A JOURNAL ON TAXONOMIC BOTANY
PLANT SOCIOLOGY AND ECOLOGY

REINWARDTIA

Editors
MIEN A. RIFAI
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ELIZABETH A. WIDJAJA

Published by
HERBARIUM BOGORIENSE
BALAI PENELITIAN DAN PENGEMBANGAN BOTANI
PUSAT PENELITIAN DAN PENGEMBANGAN BIOLOGI — LIPI
BOGOR, INDONESIA

Reinwardtia Vol. 10, Part 5 439 — 478 8 September 1988

IO ISSN 0034 — 365 X

REINWARDTIA

Vol. 10, Part 5, pp. 439 – 469 (1988)

MATERIALS FOR A REVISION OF LAURACEAE V *

A.J.G.H. KOSTERMANS

Herbarium Bogoriense, Bogor, Indonesia

ABSTRACT

New species are described in *Cinnamomum* (12), *Cryptocarya* (8), *Endiandra* (2) and *Litsea* (1). New combinations are proposed in *Actinodaphne* (1), *Cinnamomum* (20), *Endiandra* (1), *Litsea* (1); *Neolitsea* (1). Moreover new names are proposed in *Cryptocarya* (1) and *Litsea* (7). The generic name *Kubitzkia* van der Werff is considered invalid and numerous species are reduced to synonymy for the first time.

ABSTRAK

Jenis baru dipertelakan dalam marga *Cinnamomum* (12), *Cryptocarya* (8), *Endiandra* (2) dan *Litsea* (1). Kombinasi baru diusulkan dalam *Actinodaphne* (1), *Cinnamomum* (20), *Endiandra* (1), *Litsea* (1), *Neolitsea* (1). Selanjutnya nama baru diciptakan dalam *Cryptocarya* (1) dan *Litsea* (7). Nama marga *Kubitzkia* van der Werff dianggap tidak sahih dan beberapa jenis direduksi sebagai sinonim jenis lain untuk pertama kali.

CINNAMOMUM Schaeffer

Cinnamomum alcinii (Allen) Kosterm., *comb. nov.*

Basionym: *Phoebe alcinii* Allen *in* Mem. N. York Bot. Gard. 21(2): 109. 1971.

Cinnamomum altissimum Kosterm., *spec. nov.*

Cinnamomum subavenium Auct. (non Miquel), Kostermans *in* Reinwardtia 8:70. 1970, p.p., quoad *SFN 36896.*

Cinnamomum subcuneatum Auct. (non Miquel), Kostermans *in* Reinwardtia 8:73. 1970, p.p., quoad *SFN 36896.*

Cinnamomum species nova I, Kostermans *in* Reinwardtia 8:78. 1970 (*bb. 31531, 31532, 31533, 31534, 31535;* perhaps also *Teijsman H.B. 1024 & 1027;* cf. also *C. subtetrapterum* Miq.).

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* Part I *in* Reinwardtia 7: 291-356. 1968; part II, ibid. 451-536. 1969; part III, ibid. 8: 21-196. 1970; part IV, ibid. 9: 97-115. 1974.

Arbor, ramulis glabris, gemmis terminalibus parvis minutissime griseo sericeis, foliis oppositis vel suboppositis glabris tenuiter coriaceis ovatoellipticis vel ellipticis usque ad oblongo-ovatis acuminatis basi breve cuneatis vel acutis, supra nitida laevia nervis tribus principalibus prominulis, subtus sublaevia nervis basalibus lateralibus tenuibus prominentibus apicem laminarum attingentibus nervis secundariis parallelis sat obscuris numerosis, petiolis bene evolutis, paniculis pseudo-terminalibus multifloris perdense subadpresse griseo tomentellis, pedicellis longis, tepalis oblongo-ovatis, staminibus longis gracilibus, antheris 4-locellatis filamentis tenuibus pilosis minoribus, glandulis sat magnis ca medio filamentorum adnatis, stylo gracile stigmate inconspicuo, fructus ellipsoideus-ovoideis, cupulis magnis hemisphaericus costatis tepalibus persistentibus. — TYPUS : *FRI 10694* (L).

Tree up to 30 m tall and 60 cm dbh. Bole with equal concave plank buttresses, up to 1.5 m. Bark quite smooth, brown-grey, remotely faintly hoop-ringed, lenticellate; live bark red brown to pinkish, homogeneous firm fibrous with a strong clove (eugenol) smell. Wood creamy white to white with clove smell (cf. note). Twigs rather slender, glossy, smooth, glabrous. Terminal bud small, minutely grey sericeous. Leaves opposite and sub-opposite, glabrous, chartaceous to thinly coriaceous, usually ovate-elliptic, sometimes elliptic to oblong-ovate, 5 x 12 — 10 x 22 — 5 x 18 cm, acuminate (acumen 1-1.5 cm long), base shortly acute to cuncate; above glossy, glabrous, smooths, the three main nerves slender, smoothly prominulous, secondary nerves faint or none; beneath slightly glossy, smooth or obscurely reticulate (the surface often divided in polygonous minute fields), the slender midrib and almost basal lateral nerves, which reach the base of the acumen prominulous, secondary nerves faint, regular, parallel, horizontal, 3-4 mm apart. Petioles rather slender, 1-1.5 cm long, glabrous. Panicles pseudo-terminal, many-flowered, densely, minutely grey subadpressed tomentellous, up to 15 cm long. Pedicels slender, cylindrical, 3-4(-7) mm long. Perianth tube narrowly funnel shaped, 0.5 mm. Tepals ovateoblong, acutish, 3 mm long, inside sericeous, outside densely subadpressed tomentellous. Stamens 2.5 mm long, slender; anthers small, oblong, 4-celled; filaments longer, pubescent. Glands rather large, attached slightly below the middle of the filament. Staminodes narrowly sagittate, small with long slender pilose stipe. Style slender, stigma minute, peltate. Fruit ellipsoid-subovoid, up to 10 x 15 mm. Cupule large, hemisphaeric, smoothly ribbed, 7-10 mm high, 10-15 mm diam. at the rim, which bears the triangular hardened, up to 2 mm long tepals of which the upper 1 mm is thinner and densely pubescent and easily breaks off, leaving the more thickened bases of the tepals.

DISTRIBUTION AND ECOLOGY : Malay Peninsula, Sumatra, tropical lowland rain forest, up to 1800 m altitude.

The leaves are exactly those of *C. coriaceum*, but thinner and somewhat smaller and the basal nerves reach the leaf tip. The species is characterized by the panicle indumentum and by the very large fruit cups with persistant tepals, similar to those of *C. mercadoi* of the Philippines.

The bark smells strongly of cloves (*FRI 7757* is said to smell of cinnamon, but this might have been noted by somebody who was not able to discriminate between clove and cinnamon smell).

The main nerves are in most specimens furrowed longitudinally (collapsed in drying) and are very little protruding.

MALAY PENINSULA. Pahang. Lepar For. Res., alt. 500 m, ster., *KEP 108981* (L); Fraser Hill, alt. 1300 m, Sept., buds, *SFN 11312* (A, SING); Taman Negara, near Kuala, edge of seasonal swamp, low alt., Mar., fl., *FRI 4946* (K, L); Taman Negara, Bukit Terom near village Keniyum, steep ridge, alt. 150 m, Mar., fl., *FRI 8535* (A,K,L); ibid., Ulu Keniyar, alt. 700 m, Mar., buds, *MS 1573* (C,L); W. Trengganu, Sg. Lohn near Mt. Datok, alt. 150 m, July, fr., *FRI 10694* (A,L); W. Kelantan, Kamahang For. Res., Compt. 16, low, July, fr., *FRI 6543* (L); Johore: Gunung Panti For. Res., Compt. 1, alt. 30 m, *FRI 7823* (A,K,L); ibid., Compt. 64, alt. 300 m, Mar., fl., *FRI 7757* (K,L); G. Lambu, Dec., fr., *For. Dept. 5853* (K); Sg. Sedili, Bukit Naga Mengular, July, fr., *SFN 36896* (A,K); N. Johore, ridge top, alt. 70 m, Febr., buds, *FRI 7530* (A,K,L). — SUMATRA. Atjeh, Gajo Loeeus, Kota Lintang (G. Agung), alt. 1800 m, ster., *bb. 22423* (A,BO,L,NY); Angkola & Sipirok, Tapanuli, Panobasan, Bukit Puhutan Lajan, alt. 600 m, saplings, *bb. 31531-31535* (A,BO,L); ? Westcoast Sumatra, Bonjol, ster., *Teijsman H.B. 1024* (BO,U), leaves up to 10 x 27 cm; ? Bonjol, ster., *Teijsman H.B. 1027* (BO,U).

Cinnamomum antillanum (Meissn.) Kosterm., *comb. nov.*

Basionym: *Phoebe antillana* Meissner *in* DC., Prodr. 15(1): 31 & 516. 1864; Kostermans, Bibl. Laur. 1270. 1964.

Cinnamomum areolato-costae (Allen) Kosterm., *comb. nov.*

Basionym: *Phoebe areolato-costae* Allen *in* Mem. N. York Bot. Gard. 10(5): 175. 1964.

Cinnamomum bintulense Kosterm., *spec. nov.*

Cinnamomum kunstleri Auct. (non Ridley), Kostermans *in* Reinwardtia 8: 49. 1970 (quoad *Ding Hou 349* and *SAN 21007*).

Arbor ranulis crassiusculis perdense minutissime sublanuginosis, gemmis terminalibus parvis dense sublanuginoso-tomentellis, foliis oppositis coriaceis ellipticis breve acuminatis basi brevissime acutis, supra glabris nitidis nervis tribus principalibus tenuibus prominulis, subtus perdense minutissime sublanuginosis, nervis basalibus lateralibus acumine attingentibus prominentibus, nervis secundariis sat obscuris sub-parallelis sub-horizontalibus plerumque sat irregularibus, venis submarginalis sat obscuris, paniculis pseudo terminalibus perdense minutissime sublanuginosis brevibus. — TYPUS: *S. 24611 = Ding Hou 349* (L).

Tree 20 m high and 15 cm diam. Branchlets rather thick, straight, very densely minutely pale brownish lanuginose (hairs thin, wavy). Terminal bud small with similar indumentum. Leaves opposite, coriaceous, elliptic, 5 x 12 — 8 x 14 cm, shortly acuminate, base contracted into the petiole, shortly acute, above glabrous, smooth, the three main nerves slender, smoothly prominulous, secondary nerves sometimes obscure subimpressed, below very densely, minutely pale brown sub-lanuginose, midrib smoothly prominent, the basal,

lateral nerves, which reach the base of the acumen, smoothly prominent, the connecting secondary nerves very slender, not very much pronounced, subparallel, sub-horizontal, often slightly irregular not continued to the obscure marginal nerve (formed by loops of lateral branches of the basal nerves). Petioles stout, densely sub-lanuginose, 10-13 mm long. Panicles pseudo-terminal, densely, minutely light brown sub-lanuginose, up to 4 cm long (immature), rather few flowered, with rather large bracts subtending the branches.

DISTRIBUTION: So far definitely only known from the type locality.

Close to *C. javanicum*, but the leaves smaller with denser indumentum, the secondary nerves not sharply prominent and less straight, also not continued laterally to the less pronounced marginal vein, the panicles much shorter, although the latter-admittedly-are immature. It is also near *C. fouilloyi*, which differs in its more slender branches, narrower more acuminate leaves and less dense indumentum.

BORNEO. Sarawak: Nyabau, Bintulu, 4 th Div., alt. 50 m, June, buds, *S. 24611* (= *Ding Hou 349)* (A,BO,K,KEP,L,MEL,SAN,SING); ? Mt. Kinabalu, Ranau Distr., Bukit Ampuon, 900 m, ster., *SAN 21007* (BO,K,L,SING).

Cinnamomum breedlovii (Lundell) Kosterm., *comb. nov.*

Basionym: *Phoebe breedlovii* Lundell *in* Wrightia 5 : 141. 1977.

