

PRELIMINARY REVISIONS OF SOME GENERA OF MALAYSIAN
PAPILIONACEAE IV — A REVISION OF ORMOSIA*

by

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SUMMARY

In this revision 11 species have been admitted for the Malaysian Archipelago, including *O. stipulacea* which is described as new, from Brunei. A key, synonymy, and distribution are given. Ten species and one variety are reduced; three of these reductions (under *O. macrodisca*) are tentative, as of two of them no types were available. Another species, *O. villamilii* Merr., is reduced to *Pericopsis moonii*. *O. scandens*, of which I have also seen no material, I have not been able to place; its pod is unknown.

INTRODUCTION

A general survey of the Asiatic species of *Ormosia* was given the last time by Prain in 1900. Since then Ridley has described one new species from the Malay Peninsula, Merrill seven from the Philippines, Koorders two from Celebes and Java, and S. Moore one from Sumatra; these are the additions as far as Malaysia is concerned. The number of species described hitherto for Malaysia amounts to 22. In this study it has been reduced to 10 and one new species is proposed.

For his Philippine species Merrill retained Prain's tentative classification. Prain subdivided the genus into subg. *Arillaria* (with a single species, *O. robusta* (Kurz) Prain, said to possess seeds enveloped in an aril) and subg. *Toullichiba* (Adans.) Prain, which should now be called subg. *Ormosia*. The latter he subdivided into 2 sections, viz sect. *Ormosia* and sect. *Chaenolobium* (Miq.) Prain. Within the latter he distinguished 3 subsections: *Macrodisca*, *Layia*, and *Amacrotopis*. In his survey the American and African species were not considered. No later general survey of the genus has been published.

The two sections *Chaenolobium* and *Ormosia* were based on a character which does not hold: in sect. *Ormosia* the leaf rachis would be prolonged above the distal pair of leaflets, in sect. *Chaenolobium* there would be no prolonged leaf rachis. Merrill & Chen (*l.c.* 89) already remarked that this

*) The first instalment of this series was published in *Reinwardtia* 5: 419—456. 1961; the second in vol. 6: 85—108. 1961; the third in vol. 6: 195—223. 1962.

***) Foundation Flora Malesiana, Leyden.

character can at most be used for specific distinction, but already stated that it varies in degree in *O. semicastrata*. In my opinion it is unreliable, as becomes obvious if many sheets of a species are available.

Merrill & Chen have limited their taxonomic study (1943) to the Chinese and Indo-Chinese species; they added a bibliographic enumeration of all other Old World ones. Besides they gave a historical survey of *Ormosia* and its generic synonymy. They refrained from accepting a new subgeneric subdivision because so many species are incompletely known; instead they tentatively accommodated the Chinese and Indo-Chinese species into 15 series, two of which coinciding with subsect. *Layia* and subsect. *Amacrotopis*.

From their study it can be inferred that they cannot accept a subg. *Arillaria* because neither in *O. robusta* Kurz nor in other species they could find a true aril, and they suggested that Kurz mistook the thickened fleshy seed coat of *O. robusta* for this organ. In other species the seed coat is hard. Its colour is red but in some species there is a black spot round the hilum, which has sometimes been mistaken for an aril.

The taxonomical value of the absence or presence of this spot is not very clear; for example the type of *O. basilanensis* was described with red seeds, but in an isotype seeds with a black spot were found. In *O. gracilis* I have found immature seeds which had no (not yet?) black spot. In *O. macrodisca* I have combined specimens with and without a black spot. Much more mature fruiting material and field observations must be available for reaching a satisfactory opinion.

Some of the American species which I examined, have likewise a black spot on the seed. This spot is, however, not located around the hilum while furthermore these seeds are orange instead of scarlet red as are the Asiatic black-spotted species.

Koorders (Atlas Baumarten Java 4: t. 798. 1918) observed for the first time "trichomes" in *O. incerta* Koord. situated on nearly all articulations and insertions of leaves, leaflets, nodes of rachis, stipules, pedicels. They make the impression of being homologous with colleters though a resin-excreting function seems unlikely. They are found in other genera of Leguminosae, for example in *Bauhinia*; see Taubert in E. & P., Pfl. Fam. III, 3: 73, fig. 38 A—C. 1894. Koorders thought they were peculiar to his *O. incerta*. In fact they occur in all species of *Ormosia*, and also in *Pericopsis*.

It is unfortunate that, except for a few species, the representatives of *Ormosia* seem to be rare. Many species are hitherto only known from the type collection, and that is mostly either in fruit or in flower which causes great difficulty in comparing them with other specimens. Sterile material is, in general, worthless for specific identification.

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ORMOSIA Jackson

Ormosia Jackson in Trans. Linn. Soc. 10: 360, t. 25. 1810, *nom. gen. cons.*; Taubert in E. & P., Pfl. Fam. III, 3: 194. 1894; Harms, *ibid.*, Nachtr. 3: 158. 1906; Prain in J. As. Soc. Beng. 69, ii: 175. 1900; Merr. & Chen in Sargentia 3: 77—117. 1943. — *Toulichiba* Adans., Fam. 2: 326. 1763, *nom. gen. rejic.* — *Layia* Hook. & Arn., Bot. Beech. Voy. 183, t. 38. 1833, *non ibid.* 148, 357. — *Chaenolobium* Miq., Fl. Ind. Bat. Suppl. 302. 1861. — *Macrotropis* (*non* DC.) Miq., *l.c.* 294. — *Arillaria* Kurz in J. As. Soc. Beng. 42, ii: 70. 1873. — *Podopetalum* F. v. M. in Chem. & Drugg. 12. June 1882; Merr. & Chen in Sargentia 3: 79. 1948.

