* (SING), fr. June; ibidem, *Gardens 1636* *M. Nur s.n.* (SING), fl. March; Office: *M. Nur s.n.* (SING), fr. June; Economic Gardens: *Desmakh s.n.* (SING), tree with a milky elliptic fruit, size big, small fruits, fr. Febr.; opposite rubber store: *Deshmakh s.n.* (SING), a 12—15 m high tree, fruit small, oval, purple, full of pulp and latex, fl. Sept.; Residency Gardens: *Cubitt K.F. 20154* (KEP), fl. & y. fr. May.

HAWAII. Waianae valley: *D. L. Sopping 3101* (BO) y. fr. April.

3. *C. lanceolatum* (Bl.) DC., Prodr. 8, 1844, 162 — *Nycterisition lanceolatum* Blume, Bijdr. 12, 1826, 676 — *Chrysophyllum roxburghii* G. Don, Gen. Gard. Syst. Dict. 4, 1838, 33; see H. J. Lam, Bull. Jard. Bot. Buitenzorg, sér. 3, 7, 1925, 187 except syn. *C. curtisii* King & Gamble — *Lucuma lanceolata* Zippel in Macklot, Bijdr. Natuurk. Wet. 5, 1830, 178 — *Chrysophyllum javanicum* Steud., Nom., ed. 2, 1840, 359.

Trees, 15—55 m high. Branchlets terete, 1—4 mm in diam., greyish to purplish black, ferruginous-tomentose, glabrescent. *Leaves* scattered, oblong to ovate or lanceolate, sometimes obovate, often with parallel sides, 5—12.5 by 1.7—4 cm, apex acute, nearly always acuminate, acumen 0.5—1.8 cm long, base obtuse to cuneate, often slightly asymmetrical, margins undulate; ferruginous-tomentose on either side, quickly glabrescent, indumentum longer persistent along midrib at the lower surface, nitidous above, nitidulous to nitidous below, chartaceous; midrib minutely crested above, prominent below, secondary nerves 12—37, ascending at an angle

of 60°—80°, straight or slightly curved, archingly joined, the archs forming a nearly straight intramarginal nerve, hardly distinguishable from tertiary ones, faint but very distinct on either side, tertiary nerves parallel to secondary ones, near margins becoming reticulate, joined by a very dense quaternary reticulation, very faint to nearly inconspicuous above, faint to very faint, but nearly always distinct below; petioles 0.3—0.7 cm long, flattened above or terete, ferruginous-tomentose, glabrescent. *Inflorescences* 5—45-florous, in the axils of leaves or their scars; pedicels 3—6 mm long, ferruginous-tomentose, glabrescent; bracteoles basal, ovate, ca 1 by 0.5 cm, apex acute, ferruginous-tomentose without, glabrous within. *Sepals* 5, ovate to rotundate, 0.7—1.2 by 0.6—1 mm, apex obtuse to rounded, ferruginous-tomentose without when very young, glabrescent, margins fringed, glabrous within. *Corolla* 1.8—2.1 mm long, glabrous, tube 0.7—1.2 mm long, lobes 5, lingulate to trapezoid, 1 by 1—1.5 mm, apex obtuse, sometimes very minutely acuminate, margin minutely fimbriate. *Stamens* 5, inserted at or below the middle of the tube, filaments clavellate to cylindrical, 9—15 mm long, anthers ovoid, ca 0.8 by 0.4 mm, apex rectangular to acute, fimbriate, base minutely cordate. *Staminodes* none. *Ovary* subglobose, 5-ribbed, ca 0.6 by 0.9 mm, ferruginous-villous, 5-celled, ovules inserted at or somewhat below the middle of the cells; style cylindrical, 1.5 mm long, glabrous; stigma very minute. *Fruits* globular to 5-winged, 15—40 by 15—40(—60) mm, ferruginous-tomentose when young, glabrescent, brownish to purplish black when dry, pericarp thick to thin; seeds 5—4(—1), obovate, laterally flattened, 13.5—26(—35) by 8—13.5(—15) by 4.5—8 mm, apex and base obtuse, testa 0.8—1 mm thick, brown and nitidous without, scar narrowly oblong to oblanceolate, apex and base rounded to acute, hylum apical; cotyledons thin, flattened, ovate; albumen copious; radicle basal, cylindrical, ca 2 mm long.

Lectotype specimen: *Blume 775* in L.

Vern. names: (between brackets language and/or dialect; ° var. *lanceolatum*, \* var. *stellatocarpon*).

SIAM. *Korat*, \* *Ki pûng*.

MALACCA. \* *Pulot pulot*.

SUMATRA. *W. Coast*, Kapiunan (Minangkabau); *E. Coast*, Majang tjabak ?; *Palembang*, \* *Kajae nasi*, Pais (Malay), *Pepulut* (Malay); *Bangka*, *Mempulut*; *Billiton*, *Mempulut*.

BORNEO. ° *Poeloet*; *W. Borneo*, *Pelai eilin* (Dajak, Tajan); *S. and E. Borneo*, *Pulut kaju*, *Meralemubut*.

JAVA. *Djakarta*, *Kibaijôngbong* (Sundanese); *Preanger*, ° *Kilaketan*, *Tjilaketan*; *Tjilatjap*, ° *Kenit*; *Besoeki*, *Laket*, *Selaket*, *Tjelaket*, *Resip*.

CELEBES. *Malili*, ° *Dondon gisalakino* (Tobela); *Menado*, *Sambiring rintek*.

NEW GUINEA. *Manokwari*, *Inggeris* (Noemfoor), *Interrika* (Sidai), *Istofa* (Arfak), *N'dau*, *Senarga* or *Senariga* (Manikiong), *Sowgwa*; *Hydrographers Range*, *Girufu* (Orokaiva), *Koro* (Mumuni).

Distr.: *W. Coast of India*, *Ceylon*, *Assam*, *Silhet*, *Burma*, *Thailand*, *Vietnam*, *Laos*, *Cambodja*, *Cochin-China*, *Hainan*, *HongKong*, *Malay-Peninsula*, *Indonesia* except the *Smaller Sunda Islands*, *Philippines*, *New Guinea*, *Salomon Islands*.

## Non-fruiting material:

INDIA. Bombay. S. Maratha & N. Canara, Palichabuda: *Young s.n.* (*Mahan*) (BM); ibidem, Maggaon sai: *Young s.n.* (BM, L); without known locality: *Wallich 4160* (BM).

CEYLON. without known locality: *Pierre 3277* (P), y. fl. March; ibidem: *Thwaites 2689* (BM, P); ibidem: *Walker s.n.* (L).

TONKIN. prov. Phu-Tho, For. Reserve Châm-Mông: *Fleury 30118* (P), old. fl. April.

COCHIN-CHINA. Paulo Condor Isl.: *Pierre 1507* (= *Harmand 841*) (P).

HAINAN. Ch'ang-kiang Distr., Ka Chik Shan and vicinity: *Lau 1480* (P), y. fl. April.

MALAY PENINSULA. Kedah, Jeniang Road: *S.F. 35983* (BO, BM) — Johore, 14th mile Mawai-Jemaluang Road: *S.F. 34943* (BO) — Singapore, Singapore Bot. Gard.: *S.F. 31199* (BO, L); ibidem: *Fl. of Sing. (coll. Ridley) 5357* (BM, BO).

SUMATRA. Atjeh, Cajo Loeëus, Penosan, (Gn. Rangoet Galang): *NIFS bb 22402* (L); East Coast, Karolanden, Lau Boeloeh: *NIFS bb 11979* (L); West Coast, Agam, Malalak: *NIFS bb 6676* (BO, L); Battang Baroes: *Teysmann, H.B. 973* (L), type of *C. sumatranum* Miq.; ibidem: *Teysmann 163* = *H.B. 973 & 976* (BO, L); ibidem: *Teysmann H.B. 978* (L, P); Palembang, Lemating-ilir, near Gn. Megang: *NIFS E 1208* (BO, L); Lampongs†: *Teysmann s.n.* (BO); Sumatra, without known locality: *Herb. Var. Bot. s.n.* (L); ibidem: *De Vriese s.n.* (L).

LINGGA. *Teysmann s.n.* (BO).

BANGKA. Muntok, Aer Limau: *NIFS bb 7841* (BO); Djeboes: *Teysmann H.B. 3238 & 3496* (BO, L), type-specimen of *C. bancanum* Miq.; Soengailiat: *Teysmann s.n.* (BO); Boekit besar, Poeloet toeloeng Mij: *Berkhout 210* (BO), fl. Aug.; Lobok besar: *Anta (exp. Kostermans) 219* (L) and *1197* (L); ibidem: *NIFS bb 33977* (*Kostermans 39*) (L) and *34017 K. 80* (L); Aer Merah: *NIFS bb 23938* (L); without known locality: *Teysmann s.n.* (BO, P), *De Vriese H.B. 3288* (L).

BILITON. Mijndistrict Bantan, Tandjong Pandan: *NIFS bb 4113* (BO), fl. Dec.; *Teysmann s.n.* (BO).

BORNEO. S. and E. Borneo, W. Koetai, Sei Gitam: *NIFS bb 12746* (BO, L), fl. Sept.; Boeloengan, Mensapa: *NIFS bb 26241* (L); E. Koetai, Sg. Soesoeh (Sangkoe-lirang): *NIFS bb 34720* (= *Kostermans*) (L); Pengadan: *NIFS bb 13012* (= *Haung 63*) (BO); Balikpapan, Pemaloean: *NIFS bb 24757* (L); Pleihari, Kintap: *NIFS bb 12385* (L), fl. Sept.; Tanah grogot, P. Boengoer: *NIFS bb 9533* (BO); Tanah Boemboe, Baroe: *NIFS bb 13382* (= *Verhoef Z.O.B. I — 221*) (BO); Borneo, without known locality: *Blume s.n.* (L); *Beccari 3734* (P).

JAVA. W. Java, Palaboeanraote: *Koorders 10131*  $\beta$  (L, P), *Koorders 12262*  $\beta$  (L), *Koorders 33086*  $\beta$  (L); Depok: *Koorders 31065*  $\beta$  (BO, P) fl. Aug., *Koorders 42763*  $\beta$  (L); Tjampea: *Koorders 30414*  $\beta$  (L); onderneming Nirmala: *Heyne 102* (BO, L); G. Salak: *Koorders 24410*  $\beta$  (L, P) buds Sept., *Blume 775* (L) lecto-type of *Nycteristion lanceolatum* Bl.; G. Gedeh: *Houts. v. d. Gedeh. 304* (L); Takoka: *Koorders 10132*  $\beta$  (L), *10133*  $\beta$  (BO, L), fl. July, *10134*  $\beta$  (BO, L, P) fl. July, *12122*  $\beta$  (L), *12124*  $\beta$  (L), *32687*  $\beta$  (BO), *33409*  $\beta$  (BO), *39570*  $\beta$  (L); M. Java, Noesa Kambangan: *Koorders 10135*  $\beta$  (L); Pringombo: *Koorders 34066*  $\beta$  (L) buds Aug.; E. Java, Tjoeramanis: *Koorders 10136*  $\beta$  (L), *13024*  $\beta$  (L, P), *20639*  $\beta$  (L, P); Moentjar: *Beeking 80* (BO); Rogodjampi, Rogodjampi-Balak: *Koorders 1734*  $\beta$  (BO, L) type specimen of *C. dioicum* K. & V.; Java without locality: *Forbes 546* (BO); *Pierre s.n.* (L); *De Vriese s.n.* (L); *Herb. Var. Bot. s.n.* (L); unknown collector *s.n.* (L).

Cult. in Hort. Bog.: many collectors (BO, L, P).

PHILIPPINES. Palawan. Puerto Princessa: *Cenabre 29161* (P), Taytay: *Merrill 22161* (P); Palawan without known locality: *Merrill 2098* (BM, BO, P).

CELEBES. Manado, Minahassa, Bivak near Pandok Pingsay, Koejawatoe: *Koorders 18853*  $\beta$  (BO, P) and *18854*  $\beta$  (BO, P).

MOLUCCAS. E. Ceram, G. Kilia, Kiandarar: *Buwalda 5643* (L), fl. Aug.; ibidem: *NIFS bb 25840* (L).

NEW GUINEA. Manokwari, Pami-Kolonisatie: *NIFS bb 15881* (BO, L) and *bb 15885* (L); Warnapi: *NIFS bb 33609* (BO, L); Arifi: *BW 489* (L) buds Febr.; ibidem: *BW 2215* (L), fr. Oct.; Sidai *BW 1802* (L); Oransbari: *BW 2605* (L), *BW 2617* (L); Momi: *NIFS bb 33529* (L), *bb 33539* (L), *bb 33456* (= *Kostermans 257*)

(L), buds Aug.; Nabire: *Kanehira & Hatusima 12875* (A, BO, L), buds May; Hollandia, Berap: *NIFS bb 28999* (L); Hydrographers Range: *Hoogland 3854* (L), buds Sept.; without known locality: *Zippel 141* (L), *143* (L).

Field notes: *Altitude*: from sea-level up to 200 m throughout the area; in Siam, Java and Sumatra records from up to 1600 m. *Habitat*: primary (secondary) forests; rainforests; on loam, clay, sandy clay, sand, "red soil", volcanic tuff; scattered in forest or in small groups. *Trees*, 15–55 m high, first branch 10–40 m high; diameter at 1.75–2.25 m height: 20–80 cm, just below the first branch: 15–45 cm, stem rather straight; bark rough to smooth, not fissured, without lenticels, little peeling, slightly cracked, grey, dirty or purplish grey or black; living bark 10–20 mm, dirty white to pale straw, with a little white latex. Wood white, straw or yellow, with faint sour scent and a little white latex. *Leaves* dark green, with translucent secondary and tertiary nerves. *Flowerbuds* brownish green, green, light green, yellowish or yellow-white, sour. *Pedicels* and outer *calyx* dirty green. *Corolla* and filaments white to milky white, anthers light yellow to dirty straw. *Pistil* light yellowish green, ovary with long white hairs. *Juvenile fruit* light brown tomentose or with green apex and below covered with white hairs, sour, with white latex. *Ripe fruit* fleshy, light green to butter-coloured without, light yellow to white within; sweet, but sickly and slimy tasting; testa brown to black without, brown within; albumen glossy white.

Remarks: Since the specific epithet *lanceolatum* Blume (1826) is an older valid name than *roxburghii* G. Don (1838) this wellknown species has to be named *Chrysophyllum lanceolatum* (Bl.) DC. (1844) even though the name *C. roxburghii* G. Don is an older combination.

There may be distinguished three varieties, which are also geographically more or less different, though partly overlapping. The type variety is found in Java, Borneo, Philippines, Celebes and New Guinea; var. *stellatocarpon* is found on the continent, HongKong, Hainan, Sumatra, Riouw-archipelago and Billiton, and var. *papuanum* is reported from eastern New Guinea and the Solomon Islands. There are, however, some large fruits known from the continent, which are nearly intermediate between var. *stellatocarpon* and the type variety, but always their lateral sides are concave. I have not seen fruits from India, but some authors describe them as 5-ribbed, which agrees with our concept of the variety. As for the var. *papuanum*, a specimen came to hand from the neighbourhood of one of the localities reported for this variety by White, which showed to be the var. *lanceolatum*.

#### Key to the varieties

- 1a. Fruits up to 6 cm in diam., seeds 3.5 cm long, 1.5 cm wide. var. *papuanum* White
- b. Fruits up to 4.0 cm diam., seeds 2.5 cm long or less, up to 1.2 cm wide . . . 2
- 2a. The fruit globose or slightly 5-angled, lateral sides convex . . . var. *lanceolatum*
- b. The fruit distinctly 5-winged, star-like in transverse section, lateral sides concave  
var. *stellatocarpon* v. Royen

#### Var. *lanceolatum*

*Fruits* globose, sometimes slightly 5-angled in transverse section,

lateral sides convex, 1.5—4 by 1.5—4 cm. Exocarp hard and dry, thick, especially between the cells.

Distr.: Java, Borneo, Philippines, Celebes, New Guinea.

BORNEO. S. and E. Borneo, E. Koetai, Sg. Susuk Region: *Kostermans 5537* (L); Loa Haur, W. of Samarinda: *Kostermans 6923* (L); Pegatan, Pmt. Tanah Labang: *Delmaar 60b* (BO); Tanah Boemboe, Baroe: *NIFS bb 13324* (= *Verhoef Z. O. B. I—95*) (BO), fr. Jan.

JAVA. W.-Java, Depok: *Beumée 6019* (BO, L), fr. April; Tjampea: *Koorders 30413*  $\beta$  (L), fr. July; G. Saiak: *Koorders 24347*  $\beta$  (L), fr. Sept.; ibidem: *Blume 775* (L), lecto-type-specimen of *Nycterisition lanceolatum* Bl.; Tjiandjoer, Takoka: *Koorders 15351*  $\beta$  (BO, P), fr. Febr., *37256*  $\beta$  (L), fr. Oct.; M.-Java: Tjilatjap, Noesa Kambangan: *Koorders 30319*  $\beta$  (BO), fr. June; E. Java: Besoeki, Banjoewangi, Rogodjampi-Balak: *Koorders 22440*  $\beta$  (BO); without locality: unknown coll. H. L. B. *232* (L).

PHILIPPINES. Luzon, without known locality, Curran: *For. Bur. 17803* (P), fr. Jan.

CELEBES. Loewoe, Malili, Kawata: *NIFS V-192* (L), fr. Oct.; P. Moena: Raha, Wasalangka: *NIFS bb 21333* (L), fr. Aug.

NEW GUINEA. Manokwari, Ransiki: *NIFS bb 33270* (= *Soehandanda Ilham 22*) (L), fr. July; Morobe Distr. Yalu, near Lae: *Womersley N. G. F. 3297* (K, LAE), fr. July.

Var. *stellatocarpon* v. Royen nov. var. — A typo fructibus in sectione transversum asteriforme recidit.

Fruits globose, but in transverse section star-like, with rounded wings, in some cases only 5-angled, but lateral sides always concave, 1.5—3 by 1.5—3 cm, in some cases the seeds showing.

Type specimen: *NIFS T. 1. P. 744* in L.

Distr.: on the continent, Ceylon, HongKong, Hainan, Sumatra, Riouw, Singapore, Billiton.

CEYLON. without known locality: *C. V. 2689* (*Thwaites?*) (BM).

THAILAND. Rachasima Korat: *Kerr 8173* (BM); Rachasima (Korat) Bukanum: *Kerr 9864* (BM); Krabi Kaw, Pipi, 100 m alt.: *Kerr 13883* (BM).

LAOS. Kilo, 20 km on the road from Savanna-tiket to Quang Fri: *Polaine 11798* (P).

ANNA M. Prov. du Kantum, Massif de Ngok Guga, near Dak To: *Polaine 35674* (L, P), fr. May.

CAMBODJA. Pl. du Cambodge: *Bejeaud 50* (P).

COCHIN CHINA. Saigon, ad pagum go'vap: *Pierre 1507* (BM, BO, FI, L, P), fr. April; Mont Bavi: *Pierre 1507* (P).

HAINAN. without known locality: *Wang 34505* (P), fr. Oct.

HONG KONG. Wongneichung: *Ford 21612* (BM), fr. Jan.

MALAY PENINSULA. Malacca, Sungei Udang: *Fl. of Sing. 1739* (coll. Goodenough) (BO); Singapore, Bukit Timah For. Res.: *Sinclair S. F. 40200* (L); ibidem: *Fl. of Sing 2756* (coll. Ridley) (BM, BO, L); without known locality: *Main-gay 980* (L), *Griffith s.n.* (BM).

SUMATRA. Asahan, Mahisi For. Reserve: *Krukoff 4156* (L), fr. Oct.—Nov.; Palembang, Banjoecasin and Koeboe Region, near Banjoenglintjir: *NIFS T. 1. P. 744* (BO, L), type-specimen of *C. lanceolatum* (Bl.) DC., var. *stellatocarpon* v. Royen; Ramas: *Grashoff 1080* (L).

RIOUW. Karimoen, Boekit Djeloentoeng: *NIFS bb 20765* (L), fr. April.

BILLITON. Aer Merah: *NIFS bb 23937* (L), fr. March; Simpang roesa: *NIFS bb 23939* (L), fr. March.

Remarks: Blume did not describe the fruit, but as he described the species from Java, which is covered by the area of var. *lanceolatum* and falls outside the area of the var. *stellatocarpon*, it seems very likely that his specimen was having the more rounded fruits and not the



winged ones. When drawing up his description of the genus *Nycterisition* he writes "fructus carnosus" which does not agree with the fruit of var. *stellatocarpon*. Moreover Blume labelled the sheet *H. L. B. 232*: "*Chrysophyllum lanceolatum* Alph. DC.; *Nycterisition lanceolatum* Bl." and this sheet is bearing a fruit of the more globose type.

Var. *papuanum* White, Journ. Arn. Arb. 31, 1, 1950, 105—106.

Fruits 6 cm in diam., seed 3.5 by 1.5 cm.

Type specimen: *Dadswell, Smith & White N. G. F. 1545* (LAE, L); no fruits seen by me.

Distr.: the E. part of New Guinea and Solomon Islands.

NEW GUINEA. Buna Hinterland, 7 miles NW of Embi Lakes: *Smith N. G. F. 1269* (LAE, L); Yalu: *Lane Poole 614* (BO); Lae: *Dadswell, Smith & White N. G. F. 1520* (LAE).

SOLOMON ISLANDS. Beaufort Bay: *Walker BSIP 234* (K, L).

Remarks: No fruit was seen by me. About var. *lanceolatum* in the area of this variety see "Remarks" of that variety.

Lam (Nova Guinea, 14, 1932, 557) described *Niemeyera papuana* provisionally as a new species, but already pointed out that the fruits did not match the description on the label given by Lane-Poole. The leaves belong to *Chrysophyllum lanceolatum* and it is practically certain that the fruits belong to *Dysoxylum* spec. (Meliaceae). So the fruit and the vegetative parts of the type specimen (*Lane-Poole 614*) do not belong together. White selected the fruit from this specimen as the type of *Niemeyera papuana*, which name falls now in the synonymy of *Dysoxylum* spec.