Cinnamomum chavarrianum (Hammel) Kosterm., *comb. nov.*

Basionym: *Phoebe chavarriana* Hammel *in* J. Arn. Arb. 67: 131, f. 4. 1986.

Cinnamomum corsoanum (Lundell) Kosterm., *comb. nov.*

Basionym: *Phoebe corsoana* Lundell *in* Wrightia 4: 102. 1959.

Cinnamomum erectifolium (Allen) Kosterm., *comb. nov.*

Basionym: *Phoebe erectifolia* Allen *in* Mem. N. York Bot. Gard. 23: 860. 1972.

Cinnamomum fouilloyi Kosterm., *spec. nov.*

Arbor ramulis gracilibus dense minuteque sublanuginoso-tomentellis, gemmis terminalibus parvis, foliis oppositis vel suboppositis tenuiter coriaceis, ovato-oblongis conspicue acuminatis basi obtususis supra subbullatis leavibus glabris nitidis nervis tribus principalibus cum nervis secundariis tenuibus impressis, subtus sat dense minuteque tomentellis, nervo mediano et nervis basalibus lateralibus prominentibus, basalibus acumine attingentibus nervis secundariis pergracilis vel obscuris, petiolis sat brevibus dense tomentellis, flos et fructus ignotus. — TYPUS: *Kostermans 4130* (L).

Tree, up to 18 m tall and 25 cm diam. Bark smooth, strongly smelling of nutmeg. The slender branchlets and the small terminal bud densely minute-

ly pale brown sub-lanuginose. Leaves opposite or sub-opposite, thinly coriaceous, ovate-oblong, 2.5 x 6 — 4 x 9.5 — 4.5 x 14 cm, conspicuously acuminate (acumen up to 2 cm long, obtuse), base obtuse or very shortly cuneate in the centre, above glabrous, glossy, smooth, the three main nerves and the secondary slender nerves impressed, making the leaf bullate, below rather densely sub-lanuginose-tomentellous (hairs erect, slender, slightly wavy), midrib and the two basal lateral nerves, which reach the base of the acumen, strongly prominent, secundary nerves very thin, parallel, horizontal, 3-5 mm apart or obscure. Petioles rather slender, 5-8 mm long, densely tomentellous. Flush densely dark brown sub-lanuginose. Flower and fruit unknown.

DISTRIBUTION AND ECOLOGY : E. Kalimantan on poor sandy soil, lowland.

Characterized by the bullate, rather small, rather thin leaves with long acumen. It has the indumentum of *C. sublanuginosum*, but the hairs are longer. Characteristic is the strong nutmeg smell of the bark.

It is named in honour of Professor R. Fouilloy, formerly of the Laboratoire de Phanérogamie, Paris, who made the drawings of *Cinnamomum* and who is an expert in African Lauraceae.

BORNEO. E. Kalimantan, W. Kutei, Telen R. near Long Puhus, alt. 100 m, ster., *Endert 3840* (BO,L); E. Kutei, Sg. Wain area, N. of Balikpapan, alt. low, ster., *Kostermans 4130* (BO,K,L).

Cinnamomum fruticosum (Lundell) Kosterm., *comb. nov.*

Basionym: *Phoebe fruticosa* Lundell *in* Wrightia 5: 342. 1977.

Cinnamomum galeottianum (Mez) Kosterm., *comb. nov.*

Basionym: *Phoebe galeottiana* Mez *in* Jahrb. Bot. Gart. Berlin 5: 200. 1899; Kostermans, Bibl. Laur. 1279. 1964.

Cinnamomum grandis Kosterm., *spec. nov.*

Cinnamomum soegengii Auct. (non Kosterm.), Kostermans *in* Reinwardtia 8: 68. 1970, quoad *SAN 29076*.

Arbor magna ramulis glabris laevibus, gemmis terminalibus parvis glabris, foliss oppositis et suboppositis coriaceis oblongis vel subovato-oblongis apice attenuatis basi acutis, supra laevibus nitidis, nervis secundariis tenuissimis nervis tribus principalibus tenuibus prominulis, subtus minutissime subadpresse pilosis glabrescentibus, nervo mediano prominentibus nervis basalibus lateralibus apice laminarum attingentibus prominentibus, nervis secundariis tenuissimis, petiolis sat gracilibus, infructescentiis axillaribus vel pseudoterminalibus pauci-fructus, fructus versum minutissime adpresse pilosis fructus ellipsoideus, cupulis cupuliformibus sat crassis, margine integris, pedicellis cylindricis sat brevibus. — TYPUS : *SAN 16706* (L).

Tree, up to 42 m high, with 30 m clear bole, 75 cm diam. Buttresses 90 cm high, 100 cm out, 15 cm thick. Bark smooth; live bark pale, soft. Sapwood white. Branchlets smooth, glabrous, drying black. Terminal bud small, glabrous or microscopically adpressed pilose. Leaves opposite and subopposite, coriaceous, oblong to subovate-oblong, 2.5 x 10 — 4.5 x 15 cm, apex tapered, base acute; above smooth, glossy, glabrous, secondary nerves numerous, faint, the three main nerves thin, smoothly prominulous, below initially densely, minutely adpressed pilose, soon glabrous, midrib slender prominent, the basal lateral nerves which reach the leaf tip, slender, prominent, secondary nerves faint, regular, parallel, sub-horizontal, ca. 2 mm apart. Petiole rather slender, 1-1.5 cm long, flat above. Infructescences axillary and pseudo-terminal with few fruit, up to 14 cm long, with few angular branches, towards the fruit very minutely adpressed pilose. Fruit ellipsoid, up to 8 x 20 mm, fleshy, blue-black; cupula cup-shaped, hard, rather thick walled, 5-9 mm high, up to 12 mm diam. at the entire rim, base abruptly contracted into the cylindrical, thickish, 3-5 mm long pedicel.

DISTRIBUTION AND ECOLOGY : mountain species.

Affinity not sure. Characterized by the adpressed pubescence of the lower leaf surface, the extremely short hairs of the terminal bud, the basal nerves which reach the leaf tip and the rather deep thick-walled cup-shaped cupula with entire margin.

The specimen *SAN 29076* deviates by the longer broader leaves with invisible secondary nerves and the up to 10 mm long fruit pedicels and might hence represent a different, undescribed species.

BORNEO Sabah : Distr. Sipitang, W. ridge of Mt. Lumaku, 10 miles SSE of Malaman, alt. 1500 m, Sept., fr., *SAN 16706* (A,BO,BRI,K,L,SING); Distr. Tambunan, Trusmadi For. Res. above Ulu Koingaran R., alt. 2000 m, Nov., fr., *SAN 41798* (K); ? Ranau Distr., path to Kamburango, Kinabalu, alt. 1500 m, Febr., fr., *SAN 29076* (K,L).

Cinnamomum hartmannii (Johnston) Kosterm., *comb. nov.*

Basionym: *Phoebe hartmannii* Johnston *in* Contrib. Gray Herb. N.S. 70: 69. 1924; Kostermans, Bibl. Laur. 1281. 1964.

Cinnamomum impressum (Meissn.) Kosterm., *comb. nov.*

Basionym: *Phoebe impressa* Meissner *in* DC., Prodr. 15(1): 33. 1864; Kostermans, Bibl. Laur. 1283. 1964.

Cinnamomum malayanum Kosterm., *spec. nov.*

Cinnamomum iners Auct. (non Bl.), Gamble *in* J. Asiat. Soc. Beng. 75(2): 77. 1912 (quoad *Scortechnii 323 b*).

Arbor vel frutex, ramulis gracilibus apicalum versus minutissime adpresse pilosis, gemmis terminalibus parvis dense adpresse pilosis, foliis opposit-

is chartaceis juvenilibus sparse minute adpresse pilosis, adultis glabris oblongis vel subovato-ellipticis, breve acuminatis basi acutis, supra nitidis laevibus nervis tribus principalibus tenuibus prominulis, subtus obscure reticulatis, nervo mediano tenuibus prominentibus, venis basalibus lateralibus tenuibus, prominentibus acumine attingentibus, venis secundariis regularibus, parallelis horizontalibus, petiolis gracilibus, concavis, paniculis axillaribus paucifloris subracemiformibus dense minute sericeis, brevissimis, pedicellis brevibus, tubo perianthii profundis, tepalis ovatis acutiusculis, antheris 4-locellatis, filamentis longioribus pilosis, glandulis sat magnis dimidio filamentorum adnatis, staminodiis sagittatus breve late stipitatis. — TYPUS : *MS 1575* (L).

Tree 10 m high or shrub 7 m high and 10 cm diam. Branchlets slender, apically with a rather sparsely indumentum of sub-adpressed microscopical hairs. Terminal bud small, densely, minutely grey sub-adpressed pilose. Leaves opposite, chartaceous, junior ones sparsely adpressed pilose below, adult ones glabrous, oblong to subovate-elliptic, 2.5 x 7.5 — (4—) 5 x 15.5 cm, shortly acuminate (acumen 5-10 mm long) or acute, base acute; above glossy, smooth, the three main nerves thin, prominulous, below faintly reticulate, midri slender, prominent, the usually basal lateral nerves slender, prominent, reaching the base of the acumen; secondary nerves thin, regular, horizontal, parallel, ca. 2-3 mm apart. Petioles slender, 7-10 mm long, concave or channeled above. Panicles (or pseudo-racemes) axillary, few-flowered, 1-4 cm long, densely, minutely sericeous. Pedicel 1-2 (after anthesis 3 mm) long, obconical. Perianth tube deep, 1.5 mm long. Tepals ovate, acutish, 2 mm long, both sides sericeous. Stamens slightly shorter; anthers oblong, 4-celled (upper pair much smaller), filaments rather slender, pilose, 1-2 times as long; gland rather large, attached to the middle of the filament or somewhat lower down. Staminodes rather short, sagittate, shortly, broadly stipitate; style slender, almost as long as the stamens; stigma small, peltate. Fruit small, ellipsoid, 4 x 5 cm, almost completely sunk (immature?) in the very deep, hemipherical cup-like, smoothly, but distinctly ribbed cupula, up to 5 mm high, 9 mm diam., the base merging into the ca. 4 mm long obconical pedicel, ca. 3 mm diam. at the apex; tepals small, persistent.

DISTRIBUTION AND ECOLOGY : Malay Peninsula, lowland species.

The younger leaves and the petioles have two kind of hairs, shorter and longer ones. In the type specimen the tepals (already after anthesis) are oblong, the filaments twice as long as the anthers. The perianth tube is already developed and the tepals show a demarcation line, slight about 1 mm above their base.

From *C. iners* to which it shown some resemblance it is differentiated by the thinner leaves with the rather long hairs of two kinds, the reticulate lower leaf surface, the very short and few-flowered inflorescences, the glands attached to the middle of the filament, and by a deep, large fruit cup.

MALAY PENINSULA. Pahang: Bukit Terom, Ulu Keniyam, ca. 500 m alt., Mar., after anthesis, *Moh. Shah, MS 1575* (BRI,K,L,SING); Perak, fl., *Scortechini 323* (K,SING); Kelantan: Ulu Sg. Ketil, alt. 70 m, Mar., fl., *MS 2589* (A,K,B,SING); Raka Hill For. Res., Febr., buds, *FRI 16657* (K,L,SING); Bentong, July, fr., *CF 18665* (SING).

Cinnamomum mayanum (Lundell) Kosterm., *comb. nov.*

Basionym: *Phoebe mayana* Lundell *in* Amer. Midland Natur. 29: 473. 1943; Kostermans, Bibl. Laur. 1288. 1964.

Cinnamomum nooteboomii Kosterm., *spec. nov.*

? *Cinnamomum subavenium* Auct. (non Miquel), Kostermans *in* Reinwardtia 8: 70. 1970, p.p. quoad *bb 6628*.

