

A Revision of the Genus *Millettia*, Wight et Arn. By STEPHEN TROYTE DUNN, B.A., F.L.S., F.R.G.S., sometime Superintendent of the Botanical and Forestry Department, Hongkong, China.

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MILLETTIA, Wight et Arn. Prodr. 263 (1834) \*; Meissn. Pl. Gen. 95 (1836) \*; Endl. † Gen. Pl. 1304 (1836) \*; Benth. in Miq. Pl. Jungh. 247 (1851-5) \*; Miq. Fl. Ned. Ind. i. (1855) 153; Benth. et Hook. f. Gen. Pl. i. (1865) 498 ‡; Baill. Adans. vi. 222; Baker in Oliv. Fl. Trop. Afr. ii. 126 (1871); Baker in Hook. f. Fl. Brit. Ind. ii. (1876) 104; Kurz, For. Fl. Brit. Burm. (1877) 350; Engl. u. Prantl, Pflanzenfam. iii. III. 270 (1894); Prain in Journ. As. Soc. Beng. lxvi. II. 358 (1897); Brandis, Indian Trees, 219 (1906).

*Marquartia*, Vog. in Nov. Act. Nat. Cur. xix. Suppl. i. (1843) 35, t. 1.

*Callerya*, Endl. Gen. Suppl. iii. 104 (1843).

*Berrebera*, Hochst. in Flora, 1846, 597.

*Fornasinia*, Bertol. Misc. Bot. viii. 18, t. 1 (1849).

*Otosema*, Benth. in Miq. Pl. Jungh. 248 (1851-5).

*Arbores* et frutices scandentes vel erecti. *Folia* imparipinnata, 2-multi-juga (rarissime trifoliata vel unifoliata); foliola sæpius subcoriacea, reticulato-penninervia, inderdum stipellata. *Paniculae* amplæ, angustæ vel ad racemos nodosos reductæ. *Calyx* late campanulatus, dentibus brevibus vel rarius tubo paullo longioribus vel rare obscuris, duobus superioribus sæpe partim vel omnino coalitis. *Petala* sæpe purpurascens; vexillum ovatum vel orbiculare, patens vel reflexum, sericeum, pubescens vel glabrum, supra unguem intus nudum, callosum vel auriculatum; alæ oblongæ vel rarius ovatæ, basi ut petala carinæ cuneatæ, truncatæ vel hamatæ, carinæ inderdum adherentes; carinæ petala conformia, obtusa, postice paullo imbricata, cohærentia. *Stamina* sæpissime monadelpha, vexillare basi solutum, interdum autem diadelphæ; filamenta apice libera, filiformia; antheræ ovatæ, uniformes. *Discus* breviter cylindricus, annularis vel nullus. *Ovarium* sessile vel rarius stipitatum, lineare, 3-multi-ovulatum; stylus inflexus, teres vel complanatus, apice glaber, stigmatibus parvo, terminali. *Legumen* lineare vel oblongum, compressum vel crassum, rigide coriaceum vel lignosum, interdum anguste alatum, dehiscens, 2-valve. *Semina* lenticularia, orbiculata vel reniformia,

\* Excluding the description of the pod as indehiscent.

† Endlicher and a few early authors used the spelling *Milletia*.

‡ Excluding the synonym *Padbruggea*.

estrophiolata. *Embryonis* radícula sæpius (ubi visa) inflexa, in cotyledonibus accumbens.

The *Millettias* extend completely across the tropics of the Old World from the west coast of Africa to the Philippine Islands and Australia, and reach beyond them to the south in Africa and Australasia and to the north in the far east of Asia. They vary in habit, like some other large genera of woody *Papilionaceæ*, in conformity with their vast range from small shrubs to large forest trees like *M. caffra*. In tropical Africa some species are extensively grown as shade-trees along the roads, having when in leaf the habit of small Ashes and being covered when in flower with masses of white blossoms. Besides its timber and the ornamental flowers of some species the genus affords few products that are of use to man. Certain species, both in Africa (e. g. *M. ferruginea*) and in Asia (e. g. *M. Piscidia*, *M. macrocarpa*, and *M. ichyochtona*), are known to the native fishermen as possessing in their wood or fruit a substance which has the property of stupefying fish. The stems of the small climbing species are often remarkably tough and are used for the purpose of rough cords by the countrymen of China and other countries. A fibre is prepared from the stems of the common Indian *M. auriculata*, but it is of little commercial value.

GEOGRAPHICAL DISTRIBUTION.—As above stated, *Millettia* is widely distributed over the warmer regions of the Old World. It reaches from Sierra Leone and Abyssinia in north tropical Africa to the temperate regions of the south of that continent. In Asia its area includes Japan, the whole of China proper, Formosa, the Philippines, the western islands of the Malay Archipelago, Indo-China, Siam, the Malay Peninsula, Burma, and the whole of India except the extreme west. It shares its north-eastern regions with the closely allied *Wistaria*, which extends there from North America. In the south-east it merges into and almost encloses the areas of *Fordia*, *Padbruggea*, and *Adinobotrys*, distinguished from it by their fruit, and finally reappears in Australia with the peculiar fruit-characters which characterize the section *Austromillettia*. In its African area it includes the generic regions of *Schefflerodendron*, *Craibia*, *Platysepalum*, and *Dewevrea*, which are indistinguishable from it in general habit, but separable by well-marked peculiarities of foliage or calyx.

#### HISTORY.

The first species of what is now known as *Millettia* to reach Europe in a botanical collection appears to have been *M. reticulata*, which was gathered by Staunton in 1793\* in Kwangtung, China, while accompanying Macartney's Embassy to the Emperor of that country, but his specimens

\* The actual specimen is in the British Museum Herbarium.

remained unidentified until long after the genus had been recognised and built up to a considerable size from other sources. *M. sericea* was, so far as can be discovered, the first species to be described. It was found in Java by La Haye, *Jardinier en chef* in the 'La Pérouse' exploring expedition, and sent by him to Ventenat, who mentioned it as *Pongamia sericea* \* when founding that genus in 1803. It was subsequently described by De Candolle (Prodr. ii. 416) in 1825. Two years later a West Tropical African tree (*M. Thonningii*) was described by Schumacher and Thonning (Beskr. Guin. Pl. 349) as *Robinia Thonningii*. In 1832 Roxburgh published the third volume of his 'Flora Indica' and included therein descriptions of four more *Milletti*as, one (*M. Piscidia*) as a *Galedupa*, three (*M. auriculata*, *M. fruticosa*, and *M. racemosa*) as *Robinias*. The result of subsequent investigations has been to exclude all these species from the genera to which they were originally referred, and to include them one after another in the new genus *Millettia* † founded in 1834 by Wight and Arnott upon the South Indian climbers *M. rubiginosa* and *M. splendens*. In 1835 E. Meyer ‡ described *Virgilia grandis*, which is probably *M. caffra*, from South Africa, and Siebold and Zuccarini from the extreme opposite end of the generic range *Wistaria japonica* §, now also regarded as a *Millettia*. Even eight years later when the next species was detected, this time in South China, the character of *Millettia* was so little appreciated by Vogel that he founded upon it the new genus *Marquartia*. To Meissner || belongs the credit for making the first addition to Wight and Arnott's genus by referring to it a hardwood tree of South Africa which he called *M. caffra*, thus preparing the way for the recognition of the wide range of the genus. But in 1843 a third new genus (*Berrebera*) was based on an Abyssinian *Millettia* (*M. ferruginea*) by Hochstetter. In 1849 Hooker added a fourth to the three species already recognised as *Millettia* by describing *M. macrophylla* from Nigeria ¶. At the same time he reduced Hochstetter's species to the same genus. Here for the first time was recognised the truly dehiscent character of the pods of the genus. Wight and Arnott, dealing with a species (only one was known to them in fruit) with tardily dehiscent pods, and guided probably by pod specimens which, though apparently ripe, had not yet opened, described them as indehiscent. Hooker described another *Millettia* from the same region in the same work, but in the absence of fruit referred it with doubt to *Lonchocarpus*.

A few years later Junghuhn's Malayan *Leguminosæ* were submitted to Bentham for determination and among them fine specimens of *Millettia sericea*. Of this species, which had already been briefly diagnosed by

\* Ventenat, Malm. 28.

† After Dr. Millett, of Canton.

‡ E. Meyer, Comm. 1.

§ Siebold et Zuccarini, Fl. Jap. i. 88.

|| Meissner in Lond. Journ. Bot. ii. (1842) 99.

¶ Hooker, Nig. Fl. 318 (1849).

De Candolle under the name of *Pongamia sericea*, Bentham gave a full description and in a long note reviewed the whole group of genera which were liable to be confused with these two. One of these, *Otosema*, has now been reduced to *Millettia*, and with it a new species, *O. caudata*, described on this occasion. Under *Millettia* 17 species were enumerated, including, besides those already mentioned, 2 new ones and 2 reductions. Twelve of these 17 are still retained.

During the seventies Baker wrote his descriptions of all the *Millettias* then known from Tropical Africa and India in the two great Floras of these regions in preparation at Kew at that time. To the two already described from Tropical Africa were added five from Welwitsch's Angolan sets and four more from other sources. For India 24 were enumerated, including seven recently described from Burmese material by Kurz. With these 34 and the 4 already described from China the strength of the genus was thus raised to 38, 33 of which are still retained. The Chinese species amounted to six by the time Hemsley published the *Leguminosae* of his 'Enumeration' in 1884. Since that time the botanical exploration of Tropical Africa, pushed rapidly forward by British, French, German, and Belgian collectors (but made effective by publication of the results chiefly by the two latter), has brought to light a large number of new species, of which Harms has published fourteen, mostly from the German colonies, and De Wildeman twelve from the Congo region, while 25\* are added in this paper, three being reduced from other genera. The number of African *Millettias* thus stands now at 71.

The most important recent contribution to our knowledge of the genus in Asia has been Prain's review of the Indian species in the 15th part of his "Novitiæ Indicæ" †, where eight species are described. Collett and Hemsley described three from the collections of the former in the Shan Hills. Seven more are described for the first time in this paper, making the Indian *Millettia* list after some necessary reductions up to 34. Chinese *Millettias* with the addition of five in this paper amount to 14.

With 9 species from the Philippine Islands and a few from other countries not mentioned above the total number of the genus as now known amounts to 138.

Such is the history of the genus as it now stands. It is only necessary further to explain the absence of a number of species previously included, but recognised as aberrant from the average types of *Millettia*. Soon after the commencement of this revision it was realized that the genus as it then stood had become so heterogeneous and ill-defined that it would be necessary to reduce groups of species to other genera and even in some cases to make

\* For a preliminary account of these, see Dunn in *Journ. Bot.* xlix. (1911) 221.

† Prain in *Journ. As. Soc. Beng.* lxvi. II. (1897) 358-365.

new genera in order to restore it to manageable systematic limits. Thus *Craibia* \* was established to accommodate a group of African species with alternate leaflets, *Adinobotrys* † certain Indo-Malayan trees and climbers with indehiscent pods. *Padbruggea* ‡ was reinstated for a somewhat similar group. *Fordia* § was enlarged to receive a number of shrubs with 2-ovuled pistils.

These investigations also led to the establishment of *Leptoderris* || and *Ostryoderris* ¶ and to the extension of *Ostryocarpus* \*\*, not because these genera were nearly allied to *Millettia*, from which their *Derris*-like fruit at once distinguished them, but because, in the absence of fruit, many species properly belonging to them had been included in *Millettia* and had in this revision to be placed elsewhere.

A large number of *Millettia* species have been given names under *Phaseolodes*, Mill. by Otto Kuntze ††, and under *Kraunhia*, Raf. by Prain ‡‡ (Indian spp.) and by Greene §§ (chiefly Australian spp.), on the assumption of their congeneric relations with *Wistaria*, which is antedated by the two latter. The view adopted by the writer that *Millettia* and *Wistaria* are distinct in consequence of their inflorescence renders the citation of the synonymy thus introduced unnecessary in this paper, but the *Kraunhia* and *Phaseolodes* combinations already published may be found by reference to the books mentioned.

#### SYSTEMATIC POSITION.

The Leguminosæ which have woody stems, unequally pinnate leaves, papilionaceous flowers, and coherent stamens were collected by Bentham and Hooker in their 'Genera Plantarum' into two tribes, *Galegeæ* and *Dalbergiæ*, according to the dehiscence or indehiscence of their pods; and although there are certain genera possessing the above characters which cannot for other reasons be included and *vice versâ*, botanists are generally agreed that these tribes represent a natural division of the family. In the same way, the fact that some genera of *Galegeæ* possess pods which do not open at maturity, but are nevertheless otherwise clearly referable to that tribe, does not affect the usefulness of Bentham's diagnostic character. The *Galegeæ* were again divided into 7 sub-tribes, 5 of which were based principally upon special single characters, leaving *Tephrosiæ* and *Robiniæ* to divide between them the typical elements of the tribe. They are not in fact, themselves very readily divided and are distinguishable rather by tendencies than by characters. It will be sufficient, however, here to note

\* Dunn in Journ. Bot. xlix. (1911) 106.

† Dunn in Kew Bull. 1911, 194.

‡ Dunn, *l. c.* 197.

§ Dunn, *l. c.* 63.

|| Dunn, *l. c.* 1910, 386.

¶ Dunn in Kew Bull. 1911, 363.

\*\* Dunn, *l. c.* 362.

†† Kuntze, Rev. Gen. Pl. i. 201.

‡‡ Prain in Journ. As. Soc. Beng. lxvi. ii. (1897) 358.

§§ Greene in 'Pittonia,' ii. 175.

that the only *Robinieae* inhabiting the same regions of the world as *Millettia* (i. e. *Microcharis* and *Sesbania*) are easily and naturally distinguished by obvious generic characters, while the American and therefore geographically extra-Millettian genera *Robinia* and *Gliricidia* show close connection with that genus. *Robinia* has, however, a tendency to be thorny or bristly, which is never observed in *Millettia*, while *Gliricidia* differs from all known *Millettias* in its strictly racemose and axillary inflorescence\*.

*Millettia*, then, is placed among the *Tephrosieae*. There is only one other large genus in that sub-tribe containing, like *Millettia*, trees and shrubs, i. e. *Tephrosia*, and that is readily distinguishable by the regular development of the long row of ovules in its ovary into a continuous even series of small seeds enclosed in the narrow, linear, thin-valved pod. There are, however, 8 smaller genera which closely resemble *Millettia* in habit and floral structure. They should be placed near it in the sub-tribe. All but one have been described since the appearance of the *Leguminosae* in the 'Genera Plantarum.' Their interpolation with the genera there described is suggested as below :—

Number in 'Genera Plantarum.'	Suggested interpolation.	Name of genus and place of publication.
102	..	<i>Mundulea</i> , DC. <i>Mém. Lév.</i> 266.
103	..	<i>Sarcodum</i> , Lour. <i>Fl. Cochinch.</i> 461.
..	103-1	<i>Schefflerodendron</i> , Harms in <i>Eng. Jahrb.</i> xxx. (1901) 87.
..	103-2	<i>Craibia</i> , Harms and Dunn in <i>Journ. Bot.</i> xlix. (1911) 107.
104	..	<i>Millettia</i> , Wight et Arn. <i>Prodr.</i> 263.
..	104-1	<i>Platysepalum</i> , Welw. ex Baker in Oliver, <i>Fl. Trop. Afr.</i> ii. 131.
..	104-2	<i>Dewevrea</i> , M. Micheli in <i>Bull. Soc. Bot. Belge</i> , xxxvii. (1898) i. 47.
..	104-3	<i>Fordia</i> , Hemsl. in <i>Journ. Linn. Soc., Bot.</i> xxiii. (1886) 160.
..	104-4	<i>Adinobotrys</i> , Dunn in <i>Kew Bull.</i> 1911, 194.
..	104-5	<i>Padbruggea</i> , Miq.; Dunn, l. c. 197.
105	..	<i>Wistaria</i> , Nutt. <i>Gen. N. Am. Pl.</i> ii. 115.

#### KEY TO ABOVE GENERA †.

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|--|--------------------|
| 1. Flowers in terminal racemes or axillary fascicles ‡ | 2                  |
| Flowers in panicles or in axillary or lateral racemes  | 3                  |
| 2. Erect shrubs  | <i>Mundulea</i> .  |
| Climbing shrubs with terminal racemes                  | <i>Wistaria</i> §. |

\* See account of inflorescence below.

† *Sarcodum*, an imperfectly known genus from Indo-China, is omitted.

‡ *Fordia pauciflora*, Dunn (*Millettia cauliflora*, Prain), has solitary or fasciated flowers.

§ Confined to *W. frutescens*, *W. brachybotrys*, and *W. chinensis*.

3. Leaflets alternate *	4
Leaflets opposite †	5
4. Leaflets and petals glandular	<i>Schefferodendron.</i>
Plants eglandular	<i>Craibia.</i>
5. Pod with one or few very large seeds, always (?) indehiscent	6
Pod dehiscent	7
6. Inflorescence lax	<i>Padbruggea.</i>
Inflorescence crowded.	<i>Adinobotrys.</i>
7. Ovary 2-ovuled, pod 2-seeded	<i>Fordia.</i>
Ovary many-ovuled.	8
8. Calyx with 4-5 nearly equal teeth or truncate	<i>Millettia.</i>
Calyx lobes 2 or very unequal	9
9. Calyx 2-lobed	<i>Deuvevea.</i>
Calyx with one lobe much larger than others.	<i>Platysepalum.</i>

## MORPHOLOGY.

*Stem.*—The habit, as has already been said, varies to a considerable extent, and the degrees of arborescence or dependence upon the support of stronger plants are nearly always associated with corresponding peculiarities of the leaves or flowers. It thus happens that several of the sections, all of which are founded principally upon the characters of the latter organs, consist of plants of similar habit. Thus the *Afroscandentes* are all climbers, the *Sericanthæ* are all erect. The arborescent species are mostly of small or medium stature, though a few fine timber-trees occur among them.

The climbers vary from large and heavy lianes, such as *M. auriculata* of the tropical forests of India, to the small slender creepers which adorn the hedges and wood-borders of China and Japan. In several observed cases these climbers emit leafless, whip-like shoots, often many yards in length, which trail along the ground or work their way up trees by means of reflexed hairs, stipules, or bent petioles.

*Buds.*—One section of the genus, viz. *Compresso-gemmata*, is peculiar in having its leaf-buds flattened tangentially to the stem, the bud-scales being narrowly boat-shaped and each hooked in turn over the opposite lower one by their hooded tops, or in one species (*M. caffra*) the outer scale being completely wrapped round the others, keeled at both sides, and opening down the inner face.

*Leaves.*—Most of the species are evergreen, but in a large number, such as *M. Thonningii*, the leaves fall just before the flowers are produced, the tree remaining leafless for a few weeks during the flowering period. Others, in regions with a cold or dry season, are bare for a longer period. The stipules are seldom persistent and are usually narrow and pointed, but in some cases they remain up to or even after the fall of the leaf. In *M. micans* they are large, blunt, and peltately attached near the base. The leaflets, varying

\* One African species has simple leaves.

† One species from the Malay Peninsula has simple leaves.

greatly in number, shape, size, and pubescence, provide the greatest evidence of specific difference and are widely used for the superficial discrimination of *Millettias*. The hairs are always simple. In the *Efulgentes* and a few other groups they become flattened and scale-like on the lower surface of the leaflets, giving them a fine metallic silver or golden lustre.

The stipels, if present at all, are, in all cases known, persistent up to maturity and have proved a valuable guide to the divisions into which the genus naturally falls.

*Inflorescence*.—True racemes, in the simplest sense of the word—*i. e.*, single peduncles bearing pedicels scattered singly along their length,—do not occur in *Millettia* as here defined. No species has been included in the genus which has solitary racemes terminating a leafy shoot nor in the axils of a shoot terminating in leaves. This is the most effective distinction that I am able to discover between *Wistaria* (restricted as above) and *Millettia*, and also between the American *Gliricidia* and *Millettia*. Some species of the latter genus bear their flowers in nearly simple racemes, but in these all the minute nodes are two- or more-flowered. The Philippine *Fragilifloræ* contain many such species, and similar ones occur in the African *Sericanthæ*. At the next step away from the simple raceme, fascicles of flowers occur on sessile globular nodes, as in the *Afroscandentes* in Africa and the *Typicæ* in India. The above forms of inflorescence are generally (as in the diagnoses below) called racemes, because no branching in a general sense occurs. When the nodes become a little lengthened, so that the flowers are crowded upon a cylindric spur (*ramulus floriferus*), as in most of the *Efulgentes*, or at the top of a short peduncle, as in *M. Brandisiana*, the inflorescence is really paniculate, though little different in appearance from a raceme. It may then be called *panicula racemiformis*. When the branchlets are still further elongated and more similar to the panicle rachis, the flowers become more spaced and form panicles in the general sense, sometimes long and narrow as in *M. leptobotrya*, sometimes broad and spreading as in the *Eurybotryæ*.

*Flower*.—The calyx is usually five-toothed and stiffened on the upper side by the coalescence of the two anterior teeth nearly to the top. In the notch thus formed the standard rests at about the top of the claw, while the blade is strongly reflexed over the top of it as the flower fully opens. This ensures the maintenance of the standard base in close proximity to the bases of the lower petals and to the staminal sheath, which is essential for the proper working of the floral mechanism, if I rightly understand it, during pollination. In the *Fragilifloræ* and some other sections the calyx is wide and soon leaves the petals quite free. The bracteoles which enclose the young flower-bud are usually deciduous, but they persist in some sections at the base of the calyx or a little below it on the pedicel. In the *Efulgentes* they are usually large and wide, and persist during flowering-time; in some of the *Sericanthæ* they are of unusual length, sometimes overtopping the flower. The pedicel

varies in length from twice the calyx down to very small dimensions in the subsessile flowers of some *Albifloræ* and allied sections.

The clothing of the petals is usually constant through sections. Many sections have petals with beautifully coloured, adpressed, silky pubescence, while in others, such as the *Truncatocalyces*, they are quite glabrous. But of all the parts of the flower it is the base of the standard which gives the best superficial indication of the sectional grouping of the genus. The special modifications of this organ are probably concerned in the opening and closing of the nectar-producing region round the base of the ovary when the flower is visited and pollinated by insects. In all the *Millettiæ* this cavity is enclosed by the base of the staminal sheath. It is, however, always accessible on the upper side in consequence of the upper or vexillary stamen being quite free or, more usually, free at the base only from the others, which, moreover, gape open a little on both sides of it. Where this stamen does not itself close the aperture while the flower is undisturbed, the bases of the wing and keel petals perform the same protective function, and it is, I conjecture, for the proper opening and closing of the nectary space, and for the leading of the visiting insect into the best position for pollination during its search for honey, that the numerous remarkable modifications of the staminal sheath and the petal bases occur.

It is, of course, as in other *Papilionaceæ*, necessary for cross-fertilization that an insect alighting on the flower for the purpose of obtaining the nectar should press down by its weight the elastic wing and keel petals, until its body comes into contact with the comparatively stiff stamens and the pistil which lies concealed among them. When the nectary space is closed by the upper stamen, the latter is sometimes grasped by two callous projections at the base of the standard or enfolded by the whole length of its claw, so that the least depression of the staminal sheath by the weight, for instance, of an insect resting on it, draws it away from the upper stamen so held and opens a way to the nectar. In cases where the openings are normally closed by the wings and keel or by projections from their bases (as when they are hooked), there are various devices for holding these petals together in such a way that an insect visitor will open them. Sometimes their upper edges are held together in a notch of the standard so shallow that the least pressure disengages them from it and causes them to slide apart over the smooth staminal cylinder until the nectarian openings are disclosed. This notch is usually formed by callous thickenings of the standard base or by the infolding of its margin into stiff auricles. Where both wings and keel cover the openings and it is necessary that they should both be pressed down together, their coherence is secured by a fold of the keel petals fitting into a pocket in the wings usually halfway down their length and near their upper edge. Another means of holding the interior petals together is secured by the curious device, which obtains throughout the *Efulgentes*, in which delicate

projections at the bases of these petals are hooked into the upturned auricles of the base of the standard.

The staminal whorl, as has been said, is either monadelphous in this genus with the vexillary stamen free at the base\* or diadelphous, the nine lower stamens being united by their filaments into a sheath, the upper one quite free. The cohesion of the stamens is nearly always constantly either diadelphous or monadelphous at anthesis throughout each section. The character was much used by the earlier botanists in discriminating genera, but, in *Millettia* at least, it is not found useful to rely upon it, as it is not easy to ascertain whether the vexillary stamen is permanently attached to the rest or free at complete maturity. The vexillary stamen seems always to be inserted a little within the others, and where they are separated from the base of the ovary by a perceptible space is sometimes continued down to its base by a raised rib or line. Its lower extremity is usually broadly winged so as to close the very base of the staminal sheath, and the wing then overlaps the neighbouring portions of the sheath, being outside it on one side, inside on the other. In not a few species the petals are coherent with the sheath at its base, though free from the calyx, so that the wings and keel appear to be inserted on the sheath while the vexillary stamen is adherent to the base of the claw of the standard.

A disc is frequently present. In many sections, especially in those having stalked ovaries, it is a short fleshy tube closely investing the stalk or the lower part of the ovary. It may be truncate or oblique or lobed, or may be reduced to a ring. In some of the African sections it is adnate to the lower part of the calyx-tube, appearing as a plane or lobed rim at the base of the perigynous stamens. In the *Efulgentes* the adnate part is longitudinally ribbed, the ribs running out at the top into a fringe of blunt linear lobes.

The ovary is linear, containing from three to many ovules and ending in a curved, usually glabrous, and sometimes flattened style and a glabrous capitate stigma.

The pod, in the great majority of cases, is elastically dehiscent into two valves at maturity, but in some species the dehiscence is so much delayed that the impression is given that no natural opening occurs along the sutures, as in the case of the species upon which the genus was founded by Wight and Arnott, who described it as having indehiscent pods. In a few species, such as *M. sericea*, the dorsal suture does not usually open, and in a few others, such as *M. pachycarpa*, the valves are apparently soft and leathery at maturity and do not separate until the fruit dries up, but otherwise the whole genus is remarkably constant in the elastic woody nature of the pod valves and in their prompt dehiscence.

\* The vexillary stamen in that case usually becomes quite free as maturity is passed, and this may aid cross-fertilization, because the weight of the insect will rest on the anthers while the sheath is closed, but later when the sheath is split along the top the insect will push it down with the petals until its body rests on the stigma.

## MATERIAL.

With the exception of one or two visits to other Herbaria the whole of the following revision has, by the courtesy of the Director of the Royal Botanic Gardens, Kew, been elaborated in the pleasant and convenient surroundings of the Herbarium and Library of that great establishment, and the specimens which form the foundation of the work will be mostly found there.

Sir David Prain's work upon the Indian *Milletias* and his notes upon them (Journ. As. Soc. Beng. lxi. ii. 360 etc.) have left little more to be done in that field, but, as an additional assistance, he did me the great favour to borrow and Major Gage to lend the whole material of the genus from the Calcutta Herbarium, more than 800 sheets of splendid specimens, mostly arranged and annotated by him.

Besides these a large mass of types and critical specimens has been borrowed, with the kind help of Dr. Stapf, from other European herbaria. Thus it was possible to study at leisure at Kew 200 sheets of African material which Dr. Harms, with the leave of Prof. Engler, was good enough to select from the Berlin Herbarium. I have also to thank Dr. Harms for the valuable notes with which, from his unique knowledge of African Leguminosæ, he was able to supply me.

At the beginning of 1911 I had the privilege of studying the *Milletias* in the Paris Herbarium and of receiving much valuable information from M. Gagnepain, M. Pellegrin, and Père Sacleux, and afterwards from M. Chevalier regarding Asiatic and African species.

My thanks are due to Dr. Rendle, Keeper of the Botanical Department of the British Museum, for allowing free access to the invaluable collections under his charge and for lending 103 critical specimens for comparison at Kew.

In the subjoined list these and other loans of specimens are enumerated, and I wish here to record my thanks to the gentlemen mentioned for their great kindness in thus assisting me.

<i>Sender.</i>	<i>Herbarium.</i>	<i>Material.</i>
H. Harms.	Berlin.	200 sheets, chiefly African.
H. Lecomte.	Paris.	75 sheets, chiefly African.
E. De Wildeman.	Brussels.	15 Congo types.
H. Hallier.	Leiden.	213 sheets, mostly Malayan.
F. Went.	Utrecht.	9 sheets, Malayan.
A. T. Gage.	Calcutta.	800 sheets, Indian.
A. Chevalier.	His own.	50 sheets, W. African.
A. B. Rendle.	British Museum.	103 sheets, African.
W. J. Tutcher.	Hongkong.	72 sheets, Chinese.
E. D. Merrill.	Manila.	Set of Philippine material.
J. Bonati.	His own.	2 of Pampanini's types.
J. S. Gamble.	His own.	Indian species.
I. H. Burkill.	Herb. R. E. P. Calcutta.	Economic species.

Advantage was taken of the collection together of so fine a series of authentic *Millettia* material by dissecting and drawing flowers of all the species and drawing up the descriptions which will be found below with citation of the specimens examined.