#### 4. *C. novoguineense* Vink nov. spec. — *Pag. 67 and fig. 1.*

Branchlet terete, 2.5 mm in diam., dark brown, glabrous. Only 3 leaves present: one young leaf, oblanceolate, 10 by 3.3 cm, apex obtuse; two mature leaves, one obovate, 18.5 by 7.8 cm, apex slightly acuminate, acumen ca 0.5 cm long, the other one elliptical, 14 by 6.6 cm, apex broken off; in all leaves base cuneate, decurrent; with remains of ferruginous-sericeous indumentum on either side, turning grey, longer persistent below, dull on either side, chartaceous; midrib flat above, very prominent below, secondary nerves, 9, 10 and 11, ascending at an angle of 60°—70°, curved or slightly curved, diminishing near margins, faint to very faint above, prominent below, tertiary nerves ca perpendicular to midrib reticulate, near margins reticulation more or less irregular, very faint to nearly inconspicuous above, very faint below; petioles 1.8 and 2.3 cm long, flattened above, rounded below, indumentum as lamina. *Inflorescences* 13- and 16-florous, in the axils of leaves?; pedicels 2.5—2.8 mm long, light brownish to brownish grey sericeous, bracteoles basal. *Sepals* 5, elliptical-ovate, 2.2—2.5 by 2—2.8 mm, light grey to brownish grey sericeous on either side, inner ones with a glabrous border along fimbriate margin on either side. *Corolla* shortly exsert, 2.5—3 mm long, glabrous, tube 1—1.3 mm long, lobes 5, elliptical, 1.5 by 1.3—1.4 mm, apex rounded. *Stamens* 5, inserted just below corolla throat, filaments cylindrical, ca 0.5 mm long, anthers ovoid, ca 0.6 by 0.4 mm, apex obtuse, base slightly cordate. *Disk* cupuliform,

ca 0.6 mm high, ca 0.2 mm thick, appressed to ovary, lower half thinly greyish sericeous, upper half densely shortly greyish villous. *Ovary* conoidal to ovoid, ca 0.7 by 0.8 mm, glabrous, 5-celled, style tapering, ca 0.5 mm long (apex broken off?), glabrous, stigma (?) flattened, ca 0.3 mm in diam.

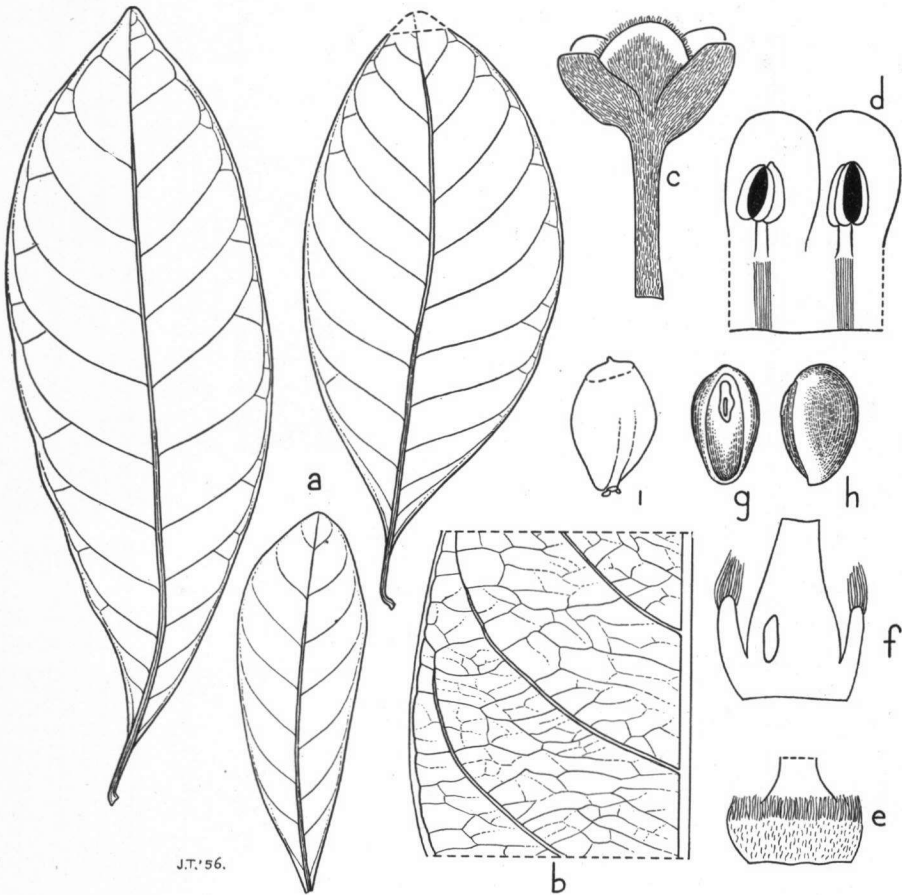


Fig. 1. *C. novoguineense*, a. leaves ( $\frac{1}{2} \times$ ), b. leaf-nerve ( $1 \times$ ), c. pedicel and calyx ( $5 \times$ ), d. part of the corolla ( $10 \times$ ), e. disk and ovary ( $10 \times$ ), f. cross-section through e., g. and h. seed from two sides ( $1 \times$ ), i. fruit ( $1 \times$ ). (from *Beccari s. n.*)

*Fruits* obovoid, 17—18 by 10—11 mm, apex rounded, crowned with the remains of the style on a 4—6 mm in diam. lightbrown circular area, base acute with minute remains of disk and villi, glabrous, brown or yellowish and purplish brown, pericarp thin, papyraceous when dry, seeds one, obovoid, ca 16 by 10 by 9 mm, apex rounded, base rounded, testa

thick, glabrous and nitidous without, darkbrown, along scar brownish yellow, scar lateral, ca oblanceolate, ca 15 by 5 mm, apex acutish, base rounded, albumen copious, cotyledons thin, flat, obovate to elliptical, radicle cylindrical, ca 1 mm long.

Type specimen: *Beccari* (annot. Pierre: no 184) in P; Fly River.  
Distr.: New Guinea.

5. *C. papuanicum* (Pierre) v. Royen, *Blumea* 8, 2, 1957, 426 — *C. ? papuanicum* Pierre Not. Bot. Sap., 1890, 30, *nom. nud.* — *Planchonella papuanica* Pierre ex Dubard, Ann. Mus. Col. Marseille, 20, 10, 1912, 59, Not. Syst. 2, 1913, 133; H. J. Lam, Bull. Jard. Bot. Buitenzorg, sér. 3, 7, 1925, 217; H. J. Lam, *Nova Guinea* 14, Bot. 4, 1932, 561, t. 113 — *Beccariella papuanica* Pierre ex Krause, Bot. Jahrb. 58, 1923, 483 — *B. papuanica* Pierre, l. c., 30, *nom. nud.* — *Sideroxylon papuanicum* Boerl. Hand. Fl. Ned. Ind., 2, 1, 1891, 312, *nom. nud.*

Branchlets terete, 2—4.5 mm in diam., greyish brown, light ferruginous hirsute, glabrescent. *Leaves* diffuse, obovate, 10.5—15 by 4.5—6 cm, apex abruptly acuminate, acumen 0.5—0.8 cm long, base cuneate; thinly, along midrib densely, hirsute on either side, glabrescent and dull to nitidulous above, indumentum longer persistent on midrib, thin coriaceous; midrib impressed and slightly crested above, very prominent below, secondary nerves 6—9, ascending at an angle of 70°—80°, curved to rather straight, diminishing near margins, faint above, prominulous below, tertiary nerves transverse, nearly longitudinal, slightly recurved to midrib, very faint to inconspicuous above, faint to very faint below; petioles 0.7—1.5 cm long, slightly concave above, rounded below, light ferruginous-hirsute. *Inflorescences* 2—5-floruous, in the axils of leaves or their scars; pedicels 1—2 mm long, light ferruginous-hirsute to -tomentose; bracteoles 1—3 at base of pedicel. *Sepals* 5, ovate to rotundate, 2—3 by 1.5—2.5 mm, apex rounded, densely light ferruginous-hirsute on either side, basal part glabrous within. *Corolla* about 1.5 mm long, glabrous, tube ca 0.7 mm long, lobes 5, ca 0.7 by 1 mm, broadly ovate, apex rounded. *Stamens* not present, only at the base of the tube 5 epipetal minute organs, which may indicate the stamens. So the flowers are female. *Staminodes* none. *Fruits* unknown; albumen abundant according to an annotation on one of the sheets.

Type specimen: *Beccari* 350 (A, FI), Ramoi, fl. Aug., fruit with edible pericarp.

Distr.: New Guinea.

6. *C. balansae* Baillon, Bull. Soc. Linn. Par. 2, 1891, 900, non *C. balansae* Baillon, l. c. 901 — *Ochrothallus ? balansae* Pierre ex Guillaumin, Ann. Mus. Col. Marseille, 2me sér., 9, 1911, 185 — *Fig. 2.*

Trees, 8—15 m high. Branchlets stout, terete, 6—12 mm in diam., light brown sericeous, quickly glabrescent. *Leaves* obovate to oblanceolate, 15—48 by 6—18 cm, apex acute and broadly acuminate to obtuse, acumen up till 1.5 cm long, base slightly asymmetrical, obtuse to cuneate, shortly decurrent, margin often undulate; glabrous above, yellowish to brownish grey sericeous below, firmly chartaceous; midrib near apex minutely, near base

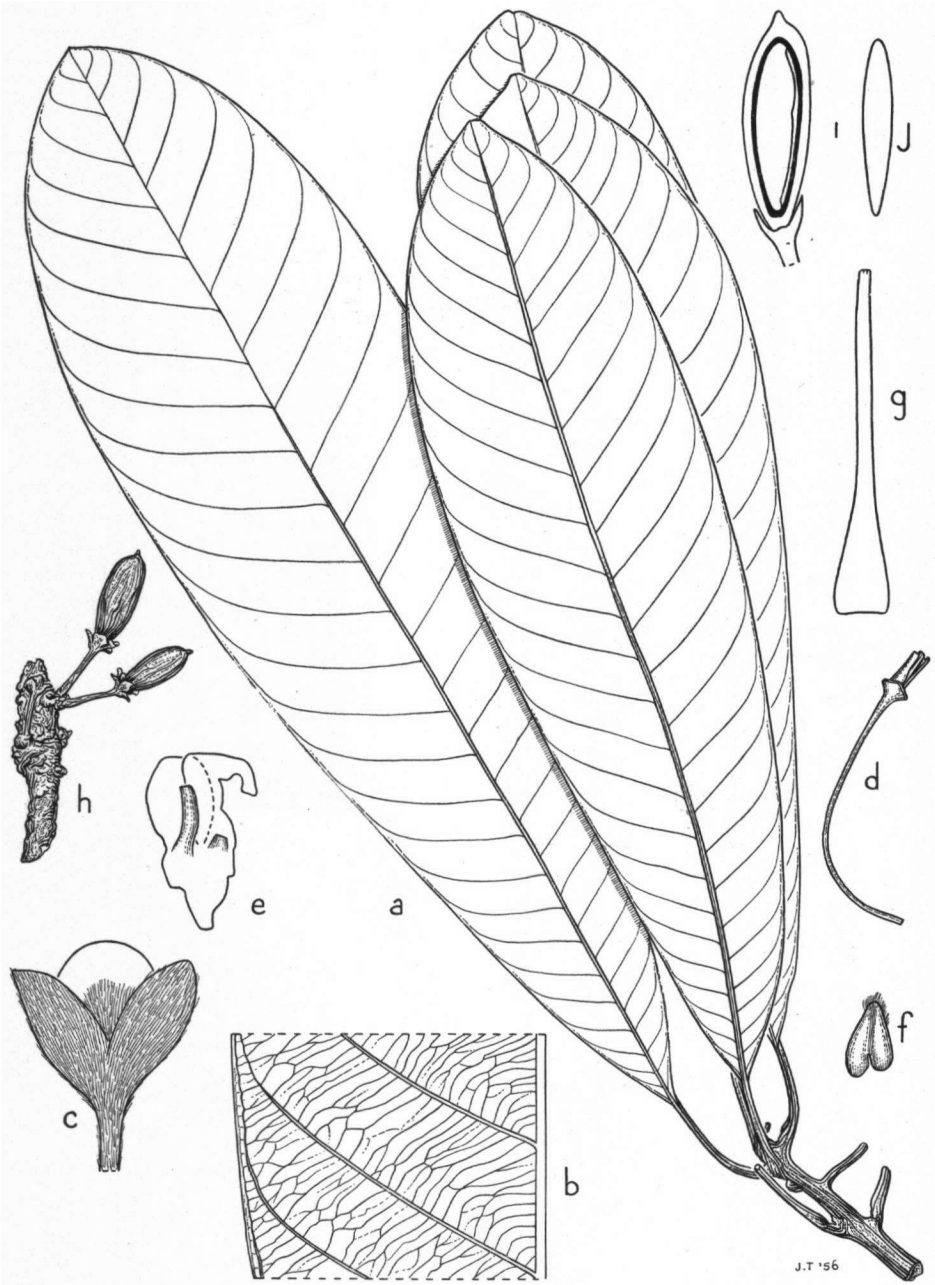


Fig. 2. *C. balansae*, a. branchlet with leaves ( $\frac{1}{2} \times$ ), b. leaf-nervation ( $1 \times$ ), c. calyx ( $5 \times$ ), d. pedicel with remainders of the corolla ( $2\frac{1}{2} \times$ ), e. remainders of the only corolla known ( $5 \times$ ), f. anther, g. pistil ( $5 \times$ ), h. branchlet with fruits ( $\frac{1}{2} \times$ ), i. longitudinal section of fruit ( $1 \times$ ), j. scar ( $1 \times$ ). (a., b., d. and h. from Vieillard 18, c., e., f. and g. from Balansa 2801, i. and j. from Balansa 1822).

strongly impressed, crested, or only minutely crested above, very prominent below, secondary nerves 20—25(—30), ascending at an angle of 55°—70°, straight, diminishing near margins, faint above, prominent below, tertiary nerves transversely reticulate, very faint; petioles 2—4.5 cm long, canaliculate above, rounded below, ferruginous-sericeous, quickly glabrescent. *Inflorescences* up to 10-florous, in the axils of leafscars; pedicels 6—12 mm long, thinly light brown sericeous, becoming greyish, glabrescent; bracteoles 1—3 at base of pedicel. *Sepals* 5, ovate, 3—3.5 by 2—3.5 mm, apex rounded to obtuse, base slightly orbiculate, densely light brown ferruginous-tomentose without, especially the inner ones with a glabrous border along margin, glabrous within. *Corolla* badly known, lobes 5 (?). *Stamens* 5 (?), inserted in corolla-throat, anthers ovoid, ca 2 by 1.3 by 0.8 mm, apex obtuse, shortly fimbriate, base cordate. *Staminodes* none. *Ovary* conoidal, ca 2 by 1 mm, glabrous, 4—5-celled; style tapering, ca 7 mm long, glabrous; stigma minutely dentate. *Fruit* obovoid, 22—31 by 8—11 by 4—9 mm, apex rounded, crowned with the ca 1 mm long remains of the style, base narrowed and often curved, purplish black, apex brown, glabrous, dull, pericarp ca 1 mm thick, brown and dull within, calyx persistent, seeds one, oblong obovoid, 18—26 by 6—9 by 3—7 mm, testa ca 0.2 mm thick, purplish to dark brown without, purplish, light brown longitudinally veined within, scar oblanceolate, 12—20 by 2—6 mm, apex rounded, base narrowly cuneate, yellowish brown, dull, cotyledons flattened, albumen nearly none.

Type specimen: *Vieillard 18* in P.

Distr.: New Caledonia.

NEW CALEDONIA: Wagap (acc. to Baillon l.c. on the mountains of Balade): *Vieillard 18* (BM, P), fr.; Farino: *Panoher et Sébert s.n.* (P); Riv.† Thi, gallery forest, 100 m alt., limestone: *Guillaumin & Baumann 7193* (Z), 5 m high; West of the missionary near Port Bouquet: *Balansa 1822* (P) fr. Oct., tree, 1—15 m high, forest; Quinmé Quell-mountains, 900 m alt., hygrophilous forest: *Guillaumin & Baumann 12968* (Z), 6 m high; North of Conception, 550 m alt., forest: *Balansa 2801* (P), cotype, old fl. Febr.; without locality: *Sarlin 308, 309* (P), *Lecard 135* (P), *Lecard s.n.* (P); ibidem: *Baumann 15265* (Z), serpentine, 350 m alt., 10 m high; ibidem: *Guillaumin & Baumann 10186* (Z), hygrophilous forest, 10 m high; ibidem: *Guillaumin & Baumann 8979* (Z), 700 m alt., 3 m high.

Remarks: The statement of Baillon that this species is provided with 5 corolla-lobes and 5 episeal stamens could not be verified. The sheets of the type specimen carried only one corolla eaten by insects; the tube contained 5 strands. The sheet *Balansa 2801* carried only the remains of one destroyed corolla with two corolla-lobes, the basal parts of two episeal filaments and one loose anther.

Baillon named two species *C. balansae*. As the species mentioned on p. 901 l.c. is inserted in *Pouteria*, the epithet *balansae* was reserved for the species mentioned on p. 900 l.c. See under *Pouteria calomeris* (Baillon) Baehni, *Blumea* VIII, 2, 1957, 467—469.

*Sarlin 308* and *309* having much smaller, thinly coriaceous leaves (7—17 by 2—7 cm) shorter petioles (1—2 cm) and more slender branchlets probably belong to this species, being identical in nervation and indumentum. They were regarded by Guillaumin (l.c.) as *Chrysophyllum* species.

7. *C. gordoniaefolium* Moore, Journ. Linn. Soc. 45, 1920, 350; Vink, Nova Guinea N. S. 8, 1, 1957, 124 — *Tropalanthé lamii* Guillaumin, Bull. Soc. Bot. Fr. 91, 1944, 72 — Fig. 3.

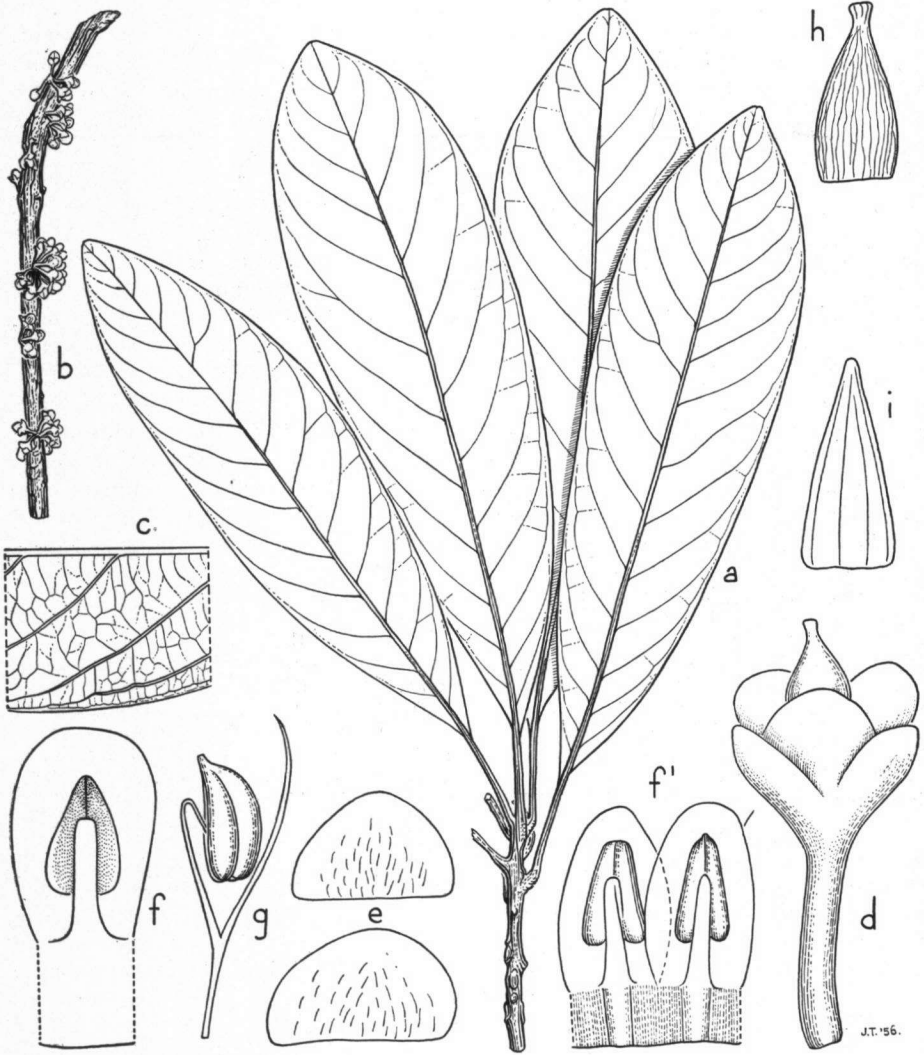


Fig. 3. *C. gordoniaefolium*, a. branchlet with leaves ( $\frac{1}{2} \times$ ), b. branchlet with inflorescences ( $\frac{1}{2} \times$ ), c. leaf-nerivation ( $\frac{3}{4} \times$ ), d. flower, corolla removed ( $7\frac{1}{2} \times$ ), e. sepals ( $7\frac{1}{2} \times$ ), f. and f'. part of corolla ( $7\frac{1}{2} \times$ ), g. lateral view of f., h. and i. pistil ( $7\frac{1}{2} \times$ ). (d., f'. and h. from buds). (a.—d., f'. and i. from Vieillard 2885, e., f., g. and h. from Compton 1862).

Trees, type specimen 9 m high. Branchlets terete, 3—6.5 mm in diam., brown or grey, greyish brown sericeous, quickly glabrescent. Leaves confined to the tips of the branchlets, oblong to oblanceolate, 14—19.5 by

4—6.5 cm, apex acutish to obtuse, base cuneate, minutely decurrent, margin minutely undulate; with greyish remains of indumentum especially along midrib on either side, glabrescent, nitidulous above, dull below, chartaceous; midrib impressed above, very prominent below, secondary nerves 10—14, ascending at an angle of 50°—60°, curved to slightly curved, diminishing near margins, faint above, prominulous below, tertiary nerves transversely reticulate, recurved to midrib, very faint to inconspicuous on either side; petioles 1.5—3 cm long, canaliculate to flattened above, rounded below, with greyish brown remains of indumentum to glabrous. *Inflorescences* 2—22-florous, in the axils of leafscars; pedicels 2.5—6 mm long, thinly whitish sericeous. *Sepals* 5, broadly ovate to semi-circular, 1.5—2 by 2—3 mm, apex broadly rounded, glabrous or very thinly whitish puberulous without with a wide glabrous border along the margin, glabrous within. *Corolla* ca 6 mm long, glabrous, tube 2—2.5 mm long, lobes 6—8, obovate to elliptical, ca 4 by 2.5 mm, apex broadly rounded. *Stamens* 6—8, inserted in corolla throat, filaments flattened, tapering, tips recurved outwardly, ca 3 mm long, anthers ovoid, ca 2.2 by 1.3 mm, apex acute, base slightly cordate. *Staminodes* none. *Ovary* cylindrical, ca. 1—1.5 by 1.5 mm, glabrous, 5—8-celled, ovules inserted in lower half of the cells; style conoidal, 1.5—2.5 mm long, glabrous; stigma minute. *Fruits* unknown.