DISTRIBUTION.— About 90 species in the tropics of South America, Asia, and Malaysia.

ECOLOGY.— Trees of the tropical lowland rain-forest, rarely in the montane zone. In Malaysia *Ormosia* is restricted to the everwet regions and is for this reason absent from East Java and the Lesser Sunda Is. which are subject to a dry season.

NOTES.— Unfortunately none of the continental Asian species of *Ormosia* studied in detail by Merrill & Chen occurs in Malaysia. A correlation between these continental Asian species and those of Malaysia remains very much desired.

The distribution patterns of the Malaysian species show marked centres in the Malay Peninsula and in the Philippines. It is likely that further exploration will yield new species and that several species will prove to have a much wider distribution.

KEY TO THE SPECIES

1. Ovary with hairs for the greater part along the margins or glabrous. Pod thick, orbicular, stony, with large seeds, 1½—3 cm long, red, with or without a black spot as far as known pitted partly or throughout. Inflorescences paniculate.
2. Petals 14—22 mm long. Calyx* 13—16 mm long. Petals or at least the keel with a rim of woolly hairs. Mature pod 5—7 by 3½—5 cm. Mature seeds red, ± 2 cm long (*sec.* Merrill). Leaflets 7, (sub)opposite, broad-elliptic to (ob)ovate, obtuse,

*) Measured from the insertion of the bracteoles.

- acute or acuminate with an obtuse tip, 5—14 by 2½—6 cm, laxly appressed-hairy to glabrous above, and sometimes with a line of hairs on the main nerve, densely pubescent to nearly glabrous beneath. 5. *O. paniculata*
2. Petals 5—13 mm long, glabrous. Calyx 5—12 mm long. Mature seed with a black spot round the hilum. Leaflets thinly pubescent beneath or nearly glabrous except for a few hairs along and on the main nerve, glabrous above.
3. Leaflets long-acuminate, 5½—8 by 2—3 cm. Mature pod 3—4 by 2½—3 cm; mature seed 16—19 by 16—18 mm. Calyx 5—7 mm long with grey-pale-yellow, appressed hairs. Bracts up to 1½ mm. 3. *O. gracilis*
3. Leaflets short-acuminate, 4½—17 by 2—7 cm. Mature pod 3½—9 by 3½—8½ cm. Mature seed 22—30 by 17—27 mm. Calyx 7—12½ mm long, with yellow to grey or dark-brown, appressed hairs. Bracts 1—3 mm. 4. *O. macrodisca*
1. Ovary densely hairy all over (as far as known). Valves of the pod (as far as known) not very thick, lignified, asymmetric, or valves thick, stony and pod terete or nearly so. Mature seed without a black spot, mostly vermilion-red, not pitted, ½—1½ cm diam.
4. No stipules or stipular scars near the base of the leaves. Leaflets thinly pubescent or with a few hairs along the main nerve beneath, glabrous above.
5. Petals or at least the keel with a rim of curly hairs, longer than 12 mm; keel slightly auriculated on the lower margin. Flowers in racemes. Ovary with 4—6 ovules. Leaflets dull, glaucous beneath, 3½—12 by 1½—3½ cm, broad-elliptic to (ob)ovate, obtusely or emarginately acuminate. Pod unknown.
6. *O. penangensis*
5. Petals glabrous, up to 12 mm; keel non-auriculate. Flowers in panicles. Ovary with at most 3 ovules.
6. Vexillum with a conspicuous tooth ± 3 mm long, forming a prolongation and appendage of the claw. Leaflets 3—7, shining above, with a rounded base, long-triangular, obtuse or emarginate, 4½—10 by 2½—5 cm. Pod unknown.
10. *O. surigaensis*
6. Vexillum without such a conspicuous tooth. Leaflets 7—9, dull or feebly glossy, 3—15 by 1—7 cm, broad-elliptic to (ob)ovate, obtusely acuminate. Mature pod glabrous, black, brown when young, proportionally thin, lignified, 2—4 by 1½—2½ cm, with a wing-like margin 1½—6 mm wide, asymmetric and depressed between the seeds when more than one-seeded 2. *O. calavensis*
4. Stipules or stipular scars present near the base of the leaves.
7. Stipels present, sometimes difficult to recognise by the dense pubescence of the rachis. Leaflets with curly hairs on the midrib above, densely or laxly hairy beneath.
8. Pod terete or nearly so, finely appressed-hairy, glabrescent, blackish, 4—4½ by 2—3 cm; valves very thick, stony. Leaflets 7, mostly obovate but also ovate and broad-elliptic, 2—9 by 0.8—4½ cm. Stipules lanceolate, densely brown-hairy, 6—8 by 2—3 mm, caducous. 11. *O. venosa*
8. Pod flat, proportionally thin, lignified, asymmetric, 3—4 by 2—2½ cm, densely short curly-hairy, with a few long straight hairs; valves not very thick. Leaflets 3—5, broad-elliptic to (ob)ovate, shortly and obtusely acuminate, 5½—18 by 2—7 cm. Stipules 7—14 by 2—4 mm, lanceolate-broad-triangular, acuminate.
8. *O. stipulacea*