## SECTIONS.

No. of Section.	Name of Section.	Stipellæ.		Standard.		Petals.		Other distinguishing characters.	
		Present.	Absent.	Auricu- late.	Exauri- culate.	Hairy.	Glabrous.		
1	Typicæ .....	×	..	..	×	×	..	Pedicels fascicled.	
2	Eurybotryæ .....	×	..	..	×	(6)	(6)	Pedicels single.	
2 <sub>A</sub>	Austro-millettia ....	×	..	×	..	×	..	Pod woody, terete.	
3	Bracteatae .....	×	..	..	×	..	×	Bracts exceeding flowers.	
4	Podocarpæ .....	..	×	..	×	..	×	Ovary stipitate.	
5	Macrospermæ .....	..	×	..	×	×	(7)	Seeds thick, oval.	
6	Fragilifloræ .....	..	×	×	(9)	..	×	(8)	Pedicels slender.
7	Otosema .....	×	..	×	..	×	..	Pedicels clustered.	
8	Albifloræ .....	..	×	×	(1)	..	×	Petals white, glabrous.	
9	Efulgentes .....	×	(2)	..	×	..	×	Petals white, glabrous.	
10	Compresso-gemmatae ..	×	..	×	..	×	..	Buds compressed.	
11	Afroscedentes ....	×	(3)	..	..	×	×	West African climbers.	
12	Truncatocalyces ....	..	×	..	×	..	×	Calyx truncate.	
13	Sericanthæ .....	(4)	(4)	..	×	×	..	Chiefly E. African shrubs.	
14	Polyphyllæ .....	×	(5)	..	..	×	×	Leaflets numerous, oblong.	
15	Robustifloræ .....	×	..	..	×	×	..	Stamens protruded.	

(1) One is exauriculate.

(2) A few exstipellate.

(3) *M. Barteri* and *M. calabarica* have no stipellæ.

(4) Some stipellate, some exstipellate.

(5) *M. lenneoides* has no stipellæ.

(6) Two well-marked divisions having glabrous and hairy petals respectively.

(7) Except *M. pachycarpa*.

(8) Or sometimes slightly pubescent.

(9) Except *M. stipulata* and *M. littoralis*, in which the standard is folded, but not callous at the base.

1. **TYPICÆ**, *Dunn*, sect. nov. Arbores et frutices erecti vel scandentes. Foliola stipellata. Racemi sæpe axillares. Flores in nodis fasciculati. Vexillum exauriculatum, dorso sericeum. Stamina sæpius monadelphæ, vexillare basi solutum. Discus nullus. Ovula sæpius 3-6.

Distributed chiefly over Burma, Siam, and E. China. *M. pulchra* extends to N.E. India and *M. rubiginosa* and *M. splendens* are confined to the S. of India. 9 spp., n. 1-11.

It is connected with the rest of the genus through the *Eurybotryæ*.

2. EURYBOTRYÆ, *Dunn*, sect. nov. Frutices scandentes vel rarius vagantes. Foliola stipellata. Paniculæ sæpius terminales, latæ. Flores singuli, in racemos longos divergentes dispositi. Petala glabra vel sericea; vexillum exauriculatum. Stamina diadelpa. Discus sæpissime prominens, cylindricus. Ovarium basi sæpius attenuatum. Legumen sæpius compressum.

Extends over Mid and South China, Upper Burma, and Tonkin, with *M. japonica* in Japan and *M. cinerea* in N.E. India. 12 spp., n. 12-23.

In its inflorescence it is allied to the *Bracteata* and through *M. japonica* with *Wistaria*, the large-seeded *M. cinerea* connects it with the *Macrosperma*, and *M. Dorwardi* and *M. sericosema* having obscurely auriculate standards form a transition to the sections with that character fully developed.

2 A. AUSTRO-MILLETTIA, *Dunn*, sect. nov. Frutices sæpissime scandentes. Foliola stipellata. Paniculæ terminales. Flores singuli, in racemos longos dispositi. Petala sericea; vexillum auriculatum. Stamina diadelpa. Discus nullus. Legumen crassum, lignosum.

Confined to Australasia, occurring only in Queensland, Northern New South Wales, and in Norfolk Island. Spp. 3, n. 23 a-23 c.

Its affinity is with the *Eurybotryæ*, from which it differs in its auriculate standard and thick woody pods.

3. BRACTEATÆ, *Dunn*, sect. nov. Frutices scandentes. Foliola stipellata. Paniculæ terminales. Flores singuli, in racemos longos dispositi, longe bracteati. Petala glabra; vexillum exauriculatum. Stamina diadelpa. Discus tubularis. Ovarium stipitatum. Legumen longum, glabrum; endocarpum separabile, papyraceum.

S. India to Philippines. Sp. 1, n. 24.

Allied closely with the *Eurybotryæ*, but distinguished from it as from all other *Millettiæ* by its pod.

4. PODOCARPÆ, *Dunn*, sect. nov. Arborea. Foliola exstipellata. Racemi axillares. Flores singuli vel bini. Petala glabra; vexillum exauriculatum. Stamina sæpius diadelpa. Discus sæpius tubularis. Ovarium stipitatum.

Distributed over U. Burma, Tonkin, and S. China, only *M. Piscidia* extending into Bengal and Assam. Spp. 5, n. 25-29.

*M. Bonatiana* differs in several respects from the above sectional diagnosis. It forms a link with *Wistaria* and *Gliricidia*.

5. *MACROSPERMÆ*, *Dunn*, sect. nov. Frutices scandentes. Foliola exstipellata. Paniculæ racemiformes vel racemi axillares vel laterales. Flores fasciculati. Petala sæpius sericea; vexillum exauriculatum. Stamina monadelpha. Discus parvus vel sæpius nullus. Legumen turgidum. Semina crassa.

From E. India to Siam, Java and S. China. Spp. 4, n. 30-33.

Allied to the *Eurybotryæ* as indicated above.

6. *FRAGILIFLORÆ*, *Dunn*, sect. nov. Arbores deciduæ, sæpius magnæ. Foliola exstipellata. Racemi axillares. Flores fasciculati, fragiles. Calyx sæpius tandem explanatus. Petala glabra vel sparse pubescentia, tenera; vexillum sæpissime fortiter callosum. Stamina monadelpha, vexillare basi solutum. Discus nullus. Ovarium pauci-ovulatum.

One half of the section inhabits Burma, Siam, and the Malay Peninsula, with one species in Sikkim and one in Java; the other half is Philippine. Spp. 19, n. 34-52.

The callus at the base of the standard is very uniform and characteristic of the section. It may be explained as an S-shaped ridge connecting the edge of the claw below with the margin of the blade above.

It is rather an isolated and naturally compact section, with a tendency towards *Otosema*, but no intermediates. *M. decipiens* closely resembles *Pongamia glabra*. Prain's notes on the group in Journ. As. Soc. Beng. lxvi. II. 362 (1897) should be read.

7. *OTOSEMA*, *Benth. in Miq. Pl. Jungh.* 248. Arbores vel frutices scandentes. Foliola stipellata. Paniculæ racemiformes vel racemi sæpe axillares vel laterales. Flores fasciculati. Petala sericea. Vexillum auriculatum. Stamina sæpius monadelpha, vexillare basi solutum.

The section is divided into a group of climbers distributed chiefly from N.W. India to Lower Burma and a group of trees from Burma to Tonkin and S. China. Spp. 10, n. 53-60.

It is connected with the next section through the white- and glabrous-petaled *M. pendula*.

8. *ALBIFLORÆ*, *Dunn*, sect. nov. Arbores. Foliola exstipellata. Paniculæ axillares et terminales, racemiformes vel angustæ; rami floriferi sæpe elongati. Petala alba, glabra. Vexillum sæpius auriculatum. Stamina monadelpha. Discus calyci adnatus, sæpe paullo fimbriatus.

Malay Peninsula to Sumatra, Java, and S. China. Spp. 4, n. 61-64.

Rather closely allied to the African section *Efulgentes*.

9. *EFULGENTES*, *Dunn in Journ. Bot.* xlix. (1911) 220. Arbores parvæ vel rarius frutices scandentes. Foliola sæpius stipellata, subtus fulgentia. Paniculæ sæpe terminales. Flores subsessiles, in ramulis floriferis congesti;

bracteolæ sæpius magnæ. Calyx sæpe longe lobatus, dense sericens. Petala glabra, sæpe alba; vexillum fortiter auriculatum, auriculis inflexis hamis alarum tenentibus; alæ sæpius transverse rugosæ. Stamina monodelpha. Discus sæpissime fimbriatus, calyci inferius adnatus. Ovarium breve, teres, in stylum longum tenuem angustatum, pauci-ovulatum.

Distributed all through tropical West Africa from the Congo to Sierra Leone. Spp. 25, n. 65-88.

A remarkably compact and natural section, though large.

10. COMPRESSO-GEMMATÆ, *Dunn in Journ. Bot.* xlix. (1911) 220. Arbores sæpe magnæ. Gemmæ complanatæ. Foliola stipellata, venis multis approximatis parallelis in nervum marginalem euntibus. Paniculæ terminales. Flores magni. Calycis dentes magni, sæpe paullo reflexi. Petala sericea; vexillum auriculatum. Discus striatus.

From German East Africa and the Congo to S. Africa. Spp. 6, n. 89-94. Allied to the *Efulgentes* through *M. micans*.

11. AFROSCANDENTES, *Dunn*, sect. nov. Frutices scandentes. Folia sæpissime stipellata, venis impressis. Paniculæ racemiformes, terminales et axillares. Flores fasciculati. Petala sericea; vexillum exauriculatum.

All West African climbers, except *M. Goetziana*. *M. Barteri* reaches from this region to the northern watershed of the Congo. Spp. 8, n. 95-102.

The section is nearly allied to *Sericanthæ*, being distinguished chiefly by habit.

12. TRUNCICALYCES, *Dunn*, sect. nov. Arbores parvæ. Foliola exstipellata. Paniculæ racemiformes, axillares. Flores in ramis floriferis congesti. Calyces truncati. Petala glabra. Vexillum exauriculatum. Discus annularis. Ovarium breviter stipitatum vel basi angustatum.

All are small trees from Equatorial Africa, and all on the western watershed of the continent. Spp. 5, n. 103-107.

Connected with the *Efulgentes* by its glabrous petals.

13. SERICANTHÆ, *Dunn*, sect. nov. Arbores vel frutices erecti. Foliola stipellata vel exstipellata. Racemi axillares. Flores in nodis fasciculati. Petala sericea; vexillum exauriculatum. Discus sæpius annularis.

East and West Tropical Africa. Spp. 23, n. 108-130.

Connected, as indicated above, with *Afroscandentes* and through *M. usaramensis* with the *Polyphyllæ*. *M. sanagana* has a close superficial resemblance to *Lonchocarpus sericeus*.

14. POLYPHYLLÆ, *Dunn*, sect. nov. Arbores. Folia multijuga; foliola parva, oblonga, sæpius stipellata. Racemi axillares. Flores in nodis sessilibus fasciculati. Vexillum exauriculatum. Discus nullus.

A Madagascan section, except for the Congolan *M. gracilis*. Spp. 3, n. 131-133.

It resembles superficially certain stipellate species of *Derris*.

15. ROBUSTIFLORÆ, *Dunn*, sect. nov. Arborea. Folia stipellata. Paniculæ terminales. Flores in nodis sessilibus fasciculati. Calyx alte lobatus. Petala sericea; vexillum exauriculatum. Stamina protrusa.

Congo Region and Angola. Sp. 1, n. 134.

A distinct type of *Millettia* connected by its calyx and disc characters with *Efulgentes*.

CLAVIS SECTIONUM.

1. Africana; foliola parva, oblonga, 9-17-paria .....	14. <i>Polyphyllæ</i> *.
foliola haud 9-17-paria, oblonga et parva .....	2
2. foliola stipellata † .....	3
foliola exstipellata .....	12
3. vexillum callosum vel auriculatum .....	4
vexillum ecallosum et exauriculatum .....	7
4. gemmæ globulares .....	5
gemmæ compressæ; foliolorum venæ plurimæ, parallelæ, in	
venam marginalem currentes .....	10. <i>Compresso-gemmatæ</i> .
5. flores subsessiles; petala glabra .....	9. <i>Efulgentes</i> .
flores longe pedicellati vel petala pubescentia .....	6
6. asiatica; paniculæ vel racemi axillares; flores fasciculati .	7. <i>Otosema</i> ‡.
australasiana; paniculæ terminales; flores singuli .....	2 A. <i>Austro-millettia</i> .
7. asiatica; pedicelli singuli .....	8
pedicelli in nodis vel ramulis fasciculati .....	9
8. bracteæ breves .....	2. <i>Eurybotryæ</i> .
bracteæ floribus longiores .....	3. <i>Bracteata</i> .
9. scandens africana; foliolorum venæ impressæ .....	11. <i>Afroscedentes</i> .
erecta vel foliola supra plana .....	10
10. paniculæ magnæ, robustæ; stamina exserta .....	15. <i>Robustifloræ</i> .
stamina inclusa .....	11
11. asiatica .....	1. <i>Typicæ</i> .
africana § .....	13. <i>Sericanthæ</i> .
12. vexillum callosum vel auriculatum; asiatica .....	13
vexillum ecallosum et exauriculatum .....	14
13. pedicelli capillares; foliola 5 vel plura .....	6. <i>Fragilifloræ</i> .
pedicelli breves, crassi; foliola 1-3 .....	8. <i>Albifloræ</i> .
14. ovarium stipitatum .....	4. <i>Podocarpæ</i> .
ovarium sessile vel subsessile .....	15
15. africana; calyx truncatus; corolla glabra .....	12. <i>Truncatocalyces</i> .
calyx dentatus vel corolla sericea .....	16

\* *M. usaramensis* closely resembles this section.

† Stipels minute in *Austro-millettia*.

‡ Or, if the auricles are very slight and the panicle spreading, see no. 2, *Eurybotryæ*.

§ But, if a W. African climber, see Sect. no. 11.

|| Or, if a Philippine tree with slightly callous standards, see no. 6, *Fragilifloræ*.

16. asiatica ; petala glabra vel semina oviformia . . . . .	17
africana ; petala sericea et semina lenticularia . . . . .	18
17. scandens . . . . .	5. <i>Macrospermæ.</i>
arbor ; petala alba, glabra . . . . .	8. <i>Albifloræ.</i>
18. arbor vel frutex erectus . . . . .	13. <i>Sericanthæ.</i>
frutex scandens . . . . .	11. <i>Afroscedentes.</i>

## CLAVIS SPECIERUM.

§ 1. *Typicæ.*

1. Folia subtus fulgentia . . . . .	2
folia subtus non fulgentia . . . . .	3
2. venæ foliorum 16-pares . . . . .	1. <i>splendens.</i>
venæ 8-pares . . . . .	2. <i>rubiginosa.</i>
3. foliola 9-13 cm. longa, supra glabra . . . . .	4
foliola 3-5 cm. longa vel, si longiora, supra pubescentia . . . . .	5
4. flores 1.1 cm. longi . . . . .	3. <i>Griffithii.</i>
flores 1.9 cm. longi . . . . .	4. <i>macrostachya.</i>
5. ramuli floriferi elongati . . . . .	7. <i>Brandisiana.</i>
nodi floriferi sessiles . . . . .	6
6. foliola matura supra velutina . . . . .	7
foliola supra fere glabra . . . . .	8
7. calycis dentes triangulares ; flores 8-9 mm. longi . . . . .	8. <i>ovaria.</i>
calycis dentes acuminati ; flores 1.4-1.6 cm. longi . . . . .	9. <i>velutina.</i>
8. foliola anguste lanceolata ; venæ 10-11-jugæ ; calyx hirtus . . . . .	10. <i>ericocalyx.</i>
foliola lanceolata ; venæ 8-9-jugæ ; calyx pubescens . . . . .	11. <i>pulchra.</i>

§ 2. *Eurybotryæ.*

1. Vexillum glabrum . . . . .	2
vexillum et calyx sericei . . . . .	7
2. calyx glaber vel subglaber . . . . .	3
calyx dense sericeus . . . . .	6
3. corolla alba vel viridula ; carinæ petala cuneata . . . . .	4
corolla rosea vel purpurea ; carinæ petala hamata vel truncata . . . . .	5
4. foliola 6-7-paria . . . . .	13. <i>japonica.</i>
foliola 3-paria . . . . .	12. <i>Championi.</i>
5. stipulæ subulatæ ; paniculæ rami ad basin floriferi . . . . .	14. <i>reticulata.</i>
stipulæ oblongæ ; rami basi nudi . . . . .	15. <i>eurybotrya.</i>
6. folia 6-jugata ; flores 3 cm. longi . . . . .	16. <i>speciosa.</i>
folia 3-jugata ; flores ad 2 cm. longi . . . . .	17. <i>Fordii.</i>
7. semina oviformia . . . . .	8
semina lenticularia . . . . .	10
8. foliola ad maturitatem subtus tomentosa . . . . .	18. <i>oosperma.</i>
foliola subtus, saltem matura, glabra . . . . .	9
9. panicula robusta . . . . .	19. <i>Dorwardi.</i>
panicula tenuis . . . . .	20. <i>cinerea.</i>
10. ovarium breviter stipitatum . . . . .	21. <i>sericosema.</i>
ovarium sessile . . . . .	11
11. panicula floresque graciles . . . . .	22. <i>Dielsiana.</i>
panicula floresque robusti . . . . .	23. <i>nitida.</i>

§ 2 A. **Austro-millettia.**

- |  |                          |
|--|--------------------------|
| 1. Flores secus apices ramulorum floriferorum aggregati . . . . .  | 23 c. <i>pilipes.</i>    |
| flores dissiti . . . . .   | 2                        |
| 2. Foliola reticulata; pedicelli calyce paullo longiores . . . . . | 23 b. <i>australis.</i>  |
| foliola lævia; pedicelli calyce 3-4-plo longiores . . . . .        | 23 a. <i>megasperma.</i> |

§ 3. **Bracteatae.**

- |                         |                      |
|-------------------------|----------------------|
| Species unica . . . . . | 24. <i>racemosa.</i> |
|-------------------------|----------------------|

§ 4. **Podocarpæ.**

- |   |                           |
|---|---------------------------|
| 1. Foliola unijuga vel bijuga . . . . .             | 2                         |
| foliola 3-6-juga . . . . .                          | 4                         |
| 2. foliola unijuga . . . . .                        | 25. <i>trifoliata.</i>    |
| foliola bijuga . . . . .                            | 3                         |
| 3. legumen 16 cm. longum, stipite robusto . . . . . | 26. <i>podocarpa.</i>     |
| legumen ad 10 cm. longum, stipite gracili . . . . . | 27. <i>Piscidia.</i>      |
| 4. foliola glabra; ovula 2 . . . . .                | 28. <i>ichthyochtona.</i> |
| foliola subtus tomentosa; ovula multa . . . . .     | 29. <i>Bonatiانا.</i>     |

§ 5. **Macrospermæ.**

- |  |                          |
|--|--------------------------|
| 1. Foliola 6-8-paria; petala glabra . . . . .                      | 30. <i>pachycarpa.</i>   |
| foliola 2-4-paria; petala sericea . . . . .                        | 2                        |
| 2. flores paniculati; foliola subtus fulgentia . . . . .           | 31. <i>sericea.</i>      |
| flores racemosi; foliola subtus opace sericea vel glabra . . . . . | 3                        |
| 3. foliola subtus molliter sericea . . . . .                       | 32. <i>puerarioides.</i> |
| foliola subtus glabra . . . . .                                    | 33. <i>caudata.</i>      |

§ 6. **Fragilifloræ.**

- |  |    |
|--|----|
| 1. Vexillum exauriculatum . . . . .                  | 13 |
| vexillum auriculatum . . . . .                       | 2  |
| 2. vexillum maturum dorso ubique sericeum* . . . . . | 3  |
| vexillum maturum plerumque glabrum . . . . .         | 4  |

\* Or if a Philippine tree see *M. platyphylla* below:—

34 a. *M. PLATYPHYLLA, Merrill, MS.*

*Arbor magna, præter inflorescentiam glabra, ad 18 m. alta, cortice griseo rugoso. Folia 3-juga, ad 30 cm. longa, petiolo 5-plo longiora; stipulæ caducæ; foliola superiora lateralialia ovata, caudato-acuminata, basi obtusa, 9-11 cm. longa, membranacea, venis marginem approximantibus 7-8-paribus conspicuis; petioluli 5 mm. longi; stipellæ nullæ. Racemi axillares, ad 10 cm. longi, rachi ut pedicellis calycibus dorsoque vexilli brunneo-pubescente; nodi floriferi sessiles, 1-3-flori. Flores 1.8-2.0 cm. longi, paullo fragrantés (Weber); pedicelli graciles, ad 1.5 cm. longi; bracteæ nullæ; bracteolæ minimæ, lineares, sæpe a calyce distantes, deciduæ. Calyx 4 mm. longus, 8 mm. latus, truncatus, pubescens. Petala rubida, inferius flava; vexilli lamina rotundata, in basin latam fortiter auriculatam abrupte con-*

3. pedicelli 4-5 mm. longi; petala rubida . . . . .	34. <i>decipiens</i> .
pedicelli 1-1.5 cm. longi; petala cærulea . . . . .	35. <i>dehiacens</i> .
4. rachis floresque immaturi pubescentes . . . . .	5
rachis floresque immaturi glabri vel subglabri; philippinensis. .	12
5. folia sub anthesi glabra . . . . .	6
folia sub anthesi pubescentia; ovarium dense sericeum . . . . .	9
6. leguminis valvæ lenticellatæ, exalatæ . . . . .	36. <i>ovalifolia</i> .
leguminis valvæ alatæ . . . . .	7
7. foliola matura supra nitentia . . . . .	38. <i>Prairii</i> .
foliola matura utrinque opaca . . . . .	8
8. legumen immaturum reticulatum . . . . .	39. <i>pterocarpa</i> .
legumen immaturum læve . . . . .	37. <i>glaucescens</i> .
9. foliola fere ad maturitatem ubique tomentosa; legumen alatum.	40. <i>tetraptera</i> .
foliola præcipue vel solum in venis sericea; legumen exalatum.	10
10. folia fere matura conspicue stipulata . . . . .	41. <i>Hemsleyana</i> .
stipulæ caducæ . . . . .	11
11. racemi robusti versus apices ramorum aphyllorum fasciculati.	42. <i>Wrightiana</i> .
racemi axillares . . . . .	43. <i>pubinervis</i> .
12. flores paniculati . . . . .	44. <i>longipes</i> .
flores racemosi . . . . .	13
13. leguminis pedicellus 1.5-2 cm. longus . . . . .	45. <i>canariifolia</i> .
pedicelli florum et leguminum ad 1 cm. longi . . . . .	14
14. folia ad 10 cm. longa . . . . .	46. <i>Foxworthyi</i> .
folia 15-30 cm. longa . . . . .	15
15. folia 4-juga . . . . .	16
folia 2-juga . . . . .	17
16. foliolorum venæ 4-5-pares, inconspicuæ; legumen 7-10 cm.	
longum . . . . .	48. <i>Merrillii</i> .
foliolorum venæ 6-7-pares, subtus prominentes; legumen	
15-18 cm. longum . . . . .	50. <i>Ahernii</i> .
17. calyx 4 mm. longus . . . . .	47. <i>cavitensis</i> .
calyx 2 mm. longus . . . . .	49. <i>capillipes</i> .
18. folia stipulata . . . . .	51. <i>stipulata</i> .
folia exstipulata . . . . .	52. <i>litoralis</i> .

§ 7. *Otosema*.

1. Legumen foliaque griseo-tomentosa . . . . .	56 b. <i>cana</i> .
legumen foliaque haud griseo-tomentosa . . . . .	2
2. vexillum dense sericeum . . . . .	3
vexillum glabrum vel subglabrum . . . . .	6

tracta, ungue 4-plo longior, dorso ubique adpresse sericea; alæ hamatæ; carinæ petala basi obtusa; stamina monadelpha, vexillare basi solutum. *Discus* nullus. *Ovarium* pubescens, 5-6-ovulatum.

Flowers in March.

PHILIPPINE ISLANDS: Mindanao, Subprovince Butuan, West slope of Mt. Hilong-hilong at 300 ft. on rocky soil, *C. M. Weber*, 1123; Province of Misamis (*vide* Merrill), Portolin, *Quadrans*, 122.

3. flores ad 1 cm. longi .....	4
flores 1.5 cm. longi .....	9
4. foliola obovata .....	53. <i>auriculata</i> .
foliola oblanceolato-oblonga .....	5
5. foliola obtusa .....	54. <i>fruticosa</i> .
foliola caudato-acuminata .....	55. <i>cærulea</i> .
6. folia 5-8-juga .....	7
folia 2-3-juga .....	8
7. stipulæ aciculares, diutius quam folia persistentes .....	59. <i>setigera</i> .
stipulæ fragiles, mox deciduæ .....	60. <i>Cubitti</i> .
8. foliola acute acuminata .....	57. <i>pendula</i> .
foliola obtuse acuminata .....	58. <i>latifolia</i> .
9. foliola 2.5-3 cm. longa .....	56a. <i>multiflora</i> .
foliola 6-10 cm.; venis 13-paribus (si pauciora v. 7) .....	56. <i>pachyloba</i> .

### § 8. Albifloræ.

1. Flores in racemis axillares .....	61. <i>nivea</i> .
flores paniculati .....	2
2. foliola 3 vel plura .....	3
foliolum unicum .....	64. <i>unifoliata</i> .
3. calycis dentes breves, obtusi .....	62. <i>leptobotrya</i> .
calycis dentes longi, acuti .....	63. <i>albiflora</i> .

### § 9. Efulgentes.

1. Foliola subtus fulgentia, sæpe minute stipellata; calycis dentes tubo bis breviores ad bis longiores .....	2
foliola sæpius subtus tenuiter sericea, vel glabra, conspicue stipellata, vel, si aliter, calycis dentibus brevibus .....	12
2. foliola coriacea; ramuli dense velutini .....	65. <i>coruscans</i> .
foliola papyracea; ramuli glabrescentes .....	3
3. flores in nodis brevibus fasciculati * .....	4
flores in ramulis floriferis congesti .....	6
4. bracteolæ oblatæ .....	66. <i>Harmsiana</i> .
bracteolæ angustæ .....	5
5. bracteolæ lanceolatæ, calycis tubo longiores .....	67. <i>Duchesnei</i> .
bracteolæ lineares, minutæ .....	68. <i>Solheidii</i> .
6. foliolorum venæ 4-5-pares .....	69. <i>fulgens</i> .
foliolorum venæ 8-pares vel plures .....	7
7. bracteolæ calycis tubi dimidio longiores .....	8
bracteolæ calycis tubo 4-plo vel plus breviores .....	9
8. flores sessiles .....	70. <i>lucens</i> .
pedicelli 3 mm. longi † .....	71. <i>wrophylloides</i> .
9. stipellæ conspicuæ .....	72. <i>hypolampra</i> .
stipellæ obsolete .....	10
10. panicula aphylla .....	11
panicula foliosa .....	75. <i>Klainei</i> .

\* *M. dubia* should also be seen.

† *M. atenensis* should also be compared.

11. foliolum terminale cuneatum, abrupte acuminatum . . . . .	73. <i>Lecomtei</i> .
foliolum terminale oblongo-lanceolatum . . . . .	74. <i>Dinklagei</i> .
12. ramuli floriferi 4-5 cm. longi . . . . .	13
ramuli floriferi ad 2 cm. longi . . . . .	19
13. flores 2.0 cm. longi; foliola subtus reticulata . . . . .	76. <i>aureocalyx</i> .
flores 1.2-1.5 cm. longi; venæ laterales tantum prominentes . .	14
14. foliola 9-20 cm. longa vel si breviora subglabra . . . . .	15
foliola 2-5 cm. longa, subtus pubescentia . . . . .	18
15. foliola caudata; dentes calycis tubo æquilongi . . . . .	77. <i>bipindensis</i> .
calycis dentes tubo breviores . . . . .	16
16. foliola glabra vel sparsissime pubescentia . . . . .	17
foliola lucentia hirtis adpressis . . . . .	80. <i>chrysophylla</i> .
17. foliola 10-20 cm. longa . . . . .	78. <i>melanocalyx</i> .
foliola ad 7 cm. longa . . . . .	22
18. foliola anguste oblonga, subtus sparse hirta . . . . .	81. <i>Scott-Elliottii</i> .
foliola oblongo-ovata, subtus molliter sericea . . . . .	82. <i>Warneckii</i> .
19. foliola 5-6-paria . . . . .	83. <i>Sapini</i> .
foliola 2-4-paria . . . . .	20
20. corolla nigrescens . . . . .	85. <i>Cabrae</i> .
corolla siccitate haud nigrescens . . . . .	21
21. foliola 2-paria . . . . .	86. <i>Tholloni</i> .
foliola 4-paria . . . . .	23
22. calyx dense sericeus . . . . .	79. <i>porphyrocalyx</i> .
calyx tenuiter sericeus . . . . .	79 a. <i>rhodantha</i> .
23. foliola ovata, omnino glabra . . . . .	87. <i>macroura</i> .
foliola oblongo-lanceolata, subtus tenuiter adpresse sericea . . .	24
24. foliolorum venis 10-paribus . . . . .	88. <i>dubia</i> .
foliolorum venis 6-paribus . . . . .	84. <i>congolensis</i> .