Type specimen: *Compton 1862* in BM.

Distr.: New Caledonia.

NEW CALEDONIA: Wagajo: *Vieillard 2885* (P), type specimen of *Tropalanthe lamii* Guillaumin; Paompei forest, 30 m alt.: *Compton 1862* (BM), fl. Sept., tree 9 m high, spreading branches, small amount of white latex, leaves medium green, thin but stiff; flowers white, anthers brown, slight scent.

Remarks: Contrary to the description of *Tropalanthe lamii* the corolla and the androecium were found to be isomerous.

### 8. *C. comptonii* Moore, J. Linn. Soc. 45, 1920, 351 — Fig. 4.

Trees. Branchlets terete, older ones 4.5—6 mm in diam., glabrous. The only leaf present on the type specimen oblong-obovate, 34 by 12 cm, apex obtuse, base cuneate, margin slightly undulate, glabrous and dull above, minutely appressedly greyish tomentose below, coriaceous; midrib impressed above, prominent below, secondary nerves 21, ascending at an angle of 65°—70°, diminishing near margins, faint above, prominulous below, tertiary nerves transversely reticulate, very faint on either side; petiole 4—3 cm long, canaliculate above, rounded below, glabrous. *Inflorescences* up to ca 12-florous, in the axils of leafscars on a ca 5 mm high hemisphaere; pedicels 7—8 mm long, greyish pubescent. *Sepals* 5, elliptical to ovate, ca 2 by 1.5 mm, apex rounded to obtuse, lightbrown appressedly tomentose without, inner sepals with a wide, outer ones with a narrow glabrous border along margin, glabrous within. *Corolla* ca 4 mm long, glabrous, tube ca 1.8 mm long, lobes 5, elliptical to obovate, ca 2.2 by 1.5 mm, apex broadly rounded. *Stamens* 5, filaments subulate, tips recurved outwardly, ca 5 mm long, anthers ovoid, ca 1.3 by 1 mm, apex acute and acuminate, base slightly cordate. *Staminodes* none. *Ovary* prismatical, 5-ribbed, ca 0.7 by 1 mm, glabrous, 5-celled; style tapering, ca 3.2 mm long, glabrous; stigma minute.

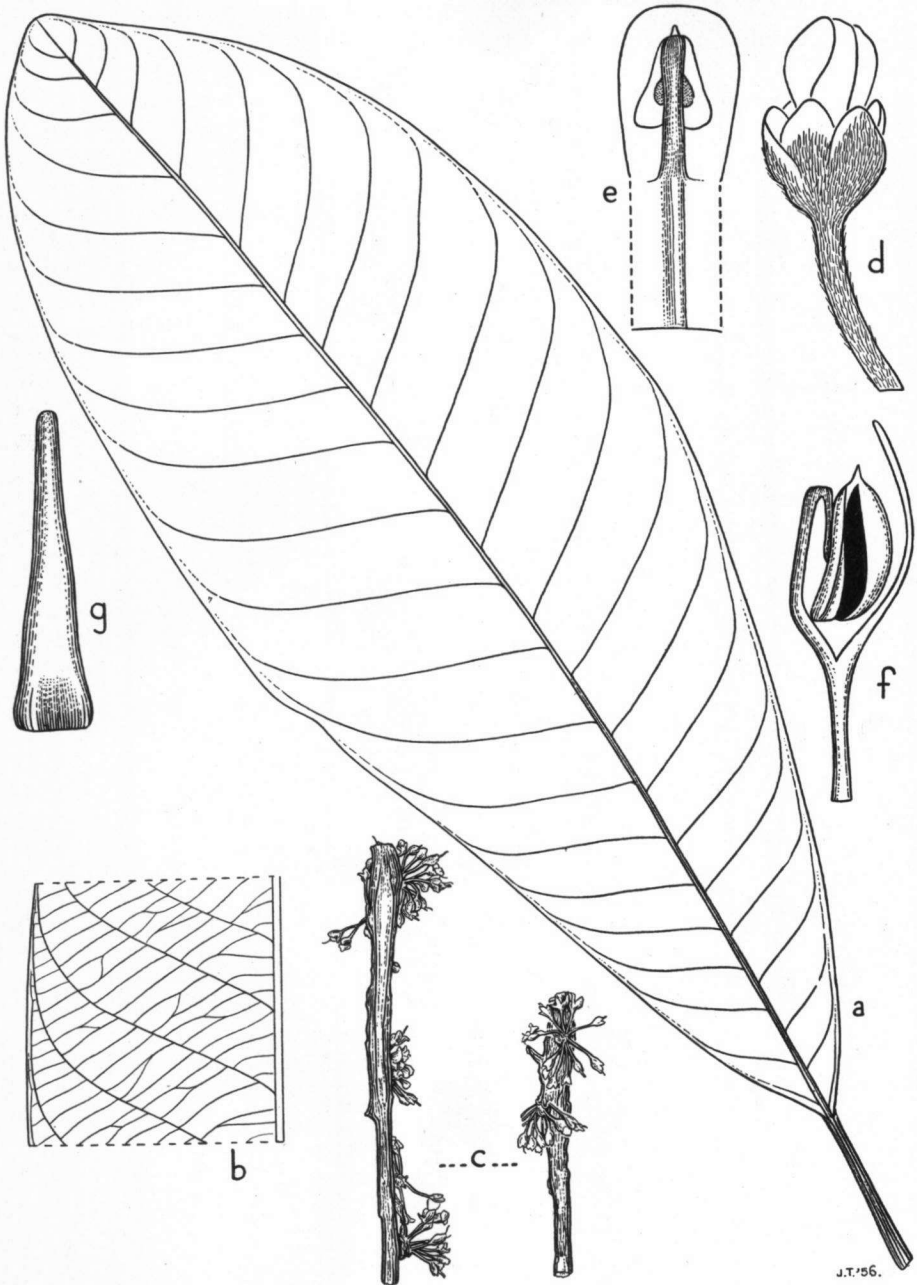


Fig. 4. *C. comptonii*, a. leaf ( $\frac{1}{2} \times$ ), b. leaf-nerve ( $\frac{1}{2} \times$ ), c. branches with inflorescences ( $\frac{1}{2} \times$ ), d. flower ( $5 \times$ ), e. part of the corolla ( $10 \times$ ), f. lateral view of corolla-part and stamen ( $10 \times$ ), g. pistil ( $10 \times$ ). (from *Compton 550*, a.—c. after a photograph of this specimen).



Type specimen: *Compton 550* in BM; Mont Mou, 550 m alt., damp stream-gully, limestone, leaves leathery, white flowers on main trunk; tree.

Distr.: New Caledonia.

9. *C. sessilifolium* Pancher & Sébert in Sébert, Not. Bois Nouv. Caléd. 1874, 195 — *Ochrothallus sessilifolius* Pierre ex Guillaumin, Ann. Mus. Col. Marseille, 2me sér., 9, 1911, 186 — *Fig. 5*.

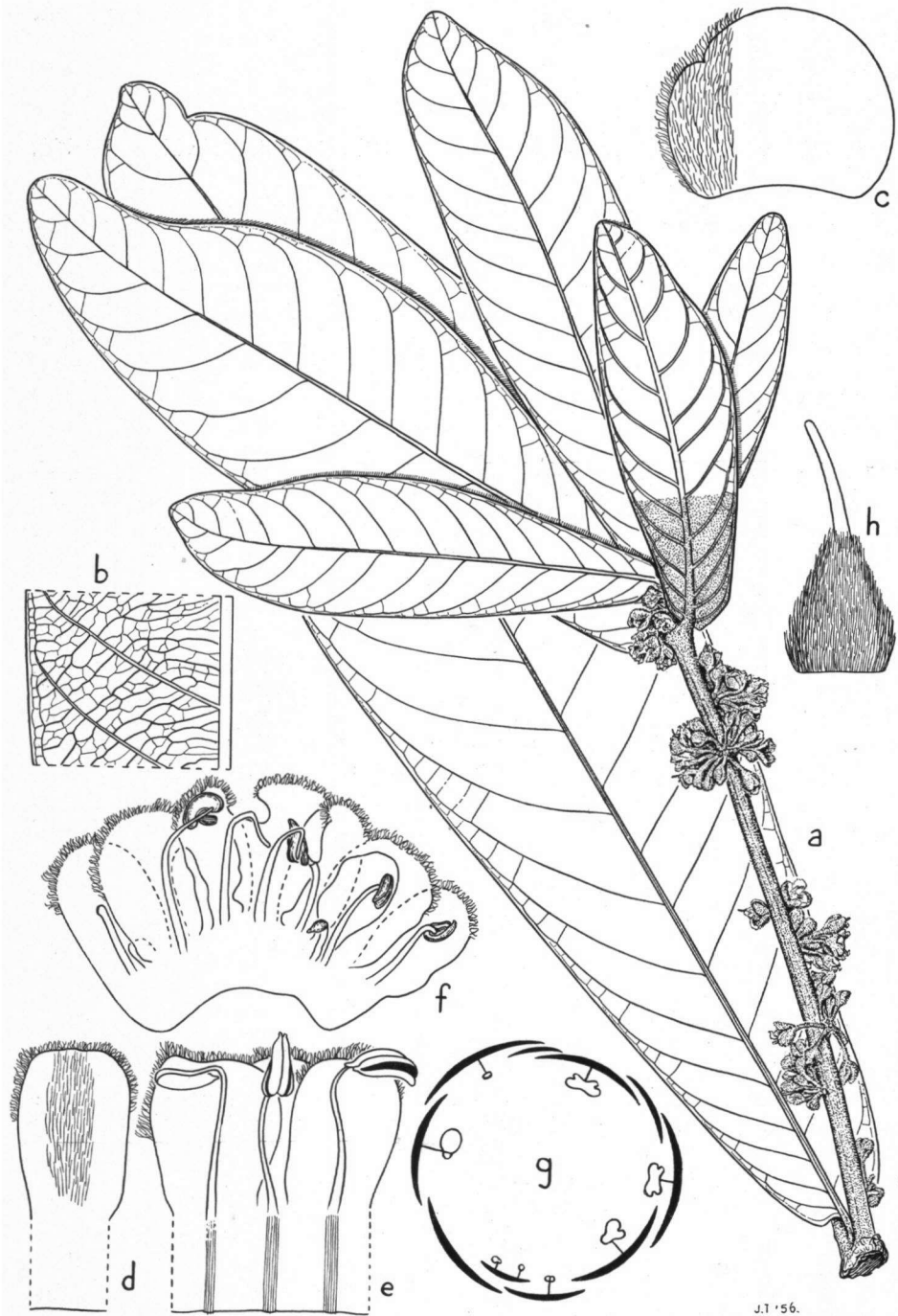
Small trees, 8—10 m high. Branchlets terete with prominulous longitudinal ribs, greyish brown, ferruginous-woolly, glabrescent. *Leaves* crowded at the tips of the branchlets, some ones diffuse, oblanceolate, 12—34 by 4—10 cm, thinly coriaceous, apex rounded to obtuse, base rounded; densely brown woolly when very young, when mature glabrous and dull to nitidulous above, tomentum longer persistent on midrib, turning grey, densely brown woolly below, glabrescent; midrib minutely impressed and crested or flat above, very prominent below, secondary nerves 13—28, ascending at an angle of 60°—80°, curved, diminishing near margins, rather faint above, prominent below, tertiary nerves transverse, recurved to midrib, faint to inconspicuous above, prominulous below; petioles 0.5—1.5 cm long, densely brown woolly, glabrescent, slightly canaliculate or flat above, rounded below. *Inflorescences* up to multiflorous, in the axils of leafscars or of leaves; pedicels 5—10 mm long, densely light brown woolly; bracteoles 1—3 at the base of the pedicels, 0(—1) along the pedicels. *Sepals* 5, compressedly ovate to ovate or (the inner ones) elliptical, 4—5 by 4—5 mm, apex broadly rounded, densely light brown woolly without, glabrous within. *Corolla* 6—7 mm long; tube 2.5—3 mm long, glabrous; lobes 8—11, obovate to elliptical, 3.5—4 by 3—3.5 mm, apex broadly rounded and light brown fimbriate, the central longitudinal part densely light brown tomentose without, lateral parts glabrous, glabrous within. *Stamens* 8—10, exsert, inserted in corolla-throat, filaments filiform, tip recurved outwardly, 5—6 mm long, anthers ovoid, 1.5—1.7 by 0.6—1 by 0.4—0.5 mm, apex of each theca minutely acuminate, base of anther slightly cordate. *Ovary* ovoid to globose, 1.5—2 by 2 by 2 mm, densely light brown villous, 5-celled, ovules inserted in upper half of the cells; style cylindrical, tapering, 4—6.5 mm long, 1.5—2.5 mm from base as villous as ovary, upper part glabrous; stigma minute. *Fruits* unknown.

Type specimen: *Sébert et Fournier 76* in P.

Distr.: New Caledonia.

NEW CALEDONIA: Mont Pénari, in the woods, 700 m alt.: *Balansa 3465* (P), tree 8—10 m high; Bois des Torrents: *Franc 1835* (P), fl. Dec., shrub; Prony, wooded mountains: *Franc 1771* (P), young fl. Febr., tree; without locality: *Sébert et Fournier 76* (P); ibidem: *Baumann 14241* (Z), primary forest, 300 m alt., 8 m high; ibidem: *Baumann 15263* (Z), serpentine, 350 m alt., 10 m high.

Remarks: On examining the specimen *Franc 1771(a)* among normal flowers some were found with more or less abortive stamens or ovary. In the least abnormal flower with 9 stamens, 1 stamen was somewhat, 1 stamen very much decreased in size of all parts. Another flower contained only 10 very abnormal stamens: filaments ca 0.25 mm long, recurved inwardly, anthers deformed, 0.3—0.5 mm long; the style was very short.



In the most extreme case (see *fig. 5, f-g*) the corolla-lobes and the stamens varied in size and shape, most of the anthers being deformed or even failing, two filaments being inserted in the middle of the tube. In this flower the pistil seemed normal.

An insufficient number of flowers was examined to state statistically the variability mentioned. As for a variability of the same type in *Nesoluma*, vide H. J. Lam, *Occ. Pap. Bishop Mus.*, XIV, 1938, 133.

10. **C. wagapense** Guillaumin, *Bull. Soc. Bot. Fr.* 91, 1944, 69 — *Fig. 6.*

Trees. Branchlets terete, 1.5—3.5 mm in diam., grey to darkbrown, glabrous. *Leaves* crowded at the tips of the branchlets, oblanceolate to subspatulate, 8—17 by 3—5.5 cm, apex broadly rounded to obtuse, base rounded; glabrous and nitidous, chartaceous; midrib minutely impressed, crested above, prominent below, secondary nerves 8—16, ascending at an angle of 60°—70°, curved, diminishing near margins or connected with the next one by thickened tertiary nerves, faint above, prominent below, tertiary nerves transversely reticulate, recurved to midrib, faint on either side; petioles ca cylindrical, 0.5—0.7 cm long, glabrous. *Flowers* in the axils of leaves; pedicels filiform, 12—14 mm long, greyish brown tomentose, glabrescent. *Sepals* 5, ovate to deltoid, 1(—2) by 1(—1.5) mm, apex acute, greyish brown tomentose without, lateral margins laying inside in bud with a glabrous border, glabrous within. *Corolla* ca 3 mm long, glabrous, tube ca 1 mm long, lobes (4—)5, elliptical to ovate, ca 2 by 1 mm, apex acute. *Stamens* (4—)5, inserted in corolla-throat, filaments subulate, straight in bud, ca 1.5 mm long, anthers narrowly ovoid, apex acute and slightly bifide, base cordate. *Staminodes* none. *Ovary* subglobose, 5-lobed, ca 0.5 by 0.5 mm, glabrous, 5?-celled; style subulate, ca 2.5 mm long, glabrous; stigma minute. *Fruits* unknown.

Type specimen: *Vieillard 2901* in P; Wagap, basis of the mountains, tree.

Distr.: New Caledonia.

Remarks: Only old flowers (corolla detached), one bud and one already dissected corolla could be examined.

11. **C. multipetalum** Vink, *nov. spec.* — *Pag. 68 and fig. 7.*

Branchlets subtriangular by thick ribs, descending from leafbases, 5 mm in diam., ashgrey, ferruginous-sericeous, glabrescent. *Leaves* diffuse, oblong, 11—15 by 4—5.5 cm, apex rounded to obtuse, base cuneate to obtuse; ferruginous-sericeous on either side, glabrescent above, becoming nitidous, indumentum turning grey below, ultimately glabrescent, firmly coriaceous; midrib slightly impressed and crested above, very prominent, longitudinally ribbed below, secondary nerves 11—18, ascending at an angle of 50°—60°, straight, diminishing near margins, minutely impressed

*Fig. 5. C. sessilifolium*, a. branchlet with leaves and flowers ( $\frac{1}{2} \times$ ), b. leaf-nerivation ( $\frac{1}{2} \times$ ), c. sepal, indumentum partly figured ( $5 \times$ ), d. part of the corolla, outside ( $5 \times$ ), e. part of the corolla, inside ( $5 \times$ ), f. irregular corolla (see text;  $6 \times$ ), g. diagram of f., h. pistil ( $5 \times$ ). (a.—e. and h. from *Franc 1835*, f. and g. *Franc 1771*).

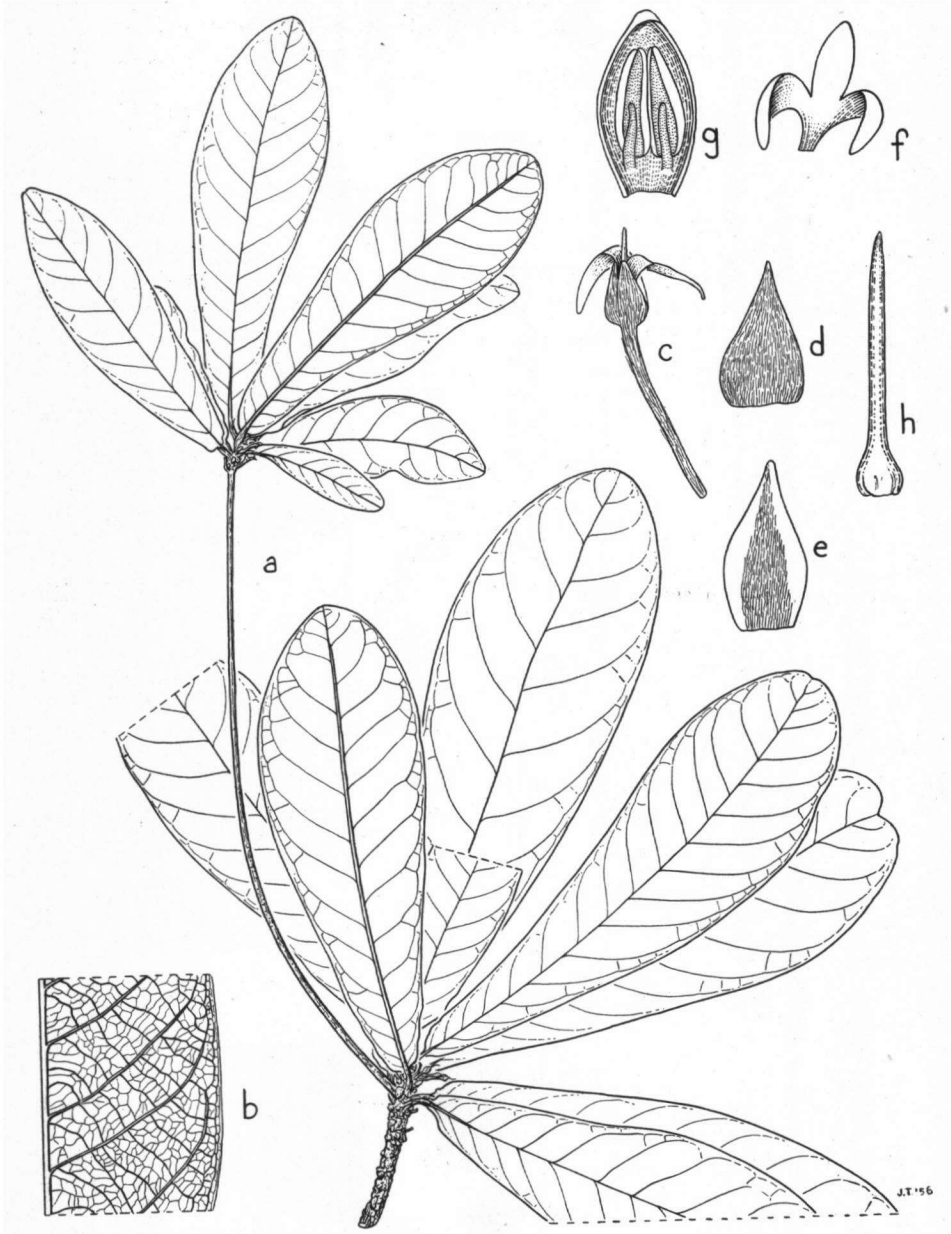


Fig. 6. *C. wagapense*, a. branchlet with leaves ( $\frac{1}{2} \times$ ), b. leaf-nerve ( $1\frac{1}{4} \times$ ), c. flower, corolla partly destroyed ( $5 \times$ ), d. outer sepal ( $10 \times$ ), e. inner sepal ( $10 \times$ ), f. part of the corolla, outside ( $5 \times$ ), g. part of the corolla from bud ( $10 \times$ ), h. pistil ( $10 \times$ ). from Vieillard 2901).