Arbor ramulis minutissime sublanuginosis, gemmis terminalibus parvis sublanuginosis, foliis oppositis vel suboppositis subcoriaceae oblongis vel subovato-oblongis acuminatis basi acutis, supra nitidis laevibus nerviis tribus principalibus tenuissimis prominulis, subtus dense minutissime sublanuginosis nervo mediano prominentibus costis subbasalibus lateralibus prominentibus basi acumine attingentibus nerviis secundariis tenuibus parallelis horizontalibus creberrimis, petiolis gracilibus, paniculis axillaribus sat paucifloris gracilibus minutissime sublanuginosis, fructus ellipsoideus apiculatis, cupulis cupuliformibus sat planis parvis, pedicellis gracilibus vix obconicis impositus. TYPUS: *Nooteboom & Chai 2102* (L).

Tree 20 m tall and 30 cm dbh. Bark smooth, greyish; live bark pale reddish brown, slightly fragrant. Twigs slender, stiff, apically sub-angular, minutely sublanuginous. Terminal bud small with similar pilosity, but more adpressed. Leaves opposite and subopposite, subcoriaceous, oblong, subovate-oblong, (1.5 x 3) 2 x 4 — 4 x 9 cm, acuminate (acumen rather broad, 5-7 mm long), base acute; above soon glabrous, glossy, smooth, the three main nerves thin, prominulous usually in a slight depression; below densely, minutely sublanuginous (hairs thin, wavy, erect, curled, ca. 0.3 mm long), midrib slender, strongly prominent, the sub-basal lateral nerves prominent, ending near the base of the acumen, secondary nerves thin, regular, parallel, horizontal, 1-3 mm apart. Petioles slender, 5-8 mm, flat or slightly concave above. Panicles in the axils of the upper leaves, slender, rather few-flowered, microscopically subadpressed sublanuginous, 3-8 cm long with few, thin, up to 15 mm long branches. Fruit ellipsoid, up to 6 x 8 mm, conspicuously apiculate. Cupula cupshaped, thin, shallow, up to 1.5 mm high and 3 mm diam. at the entire rim; pedicel slender, hardly obconical, 3 mm long.

DISTRIBUTION AND ECOLOGY: Sarawak, perhaps also Sumatra, a kerangas (heath) forest species on peaty soil, liable to periodical inundation, lowland rain forest.

The fruit are similar to those of *C. subavenium*, but the indumentum of the leaves is entirely different and the leaves much smaller.

BORNEO. Sarawak: Kalabit Highlands, along Pamerario R., alt. 1000 m, flat river basin, peaty, periodically inundated, Apr., fr., *Nooteboom & Chai 02102* (L); Barito, Ulu Baram, path to Pa' Umor near Sg. Marariro, alluvial, subject to occasional flooding, alt. 1100 m, June, y.fr., *S 20039* (K,L). — *SUMATRA*. Sidjundjung, Padang Làwas, alt. 390 m, ster., *bb 6628* (BO,L,U).

Cinnamomum nunesianum (de Vattimo) Kosterm., *comb. nov.*

Basionym: *Phoebe nunesiana* de Vattimo *in* Arquiv. Jard. bot. Rio de Jan. 15: 140. 1957; Kostermans, Bibl. Laur. 1291. 1964.

Cinnamomum pachypes Kosterm., *spec. nov.*

Arbor mediooris ramulis gracilibus glabris, gemmis terminalibus parvis sparse minutissime sericeis, foliis suboppositis subcoriaceis glabris oblongis, apice attenuatis, basi acutis, supra nitidis venis tribus principalibus tenuibus prominulis, subtus obscure minutissime areolato reticulatis, nervo mediano gracilibus prominentibus nervis basalibus lateralibus tenuibus prominulis apicem laminorum attingentibus nervis secundariis obscuris regulariter parallelis horizontalibus, petiolis gracilibus, racemis monocarpellatis tenuibus glabris axillaribus brevibus, cupulis immaturus glabris obconicis, pedicellis carnosis subobconicis, basi in ramulorum abrupte contractis. — TYPUS: *FRI 13182* (L).

Tree 12 m high and 15 cm diam., bole straight, bark smooth, live bark brown. Wood white, aromatic fragrant. Branchlets slender, glabrous. Terminal bud small, sparsely, microscopically grey pilose. Leaves subopposite, subcoriaceous, glabrous, oblong, 3 x 9 — 4.5 x 14 cm, apex tapered, base acute; above glossy, smooth, the three main nerves thin, prominulous; below glaucous, obscurely minutely areolate-reticulate, midrib slender, prominent, the almost basal lateral nerves which reach almost the leaf apex, slender, prominulous; secondary nerves faint, regular, parallel, horizontal. Petiole slender, ca. 1 cm long, concave or flat above. The monocarpellate, very slender, glabrous infructescences axilarry, unbranched, 1-1.5 cm long. Immature fruit cupula obconical, fleshy with wavy margin (bases of tepals), 5 mm high, slightly differentiated from the fleshy, obconical, 5 mm long pedicel, which is not tapered at its base, but abruptly contracted into the branchlet.

DISTRIBUTION AND ECOLOGY: Malay Peninsula, only known the type locality, a lowland species.

I have hesitated, whether this should be included into *C. malayanum;* it has similar leaves and a similar inflorescence, but it differs in the thicker, completely glabrous leaves, the glabrous branches, the shorter hairs of the terminal bud, the glabrous infructescence. The fruit pedicel seems to be similar to that of *C. podagricum* of New Guinea, it is not tapered to the base, but at the base abruptly rounded.

MALAY PENINSULA. Ulu Selangor, Cpt. 52, Gading For. Res., alt. 600 m, July, immature fr., *FRI 13182* (K,L,SING).

Cinnamomum pachypodum (Nees) Kosterm., *comb. nov.*

Basionym: *Persea pachypoda* Nees *in* Linnaea 21: 490. 1848; Kopp *in* Mem. N. York Bot. Gard. 14: 101. 1906. — *Phoebe pachypoda* (Nees) Mez *in* Jahrb. Bot. Gart. Berlin 5: 196. 1889.

Phoebe hartwegii Meissner *in* DC., Prodr. 15(1): 30. 1864.

Phoebe benthamiana (Nees) Mez *in* Jahrb. Bot. Gart. Berlin 5: 195. 1889.

Swollen fruit pedicels are also found in *Cinnamomum podagricum* Kosterm. from New Guinea.

Cinnamomum paiei Kosterm., *spec. nov.*

Arbor medicoris ramulis glabris gemmis terminalibus parvis minutissime sericeis, foliis oppositis chartaceis glabris subovato-ellipticis, basi subcuneatis, supra nitidis sublaevibus nervis tribus principalibus prominulis, nervis secundariis obscuris, subtus pallidioribus dense et laeve sat obscure reticulatis, nervo mediano prominentibus, nervis basalibus lateralibus prominentibus apice laminarum attingentibus, petiolis sat gracilibus, infructescentiis pseudo-terminalibus gracilibus longis multifloris, fructus versus minutissime adpresse pilosis, fructus ellipsoideis, cupulis sat tenuibus subhemisphericus, margine integris, petiolis sat gracilibus obconicis. — TYPUS: *S 29332* (L).

Tree 23 m high and 20 cm diam. Branchlets glabrous, smooth. Terminal bud small, densely microscopically sericeous. Leaves opposite, chartaceous, glabrous, subovate-elliptic, 6 x 15 — 7.5 x 22 cm, apices missing, base contracted into the petiole, shortly cuncate; above rather smooth, the main nerves prominulous, secondary nerves thin, obscure, below paler, densely, smoothly reticulate, midrib slender, prominent, the basal lateral nerves as strong, prominent, reaching the leaf apex; secondary nerves thin, parallel, subhorizontal, 3-5 mm apart. Infructescences axillary and pseudo-terminal, many flowered, slender, up to 18 cm long with slender, widely spaced, stiff, up to 5 cm long branches, towards the fruit microscopically adpressed pilose. Fruit ellipsoid, up to 7 x 10 mm. Cupula cup-shaped, thin with entire margin, up to 5 mm high and 5-7 mm diam. at the rim; pedicel rather slender, obconical, 3-5 mm long, ca. 1.5 mm diam. at the middle.

DISTRIBUTION AND ECOLOGY: Sarawak, Bau Distr., only known from the type locality, a lowland, kerangas species.

Related to *C. kerangas* (which actually is a peat swamp species, I have given it an inapropriate name), but its leaves are much thinner with slender petioles and the infructescences has shorter, more adpressed hairs. Additional material must prove, whether these differences hold.

BORNEO. Sarawak: First Div., Bau, below Bunga Range, kerangas forest on hill side, alt. 700 m, Dec., fr., *Ilias Paie & J.D. Mamit S 29332* (K,L); "Tuburus obau" (Land Dayak language).

Cinnamomum parvulum (Lundell) Kosterm., *comb. nov.*

Basionym: *Phoebe parvula* Lundell *in* Wrightia 5: 343. 1977.

Cinnamomum peruvianum (Meissn.) Kosterm., *comb. nov.*

Basionym: *Phoebe peruviana* Meissner *in* DC., Prodr. 15(1): 32. 1864; Kostermans, Bibl. Laur. 1296. 1964.

Cinnamomum pickellii (Coe-Teixeira) Kosterm., *comb. nov.*

Basionym: *Phoebe pickellii* Coe-Teixeira *in* Hoehnea 1: 187. 1971.

Cinnamomum polyadelphum (Lour.) Kosterm., *comb. nov.*

Basionym: *Laurus polyadelpha* Loureiro, Fl. Cochinch. 251. 1790; ed. Willdenow 1:309. 1793; Raeuschel, Nomencl., ed. 3: 115. 1797; Miller, Garden. Dict., ed. Martijn 2(1): La 29. 1807; Poiret, Encycl. Bot., Suppl. 3: 318. 1813; Steudel, Nomencl. 467. 1821; ed. 2,2: 16.1841; Sprengel, Syst. Veget. 2: 266. 1825; Nees, Syst. Laur. 80 & 665. 1836; Meissner *in* DC., Prodr. 15(1): 238 & 258. 1864; Merrill *in* Trans. Amer. philos. Soc. Philadel. N.S. 24(2): 164. 1934; Kostermans, Bibl. Laur. 689. 1964. — LECTOTYPUS PROPOSITUM: *Harmand 1367* (K,P).

Cinnamomum litseaefolium Auct. (non Thwaites), Lecomte, Nouv. Arch. Mus., 5e Ser. 5: 50, 78, t. 4. 1913; Fl. gen. Indoch. 5: 113, f. 11, 3. 1914; Bois Indoch. 85. 1925; Liou Ho, Laur. Chine & Indoch. 35. 1932 and 1934 (exclud. specim. Poilane 17687 quoad *Cinnamomum merrillianum);* Merrill *in* Trans., l.c.; Ho & Van-Duong, Cay-Co Mien Nam Vietnam (Fl. S. Vietnam) 124, t. 40 c. 1960; Kostermans, l.c. 313 (quoad cit plant. Indochin.).

Cinnamomum litseaefolium var. *denticupulatum* Liou Ho, l.c. 36; Kostermans, Bibl., l.c. 313. — TYPUS: *Poilane 12080* (K,L,P), syntypes: *Poilane 11814* (K,P), *11900* (L,P), *14784* (P), *14919* (P), *14920* (P), *14936* (P), *Contest-Latour 125* (Budapest, L,P).

Cinnamomum litseaefolium forma *a & b*, Liou Ho, l.c. 36 & & 37; Kostermans, l.c. — TYPUS (a): *Poilane 11975* (P), *11783* (K,P), *11656* (P), *14917* (P), *9020* (P), *12534* (P), *18096* (P), *18227* (P); (b): *Poilane 845* (K,P).

Camphorina saigonica Farwell *in* Druggist's Circular 62: 535. 1918; Merrill *in* Bot. Gazette 70: 85. 1920; *in* Trans. Am. phil. Soc., l.c. 24(2): 164. 1935; Allen *in* J. Arn. Arb. 20: 35. 1939 (saigonensis); Kostermans *in* J. scient. Res. Indonesia 1: 93 (—11). 1952; Bibl., l.c. 200. — *Cinnamomum saigonicum* Farwell *in* Druggist's Circular, l.c. 535 (nomen); Merrill, Bot. Gaz., l.c. 85; Trans., l.c. 163; Darlington & Christensen, J. Amer. pharmac. Assoc. (Sci. ed.) 32: 118-120. 1943; Trease, Textbook Pharmakognos. 257, fig. 1952; Kostermans, Bibl., l.c. 246.