§ 10. *Compresso-gemmatae*.

1. Corolla glabra . . . . .	2
corolla sericea . . . . .	3
2. stipulæ magnæ; foliola 4-paria, obtusa . . . . .	89. <i>Stuhlmannii</i> .
stipulæ minutæ; foliola 6-paria, acuminata . . . . .	90. <i>Laurentii</i> .
3. vexillum hirsutum, ad 2.5 cm. longum . . . . .	4
vexillum tenuiter sericeum, 3.5 cm. longum . . . . .	94. <i>Sacleuxii</i> .
4. foliola supra velutina, subtus mollia . . . . .	91. <i>micans</i> .
foliola subglabra . . . . .	5
5. foliola ovata . . . . .	92. <i>versicolor</i> .
foliola oblonga . . . . .	93. <i>caffra</i> .

§ 11. *Afroscedentes*.

1. Foliolorum venæ supra impressæ . . . . .	2
foliolorum venæ haud impressæ . . . . .	102. <i>Barteri</i> .
2. foliola hirsuta, exstipellata vel minute stipellata; bracteæ longæ, lineares . . . . .	3
foliola subglabra; bracteæ breves . . . . .	6
3. foliola subtus molliter sericeo-tomentosa . . . . .	4
foliola haud tomentosa . . . . .	5

4. stipulæ persistentes; stipellæ nullæ .....	95. <i>Soyauxii</i> .
stipulæ caducæ; stipellæ conspicuæ .....	96. <i>hirsuta</i> .
5. foliola subtus adpresse sericea .....	97. <i>Gagnepainiana</i> .
foliola subtus tenuiter hirta .....	98. <i>bicolor</i> .
6. foliola stipellata .....	7
stipellæ nullæ .....	101. <i>calabarica</i> .
7. foliola obtusa; flores 1·5 cm. longi .....	99. <i>Goetziana</i> .
foliola acuminata; flores 1 cm. longi .....	100. <i>impressa</i> .

§ 12. *Truncatocalyces*.

1. Foliola subtus glabra .....	2
foliola subtus tomentosa .....	107. <i>aboensis</i> .
2. foliola 6-11-paria .....	3
foliola 2-4-paria .....	4
3. vexillum 1·8-2·4 cm. diam. ....	103. <i>macrophylla</i> .
vexillum 1-1·2 cm. diam. ....	104. <i>Mannii</i> .
4. foliola caudata .....	105. <i>psilopetala</i> .
foliola obtuse acuminata .....	106. <i>Thomneri</i> .

§ 13. *Sericanthæ*.

1. Bracteæ bracteolæque floribus breviores .....	2
bracteæ bracteolæque floribus longiores .....	22
2. foliola exstipellata* .....	3
foliola stipellata .....	8
3. pedicelli calyce multo longiores .....	4
pedicelli calyce breviores .....	5
4. foliola 2-paria, subtus pubescentia .....	108. <i>paucijuga</i> .
foliola 3-5-paria, glabra .....	109. <i>Thomningii</i> .
5. calyx truncatus .....	110. <i>sanayana</i> .
calyx dentatus .....	6
6. foliola 8-paria .....	111. <i>Zechiana</i> .
foliola 4-5-paria .....	7
7. foliola glabra .....	112. <i>Stappiana</i> .
foliola subtus tomentosa .....	113. <i>nudiflora</i> .
8. foliola 6-10-paria .....	9
foliola 2-4-paria .....	21
9. pedicelli calyce breviores vel vix longiores .....	10
pedicelli calyce multo longiores .....	17
10. foliola immatura subtus præter venas subglabra; flores ad 2·0 cm. longi .....	11
foliola immatura subtus pubescentia vel velutina; flores longi- ores quam 2·2 cm. ....	15
11. foliola 6-paria, omnino glabra .....	12
foliola 7-10-paria, venis saltem pubescentibus .....	13
12. foliola siccitate viridula .....	114. <i>pallens</i> .
foliola nigrescentia .....	115. <i>Conraui</i> .
13. foliola supra glabra .....	14
foliola utrinque paullo pubescentia .....	118. <i>brevistipellata</i> .

\* *M. Zechiana* has occasionally minute stipellæ.

14. foliola 10-12 cm. longa . . . . .	116. <i>Sereti.</i>
foliola 5-7 cm. longa . . . . .	117. <i>drastica.</i>
15. foliola venis supra impressis . . . . .	119. <i>cyanantha.</i>
foliola supra plana . . . . .	16
16. foliola subtus præter costam dense ferrugineam subglabra . . . . .	120 a. <i>aromatica.</i>
foliolorum vestitus homogeneous . . . . .	120. <i>ferruginea.</i>
17. foliolorum venæ supra impressæ . . . . .	124. <i>eriocarpa.</i>
foliola plana . . . . .	18
18. calyx ferrugineus vel legumen 15 cm. longum . . . . .	19
calyx subglaber; legumen brevius quam 6 cm. . . . .	123. <i>usaramensis.</i>
19. foliola superiora breviora quam 4 cm.; legumen 15 cm. longum.	125. <i>leptocarpa.</i>
foliola superiora longiora quam 6 cm. . . . .	20
20. flores 2.5-2.7 cm. longi; vexillum rotundatum . . . . .	121. <i>dura.</i>
flores 1.7-2.2 cm. longi; vexillum oblatum . . . . .	122. <i>oblata.</i>
21. rachis paniculæ calyxque breviter sericei . . . . .	127. <i>lasiantha.</i>
rachis paniculæ calyxque dense velutini . . . . .	128. <i>leucantha.</i>
22. foliola oblanceolata . . . . .	129. <i>Bussei.</i>
foliola ovata . . . . .	130. <i>sericuntha.</i>

## § 14. Polyphyllæ.

1. Stipellæ setaceæ, conspicuæ . . . . .	131. <i>gracilis.</i>
stipellæ obscuræ vel nullæ . . . . .	2
2. stipellæ minutæ, nunquam absentes . . . . .	132. <i>polyphylla.</i>
stipellæ nullæ . . . . .	133. <i>lenoeoides.</i>

## § 15. Robustifloræ.

Species unica . . . . .	134. <i>Theuszi.</i>
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1. *M. SPLENDENS*, *Wight et Arn. Prodr.* 263; *Baker in Hook. f. Fl. Brit. Ind.* ii. 104; *Bedd. Ic. Pl. Ind. Or.* t. 295.

*Frutex* scandens (?) ramulis velutinis tandem glabrescentibus scaberulis striatis. *Folia* 3-4-juga, 25-35 cm. longa, petiolis 4-plo longiora, rachi ut petiolulis et panicularum rachibus ramulisque et pedicellis breviter velutina; stipulæ triangulares, 3-4 mm. longæ; foliola superiora lateralia obovato-oblonga vel oblanceolato-oblonga, breviter acuminata, basi cuneata vel obtusa, 11-16 cm. longa, coriacea, supra glabra, infra adpresse sericea, argentea, splendida, venis marginem approximantibus 14-16-paribus rectis parallelis infra prominentibus; stipellæ setaceæ, persistentes, 2-3 mm. longæ. *Panicula* racemiformes axillares vel paniculam generalem foliatam terminalem formantes, 25-40 cm. longæ; ramuli floriferi multiflori ad 1 cm. longi, in basi nudi. *Flores* dense fasciculati, 1.3 mm. longi; pedicelli 2 mm. longi; bracteæ nullæ; bracteolæ ovatæ, 1-2 mm. longæ. *Calyx* late campanulatus, 5 mm. longus, 5 mm. latus, dense pubescens, dentibus duobus superioribus fere ad apicem coalitis, ceteris anguste triangularibus tubo his brevioribus. *Vexillum* late ovatum, basi truncatum, in unguem abrupte

angustatum, exauriculatum, paullo crispatum, extus dense sericeum; alæ oblongæ, subfalcatæ; carinæ petala in unguem abrupte angustata. *Stamina* tandem diadelpa. *Discus* 0. *Ovarium* lineare, dense velutinum, 4-ovulatum. *Legumen* lineare, 9 cm. longum, 1.7 cm. latum, velutinum, tardè dehiscens, valvis tenuiter lignosis inter semina cohærentibus. *Semina* oblongo-ovalia, fusca, nitentia.

Flowers in June, fruits July to November.

S. INDIA: Nilgiri Hills, *Wight*, 998 (*type*), Kew Dist. 807, *Thomson*, *Gamble*, 16195 (Coonoor Ghat at 4000 feet), 14353, 22580, 17778; Goodaloor Ghat, *Lawson*; Anamali Hills, *Beddome* (3000 feet).

2. *M. RUBIGINOSA*, *Wight et Arn. Prodr.* 263; *Wight Ic. t.* 207; *Baker in Hook. f. Fl. Brit. Ind.* ii. 104; *Miq. Fl. Ned. Ind.* i. 154.

*Frutex* scandens ramis primo ferrugineis tandem glabris lævibus. *Folia* 3-juga, 25–30 cm. longa, petiolis 5-plo longiora, rachi ut petiolulis rachique paniculæ breviter dense tomentosa; stipulæ nullæ; foliola superiora lateralia ovato-lanceolata, acuminata, basi obtusa, 12–18 cm. longa, subcoriacea, supra glabra, nitida, subtus adpresse sericea, fulgentia, tandem nonnunquam fore glabra, venis marginem appropinquantibus 9–10-paribus, infra prominentibus; petioluli 11–13 mm. longi; stipellæ setaceæ, 1–2 mm. longæ, pubescentes. *Paniculæ* racemiformes axillares et in generalem paniculam foliosam terminalem nonnunquam aggregatæ, 20–30 cm. longæ; nodi floriferi globulares, in stipitibus crassis 4–5 mm. longis, multiflori. *Flores* fasciculati, 12–13 mm. longi; pedicelli 1–2 mm. longi; bracteæ nullæ; bracteolæ 1–1.5 mm. longæ, ovatæ. *Calyx* campanulatus, 3–4 mm. longus et latus, dense pubescens, dentibus inconspicuis. *Veuxilli* 2.5–2.6 cm. longi, lamina ovata, basi subtruncata, ungui 6-plo longior, dorso omnino facie in ungui solum sericea; alæ oblongæ, in unguem gradatim angustatæ; carinæ petala conformia sed dorso tenuiter hirsuta. *Stamina* diadelpa. *Discus* 0. *Ovarium* lineare, dense pubescens, 4-ovulatum. *Legumen* oblongum, apice basique obtusum, 8 cm. longum, 3.5 cm. latum, velutinum, tarde dehiscens, valvis coriaceis inter semina cohærentibus. *Semina* lenticularia.

Flowers in June, fruits in November and December.

S. INDIA: Courtallum, *Wight*, 813 (Kew Dist.), 912 (*type*), 245, 246; Travancore, *Meebold*, 13078 (4000–5000 feet); Tinneveli, *Barber*, 3107.

The dehiscence is clearly shown in quite mature fruiting specimens.

3. *M. GRIFFITHII*, *Dunn*, sp. n.

*Frutex* demum scandens, cortice primo sericeo cito glabro. *Folia* 4-juga, 40 cm. longa, petiolo 4-plo longiora, rachi ut foliolis præcipue subtus tenuiter pubescente; stipulæ parvæ, persistentes, ovatæ, 1–2 mm. longæ; foliola superiora lateralia oblongo-lanceolata, acuminata, basi acuta, 10–12 cm. longa, papyracea, venis marginem appropinquantibus 8–9-paribus parum

conspicuis; petioluli 2-3 mm. longi; stipellæ setacæ, 1-1.5 mm. longæ. *Racemi* axillares, 20-30 cm. longi, rachi ut pedicellis calycibusque adpresse sericea; nodi floriferi globulares, sessiles, pauciflori; bractæ bractæolæque minutæ, lineares. *Flores* laxi, 1 cm. longi; pedicelli 3 mm. longi. *Calyx* 3 mm. longus, campanulatus, dentibus tubo 3-plo brevioribus. *Petala* præter vexillum extus carneum purpurea; vexilli lamina rotundata, in unguem brevem angustata, extus pubescens; alæ carinæque petala oblongæ, hamatæ. *Stamina* monadelphæ, vexillare basi solutum. *Discus* nullus. *Ovarium* lineare, breviter stipitatum, sericeum, 3-ovulatum.

Flowers in May.

UPPER BURMA: *Griffith*, 1783 (towards Silver Mine woods, at 1000-1200 feet).

4. *M. MACROSTACHYA*, *Coll. et Hemsl. in Journ. Linn. Soc., Bot.* xxviii. (1890) 41; *Prairie in Journ. As. Soc. Beng.* lxi. ii. (1897) 361.

*Frutex* vel *arbor* parva, cortice lævi lenticellato. *Folia* (3-)4-5-juga, 30-40 cm. longa, petiolis 4-5-plo longiora, rachi foliorum paniculæque molliter tenuiter pubescente vel fere glabra; stipulæ nullæ; foliola superiora lateralia oblonga vel oblongo-ovata, breviter acuminata, infra molliter pubescentia mox glabrescentia, venis marginem approximantibus 8-10-paribus arcuatis, infra prominentibus; stipellæ setacæ, 1-2 mm. longæ. *Panicula* racemiformes, axillares, 40-50 cm. longæ; nodi floriferi globosi, in stipite 2-4 mm. longo, pauciflori. *Flores* fasciculati, 1.8 cm. longi; pedicelli 4-5 mm. longi, pubescentes vel fere glabri. *Calyx* campanulatus, 7 mm. longus, tenuiter pubescens, dentibus 4 angustis acuminatis tubo fere æquilongis, superiore apice bifido. *Petala* delicate rubida; vexilli lamina subrotunda, basi subcordata ungui 5-plo longior, dorso apice hirtella; alæ oblongæ, breviter falcatæ; carinæ petala fortiter falcata. *Stamina* monadelphæ, vexillare basi solutum. *Discus* nullus. *Ovarium* lineare, pubescens, multiovulatum. *Legumen* lineare, 16 cm. longum, 1.5-2 cm. latum, glabrum, elasticè dehiscens, valvis robuste coriaceis inter semina liberis.

Flowers in March, fruits in August.

UPPER BURMA, Maimyo, *Manders* (at 4000 ft., *type*).

SHAN STATES, Shan hills terai, *Collett*, 443, 605 (at 2000 ft., *types*); Taungyi, *Abdul Khalil*; Longcong Hill, *King's Collector*, *Robertson*, 289 (rocky banks of Salween at Mong-hai).

7. *M. BRANDISIANA*, *Kurz in Journ. As. Soc. Beng.* xlii. ii. (1873) 69; *For. Fl. Brit. Burm.* 355; *Baker in Hook. f. Fl. Brit. Ind.* ii. 108; *Gamble, Manual Ind. Timb.* (1902) 232; *Collett et Hemsl. in Journ. Linn. Soc., Bot.* xxviii. (1890) 40.—*Pongamia cassioides*, *Wall. Cat. n.* 5918.

*Arbor* ad 20 m. alta, cortice griseo rugoso lenticellato, novellis cupreo-pubescentibus. *Folia* 7-10-juga, 15-30 cm. longa, petiolo 6-plo longiora,

rachi ut paginis inferioribus foliolorum et ut rachi panicularum primo adpresse pubescente, tandem fere glabra; stipulæ nullæ; foliola oblongo-lanceolata, acuta vel breviter acuminata, apice summo obtusa, 3-6 cm. longa, chartacea, venis marginem propinquantibus 7-9-paribus sæpius inconspicuis in fructu autem nonnunquam infra paullo prominentibus; petioluli  $\frac{1}{2}$  mm. longi; stipellæ setaceæ, 1-1.5 mm. longæ. *Paniculæ* racemiformes, in ramulis summis infra folia collecti et sæpe ante ea evolutæ, 10-20 cm. longæ; ramuli florifera 0.2-1.0 cm. longi, secus basin nudi, 2-6-flori. *Flores* fasciculati, 1.2 cm. longi; pedicelli 3-4 mm. longi; bracteæ nullæ; bracteolæ lineares, minutæ, sæpe paullo infra calycem insertæ. *Calyx* campanulatus, 5-6 mm. longus, tenuiter pubescens sæpe fere glaber; dentibus 4, tribus inferioribus triangularibus tubo 2-3-plo brevioribus, superiore obtuso emarginato. *Petala* pallide cærulea; vexilli lamina ovata basi truncata, unguis 2-3-plo longior, exauriculata, extus dense sericea; alæ oblongæ basi truncatæ; carinæ petala oblonga in unguem angustata. *Stamina* monadelphia, vexillare basi solutum. *Discus* nullus. *Ovarium* pubescens, multiovulatum. *Legumen* lineare, ad 13 cm. longum, 2.5 cm. latum, glabrum, suturis paullo incrassatis, elastice dehiscens, inter semina primo cohærens, 1-4-spermum.

Flowers in March, fruits from October to March.

UPPER BURMA: Poneshee, *Anderson*; Upper Chindwin, *Lace*, 4181 (at 400 ft.); Katha District, *Lace*, 4435; Yamethin, *Lace*, 4529; Chin Hills, *Dun*, 99; Minguin, *Prazer*; Minbu, *Aubert et Gage*, *Lace*, 2710, 4674.

LOWER BURMA: Yoma, *Kurz*, 1773 (*type*); Pegu, *Kurz*, 2538 (*type*), *Brandis* (*type*), *Eyre* (*type*), *Hodgson*; Henzada, *Shaik Mokim*, 1322; Tenasserim, *Gallatly*, 107, 147, 160, *Aplin*, *Wall. Cat.* 5918 (Taoung Dong).

SHAN STATES: Karen Hills, *Brandis*; *Abdul Huk*, 147; *Collett*, 15.

SIAM: *Hort. Bogor.* 3438; *Hosseus*, 140; *Kerr*, 985, 2029.

Burmese name *Thitpagan*, Lao name *Pi Chan*. In the regions above indicated it occurs in the dry hill forests as a spreading tree of medium size. *Hodgson*, in a note attached to specimens in the Herbarium of the Reporter on Economic Products to the Government of India kindly lent to me by Mr. I. H. Burkill, says that it is "called in Burmese *Pokthinmamyetkook* (the eyelid of the Chameleon). This tree when it first puts forth its new leaves in March-April is pale salmon, changing quickly through pink, magenta, and purple to green. The flowers are violet in colour and are not sweet-scented. The tree attains (though rarely) a girth of over 6 feet and is 40-60 feet in height."

The typical form is distinguished from its allies by its stalked flower-nodes, the densely silky, almost shaggy standard of its flowers, and by its nearly glabrous calyx which darkens on drying. The specimens noted above show a little variation both in the pubescence of the calyx and in the form and clothing of the leaflets. The latter, especially in the higher portions of the

specific area, become a little shorter and blunter than in the typical Pegu forms and have rather more prominent nerves. In Collett's n. 15 the calyx is more than usually pubescent, while in Lace's n. 4435 the persistent tomentum on the veins of its leaflets may indicate the presence of a distinct species, though, in the absence of flowering shoots, it cannot at present be usefully separated. Gamble (*l. c.*) describes the bark and wood, which are represented in Kew Museum, No. I., by specimens contributed by him.

8. *M. ORARIA*, *Dunn*, nom. nov.—*Tephrosia oraria*, *Hance in Journ. Bot.* xxiv. (1886) 17.

*Frutex* erectus, cortice lævi, ramis breviter velutinis ut rachibus foliolorum racemorumque et petiolulis. *Folia* 6-7-juga, 15-20 cm. longa, petiolis 4-plo longiora; stipulæ persistentes, lanceolatæ, 2-3 mm. longæ; foliola superiora lateralia elliptica, apice sæpius rotundata, basi obtusa, 3-5 cm. longa, papyracea, supra ad maturitatem velutina subtus tomentosa, venis marginem approximantibus 5-6-paribus inconspicuis; petioluli 2 mm. longi; stipellæ 2 mm. longæ, setacæ. *Racemi* axillares, ad apicem ramorum conferti, 7-8 cm. longi, basi breviter nudi. *Flores* 8-9 mm. longi; bracteæ bracteolæque minutæ, lanceolatæ. *Calyx* campanulatus, 3 mm. longus, sericeus, dentibus tubo 6-plo brevioribus. *Vexilli* lamina rotundata, in unguem 5-plo breviorē abrupte angustata, dorso sericea; alæ oblongæ, subhamatæ; carinæ petala ovata, basi truncata. *Stamina* diadelpa. *Ovarium* lineare, sericeum, 4-ovulatum. *Legumen* ad 8 cm. longum, 1.2 cm. latum, velutinum, lineare, facile dehiscens, 2-4-spermum.

CHINA: Hongkong, Cape d'Aguilar, *Ford*; Kwangtung, *Ford*, 35.

9. *M. VELUTINA*, *Dunn*, sp. n.—*M. yunnanensis*, *Pamp.*, var. robusta, *Pamp. in Nuov. Giorn. Bot. Ital.* N. S. xvii. (1910) 27.

*Arbor* parva, ramis primo dense velutinis tandem glabris. *Folia* 7-8-juga, 25-35 cm. longa, petiolo 7-8-plo longiora, rachi ut petiolulis et rachibus racemorum tomentosa; stipulæ oblongæ, deciduæ, 2-3 mm. longæ; foliola superiora lateralia oblonga, apice acuta vel obtusa, basi obtusa, 7-10 cm. longa, papyracea, supra velutina, subtus breviter tomentosa, venis marginem approximantibus 7-paribus inconspicuis; petioluli 2-2.5 mm. longi; stipellæ persistentes, setacæ, 2 mm. longæ. *Racemi* in ramis summis collecti, axillares, ad 20 cm. longi, basi breviter nudi; nodi floriferi globulares, 4-5-flori. *Flores* fasciculati, 1.3-1.6 cm. longi; pedicelli 2-3 mm. longi; bracteæ bracteolæque minutæ, lanceolatæ, persistentes. *Calyx* campanulatus, 5 mm. longus, tenuiter sericeus, dentibus tubo æquilongis, 2 superioribus coalitis, ceteris acuminatis. *Petala* rubida; vexilli lamina ovata, basi truncata, in apice dorso paullo sericea, ungui 3-plo longior; alæ carinæque petala basi subtruncatæ. *Stamina* monadelpa, vexillare basi solutum. *Ovarium* sericeum, lineare, 6-ovulatum. *Legumen* lineare, ad 12 cm. longum, 1.3 cm.

latum, 3-5-spermum, breviter dense tomentosum, facile dehiscens, valvis tenuiter lignosis inter semina liberis. *Semina* castanea, oblonga, compressiuscula, 1.2 cm. longa, 8 mm. lata.

Flowers in May.

CHINA: Yunnan, Yunnan-sen, *Maire*, 160. *Mengtze*, *Henry*, 9728 (4600-5000 ft.), 9728 B (5000 ft.), 9728 D (4600 ft.), 9728 F.

10. *M. ERIOCALYX*, *Dunn*, sp. n.—*M. pulchra*, *Prain in Rec. Bot. Surv. Ind.* i. 237, non *Kurz*.

*Frutex* (?) ramis ut rachibus foliorum racemorumque dense ferrugineis, tarde glabrescentibus. *Folia* 9-10-juga, 25-30 cm. longa, petiolo 5-plo longiora; stipulæ lanceolatæ, 1 mm. longæ, persistentes; foliola superiora lateralia lineari-lanceolata, apice acuta, basi cuneata, 7-8 cm. longa, papyracea, supra breviter pubescentia, subtus tomentosa, venis marginem appropinquantibus 6-paribus ascendentibus inconspicuis; petioluli 2 mm. longi; stipellæ setacæ, persistentes, 1-2 mm. longæ. *Racemi* inter folia in apice rami fasciculati, axillares vel sæpius infra folia laterales, 10-20 cm. longi, basi breviter nudi; nodi floriferi globosi, 3-5-flori. *Flores* fasciculati, 1.2-1.4 cm. longi; pedicelli 3 mm. longi; bracteæ bracteolæque lanceolatæ, persistentes, 1 mm. longæ. *Calyx* campanulatus, 4 mm. longus, longe et laxe sericeus, dentibus tubo bis brevioribus. *Vexilli* lamina rotundata, in unguem brevem abrupte angustata, dorso tenuiter sericea; alæ carinæque petala oblongæ, subhamatæ, apice paullo pubescentes. *Stamina* monadelphæ, vexillare basi solutum, perigyna. *Ovarium* lineare, pubescens, 4-ovulatum.

Flowers March to June.

UPPER BURMA: Myitkyina on the Irrawaddy, *Shaik Mokim*.

11. *M. PULCHRA*, *Kurz in Journ. As. Soc. Beng.* xlii. II. (1873) 69, xlv. 274; *Benth. ex Baker in Hook. f. Fl. Brit. Ind.* ii. 104 (1876); *Kurz, For. Fl. Brit. Burma*, 355; *Prain in Journ. As. Soc. Beng.* lxvi. II. (1897) 358; *Gamble, Manual Ind. Timb.* 232 (1902); *Dunn and Tutcher, Fl. Kwangt.* 77.—*Tephrosia pulchra*, *Colebr. in Wall. Cat.* n. 5630. *Dalbergia tephrosioides*, *Wight et Arn. Prodr.* 210 (*nomen*). *Mundulea pulchra*, *Benth. in Miq. Pl. Jungh.* 248. *M. yunnanensis*, *Pamp. in Nuov. Giorn. Bot. Ital.* N. S. xvii. (1910) 26 (*excl. var.*). *Tephrosia Tutcheri*, *Dunn. in Journ. Bot.* xlvii. (1909) 197. *M. ?*, *Forbes et Hemsl. in Journ. Linn. Soc., Bot.* xxiii. (1886) 159.

*Frutex* erectus vel rarius scandens, vel arbor, cortice griseo rugoso, ramis ut rachibus foliorum et racemorum primo dense tandem tenuiter ferrugineis lenticellatis. *Folia* 7-9-juga, 8-30 cm. longa, petiolo 4-plo longiora; stipulæ persistentes, lanceolatæ, 2 mm. longæ; foliola superiora lateralia lanceolata, acuta, basi acuta vel sæpius obtusa, 2-6 cm. longa, papyracea, supra fere glabra, subtus tenuiter sericea, venis marginem appropinquantibus 4-6-paribus inconspicuis; petioluli 1-2 mm. longi; stipellæ setacæ, 1-2 mm.

longæ. *Racemi* axillares, sæpe in apice ramorum approximati vel fasciculati, 6–20 cm. longi, pedunculo 3-plo longiores; nodi floriferi 3–4-flori, approximati, globulares, vel rarissime paullo elongati, ferruginei. *Flores* fasciculati, 0·9–1·2 cm. longi; pedicelli 3–4 mm. longi; bracteæ bracteolæque lanceolatae, persistentes, 0·5–1 mm. longæ. *Calyx* campanulatus, 4 mm. longus, dense sericeus, dentibus tubo 2-plo breviores, duo superiora ad apicem fere coalita, ceteris triangularibus vel rarius acuminatis. *Petala* purpurea, fere glabra; vexilli lamina ovata, basi truncata, paullo sagittata, apicè dorso sericea, ungue 2–3-plo longior; alæ paullo falcatae; carinæ petala in unguem subito angustata. *Stamina* monadelphæ, vexillare basi solutum. *Discus* 0·1 *Ovarium* lineare, sericeo-pubescentis, 5-ovulatum. *Legumen* oblongum, 4–8 cm. longum, 1–2 cm. latum, tandem glabrum, facile dehiscens, valvis tenuiter lignosis, inter semina liberis. *Semina* lenticularia.

## CLAVIS VARIETATUM ET FORMARUM.

1. Foliola infra pubescentia .....	2
foliola infra tomentosa; calyx hirsutus .....	var. <i>tomentosa</i> .
2. calycis dentes acuminata .....	3
calycis dentes triangulares .....	4
3. foliola magna .....	var. <i>yunnanensis</i> .
foliola parva, elliptica .....	var. <i>chinensis</i> .
4. foliola parva, margine sericea .....	var. <i>microphylla</i> .
foliola margine glabra .....	5
5. foliola parva; folia ad apicem ramulorum conferta ....	var. <i>typica</i> .
foliola majora; folia et racemi laxi, distantes .....	var. <i>typica</i> f. <i>laxior</i> .

Var. 1. TYPICA. Folia racemique in apice ramulorum conferti. Foliola parva, lanceolata, infra pubescentia. Calycis dentes triangulares. Sæpe semiscandens.

ASSAM: Khasi Hills, *Wall. Cat.* 5630 pp. (Silhet type), *Herb. Kurz, Gammie*, 492, *Gallatly*, 198, *C. B. Clarke*, 7328, 43713, *Hook. f. et Thoms.*; Kachin Hills, *Pottinger, King's Collector, Hort. Bot. Calcutta*.

IC. INED. Colebrook, 558 (Libr. Kew.).

Var. 1. TYPICA, forma LAXIOR.—Tephrosia Tutcheri, *Dunn in Journ. Bot.* xlvii. (1909) 197. Simulis sed foliola majora, folia racemique secus ramulos dispersi.