above, prominulous below, tertiary nerves transversely reticulate, very minutely impressed above, inconspicuous below; petioles 1.5—2 cm long, flattened with crested midrib above, rounded and with longitudinal ribs below as midrib. *Inflorescences* 2—4-florous, in the axils of leaves or their scars. *Buds* sessile, bracteoles 3. *Sepals* 5, ovate to elliptical, ca 4.8—5.6

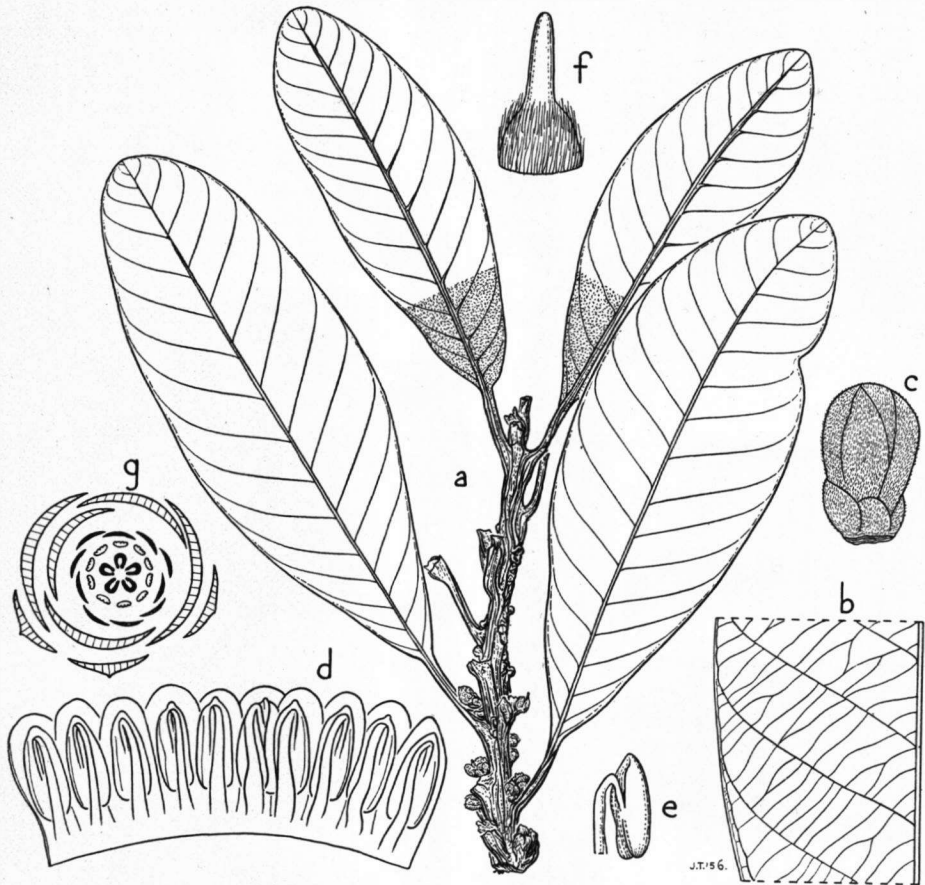


Fig. 7. *C. multipetalum*, a. branchlet with flowers and buds ( $\frac{1}{2} \times$ ), b. leaf-nerve (1  $\times$ ), c. bud ( $2\frac{1}{2} \times$ ), d. corolla (5  $\times$ ), e. stamen (5  $\times$ ), f. pistil (5  $\times$ ), g. diagram. (from Sébert & Fourmier 77, c.—g. after Pierre ms from the same specimen).

by 2.4—6 mm, apex rounded, light ferruginous-sericeous without, glabrous within. *Corolla* ca 5.5 mm long, glabrous, lobes 9—10, obovate, broadly rounded. *Stamens* 9—10, inserted just below corolla throat, filaments subulate, tips recurved outwardly, anthers ellipsoidal to cylindrical, apex obtuse to minutely acuminate, base cordate. *Ovary* dome-shaped, ferruginous-villous, 5-celled, ovules inserted in lower half of the cells; style cylindrical, glabrous; stigma minute. *Fruits* unknown.

Type specimen: *Sébert et Fournier 77* in P, without known locality.

Distr.: New Caledonia.

Remarks: The same number, but according to the description not the same specimen, is mentioned as *Spermolepis rubiginosa* Gommier in Pancher & Sébert, Not. Bois Nouv. Caléd., 1874, 257.

12. *C. gatopense* Guillaumin, Bull. Soc. Bot. Fr. 91, 1944, 69 — Fig. 8.

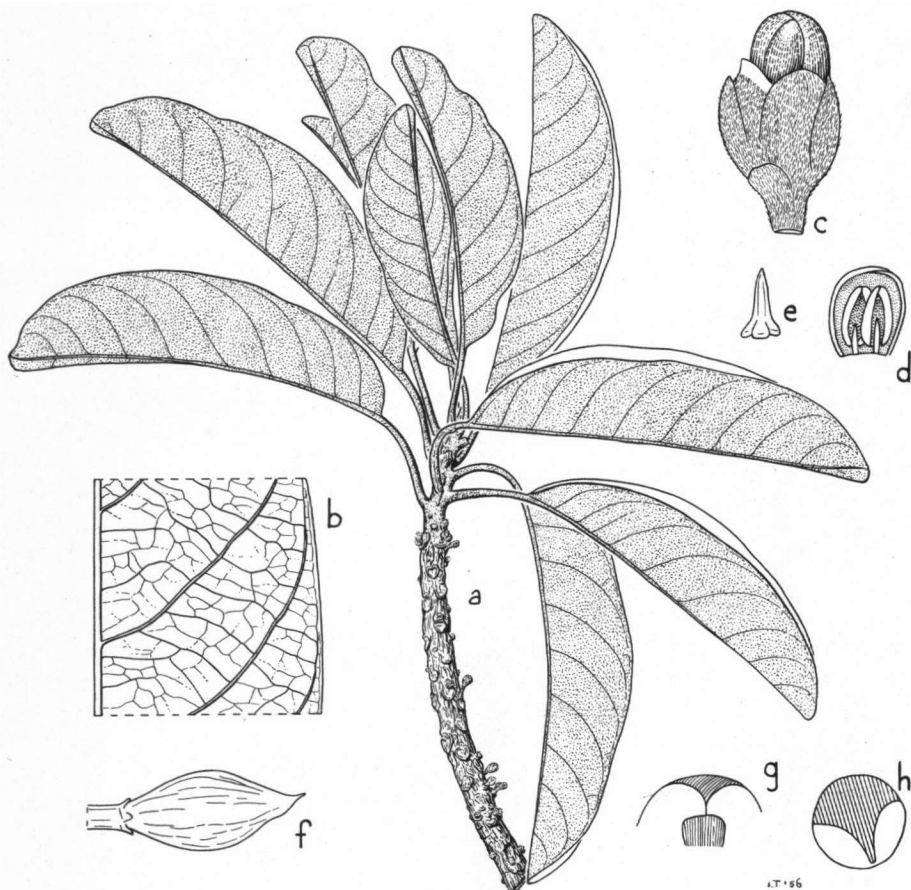


Fig. 8. *C. gatopense*, a. branchlet with leaves and buds ( $1\frac{1}{2}\times$ ), b. leaf-nerivation ( $1\frac{1}{4}\times$ ), c. bud ( $5\times$ ), d. part of the corolla, from bud ( $5\times$ ), e. pistil, from bud ( $5\times$ ), f. fruit ( $1\frac{1}{2}\times$ ), g. and h. sketch of the apex of the seed, lateral and apical view resp. (from Vieillard 2392).

Shrubs, 2—3 m high. Branchlets rather stout, 5—7 mm in diam., grey, minutely dark ferruginous-sericeous when very young, turning grey, quickly glabrescent. Leaves oblong to obovate, 7—13 by 3—5.5 cm, rounded, obtuse

to acute, base cuneate to obtuse, minutely decurrent, long smoke-grey sericeous above when very young only, very quickly becoming glabrous and nitidulous, minutely dark ferruginous-sericeous below, turning light-grey, glabrescent, dull, firmly coriaceous; midrib impressed above, very prominent below, secondary nerves 8—14, ascending at an angle of  $55^{\circ}$ — $70^{\circ}$ , slightly curved to straight, diminishing near margins or sometimes connected by short thickened tertiary nerves, minutely impressed to inconspicuous above, prominulous to faint below, tertiary nerves irregularly transversely reticulate, recurved to midrib, very minutely impressed to inconspicuous above, faint to very faint below; petioles 2—3 cm long, ca cylindrical, minutely dark ferruginous-sericeous, very quickly glabrescent. *Inflorescences* 2—4-florous, in the axils of leafscars; only buds known; pedicels 1—2 mm long, ferruginous-puberulous; bracteoles 3—6 at base and 1—3 along pedicel, 0—1 just below the calyx, ovate, ca 0.5—1 by 0.5—1 mm, ferruginous-tomentose without, glabrous within. *Sepals* 5, rotundate to ovate, ca 2 by 2 mm, apex rounded, ferruginous-puberulous without, margins laying inside in but with a glabrous border, glabrous within. *Corolla* connate at base, glabrous, lobes 5, rotundate. *Stamens* 5, inserted at base of tube, anthers ovoid to ellipsoid, apex rounded, base slightly cordate. *Staminodes* none. *Ovary* conoidal, 5-lobed, glabrous, 5-celled; style tapering, glabrous; stigma very minute. *Fruits* ellipsoid, ca 15 by 7 by 7 mm, apex acute, minutely mucronate, base acutish, dark greyish brown, minutely ribbed, glabrous, exocarp 1.2—2 mm thick; seeds one, obovoid, 9.5 by 7 by 7 mm, apex broadly rounded, base obtuse, testa nearly chartaceous, purplish brown, scar covering a lateral half of the seed, 9.5 by 7 mm, apex emarginate, base rounded.

Type specimen: *Vieillard 2892* in P.

Distr.: New Caledonia.

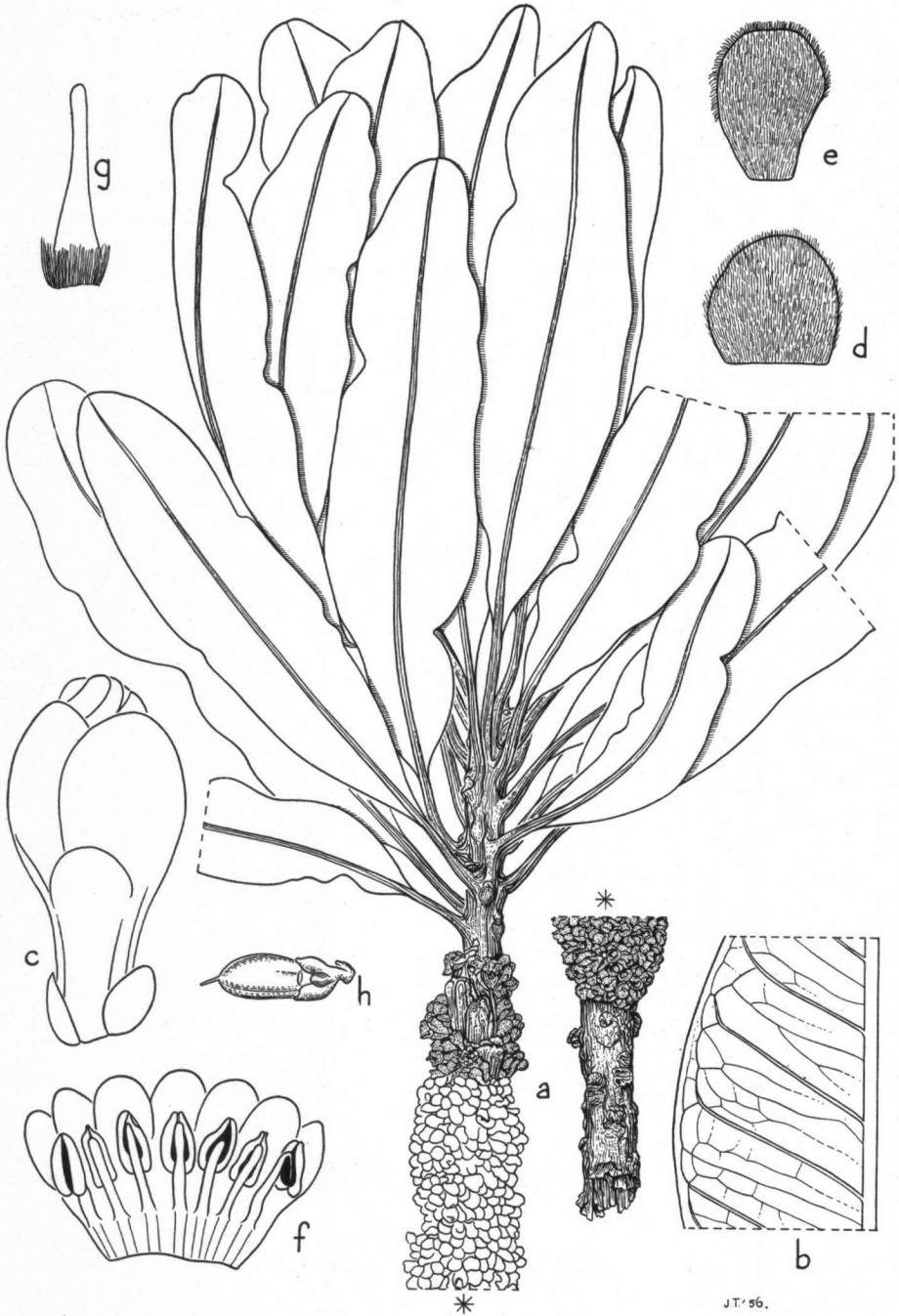
NEW CALEDONIA: Gatope: *Vieillard 2892* (P), shrub, 2—3 m high, branches spreading; S. bridge Rivière d. Lacs: *Guillaumin & Baumann 6732* (Z), tree, 3 m high, serpentine, scrub on riverbank; ibidem *Guillaumin & Baumann 6748* (Z), shrub, 2 m high, serpentine, scrub on riverbank, fr. Oct.

Remarks: The description of the fruit is based on one fruit of *Guillaumin & Baumann 6748*, the description of the buds on the type specimen, the other specimens being sterile.

The type specimen differs from the other numbers, in which the indumentum is longer persistent, the leaves more obovate, and the distance between the secondary nerves generally smaller; but the other features are essentially alike, so there seems to be no reason for not identifying them as the same species.

### 13. *C. heteromerum* Vink, nov. spec. — *Pag. 68 and fig. 9.*

Shrubs or small trees, 1—10 m high. Branchlets terete, stout 8—15 mm in diam., greyish to purplish brown, ferruginous-sericeous, quickly glabrescent. *Leaves* confined to tips of branchlets, linear-oblong to oblong-obovate, 8.5—17.5 by (2.5)3—4.5(—5) cm, apex broadly rounded, base cuneate, slightly decurrent, glabrous and nitidous above, on midrib or on base of midrib greyish tomentose, ferruginous-sericeous below, turning greyish, ultimately glabrescent, dull, firmly coriaceous; midrib minutely impressed





and slightly to prominently crested above, very prominent below, secondary nerves 21—31, ascending at an angle of 70°—85°, straight, archingly joined, very faint to minutely impressed above, prominulous to faint below, tertiary nerves descending, near margin irregularly, near midrib longitudinally reticulate, between every two secondary nerves a tertiary nerve running subparallel to these and at the middle of the leaf often nearly indistinguishable from them; petioles 1—3 cm long, canaliculate between two crests above, rounded below, ferruginous-sericeous, quickly glabrescent. *Inflorescences* multiflorous, in the axils of leafscars; pedicels 2—3 mm long, ferruginous-sericeous; bracteoles 3—8 at base and along pedicel, one bracteole inserted just below calyx. *Sepals* 5(—6), ovate, inner ones often elliptical to obovate, 3—4.2 by 3—4.2 mm, apex broadly rounded, ferruginous-sericeous without, glabrous within. *Corolla* only known from buds, in bud ca 5 mm long, glabrous, tube ca 3 mm long, lobes 5—7, elliptical to obovate, ca 2 by 1.5 mm. *Stamens* 5—7, inserted just below the middle of the tube, filaments subulate, apex recurved outwardly, anthers narrowly ovate, apex acute or minutely bifide, base slightly cordate. *Staminodes* none. *Ovary* conoidal, ca 1.5 by 1.5 mm, tapering into style, ferruginous-villous at base, glabrous, 5-celled, ovules inserted in lower half of the cells; style tapering, ca 4 mm long, glabrous; stigma minute. *Juvenile fruits* obovoid, 10—12 by 6 mm, apex rounded, base acutish, style persistent, greyish to purplish brown, glabrous, dull, pericarp ca 0.8 mm thick, seeds one, obovoid, testa papyraceous, scar lateral, albumen none, cotyledons fleshy.

Type specimen: *M. et Mme Le Rat 2952* in P.

Distr.: New Caledonia.

NEW CALEDONIA. Mont Dzumac: *M. et Mme Le Rat 2952* (P), tree of 8—10 m; top-region of Mt. Doré, alt. 750 m, serpentine scrub: *Virot 210* (P), exposition NE, shrub, 1.5 m high, candle-formed; latex white, abundant, flowers white, fl. June; ibidem: *Pancher s.n.* (P), (see remarks); ibidem, "Gipfel-wald", alt. 750 m: *Guillaumin & Baumann 11398* (Z), shrub, 1 m high; Vulcan, alt. 900 m, serpentine: *Baumann 8071* (Z), 3 m high, juv. fr.

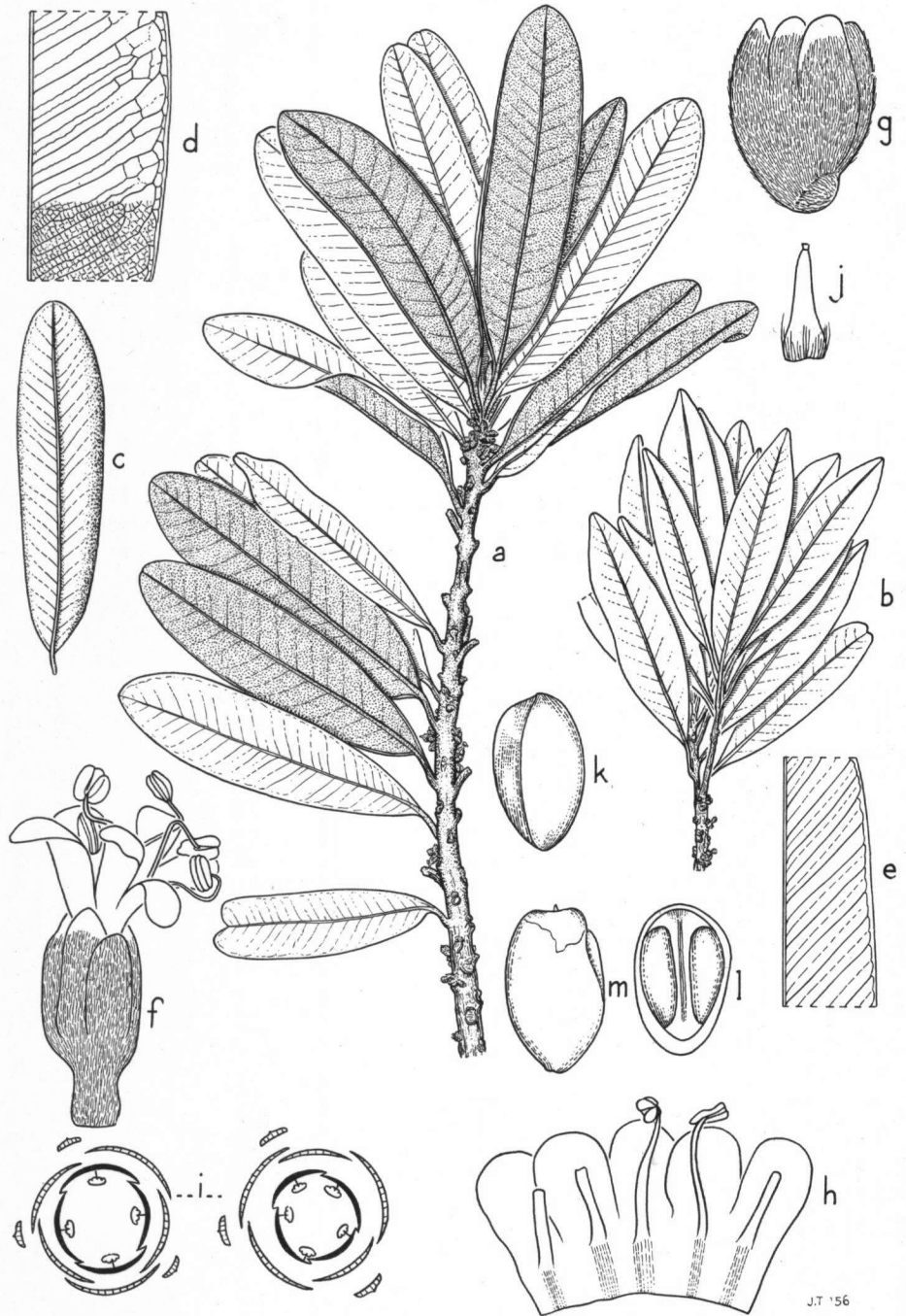
Remarks: This species is a transitional type between the 5-merous genus *Chrysophyllum* and the 6—10-merous genus *Ochrothallus* by having a 5—7-merous corolla in the same specimen, thus providing an argument to the union of these genera.

The sheet *Pancher s.n.* is a mixtum, one specimen representing *Chrysophyllum lissophyllum*, the other *C. heteromerum*; the attached flower-analysis is of *C. heteromerum*.

This species differs from *C. lissophyllum* by wider leaves, stouter branchlets, petioles and pedicels, larger flower-parts and the bracteole inserted just below the calyx.

The specific name is derived from the feature that the parts of calyx, corolla and androecium are represented in inconstant numbers.

Fig. 9. *C. heteromerum*, a. branchlet with leaves and flowers, the latter partly sketched (½ ×), b. leaf-nervation (1 ×), c. bud, indumentum not drawn (5 ×), d. outer sepal (5 ×), e. inner sepal (5 ×), f. corolla, from bud (5 ×), g. pistil, from old flower (5 ×), h. young fruit (1 ×). (a.—f. from *Le Rat 2952*, g. from *Virot 210*, h. from *Baumann-Bodenheim 8071*).



14. *C. lissophyllum* Pierre ex Baillon, Bull. Soc. Linn. Par. II, 113, 1891, 903. — *C. peninsulare* S. Moore, Journ. Linn. Soc. XLV, 1921, 352 — Fig. 10.