7. Stipels absent. Leaflets glabrous above. Valves of the pod proportionally thin, lignified. Pod asymmetric, brown when young, black when mature, depressed between the seeds when more than one-seeded and often slightly narrowed between the seeds.
9. Leaflets entirely glabrous beneath, shining above, herbaceous, broad-elliptic to -obovate, very short-acuminate, the tip blunt or emarginate, $6\frac{1}{2}$ —14 by $3\frac{1}{2}$ — $5\frac{1}{2}$ cm. Pod glabrous even when young, 2—3 by 1.5—2.5 cm. (Inflorescence unknown) 7. *O. polita*
9. Leaflets never entirely glabrous beneath, mostly densely hairy, but, when glabrescent, with unmistakable remains of hairs on the midrib, upper surface sometimes slightly glossy, herbaceous to coriaceous. Pod, when young, hairy or glabrous, 1— $3\frac{1}{2}$ by 1—2 cm.
10. Leaflets finely, mostly densely appressed-pubescent beneath, sometimes glabrescent. Hairs \pm straight, not woolly. Lateral nerves mostly not very prominent beneath. Leaflets 7—13, broad-elliptic to (ob)ovate, short- or long-acuminate, $1\frac{1}{2}$ — $7\frac{1}{2}$ by $\frac{1}{2}$ —3 cm. Stipules lanceolate, 1—2 mm wide, caducous.
1. *O. bancana*
10. Leaflets woolly to tomentose, sometimes glabrescent beneath. Persistent hairs curly. Lateral nerves rather prominent beneath. Leaflets 7—19, broad-elliptic to (ob)ovate, acuminate, 4—18 by $2\frac{1}{2}$ — $8\frac{1}{2}$ cm. Stipules lanceolate to long-triangular, $1\frac{1}{2}$ —7 mm wide. 9. *O. sumatrana*

1. ORMOSIA BANCANA (Miq.) Merr.

Ormosia bancana (Miq.) Merr., En. Born. 301. 1921; Merr. & Chen in *Sargentia* 3: 31. 1943. — *Macrotropis bancana* Miq., Fl. Ind. Bat. Suppl. 295. 1861. — *O. parvifolia* Baker in Hook. f., Fl. Br. Ind. 2: 253. 1878; Prain in J. As. Soc. Beng. 66, ii: 149 & 469. 1897; *ibid.* 69, ii: 184. 1900; Ridl., Fl. Mal. Pen. 1: 614. 1922; Corner, Ways. Trees Mal. 1: 374. 1940.

DISTRIBUTION.—Malaysia: Sumatra (also in Banka), Malay Peninsula, Anambas and Natuna Is., Borneo.

ECOLOGY.—Often on sandy soils and frequently surviving after fires. In the lowland below c. 200 m.

NOTES.—Prain (1900) already concluded to the identity of *Macrotropis bancana* Miq. and *Ormosia parvifolia* Baker, citing *Ormosia bancana* as an alternative name; Merrill legitimately effected the transfer.

No differences in the fertile parts can be found against *O. sumatrana*, but the material of *O. bancana* is very uniform and the appressed golden-yellow fine hairs are very characteristic. *O. sumatrana* is much more variable and shows some extremes with very thick leaves and strongly recurved margins described as var. *ridleyi*.

2. ORMOSIA CALAVENSIS Azaola ex Blanco

Ormosia calavensis Azaola ex Blanco, Fl. Filip. ed. 2: 230. 1845; Prain in J. As. Soc. Beng. 69, ii: 180. 1900; Merr. in Philip. J. Sc. 1: Suppl. 64. 1906; *ibid.* 5: Bot.

58. 1910; Interpr. Rumph. 262. 1917; En. Philip. 2: 269. 1923; Kanehira in Bot. Mag. Tokyo 45: 285. 1931; Fl. Micon. 144, f. 49. 1933; Back., Bekn. Fl. Java (em. ed.) 5: fam. 120, p. 24. 1941; Merr. & Chen in Sargentia 3: 81. 1943; Merr. & Perry in J. Arn. Arb. 23: 400, 1942. — *Corallaria latifolia* Rumph., Herb. Amb. 3: 175, t. 110. 1743. — *Pongamia ? corallaria* Miq., Fl. Ind. Bat. 1, 1: 149. 1855.

DISTRIBUTION.—Malaysia: Borneo, Celebes, Philippines, Moluccas, Central Java (between Wonosobo and Keboemen), New Guinea, and Micronesia (Palau).

NOTES.—This species is here for the first time recorded from Celebes and Borneo. The specimen bb. 19819 from Celebes has uncommonly large bracts, but, as remarked under *O. sumatrana*, I cannot adhere much taxonomical importance to differences in the size of the bracts.

3. ORMOSIA GRACILIS Prain

Ormosia gracilis Prain in J. As. Soc. Beng. 66, ii: 148 & 468. 1897; *ibid.* 69, ii: 180. 1900; Ridl., Fl. Mal. Pen. 1: 613. 1922; Corner, Ways. Trees Mal. 1: 374. 1940; Merr. & Chen in Sargentia 3: 81. 1943.

DISTRIBUTION.—Malaysia: Malay Peninsula, according to Corner frequent in the hills, 500—900 m.

NOTE.—The seeds, when young, are yellow or light red, with a red spot round the hilum; mature seeds have a black base.