ASSAM: Khasia, *Wall. Cat.* 5630 pp. 5630 c (Silhet, types), *Hook. f. et Thoms.* 698, *Clarke*, 15194, 44713, *Griffith*, Kew Dist. 1784, 1791, *Badal Khan, Watt*, 11758, *Gammie*, 420, 488; Manipur, *Watt*, 6746, *Anderson*; Kohima, *King's Collector*, 188.

CHINA: *Millet*; Kwangtung, *Ford*, 38, *Parker*, 107 (Canton); Hongkong, *Ford*, 503, 644; Hongkong New Territory, *Ford*, 403 (Lantac) Hainan, *B. C. Henry*, 45.

Var. 2. TOMENTOSA, *Prain in Journ. As. Soc. Beng.* lxvi. II. (1897) 358. Folia oblonga, infra tomentosa; calyx hirsutus.

ASSAM: Manipur, *Watt*, 6254 (*type*), *Meebold*, 5337; Naga Hills, *Prain*.

UPPER BURMA: Ruby-Mines, *Rodger*, 305.

Var. 3. CHINENSIS, *Dunn*, var. nov. Habitus var. *typicæ*; foliola autem parva, elliptica; calycis dentes acuminati; petala rubido-purpurea. Frutex vel arbor 2–10 m. alta.

CHINA: Yunnan, *Henry*, 12322 (Szemao forest, 4000 feet), 13031 (Szemao East Mountains at 4500 feet).

Var. 4. YUNNANENSIS, *Dunn*, var. nov.—*M. yunnanensis*, *Pamp. in Nuov. Giorn. Bot. Ital.* N. S. xvii. (1910) 26 (exclud. var.). Var. *typicæ* formæ *laxiori* similis sed major, calycisque dentibus acuminatis.

SHAN STATES, *MacGregor*, 618.

CHINA: Yunnan, *Maire*, 142, 165 (*types*), *Ducloux*, 2 (Yunnanfu).

Var. 5. MICROPHYLLA, *Dunn*, var. nov. Frutex foliolis parvis margine albo-sericeis, calycis dentibus acuminatis.

CHINA: Formosa, *Henry*, 994.

The small-leaved semiscandent form, which was among the first discovered, occurs only, so far as is known, in the Khasia Hills, whence it was procured for the Calcutta Botanic Gardens. From the wild and cultivated trees specimens were included in Wallich's Herbarium under n. 5630. The laxer form was collected at the same time in the wild state and was included under the same Wallichian number, while in Wallich's own herbarium it was actually mounted on the same sheet. It is far more widely distributed than the typical form, ranging eastwards as far as the coasts of China. Peculiar varieties occur on the extreme east and south of this area, described above as var. *microphylla* and var. *tomentosa*.

The species, as a whole, is more widely distributed than any other *Millettia*, covering 40 degrees of latitude and 20 of longitude.

The bark and wood are described by Gamble (*l. c.*) and are represented by his specimens in the Kew Museum, No. I.

12. *M. CHAMPIONI*, *Benth. in Kew Journ. Bot.* iv. (1852) 74; *Benth. in Seem. Voy. 'Herald.'* 375; *Benth. Fl. Hongk.* 79; *Forbes et Hemsl. in Journ. Linn. Soc., Bot.* xxiii. (1886) 159; *Dunn and Tutcher, Fl. Kwangt.* 76.

*Frutex* scandens, cortice fusco striato, præter inflorescentiam glabra. Folia 2-juga, 10–20 cm. longa, petiolo 4-plo longiora; stipulæ anguste lineares, 2–3 mm. longæ; foliola superiora lateralia ovata vel oblonga, gradatim obtuse acuminata, 3–6 cm. longa, papyracea, crebre reticulata, viridia, nitentia, venis marginem propinquantibus 4–5-paribus; petioluli

1-3 mm. longi; stipellæ 2-3 mm. longæ, setaceæ. *Panicula* terminalis, sæpissime extra-axillaris, ad 15 cm. longa, rachi ut ramis superne pubescente; rami floriferi patentes, 6-8 cm. longi, pedunculos 4-5-plo excedentes. *Flores* approximati sed singuli, 12 mm. longi; pedicelli 3-4 longi, ut calyces glabri vel rarius laxè puberuli; bracteæ 1-2 mm. longæ, anguste lanceolatae, tarde deciduæ. *Calyx* expansus late campanulatus, 2 mm. longus, 4 mm. latus, margine anguste tomentosus, dentibus tubo 4-5-plo brevioribus late ovatis; bracteolæ persistentes, ovatae, calyce bis breviores. *Petala* viridula, glabra; vexilli lamina ovata, basi ecallosa, in unguem 3-plo brevioribus subito angustata; alæ basi cuneatæ; carinæ petala in unguem abrupte angustata, sæpius paullo semicordata. *Stamina* diadelpa, vexillare solutum. *Discus* 1-2 mm. longus, tubulosus. *Ovarium* basi in stipitem gradatim angustatum, multiovulatum, glabrum. *Legumen* lineare, basi cuneatum, 6-12 cm. longum, 1-1.5 cm. latum, valvis tenuiter lignosis elasticis inter semina cohærentibus fuscis. *Semina* 2-3 lenticularia.

Flowers in summer, fruits in autumn and winter.

CHINA: Hongkong, *Champion*, 263 (*type*), *Forbes*, 589, *C. Wright*, 136, *Hongkong Herb.* 1253 (Sukunpo and Mt. Gough); Hongkong New Territory, *Hongkong Herb.* 9393 (Ma-on-shan); Island near Hongkong, *Tate*.

Nearest to *M. reticulata*, but readily distinguished from that species when growing by its slenderer habit and smaller pale green flowers.

13. *M. JAPONICA*, *A. Gray in Mem. Amer. Acad.* n. s. vi. (1859) 386; *Franch. et Sarat. Enum. Pl. Jap.* i. 98.—*Wistaria japonica*, *Sieb. et Zucc. Fl. Jap.* i. 88; *Miq. Prol. Fl. Jap.* 232.

*Frutex* in arboribus volubilis, fere omnino glaber, cortice cinereo-fuscescente, ramulis virentibus. *Folia* 4-6-juga, 12-18 cm. longa, petiolo 7-8-plo longiora; stipulæ minutæ, setaceæ, persistentes; foliola superiora lateralia ovato-lanceolata, obtuse acuminata, basi cuneata vel obtusa, 2.5-5 cm. longa, papyracea, infra reticulata, venis marginem propinquantibus 5-6-paribus, infra prominentibus; petioluli 1 mm. longi; stipellæ 1 mm. longæ, setaceæ, persistentes. *Panicule* magnæ, terminales, laxæ, nutantes, basi foliatæ, vel sæpe racemi longi, axillares, penduli, ad 20 cm. longi. *Flores* solitarii, 1.4-1.6 cm. longi, albi; pedicelli 4 mm. longi; bracteæ lineares, 2 mm. longæ; bracteolæ lineares, 1.5 mm. longæ, deciduæ. *Calyx* campanulatus, 3.5-4 mm. longus, tenuissime pubescens, dentibus late triangularibus. *Petala* glabra; vexilli lamina rotundata, in unguem brevem acuminata, ecallosa; alæ carinæque petala subfalcata. *Stamina* monadelpa, vexillare solutum. *Discus* obliquus, brevis. *Ovarium* lineare, longe stipitatum, glabrum, multiovulatum. *Legumen* stipitatum, lineari, subtorulosum, glabrum, 8 cm. longum, 6-8 mm. latum, 6-8-spermum. *Semina* compressa, lentiformia, hilo elliptico prominente notata; testa chartacea, brunnea; radícula conica, supra cotyledonum commissuram prona.

Flowers July–August.

JAPAN: *Herb. Siebold (type), Oldham, 386, C. Wright; Nagasaki, Maximowicz, Oldham, 801* (climber in woods); *Moji, Hongkong Herb. 8527.*

A favourite Japanese garden creeper called *Kofusi* or *Kohusi*. It is fairly common also in hedges and wood-borders, sometimes covering the trees with masses of white flowers during July and August.

14. *M. RETICULATA*, *Benth. in Miq. Pl. Jungh. 249; Hance in Journ. Linn. Soc., Bot. xiii. (1872) 101; Forbes et Hemsl. l. c. xxiii. (1886) 159; Diels in Engl. Bot. Jahrb. xxix. (1900) 412; Dunn and Tutcher, Fl. Kwangt. 76; Ito et Matsum. Tent. Fl. Lutchu, 136.*—*M. cognata, Hance in Journ. Bot. xviii. (1880) 260. M. purpurea, Yatabe in Bot. Mag. Tokyo, vi. 379, t. 12.*

*Frutex scandens, cortice pallido fibroso. Folia 3(-4)-juga, 10-20 cm. longa, petiolo 4-plo longiora, rachi glabra; stipulæ persistentes, lineares, glabræ, 3 mm. longæ; foliola superiora lateralia ovato-oblonga vel rarius ovata, obtusa vel obtuse acuminata, emarginata, 3-10 cm. (sæpius 5-6 cm.) longa, chartacea, supra subnitentia, utrinque crebre reticulata, glabra, nervis marginem propinquantibus sæpius 6-paribus erecto-patentibus; petioluli 2 mm. longi; stipellæ setaceæ, 1-2 mm. longæ. Panicula terminalis, 10-20 cm. longa, ad basin ramosa, rachi ut ramis in apice sæpius omnino velutina; rami floriferi patentes, 6-12 cm. longi, sessiles, bracteis cum stipulis conformibus basi suffulti, primo caudati. Flores approximati, tamen singuli, 1.3-1.7 cm. longi; pedicelli 3-5 mm. longi, puberuli; bracteæ anguste lineari-lanceolatæ ante anthesin deciduæ. Calyx late campanulatus, 3-4 mm. longus, 5 mm. latus, præter marginem sæpius fere glaber, dentibus tubo 4-5-plo brevioribus ovatis; bracteolæ persistentes, lanceolatæ, bis calyce breviores. Petala glabra, purpurea vel rosea; vexilli lamina ovata, basi ecallosa, in unguem 3-plo breviorum subito angustata; alarum laminæ basi cuneatæ; carinæ laminæ basi fortiter falcata. Stamina diadelphea, vexillare-solutum. Discus tubulosus, 1 mm. longus. Ovarium lineare, ad basin angustatum, multiovulatum, glabrum. Legumen lineare, ad 15 cm. longum, 1.5 cm. latum, facile dehiscens, valvis elasticis sublignosis primo inter semina cohærentibus. Semina 3-6, oblongo-lenticularia.*

Flowers summer; fruits autumn and winter.

CHINA: *Millett (type), Carles, and Bullock (Fengwanshan); Kwangtung, Staunton, Ford, 43, 36, 37, Hongkong Herb. 9397 (N. River), Henry, 8392 (Hainan); Fokien, Fortune, A 95 (type), Hongkong Herb. 2588 (Foochow shores); Hongkong, Hongkong Herb. 1754 (Aberdeen and Repulse Bay), Lamont, 161 A (Pokfulam), Tutcher (Tytam), Hance, 1489 (Tytam Tuk), Ford, 10 (Lantao Island), Hongkong Herb. 9898 (Lantao); Formosa, Faurie, 146 (Mt. Taitum), 164 (Mokuto), Oldham, 158, Wilford, 462 (E. Coast), Hongkong Herb. 6860 (Hokuto), Playfair, 120 (Apes Hill, Takow), Swinhoe,*

1489, *Henry*, 894 (Bankinsing); Kiangsi, *Forbes*, 122; and *Shearer* (Kiukiang), *Wilson*, 1648 (Kiukiang plain); Hupeh, *Henry*, 631 (Ichang), 1554 A, 2280, 2411 (Patung District), *Wilson*, 1017 (Patung); Chekiang, *Forbes*, 862 (Ningpo District), *Faber* (Ningpo); Luchu Islands (*vide* Yatabe), *Fortune*, 68.

A common and very beautiful climber in hedges, wood-borders, and rough stony slopes in many parts of S.E. China. The flowers are dark purple to dark red in the coastal regions, purple or rose in the interior: the former kind dries almost black in flower and leaf; the latter, which maintains its colour and has, moreover, a more downy inflorescence, has been distinguished by Hance under the name of *M. cognata*, but with the abundant material now available it is impossible to regard it as distinct from *M. reticulata*.

15. *M. EURYBOTRYA*, *Drake in Morot, Journ. de Bot.* v. (1891) 187.

*Frutex* scandens, cortice striato, fusco. *Folia* ramorum floriferorum omnino glabra, (2-)3-juga, 20-25 cm. longa, petiolo 4-plo longiora; stipulæ lanceolatae, basi in auriculam productæ; foliola lateralia superiora oblonga, obtuse acuminata, basi rotundata, chartacea, opaca, venulosa, venis marginem appropinquantibus 5-6-paribus arcuatis infra prominentibus; petioluli 2-3 mm. longi; stipellæ setaceæ, 2 mm. longæ; folia ramorum steriliū similia sed longiora; foliola longiora, angustiora, basi magis cuneata. *Panicula* terminalis, pedunculata, 20-40 cm. longa, rachi ut pedicellis calycibusque dense puberula; rami longi, patentes, basi stipuliferi. *Flores* approximati sed singuli, 1.4-1.5 cm. longi; pedicelli 4-5 mm. longi; bracteæ lineares, 1-2 mm. longæ, persistentes. *Calyx* campanulatus, 4 mm. longus et latus, dentibus brevibus rotundatis; bracteolæ 2, bracteis similes. *Petala* rosea, glabra; vexilli lamina fortiter reflexa, rotundata, ungui 4-plo longior, basi paullo transverse callosa; alæ basi utrinque subfalcalæ; carinæ petala basi truncata. *Stamina* diadelpa. *Discus* brevis, tubulosus. *Ovarium* lineare, basi in stipitem brevem angustatum, glabrum, multiovulatum. *Legumen* 4-11 cm. longum, 3 cm. latum, nonnunquam inter semina constrictum, apice basique obtusum, marginatum, glabrum, facile dehiscens; valvæ coriaceæ inter semina leviter cohærentes. *Semina* 1-4, compressa, 2.5 cm. longa, 2 cm. lata, 6 mm. crassa.

COCHIN CHINA: Tonkin, Tu Phap, *Balansa*, 2300, 2303-4 (*types*), 2302 (Banks of Black River, *type*).

16. *M. SPECIOSA*, *Champ. in Kew Journ. Bot.* iv. (1852) 73; *Benth. Fl. Hongk.* 78; *Forbes and Hemsl. in Journ. Linn. Soc., Bot.* xxiii. (1886) 159; *Dunn and Tutcher, Fl. Kwangt.* 76.—*M. nitida*, *Drake in Journ. de Bot.* v. 187, non *Benth.*

*Frutex* procumbens, ramis velutinis tandem glabrescentibus, siccitate nigris.

*Folia* (5-)6-juga, 15-20 cm. longa, petiolo 6-7-plo longiora, rachi pubescenti, glabrescenti; stipulæ angustæ, lanceolatæ, 3-4 mm. longæ, persistentes; foliola lateralia superiora oblongo-lanceolata, breviter et obtuse acuminata, basi rotundata, 5-6(-9) cm. longa, chartacea, supra glabra, nitentia, infra puberula, in siccitate fusciscentia, margine revoluta, venis marginem propinquantibus 5-6 paribus inter se arcuatis fere patentibus haud prominentibus; petioli 1-2 mm. longi; stipellæ setaceæ, 2-3 mm. longæ. *Racemi* sæpius axillares, nonnunquam paniculam foliosam terminalem formantes, ad 30 cm. longi, sessiles, rachi velutina. *Flores* primo approximati, caudam pendulam formantes, anthesi singuli, 2.8-4.5 cm. longi; pedicelli 1.2 cm. longi, ut calyces et rachis velutini, apice bibracteolati; bracteæ lanceolatæ, 5 mm. longæ, deciduæ; bracteolæ ovatæ, calycis tubo 2-3-plo breviores. *Calyx* campanulatus, 1.3 cm. longus, 1 cm. latus; dentes 4, superiore late ovato bilobato, cæteris ovatis rotundatis vel infimo acuto, tubo 3-plo breviores. *Petala* glabra, eburnea; vexillum ovatum, basi bicallosum, in unguem subito contractum; alæ basi utrinque truncatæ vel falcatæ; carinæ petala in latere superiore falcatæ. *Stamina* diadelpa, vexillare solutum. *Discus* tubulosus, 1-2 mm. longus. *Ovarium* stipitatum, velutinum, multi-ovulatum. *Legumen* 9-13 cm. longum, 1-2 cm. latum, dense velutinum, elastice dehiscens; valvæ lignosæ, inter semina cohærentes. *Semina* 4-6, ovata.

Flowers July to October, fruits February.

COCHIN CHINA: Tonkin, *Balansa*, 1205, 2230 (Bat-Bac).

CHINA: *Millett*; Kwantung, *Henry*, 8341 (Hainan), *Hongkong Herb.* 6631 (Hainan, Ng Chi Shan); Hongkong, *Champion*, 505, 261 (*types*), *C. Wright*, 138, *Hongkong Herb.* 2011 (Bowen Road), *Lamont*, 160 (Pokfulam, Robinson Road, and Happy Valley Woods); Hongkong New Territory, *Hongkong Herb.* 9341, 4806 (Kanghau), 1181 (Ha Hang).

IC. INED. *Eyre* (Libr. Kew).

17. *M. FORDII*, *Dunn*, sp. n.

*Frutex* scandens, præter inflorescentiam glaber. *Folia* 3-juga, 10-20 cm. longa, petiolo 5-plo longiora; stipulæ setaceæ, 4-5 mm. longæ, persistentes; foliola lateralia superiora lineari-lanceolata, in acumen longum obtusum angustata, basi rotundata, 4-8 cm. longa, papyracea, utrinque subnitentia, venis marginem appropinquantibus 5-6-paribus fere patentibus inter se anastomosantibus haud prominentibus; petioluli 1-2 mm. longi; stipellæ 3 mm. longæ, persistentes, setaceæ. *Racemi* sæpius terminales, nonnunquam cum aliis axillaribus paniculam terminalem formantes, fere sessiles, 5-7 cm. longi, rachi velutina. *Flores* approximati sed singuli, primo racemum brevem obtusum formantes, 1.8-1.9 cm. longi; pedicelli 4-6 mm. longi, ut calyces et raches velutini, apice bibracteolati; bracteæ lanceolatæ, 3 mm. longæ, deciduæ; bracteolæ ovatæ, calycis tubo 3-plo breviores. *Calyx*

campanulatus, 8 mm. longus, 5 mm. latus, dense sericeus, dentibus 4, tubo 3-4-plo brevioribus, superiore rotundato bifido, aliis triangularibus, infimo paullo longiore. *Petala* glabra; vexilli lamina ovata, basi leviter bicallosa, in unguem 3-4-plo brevioribus subito angustata; alæ hastatæ; carinæ petala profunde falcata. *Stamina* diadelpha. *Discus* tubulosus. *Ovarium* longe stipitatum, multiovulatum.

CHINA: Kwantung, *Ford*, 62 (Lienchow River).

18. *M. OOSPERMA*, *Dunn*, sp. n.

*Frutex* alte scandens vel late vagans, ramis primo velutinis mox glabris, cortice lævi glabro. *Folia* 2-juga, 25-40 cm. longa, petiolo 4-plo longiora, rachi puberula; stipulæ setaceæ, deciduæ; foliola superiora lateralia lanceolata vel ovato-oblonga, apice breviter obtuse acuminata, acuta vel rotundata apiculata, basi cuneata vel rotundata, 8-20 cm. longa, chartacea, supra glabra vel sparse hirsuta, nitentia, subtus molliter hirsuta, venis marginem appropinquantibus 7-12-paribus, subtus prominentibus nonnunquam reticulatis, supra paullo impressa; petioluli 4-5 mm. longi; stipellæ setaceæ, 2-3 mm. longæ. *Panicula* terminalis, infra nonnunquam foliata, 10-20 cm. longa, rachi breviter velutina. *Flores* approximati singuli, 1.5-1.7 cm. longi; pedicelli 5 mm. longi, ut calyces breviter velutini. *Calyx* campanulatus, 6 mm. longus, 4 mm. latus, dentibus tubo æquilongis paullo bilabiatis, superiore bidentato, cæteris rotundatis; bracteolæ 2 mm. longæ, lineares. *Petala* rubida; vexilli lamina rotundata, basi paullo callosa et inflexo-auriculata, ungue 3-plo longior, dorso dense sericea; alæ utrinque falcatæ; carinæ petala paullo falcata. *Stamina* diadelpha, vexillare solutum. *Discus* brevis, tubulosus. *Ovarium* lineare, pubescens, multiovulatum. *Legumen* oviforme si monospermum, cylindricum, inter semina constrictum, si polyspermum, 6-13 cm. longum, 2-2.5 cm. latum, 2 cm. crassum, velutinum, tarde dehiscens, valvis lignosis (?) inter semina cohærentibus. *Semina* 2-3, oviformia, 3 cm. longa, basi truncata; radícula brevis, erecta, inclusa.

Flowers in the summer, fruits in winter.

CHINA: Yunnan, *Henry*, 12992 A (Szemao forests), 10265, 10670, 10670 B, 10670 C; Kwangsi, *Wenyon*, *Morse*, 294, 648 (Lunghow); Kwangtung, *Henry*, 8235 (Hainan), *Ford*, 371 (Hainan); Hongkong, *Hongkong Herb.* 1428 (Cape d'Aguilar).

*Henry* has noted on *Morse's* Lunghow specimen: "a kind at Canton said to have an edible seed."

19. *M. DORWARDI*, *Coll. et Hemsl. in Journ. Linn. Soc., Bot.* xxviii. (1890) 40.

*Frutex* magna, scandens, (vel arbor?), novellis dense pubescentibus, cortice brunneo scabro. *Folia* 2-juga, 15-25 cm. longa, petiolo 4-plo longiora, rachi tenuiter hirsuta; stipulæ lineares, 4-5 mm. longæ, tarde deciduæ; foliola

superiora lateralia ovata vel ovato-oblonga, obtusa vel obtuse breviter acuminata, basi obtusa, 6–11 cm. longa, chartacea, utrinque glabra, reticulata, venis marginem appropinquantibus 6–9-paribus, infra prominentibus; petioli 3–5 mm. longi; stipellæ setaceæ, 2–2.5 mm. longæ. *Panicula* terminalis, robusta, 12–18 cm. longa, rachi ut ramis pedicellis calycibus dorsisque vexillorum dense adpresse sericea; ramuli floriferi multiflori. *Flores* singuli, sæpe verticillatim dispositi, 1.8–2.3 cm. longi; pedicelli 5 mm. longi. *Calyx* campanulatus, dentibus brevibus late rotundatis. *Vexilli* lamina rotundata, basi breviter cordata ob basin utrinque inflexam, ungue 3-plo longior; alæ breviores utrinque falcatae; carinæ petala valde falcata. *Stamina* diadelpa. *Discus* tubulosus, brevis, crenulatus. *Ovarium* lineare, pubescens, multiovulatum. *Legumen* nondum maturum oblongum, turgidum, 9 cm. longum, 3 cm. latum, 1 cm. crassum, velutinum, 2-spermum.

Flowers in May, fruits in October.

UPPER BURMA: Kachin Hills, Bhamo, *Cubitt*, 51 (6000 ft.), 288, 332 (Sinlum at 5750 ft.); Maymyo, *Lace*, 5797, 5849.

SHAN STATES: Khoni, *Prazer*, *Collett*, 759, 773 (*types*), *Abdul Khalil* (Saikaw).

Native name (Kachin) *Noibau Ru*.

20. *M. CINEREA*, *Benth. in Miq. Pl. Jungh.* 249; *Baker in Hook. f. Fl. Brit. Ind.* ii. 106; *Kurz, For. Fl. Brit. Burma*, 353.—*Pongamia cinerea*, *Grah. in Wall. Cat. n.* 5888. *P. palustris*, *Grah. in Wall. Cat. n.* 5889. *P. paniculata*, *Grah. l. c.* 5904. *P. heterocarpa*, *Wall. ex Baker, l. c.* *P. oblonga*, *Grah. l. c.* 5893.

*Frutex* scandens, ramis glabris primo lævibus tandem rugosis. *Folia* sæpissime bijuga, 15–25 cm. longa, petiolo 4-plo longiora, rachi tenuiter adpresse sericea glabrescente; stipulæ caducæ; foliola superiora lateralia oblongo-obovata, breviter acuminata, basi rotundata, subcordata, 9–13 cm. longa, chartacea, præter venas infra pubescentes glabra, reticulata, venis 7–9-paribus infra prominentibus; petioli 3 mm. longi; stipellæ setaceæ, 4–5 mm. longæ. *Panicula* terminalis, basi paullo foliata, 10–15 cm. longa, rachi ramis pedicellis calycibusque breviter dense adpresse hirtis; rami floriferi graciles, patentés, ad 6 cm. longi. *Flores* singuli vel 2–3-nim verticillati, 1.2–1.5 cm. longi; pedicelli 3–4 mm. longi; bracteæ triangulares, 1 mm. longæ, persistentes; bracteolæ lineares, 2 mm. longæ. *Calyx* campanulatus, 2.5–3 mm. longus, tenuiter hirsutus, dentibus triangularibus tubo 3–4-plo brevioribus, 3 inferioribus approximatis, superiore bidentato. *Petala* rubida, extus cuprea; vexilli lamina ovata, basi paullo incrassata, rotundata, ungue 6-plo longior, dorso dense pubescens; alæ supra falcatae; carinæ petala subfalcata. *Stamina* diadelpa, vexillare solutum ad unguem vexilli nonnunquam cohærente. *Discus* obliquus, crenulatus, supra 1.5 mm., infra 1 mm. longus.

*Ovarium* lineare, pubescens, 5-7 ovulatum, breviter stipitatum. *Legumen* ad 13 cm. longum, 2 cm. latum, 1.5 cm. crassum, velutinum, ad semina turgidum et inter ea constrictum, tarde dehiscens, valvis coriaceis.

Flowers February to July, fruits September to January.

EAST HIMALAYA: Sikkim, *Griffith*, *Kew Dist.* 1786 (Darjeeling?), *Kurz*, 121 (Nagree), *Hooker* (1000-4000 feet), *King* (1800 feet), 871 (1000 feet), 833 (3000 feet), 2423 (Ryang at 1800 feet), 4826 (2500 feet) (1400 feet), *King's Collector* (3500 feet), *Lister* (Teesta and Ryang Valleys), *Gamble*, 492 c (Chumbati at 2000 feet), 2105 (Darjeeling), 2107 A, 9844 (Darjeeling at 3000 feet), 10525 (4000 feet), *Clarke*, 27976 D (*Teesta*), 11850 G (Rishap at 3000 feet), *Searlight*, 219 (Chumbi Valley); Buxa ("Bootan"), *Griffith*, 1176 (*Kew Dist.* 1948); Bhutan, *King*.

BENGAL: *Griffith*, *Kew Dist.* 1766 (E. Bengal); Chittagong, *Lister*, 402, *King's Collector*, 60, 541, 384, *Wall. Cat.* 5888 (Chittagong, *type*).

ASSAM: *Jenkins*, *Mann*, *King's Collector*; Khasia Hills, *Griffith*, *Kew Dist.* 1785, *Hook. f. et Thoms.* 2399 (2000-4000 feet), *Kunth* (Silhet), *Kurz*, 204 (3000-5000 feet), *Lobb* (1500 feet), *Lemann*, 359, *Wall. Cat.* 5888 (Silhet, *type*), *Clarke*, 11850, 40235 B (Mairung at 5000 feet), 40310 (Shillong at 4500 feet), 44038 C (3500 feet), 44106 A (Shillong at 5200 feet), *Gallatly*, 701 (at 3000 feet), 383 (at 5000 feet); British Bhutan, *Prain*; Cachar, *Craib*, 409 (Haflang at 2500 feet), *Prazer*; Manipur, *Watt*, 5032 (at 2000 feet); Lushai Hills, *Leslie*, 340 (at 4000 feet).

UPPER BURMA, *King's Collector*, 38, *Aubert and Gage* (Minbu).

SHAN STATES, *MacGregor*, 803.

CALCUTTA BOTANIC GARDEN, *Hort. Bot. Calc.* 233, *Wall. Cat.* 5887, 5888, 5888 A ("Hab. Silhet"), 5889, 5893, 5904.

IC. INED. *Roxb.* 2534 (*Libr. Kew*).

21. *M. SERICOSEMA*, *Hance in Journ. Bot.* xx. (1882) 259.