The species has been identified by Lecomte and later by Liou Ho as *Cinnamomum litseaefolium* Thw., a species from Sri Lanka, which, however, differs in its fruit cup characteristics. Liou Ho recognized forma in this species based on variable leaf shape and even raised some to varietal rank (var. *denticupulatum)* because of the crenulate cup margin. Actually the very, truncate bases of the tepals are persistent in all specimens, but in some they are obscure at maturity, in others, even in the same specimen, they enlarge slightly and produce a crenulate cup margin.

The species is difficult to distinguish from *Cinnamomum tamala.* Differences are the much longer petioles, the slightly thicker leaves, which only rarely display extra lateral nerves in the apical part of the blade, the slightly smaller flowers with a denser pilosity, the smaller anthers, the inconspicuous stigma (relatively large in *C. tamala*) and especially in the characteristics of the fruit cup, which is shallow and fleshy with rounded lobes in *C. tamala,* but in *C. polyadelphum* deep, thinner with entire margin, rarely crenulate by the persistent basal traces of the tepals.

Needed is a chemical analysis of the bark, of which the characters are only vaguely described by the collectors.

The species seems to be common, considering the numerous collections. Loureiro's description "Pericarpium bacca subrotunda, carnosa, minima, 1-sperma". The leaves are said to be obsoletely trinerved, which could mean, that the basal-lateral nerves do not reach the leaf tip.

I have included here as a synonym *Camphorina saigonica* Farwell, a species described after a commercial bark specimen. According to Chevalier the cinnamon of Saigon is imported from China, to be re-exported, but according to Allen (l.c. 1939) comparison of the commercial bark specimen with that of *C. loureirii* (which Chevalier thought it was) proved the two to be different. It is also not identical with *C. burmanni* bark and it is likely that *Camphorina saigonica* (called *saigonensis* by Allen) or *Cinnamomum saigonicum*, as it was also called by Farwell, is conspecific with *C. polyadelphum*.

The bark is indicated as slightly fragrant to fragrant, but not whether the smell is that of cinnamon or something else. Poilane says that it is used as medicine, called: thout bac. Vernacular names are Hau pat, Dandao, Ta dui, Cay o quioc.

Cinnamomum porphyrospermum Kosterm., *spec. nov.*

Arbor mediocris ramulis laevibus glabris, gemmis terminalibus parvis glabris vel pulverulente adpresse pilosis, foliis oppositis vel suboppositis subcoriaceis oblongis vel ellipticis utrinque attenuatis, supra glabris nitidis, nervis tribus principalibus tenuibus prominulis, subtus minutissime sublanuginosis, mox glabris, plerumque laevibus nervo mediano gracilibus prominentibus, nervis basalibus, lateralibus apice laminarum attingentibus, prominentibus, nervis secundariis obscuris, petiolis sat crassis supra non canaliculatis, paniculis plerumque pseudo-terminalibus longis dense adpresse griseo sericeis, fructus ellipsoideis, cupulis subobconico-cupuliformibus, sat tenuibus; margine integris, pedicellis cylindricis brevibus. — TYPUS: de *Wilde & de Wilde-Duyfjes 12868* (L)

Tree, up to 15 m high and 25 cm diam. Branchlets smooth, glabrous, rather slender. Terminal bud small, glabrous or pulverulently adpressed pilose. Leaves opposite and subopposite, subcoriaceous, elliptic to oblong, 3.5 x 13 — 6 x 21 cm, attenuate both ends, apex sometimes obscurely acuminate, base acute; above glabrous, smooth, glossy, the three slender main nerves smoothly prominulous, below rather densely, minutely sublanuginose (hairs thin), smooth or obscurely minutely smoothly reticulate, midrib slender, prominent, the two basal (or nearly so) lateral nerves, which reach the leaf tip, slender, prominent, secondary nerves obscure, regular, parallel. Petioles thickish. 1 — 1.5 cm long, flat (not channeled) above. Panicles pseudo-terminal, densely grey sericeous towards the flowers, 7-20 cm long, rather many-flowered, branches rather few, up to 2 cm long. Pedicel obconical, 3 mm (immature). Tepals ovate, acutish; anthers 4-celled; glands rather large, attached to the

middle of the pilose filament; staminodes conspicuous; style slender, stigma conspicuous, peltate. Fruit ellipsoid, up to 1 x 1.5 cm; seeds dark red inside; cupula sub-obconical-cup-shaped, deep, rather thin, up to 8 mm high and 13 mm diam. at the thin, entire rim. Pedicel cylindrical, 3-4 mm long.

DISTRIBUTION AND ECOLOGY: N. Sumatra; lowland rain forest, up to 1000 m alt.

Characterised by the thin deep cupula of the fruit and the woolly indumentum of the lower leaf surface (which is entirely absent in the fruiting specimens).

SUMATRA: Mt. Leuser Nature Reserve, Mt. Ketambe, 8-15 km S.W. of the mouth of Lau Ketambe, ca. 40 km N.W. of Kutatjane, alt. 1000 m, July, fr., *de Wilde & de Wilde-Duyfjes 13657* (K,L); ibid., Mt. Bendaharan, track from village Seldok N.E. to large "blang" S. of Putjuk Lau Menkudu, alt. 700 m, June, fr., *de Wilde & de Wilde 12868* (K,L); ibid., alt. 1100 m, June, fr., *id. 12984* (K,L); ibid., 6 km N.E. of village Seldok, alt. 900 m, Mar., buds, *id. 15604* (K,L).

Cinnamomum safrol Kosterm., *spec. nov.*

Arbor ramulis sat crassis angulatis minutissime subadpresse pilosis, gemmis terminalibus parvis, minutissime adpresse pilosis, foliis oppositis rigide coriaceis ellipticis vel oblongis, sphacelatis, basi breviter acutis, supra glabris nitidis nervis tribus principalibus tenuibus prominulis vel in julcis, subtus sat dense minutissime sublanuginosis, nervo mediano prominentibus, nervis basalibus lateralibus apicem laminarum attingentibus prominentibus, nervis secundariis tenuibus, subhorizontalibus sat irregularibus laxioribus, petiolis crassis, paniculis pseudo-terminalibus longis dense minutissime sublanuginosis, laxis, sat paucifloris, pedunculis communis longis angulatis sat robustis, pedicellis fructiferis longis cylindricis, cupulis cupuliformibus nec profundis tepalis pilosis persistentibus. — TYPUS: *FRI 20045* (L)

Tree 23 m high; bole sinuous, 60 cm diam. Bark smooth with large faint pock marks. Live bark brown with cream wedges outside, with strong sasarparilla smell. Wood yellow fawn. Branchlets rather stout, angular with a dense indumentum of very short (0.05-0.1 mm) straight hairs; terminal bud small with similar indumentum. Leaves opposite, rigidly coriaceous, elliptic or oblong, 4.5 x 15 — 7.5 x 21 cm, tips missing, base shortly acute, above glabrous, smooth, glossy, the three main nerves slender, prominulous or slightly so in a groove, below rather densely, minutely sublanuginose (hairs rather short, wavy), midrib prominent, the basal, lateral nerves, which reach the leaf tip, prominent, secondary nerves slender, prominulous, rather irregular, subhorizontal, widely spaced (4-10 mm). Petioles thick, 12-14 mm, slightly concave above. Infructescences pseudo-terminal, densely minutely sublanuginose, up to 17 cm long (partial ones up to 12 cm) with few, widely spaced, up to 4 cm long branches and long, angular rather stout main peduncle. Pedicels subcylindrical, 4-5 mm long. Cupula cup-shaped, rather shallow, 3-3.5 mm high, 7 mm diam. at the rim, which bears the persistent, densely pilose, 1.5-2 mm long tepals. Fruit not seen.

DISTRIBUTION: Only known from the type locality.

Note: The leaf shape and the lax, irregular secondary nerves are similar to those in *C. kunstleri*, but the latter has branches with a long, patent indumentum.

It is very close to *C. tahyanum* of Borneo, but has thicker leaves and conspicuous secondary nerves on the lower leaf surface. Its fruit cup is deeper (although that of *C. tahyanum* is only known in submature stage).

MALAY PENINSULA. N.W. Pahang, Sg. Telom Ridge, N. of Sg. Kadjan, broad seraya ridge, alt. 400 m, May, fr., *Whitmore FRI 20045* (K,L).

Cinnamomum subsericeum Kosterm., *spec. nov.*

Cinnamomum iners Auct. (non Nees), Lecomte *in* Nouv. Arch. Mus., 5e Ser., 5: 79. 1913, quoad *Pierre 5170.*

Cinnamomum iners Auct. (non Nees), Liou Ho, Laur. Chine & Indoch. 30. 1932, quoad *Poilane 16287.*

Cinnamomum litseaefolium Auct. (non Thw.), Liou Ho, l.c. 35, quoad *Poilane 17687.*

Arbor, ramulis sat gracilibus, dense minuteque subserceis, foliis oppositis et suboppositis, tenuiter coriaceis, subovato-oblongis, sensim attenuatis. basi cuneatis vel acutis, supra nitidis laevibus, nervis principalis tenuibus prominulis, subtus ab initio dense minuteque subsericeis, in foliis maturis glabris, laevibus, nervo mediano tenuibus prominulis, nervis basalbus vel fere basalibus apicem laminorum attingentibus prominulis nervis secundariis non vidi, petiolis subsericeis; paniculis sat paucifloris, angustis, dense minuteque griseo subsericeis, pedicellis tenuibus, tubo florifero nec profundo, tepalis-ovatis, sat carnosis, dense griseo sericeis, staminibus tepalis brevioribus, antheris 4-locellatis, glandulis ad dimido filamentorum adnatis parvis, staminodiis hastatis, fructus ignotis. — TYPUS: *Pierre 5170* (P)

Tree. Branchlets rather slender, apically densely, minutely grey subsericeous (the stiff straight hairs not entirely appressed), terminal bud small with similar indumentum. Leaves oppostite and subopposite, rather thinly coriaceous, subovate-oblong, 3 x 10 — 3.5 x 15 cm, gradually attenuate, base cuneate or acute; above smooth, glossy, glabrous, the thin main nerves prominulous, beneath in young leaves densely, minutely appressed grey pilose, in adult leaves ultimately glabrous, smooth, the slender midrib and the two basal (or almost so) nerves thin, reaching the leaf apex or nearly so, prominulous. Petioles 8-10 mm long, slightly concave above, subsericeous, glabrescent. Panicles aggregate beneath the terminal bud or in the leaf axils of the apical leaves, 5-10 cm long, rather few flowered, rather narrow, main peduncle long, densely grey subsericeous, branchlets few, apical, up to 1 cm long. Pedicels slender, 3-5 mm long, densely, minutely subsericeous. Tube shallow, broad, hardly 0.5 mm high. Tepals ovate, rather thick, 3 mm long, inside pilose. Stamens 1.5-2 mm long (inner longest); anthers 4-called, elliptic, of whorl I and II introrse, of whorl III extrorse; filaments slender, pubescent, slightly longer than the anthers. Glands small, attached midway the

filament. Staminodes 1 mm long, hastate, acute on a slender stipe. Ovary ellipsoid, as long as the slender style with small, peltate stigma. Fruit unknown.

DISTRIBUTION: Indochina.

Near *C. malabathrum* and *C. tavoyanum*, differs from the former in the dense subsericeous tomentum of panicle and lower leaf surface and branchlets, from the latter because the hairs are appressed, the shorter petioles. The shallow perianth tube points to a shallow fruit cup.

INDO CHINA. Thudamot, S. Cochin., Apr., buds, *Pierre 5170* (BO,K,P); Cambodge, near Kg Hien, June, fl., *Poilane 17687* (K,P); between Hung Trang and P. Sophaes, Prov. Kratie, Dec., buds, *Poilane 16287* (BO).