Shrubs, up to 3 m high. Branchlets terete, 3–6 mm in diam., light brown, grey or black, ferruginous-tomentose, turning light grey, glabrescent. *Leaves* oblong to linear-oblong (to oblanceolate), 4–15 by 1–3.5 cm, apex rounded to nearly acuminate, base cuneate and slightly decurrent, margin flat to recurved, reddish to brownish sericeous or villous when young, when mature glabrous and nitidous or dull above, below indumentum longer persistent, turning smoke-grey, glabrescent, coriaceous; midrib crested, often impressed above, very prominent below, secondary nerves 15–25, ascending at an angle of 55°–70°, straight near margins archingly joined, minutely impressed to invisible above, faint to very faint below, tertiary nerves near midrib ca parallel to secondary ones, near the margins forming an irregular lax reticulation, minutely impressed to invisible above, very faint to nearly invisible below when leaf glabrous; petioles 0.7–1.2 cm long, canaliculate above, rounded below, ferruginous-, turning ash-greyish sericeous or villous, glabrescent. *Inflorescences* up to 45-florous, flowers sessile or with up to 2 mm long pedicels, ferruginous-sericeous; bracteoles 3–16, only 0–1 along pedicel. *Sepals* 5, elliptical to ovate, 1.4–2.8 by 1–2.2 mm, apex rounded to obtuse, dark brownish to ferruginous-sericeous without and, especially the inner ones, with an up to 1 mm wide glabrous border along margin, glabrous within. *Corolla* 3.5–5 mm long, glabrous, tube 1.7–2.2 mm long, lobes 4–6, elliptical, 1.8–2.3 by 1.3–1.8 mm, apex rounded. *Stamens* 4–6, inserted just below corolla-throat, filaments subulate, 2.1–2.5 mm long, anthers ovoid, ca 1.3 by 0.6 mm, apex minutely acuminate, base cordate. *Staminodes* none. *Ovary* conoidal to ovoid, 0.5–1 by 1–1.3 mm, with some basal ferruginous villi to densely ferruginous-villous all over, 4–5-celled, ovules inserted in the lower half of the cells, styte tapering, 1.5–2 mm long, glabrous; stigma very minute. *Fruits* (of type-forma) ellipsoid-obovoid, 15 by 8–10 by 8–9 mm, apex flattened, crowned with the remains of the style, base obtuse, light brown to purplish black, glabrous and nitidous, pericarp 0.1–0.4 mm thick, light brown and nitidous within; seeds one, ellipsoid-obovoid, ca 14 by 9 by 9 mm, apex flattened, base obtuse, testa ligneous, ca 0.3 mm thick, light brown and nitidous without, brown and nitidous, whitish longitudinally veined within, scar lateral, obovate, ca 12.5 by 8 mm, apex broadly rounded, base obtuse, dark brown and dull, hilum longitudinal, ca 10 by 2 mm, brownish white with central longitudinal dark brown line; albumen none; cotyledons thick, fleshy, radicle minute, double-trapezoid.

Type specimen: *Balansa 1823* in P.

Distr.: New Caledonia.

Fig. 10. *C. lissophyllum* f. *lissophyllum*, f. flower ( $7\frac{1}{2}\times$ ), j. pistil ( $7\frac{1}{2}\times$ ) (from *Balansa 1823*), k. and l. seed from two sides ( $1\frac{1}{2}\times$ ) (from *Balansa 988*) — f. *obscurinerve*, b. branchlet with leaves and buds ( $\frac{1}{2}\times$ ), e. leaf-nerivation ( $1\frac{1}{2}\times$ ) — f. *longifolium*, a. branchlet with leaves and buds ( $\frac{1}{2}\times$ ), c. leaf, upper side ( $\frac{1}{2}\times$ ), d. leaf-nerivation ( $1\frac{1}{2}\times$ ), g. calyx of sessile flower ( $7\frac{1}{2}\times$ ), h. corolla ( $7\frac{1}{2}\times$ ) (from *Franco 1938*), i. two diagrams (from *Baumann-Bodenheim 11359*).

## Key to the formae

- 1.a. Secondary nerves nearly to quite invisible above . . . . . f. *obscurinerve*  
 b. Secondary nerves minutely impressed above; if not, then always distinguishable by a lighter colour . . . . . 2
- 2.a. Young leaves reddish ferruginous-sericeous below; leaves 4—8 cm long; pedicels 1—2 mm long . . . . . f. *lissophyllum*  
 b. Young leaves brownish ferruginous-villous below; leaves 9—15 cm long; flowers sessile . . . . . f. *longifolium*

Forma *lissophyllum*

*Leaves* linear-oblong, margins recurved, reddish ferruginous-sericeous below when young; secondary nerves minutely impressed above, if not, then always distinguishable by a lighter colour; pedicels 1—2 mm long.

Type specimen: *Balansa 1823* in P.

Distr.: New Caledonia.

Mont Coumboui (Dent de St. Vincent), ca 700 m alt.: *Balansa 2802* (P), old fl. April, shrub, 2—3 m high; Mont Humboldt, ca 500 m alt., "terrains ferrugineux": *Balansa 1823* (P) fl. Sept.; Mont Mi, "terrains ferrugineux": *Balansa 988* (P).

Forma *obscurinerve*, Vink, nov. forma

*Folia* oblonga, margine haud vel leviter recurva, juvenilia subtus indumento rubescenti-ferrugineo sericea; nervi secundarii inconspicui vel subinconspicui; flores pedicello 1—2 mm longo suffulti.

Typus: *Balansa 3149* in P.

Gatope: *Vieillard 2898* (P); Mont Poume, "terrains éruptifs": *Balansa 3149* (P), fl. May, shrub, 2 m high.

Forma *longifolium*, Vink, nov. forma

*Folia* lineari-oblonga, margine recurva, juvenilia subtus indumento brunneo-ferrugineo villosa; nervi secundarii supra leviter impressi, si non a colore pallidiori semper distincti; flores sessiles.

Typus: *Franc 1938* in P.

NEW CALEDONIA. Peninsula of Bogota, ca 500 m alt., occasional in serpentine scrub: *Compton 1340* (BM), type-specimen of *Chrysophyllum peninsulare* S. Moore, fl. June, leaves light green, covered with red-brown pubescence when young, flowers on old wood, corolla white, petals rolled back, anthers exserted; Mont Dore, 500 m alt., forest: *Guillaumin & Baumann 11359* (Z), buds March, shrub, 1 m high; Route de Yaté, 300 m alt., serpentine: *Guillaumin & Baumann 10736* (Z), buds Febr., shrub 3 m high, Pic des Pins, serpentine: *Guillaumin & Baumann 12016* (Z), buds April, shrub 1 m high; Prony, Bois des Torrents: *Franc 1938* (P), fl. March, shrub 2—3 m high; unknown locality: *Guillaumin 8357* (Z), shrub 2 m high; *Guillaumin & Baumann 11593* (Z), buds March, shrub 1 m high; without known locality: *Pancher s.n.* (P); *Baumann 1141* (Z); *Vieillard 2895?* (BM); Mt. Doré, 400 m alt.: *Mc Kee 2460* (L, P), fl. May, shrub 1.5 m high, leaves light green above, grey-green below, flowers white.

15. *C. litseaeflorum* (Guillaumin) Vink nov. comb. — *Ochrothallus litseaeflorus* Guillaumin, Mém. Mus. Nat. Hist. Nat., nouv. sér., B, IV, I, 1953, 46 — Fig. 11.

Shrubs, ca 1.5 m high. Branchlets terete, 4 mm in diam., dark-brown, glabrous. *Leaves* confined to the tips of the branchlets, oblanceolate, 6.5—8.5 by 2—2.5 cm, apex rounded, base acute and decurrent, glabrous, dull

to nitidulous above, nitidous below, thinly coriaceous; midrib flat or minutely impressed, sometimes slightly crested above, very prominent below, secondary nerves 15—17, ascending at an angle of  $60^{\circ}$ — $70^{\circ}$ , straight, near margin archingly joined, rather faint on either side, tertiary nerves descending, ca longitudinally, near margin irregularly reticulate, faint on either side; petioles ca 1 cm long, flattened above or with crested midrib, rounded below, glabrous. *Inflorescences* 2—3-florous, in the axils

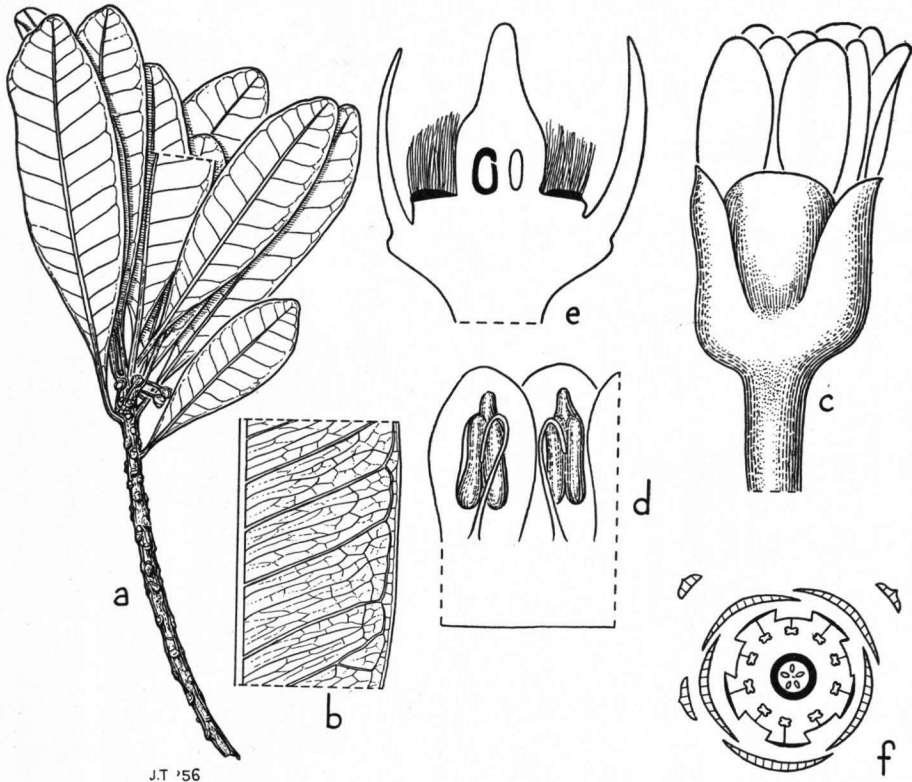


Fig. 11. *C. litseiflorum*, a. branchlet with leaves and flowers ( $\frac{1}{2} \times$ ), b. leaf-nerve pattern ( $1\frac{1}{2} \times$ ), c. flower ( $10 \times$ ), d. part of the corolla ( $10 \times$ ), e. longitudinal section through flower, corolla removed ( $10 \times$ ), f. diagram (from Virot 1280).

of leaves; pedicels 4—7 mm long, glabrous; bracteoles 2—3 at base of pedicels, 0—1 ca halfway of them. *Sepals* 5, broadly elliptical to nearly circular, 1.6—1.8 by 1.7—1.8 mm, apex rounded, glabrous. *Corolla* ca 3 mm long, glabrous; tube ca 1 mm long; lobes 10, biseriate, elliptical, ca 2 by 1.3 mm, apex rounded. *Stamens* 10, inserted in corolla-throat; filaments subulate, ca 1.5 mm long, tips recurved outwardly in young flowers, anthers narrowly ovoid, ca 1.4 by 0.5 by 0.4 mm, apex broadly acuminate, acumen ca 0.3 mm long, base cordate. *Disk* table-shaped, hypogynous, ca 0.5 mm high and 0.5 mm wide, at its flattened top bearing long ferruginous villi.

*Ovary* cylindrical, ca 1 by 1 by 1 mm, glabrous, 4—5-celled, ovules inserted in the middle of the cells; style conical, 1.5—2 mm long, glabrous; stigma minute. *Fruit* unknown.

Type specimen: *Viot 1280* in P.

Distr.: New Caledonia.

NEW CALEDONIA: Summit of the dome of the Tiëbaglie, alt. ca 600 m, serpentine scrub, exposition W.: *Viot 1280* (P), shrub 1.50 m high, flowers greenish white, fl. Oct.

Remarks: In accordance with the rules of the Code of Stockholm the spelling of the specific epithet is changed here.

16. *C. sarlinii* Guillaumin, Bull. Mus. Nat. Hist. Nat., 2me sér., 22, 1950, 117 — *Fig. 12*.

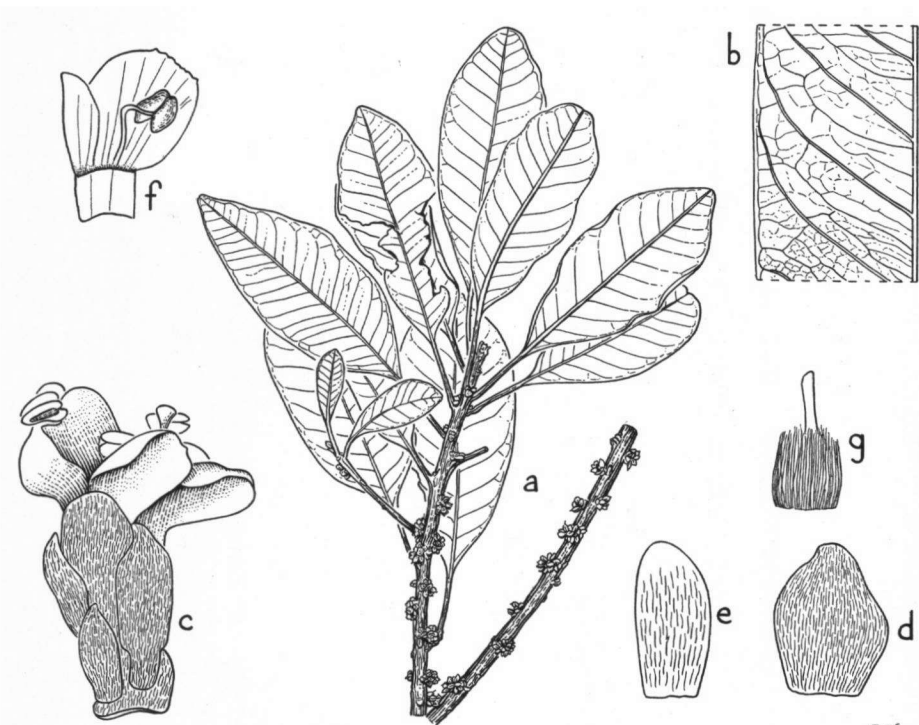


Fig. 12. *C. sarlinii*, a. branchlet with leaves and flowers ( $\frac{1}{2}\times$ ), b. leaf-nerivation ( $1\frac{1}{2}\times$ ), c. flower ( $10\times$ ), d. and e. sepals, outside ( $10\times$ ), f. part of the corolla ( $10\times$ ), g. pistil ( $10\times$ ). (from *Sarlin 167*).

Branchlets terete, 3.5—6 mm in diam., purplish brown, becoming greyish brown when older, with rests of minute brown puberulous hairs on tips, glabrescent. *Leaves* confined to the tips of the branchlets, elliptical to obovate, 5—8.5 by 2.5—3.5 cm, apex obtuse to rounded, base cuneate, slightly decurrent; glabrous and nitidulous above, minutely lightbrown sericeous below, thinly coriaceous; midrib impressed above, very prominent below, secondary nerves 10—15, ascending at an angle of  $60^{\circ}$ — $65^{\circ}$ , straight,

diminishing near margins and connected with next one by thickened tertiary nerves or archingly joined, often both types in the same leaf, rather faint above, faint to prominulous below, tertiary nerves irregularly reticulate, the most prominent ones often more or less parallel to secondary nerves, faint to very faint on either side; petioles 1.1—2.4 cm long, near lamina canaliculate, near base with crest above, as midrib minutely longitudinally ribbed below. *Inflorescences* 2—20-florous, in the axils of leafscars or of leaves, flowers sessile, bracteoles 1—2. *Sepals* 5, ovate to obovate, 1.3—1.8 by 1—1.5 mm, apex rounded, light ferruginous to light brown sericeous without, margins laying inside in bud glabrous, glabrous within. *Corolla* 2 mm long, glabrous, tube ca 0.5 mm long, lobes 5, circular to elliptical, ca 1.5 by 1 mm, apex broadly rounded. *Stamens* 5, inserted in corollathroat, filaments filiform, ca 1 mm long, tip recurved outwardly, anthers ovoid, ca 0.7—1 by 0.5 by 0.4 mm, apex acute, base cordate. *Staminodes* none. *Ovary* conoidal to globose, ca 0.7 mm long, ferruginous-villous, (4—)5-celled, ovules inserted in the middle of the cells; style cylindrical, slightly tapering, ca 1 mm long, glabrous; stigma very minute. *Fruits* unknown.

Type specimen: *Sarlin 167* in P.

Distr.: New Caledonia.

NEW CALEDONIA: Route de Yaté: *Sarlin 167* (P), slender high tree, with cobalt-blue latex.

17. *C. deplanchei* Baillon, Bull. Soc. Linn. Par. 2, 1891, 899 — *Chrysophyllum parvifolium* Schlechter, Bot. Jahrb. 39, 1907, 225 — *Chrysophyllum leptocladum* (Baillon) Guillaumin in Lecomte, Not. Syst. 2, 1911, 103; *ibid.* Ann. Mus. Col. Marseille, 2me sér., 9, 1911, 185, Guillaumin et Beauvisage, Ann. Soc. Bot. Lyon 38, 1914, 100 — *Chrysophyllum floribundum* Moore, Journ. Linn. Soc. 45, 1920, 351 — *Trouettia leptoclada* Pierre ex Baillon, l. c. 945 — *Trouettia parvifolia* Pierre ex Schlechter, l. c. 225 — *Planchonella leptoclada* (Baillon) Däniker, Beibl. Viert. Jahrschr. Nat. Ges. Zürich, 1933, 354 — *Fig. 13.*

Shrubs, up to 3 m high. Branchlets terete, 2.5—4.5 mm in diam., greyish or purplish brown to dark grey, ferruginous-sericeous, quickly glabrescent. *Leaves* confined to the tips of the branchlets, obovate to elliptical (to elliptical-oblong), 3.2—12 by 1.5—3.9 cm, apex broadly rounded to acutish, base cuneate; densely ferruginous-sericeous when young, quickly glabrescent, nitidous above, indumentum longer persistent on midrib, turning grey, densely light ferruginous-sericeous below, turning ash-grey, in some cases quickly glabrescent, coriaceous; midrib slightly impressed, flat or slightly crested at leafbase above, prominent below, secondary nerves 9—15, ascending at an angle of 40°—50°, straight, archingly joined near margin, minutely impressed above, very faint to inconspicuous below, tertiary nerves descendent, ca parallel to secondary ones, laxly reticulate, minutely impressed to invisible above, inconspicuous below; petioles 0.3—0.6 cm long, ferruginous- to brownish sericeous, flattened above, rounded below. *Inflorescences* up to many-florous, in the axils of leafscars or of leaves; pedicels 2—3 mm long, densely ferruginous-sericeous; bracteoles 2—3 at base of pedicel. *Sepals* 5, elliptical, 2—3.3

by 1.3—1.4 mm, apex rounded, ferruginous- to dark brown sericeous without, margins of inner ones with narrow glabrous border, minutely fimbriate, glabrous within. *Corolla* 3—3.5 mm long, tube 0.7—1 mm long, glabrous or ferruginous-sericeous along petal-strands without, lobes 5, elliptical, nearly ovate or narrowly obovate, 2—2.3 by 1—1.8 mm, apex rounded, ferruginous to dark brownish sericeous with glabrous border along margin without, glabrous within. *Stamens* 5, inserted in or just below corolla-throat, filaments subulate, when young with a sharp curve inwards between

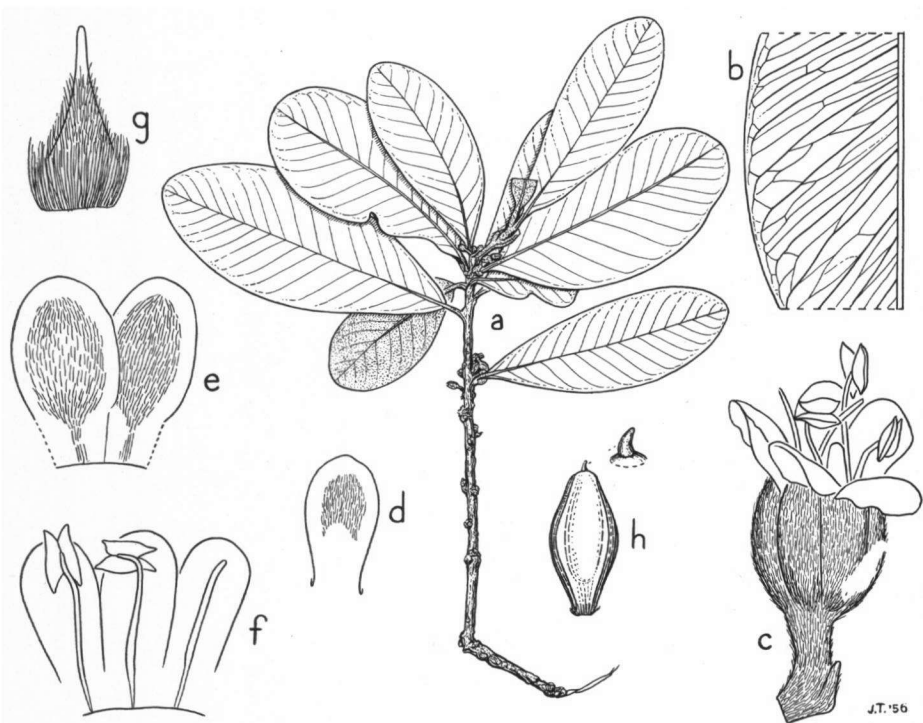


Fig. 13. *C. deplanchei*, a. branchlet with leaves and flowers ( $\frac{1}{2} \times$ ), b. leaf-nervation ( $1 \times$ ), c. flower ( $\frac{1}{2} \times$ ), d. corolla lobe, outside ( $7\frac{1}{2} \times$ ), e. ibidem, f. part of the corolla, inside ( $7\frac{1}{2} \times$ ), g. pistil ( $7\frac{1}{2} \times$ ), h. young fruit ( $1\frac{1}{2} \times$ ). (a., b., e. and g. from *Compton s. n.*, c., d. and f. from *Balansa 3459* and h. from *Deplanche 436*).

the thecae, ca 2 mm long, anthers when young ovoid, apex acute, bifide, base cordate, tips of apex diverging when maturing, the bases of the thecae becoming acutish. *Staminodes* none. *Ovary* subglobose to conoidal, ca 1 by 1 mm, densely ferruginous-villous, 5-celled, ovules inserted in lower half of the cells, style narrowly conoidal, ferruginous-setuligerous, tip glabrous; stigma minute. *Juvenile fruit* ellipsoid, 11—15 by 5—6 mm, apex and base acutish to acute, crowned with the remains of the style, glabrous, at base with the villi of the ovary, purplish brown or purplish black, pericarp thin, seeds one, scar laterally.