*Frutex* scandens?, cortice rubido, ramulis ferrugineo-tomentosis. *Folia* 2-juga, 13-15 cm. longa, petiolo 6-7-plo longiora, stipulæ setaceæ; foliola lateralibus superioribus lanceolata, acuta, basi obtusa, 6-7 cm. longa, supra glabra, opaca, reticulata, subtus dense ferrugineo-tomentosa, venis infra prominentibus; stipellæ setaceæ. *Panicula* terminalis, 8-10 cm. longa, rachi dense fulvo-velutina. *Flores* confertissimi, singuli, 1.7 cm. longi; pedicelli 2 mm. longi. *Calyx* campanulatus, 4-5 mm. longus, fulvo-tomentosus, dentibus 4, superiore oblongo-bifido, lateralibus anguste lanceolatis, inferiore tubo æquilongæ cæteris longiore; bracteolæ lanceolatæ, breves. *Petala* purpurea; vexilli lamina ovata, basi ob marginem juxta unguem utrinque paullo inflexa subcordata, ungue 3-4-plo longior, dorso densissime cinerascens sericea; alæ breviores, subfalcatæ; carinæ petala arcuata, subfalcata. *Stamina* diadelpa. *Discus* crenulatus, tubulosus, 1 mm. longus. *Ovarium* stipitatum, fulvopannosum, multiovulatum.

CHINA: Szechuen, *E. H. Parker* (in 1881), *Hance, Herb. Propr.* 21961.

Only one specimen known (British Museum Herbarium). Hance referred it to § *Otosema* on account of the subcordate standard.

22. *M. DIELSIANA*, *Harms ex Diels in Engl. Jahrb.* xxix. (1900) 412; *Dunn and Tutcher, Fl. Kwantung*, 76.—*M. Bockii*, *Harms, l. c.* *M. Duclouxii*, *Pamp. in Nuov. Giorn. Bot. Ital. N. S.* xvii. (1910) 25. *M. cinerea*, *Benth., var. yunnansis*, *Pamp. l. c.* *M. cinerea*, *Franch. Pl. David.* ii. 32 (non *Benth.*?). *M. ?*, *Forbes et Hemsl. in Journ. Linn. Soc., Bot.* xxiii. (1886) 159.

*Frutex* scandens vel sæpius longe procumbens, cortice fusco striato. *Folia* sæpissime 2-juga, 15–30 cm. longa, sæpius glabra; stipulæ lineares, 3 mm. longæ, deciduæ; foliola lateralia superiora sæpius lanceolata, gradatim acuta vel breviter acuminata, apice obtusa, basi obtusa vel rotundata vel etiam subcordata, 5–15 cm. longa, chartacea, supra subnitentia, rarius rugosa, venis marginem appropinquantibus 6-paribus erecto-patentibus supra impressis infra prominentibus; petioluli 2–3 mm. longi; stipellæ setaceæ, persistentes, 3–5 mm. longæ. *Panicula* terminalis in magnitudine formaque late variat, aliquot parva erecta, ramis brevibus patentibus, aliquot magna pendula, ramis longis flabelliformibus, ad 40 cm. extensa, basi foliosa, rachi plus minus dense pubescente; rami ad basin floriferi, bracteis stipuliformibus suffulti. *Flores* fragrantæ, approximati, 1.2–2.4 cm. longi, pedicellis 3–4-plo longiores; bracteæ setaceæ, persistentes. *Calyx* late campanulatus, 3–5 mm. longus, 4–6 mm. latus; ut pedicelli sæpissime tenuiter pubescens, dentibus 4, superiore late ovato emarginato, cæteris ovatis vel lanceolatis, tubo 3-plo brevioribus, bracteolæ lineares, tubo calycis duplo breviores. *Vexilli* lamina ovata, ante anthesin recurvata, apice emarginata, basi truncata, subcordata, juxta unguem minute inflexa, intense rubra, extus dense sericea, ungui 3-plo longior; alæ breviores utrinque subfalcatæ; carinæ petala basi truncata. *Stamina* diadelphæ, vexillare liberum ima basi dilatatum. *Discus* brevissimus. *Ovarium* sericeum, stylo glabro æquilongo. *Legumen* lineare, 7–12 cm. longum, 1.5–2.0 cm. latum, facile dehiscens, velutinum, valvis lignosis, inter semina cohærentibus. *Semina* 3–4, oblonga, compressa, 8 mm. longa, 6 mm. lata, 2 mm. crassa.

Flowers through the summer, fruits in autumn and winter.

CHINA: Yunnan, *Henry*, 9633 (Red River), 10813 (Mengtze), *Maire*, 163 (Yunnan-sen Mts.), *Ducloux*, 375 (Cheng Tong Han), 384, 389; Kwangsi, *Morse*, 582 (Lungchow); Kwangtung, *Hongkong Herb.* 1799, 5059, and 9394 (Lienchow River), *Ford*, 63 (Lofoushan); Hongkong, *Wright*, 137; Hongkong New Territory, *Ford*, 645 (Taimoshan), *Hongkong Herb.* 4805 (Kanghau), 7094 (Taimoshan); Fokien, *Fortune*, 17 (Foochow Mts.), *Hongkong Herb.* 2579 (Yenping hills); Chekiang, *Barchet*, 128; Hupeh, *Henry*, 1584 (Ichang), 1938 (Nanto), 2561, 2917, 3074; Szechuen, *Faber*, 757 and 773 (Wushan), 758, 774 (Omie), *Wilson*, 824, 1089, 3412, 3412 A,

3413, 4834, *David fide Franchet?* (Moupine), *von Rosthorn*, 1626, 1638 (Nanchuan), "*M. Bockii*" (Nanchuan).

As described and cited above, the species comprises a large number of forms passing gradually one into another and corresponding in no marked degree to any special areas. It cannot be ascertained that they are due to variations of soil, climate, altitude, nor maritime influence, and with the ample material and notes which have passed through my hands I am obliged to regard it as a species which varies casually throughout the whole of its large area. Any attempt to segregate it at the present time into systematic groups is therefore without value in the field or herbarium. Under these circumstances it is not unexpected that botanists who have had to deal with isolated specimens have frequently described them as representing new species.

The first specimens to reach Europe were probably those gathered by Fortune among the hills near Foochow, on the S.E. coast of the empire. Bentham referred them doubtfully to *M. cinerea*, and it was not until half a century later that the specimens of the present common Chinese climber now accumulated in large numbers in European herbaria were seen to be distinct from that species. They are now brought together under the name of the first form to be separately described, *M. Dielsiana*. As may be gathered from the description, it is remarkably variable in size of flowers, length of panicle branches, and in the pubescence of its leaves and stem, and in certain states it bears a close superficial resemblance to allied species. Thus when the leaves are glabrous and reticulate it can be distinguished from *M. cinerea* only by its pods, and from *N. nitida* by the slender character of its panicle and flowers; when the leaves are pubescent its fruit alone certainly distinguishes it from *M. oosperma*.

23. *M. NITIDA*, *Benth. in London Journ. Bot.* i. (1842) 484; *in Miq. Pl. Jungh.* 249; *Benth. in Fl. Hongk.* 78; *Forbes et Hemsl. in Journ. Linn. Soc., Bot.* xxiii. (1886) 159; *Dunn and Tutcher, Fl. Kwangt.* 76.—*Marquartia tomentosa*, *Vogel in Nov. Act. Nat. Cur.* xix. Suppl. I. (1843) 35.

*Frutex* volubilis alte scandens, cortice fusco rugoso, ramis primo adpresse sericeis glabrescentibus. *Folia* bijuga, 15–20 cm. longa, petiolo 5-plo longiora, præter vestigia indumenti decidui maturitate glabra; stipulæ lineares, 1–2 mm. longæ; foliola lateralia superiora lanceolata, gradatim acuminata, basi rotundata vel obtusa, chartacea, utrinque nitida, reticulata, venis marginem appropinquantibus 5–6-paribus infra prominulis; petioli 2–3 mm. longi. *Panicula* terminalis, 6–10 cm. longa, rachi adpresse sericea; rami floriferi patentes, 6–10 cm. longi. *Flores* approximati, singuli, 1.9 cm. longi; pedicelli 2–3 mm. longi, ut calyx vexillique dorsum dense sericeo-velutini; bractæ lanceolatæ, caducæ. *Calyx* campanulatus, 6 mm. longus, 5 mm. latus, dentibus 4, superiore late rotundato emarginato, 3 inferioribus tubo

paullo brevioribus angustè triangularibus apice rotundatis. *Vexilli* lamina forte reflexa, basi callosa, auriculis attingentibus stamen vexillare amplectentibus, extus alba, intus intense violascens; alæ breviores, basi hastatæ; carinæ petala in unguem angustata. *Stamina* diadelpa. *Discus* brevissimus. *Ovarium* lineare, velutinum, multiovulatum. *Legumen* 10–14 cm longum, 1.5–2 cm. latum, velutinum, facile dehiscens; valvis tenuiter lignosis, inter semina cohærentibus. *Semina* 4–5, 1 cm. longa, 8 mm. lata, 2 mm. crassæ.

Flowers in summer and autumn, fruits in winter.

CHINA: Hongkong, *Millett (type)*, *Wilford*, 146, *Hinds (type)*, *Champion*, *Urquhart*, *Hongkong Herb.* 1903, *Hance*, *Forbes*, 592, *Lamont*, 158–9.

IC. INED *Eyre* (Libr. Kew).

This straggling or shortly climbing *Millettia* has not so far been found outside the island of Hongkong, though common there and one of the well-known ornaments of the uplands. During the winter months long leafless shoots are thrown out to a length of sometimes 15 feet along the ground, climbing, when circumstances permit, by means of a reflexed strigosity.

23 a. M. MEGASPERMA, *Benth. Fl. Austral.* ii. 211; *Bailey, Queensl. Fl.* ii. 396; *Cat. Queensl. Pl.* (1912) 138.—*Wistaria megasperma*, *F. von Muell. Fragm.* i. 10; *Moore, Fl. New South Wales*, 149.

*Frutex* alte scandens, præter novellas et inflorescentiam glaber, cortice lævi. *Folia* 3–6-juga, 15–20 cm. longa, petiolo 5-plo longiora; stipulæ lineares, persistentes, 5 mm. longæ; foliola superiora lateralia oblongo-lanceolata vel obovata, acuminata, basi cuneata, subcoriacea, lævia, venis marginem appropinquantibus 5–7-paribus obscuris; petioluli 2–3 mm. longi; stipellæ setaceæ, 2 mm. longæ. *Racemi* longi, laxiflori, in paniculam longam terminalem collecti, rachi breviter velutina. *Flores* singuli, 9 mm.–1.2 cm. longi, purpurei; pedicelli ad 1.3 cm. longi, graciles ut calyces, dorsumque vexilli breviter dense pubescentes; bractæ ovatæ, acuminatæ, 3 mm. longæ, caducæ; bracteolæ lineares, caducæ. *Calyx* late campanulatus, 3–4 mm. longus, lobis tubo subequalibus, 2 superioribus in unum latum emarginatum connatis. *Vexillum* rotundatum, in unguem brevem latam contractum, basi transverse callosum; alæ oblongæ, basi uncinatæ; carinæ petala conformia. *Stamina* diadelpa. *Discus* brevis, cylindricus. *Ovarium* lineare, teres, stipulatum, sericeum, pluriovulatum. *Legumen* crassum, lineare, apice basique acuminatum, ad 18 cm. longum, 4 cm. latum, 3.5 cm. crassum, 4-spermum, breviter tomentosum, suturis haud incrassatis, dehiscens. *Semina* ovalia, 4 cm. longa, 3 cm. lata, 2.5 cm. crassa.

AUSTRALIA: Queensland, not uncommon in the southern scrubs (*vide* *Bailey, l. c.*); Upper Brisbane River, *Hill and Mueller*, Moreton Bay District, *G. M. Leay*; New South Wales, Richmond River, *C. Moore*.

CULTIVATED: Sydney and Hongkong Botanic Gardens.

23 b. *M. AUSTRALIS*, *Benth. in Miq. Pl. Jungh.* 250.—*M. megasperma*, *Hook. f. in Bot. Mag.* t. 6541, non *Benth.* *M. Camerana*, *F. v. Muell. in Journ. Bot.* xxiii. (1885) 353? *M. Maideniana*, *Bailey in Bot. Bull. Agric. Brisbane*, v. 12. *Wistaria Camerana*, *F. v. Muell. l. c.* *W. Maideniana*, *Bailey ex Moore in Fl. New South Wales*, 517; *Cat. Queensl. Pl.* 138, t. 110 (1912). *Pterocarpus australis*, *Endl. Prod. Norf.* 94.

*Frutex* alte scandens, caule tereti lævi striato primo breviter pubescente. *Folia* 6–13-juga, 10–20 cm. longa, petiolo 8-plo longiora, rachi pilis brevibus adpressis tenuiter pubescente; stipulæ lineares, 2 mm. longæ, caducæ; foliola superiora lateralia oblongo-lanceolata, ad apicem obtusam paullo angustata, basi rotundata, obliqua, 3·5–6 cm. longa, subcoriacea, margine angusta paullo revoluta siccitate fortiter utrinque reticulata, venis marginem appropinquantibus 7–10-paribus; petioluli 1–3 mm. longi; stipellæ setacæ, 1–2 mm. longæ. *Racemi* axillares vel in paniculam terminalem 15 cm. longam dispositi, rachi ut pedicellis calycibus dorsoque vexilli breviter adpresse dense sericea. *Flores* singuli, 1·3–1·5 cm. longi, jasminodori; pedicelli 5–6 mm. longi; bracteæ lineares, acutæ, caducæ; bracteolæ conformes, 3–4 mm. longæ, caducæ. *Calyx* late campanulatus, sub-bilabiatus, 6 mm. longus, lobo superiore lato emarginato, 3 inferioribus lanceolatis acutis paullo brevioribus. *Petala* lilacina; vexillum rotundatum in unguem brevem subito angustatum, basi transverse callosum, tandem reflexum; alæ oblongæ, basi uncinatæ; carinæ petala oblongo-ovata, basi paullo hamata. *Stamina* diadelphæ. *Discus* nullus. *Ovarium* lineare, sericeum, multiovulatum. *Legumen* ellipsoideum, turgidum, utrinque acutum, glabrescens, 9 cm. longum, 3·5 cm. latum; valvis lignosis. *Semina* 1·5–2·5 cm. diam., suborbicularia, 2 vel plura.

Flowers in October.

NORFOLK ISLAND, *Bauer, Isaac Robinson.*

QUEENSLAND: Port Macquarie (*vide* Bailey, *l. c.*).

CULTIVATED: Royal Botanic Gardens, Kew (Temperate House).

The species is not uncommon in Norfolk Island, where the dense tangles, formed largely by its tough stems, were a well-known obstacle to the early explorers. But fruit has rarely been found there. The description of the pod is taken from F. von Mueller's in the 'Journal of Botany' (1885, 353).

The seeds from which the plant grown at Kew was raised were contributed by that botanist many years before he received or described the pod from Norfolk Is., and were probably collected in Queensland when *M. megasperma* (which it resembles) was the only known *Millettia* in that country. This would account for its being sent to Kew and long cultivated there under that name.

23 c. *M. PILIPES*, *Bailey in 2nd Add., 3rd Suppl. Syn. Queensl. Fl.; Queensl. Fl.* ii. 397; *Cat. Queensl. Pl.* 138 (1912).

*Frutex* alte scandens, præter inflorescentiam glaber. *Folia* 2–3-juga,

15–20 cm. longa, petiolo 3–4-plo longiora; foliola superiora lateralia oblongo-lanceolata, 4–6 cm. longa, margine undulata, apice paullo angustata, obtusa, basi obtusa, coriacea, nitentia, venis marginem approximantibus 6-paribus obscure reticulatis; petioluli 4–6 mm. longi; stipellæ nullæ? *Panicule* terminales, 15–20 cm. longæ, rachi apice ut ramis floriferis pubescente; rami floriferi 4–5 cm. longi, basi nudi. *Flores* in dimidio superiore conferti, 1·2 cm. longi, rubido-brunnei, quisque fastigio lato bracteæ suffultus; bracteæ ovato-lanceolatæ, 1·5 cm. longæ, caducæ; pedicelli graciles, 2 cm. longi, pilis flavidis vestiti; bracteolæ anguste lineares, calyci fere æquilongæ. *Calyx* campanulatus, 5 mm. longus, præter marginem ciliatam glaber, dentibus tubo æquilongis lanceolatis acutis. *Vexillum* fere orbiculatum, in unguem attenuatum, basi transverse callosum, dorso sparse puberulum; alæ oblongæ, ut carinæ petala basi uncinatæ. *Stamina* diadelpa. *Discus* nullus (vel secus *Bailey*, brevis crenulatus). *Ovarium* lineare, tomentosum.

AUSTRALIA: Queensland, Johnstone River, *Bancroft*.

24. *M. RACEMOSA*, *Benth. in Miq. Pl. Jungh.* 249; *Baker in Hook. f. Fl. Brit. Ind.* ii. 105; *Prain in Journ. As. Soc. Beng.* lxxvi. ii. (1897) 359; *Cooke, Fl. Bomb.* i. 322; *Gamble, Manual Ind. Timb.* 233 (1902); *Talbot, For. Fl. Bomb.* i. 384, t.—*M. pallida*, *Dalz. in Journ. Linn. Soc., Bot.* xiii. (1872) 187. *M. leiogyna*, *Kurz in Journ. As. Soc. Beng.* xlii. ii. 67; *For. Fl. Brit. Burma*, 351. *Robinia racemosa*, *Roxb. Fl. Ind.* iii. 329. *Pongamia racemosa*, *Grah. in Wall. Cat.* n. 5914. *P. Corcor*, *Grah. l. c.* 5891. *Tephrosia racemosa*, *Wight et Arn. Prodr.* i. 210. *Wistaria pallida*, *Dalz. et Gibs. Bomb. Fl.* 61. *W. racemosa*, *Dalz. et Gibs. l. c.*

*Frutex* scandens, cortice griseo scabro (*Roxb.*), ramis ut rachibus foliorum et racemorum bracteis calycibusque primo laxè flocculoso-tomentosis, mox glabris siccitate nigrescentibus. *Folia* 5–6-juga, 25–40 cm. longa, petiolo 4–6-plo longiora; stipulæ lineari-setaceæ, 1·0 cm. longæ, persistentes; foliola superiora lateralia obovato-oblonga, obtuse acuminata, basi rotundata, 4–10 cm. longa, papyracea, mox omnino glabra, venis marginem approximantibus 8-paribus infra paullo prominentibus; petioluli 2–3 mm. longi; stipellæ setaceæ, 2–4 mm. longæ. *Panicule* terminales, basi paullo foliatæ, 20–50 cm. longæ; rami floriferi (racemi) 10–20 cm. longi. *Flores* rubidi, singuli, sæpe in verticillos 2–3-flores plurimos collecti; bracteæ stipulis similes, persistentes; pedicelli 4–5 mm. longi. *Calyx* campanulatus, 4–5 mm. longus, margine ciliato, cæteroquin sparse hirtus, dentibus brevissimis. *Petala* glabra; vexilli lamina ovata, in unguem brevem abrupte contracta, ecallosa; alæ falcatæ; carinæ petala oblonga, valde falcata. *Stamina* diadelpa. *Discus* tubularis, 1·5 mm. longus, obliquus. *Ovarium* stipitatum, glabrum, multiovulatum. *Legumen* lineare, paullo torulosum, 10–25 cm. longum, 1–1·4 cm. latum, glabrum, dehiscens; valvæ tenuiter lignosæ; endocarpium

separabile, papyraceum, inter semina cohærens. *Semina* distantia, 4-5, oblongo-ovalia, 1.0 cm. longa, 8 mm. lata.

Flowers May and June, fruits in January and February.

S. INDIA : *Beddome*, 33, 1900, 1901, 1903 (Godavery jungles, etc.), *Ritchie*, 1719 ; Coimbatore, *Fischer*, 1412 ; Madras, *Gamble*, 18566, 16507, 18716, 13847 ; Concan, *Stocks* ; Bombay, *Dalzell* ; N. Canara, *Talbot*, 590.

BENGAL, *Kurz* ; Orissa, *Gamble*, 9311.

ASSAM : West Duars, *Haines*, 783.

UPPER BURMA, *Shaik Mokim*, 1576.

LOWER BURMA : Pegu, *Kurz*, 1722 ; Tenasserim, *Gallatly*, 61.

SHAN STATES, *Abdul Khalil*.

SIAM, *Luang Vanpruk*, 188 (Phre, teak-forests).

PHILIPPINE ISLANDS : Luzon, *Bureau of Science*, 1064 (Bosoboso, Rizal).

CULTIVATED : Hort. Bot. Cal., *Wall. Cat.* 5891, 5914, *Roxburgh* (type).

IC. INED. : (1) *Dalz.*, (2) *Roxb.* (Libr. Kew).

The local name in the teak area of Siam, where the plant is common, is *Du Kua*. *Gamble* (*l. c.*) describes the bark and wood. The floral structure bears a striking resemblance to that of *Gliricidia*.

25. *M. TRIFOLIATA*, *Dunn*, sp. n.

*Arbor* 17 m. alta, præter folia novissima omnino glabra, cortice griseo lævi. *Folia* paullo post anthesin enata, sed usque ad anthesin proximam sæpe persistentia, unijuga, 12-20 cm. longa, petiolo 5-plo longiora ; stipulæ nullæ ; foliola lateralia oblonga, acuminato-caudata, basi obtusa, 10-12 cm. longa, chartacea, supra nitida, venis marginem appropinquantibus 10-11-paribus divergentibus inconspicuis ; petioluli 4-5 mm. longi ; stipulæ nullæ. *Racemi* axillares, ad basin floriferi, 4-6 cm. longi. *Flores* singuli vel per pares collaterales, 2 cm. longi ; pedicelli 1 cm. longi ; bracteæ bracteolæque nullæ. *Calyx* campanulatus, 1 cm. longus, membranaceus, sparse puberulus, dentibus 4, superiore ovato apice bifido, cæteris lanceolatis tubo æquilongis. *Petala* glabra, alba ; vexillum ovatum ; alæ anguste oblongæ, subfalcatæ ; carinæ petala basi truncata. *Stamina* diadelpa. *Discus* nullus. *Ovarium* lineare, longe stipitatum, glabrum, 4-ovulatum.

Flowers in February.

UPPER BURMA : Polaw, *Robertson*, 126.

This interesting species was discovered by Mr. W. A. Robertson, of the Indian Forestry Service, on the bank of a stream at 2000 feet elevation in February, 1910. The specimens were sent to Mr. Gamble, lately Conservator of Forests in the same service, by whom they were kindly lent to me for examination and description.

26. *M. PODOCARPA*, *Dunn*, sp. n.

*Arbor* statu fructifero omnino glabra, cortice lævi griseo. *Folia* 2-juga, 10–13 cm. longa, petiolo 6–7-plo longiora; stipulæ caducæ; foliola lanceolata, longe caudata, basi obtusa, 8–9 cm. longa, chartacea, supra micantia, venis marginem approximantibus 9–11-paribus, haud prominentibus; stipellæ nullæ. *Racemi* ad basin floriferi, 6–7 cm. longi; nodi floriferi parvi, globulares. *Legumen* 16·5 cm. longum, 2·5 cm. latum, stipite 1·5 cm. longo, 2 mm. crasso, 4-semiferum, valvis lignosis flavidis lævibus.

Fruit ripe in December.

UPPER BURMA: Upper Chindwin, *Meebold*, 7823 (Byinbou).

27. *M. PISCIDIA*, *Wight*,  *Ic. t. 86*.—*Galedupa Piscidia*, *Roxb. Fl. Ind. iii. 240*.

*Arbor* parva, cortice albo lævi (*Roxb.*). *Folia* 2–3-juga, 10–15 cm. longa, petiolo 5–6-plo longiora; stipulæ nullæ; foliola superiora lateralia anguste lanceolata, attenuata vel acuminata, caudata, basi cuneata vel obtusa, 7–10 cm. longa, chartacea, utrinque leviter reticulata, mox glabra, venis marginem approximantibus 7–9-paribus, infra prominentibus; petioluli 4 mm. longi; stipellæ nullæ. *Racemi* laxi, bini cum ramulo foliato axillares, sed sæpius post folii lapsum enati, 6–7 cm. longi, rachi pedicellisque fere glabris. *Flores* 1·3 cm. longi, 1–3-ni, distantes; pedicelli 8 mm. longi; bracteæ bracteolæque nullæ. *Calyx* campanulatus, 5 mm. longus, margine ciliatus, cæteroquin minute puberulus, membranaceus, dentibus obsolete. *Petala* nivea, membranacea, glabra; vexilli lamina ovata, in unguem 5-plo breviorum acuminata; alæ oblongæ, fortiter falcatæ; carinæ petala oblonga, basi truncata. *Stamina* diadelpa. *Discus* nullus. *Ovarium* lineare, longe stipitatum, pubescens, 3–4-ovulatum. *Legumen* oblongum, apice sæpius acuta, basi in stipitem 1–2 cm. longum subito angustatum, ad 10 cm. (sine stipite) longum, 3·5 cm. latum, valvis fortiter coriaceis.

Flowers in July, fruits in the cool season (*Roxb.*).

BENGAL: *Griffith*, *Kew Distr.* 1768 (Mishmee).

ASSAM: *Griffith*, 67; Khasia, *Kurz*, 325 (3000–4000 feet), *Hook. f. et Thoms.*, 1724, *Schlagintweit*, 271.

CULTIVATED: Calcutta Bot. Gard., *Griffith*, *Roxburgh* (type).

IC. INED. *Roxb.* 2321 (Libr. Kew).

The name *Piscidia* is probably adopted from the name of a tropical American genus having similar uses for intoxicating fish; it should therefore be spelled with a capital letter. Roxburgh's own labels under the genera *Dalbergia* and *Galedupa* use a small letter.

28. *M. ICHTHYOCHTONA*, *Drake in Journ. de Bot.* v. (1891) 187.

*Arbor* 5–10 m. alta, decidua, præter inflorescentiam tandem omnino glabra, ramulis pallidis rugosis. *Folia* 3–4-juga, 14–17 cm. longa, petiolo 7-plo

longiora; stipulæ nullæ; foliola superiora lateralia anguste oblonga, gradatim acuminata, basi cuneata, 6–8 cm. longa, chartacea, venis marginem approximantibus 6-paribus inconspicuis; stipellæ 0. *Racemi* sessiles, axillares vel rarius in ramulis terminales, 6–8 cm. longi, rachi tenuiter pubescente; nodi floriferi sessiles, 1–2-flori. *Flores* 1.5 cm. longi, albi; pedicelli 1.3 cm. longi, filiformes; bracteæ bracteolæque nullæ. *Calyx* campanulatus, 5–6 mm. longus, apice basique pubescens, lateribus fere glaber, dentibus 4, 3 inferioribus anguste triangularibus, superiore latiore apice bifido, tubo paullo brevioribus. *Vexilli* lamina ovata, exauriculata, ut cætera petala glabra, in unguem 4-plo breviorum gradatim angustata; alæ oblongæ, falcatæ; carinæ petala paullo arcuata, basi obtusa. *Stamina* monadelpha, vexillare basi solutum. *Discus* nullus. *Ovarium* stipitatum, biovulatum. *Legumen* anguste oblanceolatum, breviter falcatum, 9.5–17 cm. longum, ad 3.5 cm. latum, glabrum, facile dehiscens; valvæ tenuiter lignosæ, liberæ. *Semina* 1–2, fusca, complanata.

COCHIN CHINA: Tonkin, *Balansa*, 2236–7 (cultivated in the Muong villages at Tu Phap and at the base of Mt. Bavi, *types*).

The tree, which appears to be cultivated in fishing villages in Tonkin, is deciduous and becomes quite bare in August, when buds from the old leaf-scars develop into abundant racemes of white flowers. Later other buds in similar positions give rise to leafy shoots. The leaves remain until after the fruit is mature in the autumn.

29. *M. BONATIANA*, *Pamp. in Nuov. Giorn. Bot. Ital.* N. S. xvii. (1910) 24.

*Frutex* alte scandens; caules minores ut raches foliorum et racemorum, ut petioluli, pedicelli calycesque breviter dense tomentosi. *Folia* 5–6-juga, 30 cm. longa, petiolo 7–8-plo longiora; stipulæ lineares, 5 mm. longæ; foliola superiora lateralia ovato-acuminata, basi rotundata vel subcordata, 7–8.5 cm. longa, chartacea, primo utrinque dense sericeo-tomentosa, tandem fere glabra, opaca, venis marginem appropinquantibus 5–6-paribus infra prominulis; petioluli 3–4 mm. longi; stipellæ nullæ. *Racemi* axillares, 3.5–7 cm. longæ, pedunculo parti floriferæ æquilongo. *Flores* singuli vel bini, 2.5 cm. longi; pedicelli 10 mm. longi; bracteæ lineares, caducæ, 3 mm. longæ. *Petala* viridula; vexilli lamina ovata, in unguem brevem acuminata, exauriculata, dorso dense pubescens; alæ oblongæ, longe hamatæ; carinæ petala falcata. *Stamina* diadelpha. *Discus* obliquus tubulosus, 2 mm. longus. *Ovarium* lineare, stipitatum, pubescens, 4-ovulatum. *Legumen* lineare, fulvo-tomentosum, 10–11 cm. longum, 1.8 cm. latum. *Semina* ferruginea, 1.1 cm. lata.

Flowers in May and June, fruits in October.

CHINA: Yunnan, *Maire*, 156 (*Yunnansen, type*), *Morse*, 23, *Ducloux*, 810.