Cinnamomum trinerve (Lundell) Kosterm., *comb. nov.*

Basionym: *Phoebe trinervis* Lundell *in* Phytologia 12: 245. 1965; *in* Wrightia 4: 110. 1969.

Cinnamomum trinerve Siebold ex Miquel *in* Annal. Mus. Bot. Lugd. Bat. 2: 196. 1868 is a nomen nudum.

Cinnamomum trintaense Kosterm., *spec. nov.*

Cinnamomum lampongum Auct. (non Miquel), Gamble *in* J. As. Soc. Bengal. 75 (2): 79. 1912, quoad *King's Coll. 4802.*

Arbor mediocris, ramulis minutissime sub-tomentellis, gemmis terminalibus parvis, foliis oppositis chartaceis lanceolatis vel lanceolato-oblongis apice attenuatis, basi breve acutis, supra glabris nitidis laevibus nervis tribus principalibus tenuibus prominulis, subtus sparse subadpresse tomentellis glabrescentibus nervis basalibus lateralibus apice laminarum attingentibus, nervis secundariis obscuris regularibus, petiolis gracilibus, racemis fructiferis axillaribus brevibus minutissime subtomentellis, fructus ellipsoideis, cupulis crassiusculis hemisphericis sat grandis, margine basi tepalibus incrassatis ornatis, pedicellis obconicis. — TYPUS: *King's Collector 4802* (K)

Tree, 7-10 m high, diam. 7.5-15 cm. Branchlets slender, stiff, very minutely densely tomentellous (hairs ca. 0.05 cm long, apically longer). Terminal bud small, densely, minutely subadpressed pubescent. Leaves opposite, chartaceous, lanceolate or lanceolate-oblong, 1 x 5 — 3 x 10 cm, apex attenuate, obscurely acuminate, base shortly acute; above glabrous, glossy, smooth, the three main nerves slender, smoothly prominulous, below rather laxly tomentellous (hairs stiff, errect or suberect, shorter on the nerves), midrib slender, prominent, the basal, lateral nerves slender, prominent, reaching the tip of the leaf; secondary nerves obscure, parallel, subhorizontal, ca. 2 mm apart. Petioles slender, 7-12 mm long, concave above. Pseudo-racemes axillary with few fruit, 1-15 cm long, very minutely, densely subtomentellous with slender main peduncle and usually only a single fruit. Fruit ellipsoid, 7 x 10 mm; cupula thick-walled, smooth, hemispherical, up to 6 mm high,

10 mm diam. at the rim, which bears the thick, broadly triangular, 1 mm long obtuse or truncate bases of the tepals; pedicel obconical, 3-6 mm long, thick, distinct from the cupula.

DISTRIBUTION: Only known from the type locality.

Characterized by the small, narrow leaves with slender petioles, tomentellous lower leaf surface and the basal lateral nerves reaching the leaf tip.

Gamble apparently did not pay much attention to the indumentum of the lower leaf surface, which is different from that of *C. lampongum* (which I have included into *C. rhynchophyllum).* The latter has hardly any fruit cupula.

MALAY PENINSULA. Perak, Larut, Goping, Trinta, alt. 200-300 m, Aug., fr., *King's Collector 4802* (K.L).

Cinnamomum vanderwerffii Kosterm., *nom. nov.*

Phoebe glabra van der Werff (base) *in* Ann. Missouri Bot. Gard.74 : 406. 1987. The specific epithet is occupied by *Cinnamomum glabrum* Ettinghausen (1861).

Cinnamomum woodii Kosterm., *spec. nov.*

Cinnamomum sublanuginosum Auct. (non Kosterm.), Kostermans *in* Reinwardtia 8: 74. 1970 (quoad *SAN 16377*).

Arbor ramulis laevibus glabris, gemmis terminalibus parvis glabris, foliis opposite vel suboppositis subcoriaceis, subovato-ellipticis vel subovato-oblongis, attenuatis, basi brevissime acutis, supra glabra laevis, nervis tribus principalibus gracilibus prominulis, subtus dense minutissime sublanuginosis, glabrescentibus, nervo mediano prominentibus, nervis basalibus-lateralibus gracilis prominentibus apice laminarum attingentibus, nervis secundariis parallelis subhorizontalibus regulariter, tenuibus, petiolis gracilis, infructescentiis pseudo-terminalibus, sat pauci-fructiferis, minutissime subtomentellis, fructus ellipsoideis, cupulis cupuliformibus nec profundis margine integris, pedicellis subcylibdricis brevibus. — TYPUS: *SAN 16377* (L).

Tree 32 m high. Branchlets smooth, glabrous. Terminal bud small, glabrous. Leaves opposite and subopposite, subcoriaceous, subovate-elliptic or subovate-oblong, 2.5 x 10 – 5 x 15 cm, apex attenuate, base contracted into the slender, ca. 1 cm long (above flattish) petiole, shortly acutish; above smooth, glabrous, the three main nerves slender, smoothly prominulous, below densely very minutely sublanuginose, glabrescent, midrib slender, prominent, the basal, lateral nerves slender, prominent, reaching the leaf tip; secondary nerves thin, regular, parallel, subhorizontal, ca. 2-4 mm apart. Infructescences pseudo-terminal, rather few-fruited, up to 15 cm long, densely, microscopically subtomentellous, branches few, short. Fruit ellipsoid, up to 7 x 10 mm, apiculate. Cupula cup-shaped, thickish, shallow with entire margin, 2-3 mm high, 5-7 mm diam. at the rim. Pedicel thickish, 2-3 mm long, subcylindrical.

DISTRIBUTION AND ECOLOGY: Only known from the type locality, a mountain species.

Shows some likeness with *C. subavenium*, but the indumentum different and the fruit cups larger and deeper. Formerly incorporated by me in *C. sublanuginosum*, which has an entirely different fruit cup with persistent tepals.

BORNEO. Sabah, Ranau Distr., Bundu Tuhan, 12 miles W. of Ranau, alt. 1300 m, Sept., fr., *SAN 16377* (BRI,K,L).

CRYPTOCARYA R.Br.

Cryptocarya albifrons Kosterm., *spec. nov.*

Arbor ramulis cylindricis gracilibus foliis alternantibus glabris coriaceis ellipticis vel sublanceolato-ellipticis, obscure acuminatis basi breve cuneatis supra laevibus nervo mediano tenuibus impressis, nervis vix conspicuis, subtus albidis sublente dense minutissime areolatis nervo mediano prominentibus, nerviis paucis tenuibus sat erectis prominulis, paniculis axillaribus multifloris minutissime adpresse puberulis, floribus immaturus. — TYPUS: *NGF 3390* (BO)

Large tree. Bole straight, not buttressed. Bark grey, underbark white, inner bark straw brown, becoming yellow adjacent to the sapwood. Lenticels horizontal. Wood pale to dark yellow. Branchlets stiff, rather slender, smooth, at last greyish. Leaves scattered, initially finely adpressed pilose below, soon glabrous, coriaceous, elliptic to sublanceolate-elliptic, 4 x 10 — 4.6 x 11 cm, broadly, obscurely acuminate with sharp tip base cuneate; above dull, smooth, midrib slender, impressed, nerves hardly visible, filiform; below (under the lens) densely minutely areolate, very pale grey (also fresh), initially pubescent, especially on the midrib smooth, prominent, nerves ca. 5-7 pairs, rather erect, thin, prominulous. Petiole ca. 1 cm. Panicles axillary (apical leaves), obscurely, very minutely, sparsely adpressed puberulous, immature ones many-flowered up to 3 cm long. Flower buds pedicellate.
DISTRIBUTION: Only known from the type locality.

PAPUA NEW GUINEA. Central Highlands, Aiyura, alt. 2000 m, Nov., buds., *NGF 3390* (A,BO). — Local name: Beipun (Aiyura), May-Pa (Kaman).

Cryptocarya beilschmiediaefolia Kosterm., *spec. nov.*

Arbor mediocris innovationibus minute dense sericeis, foliis alternantibus glabris chartaceis opacis oblongis acuminatis basi sensim attenuatis in petiolum transcendentibus, supra nervo mediano vix prominulo, nervis obscuris filiformis, subtus nervo mediano tenuibus prominulis vix prominulo, nervis obscuris filiformis, subtum nervo mediano tenuibus prominulis, nervis filiformibus sat obscuris paucis, reticulatio sub lente sat laxis, infructescentiis

parvis glabrescentibus, axillaribus, paucifructus, fructus ellipsoideus. — TYPUS: *Podzorski 586* (BO)

Tree of 20 m, dbh. 20 cm. Twigs not very thick, stiff, apically, like the endbud densely, minutely sericeous. Leaves scattered, glabrous, thinly chartaceous, dull, oblong, obscurely gradually acuminate, base gradually tapered to the thin, ca. 1 cm long petiole; above midrib thin prominuous, nerves obscure, filiform, prominulous, below midrib slender, prominent, nerves filiform, ca. 6-7 pairs, erect-patent, towards the margin gradually arcuate, prominulous, reticulation under the lens rather lax. Infructescence axillary, short (3 cm), with few fruit, erect, glabrescent (initially minutely sericeous). Fruit black, ellipsoid, smooth, with small, pale round lenticels, ca. 1 x 2 cm.
DISTRIBUTION AND ECOLOGY: Only known from the type locality, submontane species of tropical rain forest.

A distinct species because of its dull, few-nerved leaves with a gradually tapered leaf base.

PHILIPPINES. Palawan Isl. Mt. Beaufort, north spur, west flank by old track, alt. 370 m, fr., *Podzorski 586* (BO,holo,L).

Cryptocarya calandoi Kosterm., *spec. nov.*

Arbor mediocris ramulis sat gracilibus apicem perminutissime pilosis, dio glabrescentibus, foliis alternantibus rigide coriaceis oblongis ad ellipticis, obtusis (?), basi cuneatis, sat grandis, supra glabra nitida nerviis impressis subbullatis, subtus griseis venis perminutissime pilosis nervo mediano valde prominentibus, nervis numerosis venis secundariis parallelis reticulatio connectis, petiolis sat brevibus, paniculis axillaribus vel extra-axillaribus brevibus dense brevissime minutissime pilosis ramulis brevibus fructus immature suboblongis. — TYPUS: *bb. 31826* (BO)

Tree, up to 16 m tall with 10 m free bole, dbh. 32 cm. Twigs not very thick, glabrous, except at the apex with a very minute (under the lens) pilosity. Leaves scattered, rigidly coriaceous, elliptic to oblong, 5.5 x 17 — 11 x 27 cm, obtuse (?), base cuneate; above glossy, smooth, main nerves impressed, bullate, below dull grey-white, midrib stout, prominent, nerves 12-15 pairs, erect-patent, prominent, at the margin arculate, secondary nerves parallel prominulous, connected by a reticulation, main nerves with a very minute wavy indumentum of very thin hairs. Panicles axillary and extra-axillary, densely very minutely tomentellous, 2-6 cm long with few short branches; the very young fruit sessile, slender.
DISTRIBUTION AND ECOLOGY: So far only known from two sites in S. Celebes at low altitude.

Characterized by the whitish lower leaf surface. The sterile specimen has much larger leaves than those near the inflorescence.

CELEBES. S. Kolaka near village Anaiwoi, alt. 10 m, May, very young fruit, "Kalandoi" in Mongloka language, *bb 31826* (BO); Kendari Distr., near Batusanga, alt. 10 m, ster., *bb 24986* (BO), vernacular name: "Potolai", Tolalaki language.