4. ORMOSIA MACRODISCA Baker

Ormosia macrodisca Baker in Hook. f., Fl. Br. Ind. 2: 253. 1878; Prain in J. As. Soc. Beng. 66, ii: 148 & 467. 1897; *ibid.* 69, ii: 179. 1900; Ridl., Fl. Mal. Pen. 1: 613. 1922; Back., Bekn. Fl. Java (em. ed.) 5: fam. 120, p. 24. 1941; Merr. & Chen in Sargentia 3: 82. 1943. — ?*O. monchyana* Koord. & Boerl. ex Koord., Med. 's-Lands Plant. 19: 441. 1898; Merr. & Chen in Sargentia 3: 82. 1943, '*monochyana*'. — *O. basilanensis* Merr. in Philip. J. Sc. 14: 407. 1919; En. Philip. 2: 269. 1923; Merr. & Chen in Sargentia 3: 81. 1943. — ?*O. clementis* Merr. in Philip. J. Sc. 14: 406. 1919; En. Philip. 2: 270. 1923; Merr. & Chen in Sargentia 3: 81. 1943, *ex descr.* — ?*O. grandifolia* Merr. in Philip. J. Sc. 14: 408. 1919; En. Philip. 2: 270. 1923; Merr. & Chen in Sargentia 3: 81. 1943, *ex descr.* — *O. palembanica* S. Moore in J. Bot. 64: Suppl. 145. 1925; Merr. & Chen in Sargentia 3: 83. 1943.

DISTRIBUTION.—Malaysia: Sumatra, Malay Peninsula, West Java (Mt Salak, alt. 800 m), Borneo, Celebes, and the Philippines. Cultivated in the Botanic Gardens at Singapore, Sibolangit, and Bogor.

NOTES.—*O. macrodisca* and *O. calavensis* are in the sterile state indistinguishable from each other. Even in anthesis they can only be separated by the indument of their ovaries, while some buds of *O. macrodisca* have

ovaries which are nearly hairy all over, although glabrescent near the base of the style. They are, however, good species, for the pod and seeds are entirely different.

In his description of *O. palembanica* S. Moore stated that this species is easy to recognise by its 3-foliolate leaves. In the isotype specimens (*Forbes 3249*) there are, however, leaves with 3 and 5 leaflets on one sheet; genuine *O. macrodisca* has 5—9 leaflets. The ovary is in *O. palembanica* glabrous as in *O. macrodisca*. Its fruit is unknown but calyx and leaflets also agree with *O. macrodisca*. For these reasons I have concluded to the conspecificity of *O. palembanica* and *O. macrodisca*.

As stated above the seeds of *Ormosia* are non-arillate, but possess a black spot round the hilum. Merrill (1919), in his descriptions of some Philippine species, *O. basilanensis*, *O. clementis*, *O. grandifolia*, and *O. orbiculata*, made some remarks on the structure of their seeds. About *O. orbiculata* he wrote: "much alike *O. macrodisca*, but the seeds show no basal aril", about *O. clementis*: "seeds non-arillate, with black base", and about both *O. basilanensis* and *O. grandifolia*: "seeds red, non-arillate". Most probably he did not see at that time the seeds of *O. macrodisca* and was led to the conclusion that earlier authors were right in assigning an aril to it.

It is very likely that the seeds of *O. clementis* and *O. macrodisca* have the same characters.

The seeds of *O. basilanensis*, which were said to be red, I found in an isotype with a black spot round the hilum (*Rafael F.B. 17893*). Another specimen from Basilan (*Liborio Ela Ebaló 939*) has similar seeds. There are no differences at all between these specimens and *O. macrodisca*. Another specimen from the Philippines (Palawan, *Merrill 9364*) corresponds with the description of *O. basilanensis*. It has a red seed without a black spot round the hilum, while the leaflets are rather broad ($4\frac{1}{2}$ —7 cm wide, in average genuine *O. macrodisca* 2—5 cm wide) and distinctly acuminate; the lateral nerves are very distinct. The characters of the leaflets are, however, very variable within *O. macrodisca* itself; the lateral nerves are often very distinct, while the leaflets are more or less acuminate. Therefore I do not consider *O. basilanensis* as a distinct species.

O. paniculata differs from *O. macrodisca* only in a few flower characters. More fertile material is needed to judge their constancy.

Doubtful species.—There are three species which I only know from their original description because the type specimens were either destroyed or not available to me; all of them probably belong to *O. macrodisca*.

O. monchyana ('*monochyana*') Koord. & Boerl., described from NE. Celebes, of which I have only seen sterile material (*Koorders 17685*), Backer

reduced (*in sched.*) to *O. calavensis*; from the description I have, however, concluded that it is most probably conspecific with *O. macrodisca*. The description of the pod is unmistakable, and, although the seed is red, I have tentatively reduced it to *O. macrodisca*.

O. grandifolia Merr., of which the holotype was destroyed at Manila, and of which I could not trace an isotype (*Alvarez F.B. 21172*), is, as far as I can infer from the description, very closely allied to *O. macrodisca*: the only differences are the elliptic shape of the pod and the red seed. As pointed out above, I do not consider this last feature of much taxonomical value. The elliptic shape of the pod lies most probably within the range of variability of the pod of *O. macrodisca*. Merrill stated that it is also different from *O. basilanensis*, here reduced to *O. macrodisca*, but the characters he mentioned overlap.

O. clementis Merr. It is likely that the type specimen of this species is also lost (*Clemens 1139*). Merrill's description remains obscure in several places but it does not appear to be different from *O. macrodisca*.

Cultivated. — By Hortus Bogoriensis two species have been distributed as *O. macrodisca* sub no. I.K. 36 to the Rijksherbarium at Leyden; one of them is true *O. macrodisca*, the other is *O. monosperma* (Sw.) Urban (*O. dasycarpa* Jackson), an American species which is also known as cultivated in Hort. Bog. under other numbers.