30. *M. PACHYCARPA*, *Benth. in Mig. Pl. Jungh. 250*; *Baker in Hook. f. Fl. Brit. Ind. ii. 106*; *Kurz, For. Fl. Brit. Burma, 353*; *Prain in Journ. As. Soc. Beng. lxxvi. II. (1897) 361*; *Brandis, Ind. Trees, 221*; *Hook. Ic. Pl. t. 2738*.

*Frutex* alte scandens vel nonnunquam arbor, cortice fusco lenticellato, ramis primo velutinis, tarde glabrescentibus. *Folia* 6–8-juga, 30–50 cm. longa, rachi mox glabra; stipulæ persistentes, rotundatæ, 2–3 mm. longæ; foliola lateralia superiora oblongo-lanceolata, breviter acuminata, basi acuta vel obtusa, 14–16 cm. longa, chartacea, supra glabra, tandem nitentia, subtus adpresse sericea, tandem fere glabra, venis marginem appropinquantibus 12–15-paribus, erecto-patentibus, infra prominulis; petioluli 4–5 mm. longi. *Paniculæ* racemiformes 2–6, in novellis infra folia approximatae, 15–30 cm. longæ, sessiles, rachi ut pedicellis calycibusque breviter adpresse brunneo-sericea; nodi floriferi rotundati, 1–3 mm. longi, bracteis 1–2 mm. longis ovatis suffulti. *Flores* in nodis 2–5-nim fasciculati, 2.1–2.3 cm. longi; pedicelli 1 cm. longi; bracteæ parvæ, ovatæ. *Calyx* campanulatus, 7 mm. longus, 6 mm. latus, dentibus 4, superiore obtuso bidentato, inferioribus triangularibus 3–4-plo tubo brevioribus; bracteolæ 1–2 mm. longæ. *Petala* glabra, pallide lilacina; vexilli lamina ovata, in unguem brevem subito contracta, ecallosa; alæ oblongæ, basi visu hamatæ; carinæ petala basi truncata velle eviter hamata. *Stamina* monadelphæ, vexillare basi solutum inflexum. *Discus* nullus. *Ovarium* pubescens, multiovulatum. *Legumen* turgidum, oblongum vel (si monospermum) oviforme, plus minus inter semina constricta, ad 23 cm. longum, 5 cm. latum et 3 cm. crassum, suturis incrassatis, glabrum, tuberculatum, valvis lignoso-coriaceis tarde dehiscentibus. *Semina* 1–5, ad 3 cm. longa, 2.5 cm. lata et 2 cm. crassa, reniformia.

The racemes and leaves develop together in April, the flowers expanding in May. The fruit is half-grown and the leaves mature and becoming glabrous in June. The ripe fruit in November.

EAST HIMALAYA: Sikkim, *Kurz, Hook. f. (1000–3000 feet)*, *King (2000 feet)*, *King and Lister (Ryang Valley)*, *Gamble 765 A, c (Selimpahar)*, *Prain's Collector, 438 (Mangpoo)*, *Gamble, 1103 A, 2102 A (Darjeeling)*.

BENGAL: W. Duars, *Gamble, 6669 B*; Chittagong, *Herb. Rep. Ec. Prod. 26072, Hook. f. et Thoms.*

ASSAM: *Jenkins (type)*, *Griffith, Kew Dist. 1767, Kurz, 142, Clarke, 43242 C, King's Collector*; Khasia Hills, *Mann (4000–5000 feet)*, *Kurz, 306, Clarke, 43280 B (Nungpo)*, *17739 A, 44208 (Shillong)*, *Herb. Rep. Ec. Prod. 12062, 12415, 10263 (Karimgunge)*, *Hook. f. et Thoms.*; Cachar, *Keenan*; Manipur, *Watt, 7257, Kuntze, 5564*; Naga Hills, *Prazer, 7, Meebold, 7123 (Phalang at 5000 feet)*.

UPPER BURMA: *Anderson (Poneshee)*, *Prazer (Khoni)*, *Dun, 103 (Chin*

Hills), *Shaik Mokim* (Kachin Hills), *Luce*, 3289 (Maimyo), *Herb. Rep. Ec. Prod.* 29928 (Bhamo).

LOWER BURMA : Tenasserim, *Gallatly*, 725.

CALCUTTA BOTANIC GARDEN, *Kurz* ("Pongamia multijuga").

SIAM : Doi Sutep, *Kerr*, 1770.

CHINA : Yunnan, *Henry*, 10521 (Mengtze), 13000 and 13530 (Szemao) ; Szechuen, *Wilson*, 3414 ; Fokien, *Herb. Hongkong*, n. 2564 (Yenping).

IC. INED. *Cathcart* (Libr. Kew).

Aberrant from the great bulk of *Millettia* by reason of its large seeds and soft, tardily dehiscent pod-valves. *M. cinerea*, however, which has similar pods, connects it with the normal-podded *M. Dielsiana*. It bears a close superficial resemblance when in flower to *Derris elliptica*, which has, however, its standard densely silky not glabrous on the back.

Brandis gives (*l. c.*) the Khasi vernacular name as *Kharina*.

31. *M. SERICEA*, *Benth. in. Miq. Pl. Jungh.* 248 ; *Miq. Fl. Ned. Ind.* i. 153 ; *Baker in Hook. f. Fl. Brit. Ind.* ii. 104 ; *Prain in Journ. As. Soc. Beng.* lxxvi. II. (1897) 88 ; *Koorders, Excursionsfl. Java*, ii. 382.—*Pongamia sericea*, *Vent. Malm.* 28, *in obs.* ; *DC. Prodr.* ii. 416. *Dalbergia angustifolia*, *Hassk. Cat. Bogor.* 284, *Flora*, 1842, ii. *Beibl.* 53, *Pl. Jav. Rar.* 399. *Millettia turgida*, *Miq. Fl. Ned. Ind. Suppl.* 300. *M. obtusa*, *Blume, ex Miq. l. c.* i. 154. *M. subcordata*, *Blume ex Miq. l. c.* *M. heterophylla*, *Blume ex Miq. l. c.*

*Frutex* alte scandens vel vagans, ramis striatis breviter dense pubescentibus, tandem glabris, rarius lenticellatis. *Folia* 3-4-juga, 20-50 cm. longa, petiolo 6-10-plo longiora, rachi ut foliorum paginis inferioribus vestita ; stipulæ deciduæ, triangulares, 2-3 mm. longæ ; foliola superiora lateralia obovata vel oblonga, apice obtuse breviter acuminata, basi obtusa, rotundata vel rare subcordata, 6-24 cm. longa, coriacea, supra intense viridia, glabra, nitida, infra fulgentia, pube minuta squamosa argentea vel pallide brunnea vestita vel tandem fere glabra, venis marginem approximantibus 8-10-paribus supra paullo impressis subtus prominentibus ; petioluli 3-12 mm. longi ; stipellæ nullæ. *Paniculæ* racemiformes in axillis superioribus et in apice ramorum approximatae, sic paniculam magnam generalem 30-50 cm. longam sæpissime formantes, terminalem vel nonnunquam lateralem, 20-30 cm. longæ, rachi ut ramulis, pedicellis, calycibus et vexilli paginis exterioribus breviter brunneo-sericea ; ramuli floriferi 7-8-flori, 2-5 mm. longi. *Flores* fasciculati, 0.8-1.2 cm. longi ; pedicelli 3-4 mm. longi ; bracteæ bracteolæque ovatae, 1 mm. longæ, persistentes. *Calyx* late campanulatus, oblique truncatus, 2 mm. longus, 3 mm. latus, dentibus obscuris. *Vexilli* lamina orbicularis, interne rubida vel cærulea, basi obtusa, exauriculata, tenuiter callosa, ungue 2-3-plo longior ; alæ carinaque subfalcatae, rubidæ vel purpureæ, striatae. *Stamina* diadelphæ, vexillare parce cohærens. *Discus* nullus. *Ovarium* lineare, pubescens, circiter 5-ovulatum. *Legumen* turgidum, ovale

vel lineare, suturis incrassatis ante turgescencia fere in alam dorso productis, 6-14 cm. longum, 2-3 cm. latum, dense velutinum, tarde uno latere dehiscens; valvæ crasse coriaceæ, teretæ. *Semina* 1-4, oblonga, apicibus truncata, 3.3 cm. longa, 1.4 cm. crassa, testâ fusca.

Flowers and fruits nearly all the year round.

MALAY PENINS. : Penang, *Curtis*, 844, 2967, *Phillips*; Perak, *Scortechini*, 1797 (Kwala Dipong), *Wray*, 2178 (Batu Togoh), 3164 (Simpang), *King's Collector*, 10479 (Ulu Bubong), 401 (Kota Bahru); Larut, *King's Collector*, 3179, 3960, 4042, 5804, 6844, 7019, 7299, 7366, 7493, *Wray*, 2364; Malacca, *Goodenough*, *Holmberg*, 888; Singapore, *Lobb*, 310.

SUMATRA, *Jungkuhn*, 72, *Herb. Blume* (Palembang), *Diepenhorst*, 695 (Priaman), *Teysmann*, *Forbes*, 3103 A, *Korthals*, 873.

JAVA, *Jungkuhn*, 48, 223 (S. Hoehankola, Waldregion), *Hasskarl*, 3997 (Batu Dodol), *Zollinger*, *Horsfield*, 23.

NEW GUINEA, *Herb. Blume*?

Var. MALACCENSIS, *Prain in Journ. As. Soc. Beng.* lxxvi. II. (1897) 88. Legumen suturis haud incrassatis, utrinque dehiscens.

MALAY PENINS. : Malacca, *Maingay*, 1184, *Kew Dist.* 518, 518/2, and 1182, *Kew Dist.*, *Goodenough*, 1706, *Holmberg*, 834, *Hervey*, *Griffith*, 1764.

If these fruiting characters are substantiated when the Malacca plant is better known a distinct species will probably be separable. The pods in a young state bear a remarkable resemblance to those of *M. albiflora*.

Miquel has established several varieties and species upon forms which the abundant material now before me shows to be well within the variation of this one species, and no useful purpose would be served by any attempt to segregate it into them or any other groups besides the variety mentioned above. Certain tendencies in extreme parts of the geographical area may be, however, indicated. In the extreme north about Penang the leaflets are inclined to become smaller and the leaves to invade the panicle. In the south, Java and Sumatra, the flowers are rarely paniculate, in the north usually so.

The species was discovered in Java by the gardener accompanying the 'La Pérouse' expedition, and specimens were sent to Ventenat, who mentioned them in his 'Malmaison' under *Pongamia*. It was next received by Bentham from Sumatra. It thus happened that the species was described from forms with axillary inflorescences.

Blume gave names to forms (1) from Java with obtuse leaflets (*M. obtusa*, Blume ex Miquel, *l. c.*), (2) from New Guinea with subcordate leaflets (*M. subcordata*, Blume ex Miquel, *l. c.*), (3) from Sumatra with short pods (*M. heterophylla*, Blume ex Miquel, *l. c.*; *M. sericea* forma *brachycarpa*, Miq.). Miquel named a Sumatran plant, which does not seem to differ at all from the type, *M. turgida*.

32. *M. PUERARIOIDES*, *Prain in Journ. As. Soc. Beng.* lxvi. (1897) 358.—*M. sericea*, *Kurz in Journ. As. Soc. Beng.* xlv. II. (1873) 275; *For. Fl.* i. 353, non *Benth.*

*Frutex* alte scandens, caule 3–4 cm. diam., cortice pallido rugoso, ramis primo breviter ferrugineo-velutinis, mox glabris lenticellatis. *Folia* 2–3-juga, ad 60 cm. longa, petiolo 5-plo longiora, rachi ut ramis primo breviter velutinis et ut illis mox glabra; stipulæ triangulares, 2 mm. longæ, persistentes; foliola superiora lateralia lanceolata vel angustiora, apice valde gradatim caudato-acuminata, basi obtusa, 20–25 cm. longa, papyracea, supra primo in costa pubescentia, mox glabra, subtus dense griseo-sericea, fulgentia, venis marginem appropinquantibus 7-paribus sub marginem longe procurrentibus infra prominentibus; petioluli 5–6 mm. longi; stipellæ nullæ. *Paniculae* racemiformes laterales, 25–35 cm. longæ, pendulæ, basi breviter nudæ; rachi primo dense puberula; nodi floriferi sæpe parvi, globosi, nonnunquam in ramulos 1 cm. longos producti. *Flores* fasciculati, 1.1–1.2 cm. longi; pedicelli 3 mm. longi; bracteæ bracteolæque 1–2 mm. longæ, lineares. *Calyx* campanulatus, 3 mm. longus, ut pedicelli bracteæ bracteolæque breviter sericeus, dentibus inconspicuis. *Petala* pallide rubida; vexilli lamina obovata, extus dense sericea, basi truncata, obscure callosa, ungue 2–3-plo longior; alæ paullo semisagittatæ; carinæ petala in unguem angustata, apice paullo sericea. *Stamina* monadelphæ, vexillare basi solutum. *Discus* brevissimus. *Ovarium* sericeum, multiovulatum. *Legumen* turgidum, lineare, 17 cm. longum, 2.5 cm. latum; tandem subglabrum, tarde dehiscens?, valvis coriaceis. *Semina* ad 5, oviformia, testa fusca.

Flowers from April to June, fruits in February.

UPPER BURMA: *Shaik Mokim*, 79, *Anderson* (*Poneshee, type*); Kachin Hills, *Pottinger*.

LOWER BURMA: *Pegu*, *Kurz*, 1765 (*Tongkyeghat, Nakawachoung, type*); Tenasserim, *Gallatly*, 531 (*Choungya at 4000 feet, type*).

33. *M. CAUDATA*, *Baker in Hook. f. Fl. Brit. Ind.* ii. 109; *Kurz, For. Fl. Brit. Burm.* 352.—*Pongamia caudata*, *Grah. in Wall. Cat. n.* 5895. *Otosema caudata*, *Benth. in Miq. Pl. Jungh.* 249.

*Frutex* scandens, cortice pallido lenticellato. *Folia* 3–4-juga, 20–30 cm. longa, rachi glabra, petiolo 3–4-plo longiora; stipulæ nullæ; foliola superiora lateralia oblongo-lanceolata, longe caudata, basi obtusa, 9–13 (–20) cm. longa, papyracea, supra glabra obscure reticulata, subtus glauca et primo adpresse sparse sericea, venis marginem appropinquantibus 9-paribus, infra prominulis; petioluli 4–5 mm. longi; stipellæ setaceæ, 1–2 mm. longæ, caducæ. *Racemi* sæpe laterales, nonnunquam in nodis ligni veteris fasciculati, 15–25 cm. longi, graciles, laxi, rachi apice puberula; nodi floriferi distantes, sessiles, 1–2 mm. longi, 1–2-flori. *Flores* 1–1.1 cm. longi; bracteæ minutæ, ovatæ, deciduæ. *Calyx* campanulatus, 3–4 mm. longus, membranaceus, tenuiter sericeus,

dentibus obsolete; bracteolæ minutæ, caducæ. *Vexilli* lamina rotundata, basi subito in unguem 5-plo brevior angustata, subcordata, obscure bicallosa, dorso dense sericea; alæ angustæ, basi obtusæ; carinæ petala conformia. *Stamina* monadelpha, vexillare basi solutum paullo dilatatum. *Discus* brevissimus, papillosus. *Ovarium* lineare, sericeum, multiovulatum. *Legumen* lineare, 10 cm. longum, 1.2 cm. latum, turgidum, adpresse sericeum, tandem glabrum, dehiscens, valvi suturis incrassatis. *Semina* 2-5, oblongo-ovoidea.

Flowers in April.

ASSAM : Khasia, *Hook. f. et Thoms.* (0-3000 feet), *Clarke*, 5514, *Wall. Cat.* 5895 (Silhet, type).

CULTIVATED : Calcutta Botanic Garden, No. 8 division (climber), "*Pongamia urophylla*," "*Tephrosia urophylla*."

34. *M. DECIPIENS*, *Prain in Journ. As. Soc. Beng.* lxvi. II. (1897) 90 and 360 (fructu excluso).

*Arbor* magna, ad 34 m. alta, ramulis fuscis rugosis, lenticellatis. *Folia* 4-juga, 12-16 cm. longa, glabra, petiolo 5-plo longiora; stipulæ 0; foliola superiora lateralia oblongo-oblongata, acuminata, basi obtusa, 5-9 cm. longa, papyracea, subtus pallida sed non glauca (*Scortechini*), venis marginem appropinquantibus 7-9-paribus inconspicuis; petioluli 4 mm. longi; stipellæ nullæ. *Racemi* laxi, axillares, 10-15 cm. longi, rachi in parte superiore tenuiter ferruginea basi nuda; nodi floriferi sessiles, 1-2-flori. *Flores* 7-8 mm. longi; pedicelli 4-5 mm. longi, filiformes; bracteæ nullæ; bracteolæ minimæ, sæpe infra calycem, deciduæ. *Calyx* 2 mm. longus, 5 mm. latus, dentibus brevibus, pubescens. *Petala* rubida; vexilli lamina oblata, basi truncata, auriculata, dorso brevissime sparse pubescens, ungue 4-plo longior; alæ breviores, falcatæ; carinæ petala basi truncata. *Stamina* monadelpha, vexillare basi et mox omnino solutum. *Discus* nullus. *Ovarium* pubescens, 4-5-ovulatum.

Flowers in February.

MALAY PENINS., *Scortechini*, 1749 (Kwala Dipong, type).

As the name implies, this species is liable to be confused with *Pongamia glabra*, Vent. Its rather smaller flowers, 4-ovuled ovaries, and lenticellate bark distinguish it. The fruiting specimens, which Prain referred to it, the pods of which he cited as distinguishing it from *Pongamia glabra*, belong rather, in the writer's opinion, to *M. Hemsleyana*.

35. *M. DEHISCENS*, *Prain, l. c.* 360; *Koorders, Excursionsfl. Java*, ii. 382.—*Pongamia dehiscens*, *Koorders et Valetton in Meded. 's Lands Plantent.* xiv. 96.

*Arbor* 10-12 m. alta, præter inflorescentiam glabra, ramulis rugosis lenticellatis. *Folia* 3-5-juga, 20-28 cm. longa, petiolo 4-plo longiora; stipulæ

nullæ ; foliola superiora lateralia lanceolato-oblonga, acuminata, basi rotundata, 8-13 cm. longa, papyracea, venis marginem appropinquantibus 6-7-paribus ; petioluli 5-6 mm. longi ; stipellæ nullæ. *Racemi* axillares, 15-20 cm. longi, rachi, pedicellis calycibusque tenuiter laxè floccosis ; nodi 1-2-flori. *Flores* 1.1 cm. longi ; pedicelli filiformes, 1-1.5 cm. longi ; bracteæ lineares, 7 mm. longæ, caducæ. *Calyx* patulus, 2-3 mm. longus. *Petala* cærulea ; vexilli lamina rotundata, auriculata, dorso apice pubescens, ungue 3-4-plo longior ; alæ utrinque obtusæ ; carinæ petala ovata, in unguem longum subito contracta. *Stamina* monadelpha. *Discus* nullus. *Ovarium* pubescens, 5-ovulatum. *Legumen* lineari-oblongum, glabrum, suturis obtusis, 8-13 cm. longum, elasticè dehiscens, valvis lignoso-coriaceis, 2-4-spermum. *Semina* suborbicularia, nitida, fusca ; cotyledones orbiculares, basi oblique truncatæ ; radícula teres, inflexa.

Flowers in September.

JAVA, *Koorders and Valeton*, 4105, 14191 (*types*), *Kuntze*, 5975 (Bromogebirge at 4500 feet).

36. *M. OVALIFOLIA*, *Kurz in Journ. As. Soc. Beng.* xlii. ii. (1873) 68 (excl. syn.) ; *Baker in Hook. f. Fl. Brit. Ind.* ii. 107 ; *Kurz, For. Fl. Brit. Burm.* 356.

*Arbor* nonnumquam magna, præter pubescentiam sparsam deciduam in foliis novis et in inflorescentia omnino glabra, cortice pallido lævi. *Folia* (2-)3-juga, 15-20 cm. longa, petiolo 4-plo longiora ; stipulæ nullæ ; foliola superiora lateralia elliptica, apice obtusa, acuta vel leviter acuminata, basi rotundata, 3-7 cm. longa, papyracea, venis marginem approximantibus 6-8-paribus inconspicuis ; petioluli 4-6 mm. longi ; stipellæ nullæ. *Racemi* laxi, graciles, sæpius in ramulis aphyllis aggregati, 10-20 cm. longi ; nodi floriferi parvi, 1-2-flori. *Flores* 7-8 mm. longi ; pedicelli filiformes, 4-7 mm. longi ; bracteæ nullæ ; bracteolæ 1 mm. longæ, lineares, sæpe infra calycem insertæ. *Calyx* patulus, 1-2 mm. longus, præter marginem fere glaber, dentibus inconspicuis. *Petala* glabra ; vexilli lamina rotundata, basi auriculata, in unguem 4-5-plo breviorè subito angustata ; alæ utrinque basi obtusæ ; carinæ petala ovata, subrostrata, basi truncata. *Stamina* monadelpha, vexillare basi solutum. *Discus* nullus. *Ovarium* lineare, pubescens, multiovulatum. *Legumen* lineare, ad 9 cm. longum, 1.5 cm. latum, glabrum, facile dehiscens, valvis lignosis, sæpius crebre lenticellosis, inter semina cohærentibus ; legumina nova reticulata, suturis incrassatis.

Flowers in February and March, fruits in the following February to May.

LOWER BURMA : Pegu, *Kurz*, 2605, 2606 (*types*) ; Mergui, *Forest Dept.* ("Nantha") ; Rangoon, *Meebold*, 15536, *Abdul Huk*, 51 ; Minbu, *Aubert and Gage*.

SIAM : Kanboerie, *Teysmann*, 6026.

CULTIVATED : Calcutta ; Agri-Hort. Soc. Rangoon, *Proudlock*, 94 ; Agri-Hort. Soc. Lucknow.

The trivial name was conferred by Kurz on the supposition that *Pongamia ovalifolia*, Wight et Arn. (*Prodr.* 262), was the first name for the species. Wight and Arnott's plant appears, however, from the description to have different flowers, with two ovules in the centre of the ovary (like *P. glabra*) and with an ecallose standard.

37. *M. GLAUDESCENS*, Kurz in *Journ. As. Soc. Beng.* xlii. ii. (1873) 67 ; *Baker in Hook. f. Fl. Brit. Ind.* ii. 107 ; Kurz, *For. Fl. Brit. Burm.* 357 ; *Brandis, Ind. Trees*, 220.

*Arbor* magna, præter novella et inflorescentiam glabra, ramulis pallidis rugosis. *Folia* 3-4-juga, 16-30 cm. longa, petiolo 4-plo longiora ; stipulæ oblongæ, 4 mm. longæ, caducæ ; foliola lateralia superiora anguste oblongo-ovata, acuminata, basi cuneata, 8-10 cm. longa, papyracea, venis marginem approximantibus 8-10-paribus, infra prominulis ; petioluli 4-5 mm. longi ; stipellæ nullæ. *Racemi* axillares, laxi, 16-20 cm. longi, rachi gracili secus apicem ut pedicellis calycibusque tenuiter pubescente basi nuda ; nodi floriferi sessiles, 1-2-flori. *Flores* 1 cm. longi, cyanei ; pedicelli capillares, 4-5 mm. longi ; bracteæ nullæ ; bracteolæ minimæ, sæpe infra calycem insertæ. *Calyx* late campanulatus, 1.5-2 mm. longus, sparse breviter hirtus, dentibus parvis. *Petala* glabra ; vexilli lamina rotundata, in basin auriculatam ungui æquilongam subito angustata ; alæ utrinque obtusæ ; carinæ petala ovata, rostrata, basi obtusa. *Stamina* monadelpha, vexillare basi solutum. *Discus* nullus. *Ovarium* tenuiter pubescens, 5-ovulatum. *Legumen* oblongum, 8-13 cm. longum, 3 cm. latum, primo intense glaucum, tandem glabrum, suturis in alas 3-4 mm. latas dilatatis, lenticellis ornatum, facile elasticè dehiscens, valvis lignosis inter semina cohærentibus, 1-3-spermum. *Semina* compressa, fusca.

LOWER BURMA : Pegu, Kurz, 2613, 1777 (*types*), Brandis.

SHAN STATES, Collett, 601 (Shan Hills terai).

BORNEO, Beccari, 3070.

CULTIVATED : Madras, *Beddome*, 14.

Burmese name, *Taungka* (Brandis, *l. c.*).

38. *M. PRAINII*, Dunn, sp. n.—*M. glaucescens*, Prain in *Journ. As. Soc. Beng.* lxxvi. ii. (1897) 362 (p. p.), non Kurz.

*Arbor* magna, ramulis pallidis rugosis, fere omnino glabra. *Folia* 3-4-juga, 20-30 cm. longa, primo pilis paucis sparsis vestita, mox glabra, petiolo 6-plo longiora ; stipulæ parvæ, ovatæ, 1-1.5 mm. longæ, deciduæ ; foliola superiora lateralia ovato- vel lanceolato-oblonga, apice acuminata, basi obtusa, 8-13 cm. longa, chartacea tandem subcoriacea, venis marginem approximantibus

6-paribus tandem subtus prominentibus; petioluli 3-6 mm. longi; stipellæ nullæ. *Racemi* axillares, in ramulis brevibus foliosis aggregati, 8-11 cm. longi, rachi superius ut pedicellis marginibusque calycem laxè pubescente; nodi floriferi pauciflori, sessiles. *Flores* 9 mm. longi; pedicelli graciles, 3 mm. longi; bracteolæ paullo infra calycem affixæ bracteæque minutæ, lineares. *Calyx* patulus, 2 mm. longus, dentibus brevibus. *Vexilli* lamina rotundata, basi bicalloso-auriculata, dorso glabra; alæ carinæque petala oblongæ, basi obtusæ. *Stamina* monadelphæ, vexillare basi solutum. *Ovarium* oblongum, adpresse sericeum, multiovulatum. *Legumen* lineari-oblongum, 8-12 cm. longum, 1.5-2 cm. latum, suturis incrassatis, anguste alatis, valvis 2 mm. crassis, alis supra eos 2 mm. stantibus.

Flowers in March and April, fruits ripe in the following March to May.

E. HIMALAYA: Sikkim, *Prain's Collector* (Kukna), 52 (Sevotie), *Cave*, 177 (Sivok), *Gamble*, 689 B (Chumbati at 2000 feet), 2238 A (Chongwong), 2240 C (Panchenai), *Ribu and Rhomoo*, 3614 (Assarbari plains).

CULTIVATED: Saharanpur, *Duthie*.

39. *M. PTEROCARPA*, *Dunn*, sp. n.—*M. glaucescens*, *Prain in Journ. As. Soc. Beng.* lxi. II. (1897) 362 (p. p.), non *Kurz*.

*Arbor* magna, in fructu omnino glabra, cortice pallido lævi. *Folia* (3-4)-juga, 20 cm. longa, petiolo 5-plo longiora; stipulæ nullæ; foliola superiora lateralialia oblonga, caudato-acuminata, basi obtusa, 9-10 cm. longa, papyracea, subtus pallida, venis marginem approximantibus 9-paribus infra prominentibus; petioluli 4 mm. longi; stipellæ nullæ. *Racemi* axillares, 8-13 cm. longi, pedunculati, nodis approximatis. *Legumen* lineare, ad 17 cm. longum, 3.5 cm. latum, glabrum, primo reticulatum, tandem læve, suturis anguste alatis, alis 4 mm. latis. *Semina* 2-3.

MALAY PENINS.: Perak, *Wray*, 168 (Kapayong, Kinta), *Scortechini*, *Fox*, 10788 (Ipoh).

Distinguished from *M. glaucescens* by the reticulation of its pods when young and of its leaves, and from *M. Prainii* by the narrow wings and broad valves of its pods.

40. *M. TETRAPTERA*, *Kurz in Journ. As. Soc. Beng.* xlii. II. (1873) 69; *Baker in Hook. f. Fl. Brit. Ind.* ii. 106; *Kurz, For. Fl. Brit. Burm.* 358.

*Arbor* 15-26 m. alta, ramulis primo velutinis, tandem glabris flavidis vel fuscis rugosis. *Folia* fusco-viridia, 2-3-juga, 15-30 cm. longa, petiolo 4-plo longiora, rachi ut eas racemorum velutina tandem glabrescente; stipulæ oblongæ, 3-4 mm. longæ, deciduæ; foliola lateralialia superiora obovata, retusa, obtusa vel breviter acuminata, 8-13 cm. longa, subcoriacea, primo utrinque dense lanuginosa, tum supra glabra et ultimo utrinque præter venas majores

infra tomentosas glabra, venis marginem appropinquantibus 7-8-paribus infra prominentibus ; petioluli 4 mm. longi ; stipellæ nullæ. *Racemi* versus apices ramulorum florigerorum congregati, nonnunquam infra folia ob foliationem apicis, 15-20 cm. longi ; nodi floriferi sessiles, 2-5-flori, bractea lineari decidua suffulti. *Flores* congesti, 0·9-1·1 cm. longi ; pedicelli 7 mm. longi ; bracteæ bracteolæque minutæ. *Calyx* late campanulatus, 2-2·5 mm. longus, dentibus brevibus latis. *Petala* glabra ; vexilli lamina oblata, ad basin auriculatam obtusè angustata, ungue 5-plo longior ; alæ oblongæ, falcatae ; carinæ petala ovata, base truncata. *Stamina* monadelphæ, vexillare basi solutum. *Discus* nullus. *Ovarium* lineare, pubescens, 4-ovulatum. *Legumen* lineare vel oblongum, ab initio tetrapterum, alis 1·0-1·2 cm. latis ex margine valvæ erectis, ad 15 cm. longum, 3 cm. latum, glabrum, elasticè dehiscens, valvis lignosis inter semina cohærentibus. *Semina* nigra, oblato-sphæroidea, 1 cm. longa.