Cryptocarya ceramica Kosterm., *spec. nov.*

Arbor ramulis glabris griseis laevibus apicem versus dense minutissime ferrugineo-lanuginosis, folius alternantibus chartaceo-coriaceis ellipticis vel oblongis minute acuminatis basi breve cuneatis, supra glabra subbullata nervo mediano tenuibus et nervis filiformibus impressis, subtus nervo mediano valde prominentibus cum venis prominentibus minutissime lanuginosis, nervi-is secundariis parallelis prominulis, petiolis sat brevibus, paniculis axillaribus et extra-axillaribus multifloris, compactis, dense minutissimebrunneo-lanuginosis, brevibus. — TYPUS: *Rutten 1875* (BO)

Tree. Twigs smooth, grey, glossy, apically densely minutely rusty-lanuginose. Leaves scattered, chartaceo-coriaceis, oblong or elliptic, 4.5 x 13 — 6 x 15 cm, shortly sharply acuminate, base shortly cuneate; above glabrous, smooth, glossy, the thin midrib and filiform nerves impressed, the secondary ones impressed or invisible; below dull, minutely densely lanuginose on the main nerves, midrib stout, prominent, nerves erect-patent, ca. 8 pairs, prominent, secondary veins parallel, spaced ca. 5 mm, connected by an obscure, minute, lax raticulation. Petioles rather slender, 6-10 mm long. Panicles pyramidal, many flowered, compact, densely minutely brown-lanuginose, 3-5 cm long, axillary and extra-axillary; bracts 1 mm, ovate-acute, lanuginose. Buds densely brown lanuginose.

DISTRIBUTION AND ECOLOGY: So far only known from the type locality, lowland tropical rainforest.

The reticulation is similar to that of *Cr. lauriflora* of the Philippines, but the flowers are entirely different. The flower buds are too immature to be analysed.

MOLUCCAS. W. Ceram Island, Wai Kawa area, Nov., buds, *Rutten 1875* (BO).

Cryptocarya crassinerviopsis Kosterm., *spec. nov.*

Arbor mediocris ramulis strictis glabrescentibus laevibus, foliis alternantibus percrassis ellipticis magnis apiculatis basi subrotundatocuneatis supra glabris nitidis nervo mediano nervisque impressis subtus ab initio minutissime piloso, glabris nervo mediano nervisque valde prominentibus, petiolis sat brevibus, paniculis axillaribus minutissime puberulis brevibus, floribus parvis, minutissime sparse pilosis, fructus elongatis pro genere magnis. — TYPUS: *Meyer 9725* (BO)

Tree, 10 m tall, dbh. 25 cm. Twigs stiff, not very thick, lenticellate, glabrescent, except the apical part. Leaves scattered, very stiff, elliptic, 6 x 18 — 10 x 20 — 9 x 22 — 11 x 26 cm, apiculate, base shortly cuncate or subobtuse; above glabrous, the main nerves impressed, bullate, below initially with a very minute indumentum of thin adpressed hairs, soon glabrous, the main nerves very prominent, nerves 7-10 pairs, erect-patent, arcuate, especially near themargin,, secondary nerves parallel. Petiole 8-14 mm. Panicles axillary of the upper leaves, 2-8 cm long with remote, up to 2 cm long branches, the flowers subglomerulate, very minutely adpressed pilose. Bract-

eoles minute, ovate, acute, caducous. Flowers sessile, yellowish brown, minute, 2-3 mm long, the tube slender. Filaments slender, pubescent, the 6 outer anthers oval, introrse, the three inner with much narrower, anthers, extrorse. Staminodes relatively large, narrowly cuneate, acute, minute. Top of anthers truncate, consisting of ablastic tissue. Fruit slender, ellipsoid, smooth, glossy, up to 1.5 x 4.5 cm.

DISTRIBUTION AND ECOLOGY: Wet, evergreen mountain forest (ca. 1000-1500 m alt.), in West North and Central Sulawesi.

The leaves are exactly like those of *Cryptocarya crassinervia*, but the flowers are only 1/3 the size of those of *Cr. crassinervia*, more slender and with a much shorter indumentum. The fruit are quite different from the much smaller, ovate ones of *Cr. crassinervia*.

CELEBES. Central near lake Lindu, village Tomado, 01°13'S, 120°08'E, alt. 1000-1200 m, Apr., fr., *Meyer 9725* (BO), 80 km SSE of Palu, West Celebes, *Eucalyptus deglupta* forest on alluvial soil, Bopu valley, alt. 1000 m, May, fl., *van Balgooy 3537* (BO,L), local name: Kau alu in Bopu language; Menado, detached leaves only, *Koorders 17425* (BO).

Cryptocarya durifolia Kosterm., *nom. nov.*

Basionym: *Cryptocarya percoriacea* Kostermans *in* Reinwardtia 7: 323. 1968 (non *Cryptocarya percoriacea* Kostermans *in* Bull. Jard. Bot. Bruxelles 27: 182. 1957).

Cryptocarya gigaphylla Kosterm., *spec. nov.*

Arbor humilis foliis glabris alternantibus magnis chartaceis oblongis vel oblongo-subovatis, basi rotundatis apicem versus sensim attenuatis, supranitida conspicue bullata, nervo mediano nervisque et nervis secundariis impressis, subtus conspicue dense prominente grosse reticulatis, infructescencia axillaribus pseudo-terminalisque pyramidalis minutissime pilosis, fructus submaturus globosis. — TYPUS: *de Vogel 4296* (L)

Tree, 4 m high; twigs cylindrical, smooth, glabrous. Leaves glabrous, chartaceous, scattered, oblong to subovate-oblong, 36-40 x 12 cm, base rounded, slightly asymmetric, towards the apex gradually narrowed, obtuse; above glossy, conspicuously bullate; midrib, ribs and secondary veins conspicuously impressed, nervation coarse, somewhat impressed; below dull with very conspicuous very prominent reticulation; midrib prominent, nerves ca. 15 pairs, erect-patent, arcuate, secondary veins parallel, prominent, tertiary veins prominent, subparallel; reticulation (under the lens) dense, prominulous. Petiole smooth, short, thickish, ca. 1 cm. Infructescence axillary and pseudo-terminal, pyramidal, 5-10 cm long with many fruit, very minutely pilose with erect hairs. The submature fruit globose, 5-7 mm diam. with faint longitudinal ribs. Pedicel short.

DISTRIBUTION AND ECOLOGY: So far only found on the Island Obi in the Moluccas, Indonesia, in dense, 30 m high forest just behind the mangrove, at low altitude, forest with little under growth, rich in humus on deep, yellowish, clayey soil at the base of serpentine hills.

A very distinctive species with its large bullate and heavily reticulate leaves with rounded leaf base. The mashed leaves are used against mycoscaly skin diseases, rubbing it in.

MOLUCCAS. Obi Island, W. part, Jikodolong, 1°28'S, 127°30'S, alt. 1 m no date, *de Vogel 4286* (BO, holo).— Vernacular name: Soulamo (Ternate language, to be verified).

Cryptocarya lancifolia Kosterm., *spec. nov.*

Arbor humilis, foliis alternantibus coriaceis, lanceolatis acuminatis vel acutis, basi cuneatis, supra nitida laevia, nervo mediano tenuibus impressis, nerviis fififormibus impressis, subtus glauca, nervo mediano valde prominentibus basin versus minutissime pilosis, nerviis numerosis prominentibus margine versus arcuatis, rete perobscuris laevibus, petiolis pilosis, panipulis axillaribus dense minute ferrugineo lanuginosis, pseudo-spiciformibus, floribus glomerulatis. — TYPUS: *van Balgooy 3900* (BO)

Slender treelet of 10 m. Twigs not very thick, apically densely, minutely rusty puberulous. Leaves scattered, coriaceous, lanceolate, 5.5 x 20 — 5 x 25 cm, broadly acuminate or acute, base shortly cuneate; above glossy, glabrous, midrib slender, impressed; nerves filiform, impressed, secondary nerves faint, impressed; below glabrous, except the stout prominent midrib; nerves 15-20 pairs, prominent, erect-patent, near the margin strongly arcuately ascendent; secondary nerves thin subparallel; reticulation obscure, minute, smooth. Petioles 1-1.5 cm, minutely puberulous. Panicles axillary, 3-6 cm, spike like, densely finely rusty-lanuginose, the remote branches very short, the flowers in dense clumps; bracts at the ultimate ramification bases ovate-acute and lanceolate, densely lanuginose, 5-6 mm, caducous. Flower buds densely rusty lanuginose.

DISTRIBUTION AND ECOLOGY: So far only known from the type locality, ultrabasic soil, 35 m tall rain-forest.

Easily distinguishable by the stiff perfectly lanceolate leaves, glaucous below with numerous nerves and the spike like inflorescences with glomerulate flowers. The flower buds are too immature to analize.

CELEBES. 2°15' — 3°S, 121°45'E, Malili-Moroako Road, 35 m high forest on ultra basic soil, June, buds, *van Balgooy 3900* (BO).

Cryptocarya parinarifolia Kosterm., *spec. nov.*

Arbor ramulis strictis sat crassis glabris subangulatis, foliis perrigide coriaceis oblongis acutis basi cuneatis supra nitida laevia, nervo mediano tenuibus impressis nerviis filiformibus impressis; subtus brunneis, nervo mediano crasso valde prominentibus, nerviis numerosis prominentibus nerviis secundariis parallelis filiformibus prominulis, reticulatio perdensis ut in Parinari, prominulis; nerviis minutissime pilosis, pedicellis sat crassis pilosis. — TYPUS: *NGF 10166* (BO)

Tree 27 m tall, dbh. 20 cm. Bark grey brown, blaze orange-brown. Wood pale cream. Branches at right angles with the trunk. Twigs stiff, thickish, glabrous, apically subangular. Leaves scattered, very stiffly coriaceous, oblong, 3 x 13 — 5.5 x 22 cm, acutish, base shortly cuneate; above glabrous, glossy, midrib slender, impressed; below nerves filiform, impressed; below brown, the veins with an indumentum of fine erect microscopical short hairs, midrib stout, strongly prominent; nerves up to 30 pairs, erect-patent, straight, prominent, at the margin abruptly bent upwards, secondary nerves filiform, parallel, in between a dense, minute prominulous caison-like reticulation similar to that found in several *Parinari* (Chrysobalanaceae) species. Petiole 1-2 cm, rather thick with microscopical indumentum.

DISTRIBUTION AND ECOLOGY: Thus far only known from the type locality, rainforest at 1300 m alt.

Although the specimen is sterile, I venture to describe it, as it is outstanding and easily recognizable by its *Parinari* like reticulation.

PAPUA NEW GUINEA. Morobe Distr., Bulolo logging area, alt. 1300 m, ster., *NGF 10166* (BO).

ENDIANDRA R. Br.

Endiandra chartacea Kosterm., *spec. nov.*

Arbor, ramulis sat gracilibus glabris, foliis alternantibus glabris chartaceis ellipticis conspicue acuminatis basi cuneatis untrinque opacis minute (sub lente) prominule reticulatis supra nervo mediano prominulis nerviis obscuris subtus nervo mediano prominentibus nerviis tenuibus prominulis arcuatis, petiolis sat brevibus, paniculis brevissimis paucifloris minutissime puberulis, floribus pedicellatis, staminibus tres magnis sessilibus elongato-triangularis acutis, fructus subcylindricis. — TYPUS: *Yusuf & Wahyono 119* (BO)

Tree. Twigs cylindrical, glabrous, smooth, not very thick. Leaves scattered, chartaceous, glabrous, elliptic, 5 x 13 — 6 x 15 cm, distinctly acuminate (acumen ca. 1 cm), base shortly cuneate, both surfaces dull, finely (under the lens) prominulously reticulate; above midrib slightly prominulous, nerves faint, often somewhat impressed; below midrib prominent, the ca. 8 pairs of nerves thin, arcuate, erect-patent, prominulous. Petiole not very thick, ca. 1 cm, cylindrical. Panicles axillary (upper leaves), few-flowered, small, up to 3 cm long, finely, minutely adpressed puberulous. Pedicel thin, ca. 2 mm long. The immature slightly pilose flowers have ovate-triangular tepals and three large sessile elongate triangular, acute fertile stamens. Fruit cylindrical, smooth.

DISTRIBUTION: So far only known from the type locality.

The species belongs to the group with thin leaves and sessile, large, triangular stangular stamens.