Type specimen: *Deplanche 436* in P.

Distr.: New Caledonia.

NEW CALEDONIA: Between Thio and Houaïlou, rocky country: *Fetscherling s.n.* (P); near the mouth of the Dotio, volcanic hills: *Balansa 3459* (K, P), type of *Trouettia leptoclada* Pierre, shrub, 1–2 m high; on the mountains along the Ngoye, 1000 m alt.: *Schlechter 15189* (BM, P), buds Nov., type of *Chrysophyllum parvifolium* Schlechter; Haute Tontouta, ca 200 m alt.: *Bernier 115* (P), fl. Oct., shrub, 2–3 m high; Sentier du Drumac, ca 600 m alt., expos. S., serpentine scrub: *Virot 191* (P), fl. (only buds seen, W. V.) Aug., shrub, 1.50 m high, flowers reddish; Upper Tontouta Valley, hillside, alt. 500–600 m: *Mc Kee 3488* (L, P), fl. Nov., shrub 70 cm, leaves dark green above, pale green below, young leaves brown, flowers white: without locality: *Balansa 3049* (P); ibidem: *Compton s.n.* (BM, P), type of *Chrysophyllum floribundum* Moore; ibidem: *Deplanche 436* (P), type of *Chrysophyllum deplanchei* Baillon.

Remarks: *Schlechter 15189*, described as *C. parvifolium* Schltr., is bearing leaves which are very quickly glabrescent, dull above, with a more prominently crested midrib; the very small buds contain a ca 0.25 mm long glabrous corolla.

The specimen resembles *C. lissophyllum*, f. *obscurinerve*, but differs from it by obovate, acute to rounded leaves, fewer secondary nerves, which are more irregular, the archs not forming a nearly straight infra-marginal nerve.

18. *C. francii* Guillaumin & Dubard, Bull. Mus. Nat. Hist. Nat. 25, 1919, 290, non *C. franchii* Guillaumin, Bull. Soc. Bot. Fr. 91, 1944, 69 — *Ochrothallus francii* (Guillaumin & Dubard) Guillaumin, Bull. Soc. Bot. Fr. 89, 1942, 223 — Fig. 14.

Shrubs, 1–4 m high. Branchlets terete with faint to prominulous irregular ribs, running down from leafscars, 2–4 mm in diam., light brown, greyish brown or dark grey to blackish, brownish tomentose, quickly glabrescent. Leaves confined to the tips of the branchlets, oblong-obovate to subspatulate or linear-oblong, 2.8–7.5 by 1.1–3.2 cm, apex rounded (to obtuse), base rounded, densely ferruginous-tomentose on either side, very quickly glabrescent, indumentum longer persistent on midrib and then grey, nitidous on either side, coriaceous; midrib minutely or not impressed and minutely convex above, prominent below, secondary nerves 7–11, ascending at an angle of 60°–75°, slightly curved or straight, archingly joined, very faint above, faint below, tertiary nerves descending, irregularly reticulate, very faint to inconspicuous above, faint to very faint below; petioles 2–7 mm long; flattened to convex above, rounded below, ferruginous-tomentose, turning grey, ultimately glabrescent. Inflorescences 2–6-florous, in the axils of leaves; pedicels 1.5–4 mm long, ferruginous-tomentose; bracteoles 1–3 basal, 0–1 along pedicel. Sepals 5, ovate to elliptical or oblong, 2.3–2.8 by 1.2–1.7 mm, apex rounded to acutish, densely ferruginous-tomentose without, glabrous within. Corolla 3.4–4 mm long, glabrous, tube 1.3–1.6 mm long, lobes 7–10, elliptical to obovate, 2–2.5 by 1.3–2 mm, apex broadly rounded, fimbriate. Stamens 7–10, inserted in corolla-throat, filaments filiform, 2.5–3 mm long, anthers ovoid, 1–1.3 by 0.5–0.7 mm, apex acuminate, acumen often slightly bifide, base cordate. Staminodes none (?). Ovary ovoid to conoidal, 0.9–1.3 by 0.8–1.2 mm, densely ferruginous-villous, 3–5-celled, ovules inserted in the upper or lower half of the cells; style tapering, 2.3–2.6 mm long,

basal half densely ferruginous-villous, upper half glabrous; stigma minute. *Fruits* ellipsoid, 4—4.6 by 13—17 mm, apex acuminate, acumen 2—5 mm long, base narrowed, acute, narrowed part not embracing the seed, purplish brown and with many faint longitudinal ribs, glabrous, pericarp 0.3—0.7 mm

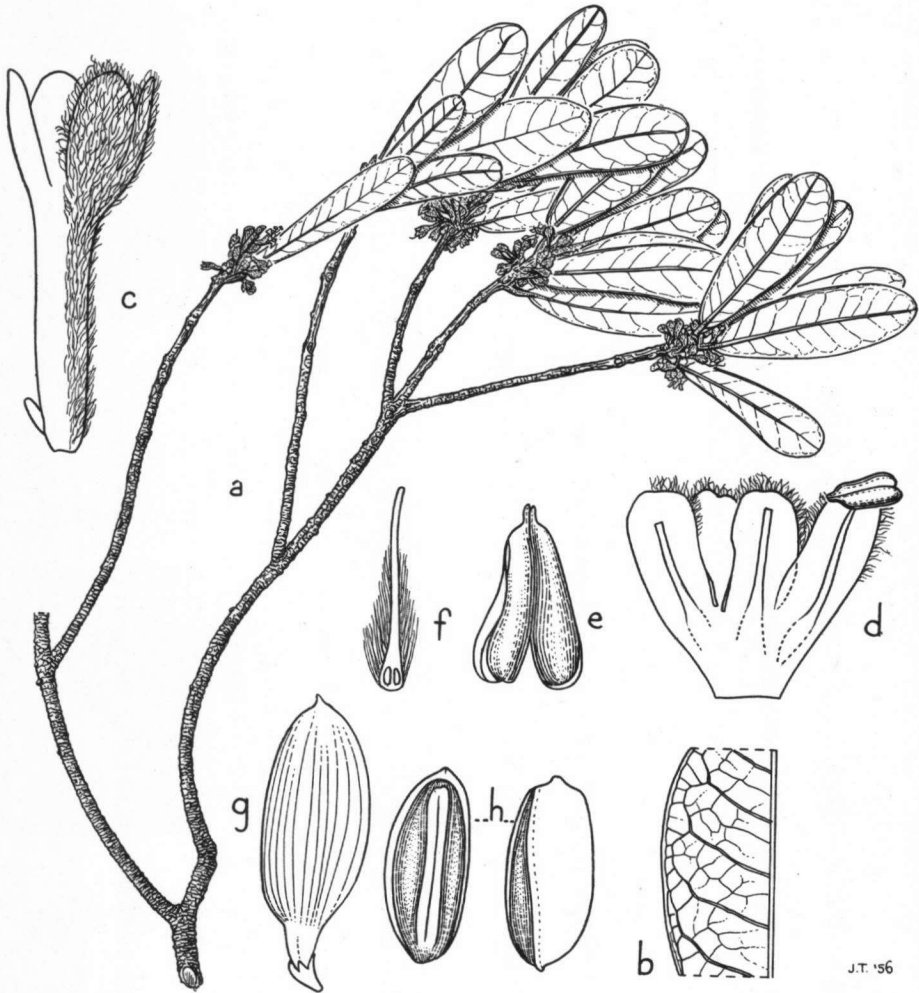


Fig. 14. *C. franohii*, a. branchlets with leaves and flowers ( $\frac{1}{2} \times$ ), b. leaf-nerivation ( $1\frac{1}{2} \times$ ), c. pedicel and calyx ( $7\frac{1}{2} \times$ ), d. part of the corolla ( $7\frac{1}{2} \times$ ), e. anther, f. pistil in longitudinal section ( $7\frac{1}{2} \times$ ), g. fruit ( $\frac{3}{4} \times$ ), h. seed from two sides ( $\frac{3}{4} \times$ ). (a.—b. from *Guill. & Baum.-Boenh. 11962*, c.—h. from *Franc 639*).

thick, greenish and nitidous within; seeds one, ellipsoid, slightly flattened at 2 or 3 sides, 28—32 by 14—16 mm, apex and base rounded, testa light brown and nitidous without, whitish longitudinally, near the back of the scar transversally veined within, back of scar brown, scar laterally ovate to elliptical, 26—29 by 12—15 mm, apex rounded, base acutish, brown

and dull, hilum linear; cotyledons thick, fleshy; albumen none; radicle minute, basal.

Type specimen: *Franc 689* in P.

Distr.: New Caledonia.

NEW CALEDONIA. Western slope of Mt. Koghi, N. of l'Hermitage, 500 m alt.: *Mc Kee 2416* (L, P), shrub 2.5 m high, leaves light green; Pic de Péretta: *Brousmitche 892* (P), fl. April, 1–3 m high, leaves darkgreen; "Troockenwalde", Vulcan, serpentine, 900 m alt.: *Baumann 3286* (Z), fr. Nov., 4 m high, fruits violet; Plaine des Lacs, arid places, badly grown scrub: *Franc 689* (BM, NY, P), fl. Febr., rare; Bois du Sud, Spermolepis-woods, serpentine: *Baumann 11654* (Z), fl. March, 3 m high; without locality: *Pancher s.n.* (P); *Härlimann 1018 and 1130* (Z); *Guillaumin & Baumann 11957* (Z), fl. April; *ibidem 11958* (Z), buds April; *ibidem 11962* (Z), fl. April, serpentine, 2 m high.

Remarks: One sheet of *Brousmitche 892* bears an annotation by Baillon: "Sideroxylon? Je vois 1, 2 staminodes", and another one of the same number carries a drawing and annotations by Pierre: "Staminodia interna fauce inserta, *nana* vel punctiforma vel dentiforma brevissimus vix conspicuo". The drawing shows very minute alternipetal staminodes. I was unable to find any staminode, either in flowers of the type specimen, or in those of other ones.

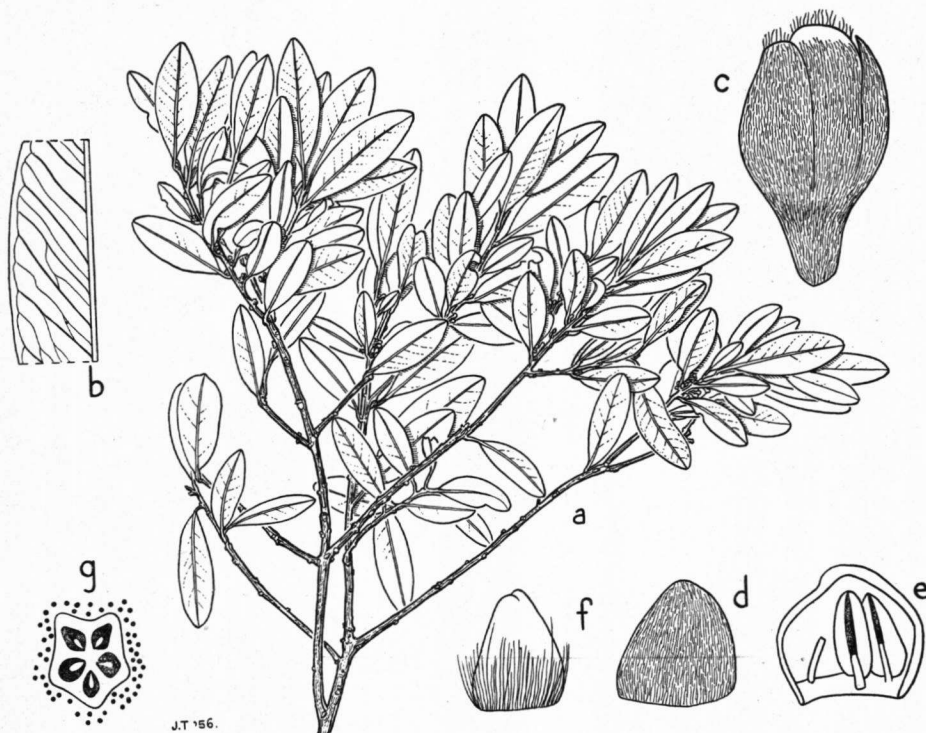


Fig. 15. *C. intermedium*, a. branchlets with leaves and buds ( $\frac{1}{2} \times$ ), b. leaf-nerve (2  $\times$ ), c. bud (15  $\times$ ), d. sepal (15  $\times$ ), e. part of the corolla (15  $\times$ ), f. pistil (15  $\times$ ), g. cross-section through the ovary, the dots representing the hairs (15  $\times$ ), d.—g. from buds (from *Balansa 3045*).

19. **C. intermedium** Baillon, Bull. Soc. Linn. Par. 2, 113, 1891, 898 — *Planchonella intermedia* (Baillon) Däniker, Viertelj. Nat. Ges. Zürich, 78, Beibl. 19, 1933, 353 — *Trouettia intermedia* Pierre mss. ex Guillaumin, Ann. Mus. Colon. Marseille, 2me sér. 9, 1911, 185 — *Pouteria intermedia* (Baillon) Baehni, Candollea 9, 1942, 409 — Fig. 15.

Branchlets terete, 1—3 mm in diam., faintly ribbed when young, greyish brown, ferruginous-sericeous, quickly glabrescent. *Leaves* elliptical to obovate, 1.5—3.5 by 0.6—1.3 cm, apex acutish to rounded, base cuneate, when young purplish brown and very thin sericeous above, brown and thin reddish brown sericeous below, when mature grey, glabrous, nitidulous above, dull below, coriaceous; midrib flat above, rather prominent below, secondary nerves 8—12, ascending at an angle of 40°—50°, straight to sinuous, archingly joined, very faint to inconspicuous on either side, tertiary nerves descending, laxly irregular-longitudinally reticulate, very faintly visible on young leaves only; petioles 0.2—0.5 cm long, flattened above, rounded below, reddish ferruginous-sericeous, quickly glabrescent. *Inflorescences* 4—10-florous, in the axils of leaves or their scars, pedicels ca 1.5 mm long, ferruginous-, ultimately greyish sericeous. *Sepals* 5, ca 1 by 1 mm, ovate, apex rounded, reddish ferruginous-sericeous without, inner sepals with a narrow glabrous border along apex, glabrous within. *Corolla* only known from young buds, glabrous, lobes 5, broadly rounded. *Stamens* 5, filaments subulate, tips recurved outwardly, anthers ovoid, apex acutish, base cordate. *Staminodes* none. *Ovary* ovoid, ca 0.5 by 0.5 mm, reddish ferruginous-villous just above base, 5-celled, style tapering, ca 0.5 mm long, glabrous. *Fruits* unknown.

Type specimen: *Balansa 3045* in P, s.l.

Distr.: New Caledonia.

Remarks: The description of the flower is based on very tiny buds and one old flower.

20. **C. cochleare** Vink, nov. spec. — *Pag. 69 and fig. 16.*

Shrubs, 0.5—2 m high. Branchlets terete with minute longitudinal ribs, 1.5—4.5 mm in diam., light grey to purplish black, ferruginous-sericeous, very quickly glabrescent. *Leaves* confined to the tips of the branchlets, obovate to elliptical, 1.8—5 by 1.2—2.4 cm (the largest leaves often being the most terminal ones), apex broadly rounded to obtuse, base cuneate, minutely decurrent; young leaves thinly ferruginous-sericeous above, densely ferruginous-sericeous below, mature leaves glabrous and dull above, light ferruginous-sericeous to glabrous and dull below, coriaceous; midrib slightly impressed and near leaf-base crested above, prominent below, secondary nerves 6—13, ascending at an angle of 50°—60°, straight, archingly joined, very faint to nearly inconspicuous or minutely impressed above, faint to inconspicuous below, tertiary nerves descending, laxly longitudinally reticulate, inconspicuous above, very faint to inconspicuous below; petioles 0.3—0.7 cm long, flat with crested midrib above, rounded below, ferruginous-sericeous, glabrescent. *Inflorescences* 4—10-florous, inserted in the axils of leaves or their scars; only buds known, pedicels ca 1.5 mm long, ferruginous-sericeous; bracteoles 1—3, minute. *Sepals* 5, broadly ovate to rotundate, ca 1 by 1 mm, densely ferruginous-sericeous

without, inner ones with a wide glabrous border along margin, glabrous within. *Corolla* ca 1.5 mm long, glabrous, lobes 5, elliptical, ca 1.2 by 1 mm,

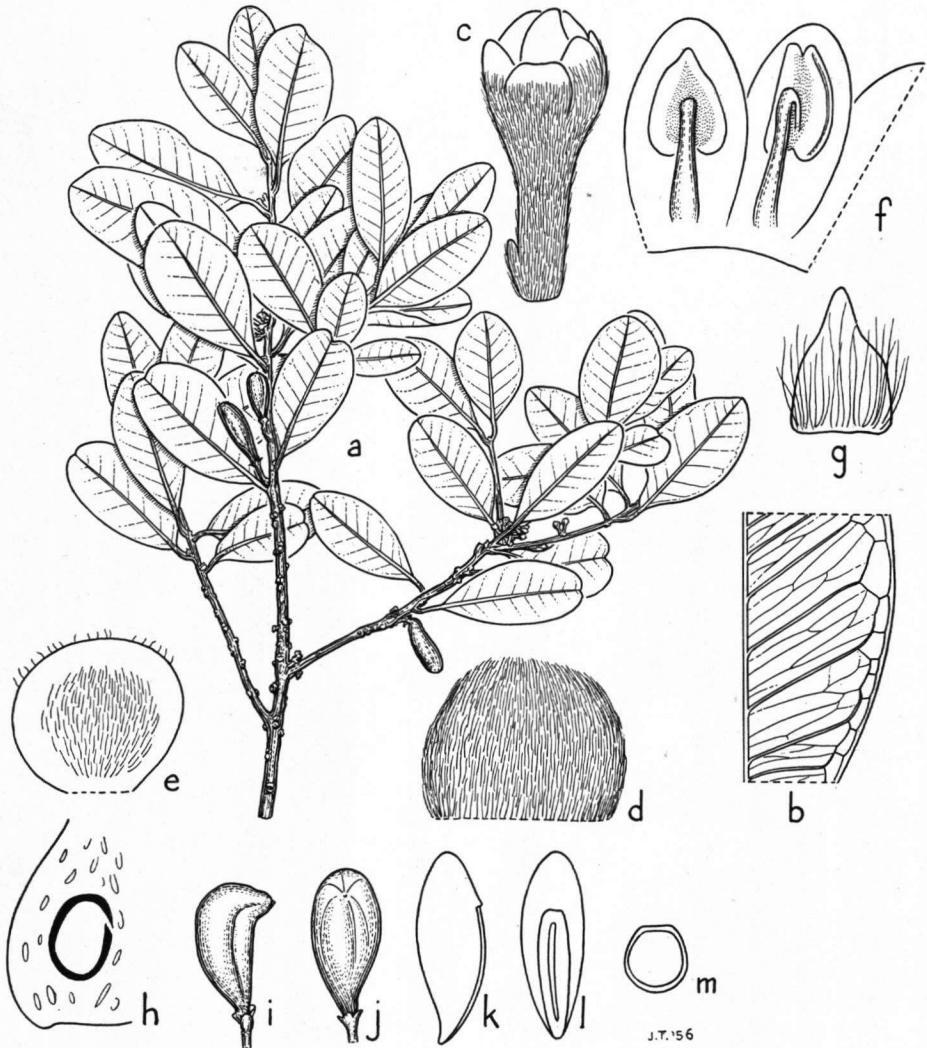


Fig. 16. *C. cochleare*, a. branchlet with leaves, buds and fruits ( $\frac{1}{2} \times$ ), b. leaf-nerve (1½ ×), c. bud (10 ×), d. outer sepal (10 ×), e. inner sepal (10 ×), f. part of the corolla (20 ×), g. pistil (10 ×), h. longitudinal section through the ovary, i. and j. a fruit from two sides (1 ×), k. and l. a seed from two sides (1 ×), m. cross-section through empty seed. (from *Baumann-Bodenheim 8130*).

apex rounded. *Stamens* 5, inserted in corolla-throat, filaments subulate, tips recurved outwardly; anthers ovoid, apex acute to slightly bifide, base cordate. *Staminodes* none. *Ovary* conoidal, sparsely long ferruginous-

villous, 5-celled, ovules inserted in upper half of the cells, style narrowly conoidal, glabrous, stigma minute. *Fruit* obovoid, dorsally flattened to longitudinally curved, 14—25 by 6—10 by 6—7 mm, apex rounded with minute remains of the style, base tapering, acute, purplish to yellowish brown, glabrous, sepals persistent, pericarp ca 0.3 mm thick; seeds one, with the same form as the fruit, 12—23 by 7—9 by 6—7 mm, testa beige-tinted without, with a reddish brown margin along the lateral sides of the scar, brown inside, longitudinally white veined, ca 0.2 mm thick, scar dorso-laterally, oblanceolate, 10—17 by 2.5—4 mm, apex truncate, base narrowly acute, brown, hilum linear, white; albumen membranaceous; cotyledons thick, fleshy, tapering towards base, radicle very minute.

Type specimen: *Baumann 8130* in Z.

Distr.: New Caledonia.

NEW CALEDONIA: Sentier du Dzumac, banks of the first cascade, 500 m alt., exp. S., serpentine scrub: *Vivat 205* (P), fl. Aug., shrub, 0.5—1 m high; South of the Vulcan, serpentine: *Baumann 8130* (Z), type specimen, 2 m high; ibidem: *Baumann 8061* (Z), 1 m high; ibidem: *Baumann 8196* (Z), 2 m high.

21. *C. ? glabrisepalum* Guillaumin, Bull. Mus. Nat. Hist. Nat. 2me sér., 21, 1949, 258.