5. ORMOSIA PANICULATA Merr.

Ormosia paniculata Merr. in Bur. Govt. Lab. 35: 21. 1905; En. Philip. 2: 270. 1923; Merr. & Chen in Sargentia 3: 82. 1943. — *O. orbiculata* Merr. in Philip. J. Sc. 14: 405. 1919; En. Philip. 2: 270. 1923; Merr. & Chen in Sargentia 3: 82. 1943.

DISTRIBUTION.—Malaysia: Philippines, Sumatra.

NOTES.—*O. paniculata* Merr. is only known in flower. The wings have a thin, the keel a densely set rim of curly hairs. The keel of *O. orbiculata* has also such a rim of hairs, the wings are glabrous.

Merrill called the calyx lobes of *O. paniculata* acute, but I found them blunt in an isotype from US., as they are in *O. orbiculata*. The leaflets of this isotype have a line of curly hairs on the main nerve above and are laxly curly-hairy beneath. They seem to be transitional between the leaflets of an unnamed specimen past flower from the Res. Sumatra East Coast (*Rahmat si Toroës 2225*), which are densely curly-hairy beneath and laxly-hairy above with a dense line of curly hairs on the main nerve, and those of *O. orbiculata*, which are glabrous above and glabrescent beneath. Of both *O. paniculata* and the specimen from Sumatra the pod is unknown. Tentatively I consider these three specimens to belong to one species.

O. paniculata has no stipules, but each branch of the panicle has three minute scars at its base, from the caducous stipules and bract (viz *O. sumatrana*); hence stipules are ontogenetically obviously present, but they do not show up.

Merrill described the pods of *O. orbiculata* as apiculate. In *O. macrodisca*, however, they may be either rounded or apiculate at the apex and are therefore indistinguishable from those of *O. orbiculata*.

O. paniculata and *O. macrodisca* differ mainly in a few flower characters, but the available material is insufficient to gain a sound insight in the range of the variability of all characters of these species, necessary to fathom their exact discrimination.

6. ORMOSIA PENANGENSIS Ridley

Ormosia penangensis Ridley in J. As. Soc. Str. Br. n. 68: 11. 1915; Fl. Mal. Pen. 1: 613. 1922; Merr. & Chen in Sargentia 3: 83. 1943. — *O. incerta* Koord., Atlas Baumarten Java 4: t. 798. 1918; Merr. & Chen in Sargentia 3: 82. 1943; Back., Bekn. Fl. Java (em. ed.) 5: fam. 120, p. 25. 1941.

DISTRIBUTION.—Malaysia: Malay Peninsula (Penang, Government Hill, at Grace Dieu), West Java (Tjibodas).

ECOLOGY.—In Java a few trees in everwet montane rain-forest at c. 1450 m altitude, only once found in flower in half a century.

NOTES.—I have reduced *O. incerta* Koord. to *O. penangensis* Ridl. because they agree in striking characters and show no essential difference; it must be admitted that the fruit of *O. penangensis* is unknown and only few specimens are at hand. The petals are equal in length and shape and have curly hairs, the ovary has the same indument. In *O. penangensis* only the keel has a rim of curly hairs on the posterior half, in *O. incerta* all the petals have such a hairy rim. Both species have 4—6 ovules which is slightly deviating from the average in *Ormosia* which is 3 or less.

Ridley mentioned that the flowers are arranged in racemes in *O. penangensis*, while Koorders stated that they are in panicles in *O. incerta*, but his drawing also shows racemes; as a matter of fact this is the only species with flowers in racemes, which occur more or less crowded towards the apex of the branches.

7. ORMOSIA POLITA Prain

Ormosia polita Prain in J. As. Soc. Beng. 69, ii: 184. 1900; Merr. & Chen in Sargentia 3: 83. 1943. — *O. nitida* Prain in J. As. Soc. Beng. 66, ii: 149 & 468. 1897; Ridl., Fl. Mal. Pen. 1: 613. 1922, non Vogel, 1837.

DISTRIBUTION.—Malaysia: Malay Peninsula.

NOTE.—Though up till now there are only a few fruiting specimens available, it can be recognized by its glabrous leaflets (see the key). As flowering specimens are wanting, it is difficult to key it out properly.

8. *Ormosia stipulacea* van Meeuwen, *nov. spec.*

Arbor, circiter 7 m alta, foliis sparsis, imparipinnatis, petiolis pubescentibus, stipellis subulatis; foliolis 3—5, oppositis, ellipticis ad (ob)ovatis, obtuse acuminatis, $5\frac{1}{2}$ —18 × 2—7 cm, subtus laxe pubescentibus, supra costa excepta glabris; stipulis ovatis, acutis vel acuminatis, 7—14 × 2—4 mm, in parte abaxiali pubescentibus, in parte adaxiali glabris; inflorescentiis paniculiformibus, pubescentibus; bracteis 8—10 × 4—6 mm, bracteolis 4 × $1\frac{1}{2}$ mm; calyce campanulato, 7 ad 8 mm longo; corolla calyce paullo longiore, vexillo 8 ad 9 mm longo; leguminibus lignescentibus, tenuibus, pubescentibus, seminibus 1 vel 2.—Typus: *Ashton 5940*, in L; Borneo, Brunei, Andalau F.R.