CELEBES. Sumarorong Distr., Polmas Subdistr., village Sasakan, Jan., buds and one detached fruit, *Yusuf & Wahyono 119* (BO)

Endiandra deomalica (Bennet & Chandra) Kosterm., *comb., nov.*

Beilschmiedia deomalica Bennet and Chandra *in* Indian J. Forestry 9(3): 273-274. 1986 (basionym). — HOLOTYPE : *Bennet & Chandra 3746* A; isotype : idem *3746 B.* (DD), Deomali Forest Div., Siang Distr., Arunachal Fradesh, fr. 18 Mar. 1982, India.

Through the courtesy of Dr. S.S.R. Bennet, I received a leaf of the holotype of *Beilschmiedia deomalica* Bennet and Chandra, which confirmed my suspicion (after seeing the drawing of the fruit) that this was an *Endiandra*, not a *Beilschmiedia;* the leaf shows the characteristic dense pronounced reticulation of the genus *Endiandra.* It has also the typical shape of an *Endiandra* fruit.

Endiandra oviformis Kosterm., *spec. nov.*

Arbor mediocris in omnibus partibus glabris ramulis laevibus apicem versus subangulatis, foliis rigide coriaceis utrinque dense minute subarceolato-reticulatis, supra nervo mediano parte basalibus subimpressis, nervis filiformis, subtus nervo mediano laevis prominentibus nervis obscuris, petiolis laevibus, infructescentis axillaris subterminalisque lignosis, fructus oviformis progenere magnis, pedicellis brevibus cylindricis. — TYPUS: *NGF 47811* (BO)

Tree, glabrous in all its parts with straight bole and open, spreading crown; height 20 m, bole 13 m, dbh. 30 cm. Bark dark grey with fine vertical fissures, middle bark deep red; inner bark mottled red and orange. Wood hard and heavy, reddish straw colour. Twigs greyish, striate, 5 mm diam. Leaves scattered, rigidly coriaceous, both surfaces conspicuously, minutely prominulously areolate-reticulate, elliptic to oblong, 4.5 x 10 — 8 x 16 cm, base shortly cuneate, often assymmetric, narrowing towards the apex, with obtuse tip; above basal part of midrib slightly impressed, nerves filiform; below midrib smooth, subcylindrical, prominent, nerves obscure, ca. 15 pairs, erect-patent, arcuate, ending rather far from the margins. Petiole smooth, not very thick, ca. 1 cm. Infructescence subterminal, with woody main peduncle, 8 cm long, ramifications thick, 1-2 cm long. Fruit egg shaped, dull, bluish green (fresh), 3.5 x 5 cm; pedicel thick, ca. 5 mm long.
DISTRIBUTION AND ECOLOGY: *Castanopsis* dominated, 1300 m alt., ridge forest, 7 miles E. of Bulolo.

The specimens have been distributed as *Beilschmiedia.*

PAPUA NEW GUINEA. 7 miles E. of Bulolo, Wau Subdistr., Morobe Distr., 7°12'S, 46°42'E, alt. 3200 ft., June, fl., *Streimann NGF 47811* (BO).

KUBITZKIA van der Werff

The generic name *Kubitzkia* was proposed by van der Werff *in* Taxon 35: 164. 1986 to replace *Systemonodaphne* Mez (synonym: *Goeppertia* Meissner).

Hamilton (Prodr. Plant. Ind. ocid. 35 1825) published a short, generalized description of *Laurus geminiflora* Hamilt. and stated that he had seen the plant alive on St. Kitts and Jamaica and had seen material in Desvaux's herbarium.

No specimens, either of Desvaux or of Hamilton have ever turned up.

Meissner (DC. Prodr. 15(1): 102. 1864) assigned Hamilton's name with a question mark to his (Meissner's) *Goeppertia geminiflora* and quoted and described material from British Guiana and Brazil, but not material of Hamilton or Desvaux from the West Indian Islands

Article 48. 1 pertains (not the article quoted by van der Werff) and says: "..... when an author (Meissner) who adopts a name *(Goeppertia geminiflora)* refers to an apparent basionym (*Laurus geminiflora* W. Ham.) but explicitly excludes the type, he (Meissner) is considered to have published a new name, that must be solely ascribed to him".

Article 48. 1 (the wording was made by Dr. Nicolson, Washington) is suffering from some unnecessary frills.

First: the word apparent is incorrect, as nobody is able to state with certainty what the original author was intending. It should be replaced by "probable".

Second: the weak and unnecessary detail of 48. 1 is the word explicitly. Again nobody will be ever able to state with certainty the author's intention and this word hence weakens the rule and is unnecessary.

Because this word "explicitly" is there, article 48. 1 has to go on (a certain sign of its weakness) to explain what explicit and implicit means, and gives an example, again with the ambiguous words: "can be effected", which implies that there are other ways too. The example given is not the common one: cases like ours are based on the fact, that no type material is extant and hence it is impossible to refer the species to another genus.

As we are still saddled up with the ambiguous Rule 48. 1 (ambiguity can be easily expelled, by deleting the word explicitly), we argue that:

1. Meissner excluded Hamilton's name explicitly by using an interrogation mark.

2. This is strengthened by the fact, that Hamilton's type material is not mentioned by Meissner.

3. Moreover by the fact, that Meissner's description is based on material from British Guiana and Brazil and no hint is even given of its occurrence in the West Indian Islands.

4. Hamilton's species deviates considerably (according to the description) from Meissner's species, but Meissner gives no hint of such aberrancies.

The above is proof enough that Meissner excluded explicitly Hamilton's name (an alternative way as the one based on the example in article 48. 1, suite).

Hence it is concluded that *Kubitzkia* van der Werff is an invalid name.

LAURUS L.

Laurus eugenioides "L."

Lourteig *in* Taxon 15: 29. 1966 — *Symplocos ? spicata* Roxb.

Laurus irawan Planchon

Planchon, Hortus Donatensis (1854-58) 67 = *Persea lingue* (R. & P.) Nees.

Laurus magellanicus F. Schilling

Schilling *in* Kew Magaz. 1(3): 135. 1981 = ?

Laurus mexicana Hort. Morren

Morren *in* la Belgique Horticulture 8: 141. 1858 (as a synonym of *Persea schiedeana* Nees.). The specimen was from Dresden.

Laurus macrophylla Richard

MSS *in* P., des Antilles = *Nectandra.*

Laurus macrophylla Vahl or Ryan

MSS *in* Herbarium C = *Aniba bracteata* Mez.

Laurus pusilla Lob.

Lob. *in* Berge & Riecke, Giftpflanzenbuch, Stuttgart: 217. 1850 (as a synonym of *Daphne mezereum).*

Laurus tetrandra Noronha

MSS in Herb. G as "Srimba rantu" = *Potameia madagascariensis* Thou. ex Spr.

Laurus viridissima Planchon

Planchon, Hort. Donatensis (1854-58) 67 = *Persea carolinensis* (Mich.) Nees.

LITSEA Lamk.

Litsea areolata (Bl.) Boerl.

Boerlage, Handl. Fl. Nederl. Ind. 3: 142. 1900. The specimen in NY is a *Cryptocarya.*

Litsea boerlagei Kosterm., *nom. nov.*

Base: *Litsea ambigua* (Bl.) Boerlage, Handleid. Fl. Nederl. Ind. 3: 143. 1900 (non *Litsea ambigua* Meissner *in* DC., Prodr. 15(1): 226. 1864; Kostermans, Bibl. Laur. 788. 1964).

Litsea auricolor Kosterm., *nom. nov.*

Base: *Litsea aureo-sericea* Kostermans *in* Natur. Hist. Bull. Siam Soc. 25: 39. 1974 (non *Litsea aureo-sericea* Kostermans *in* Reinwardtia 7: 499. 1969).

Litsea bodinieri "Leveille"

Wu, Chen Y, Index Fl. Yunnan. 1: 62. 1984. sphalm. = *Lindera bodinieri* Leveille.

Litsea brassii O.C. Schmidt

Schmidt *in* J. Arn. Arb. 10: 214. 1929; Kostermans, Bibl. Laur. 794. 1964; Allen *in* J. Arn. Arb. 23: 125. 1942. — TYPUS: *Brass 813* (K), *713* = *Litsea glutinosa* (Lour.) C.B. Robins.

Litsea brevipetiolata Lecomte

Lecomte *in* Nouv. Arch. Mus., Ser. 5,5: 47 & 55. 1913; Kostermans, Bibl. Laur. 794. 1964; H.W. Li, Tree Fl. China (1982) 659 (misspellt: *vibrepetiolata*). The specimen *Bon 3286* (P) is indeed *L. verticillata,* but *Eberhardt 4959* in an undescribed species.

Litsea caulostachys Kosterm., *nom. nov.*

Base: *Litsea cauliflora* (Meissn). Trimen, Handb. Fl. Ceylon 3: 450. 1895; Kostermans, Bibl. Laur. 797. 1964 (non *Litsea cauliflora* Stapf *in* Trans. Linn. Soc., Ser. 2, 4: 219. 1894; Kostermans, l.c. 797).

Litsea chinensis Lamk.

This is *Litsea glutinosa* (Lour.) C.B. Rob.

In C there are 3 sheets, one *L. chinensis* dedit Ventenat = *Psiloxylon* (Myrtac.); two sheets: dedit Lamarck = *Phyllanthus* or *Prockia (lobata)* = *Pittosporum celebicum* (Miq.) (non *Pseudocerasus chinensis* Lamk.).

Litsea chinensis Heyne ex Nees.

Nees *in* Wall., Pl. As. rar. 2: 165. 1831; Kostermans, Bibl. Laur. 801. 1964 = *Litsea ligustrina* (Nees) Villar.

Litsea chinensis Bl.

Blume, Bijdr. Fl. Nederl. Ind., 11e Stuk: 565. 1825; Kostermans, Bibl. Laur. 801. 1964 = *Litsea rotundifolia* var. *oblongifolia* (Nees) Allen.

Litsea cinnamomea Bl.

Blume, Mus. Bot. Lugd. Bat. 1(22): 349. 1851; Kostermans, Bibl. Laur. 803 1964.— TYPUS: *Forsten s.n.*, fl., Ternate (K,LE) = Neolitsea cinnamomea (Bl.) Kosterm., *comb. nov.*

Litsea citronella Kosterm., *spec. nov.*

Arbor humilis in omnibus partibus glabris, foliis alternantibus chartaceis oblanceolatis sat parvis obtusis basi sensim attenuatis utrinque obscure dense minutissime reticulatis nervo mediano prominulo nervis paucis filiformibus subprominulis, petiolis tenuibus sat longis, umbellulis floriferis solitariis, pedunculis gracilibus, floribus paucis subsessilibus, tepalis membranaceis oblongo-spathulatis vel orbiculato-spathulatis, bracteis umbelliferis sat magnis acutis, staminibus fertilibus 9 quadri-locularibus. — TYPUS: *Poilane 29063* (BO,holo,P).

Treelet of 5-6 m, dbh. 10 cm, glabrous in all its parts. Twigs cylindrical, smooth, glossy, stiff, ca. upright. End bud with small acute bud scales. Leaves scattered, chartaceous or chartaceo-membranaceous, spathulate to oblanceolate, 2 x 5.5 — 1.5 x 3.5 cm, obtuse, base gradually tapered; both surfaces densely, minutely reticulate (more distinct above), above glossy, midrib slightly impressed, thin, nerves filiform, prominulous, lower surface pale, dull, midrib slender, prominulous, nerves filiform, erect-patent, 5-8 pairs (with shorter ones in between). Petiole slender, 10-15 mm. Flower umbels on the twigs, solitary, main peduncle thin, ca. 5 mm. Bracts 4, ovate, acute, 5-6 mm long, thin, patent. Umbel with 4 florets, almost sessile. Tepals membraneous, oblong to spathulate-oblong, acute, 2-3 mm. Fertile stamens 9, filaments filiform, anthers oblong, cells of the outer 6 stamens introrse, of the inner, narrower ones latrorse, the inner row with basal glands.

DISTRIBUTION AND ECOLOGY: A mountain species, exposed to harsh conditions, at about 1500 m alt. in Annam on granitic soil and on Hainan island.