The material used for the description of this species was not available. The description of Guillaumin runs:

Arbor 6 m alta, lactescens, trunco 10—20 cm diam., cortice rugosa, atro griseo. Folia ovata (8—15 cm × 2—4.5 cm), petiolo 1.5—3 cm longo-suffulta, basi cuneata, apice rotundata vel obtusa, rigida, nervis supra immersis subtus prominentibus, 9—11 jugis, venis inconspicuis. Flores valde numerosi, ramis dense fasciculati, parvi, pedicello 3—4 mm longo, dense appresse piloso, calyx pedicello fere aequante, lobis ovatis, tubo aequilongis, glabris, corolla glaberrima, tubo 2.5 mm longo, lobis 7—8 ovatis, fere 3 mm longis, staminea epipetala, 4 mm longa, fauce inserta, ovario glabro.

Type specimen: *Buchholz 1304* (not seen).

22. *C. chartaceum* (Bailey) Vink nov. comb. — *Lucuma chartacea* Bailey, Queensl. Flora III, 1900, 955; Bailey, Compr. Cat. Queensl. Pl. 1909, 305 — *Niemeyera chartacea* (Bailey) White in Contr. Arn. Arb. IV, 1933, 87 — *Sersalisia baileyana* Domin, Bibl. Bot. 22, Heft 896, 1928, 1062.

Trees, 8—25 m high. Branchlets terete, 1.5—2.5 mm in diam., light brown to grey, ferruginous-tomentose, glabrescent. *Leaves* diffuse, oblanceolate to oblong-oblanceolate, 2.5—19 by 1—7 cm, apex acuminate, acumen 0.2—1 cm long, base cuneate, shortly decurrent, margin undulate; densely ferruginous-tomentose on either side when very young, very quickly glabrescent, indumentum somewhat longer persistent on midrib above, on midrib and secondary nerves below, nitidulous to nitidous on either side, chartaceous; midrib impressed and minutely crested above, prominent below, secondary nerves 6—12, ascending at an angle of 35°—65°, slightly curved, diminishing near margins or joined by tertiary reticulation, faint above, prominulous below, tertiary nerves transverse or longitudinally to irregularly reticulate, faint on either side; petioles 0.5—2 cm long, long ferrugin-

ous-tomentose, glabrescent, flattened above, rounded below. *Inflorescences* 8—20-florous, in the axils of leaves or their scars. Flowers crowded, sessile; bracteoles 2, inserted below the inner sepals. *Sepals* 5, ovate-oblong, 2 by 1 mm, apex obtuse, densely ferruginous-hirsute without, covered margins glabrous, glabrous within. *Corolla* ca 3 mm long, glabrous, tube 1—1.5 mm long, lobes 5, oblong, 1.5—2 by 1 mm, apex obtuse, recurved outwardly. *Stamens* 5, exsert, inserted in the upper half of the tube, filaments subulate, ca 2 mm long, anthers oblong, ca 0.5—1 by 0.5—0.8 mm, apex acute or obtusiusculous, base cordate. *Staminodes* none. *Ovary* conoidal, 5-ribbed, ca 1.5 by 1 mm, densely ferruginous-villous, 5-celled, ovules inserted in lower half of the cells; style tapering, about 3.5 mm long, glabrous; stigma minute. *Fruits* ovoid-oblong to almost globular, 1.5—3 by 1.5—2.5 cm, brownish to ferruginous-tomentose, turning whitish, glabrescent, apex with remains of the style; exocarp purple and thin when dry; seeds 1 or 2, ovoid, about 1.5—3 by 1.5—2.5 cm, testa very thin, papyraceous, scar covering almost the whole surface of the seed, leaving a small shining part only which is 1.5—2 cm long and 0.8—1 cm wide, hilum apical, cotyledons thick, oblong or semiglobose, albumen none, radicle very small, basal, triangular.

Type specimen: *Bailey s.n.* in BRI.

Distr.: Queensland.

AUSTRALIA, QUEENSLAND, Cook District: Daintree River, in rainforest, alt. 10 m: *S. F. Kajewski 1440* (BRI, K, NSW, SING) fl. Dec., small tree, about 8 m high, flowers small, inconspicuous, petals light green, calyx with brown hairs, common; ibidem, in rainforest: *L. J. Brass 2218* (BRI, K, L, P), fl. March, a slender tree, 9—12 m high, thin brown bark, milky viscid sap; Bellenden Ker, lowland scrub: *C. T. White 1282* (BRI) fl. March; Topaz, near Malanda, in rainforest, alt. ca. 750 m: *Smith & Webb 3295* (BRI), fr. Aug., a small tree, 7.5 m high, trunk 12.5 cm diam., outer bark brownish, inner bark pale reddish brown, 0.3 cm thick, sparingly exuding latex, sapwood pale, ca 2—4 cm thick, heart-wood pinkish brown; East Malanda, Atherton Tableland, in rainforest, alt. 700 m: *S. F. Kajewski 1215* (B, BRI, K, NSW, S), y. fr. and fl. Sept., tree up to 25 m high, fruit purple black when ripe, slightly flattened top and bottom, also small hole or recess at each end, bark dark grey, light pink brown when cut, odourless, common; ibidem: Boonjii, in rainforest, alt. 800 m: *S. F. Kajewski 1200* (BRI, K, S), fr. Oct., tree 15 m high, leaves dark green, fruit purple when ripe, flattened at both ends, with a small point at apex, 3.2 by 4 cm, bark dark grey, with small pustules on it; Inisfail: *Canon Michael s.n.* (BRI); Berner Creek, near Inisfail: *N. Cumming s.n.* (BRI); near Kairi, road junction between Mt. Edith and Danbulla, in rainforest, alt. 700 m: *Smith & Webb 3362* (BRI) fr. and y. fl. Aug., tree 6 m high, trunk 10 cm diam., outer bark brownish, longitudinally lined and somewhat pustular; inner bark pinkish or reddish to white inwards, sparingly exuding latex, sapwood cream, 2—2.5 cm thick, heartwood pinkish brown, fruit greenish, brownish hairy, tending to become glabrous; Garradunga, in rainforest: *C. T. White 11729* (BRI, K), fl. Dec., a small tree, in rainforest; Devil Devil Creek Area, ca 6 miles due S. of Mossman, in rainforest, alt. 360 m: *Smith & Webb 3963* (BRI), fl. Sept., tree 12 m high, bole 22.5 cm diam., outer bark brownish, inner bark reddish, 0.2 cm thick exuding latex when cut; Mossman River Gorge, in rainforest: *L. J. Brass 2143* (B, BRI, K, P), fl. Febr., tree about 15 m high, all young parts covered with dense floccose brown pubescence, old leaves glabrous and shining on both sides, flowers white; ibidem: *H. Tryon s.n.* (NSW) fl. fr. Aug.; S. Kennedy District: Eungella Range, Massey Creek, W. of Mackay, in rainforest, alt. ca 900 m: *Smith & Webb 4672* (BRI), fl. fr. Oct., tree 18 m high, bole ca. 40 cm diam., exuding latex when cut, flowers creamy white, fruit purplish, fleshy, up to 3.8—5 cm in diam.; W. of Mackay, in rainforest, alt. ca 900 m: *Smith & Webb 4742* (BRI), tree 13.5 m high, bole 20 cm in diam., exuding latex when cut; via Mackay: *W. D. Francis s.n.* (BRI), y. fl. fr. Oct.;

Wide Bay District: Eumundi: *J. F. Bailey s.n.* (BRI), fl. fr. Oct.; ibidem: *J. F. Bailey s.n.* (BRI), fl. Nov.; ibidem: *J. H. Simmonds s.n.* (BRI) fl. March; ibidem: *J. H. Simmonds s.n.* (BRI, K); district unknown: Mt. Glorious: *J. & M. S. Clemens s.n.* (BRI), fl. Jan.; Range Sampad: *C. T. White 8918* (BRI); Tarzali: *C. T. White 1282* (BRI), fl. March; Blackall Range, Montville: *C. T. White s.n.* (BRI, NSW), fl. fr. Apr., fairly common.

Remarks: See 23. *C. pruniferum*.

23. *C. pruniferum* F. v. M., *Fragm. Phyt.* 6, 1867—1868, 26; Bentham, *Fl. Austr.* 4, 1869, 278; Bailey, *Queensl. Fl.* 3, 1900, 953; Bailey, *Compr. Cat. Queensl. Pl.* 1909, 305 — *Niemeyera pruniferum* (F. v. M.) F. v. M., *Fragm. Phyt.* 7, 1870, 114 — *Lucuma prunifera* Bentham ex F. v. M., *Select. Pl. industr. Cult.* 1876, 142.

Trees, up to 15 m high. Branchlets terete, 2.5—6 mm in diam., light brown to purplish brown, long ferruginous-tomentose, turning greyish, glabrescent. *Leaves* diffuse, obovate to oblong, 2.5—18 by 1.5—7 cm, apex acute or acuminate, acumen 0.2—0.5 cm long, base cuneate, minutely decurrent, margins undulate to flat; densely long ferruginous- or reddish ferruginous-tomentose on either side when young, glabrous and nitidous above, long ferruginous- to reddish ferruginous-tomentose especially on midrib and secondary nerves below or glabrescent when mature, chartaceous; midrib impressed and minutely crested above, very prominent below, secondary nerves 6—20, ascending at an angle of 50°—70°, straight or slightly curved, diminishing near margins or joined by tertiary reticulation, faint above, prominent below, tertiary nerves transverse, near midrib recurved, faint above, faint to prominent below, if faint mature leaves always with indumentum below; petioles 0.5—1.5 cm long, ferruginous-tomentose, ultimate light grey or glabrescent, flattened above, rounded below. *Inflorescences* 4—15-florous, in the axils of leaves or their scars. Flowers crowded, sessile; bracteoles 2, inserted below the inner sepals. *Sepals* 5, ovate, 2 by 0.5—1 mm, obtuse, densely brownish to ferruginous-tomentose without, covered margins glabrous, glabrous within. *Corolla* ca 3.5 mm long, glabrous, margin shortly fimbriate; tube ca 1.5 cm long, lobes 5, elliptic-ovate, ca 2 by 1 mm, apex rounded to obtuse. *Stamens* 5, filaments subulate, ca 2 mm long, anthers ovoid, ca 0.8—1.2 by 0.8—1 mm, apex shortly acuminate, base cordate. *Staminodes* none. *Ovary* subglobose, 5-lobed, densely ferruginous-villous, 5-celled, ovules inserted in the lower half of the cells; style ca 3.5 mm long, glabrous, tapering; stigma very minute. *Fruits* almost globular, 3—5 by 2.5—5 cm, purplish black, densely ferruginous-tomentose, glabrescent, apex with remains of the style, exocarp thin; seeds 1, testa ca 0.5 mm thick, hard, scar covering almost the whole surface of the seed leaving a small dorsal shining part, ca 2.5 by 15 cm, cotyledons thick, fleshy, albumen none.

Lectotype specimen: *Dallachy s.n.*, collected 2nd March 1864 (MELB.).

Distr.: Queensland, New South Wales.

AUSTRALIA, QUEENSLAND, Rockingham Bay: *Dallachy s.n.* (K, NSW, P), fl., y. fr., 1868; ibidem: *Dallachy s.n.*, collected 2nd March 1864, (MELB.), small tree, flowers yellow, *lectotype-specimen*; ibidem, *unknown collector* (BO, L) — NEW SOUTH WALES, South Grafton: *E. Blacket s.n.* (NSW), fr. Febr.; Woolgoolga District: *W. A. W. de*



*Beuzeville 748* (NSW), fl., fr. Oct., a small to large tree to 0.60 m in diam., bark yields a copious milky exudation when cut, leaves dark glossy green above, paler beneath, fruit reddish when unripe, ripe ones very glossy black, mostly globular, with a diam. up to 7.5 cm, occasionally a little pointed at apex, seed marked with a variable sized shining scar, generally 1.3—2 cm long, elliptical to clubshaped, tree common in brushes; ibidem, Wedding Bells, State Forest: *B. Clarke s.n.* (NSW), fl. Oct.; Coff's Harbour: *S. L. Allman s.n.* (NSW), fr. Febr.; ibidem: *A. H. Lawrence s.n.* (BRI, NSW), fr. Apr.; ibidem: *J. L. Boorman s.n.* (NSW), fr. May; Dorrigo: *C. E. Carter 35* (NSW), fl. Sept.; Bellingen River: *C. Moore s.n.* (K, NSW); ibidem: *E. H. L. Swain 208* (NSW), y. fl. Aug., tree 9 m high, 0.30 m girth at 1.20 m, smooth bole, 6-ribbed at base with long narrow ribs, bark whitish grey, corky, wrinkled, in brushes on moist black soil; Port Macquarie District: *G. R. Brown 509* (NSW), fl. Aug., vern. name: Nut-Apple or "Plum-Moonboys"; Whian Whian: *C. T. White 15048* (BRI), fr. May, tree 15 m high, leaves dark green above, paler and brownish beneath, young shoots very brown hairy, fr. borne in great abundance but only odd ones beneath the tree available, vern. name: Black Plum; Upper Tallebudgera: *C. T. White s.n.* (BRI, NSW); Repton: *J. C. Campbell 199* (LAE) in rainforest.

Remarks: It is very difficult to delimitate *C. pruniferum* and *C. chartaceum* against each other by vegetative or flower characters. Some material is mentioned here with some doubt.

In *C. pruniferum* there are two types: 1. with glabrous mature leaves with prominent tertiary nerves below; the seeds in this type have a thick hard testa; 2. with mature leaves with a thin to dense indumentum and faintly prominent tertiary nerves below; the lectotype specimen belongs to this group, but no fruits in this type could be traced, which makes it uncertain if the fruit-characters are different from those in *C. chartaceum*. As there are transitions between these two types of leaves, both are included in the same species.

In *C. chartaceum* the venation is often very similar to that in the second type of *C. pruniferum*, but in mature leaves the indumentum is always lacking and the tertiary nerves are often strongly recurved to the midrib. In this species the testa is papyraceous.

Extensive collections of both species should be made and collectors should remember that fruit-bearing specimens only are useful for delimitation-questions, since the flowers are much alike. From those new collections it may be learned if the fruits in both types of *C. pruniferum* are identical or if there are transitions to *C. chartaceum*. In the latter case both species are to be united.

**24. *C. antilogum*** (F. v. M.) Vink nov. comb. — *Amorphospermum antilogum* F. v. M. Fragm. Phyt. VII, 1870, 113; Engler in Engler & Prantl. Nat. Pflanz. fam. IV-1, 1897, 150; Baillon, Hist. Pl. XI, 1892, 285 — *Lucuma amorphosperma* (F. v. M.) Bailey, Queensl. Flora III, 1900, 955; ibidem, Compr. Cat. Queensl. Pl. 1909, 305.

Trees, up to 18 m high. Branchlets terete, 1.5—4 mm in diam., yellowish brown or brown to light brownish grey, ferruginous-tomentose, glabrescent. Leaves diffuse, rotundate-ovate or oblong to obovate-oblancoelate, rarely oblanceolate, (1.5—)6—16 by (0.8—)2—6.5 cm, apex emarginate or rounded to obtuse or acute to shortly and obtusely acuminate, acumen 0.3—0.5 cm long, base cuneate, slightly to minutely decurrent, glabrous and nitidous above, at first ferruginous-, later on yellowish brown to greyish shortly sericeous below, ultimately glabrescent, thinly coriaceous to coriace-

ous; midrib impressed and minutely crested above, prominent below, secondary nerves 6—20, ascending at an angle of 55°—65°, straight, sometimes slightly curved, more or less distinctly archingly joined or diminishing near margins, faint on either side, tertiary nerves more or less longitudinally reticulate (angle with midrib 60°—90°), very faint to inconspicuous on either side; petioles 0.3—1.5 cm long, canaliculate above, rounded below, ferruginous- to brownish tomentose, glabrescent. *Inflorescences* up to 15-floruous, flowers sessile; bracteoles 2—3. *Sepals* 5—6, ovate, 1.8—2.3 by 1—1.3 mm, apex obtuse, ferruginous- to brownish sericeous without, margins laying inside in bud with a glabrous border, fimbriate, glabrous within. *Corolla* 3—4 mm long, tube 1—2 mm long, with some scattered appressed hairs without, glabrous within, lobes 5—6(—8), obovate to elliptical, 2—2.5 by 1—1.5 mm, apex rounded or obtuse, glabrous. *Stamens* 5—6(—8), inserted halfway the tube or in the corolla-throat, filaments subulate, 3—4 mm long, tip recurved outwardly, anthers ovoid to cylindrical, 1.2—1.5 by 0.3—0.5 mm, apex acuminate and minutely fimbriate, glabrescent, base slightly cordate. *Staminodes* none (see Remarks). *Ovary* ovoid to conoidal, 1(—1.5) by 1(—1.5) mm, densely ferruginous-villous, 1—3-celled, ovules inserted a little above the middle of the cells; style tapering, 3.5—4 mm long, glabrous but ferruginous-villous at base; stigma minute. *Fruit* almost globular, 25—40 by 25—40 by 25—40 mm, abruptly narrowed at base, narrowing stalk-like, 5—20 mm long, solid, exocarp ca 0.5 mm thick, purplish to light brown and glabrous without, purplish to light reddish brown within, seeds one, almost globular, 25—40 by 25—40 by 25—40 mm, testa hard, woody, ca 1 mm thick, light yellowish without, light reddish brown, nitidous, with reddish brown reticulate veins within, scar almost covering the whole seed, dull, leaving a small, sometimes long and narrow lateral nitidous part, which is 7—15 by 1—3 mm, hilum apico-lateral, albumen none, embryo globose, cotyledons thick, radicle basal, prominent, triangular. Taproot emerging from the stalk of the seed, fleshy, milky, tapering to the lower end, sulcate, breaking off from stalk and apically giving rise to the young plant.

Lectotype specimen: *Thozet s.n.* (MEL).

Distr.: Queensland.

QUEENSLAND. North Kennedy District: near Giru, alt. below 30 m: *Blake 14916* (BRI), fl. Apr., slender tree, 12 m high, slightly flanged at base, bark grey when old, creamy when young, tessellately scaly, brown beneath surface and reddish brown deeper down, this region with flow of white latex, also in shoots, leaves dark green above, shining coppery or somewhat silvery beneath, fruit up from ground, in light rain forest, on rocky hillside; Abbot Bay, in dune scrub, ca 1 m alt.: *Blake 18630* (BRI, L), fl. Oct., tree 5 m high, with grey scaly-looking bark, leaves dull lightgreen above, silvery or coppery beneath, fruit lightgreen to reddish; Mt. Elliott: *von Mueller s.n.* (L); ibidem: *Fitzalan s.n.* (P); Port Curtis District: Rockhampton, Lands Mill: *Mc Dowell s.n.* (BRI), fr. Dec., grows in the serpentine country; ibidem: *Thozet s.n.* (K, P); near the circle of Capricorn: *Bouman s.n.* (P); Byfield near Keppel Bay: *C. T. White 8034* (B, BRI, S, SING), medium sized tree, very common in rainforest, leaves glossy green above, at first rusty, afterwards silvery beneath, fl. fr. Sept.; Marlborough: *C. T. White 12109* (BRI), fl. fr. Oct., small tree, fl. cream, along creeks and in gullies in dry rocky country; Mt. Dryander: *Fitzalan s.n.* (NSW); Wide Bay District: Imbil: *F. Weatherhead W 90* (BRI, NSW) y. fl. Apr.; ibidem: *W. A. W. de Beuzeville 814* (NSW), fl. Febr.; ibidem: *W. R. Petri s.n.* (BRI); ibidem: *W. R. Petri 95a* (BRI), y. fl. Aug.; ibidem, rainforest: *K. Gray 199* (LAE), tree; ibidem,

in rainforest, alt. 150 m: *L. S. Smith & L. J. Webb 3137* (BRI), tree 18 m high, trunk 0.25 m in diam., outer bark brownish, often faintly marked in patches by a pinkish lichenf, inner bark pink to white inwards, ca 0.3 cm thick, exuding latex, sapwood pale straw, 2 cm thick, heartwood pale pinkish; Gympie Scrubs: *E. H. F. Swain 40* (BRI) fr. Jan., medium sized tree, pale, straight, grained wood; Peechey's Scrub: *J. Shirly s.n.* (BRI); Mt. Bauple, in rainforest, alt. 0—300 m: *S. F. Kajewski 76* (BRI), medium sized tree, fairly common, fr. bluish black; Moreton District: Brisbane, Kelvin Grove: *White & Francis s.n.* (BRI); ibidem, Banerft Park: *S. F. Everest s.n.* (BRI), fl. Oct.; District unknown: Dayboro: *C. T. White s.n.* (BRI); without locality: *Thozet s.n.* (NSW); ibidem: *Fitzalan s.n.* (BRI); cultivated: Muellerville: *Thozet 315* (NSW, P).

Remarks: The leaf-shape varies considerably.

The flowers of the specimen *Fitzalan s.n.* (Mt. Dryander) contained: a) stamens with normal anthers; b) stamens with anthers bearing apically a subulate prolonged connective; c) petaloid staminodes instead of stamens. In none of the other specimens such features could be found.

#### Latin diagnosis of the new species

4. *Chrysophyllum novoguineense* Vink nov. spec. — Cf. p. 33 et fig. 1.