Tree, c. 7 m high, with orange-brown, smooth bark, pitted in places; outer bark soft, thin, inner bark red-brown, soft; wood medium hard, lemon-yellow. Leaves spirally arranged, 3—5-foliolate; leaflets opposite, broad-elliptic-(ob)ovate, shortly acuminate, tip blunt, $5\frac{1}{2}$ —18 by 2—7 cm, laxly spreading pubescent beneath, more densely so on the midrib, glabrous above except for a line of hairs on the midrib. Stipules ovate, acute or acuminate, adaxial part glabrous, abaxial part pubescent, slightly glabrescent, sometimes keeled. Stipels subulate, sometimes difficult to observe through the dense indument of the petiole. Inflorescence paniculate, densely hairy. Bracts 8—10 by 4—6 mm; bracteoles 4 by $1\frac{1}{2}$ mm, both glabrous on the adaxial part, densely hairy on the abaxial part. Calyx campanulate, densely appressed-hairy, 7—8 mm long. Corolla white, slightly exceeding the calyx, vexillum 8—9 by 8 mm. Ovary densely appressed-hairy. Pod flat, thinly lignified, asymmetric, subsessile, short-woolly hairy with a few long, straight hairs.

DISTRIBUTION.—Malaysia: NW. Borneo.

ECOLOGY.—Primary forest on low undulating hills, 50 m alt., yellow sandy clay soil.

9. *ORMOSIA SUMATRANA* (Miq.) Prain

Ormosia sumatrana (Miq.) Prain in J. As. Soc. Beng. 66, ii: 150 & 469. 1897; *ibid.* 69, ii: 183. 1900; Ridl., Fl. Mal. Pen. 1: 614. 1922; Back., Schoolfl. Java 394. 1911; Koord., Exk. Fl. Java 2: 372. 1912; Heyne, Nutt. Pl. 759. 1927; Back., Bekn. Fl. Java (em. ed.) 5: fam. 120, p. 25. 1941; Merr. & Chen in Sargentia 3: 83. 1943. — *Macrotropis sumatrana* Miq., Fl. Ind. Bat. Suppl. 294. 1861. — *Chaenolobium septemjugum* Miq., l.c. 302. — *Chaenolobium decemjugum* Miq., l.c. 302. — *O. coarctata* (non Jacks.) Kurz in J. As. Soc. Beng. 43, ii: 71. 1873. — *O. microsperma* Baker in Hook. f., Fl. Br. Ind. 2: 253. 1878; Prain in J. As. Soc. Beng. 66, ii: 151 & 468. 1897, *incl. var. ridleyi*; *ibid.* 69, ii: 183. 1900; Ridl., Fl. Mal. Pen. 1: 614. 1922. — *O. septemjuga* (Miq.) Prain in J. As. Soc. Beng. 66, ii: 468. 1897; *ibid.* 69, ii: 184. 1900; Merr. &

Chen in *Sargentia* 3: 83. 1943. — *O. decemjuga* (Miq.) Prain in *J. As. Soc. Beng.* 66, ii: 468. 1897; *ibid.* 69, ii: 184. 1900; Merr. & Chen in *Sargentia* 3: 81. 1943.

DISTRIBUTION.—Malaysia: Sumatra (also Simalur), Malay Peninsula, West—Central Java, Borneo.

NOTES.—Prain distinguished *O. sumatrana* (Miq.) Prain, *O. microsperma* Baker, *O. decemjuga* (Miq.) Prain, and *O. septemjuga* (Miq.) Prain, but the characters he used in his key (*in J. As. Soc. Beng.* 69, ii: 177—179. 1900) are in my opinion insufficient for their discrimination. Some characters do not hold, for example the differences he gave for the length of the leaf rachis as alluded to in the introduction. He separated *O. sumatrana* and *O. microsperma* by their “bracts”, “bracts 0.1 inch long, oblong, very deciduous as are the similar bracteoles at base of pedicel, the two bracteoles under the calyx subsistent”, thus I quote from Prain in his description of *O. sumatrana*. These “bracts” may be the lanceolate appendages at the base of each raceme of the panicle; these are, however, not bracts, but stipules, as two of them occur near the base of each lateral raceme with a small scar between them; under the higher racemes they are obviously fused into a single broad “bract” leaving a V-shaped scar. The specimens of *O. sumatrana*, which I have seen, have no stipules, but scars 1—2 mm wide. The stipules of *O. microsperma* are 1½—5 mm wide, they are less caducous than those of *O. sumatrana*. *O. septemjuga* has stipules which are exactly the same as those of *O. microsperma*. The specimens of *O. decemjuga* have very broad stipules, 5—7 mm wide. *O. sumatrana*, *O. septemjuga*, *O. microsperma* and *O. decemjuga* arranged in this sequence show a grading range in the width of the stipules in which no sharp demarcation can be made. Other characters for separation of *O. microsperma* and *O. sumatrana* are, according to Prain: panicle fastigate, leaflets densely pubescent beneath, and panicle lax, leaflets thinly pubescent beneath, respectively. Examination of all material at hand showed that the characters are untenable. *O. decemjuga* and *O. septemjuga* would differ from *O. sumatrana* only in the number of leaflets (15—19); the number of leaflets is variable in most species, however (see under *O. macrodisca*), and is of little taxonomical value.

O. microsperma Baker var. *ridleyi* Prain I do not retain as a variety. It was based on the indument of the pods. The pods of the type specimen are, however, in an immature state, the seeds being small and undeveloped.