Flowers from March to June, fruits ripe from November to January.

UPPER BURMA, *Præzer*, *Badal Khan*, 142 (Maimyo), *Abdul Huk* (Sagaing and Kyoukse), *Shaik Mokim*, 636 (Minbu).

LOWER BURMA, *Wall. Cat.* 5976 (Yananghuen, *type*), 5977 (Thayatmiew, *type*), *Col. Eyre* (Pegu, *type*), 2597 (Pegu, *type*).

SHAN STATES : Monay, *Abdul Khalil*.

CULTIVATED : Calcutta, *Griffith*, *Kurz* (*type*) ; Saharanpur.

The Saharanpur tree bears racemes 4·5 cm. broad and flowers half as large again as those described above, but as it is in other respects similar to *Kurz's* types, it is probably merely a luxuriant form.

41. *M. HEMSLEYANA*, *Prain in Journ. As. Soc. Beng.* lxvi. II. (1897) 90 and 360.—*M. decipiens*, *Prain* (pro parte parva).

*Arbor* 7-17 m. alta, cortice griseo rugoso, ramulis primo pubescentibus, tandem glabris. *Folia* 3-4-juga, 15-20 cm. longa, petiolo 5-plo longiora, rachi pubescente glabrescente ; stipulæ oblongæ, falcatae, 7 mm. longæ, dorso pubescentes, per anthesin persistentes ; foliola superiora lateralia oblongo-elliptica, acuminata, basi cuneata vel obtusa, 6-8 cm. longa, papyracea, primo utrinque dense floccoso-sericea, tum præter venas floccosas et tandem nonnunquam omnino glabra, venis marginem approximantibus 7-8-paribus tandem infra prominulis ; petioluli 4 mm. longi ; stipellæ nullæ. *Racemi* axillares vel in novellis aphyllis aggregati, 7-10 cm. longi, rachi laxè tomentosa ; nodi floriferi sessiles, 1-4-flori. *Flores* 1·0-1·3 cm. longi ; pedicelli capillares, 5 mm. longi ; bracteæ lanceolatae, deciduæ, 5 mm. longæ ; bracteolæ non visæ. *Calyx* late campanulatus, 2·5 mm. longus, hirsutus, dentibus brevibus latis. *Petala* glabra, albo-rubida ; vexilli lamina rotundata, in basin auriculatam subito contracta, ungue 5-plo longior ; alæ oblongæ, basi truncatae ; carinæ petala ovata, apice paullo pubescentia, basi truncata. *Stamina* monadelphæ, vexillare basi solutum. *Discus* nullus. *Ovarium* lineare,

pubescens, multiovulatum. *Legumen* lineare, 15 cm. longum, 3·5 cm. latum, glabrum, elasticè dehiscens, valvis tenuiter lignosis.

Flowers in January and February, fruits ripe in August.

MALAY PENINS. : Perak, *Wray*, 548 (Pluss River), 3608, 3308, 3310 (Polo Kamiri, *type*), *Ridley*, 14677, *King's Collector*, 10718 ; Pahang, *Ridley*, 2592, 2591 (Kwala Takau).

Nearest *M. pubinervis*, but distinguished when in flower by its large persistent stipules. There is difficulty in distinguishing some of the *Fragilifloræ* when in fruit, and the fruiting specimens attached by Prain to *M. decipiens* appear to me to belong here, because the leaves of these specimens are pubescent on the midrib below as in the present species, while those of *M. decipiens* are quite glabrous even when young.

42. *M. WRIGHTIANA*, *Prain in Journ. As. Soc. Beng.* lxvi. II. (1897) 359.

*Arbor* 30 m. alta, ramulis brunneis rugosis striatis. *Folia* 2-3-juga, 15-25 cm. longa, petiolo 5-plo longiora, rachi ut petiolulis, ut pagina inferiore foliorum et ut racemorum rachibus primo tenuiter lanuginosa, tandem fere glabra ; stipulæ nullæ ; foliola lateralia superiora ovata, obtuse acuminata, basi obtusa, 5-11 cm. longa, papyracea, venis marginem appropinquantibus 6-paribus infra prominulis ; stipellæ nullæ. *Racemi* ad apices ramorum congesti, ante foliorum evolutionem florentes, 15-20 cm. longi ; nodi floriferi sessiles, 2-4-flori. *Flores* fasciculati, 7 mm. longi ; pedicelli filiformes, 4-5 cm. longi. *Calyx* patulus, 2 mm. longus, sparse pubescens, dentibus inconspicuis. *Petala* glabra ; vexilli lamina oblata, in basin auriculatam subito contracta, ungue 4-5-plo longior ; alæ oblongæ, subfalcatæ ; carinæ petala ovata, subfalcata. *Stamina* monadelphæ, vexillare basi solutum. *Discus* nullus. *Ovariam* lineare, pubescens, 7-ovulatum. *Legumen* immaturum lineare, ad 11 cm. longum, 1·5 cm. latum, glabrum, suturis incrassatis, valvis valde reticulatis.

UPPER BURMA, *Præzer* (*type*).

SHAN STATES, *Abdul Khalil* (Laikau and Saga, *types*, and Taungyi).

43. *M. PUBINERVIS*, *Kurz in Journ. As. Soc. Beng.* xlii. II. (1873) 68 ; *Baker in Hook. f. Fl. Brit. Ind.* ii. 106 ; *Kurz, For. Fl. Brit. Burm.* 357.

*Arbor* parva, cortice brunneo scabro. *Folia* 3-5-juga, 12-20 cm. longa, petiolo 4-plo longiora, rachi ut venis majoribus sub foliola, ut rachi pedicellis calycibusque inflorescentiæ lanugine flavida laxa tenuiter vestita ; stipulæ caducæ ; foliola superiora lateralia lanceolata, acuminata, basi cuneata, membranacea, præter pubescentiam citatam fere glabra, venis marginem approximantibus 6-7-paribus inconspicuis ; petioluli 5 mm. longi ; stipellæ nullæ. *Racemi* axillares, 12-15 cm. longi ; nodi parvi pauciflori. *Flores* fasciculati, 1·0 cm. longi ; pedicelli 4-5 mm. longæ ; bractæ membranacæ,

lanceolatae, 4-5 mm. longae; bracteolae nullae. *Calyx* niger (*Gallatly*), late campanulatus, 2.5 mm. longus, tenuiter pubescens, dentibus inconspicuis. *Petala* alba et nigra (*Gallatly*); vexilli lamina rotundata, basi truncata, medio auriculata, ungue 4-5-plo longior, dorso pubescens; alae oblongae, falcatae; carinae petala lanceolata, falcata, apice paullo rostrata. *Stamina* monadelpha, vexillare basi solutum. *Discus* nullus. *Ovarium* lineare, pubescens, 6-ovulatum. *Legumen* lineare, 10-14 cm. longum, 2 cm. latum, glabrum, reticulatum, valvis coriaceis, suturis paullo incrassatis.

Flowers from April to August, fruits in September.

UPPER BURMA, *Brandis, Jackson* (Katha).

LOWER BURMA: Pegu, *Kurz*, 1778 (Tonkyeghat, *type*); Tenasserim, *Gallatly*, 562; Amherst, *Lace*, 4721.

SIAM: Doi Sootep at 1100 feet, *Kerr*, 1452.

44. *M. LONGIPES*, *Perkins, Fragmenta Fl. Philipp.* (1904) 80.

*Arbor* vel frutex, ramulis primo brunneo-pubescentibus tandem glabris pallidis. *Folia* 1-2-juga, 12-16 cm. longa; foliola obovato-oblonga vel oblonga, longe obtuse acuminata, basi cuneata vel rotundata, 6-9 cm. longa, subcoriacea, utrinque glabra, venis marginem appropinquantibus 7-8-paribus infra prominulis. *Paniculae* axillares, secus apices ramulorum, 15-20 cm. longae, rachi ut ramulis pedicellisque ferrugineo-pubescente, ramulis laxis paucifloris. *Flores* 1 cm. longi, pedicelli 5-8 mm. longi, graciles. *Calyx* late campanulatus, paullo pubescens, 4 mm. longus, dentibus superioribus duo brevibus latis, infimo triangulari 1.5 mm. longo lateralibus paullo longiore. *Vexilli* lamina orbicularis, integra, dorso sparse pubescens. *Stamina* monadelpha, vexillare basi solutum. *Ovarium* pubescens. *Legumen* lineare, 6-9 cm. longum, 1.5 cm. latum, lignosum, laeve, 3-spermum.

PHILIPPINE ISLANDS: Luzon, Isabela Province, *Warburg*, 12094, 12095, 12112 (Malum, *types*).

No specimens have been seen, the above description being taken from Perkins' and made uniform with the plan adopted in this paper.

45. *M. CANARIIFOLIA*, *Merrill in Philipp. Journ. Sci., Bot.* v. (1910) 71.

*Arbor* mediocris, saltem praeter inflorescentia glabra, ramis brunneo-rubrescentibus lenticellatis. *Folia* 3-juga, 18-20 cm. longa; stipulae nullae; foliola superiora lateralia oblongo-ovata, obtuse breviter acuminata, basi late rotundata, 6-9 cm. longa, coriacea, utrinque nitida, subtus pallidiora, venis 6-7-paribus infra prominulis; petioluli 6-7 mm. longi; stipellae nullae. *Racemi* axillares; nodi floriferi sessiles, pauciflori. *Flores* ignoti. *Legumen* anguste oblongum, paullo falcatum, gradatim acuminatum, basi in stipitem angustatum, suturis paullo incrassatis, ad 13 cm. longum, 1.5-1.8 cm. latum, praeter basin pubescentem glabrum; pedicelli 1.8-2.0 cm. longi.

Fruits ripe in December.

PHILIPPINE ISLANDS : Luzon, Prov. of Zambales, Candelaria, *Bureau of Science*, 4711, 4727 (*types*).

The tree which is locally known as *Malapatpat*, as the collector Ramos states, was given its trivial name by Merrill in consequence of the resemblance of its leaves to those of *Canarium luzonicum*.

46. M. FOXWORTHYI, *Merrill in Philipp. Journ. Sci., Bot.* v. (1910) 72.

*Arbor* magna, præter flores glabra, ramis brunneo-rubrescentibus lenticellatis. *Folia* 3-juga, 8-10 cm. longa, petiolo 4-plo longiora; stipulæ caducæ; foliola lateralia superiora oblongo-elliptica, ad apicem obtusum apiculatum angustata, basi rotundata et brevissime acuminata, 3.5-4.2 cm. longa, chartacea, subtus pallida, venis marginem appropinquantibus 5-6-paribus inconspicuis; petioluli 4-5 mm. longi; stipellæ nullæ. *Racemi* axillares, 5-6 cm. longi, in summis ramis congestis; nodi floriferi parvi, sessiles, pauciflori. *Flores* fasciculati, 1.2-1.5 cm. longi, præter vexillum apice paullo sericeum et ovarium paullo pubescens, glabri; pedicelli 7-8 mm. longi, filiformes, medio minute bibracteolati; bracteæ nullæ; bracteolæ 0.3 mm. longæ. *Calyx* tandem late campanulatus, 4 mm. longus, glaber, dentibus obscuris. *Petala* pallide purpurea; vexilli lamina rotundata, basi rotundata vel paullo sagittata, medio auriculata, ungue 5-plo longiora; alæ oblongæ, in unguem angustatæ; carinæ petala basi obtusa. *Stamina* monadelphæ, vexillare basi solutum. *Discus* nullus. *Ovarium* lineare, fuscum, hirtis paucis pallidis vestitum, multiovulatum.

Flowers in March along river-banks at 250 m. altitude.

PHILIPPINE ISLANDS : Palawan, Mt. Victoria, *Bur. of Sci.* 740 (coll. by Foxworthy, *type*); Rizal, *Vidal*, 240, 1243 (San Mateo).

47. M. CAVITENSIS, *Merrill in Philipp. Journ. Sci., Bot.* v. (1910) 72.

*Arbor* mediocris, præter flores glabra, ramis griseis paullo lenticellatis. *Folia* bijuga, 16-20 cm. longa, petiolo 4-plo longiora; stipulæ 1-2 mm. longæ, oblongæ, caducæ; foliola superiora lateralia oblonga, apicè acuminata, basi rotundata, 8-9 cm. longa, chartacea, utrinque nitida, venis marginem appropinquantibus 5-paribus ascendentibus inconspicuis; stipellæ nullæ. *Racemi* axillares, 12-20 cm. longæ, fere ad basin floriferi; nodi floriferi parvi, sessiles, pauciflori. *Flores* fasciculati, 2.4 cm. longi, præter vexillum dorso paululo sericeum ovariumque pubescentia glabri; bracteæ nullæ; pedicelli 1-1.2 cm. longi, filiformes, medio minute bibracteolati. *Calyx* 4-6 mm. longus, campanulatus, dentibus obsolete. *Petala* intense purpurea; vexilli lamina rotundata, basi medio auriculata, in unguem 3-4-plo brevior subitò angustata; alæ lineari-oblongæ, utrinque obtusæ; carinæ petala oblonga in unguem acute angustata. *Stamina* monadelphæ, vexillare basi solutum. *Discus* nullus. *Ovarium* lineare, pubescens, 6-ovulatum.

Flowers in July. Along small streams in forest ravines at 250 m. altitude.

PHILIPPINE ISLANDS: Luzon, Cavite Province, *Merrill*, 4181 (Maragondong, *type*); Ilicos Norte Province, *Forestry Bureau*, 13815; Isl. of Paragua, *Vidal*, 2573 ("Calancan").

48. M. MERRILLII, *Perkins, Fragmenta Fl. Philipp.* (1904) 81.

*Frutex* præter flores glabra, ramis lævibus griseis. *Folia* 4-(5)-juga, 12-24 cm. longa, petiolo 4-5-plo longiora; stipulæ caducæ; foliola superiora lateralialia oblonga, acuta vel obscure acuminata, basi rotundata, 4-6 cm. longa, papyracea, venis marginem appropinquantibus erecto-patentibus arcuatis 5-7-paribus utrinque inconspicuis; petioli graciles, 3 mm. longi; stipellæ nullæ. *Racemi* axillares, sæpius cum foliis paucis in novellis brevibus gesti, 5-14 cm. longi, breviter pedunculati; nodi floriferi parvi, sessiles, pauciflori. *Flores* fasciculati, 8-9 mm. longi, violaceo-rosei, præter calycem, vexilli apicem ovariumque paullulo pubescentes, glabri; pedicelli filiformes, 5-7 mm. longi, apice minute hibracteolati; bracteæ nullæ. *Calyx* late campanulatus, 2-2.5 mm. longus, fere omnino glaber, dentibus obsoletis. *Vexilli* lamina rotundata, basi obtusa, auriculata, in unguem brevem crassum abrupte transiens; alæ oblongæ, falcatæ, carinæ petala ovata, basi obtusa. *Stamina* monadelphæ, vexillare basi solutum. *Discus* nullus. *Ovarium* sparse pubescens, lineare, 5-ovulatum. *Legumen* lineare, ad 10 cm. longum, 1.5 cm. latum, complanatum, dehiscens, valvis tenuiter lignosis, apice acuminatum, basi in stipitem brevem angustatum.

Flowers in April and ripens fruit in the following February to April.

PHILIPPINE ISLANDS: Luzon, Benguet, *Elmer*, 6166 (Sablan); Pampanga, *Merrill*, 1387 and 3831 (Arayat, *type*), *Loher*, 2415 (Arayat); Rizal, *Merrill*, 1633, 1625 (*type*), 2801, *Vidal*, 2572, *Bur. of Sci.* 2178, *Loher*, 2413, 2414 (Antipolo), 2416 (San Mateo); Manila, *Warburg*, 12891 and 12578 (Montalban, *types*); Mindoro, *Merrill*, 9821.

Apparently a common plant in Luzon, being recorded by Merrill, in his "Enumeration of Philippine Leguminosæ," from the Provinces of Isabela, Cagayan, Union, Pampanga, Bulacan, and Rizal. One locality in Mindoro is also on record. The native names in Rizal are *Baloc* and *Baloc-baloc*, in Pampanga *Bani* and *Malabay*.

49. M. CAPILLIPES, *Dunn in Philipp. Journ. Sci., Bot.* vi. (1912) 316.

*Frutex* 5 m. altus, præter ovarium omnino glaber, cortice griseo. *Folia* bijuga, 15 ad 20 cm. longa, exstipulata; foliola superiora lateralialia lanceolata, apice gradatim acuminata, basi acuta, 6 ad 10 cm. longa, chartacea, nervis utrinque 5 ad 7 subtus paullo prominulis; petioluli 4 ad 5 mm. longi; stipellæ nullæ. *Racemi* axillares, 10 ad 12 cm. longi, laxiflori. *Flores* 1-vel 2-ni, 1 cm. longi; pedicelli capillacei, 4 ad 6 mm. longi, sub flore minute

bibracteolati. *Calyx* patulus, 2 mm. longus, truncatus. *Petala* rubida; vexilli lamina rotundo-ovata, basi fortiter bicallosa, truncata, in unguem subito angustata; alæ carinaque oblongæ, basi in unguem angustatæ. *Stamina* monadelphæ, vexillare basi solutum. *Ovarium* sessile, pubescens.

PHILIPPINE ISLANDS: Luzon, Province of Isabela, Cabagan River, *Forestry Bureau*, 18549 (collected by Alvarez).

50. M. AHERNII, *Merrill et Rolfe in Philipp. Journ. Sci., Bot.* iii. (1908) 103; *Merrill, l. c.* v. (1910) 71.

*Arbor* parva, saltem præter inflorescentiam non visam glabra, ramis pallide brunneis lenticellatis. *Folia* (3-)4-juga, 20-24 cm. longa, petiolo 5-plo longiora; stipulæ non visæ; foliola superiora lateralia ovato-oblonga, apice breviter acuminata, basi obtusa brevissime acuminata, 8-9 cm. longa, subcoriacea, venis 6-8-paribus erecto-patentibus infra prominentibus; petioluli 5 mm.; stipellæ nullæ. *Racemi* in axillis foliorum summorum, 15-20 cm. longi, parte inferiore nudi, 8-12 cm. longi; nodi floriferi sessiles, pauciflori. *Ovarium* 6-ovulatum. *Legumen* lineare, apice basique obtusum, 18-20 cm. longum, 2-2.5 cm. latum, facile dehiscens, valvis lignosis, suturis incrassatis, inter semina liberis. *Semina* 4-6, compressa.

Fruits from June to Sept.

PHILIPPINE ISLANDS: Rizal, *Forestry Bureau*, 3373 (Bosoboso, *type*), *Bureau of Sci.* 12436, 5221 (San Mateo); Ilocos, *Forestry Bur.* 5655.

51. M. STIPULATA, *Dunn in Philipp. Journ. Sci., Bot.* vi. (1912) 316.

*Arbor* 20 m. alta, præter inflorescentiam omnino glabra, cortice rugoso griseo, ligno flavo. *Folia* bijuga, 20 cm. longa; stipulæ persistentes, oblongæ, falcatae, reflexæ, 4 mm. longæ; foliola late ovata, gradatim breviter caudata, basi obtusa vel truncata, ad 10 cm. longa, papyracea, subtus glaucescentia, nervis utrinque 6, valde arcuatis; petioli 5 mm. longi; stipellæ nullæ. *Racemi* axillares, 7 cm. longi, pedunculis 1- ad 2-plo longiores, rachi ut pedicellis, calycibus petalisque laxè sparseque pubescenti. *Flores* 10 ad 12 mm. longi, pedicellis filiformibus 6 ad 8 mm. longis. *Calyx* breviter campanulatus, fere truncatus, tandem patulus; bracteolæ minutæ, hirsutæ. *Petala* alba; vexilli lamina ovata, ecallosa, basi plicata, in unguem brevem angustata; alæ semisagittatæ; carina cuneato-oblonga. *Stamina* monadelphæ. *Ovarium* lineare, paullo ad apicem tenuiter pubescens, basi disci papillis cinctum.

PHILIPPINE ISLANDS: Luzon, Province of Bulacan, Angat, *For. Bur.* 11140 (collected by Aguilar).

52. M. LITORALIS, *Dunn in Philipp. Journ. Sci., Bot.* vi. (1912) 316.

*Arbor* parva (?), ramis fuscis lenticellatis. *Folia* 5- vel 6-juga, 14 ad 17 cm. longa, glabra, petiolo 5-plo longiora; stipulæ ovatae, persistentes,

2 ad 3 mm. longæ ; foliola superiora lateralia ovato-oblonga, obtusè acuminata, basi rotundata, 4 ad 5 cm. longa, papyracea, utrinque paullo reticulata, venis 5- vel 6-paribus ; petioluli 2 ad 3 mm. longi ; stipellæ nullæ. *Racemi* axillares et, supra folia, stipulis tantum suffulti, paniculam formantes, ad 25 cm. longi, pedunculati, rachibus præcipue apice dense adpresse pubescentibus ; nodi floriferi brevissimi. *Flores* fasciculati, 1 cm. longi ; pedicelli 8 ad 10 mm. longi, tenuiter albo-puberuli ; bracteæ minutæ ; bracteolæ caducæ. *Calyx* late patulus, 2 mm. longus, 3 mm. latus, infra puberulus, obscure dentatus. *Petala* alba, minute et sparse puberula ; vexilli lamina reflexa, ovata, basi conduplicata nec callosa, in unguem angustata, ungue bis longior ; alæ angustæ, semisagittatæ ; carinæ petala basi truncata. *Stamina* monadelphæ. *Discus* unilateralis brevis. *Ovarium* lineare, tenuiter puberulum.

PHILIPPINE ISLANDS : Mindanao, District of Davao, Santa Cruz, *De Vore & Hoover*, 250.

53. *M. AURICULATA*, *Baker ex Brandis, For. Fl.* (1874) 138 ; *Baker in Hook. f. Fl. Brit. Ind.* ii. 108 (1876) ; *Brandis, Ind. Trees*, 220, t. 95 ; *Gamble, Manual Ind. Timb.* 233 (1902).—*M. macrophylla*, *Kurz. in Journ. As. Soc. Beng.* xlv. ii. (1876) 276, non *Hook. f. Robinia macrophylla, Roxb. Hort. Beng.* (1814) 56 (nomen) ; *Fl. Ind.* iii. (1832) 329. *Pongamia macrophylla*, *Grah. in Wall. Cat. n.* 5892 (1828). *Otosema macrophylla*, *Benth. Pl. Jungh.* 249. *M. extensa*, *Benth. ex Baker in Hook. f. Fl. Brit. Ind.* ii. 109 ; *Kurz, For. Fl. Brit. Burma*, 352 ; *Prain in Journ. As. Soc. Beng.* lxvi. ii (1897) 363. *Pongamia extensa*, *Grah. in Wall. Cat. n.* 5900. *Otosema extensa*, *Benth. in Miq. Pl. Jungh.* 249.

*Frutex* alte scandens, ramulis primo velutinis tandem glabris, cortice fusco rugoso. *Folia* 3-4-juga, 20-50 cm. longa, petiolo 3-4-plo longiora, rachi ut eis panicularum pedicellisque breviter tomentosa glabrescente ; stipulæ persistentes, reflexæ, oblongæ, 7 mm. longæ ; foliola superiora lateralia ovato-oblonga, apice breviter acuminata, basi rotundata, 8-16 cm. longa, chartacea, utrinque primo adpresse sericea, tandem præter venas infra tomentosæ glabra, venis marginem appropinquantibus 8-10-paribus infra prominentibus ; petioluli 4 mm. longi ; stipellæ setacæ, 1-2 mm. longæ, deciduæ. *Racemi* sæpe aggregati in basi ramulorum lateralium tandem elongatorum apice foliatorum, 10-30 cm. longi ; nodi floriferi sessiles vel breviter stipitati, stipitibus ad 5 mm. longis, pauciflori. *Flores* fasciculati, 8-12 cm. longi ; pedicelli 3 mm. longi ; bracteæ nodorum florumque et bracteolæ lineares, deciduæ. *Calyx* campanulatus, 3 mm. longus, dense pubescens, dentibus brevibus latis. *Petala* flavido-viridia ; vexilli lamina orbicularis, media basi auriculata, dorso dense sericea, ungue 5-plo longior ; alæ lanceolatæ, falcatæ ; carinæ petala ovata, basi truncata. *Stamina* monadelphæ, vexillare basi solutum. *Discus* cupularis, obliquus, 1 mm. longus.

*Ovarium* lineare, sericeum, multiovulatum. *Legumen* lineare, ad 15 cm. longum, 3 cm. latum, primo velutinum, tandem fere glabrum, elasticè dehiscens, valvis coriaceis. *Semina* ad 8, fusca, lenticularia.

Flowers March to June, fruits from September to March.

C. INDIA : Oude, *Wall. Cat.* 909 c, *Jerdon, Herb. Rep. Ec. Prod.* 20204 (Heshangabad), 18078 (Malwa Tal), *Beddome*, 37.

W. HIMALAYA, *Royle, Thomson* ; Kumaon, *Thomson*, 852, *Strachey and Winterbottom* ; Siwaliks, *Meebold* ; Gharwal, *King* (Bhabur) ; Dehra Dun, *King, Webb* (Kalsi) ; Bahraich, *Rep. Ec. Prod.* 23348 ; Nepal, *Rep. Ec. Prod.* 29992 (Churia), 29462 ; Mussourie, *King*.

E. HIMALAYA : Sikkim, *Hooker, Clarke*, 9040 c and 26551 e (Darjeeling), 11685 c, 11687 (Siligoree), 13829 h (Punkabari) ; Bhutan, *Griffith*, 1787.

BENGAL : Chota Nagpur, *Wood, Prain, Gamble*, 8843 ; Parasnath, *Clarke*, 21295 b, 33758 b ; Rajmahal Hills, *Kurz* ; Orissa, *Lace* ; Singbhum, *Betts* ; Manbhum, *Campbell*.

ASSAM, *Forest Herb.* 700 (Soalpara Dist.), *King's Collector, Fisher*.

CULTIVATED : Calcutta Botanic Garden, *Wall. Cat.* 5892, 5892 a (types).

IC. INED. *Roxb.* n. 2329 (Libr. Kew).

FORMA EXTENSA.—*M. extensa*, *Benth.*, syn. as above.—*M. auriculata* var. *extensa*, *Prain in Journ. As. Soc. Beng.* lxi. II. (1897) 363.

Racemi breviores.

UPPER BURMA : Maimyo, *Badal Khan*, 10, *Lace*, 3282, 3135 ; Chin Hills, *Dun* ; Upper Chindwin, *Meebold*, 7847 ; Prazer, 23, *Abdul Huk* (Kyoukmyoung).

LOWER BURMA : Pegu, *Kurz*, 1774, 2534, *McClelland* ; Moulmein, *Wall. Cat.* 5900 (type), *Falconer*, 572 ; Tenasserim, *Meebold*, 15560, *Gallatly*, 29, 573, 903 ; Henzada, *Shaik Mokim*, 1721, 1471.

SHAN STATES, *MacGregor*, 808.

SIAM, *Kerr*, 595, 1724 (Doi Sootep).

As Prain points out (*loc. cit.*), there is really no difference between the forms which were long known as *M. macrophylla* and *M. extensa*. The extreme long-racemed form was first known from Central India, the short-racemed one from Lower Burma, but the accumulation of material from intermediate stations and in transitional states has gradually broken down the geographical and morphological partition until, on our present knowledge, we should not be justified in regarding them as more than geographical forms.

Brandis (*l. c.*) gives the following native names : Hindi *Gauj*, Oudh *Maudh*, Gond *Gurar*, Burmese *Wunu*. Gamble (*l. c.*) describes the bark and wood and gives numerous native names in addition to the above. In No. I. Museum in the Royal Botanic Gardens, Kew, are specimens of the stem and a fibre obtained therefrom.

54. *M. FRUTICOSA*, *Benth. ex Baker in Hook. f. Fl. Brit. Ind.* ii. 109 (*excl. syn. Amerimnum? fasciculatum, Ham. MS. and distr. Pegu*); *Kurz, For. Fl. Brit. Burm.* 352.—*Robinia fruticosa, Roxb. Fl. Ind.* iii. 328. *Pongamia fruticosa, Grah. in Wall. Cat.* n. 909. *Otosema fruticosa, Benth. in Miq. Pl. Jungh.* 249. *Tephrosia fruticosa, DC. Prodr.* ii. 249.