The leaf shape and thinness and black with a glossy upper surface and pale underneath are very characteristic. The flowers were submature.

ANNAM. Ba-Na near Tourane, alt. 1000-1500 m, granitic, flowers ivory, Febr., fl., *Poilane 29063* (BO,P); ibid., summit, 1450 m, buds greenish to yellow green, Febr,, *Poilane 28872* (BO,P). HAINAN ISL. Po-Ting, alt. 1000 m, Sept., buds, *How 73662* (BO).

Litsea citrata Bl.

Blume, Bijdr. Fl. Nederl. Ind., 11e Stuk: 565. 1826; Kostermans, Bibl. Laur. 803. 1964 = *Litsea cubeba* (Lour.) Pers.; synonym: *Actinodaphne citrata* (Bl.) Hayata.

Litsea citrata Herb. Calcutt.

ex Hooker f., Fl. Brit. Ind. 5: 156. 1886; Kostermans, Bibl. Laur. 805. 1964 = *Litsea kingii* Hooker f.

Litsea collina S. Moore

Moore *in* J. of Botan. 61, Suppl. 43. June 1923; Kostermans, Bibl. Laur. 805. 1954. New synonym: *Litsea perlucida* Allen *in* J. Arn. Arb. 23: 124. 1942; Kostermans, Bibl., l.c. 862.

Litsea elongatoides Kosterm., *nom. nov.*

Base: *Litsea pseudo-elongata* Kostermans *in* Natur. Hist. Bull. Siam Soc. 25: 38. 1974 (non *Litsea pseudo-elongata* Liou Ho, Laur. Chine & Indoch. 179, f. 13. 1932).

Litsea firma (Bl.) Hooker f.

Hooker f., Fl. Brit. Ind. 5: 162. 1886; Kostermans, Bibl. Laur. 817. 1964. New synonym: *Litsea sibuyanensis* Elmer *in* Leafl. Philipp. Bot. 2: 724. 1901. — TYPE: *Elmer 12536* (K,LE); Kostermans, Bibl. Laur., l.c. 880.

Litsea fluminensis Kosterm., *nom. nov.*

Base: *Litsea acuminata* (Teschn.) Kostermans *in* Reinwardtia 7: 345. April 1968 (non *Litsea acuminata* (Bl.) Kurata, March 1968).

Litsea foveola Kosterm., *nom. nov.*

Base: *Litsea foveolata* Yang & P.H. Huang *in* Acta Phytotax. Sin. 16(2): 50, f.9. 1978 (non *Litsea foveolata* (Merr.) Kosterm *in* Reinwardtia 8: 98. 1970).

Litsea grandifolia Teschn.

Teschner *in* Bot. Jahrb. Berlin 58: 387, 424, 426, 433. 1923; Kostermans, Bibl. Laur. 828. 1964 (non *Litsea grandifolia* Lecomte *in* Nouv. Arch. Mus., 5e Ser. 5: 87. 1913; Kostermans, Bibl. Laur. 825) = *Litsea tomentosa* Bl.

Litsea hirta (Bl.) Boerl.

Boerlage, Handl. Fl. Nederl. Ind. 3: 145. 1900; Kostermans, Bibl. Laur. 831. 1964 (base: *Cylicodaphne hirta* Blume) = *Litsea grandis* (Wall. ex Nees) Hooker f.

The type specimen in L : no. 409 "Hoeroe dapoeng", one sheet with one leaf, marked with locality: Papier Toegoe; another sheet, marked "Huru dapung" is a young shoot.

There are furthermore in L three sterile sheets of the series: Houtsoorten Gede no. 24, named "Hoeroe merang".

Litsea kauloensis Teschn.

Teschner *in* Botan. Jahrb. Berlin 58: 396, 425, 427, 494. 1923. Typus: *Schlechter 16877* (Berkeley, SING) = *Litsea timoriana* Spanoghe.

Litsea liyuyingii Liou Ho

Liou Ho *in* Bull. Soc. bot. France 80: 566, f.1. 1933; Kostermans, Bibl. Laur. 842. 1964; *in* Adansonia, Ser. I, 13: 225. 1973, has been relegated by me to *Cinnadenia paniculata* (Hooker f.) Kosterm. This was not accepted by H.W. Li (Fl. Rep. pop. Sin. 31: 304. 1982), who maintained the species. However, the non-umbellate flowers are already enough evidence that this is not a *Litsea*.

Litsea macgregorii Merr.

Merril *in* Philipp. J. Sci. Bot. 12: 136. 1917; Kostermans, Bibl. Laur. 844. 1964.— TYPUS: *MacGregor 18493* (K,US) = **Actinodaphne macgregorii** (Merr.) Kosterm., *comb. nov.*

Litsea macrophylla Kurz

Kurz, Prelim, Report Pegu 102; Append. B. 74. 1875; Kostermans, Bibl. Laur. 845. 1964 (non *Litsea macrophylla* Elmer = *Litsea garciae* Vidal, non *Litsea macrophylla* Boerlage = *L. gigaphylla* Kosterm.) = *Actinodaphne*.

Litsea nitida Bl.

Blume, Mus. bot. Lugd. bat. 1(24): 371. 1851 (non *Litsea nitida* Hooker f.); Kostermans, Bibl. Laur. 1413. 1964 = *Lindera lucida* (Bl.) Boerl.

Litsea pallida (Bl.) Boerl.

Boerlage, Handl. Fl. Nederl. Ind. 3: 145. 1900; Kostermans, Bibl. Laur. 859. 1964 (basionym: *Cylicodaphne pallida* Blume, Mus. bot. Lugd. bat. 2(1): 11. 1856) = *Litsea timoriana* Spanoghe (non *Litsea pallida* (Bl.) Boerlage, Handl., l.c. 143, based on *Tetranthera pallida* Blume, a species from Celebes).

Litsea pseudolongifolia Kosterm., *nom. nov.*

Base: *Litsea pseudo-elongata* Kostermans *in* Natur. Hist. Bull. Siam Soc. 25: 38. 1974 (non L. *pseudo-elongata* Liou Ho, Laur. Chine & Indoch. 179. 1932; Kostermans, Bibl., l.c. 868).

Litsea resinosa Bl.

Blume, Bijdr. Fl. Nederl. Ind., 11e Stuk 562. 1826; Kostermans, Bibl. Laur. 870. 1964. New synonyms: *Litsea monticola* Gamble, Kew Bull. 1910: 361; Kostermans, Bibl., l.c. 850. — *Laurus flava* Reinwardt ex Blume, Catal. Gewassen Lands. Pl. tuin Buitenzorg 66 (1823), nomen nudum; Kostermans, Bibl., l.c. 617.

The type specimen (L) ex Herbar. Reinwardt, Plant. Javensis, "Hoeroe tjankrien" bears in Blume's writing the name *Litsea pseudo-angulata*, a name never published. Another specimen is marked: "Huru kuning".

Litsea rotundata (Bl.) Kosterm, *comb. & stat. nov.*

Basionym: *Tetranthera resinosa* var. *rotundata* Blume, Mus. Bot. Lugd. Bat. 1(24): 386. 1851; Kostermans, Bibl. Laur. 871. 1964. *Litsea resinosa* var. *rotundata* (Bl.) Boerlage, Handl. Fl. Nederl. Ind. 3: 142. 1900; Kostermans, Bibl., l.c. 871.

Litsea timoriana Spanoghe

Hooker's Compan. Bot. Mag. 1: 350, 1835; Kostermans, Bibl. Laur. 885. 1964. New synonym: *Litsea solomonensis* Allen *in* J. Arn. Arb. 23: 127. 1842. — TYPUS: *Brass 3182;* Kostermans, Bibl., l.c. 831.

The spesimen *Kajewski 2200* was cited by Kunth, Pfl. reich 105: 41.1939 as *Barringtonia bougainvilleana* Kunth, a misprint for *Kajewski 2261.*

Litsea xylanica F. Kametani, Y. Satok & B.R. Pai

Kametani, Satok & Pai *in* Indian J. Chemistry 9 (Aug. 1971) 770-771.

An unknown misspellt name. Is this *L. zeylanica* (which is *Neolitsea zeylanica* (L.) Kosterm.) ? Chemists should pay more attention to proper identification of their material. As in this case the results of the research cannot be used and become worthless.

NEOLITSEA Merr.

Neolitsea cassia (L.) Kosterm.

Kostermans *in* J. Sci. Research Indones. 1: 85, 95, 123, 147, 152, 1952; Bibl. Laurac. 1038. 1964 (non *Neolitsea cassia* Auct. (non Kostermans), Floyd a Hayes, cf. Kostermans Brunnonia 2: 93, f.l. 1979 = *Neolitsea australiensis* Kosterm.).

In the G. Herbarium in the Burman collection are the following:

Species 7, Dawoel coronde, in bud, another annotation is *Machilus angustifolia* Rumf, p. 60, t. 26, certainly a wrong disposition.

Species 10, Dawoel koeroendoe, a sterile branch.

Species 11, a branch with buds, marked as *Laurus involucrata* Retz., which is correct.

WILLIAMODENDRON Kubitzki & Richter and ASPIDOSTEMON Rohwer & Richter

Williamodendron (*in* Bot. Jahrb. Syst. 109 (1987) 49-58) differs from *Mezilaurus* O. Kuntse gross-morphologically only by its 4-celled anthers and *Aspidostemon* (*in* Bot. Jahrb. Syst. 109 (1987) 71-79) by its different number and differently shaped anthers, besides of wood anatomical characters (which have to be handled with care: there may be surprises in the more than 200 species of *Cryptocarya*, in which I included the species segregated as

Aspidostemon; a case found in *Vatica scaphifolia* of Dipterocarpaceae, which has the wood anatomy of a *Shorea*, the only case so far known, is a warning).

Van der Werff (*in* Ann. Missouri Bot. Gard. 75 (1988) 131) stated that a workable classification of the Lauraceae does not yet exsists and that the most important reason for this, that the genera do not have exclusive chartacters, that is, characters restricted to one particular genus, and as a consequence the genera are separated by combinations of characters. He is wrong on both counts, my own system is very workable, even for the non-specialist in Lauraceae (of course there are always exceptional species, which do not fit in properly, but this holds true for the greater part of of plant genera and families) and his statement on combination of characters, is the rule in all plant families of the world and *Williamodendron* and *Aspidostemon* are no exceptions.

We live in a (transient) period of splitting of genera and families. Some genera have a very short life span: Tsui Hung-pin *in* Bull. Bot. Res. Northeastern For. Inst. 7(4) : 9 (1987) reduced the recent genera *Parasassfras* Long and *Sinosassafras* A.W. Li. The short survival period of new genera is by no means restricted to Lauraceae; in a forthcoming paper I have reduced *Laumoniera* Nooteboom (Simaroubaceae).

At any rate, I think it acceptable to support *Williamodendron* and *Aspidostemon*.

From the drawings and the descriptions it is clear that *Williamodendron spectabile* Kubitzki & Richter is conspecific with *W. glaucum* (v.d. Werff) Kubitzki & Richter and consequently becomes a synonym of the latter (publishing dates of the former 28 Oct. 1987, of the latter Spring 1987).

The situation of *Aspidostemon* is comparable to that of *Notaphoebe* Bl., which differs from *Persea* mainly in the shape of its stamens and moreover in the different leaf petioles and fruit pedicels, combined with differences in the timber.

Aspidostemon has, moreover, a different number of stamens as compared with that of *Cryptocarya* (in which I had left the species, creating only a different section). I should not be amazed if a splitter would create another new genus on the base of either the 3- or the 6-stamened flowers. The same will perhaps happen with the closely knit genus *Endiandra*, recognizable in sterile state and by flowers and by fruit, where next to "normal stamens" with slender filaments, species occur with large, sessile, triangular stamens.

Genera do not exsist in Nature and are man-made and hence liable to very different circumscriptions, to the detriment of Taxonomy in the eyes of the users of taxonomy. But it serves as a nice plaything for some taxonomists.

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