Some specimens have very long bracts, but I do not consider this a character of taxonomical value because similar large-sized bracts I found in a single specimen of *O. calavensis* from Celebes as an accidental variation not correlated with any other change.

10. *ORMOSIA SURIGAENSIS* Merr.

Ormosia surigaensis Merr. in Philip J. Sc. 17: 263. 1920; En. Philip. 2: 270. 1923; Merr. & Chen in Sargentia 3: 83. 1943.

DISTRIBUTION.—Malaysia: Philippines.

NOTE.—This species is very insufficiently known, but it seems to be distinct.

11. *ORMOSIA VENOSA* Baker

Ormosia venosa Baker in Hook. f., Fl. Br. Ind. 2: 254. 1878; Prain in J. As. Soc. Beng. 66, ii: 152. 1897; *ibid.* 69, ii: 185. 1900; Ridl., Fl. Mal. Pen. 1: 615. 1922; Merr. & Chen in Sargentia 3: 84. 1943.

DISTRIBUTION.—Malaysia: Malay Peninsula, Sumatra.

INSUFFICIENTLY KNOWN SPECIES

12. *Ormosia scandens* Prain in J. As. Soc. Beng. 66, ii: 147 & 467. 1897; Merr. & Chen in Sargentia 3: 83. 1943.

A climber, stem 15—20 cm diam.; branches glabrous; leaves 5—7-foliolate, leaflets ovate-oblong, glabrescent on both surfaces, short-acuminate, 15—23 by 7—9 cm. Flowers in panicles, rachis, pedicels and calyx hairy, bracts and bracteoles minute. Calyx \pm 8 mm long, halfway incised, the two upper lips connate. Corolla slightly longer than the calyx, white with a red tinge. Ovary glabrous except for a line of hairs along the upper suture. Pod unknown.

DISTRIBUTION.—Malaysia: Malay Peninsula (Perak: Larut, *Kunstler 3560*).

NOTE.—This species I know only from the description. In its floral characters it approaches *O. macrodisca*, but the scandent habit, unique for the genus, is a serious obstacle to refer it to any species. I hope no mistake has been made in the field observation.

13. *Ormosia* sp.

A tree, 4 m high. Leaflets 11, (sub)opposite, when opposite connected by a faint transverse bar on the petiole. Leaflets broad-elliptic to (ob)ovate, shortly acuminate, tip blunt, glabrous above, glabrescent beneath, 5—18 by 2½—8 cm. Trichomes present. Stipules diminishing in size to apex of twig, ovate-acute to long-triangular, 3½ by 2 cm on the lower part of the twig, 5 by 3 mm near the apex. Axillary buds enveloped by similar, perula-like stipules. Pod \pm 5 by 3 cm, thin-lignified, asymmetric, yellow, later orange when fresh, not still ripe, one-seeded. Seed red, 14 by 9 mm. Calyx persistent, campanulate, yellow pubescent. Inflorescence paniculate. Flowers unknown.—Malaya, Trengganu. *Sinclair & Kiah bin Salleh S.F. 40851* (K, L, SING).

EXCLUDED

14. *Ormosia villamilii* Merr. in Philip. J. Sc. 10: Bot. 313. 1915; En. Philip. 2: 270. 1923; Merr. & Chen in Sargentia 3: 84. 1943, from the Philippines (Mindanao) = *Pericopsis moonii* Thw.

This is the first record of this genus for the Philippine islands.

INDEX TO COLLECTORS' NUMBERS

The first number of each pair is the collector's number the second refers to the number of the species in the text.

- Ablaza FB 27009: 2 — Achmad 1517: 9; 1766: 9 — Ahern's coll. FB 2963: 2 — Alvarez FB 21439: 2 — Anderson S 41881: 1 — Ashton Brun 282: 1; Brun 5022: 1.
- Backer 9385: 4; 23357: 9 — Baker 3247: 2 — Beccari 1847: 9 — Borden FB 2028: 5 — Boschbouwproefstation bb. 8962: 1; bb.10138: 2; bb.17167: 1; bb. 18272: 1; bb.19086: 9; bb.19558: 2; bb.19645: 2; bb.19819: 2; bb.28860: 2; bb.29098: 1; bb.29481: 2; bb.31033: 9; bb.31034: 9; bb.31039: 9; bb.31371: 2; Ja.1647: 9; Ja.2501: 9; Ja.2543: 2; Ja. 2547: 2; 1 PF 746: 11; T 553: 9; T 715: 1; T 739: 11; T 746: 11; T 769: 4; T 815: 4; 4 T 1 P 4: 4; 255 T 1 P 739: 11 — Brass 7514: 2 — Brass & Versteegh 13599: 2 — Brünig S 6398: 9.
- Carr 26701: 2 — Charington San 22278: 9 — Clemens, J. & M.S. 29872: 4; 30223: 4 — Clemens, M.S. BS 1144: 2 — Conklin PNH 39216: 2 — Cubitt's coll. C 7. 820: 9 — Curran FB 10750: 2.
- Denny 4: 9 — Derry 1090: 9 — Diepenhorst 2547: 9.
- Ebaló 939: 4 — Edaña PNH 34556: 2; PNH 37194: 2 — Elmer 10439: 2; 10927: 2; 11047: 2; 13399: 2; 17581: 2 — Endert E 1039: 4; E 1311: 9 — Evans 13254: 1.
- Forbes 2592: 9; 2648: 9; 3249: 4 — Fox 5013: 1.
- Goodenough 1443: 1 — Grashoff 110: 1; 183: 9; 926: 1 — Griffith 1759: 9; 1765: 1.
- Haniff 3456: 9; 16338: 6 — Haniff & Nur 3498: 9 — Haviland 1451: 1 — Henderson 20357: 1 — Hort. Bog. I.B. 47a: 9; I.K. 36: 4, p.p.; I.K. 36a: 4; XI.A. 107: 4.
- Ilias Paie Sar 8579: 1.
- Jacobs 5673: 1.
- Keith NBF 5994: 1 — Kiah SF 35197: 7 — Kochummen Kep. 94044: 11 — Koorders 14254: 9; 17685: 2; 42648: 6 — Koster BW 1117: 2; 4251: 2; BW 10815: 2 — Kostermans 258: 1; 8093: 1; 9561: 1 — Kostermans & Anta 337: 1; 346: 1; 1168: 1; 1370: 1; 1380: 1 — Kunstler 4234: 3; 6082: 7; 8767: 9 — Kuswata & Soepadmo 284: 2.
- Lam 3073: 2; 3296: 2 — Lörzing 5464: 4.
- Mail 4089: 1 — Maingay 532: 9; 533: 11; 600: 4; 614: 1 — Maneja FB 25975: 2 — Merrill Sp. Bl. 707: 2; 2752: 2; 9364: 4 — Meijer San 19919 N.T. 9: 1.
- Neth. Ind. For. Service. See Boschbouwproefstation — Nur 567: 4; 1571: 9; 1731: 9; 11326: 3; 11747: 3.
- Omar 98: 1.
- Paraiso FB 22094: 5 — Puasa A 64: 1 — Purseglove P 5030: 9.
- Rafael 17893: 4 — Rahmat si Toroes 2225: 5 — Ramos BS 3362: 2; BS 22463: 2; BS 32775: 5; BS 76953: 2 — Ramos & Pascasio BS 34494: 10 — Ridley 1267: 1; 2103: 4; 5574: 9; 5929: 1; 8096: 1.