Ramuli teretes, glabri; tria folia solum cognita, elliptica vel obovata vel oblanceolata, (10—)14—18.5 cm longa, (3.3—)6.6—7.8 cm lata, apice obtusa vel acuminata, basi cuneata decurrentia, utrinque indumenti ferrugineo-sericei rudimento ornata, demum canescentia chartacea; costa media supra plana, subtus valde prominens; nervi secundarii 9—11, sub angulo 60°—70° ascendentes, curvati vel paulo curvati, prope marginem diminuti, supra obscuro, subtus prominuli; nervi tertiarii cum reticulatione fere sub angulo recto in costam mediam posita, prope marginem plusminusve irregulariter reticulati, supra obscuro vel inconspicui, subtus obscuro; petioli 1.8—2.3 cm longi, supra plani, eodem indumento ornati ut in lamina; inflorescentiae 13—16-florae; pedicelli 2.5—2.8 mm longi, sericei pilis pallide brunneis vel brunneo-canescensibus; sepala 5, elliptico-ovata, 2.2—2.5 mm longa, 2—2.8 mm lata, utrinque pilis brunneo-canescensibus sericea; corolla 2.5—3 mm longa, glabra, tubo 1—1.3 mm longo, lobis 5, ellipticis, 1.5 mm longis, 1.3—1.4 mm latis; stamina 5, infra corollae faucem ipsam inserta; discus cupuliformis, ca 0.6 mm altus, ca 0.2 mm crassus, ad ovarium appressus, in parte inferiori indumento sericeo canescenti sparse ornatus, in parte superiori canescenti-villosus; ovarium conoideum vel obovoideum, ca 0.7 mm longum, ca 0.8 mm latum, glabrum, 5-loculare; stylus 0.5? mm longus, glaber; stigma truncatum; fructus obovoideus, 17—18 mm longus, 10—11 mm latus, apice rotundatus stylo persistenti coronatus, basi acutus disco persistenti munitus, glaber, monospermus; pericarpium papyraceum; semen obovoideum, ca 16 mm longum, 10 mm latum, 9 mm crassum, apice rotundatum, e basi subacuta rotundatum; testa crassa, extus nitida; cicatrix a latere affixa, plusminusve oblanceolata, ca 15 mm longa, ca 5 mm lata, apice acutiuscula, basi rotundata; albumen copiosum; cotyledones tenues, planae, obovatae vel ellipticae; radícula cylindrica, ca 1 mm longa.

Typus: *Beccari* (annot. Pierre no. 184) (P).

11. *Chrysophyllum multipetalum* Vink nov. spec. — Cf. pag. 43 et fig. 7.

Ramuli propter costas robustas subtriangulares, ferrugineo-sericei, glabrescentes; folia pro maxima parte in ramulis distributa, non ad apicem conferta, oblonga, 11—15 cm longa, 4—5.5 cm lata, apice rotundata vel obtusa, basi cuneata vel obtusa, utrinque ferrugineo-sericea, supra glabrescentia, subtus deinde canescentia, ultimo glabrescentia; costa media supra leviter impressa et carinata, subtus valde prominens; nervi secundarii 11—18, sub angulo 50°—60° ascendentes, recti, prope marginem diminuti, supra leviter impressi, subtus prominuli; nervi tertiarii transverse reticulati, supra valde leviter impressi, subtus inconspicui; petioli 1.5—2 cm longi, supra plani idemque carinati; inflorescentiae 2—4-florae, in foliorum persistitium vel delapsorum axillis positae; alabastra sessilia; sepala 5, ovata vel elliptica, 4.8—5.6 mm longa, 2.4—6 mm lata, apice rotundata, extus pallide ferrugineo-sericea, intus glabra; corolla in alabastro ca 5.5 mm longa, glabra, lobis 9—10 obovatis; stamina 9—10, infra corollae faucem ipsam inserta; ovarium semi-ovoideum, ferrugineo-villosum, 5-loculare; stylus glaber; stigma minutum; fructus ignotus.

Typus: Sébert et Fournier 77 (P).

13. *Chrysophyllum heteromerum* Vink nov. spec. — Cf. pag. 47 et fig. 9.

Frutex vel arbor parva, 1—10 m alta; ramuli teretes, ferrugineo-sericei, mox glabrescentes; folia ad ramulorum apices conferta, lineari-oblonga vel oblongo-obovata, 8.5—17.5 cm longa, (2.5—)3—4.5(—5) cm lata, apice rotundata, basi cuneata, paullum decurrentia, supra glabra et nitida, in tota costa media vel in ei parte basali solum canescenti-tomentosa, subtus demum ferrugineo-sericea, deinde canescentia, denique glabrescentia, valde coriacea; costa media supra leviter impressa idemque carinata, subtus valde prominens; nervi secundarii 21—31, sub angulo 70°—85° ascendentes, recti, prope marginem arcuatim conjuncti, supra obscuri vel leviter impressi, subtus prominuli vel obscuri; nervi tertiarii prope marginem irregulariter reticulati, sed prope costam in reticulatione longitudinali abeuntes; inter nervos secundarios binos nervus tertiarius unus interjectus, eis subparallelus et in folii parte media saepe ab eis haud distinctus; petioli 1—3 cm longi, supra canaliculati, ferrugineo-sericei, mox glabrescentes; inflorescentiae pauciflorae vel multiflorae, in foliorum delapsorum axillis positae; pedicelli 2—3 mm longi, ferrugineo-sericei; bracteoli 3—8, unus infra calycem insertus late ovatus, 1.5—2.8 mm longus, 2.2—3.3 mm latus; sepala 5(—6), ovata (interiora saepe elliptica vel obovata), 3—4.2 mm longa, 3—4.2 mm lata, apice rotundata, extus ferrugineo-sericea, intus glabra; corolla in alabastro ca 5 mm longa, glabra, tubo ca 3 mm longo, lobis 5—7, ellipticis vel obovatis, ca 2 mm longis, ca 1.5 mm latis, stamina 5—7, paullum infra tubi partem mediam inserta; staminodia nulla; ovarium conoideum, ca 1.5 mm longum, ca 1.5 mm latum, ad basin ferrugineo-sericeum, 5-loculare; stylus ca 4 mm longus, glaber; stigma minutum; fructus valde immaturi obovoidei, 10—12 mm longi, 6 mm lati, apice rotundati stylo persistente coronati, basi subacuti, canescenti- vel purpureo-brunnei, glabri, monospermi; pericarpium

ca 0.8 mm crassum; semen obovoideum; testa papyracea; cicatrix lateralis; albumen nullum; cotyledons crassae.

Typus: *M. et Mme Le Rat 2952 (P).*

**20. *Chrysophyllum cochleare* Vink nov. spec. — Cf. pag. 60 et fig. 16.**

Frutex, 0.5—2 m altus; ramuli teretes, striati, ferrugineo-sericei, mox glabrescentes; folia ad ramulorum apices conferta, obovata vel elliptica, 1.8—5 cm longa, 1.2—2.4 cm lata, apice rotundata vel obtusa, basi cuneata, minute decurrentia, juvenilia supra sparse ferrugineo-sericea, subtus dense ferrugineo-sericea, adulta supra glabra, subtus pallide ferrugineo-sericea vel glabra, coriacea; costa media supra leviter impressa et ad folii basin carinata, subtus prominens; nervi secundarii 6—13, sub angulo 50°—60° ascendentes, prope marginem arcuatim conjuncti, utrinque obscuri vel fere inconspicui vel supra leviter impressi; nervi tertiarii laxe reticulati, reticulatione ea nervorum secundariorum parallela, supra inconspicui, subtus obscuri vel inconspicui; petioli 0.3—0.7 cm longi, supra plani idemque carinati, ferrugineo-sericei, glabrescentes; inflorescentiae 4—10-florae, in foliorum persistentium vel eorum cicatricum axillis positae; pedicelli nondum evoluti ca 1.5 mm longi, ferrugineo-sericei; sepala 5, in alabastro late ovata vel rotundata, ca 1 mm longa, 1 mm lata, extus dense ferrugineo-sericea, intus glabra; corolla in alabastro ca 1.5 mm longa, lobis 5, ellipticis, stamina 5, fauce inserta; staminodia nulla; ovarium conoideum, sparse et longe ferrugineo-villosum, 5-loculare; stylus glaber; stigma minutum; fructus obovoideus, rectus et dorso applanatus vel curvatus, 14—25 mm longus, 6—10 mm latus, 6—7 mm diametens, apice rotundatus stylo persistente coronatus, basi acutus, glaber, monospermus; pericarpium ca 0.3 mm crassum; semen obovoideum, 12—23 mm longum, 7—9 mm latum, 6—7 mm diametens; testa ca 0.2 mm crassa; cicatrix dorso-lateraliter affixa, circuitu oblanceolata, 10—17 mm longa, 2.5—4 mm lata, apice truncata, basi angusta acuta; hilus linearis, albus; albumen membranaceum; cotyledones crassae; radice minutissima.

Typus: *Baumann-Bodenheim 8130 (Z).*

**Excluded species**

1. *Chrysophyllum ? amieuanum* Guill. — *Pouteria ? amieuanum* (Guill.) van Royen, *Blumea* VIII, 2, 1957, 497.
2. — *balansae* Baillon, *Bull. Soc. Linn. Par.* II, 1891, 901 (non *C. balansae* Baillon l. c. 900) = *Pouteria calomeris* (Baillon) Baehni, *Candollea* IX, 1942, 323.
3. — *beccarii* Pierre = *Planchonella torricellensis* (Schumann) H. J. Lam, *Nova Guinea* XIV, *Bot.* 4, 1932, 562.
4. — *brevicaule* Krause = *Myrsinaceae*, H. J. Lam l. c. 568.
5. — *calomeris* Baillon ex Guill. = *Pouteria calomeris* (Baillon) Baehni, l. c. 323.
6. — *castanospermum* White = *Pouteria castanosperma* (White) Baehni, l. c. 295.
7. — *curtisi* King & Gamble = *Planchonella linggensis* (Burek) Pierre, *Not. Bot. Sap.* 1890, 35.

8. *Chrysophyllum dubium* Pancher & Sébert — *Planchonella dubia* (Pancher & Sébert) van Royen, *Blumea* VIII, 2, 1957, 304.
9. ——— *firmum* Miquel = *Planchonella firma* (Miquel) Dubard, *Ann. Mus. Col. Marseille* XX, 1912, 59.
10. ——— *francii* Guill. = *Pycnandra chartacea* Vink, *Nova Guinea*, NS. 8, 1, 1957, p. 113.
11. ——— *ledermannii* Krause = *Planchonella chrysophylloides* H. J. Lam, l. c. 566.
12. ——— *longipes* Baillon = *Pouteria* ? *longipes* (Baillon) Baehni, l. c. 330.
13. ——— *macrocarpum* (Pancher & Sébert) Baillon = *Pouteria endlicheri* (Montr.) Baehni, l. c. 305.
14. ——— *philippense* Perrottet = *Palaquium philippense* (Perrottet) Robinson, *Phil. J. Sc.* III, 1908, 304.
15. ——— *polynesianum* Hill. = *Nesoluma polynesianum* (Hill.) Baillon, *Bull. Soc. Linn. Par.* II, 1891, 964.
16. ——— ? *pyriforme* Baillon = *Pouteria balansana* (Pierre) Baehni, l. c. 317.
17. ——— *rhodoneurum* Hassk. = *Planchonella nitida* (Bl.) Dubard, vide H. J. Lam, *Bull. Jard. Bot. Buitenzorg ser.* III, 7, 1925, 205.
18. ——— *sebertainii* Pancher = *Planchonella sebertainii* (Pancher) Dubard, *Ann. Mus. Col. Marseille* XX, 1912, 58.
19. ——— *torulosum* Krause = *Myrsinacea*, H. J. Lam, *Nova Guinea* XIV, Bot. 4, 1932, 568.
20. ——— *wakere* Pancher & Sébert = *Pouteria wakere* (Pancher & Sébert) Baehni, l. c. 335.
21. ——— *spec.* Baehni, l. c. 427 = *Pouteria unmackiana* (Bailey) Erlee, *Blumea* VIII, 2, 1957, 470.

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\* indicates a type specimen not seen by me.

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 — *castanospermum* White ..... E 6  
 — *chartaceum* (Bailey) Vink ... 22  
 — *cochleare* Vink ..... 20  
 — *comptonii* Moore ..... 8  
 — *curtisii* King & Gamble..... 3, E 7  
 — *deplanchei* Baillon ..... 17  
 — *dubium* Pancher & Sébert ... E 8  
 — *firmum* Miquel ..... E 9  
 — *floribundum* Moore ..... 17  
 — *francoii* Guillaumin ..... 18, E 10  
 — *francoii* Guillaumin & Dubard... 18  
 — *gatopense* Guillaumin ..... 12  
 — *glabrisepalum* Guillaumin ... 21  
 — *gordoniaefolium* Moore ..... 7  
 — *heteromerum* Vink ..... 13  
 — *intermedium* Baillon ..... 19  
 — *javanicum* Steudel ..... 3  
 — *lanceolatum* (Bl.) DC ..... 3  
 — — var. *lanceolatum* ..... 3  
 — — var. *papuanicum* White .... 3  
 — — var. *stellatocarpon* van Royen 3  
 — *ledermanni* Krause ..... E 11  
 — *leptocladum* (Baillon)  
   Guillaumin ..... 17  
 — *lissophyllum* Pierre ex Baillon 14  
 — — *f. lissophyllum* ..... 14  
 — — *f. longifolium* Vink ..... 14  
 — — *f. obscurinerve* Vink ..... 14  
 — *litseiflorum* (Guillaumin) Vink 15  
 — *longipes* Baillon ..... E 12  
 — *macrocarpum* (Pancher &  
   Sébert) Baillon ..... E 13  
 — *monopyrenum* Swart ..... 2  
 — *multipetalum* Vink ..... 11  
 — *novoguineense* Vink ..... 4  
 — *oliviforme* L. .... 2  
 — *? papuanicum* Pierre ..... 5  
 — *papuanicum* (Pierre) van Royen 5  
 — *parvifolium* Schlechter ..... 17  
 — *peninsulare* Moore ..... 14  
 — *philippense* Perrottet ..... E 14  
 — *polynesicum* Hill ..... E 15  
 — *pruniferum* F. v. M. .... 23  
 — *? pyriforme* Baillon ..... E 16  
 — *rhodoneurum* Hassk. .... E 17  
 — *roxburghii* G. Don ..... 3  
 — *sebertii* Pancher ..... E 18  
 — *sessilifolium* Pancher & Sébert 9  
 — *spec.* Baehni ..... E 21  
 — *spec.* Guillaumin ..... 6  
 — *torulosum* Krause ..... E 19  
 — *wagapense* Guillaumin ..... 10  
 — *wakere* Pancher & Sébert ..... E 20  
*Luouma amorphosperma* (F. v. M.)  
   Bailey ..... 24  
 — *chartacea* Bailey ..... 22  
 — *lanceolata* Zippel ..... 3  
 — *prunifera* Benth. ex F. v. M. 23  
*Nesoluma polynesicum* (Hill.)  
   Baillon ..... E 15  
*Niemeyera chartacea* (Bailey)  
   White ..... 22  
 — *prunifera* (F. v. M.) F. v. M.... 23  
*Nycterisition lanceolatum* Bl. .... 3  
*Ochrothallus ? balansae* Pierre ex  
   Guillaumin ..... 6  
 — *francoii* (Guill. & Dubard)  
   Guillaumin ..... 18  
 — *litseaeiflorus* Guillaumin ..... 15  
 — *sessilifolius* Pierre ex  
   Guillaumin ..... 9  
*Palaquium philippense* (Perrottet)  
   Robinson ..... E 14  
*Planchonella chrysophylloides*  
   H. J. Lam ..... E 11  
 — *dubium* (Pancher & Sébert)  
   van Royen ..... E 8  
 — *firma* (Miquel) Dubard ..... E 9  
 — *intermedia* (Baillon) Däniker... 19  
 — *leptoclada* (Baillon) Däniker... 17  
 — *linggensis* (Burek) Pierre ..... E 7  
 — *nitida* (Bl.) Dubard ..... E 17  
 — *papuanica* Pierre ex Dubard... 5  
 — *sebertii* (Pancher) Dubard ... E 18  
 — *torricellensis* (Schuman)  
   H. J. Lam ..... E 3  
*Pouteria ? amieuanum* (Guillaumin)  
   van Royen ..... E 1  
 — *balansana* (Pierre) Baehni ... E 16  
 — *calomeris* (Baillon) Baehni E 2, E 5  
 — *castanosperma* (White) Baehni E 6  
 — *endlicheri* (Montr.) Baehni ... E 13  
 — *intermedia* (Baillon) Baehni... 19  
 — *? longipes* (Baillon) Baehni ... E 12  
 — *unmackiana* (Bailey) Erlee ... E 21  
 — *wakere* (Pancher & Sébert)  
   Baehni ..... E 20  
*Pycnanandra chartacea* Vink ..... E 10  
*Sersalisia baileyana* Domin ..... 22  
*Sideroxylon derryanum* King &  
   Gamble ..... 2  
 — *papuanicum* Boerlage ..... 5  
*Tropalanthé lamii* Guillaumin ... 7  
*Trouettia intermedia* Pierre ex  
   Guillaumin ..... 19  
 — *leptoclada* Pierre ex Baillon ... 17  
 — *parvifolia* Pierre ex Schlechter 17



## ADDENDA

After this publication had been made ready for press some new material came to our disposal. By abstention of Mr W. Vink, who has been called upon to fulfill his national service in the Dutch Army, a description of a new species has to be drawn up by us. We have named it *Chrysophyllum bakhuizenii* van Royen in honour of Dr R. C. Bakhuizen van den Brink who pointed out that Carr 14159 belongs to the Sapotaceae.

The description of this species runs as follows:

25. *C. bakhuizenii* van Royen, nov. sp. — Fig. 17.

Tall tree, c. 25 m. Branchlets terete, 2–5 mm in diam., blackish, rugulose, glabrous. *Leaves* broadly obovate-spatulate, 6.5–8.5 by 3–4.5 cm, rounded at apex, narrowly cuneate at base, decurrent; subcoriaceous, glabrous above but whitish tomentose along midrib and nerves, pale ferruginously tomentose-sericeous below; midrib grooved above, angular below, secondary nerves stout, 5–7, ascending at an angle of c. 60°, curved, diminishing until inconspicuous or archingly joined, but sometimes connected by some thickened nerves only, prominent on either side, tertiary nerves transverse,

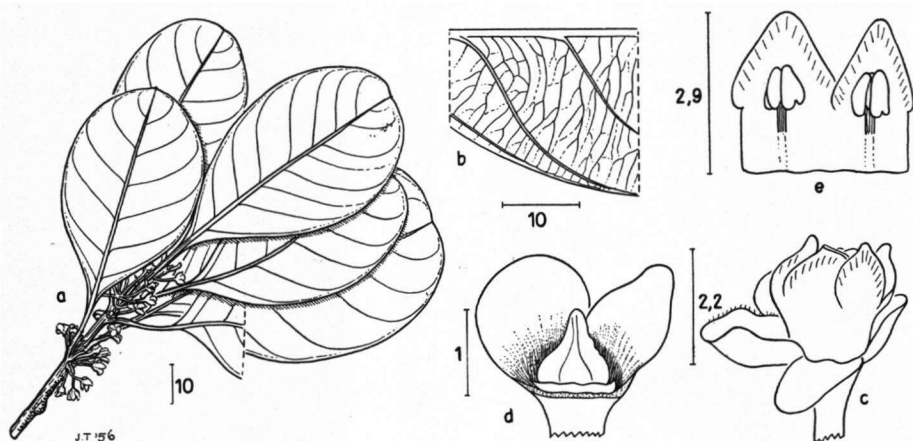


Fig. 17. *C. bakhuizenii*, a. flowering branchlet, b. part of leaf enlarged, c. flower, d. ovary and part of calyx, e. part of corolla, inside. (from Carr 14159).

prominent on either side but more distinct above; petioles 1.1–2 cm long, slightly grooved above, subangular or rounded below, glabrous. *Flowers* in 8–14-flowered axillary clusters; pedicels subangular, 5–7 mm long, sparsely whitish tomentose. *Sepals* orbicular or suborbicular, c. 2.5 by 2 mm, rounded at apex, glabrous without, sparsely pale ferruginously tomentose within, inner sepals with sparsely pale ferruginously tomentose outside, and membranous and fimbriate margin. *Corolla* 2.5–3.5 mm long, glabrous, lobes ovate, 1.5–2 by 1.2–1.5 mm, obtuse, tube 1–1.5 mm long. *Stamens* 5, inserted in the basal third, c. 1.3 mm long, filaments subulate, c. 0.7 mm long, anthers ovoid, c. 0.6 mm long, rounded and emarginate at apex, dehiscing introrsely. *Staminodes* absent. *Ovary* conoid, 5-lobed, 5-celled, c. 0.5 by 1 mm, at base densely ferruginously hirsute; style c. 0.5 mm long, not distinctly marked against the ovary. *Fruits* unknown.

Type specimen: Carr 14159 in L.

Distr.: New Guinea.

NEW GUINEA. Southeastern New Guinea, Alola, alt. 2000 m, forest: Carr 14159 (L), tree c. 25 m, fl. greenish, January; Lala river: Carr 16012 (BM, L, SING), tree c. 16 m, fl. March.

Remarks: This species is closely related to *C. gordoniaefolium* Moore but differs from that species in the smaller number of secondary nerves (5–7 against 10–14), the smaller leaves (6.5–8.5 by 3–4.5 against 14–19.5 by 4–6.5 cm), and in the pubes-

cent ovary, which is glabrous in *C. gordoniaefolium*. Moreover, the new species is found in New Guinea and *C. gordoniaefolium* in New Caledonia.

In the key to the species of the genus *Chrysophyllum* (see p. 24) *C. bakhuizenii* has to be inserted under nr 11, which now reads:

- 11a. Secondary nerves 5—14 . . . . . 11'  
 b. Secondary nerves 20—30 etc. etc. . . . . 12  
 11'a. Secondary nerves 5—7, leaves 6.5—8.5 by 3—4.5 cm, ovary densely ferruginously  
 hirsute at base. *New Guinea* . . . . . 25. *C. bakhuizenii* van Royen  
 b. Secondary nerves 10—14, leaves 14—19.5 by 4—6.5 cm, ovary glabrous. *New*  
*Caledonia* . . . . . 7. *C. gordoniaefolium* Moore

Latin diagnosis of the new species:

*Chrysophyllum bakhuizenii* van Royen — Arbor magna. Folia late obovata-spatulata, 6.5—8.5 × 3—4.5 cm, apice rotundata, basi attenuata, supra glabra, subtus dense et pallide ferrugineo-sericea; nervi secundarii in utroque latere 5—7 e costa orti; petiolus supra subcanaliculatus. Flores axillares fasciculati. Sepala 5, intus pallide ferrugineo-tomentosa, extus glabra vel (interiora) extus sparse et pallide ferrugineo-tomentosa. Corollae lobi 5, basi tubum connati, ovati. Stamina 5, filamentis subulatis, antheris ovoideis. Staminodia nulla. Ovarium conoideum, 5-lobatum, 5-loculare, ad basin dense ferrugineo-hirsutum. Fructus ignotus.

Typus: *Carr 14159* in L.

*Chrysophyllo gordoniaefolio* Moore affinis, sed ab eo differt nervis secundariis 5—7 et foliis minoribus.