- Scortechini* 324: 3 — *Sinclair SF* 40194: 1; 80037: 9 — *Sinclair & Kadim bin Tassim* 10413: 1 — *Soekaria* 74: 9 — *Soh* 15494: 1 — *van Steenis* 1352: 1 — *Sulit PNH* 10087: 5; PNH 12519: 2. *Tangkilian* 241: 2 — *Teysmann* 3618: 9; 3679: 9; 3715: 9 — *Thorenaar* 4 T 1 P 4: 4.
- Versteegh BW* 3924: 2 — *Vidal* 263: 2; 1222: 2 — *de Voogd* 199: 4; 204: 1. *Wenzel* 1311: 2 — *Wood San* 16741: 1; *Kep* 76089: 11 — *Wood & Kapisb. Sisiron San* 16336: 2 — *Wray* 2979: 3. *Yeob* 3238: 1.

INDEX OF SCIENTIFIC NAMES

(Synonyms in *italics*, new taxa in **bold type**; numerals refer to the numbers of the species)

- Chaenolobium decemjugum* Miq. 9
septemjugum Miq. 9
Corallaria latifolia Rumph. 2
Macrotropis bancana Miq. 1
sumatrana Miq. 9
Pericopsis moonii Thw. 14
Pongamia corallaria Miq. 2
Ormosia bancana (Miq.) Merr. 1
basilanensis Merr. 4
calavensis Azaola *ex* Blanco 2
clementis Merr. 4
coarctata (*non* Jacks.) Kurz 9
decemjuga (Miq.) Prain 9
gracilis Prain 3
grandifolia Merr. 4
incerta Koord. 6
macrodisca Baker 4
microsperma Baker 9
- var. *ridleyi* Prain 9
monchyana Koord. & Boerl. *ex* Koord. 4
nitida Prain, *non* Vogel 7
nitida Vogel 7
orbiculata Merr. 5
palembanica S. Moore 4
paniculata Merr. 5
parvifolia Baker 1
penangensis Ridl. 6
polita Prain 7
scandens Prain 12
septemjuga (Miq.) Prain 9
sp. 13
stipulacea van Meeuwen 8
sumatrana (Miq.) Prain 9
surigaensis Merr. 10
venosa Baker 11
villamilii Merr. 14

ADDENDA

From the materials of the Herbarium Bogoriense which arrived too late for inclusion it appeared that *O. monchyana* Boerl. & Koord. really is synonymous with species 4. *O. macrodisca* Baker; although the seed is red, the pod and leaflets correspond with those of *O. macrodisca*.

Furthermore the following collecting numbers should be added:

- Beccari* 1088:9 — *Boschbouwproefstation* bb. 5719:4; 7432:9; 7912, 8080:1; 10138:2; 11446, 13689:1; 13927:9; 17167:1; 19819, 29481:2; 32189:9; 33911:2; *Ja* 2501:9; *Ja* 2547:2; *T 3 P* 553:9; *T 1 P* 715:1; *T 1 P* 746:11; *Gobée* 6686 (*bb. number?*): 2; *Hallier f.* 1302:4; *Haitema* 22:1; *Sow* (Kepong): *Kep.* 80037; *Kjellberg* 990:4; *Koorders* 27429:9; 31749, 32168, 40576, 41467, 42041, 42648:6 — *Kostermans* 1101, 5201:9 — *Kostermans & Anta* 325:1 — *For. Dept. North Borneo, Sandakan* 2219, 2227, 2466:1; 16875:4 — *Posthumus* 2120:1 — *van Steenis* 11495, 12865:6.