*Frutex* tandem scandens (*Roxb.*), cortice primo ferrugineo tandem glabro scabro. *Folia* 3–5-juga, 15–30 cm. longa, petiolo 3–4-plo longiora, rachi ut petiolulis venisque majoribus foliolorum ferrugineo-villosa supra canaliculata; stipulæ oblongæ, pubescentes, persistentes; foliola superiora lateralia lineari-oblonga, obtusa vel breviter obtuse acuminata, 9–10 cm. longa, chartacea, præter venas glabra, venis marginem approximantibus 10-paribus, parallelis; petioluli 3 mm. longi; stipellæ setaceæ, 1 mm. longæ. *Racemi* singuli vel fasciculati axillares vel in paniculam terminalem collecti, 9–14 cm. longi, rachi dense pubescente; nodi biflori, globulares, bracteis persistentibus brevibus linearibus suffulti. *Flores* subsessiles, 1 cm. longi; pedicelli 5 mm. longi; bracteæ nullæ; bracteolæ ovatæ, 1–2 mm. longæ, tandem deciduæ. *Calyx* late campanulatus, breviter sericeus, dentibus brevibus latis. *Vexilli* lamina rotundata, basi auriculata, dorso sericea, in unguem 4–5-plo breviorum subito contracta; alæ basi obtusæ, paullo saccatæ; carinæ petala concava, in unguem angustata. *Stamina* monadelphæ, vexillare basi solutum. *Discus* nullus. *Ovarium* lineare, sericeum, multiovulatum.

Flowers in June.

BENGAL, *Griffith, Kew Dist.* 1813, *Wall. Cat.* 909 (*type*).

CULTIVATED: Calcutta Botanic Gardens, *Griffith, Kew Dist.* 1771 (*type*), *Wall. Cat.* 909, 909 B (*types*).

IC. INED. *Roxb.* n. 1891 (*Libr. Kew*).

The types of the species may confidently be sought among the specimens collected in early days in the Calcutta Gardens. Roxburgh described it from a tree growing there which had been raised from seed received from Chupra (Bengal) in 1803. He noted that the branches begin to climb when 4–5 years old. The chief difference between this species and *M. auriculata* forma *extensa* lies in the process of inflorescence, the former producing a terminal panicle or racemes, one or more together in the axils of leaves, while the latter bears large numbers of racemes from the base of lateral shoots which afterwards lengthen and produce leaves.

55. *M. CÆRULEA*, *Baker in Hook. f. Fl. Brit. Ind.* ii. 107; *Kurz, For. Fl. Brit. Burm.* 354.—*Pongamia cærulea, Grah. Wall. Cat.* n. 5894. *Robinia? cærulea, Wall. ex Baker l. c.*

*Frutex* scandens, cortice lævi striato. *Folia* 3–(4-)juga, 30–50 cm. longa, petiolo 3–4-plo longiora, rachi ut foliolis inferius breviter tenuiter adpresse sericea; stipulæ lineares, 4–6 mm. longæ, persistentes; foliola superiora lateralia oblongo-oblancoolata, apice breviter acuminata, caudata, 16–18 cm.

longa, chartacea, supra nitida, infra reticulata, venis 8-10-paribus supra impressis infra prominulis; petioluli 5-8 mm. longi; stipellæ setaceæ, 2 mm. longæ. *Panicula* racemiformes axillares et paniculam generalem 40 cm. longam formantes, rachi pubescente; nodi floriferi ad 4 mm. longi, apice pauciflori. *Flores* fasciculati, 8 cm. longi; pedicelli 3 mm. longi; bracteæ et bracteolæ lanceolatæ, 2 mm. longæ, deciduæ. *Calyx* patulus, 2 mm. longus, sparse sericeus, dentibus brevibus latis. *Petala* purpurea; vexilli lamina rotundata, basi obtusa, medio bicallosa, dorso dense sericea, ungue 4-5-plo brevior, apice pubescente; alæ rotundatæ, falcatæ, medio hirtæ; carinæ petala ovata, rostrata, basi obtusa. *Stamina* monadelphia, vexillare basi solutum. *Discus* brevis, papillosus. *Ovarium* oblongum, sericeum, 3-ovulatum.

LOWER BURMA: "Hill at Phanoë, 10.5.1827. *Robinia?* *cærulea*, Wall. Cat. 5894" (*type*).

SIAM: Hills between Me Ta and Me Awn, May 10, 1912, at 2000 ft., *Kerr*, 2579.

As far as can be discovered, the species had, before 1912, only once been gathered, and that at Phanoë in May 1827. The specimen in Wallich's own herbarium in the rooms of the Linnean Society and the one in Kew Herbarium, which may be part of it, are small and imperfect.

56. *M. PACHYLOBA*, *Drake in Journ. de Bot.* v. (1891) 187.

*Frutex* alte scandens, cortice rugoso fusco. *Folia* sæpissime 4-juga, 20-30 cm. longa, petiolo 3-4-plo longiora, rachi ut caulibus ramisque inflorescentiæ primo sericea, glabrescente; stipulæ late triangulares, 2-3 mm. longæ, persistentes; foliola lateralia superiora obovato-oblonga vel anguste elliptica, basi rotundata vel obtusa, apice obtusa vel brevissime acuminata, 7-10 cm. longa, chartacea, supra glabra, infra adpresse sericea, venis regularibus numerosis approximatis omnibus in venam marginalem procurrentibus 13-14-paribus erecto-patentibus supra impressis subtus prominentibus; petioluli 4-6 mm. longi; stipellæ 3 mm. longæ, setaceæ. *Panicula* terminalis, nonnunquam basi foliosa, 20-30 cm. longa; rami longi, ascendentes, anguste paniculati; ramuli floriferi 4-5 mm. longi, sericei, apice umbellam gerentes. *Flores* 1.4-1.5 cm. longi; pedicelli 3 mm. longi; bracteæ minutæ triangulares. *Calyx* campanulatus, 2.5 mm. longus, 4 mm. latus, velutinus; bracteolæ lanceolatæ, 3-plo tubo breviores. *Vexilli* lamina rotundata, basi bicallosa, externe griseo-sericea, intus glabra, alba, lineis violaceis striata, ungue 4-5-plo brevior; alæ oblongæ, basi truncatæ, violaceæ; carinæ petala concoloria et conformia. *Stamina* diadelphia. *Discus* nullus. *Ovarium* lineari-lanceolatum, sericeum, 4-ovulatum.

COCHIN CHINA: Tonkin, *Balansa*, 2306 (Tu-Phap, *type*).

CHINA: Hainan, *Ford's Collector*, 368 (Nar-tai), *Henry*, 8489, *Hongkong Herb.* 6638 (collected by Katsumata on Ng Chi Shan).

56 a. *M. MULTIFLORA*, *Coll. et Hemsl. in Journ. Linn. Soc., Bot.* xxviii. (1890) 41; *Prairie in Journ. As. Soc. Beng.* lxvi. II. (1897) 359.

*Arbor* 10–13 m. alta, novellis rufo-tomentellis, cortice pallido lævi. *Folia* 5–6-juga, 12–16 cm. longa, petiolo 3-plo longiora, rachi ut paginis inferioribus foliolorum, ut pedunculis et pedicellis, breviter dense pubescentibus tandem fere glabris; stipulæ lineares, persistentes; foliola superiora, lateralia elliptica, apice obtusa vel breviter obtuse acuminata, basi rotundata, 2·5–3 cm. longa, subcoriacea, utrinque reticulata, venis marginem appropinquantibus 6–8-paribus infra prominulis; petioluli 2–2·5 mm. longi; stipellæ setaceæ, 1 mm. longæ. *Paniculæ* racemiformes, versus apicem novellorum aggregatæ, ante foliorum evolutionem florentes, 15–20 cm. longæ; nodi floriferi breves, multiflori. *Flores* 1·5 cm. longi; pedicelli 3–4 mm. longi; bracteæ bracteolæque minutæ. *Calyx* campanulatus, 6–7 mm. longus, dentibus tubo 3–4-plo brevioribus, tenuiter sericeus. *Vexilli* lamina ovata, basi in unguem 2–3-plo brevioribus abrupte angustata, auriculis 2 ovatis erectis, dorso sericea; alæ anguste oblongæ, basi utrinque obtusæ; carinæ petala oblonga, basi truncata. *Stamina* diadelphæ. *Discus* papillis paucis inconspicuis repræsentatus. *Ovarium* lineare, sericeum, multiovulatum. *Legumen* fere maturum lineare, 9 cm. longum, 2 cm. latum, valvis rugosis reticulatis, suturis incrassatis.

Flowers in April, fruits in July.

UPPER BURMA, *Collett*, 516, 553 (*Possbio, types*), *Abdul Huk* (*Kyouk-myung*).

56 b. *M. CANA*, *Benth. ex Baker in Hook. f. Fl. Brit. Ind.* ii. 105; *Kurz, For. Fl. Brit. Burm.* 355.—*Pongamia cana*, *Grah. in Wall. Cat.* n. 5903.

*Arbor?* ramulis foliisque primo griseo-tomentosis tandem glabris. *Folia* 3–4-juga, 30 cm. longa, petiolo 4-plo longiora; stipulæ parvæ rigidæ persistentes; foliola lateralia superiora obovata, obtusa vel obtusissime acuminata, sæpe retusa, 8–9 cm. longa, chartacea, utrinque reticula, venis marginem appropinquantibus 7-paribus utrinque prominentibus; petioluli 4 mm. longi; stipellæ aciculares, 1 mm. longæ. *Paniculæ* racemiformes axillares, 15 cm. longæ; nodi floriferi breves. *Calyx* 4 mm. longus, velutinus, dentibus parvis. *Legumen* oblongum, ad semina incrassatum, 9 cm. longum, 2·5 cm. latum, ad maturitatem griseo-tomentosum, dehiscens.

Fruits ripe in November.

UPPER BURMA, *Wall. Cat.* 5903 (*Irrawaddi, type*), *Shaik Mokim*, 469, 1083 (*Minbu*).

The leaves are thickly tomentose in January, subglabrous in November.

57. *M. PENDULA*, *Benth. ex Baker in Hook. f. Fl. Brit. Ind.* ii. 105; *Gamble, Manual Ind. Timb.* (1902) 233; *Coll. et Hemsl. in Journ. Linn. Soc., Bot.* xxviii. (1890) 40; *Brandis, Ind. Trees*, 220.—*Pongamia pendula*, *Grah.*

in *Wall. Cat.* 5902. *M. leucantha*, *Kurz in Journ. As. Soc. Beng.* xlii. II. (1873) 68, xlv. II. (1876) 275; *Fl. Brit. Burm.* 356.

*Arbor* magna, cortice albido lævi. *Folia* (2-)3-juga, 20-25 cm. longa, petiolo 3-4-plo longiora, rachi ut pagina inferiore foliolorum ad anthesin dense adpresse hirta, in fructu glabra; stipulæ ovatæ, paullo persistentes, ovatæ, 2-3 mm. longæ; foliola superiora lateralia ovato-lanceolata, acute acuminata, basi obtusa, 8-14 cm. longa, chartacea, supra nitida, venis marginem approximantibus 7-9-paribus infra prominulis; petioluli 4-5 mm. longi; stipellæ setacæ, 1-3 mm. longæ. *Panicule* racemiformes terminales, 10-12 cm. longæ, rachi pedicellis calycibusque dense adpresse hirtis; nodi multiflori, 2-3 mm. longi. *Flores* congesti, 1-1.1 cm. longi; pedicelli 4-5 mm. longi; bracteæ bracteolæque minutæ, deciduæ. *Calyx* campanulatus, 5 mm. longus, pubescens, dentibus triangularibus tubo bis brevioribus. *Petala* flavida, glabra; vexilli lamina rotundata, basi cordata, bicalloso-auriculata; alæ oblongæ, falcatæ, saccatæ; carinæ petala ovata, falcata. *Stamina* paullo perigyna, monadelpha, vexillare basi solutum. *Discus* nullus. *Ovarium* lineare, sericeum, multiovulatum. *Legumen* oblongum, sæpius apice basiue obtusum, glabrum, elasticè dehiscens, valvis lignosis inter semina cohærentibus lenticellatis. *Semina* oblonga, 1.5 cm. longa, 6 mm. lata.

Flowers in March, fruits from June to February.

UPPER BURMA: Lower Chindwin, *Lace*, 4167, *Prazer*, 64; Ruby Mines, *Abdul Huk*, 173; Fort Steadman, *Abdul Huk*; Yamethin, *Lace*, 4530.

LOWER BURMA: Pegu, *Kurz*, 2600, 1769, *Brandis*, *Henderson*; Prome, *Wall. Cat.* 5902 (*type*), *McClelland*.

SHAN STATES, *Collett*, 436, *Abdul Huk*.

SIAM: Mt. Satoepat, *Teysmann*, 5948.

Var. GLABRA, *Dunn*, var. nov. *Folia* etiam per anthesin glabra.

SHAN STATES, *Collett*, 482.

*Kurz* himself first recognised the identity of his *M. leucantha* with *Pongamia pendula*, *Grah.*, which he cites as a synonym in *Journ. As. Soc. Beng.* xlii. II. 275.

*Brandis* states (*Ind. Trees*, 220) that the Burmese name is *Thinwin* and that the heart-wood is dark purple in colour.

*Gamble* (*Man. Ind. Timb.* 233) describes the wood as having a beautiful grain and dark colour.

58. *M. LATIFOLIA*, *Dunn*, sp. n.

*Arbor*? præter flores omnino glabra, cortice pallido rugoso; gemmæ complanatæ, striatæ. *Folia* bijuga, 20-30 cm. longa, petiolo 5-plo longiora; stipulæ persistentes, lineari-oblongæ, 4-5 mm. longæ; foliola superiora lateralia ovata, utrinque obtusa, 10-13 cm. longa, chartacea, venis marginem approximantibus 10-12-paribus parallelis intra prominulis; petioluli 5 mm.

longi; stipellæ persistentes, setaceæ, 1-1.5 mm. longæ. *Panicula* racemiformis terminalis, nutans, 15-20 cm. longa; ramuli floriferi multiflori, 5-6 mm. longi. *Flores* aggregati, 1.3-1.4 cm. longi; pedicelli 8 mm. longi, medio bibracteolati. *Calyx* campanulatus, 6 mm. longus, breviter sericeus, dentibus 4, tubo æquilongis, superiore apice bifido. *Petala* glabra, alba, fragilia; vexilli lamina rotundata, basi leviter transverse callosa, utrinque minute inflexa, in unguem 3-plo breviorum subito angustata; alæ oblongo-ovatae, falcatae; carinæ petala ovata, basi subfalcata. *Stamina* monadelpha, vexillare basi solutum, perigyna. *Discus* calyci adnatus. *Ovarium* lineare, sericeum, medio 4-ovulatum. *Legumen* fere maturum obovato-oblongum, 11 cm. longum, 3-3.5 cm. latum, glabrescens, suturis incrassatis, valvis robustis rugulosis.

Flowers March.

SIAM: Doi Sootep, *Kerr*, 1733 (at 1200 feet).

59. *M. SETIGERA*, *Dunn*, sp. n.

*Arbor* 4-10 m. alta, cortice fusco lævi; gemmæ setis fasciculatis suffultæ et apices ramulorum stipulis acicularibus persistentibus armati. *Folia* 5-juga, 25-35 cm. longa, petiolo 5-plo longiora; stipulæ aciculares, 4-5 mm. longæ, persistentes; foliola superiora lateralialia, oblanceolata, acuminata, basi cuneata, 9-10 cm. longa, membranacea, glabra, venis principibus 7-paribus inconspicuis; stipellæ aciculares, 1-1.5 mm. longæ. *Paniculæ* racemiformes in basi ramulorum infra folia enatae, 15-25 cm. longæ, rachi sparse pubescente; nodi floriferi in stipitibus 4 mm. longis vel rarius sessiles, 3-4-flori. *Flores* fasciculati, 1.7-1.9 cm. longi; pedicelli 7-9 mm. longi, filiformes; bractee nullæ; bracteolæ lineares, 1-2 mm. longæ, paullo infra florem insertæ. *Calyx* patulus, 5 mm. longus, pubescens, dentibus brevibus inconspicuis. *Petala* glabra rosea; vexilli lamina ovata, basi subcordata, valde auriculata, ungue 4-plo longiora; alæ oblongæ, subfalcatae; carinæ petala basi obtusa. *Stamina* monadelpha, vexillare basi solutum. *Discus* brevissimus. *Ovarium* pubescens, lineare, multiovulatum. *Legumen* lineare, ad 20 cm. longum, 3 cm. latum, glabrum, paullo rugulosum, suturis paullo incrassatis.

Flowers in June, fruits ripe in January.

COCHIN CHINA: Tonkin, *Balansa*, 2238, 2239 (Tu-Phap).

60. *M. CUBITTI*, *Dunn*, sp. n.

*Arbor* 8 m. alta, vel ? frutex scandens magna, præter flores glabra, ramulis primo lævibus tandem griseis rugulosis. *Folia* 5-8-juga, 25-35 cm. longa, petiolo 6-plo longiora; stipulæ lineares, persistentes; foliola superiora lateralialia anguste oblongo-oblanceolata, acuminata, basi rotundata, 8-10 cm. longa, papyracea, venis marginem approximantibus 7-9-paribus infra tandem prominulis; petioluli 4-5 mm. longi; stipellæ setaceæ, 1-1.5 mm. longæ.

*Paniculæ* racemiformes, secus apices ramulorum axillares, 10–20 cm. longæ; nodi floriferi pedunculati, pedunculis ad 1·4 cm. longis, pauciflori. *Flores* fasciculati, 2·0–2·3 cm. longi; pedicelli glabri, 8 mm. longi; bracteæ bracteolæque minutæ. *Calyx* patulus, 6–7 mm. longus, præter marginem tomentosam fere glaber, dentibus brevibus inconspicuis. *Petala* lilacina; vexilli lamina rotundata, versus apicem pubescens, basi cordata, auriculis minute inflexis, etiam fortiter bicornuta, ungue 3–4-plo longior; alæ carinæque petala anguste oblongæ, basi truncatæ. *Stamina* monadelphia, vexillare basi solutum. *Discus* nullus. *Ovarium* lineare, sericeum, multiovulatum. *Legumen* lineare, paullo curvatum, suturis paullo incrassatis, 18 cm. longum, 2·5 cm. latum, valvis lignosis elasticis tandem glabris liberis. *Semina* 5.

Flowers April to July.

UPPER BURMA, *Cubitt*, 226, and *Lace*, 5730 (Bhamo), *Smales*.

SHAN STATES, *Collett*, 620 (3000 ft.).

CHINA: Yunnan, *Henry*, 10939 (Red River Valley, Manpan at 3000 ft.).

61. *M. NIVEA*, *Dunn*, sp. n.

*Arbor* parva, præter flores omnino glabra, cortice pallido rugoso. *Folia* 3–4-juga, 25–40 cm. longa, petiolo 7-plo longiora; stipulæ 0; foliola superiora lateralia oblonga, caudata, basi obtusa, 10–20 cm. longa, papyracea, utrinque reticulata, venis marginem appropinquantibus 8–10-paribus; petioluli 4 mm. longi; stipellæ nullæ. *Paniculæ* racemiformes, axillares, 12–15 cm. longæ; nodi floriferi ad 3 mm. longi, 3–4-flori, puberuli. *Flores* fasciculati, 2·0 cm. longi; pedicelli 0·5 mm. longi; bracteæ bracteolæque nullæ. *Calyx* campanulatus, 5 mm. longus, extus breviter adpresse sericeus, dentibus 4 tubo bis brevioribus, superiore latiore apice emarginato intus breviter tomentosus. *Petala* alba, glabra; vexilli lamina ovata, in unguem 2–3-plo breviorum subito angustata; alæ carinæque petala oblongæ, falcata. *Stamina* monadelphia, vexillare basi solutum. *Discus* nullus. *Ovarium* lineare, sericeum, multiovulatum.

SUMATRA: River Roepit at 300 feet, *Forbes*, 2916.

62. *M. LEPTOBOTRYA*, *Dunn*, sp. n.

*Arbor* 8–10 m. alta, ramulis primo tenuiter velutinis tandem glabris pallidis rugosis. *Folia* 4-juga, ad 50 cm. longa, petiolo 5–6-plo longiora, rachi ut foliolis mox glabra; stipulæ parvæ, 2 mm. longæ, ovatæ, persistentes; foliola lateralia superiora lineari-oblonga, acuminata, basi obtusa, 20–25 cm. longa, chartacea, supra nitida, infra opaca, supra leviter infra dense reticulata, venis marginem approximantibus 11–13-paribus patentibus; petioluli 5–6 mm. longi; stipellæ nullæ. *Panicula* angusta terminalis, 35–45 cm. longa, 4 cm. lata, rachi ut ramulis pedicellis calycibusque tenuiter pubescente; ramuli ad 1·5 cm. longi, ad basin floriferi. *Flores* albi, 1·1–1·2 cm. longi; pedicelli

1.5 mm. longi; bracteæ bracteolæque lineares, 1 mm. longæ, deciduæ. *Calyx* campanulatus, 5 mm. longus, pubescens, dentibus 4 tubo æquilongis lanceolatis, superiore bidentato. *Petala* glabra; vexilli lamina rotundata, basi sagittata, exauriculata, ungue 4-plo brevior; alæ oblongæ falcatae; carinæ petala conformia. *Stamina* monadelpha, vexillare basi solutum introrsum arcuatum. *Discus* calyci adnatus, apice crenulatus. *Ovarium* sericeum, multiovulatum, lineare. *Legumen* lineari-oblongum, 7-20 cm. longum, 3.5-4 cm. latum, 1-3-spermum, tenuiter sericeum, tandem glabrum, elasticè dehiscens. *Semina* lentiformia, fusca.

CHINA: Yunnan, Szemao, *Henry*, 12792, 12792 A, *Bons d'Anty*, 244, 251.

63. *M. ALBIFLORA*, *Prain in Journ. As. Soc. Beng.* lxvi. II. (1897) 92, 364; *Ann. Calc. Bot. Gard.* ix. I. t. 31.

*Arbor* magna, ad 34 m. alta, præter panicula glabra, cortice pallido lævi. *Folia* (1-)2-3-juga, 30 cm. longa, petiolo 5-6-plo longiora; stipellæ nullæ; foliola elliptico-lanceolata, caudato-vel obtuse acuminata, basi cuneata, 15-25 cm. longa, coriacea, reticulata, venis marginem appropinquantibus 6-9-paribus infra prominulis; petioli 4-5 mm. longi; stipellæ nullæ. *Paniculae* sæpe versus apicem ramulorum aggregatae, 20-40 cm. longæ, rachi superiore ut pedicellis calycibusque breviter tomentosa; ramuli floriferi multiflori, ad 15 cm. longi. *Flores* distantes, singuli, 1.5-1.9 cm. longi; pedicelli 4-5 mm. longi; bracteæ parvæ caduæ. *Calyx* campanulatus, 7 mm. longus, fusco-brunneus, lucens, intus præter tubum breviter tomentosus; bracteolæ orbiculares, 4 mm. longæ. *Petala* glabra, nivea; vexilli lamina orbicularis, basi subcordata, medio bicallosa, ungue 3-4-plo longior; alæ et carinæ petala oblongæ, basi truncatae. *Stamina* monadelpha, vexillare basi, vel tandem omnino, liberum, paullo perigyna. *Discus* calyci adnatus. *Ovarium* sericeum, lineare, multiovulatum. *Legumen* oblanceolatum, ad 25 cm. longum, 4.5 cm. latum, dense nigro-velutinum (siccitate brunneum), elasticè dehiscens, valvis coriaceis inter semina liberis.

Flowers May to October, fruits November to June.

MALAY PENINS.: Penang, *Curtis*, 2459 (old pass to Nalin); Perak, Ulu Salama, *Kunstler*, 6077, 5993, 5833, 4467, 729 (*types*), 4201, *Scortechini*, 1288 (*type*); Perak, Larut, *Kunstler*, 5357, 6709, 6842 (*types*); Perak, Goping, *Scortechini*, 1948 (*type*); Perak, *Wray*, 1864 (Thaipeng Plains (*type*), 1943 (Kota Plains, *type*); Selangor, *Ridley*, 8598, 10596; Pahang, *Ridley*, 2641 (*type*); Malacca, *Maingay* 1191 (Kew Dist. 606).

64. *M. UNIFOLIATA*, *Prain, l. c.* 93, 364; *Ann. Calc. Bot. Gard.* ix. I. t. 30.

*Arbor* 6-10 m. alta, præter paniculam glabra, cortice griseo rugoso. *Folia* simplicia, nunquam vere composita, lanceolata vel lineari-lanceolata, acuta

vel breviter et obtuse acuminata, basi cuneata, 12–20 cm. longa, coriacea, reticulata, venis marginem approximantibus 9–13-paribus infra prominentibus; petioluli 4–5 mm. longi; stipulæ nullæ. *Paniculæ* axillares et terminales, nonnunquam versus apicem ramulorum collecti et paniculam generalem formantes, 10–15 cm. longæ, apice racheos pedicellis calycibusque brevissime denseque velutinis; nodi floriferi sessiles vel in ramulos ad 3 cm. longos elongati, multiflori. *Flores* 1·5 cm. longi; pedicelli 3–4 mm. longi; bracteæ nullæ; bracteolæ 1–1·5 mm. longæ, lanceolatae, deciduæ. *Calyx* campanulatus, 8 mm. longus, extus breviter sericeus, dentibus 4 tubo æquilongis superiore bifido. *Petala* glabra, alba; vexilli lamina rotundata, basi sagittata, medio bicallosa; alæ carinæque petala oblongæ, leviter falcatae. *Stamina* monadelphæ, vexillare basi solutum. *Discus* nullus. *Ovarium* breviter sericeum, 5-ovulatum. *Legumen* lineare, ad 12 cm. longum, 2·5 cm. latum, dense breviter olivaceo-velutinum, elastice dehiscens, valvis tenuiter lignosis, inter semina liberis.

Flowers in June and July; fruits ripe in the following June.

MALAY PENINS.: Pangkore Is., *Curtis*, 1615 (*type*), *Scortechini*, 1023 (*type*); Blanja, *Scortechini*, 124, 1711 (*types*); Perak, *Ridley*, 7981, 8004, *Kunstler*, 4267, 4251 (*Larut, type*), 4492 and 8210 (*Goping, types*), *Wray*, 2836.

JAVA, *Horsfield*, 48.

65. M. CORUSCANS, *Dunn in Journ. Bot.* xlix. (1911) 220.

*Arbor* 8 m. alta, cortice primo velutino, tarde glabro. *Folia* (2–)3-juga, 15–20 cm. longa, petiolo 8–10-plo longiora; stipulæ caduæ; foliola leteralia superiora oblongo-ovata, acuminata, basi rotundata vel subcordata, 9–12 cm. longa, coriacea, supra nitida, reticulata, subtus dense adpresse sericea, splendida, tandem (in fructu) paullo glabrescentia, venis marginem appropinquantibus 16–20-paribus divergentibus approximatis utrinque prominulis; petioluli 3–5 mm. longi; stipellæ minutæ. *Panicula* terminalis, ramosa, basi foliosa, 15–20 cm. longa, ramis racemiformibus; ramuli floriferi ad 2·5 cm. longi, ut raches calycesque dense velutini (siccitate brunnei). *Flores* approximati, 1·4–1·7 mm. longi; pedicelli 1 mm. longi; bracteæ ramulorum et florum et bracteolæ oblatae, 1 mm. longæ. *Calyx* campanulatus, extus sericeus, dentibus tubo æquilongis anguste triangularibus, superiore latiore bifido. *Petala* alba? glabra; vexilli lamina rotundata, in basi bicallosa, sagittata, auriculis inflexis; alæ oblongæ, valde falcatae, transverse rugosæ; carinæ petala ovato-oblonga, falcata. *Stamina* monadelphæ, vexillare basi solutum. *Discus* calyci adnatus, apice breviter fimbriatus. *Ovarium* lineare, longe acuminatum, multiovulatum. *Legumen* lineari-oblongum, utrinque obtusum, 11 cm. longum, 3 cm. latum, dehiscens, suturis incrassatis, brunneo-sericeum.

Flowers in August, fruits September.

KAMERUN: Gross Batanga, *Linklage*, 785.

SPANISH GUINEA: Rio Muni, *Mann*, 1743

66. *M. HARMSIANA*, *De Wild. in Ann. Mus. Congo*, sér. 5, i. 139, ii. 37, 147.—*M. Ulbrichiana*, *Harms in Engl. Jahrb.* xlv. (1910) 309; *Dunn in Journ. Bot.* xlix. (1911) 220.

*Arbor parva?* ramulis lenticellatis rugosis. *Folia* 4-juga, 20–30 cm. longa, rache breviter ferruginea, breviter petiolata; stipulæ caducæ; foliola superiora lateralia oblongo-obovata, breviter acuminata, basi rotundata, 8–10 cm. longa, papyracea, supra glabra, subtus tenuiter adpresse aureo-sericea, venis 9–12-paribus utrinque inconspicuis; petioluli 4 mm. longi; stipellæ obscuræ, 1–2 mm. longæ. *Paniculæ* racemiformes ad apicem ramulorum axillares et paniculam ramosam terminalem supra eos formantes; ramuli floriferi sessiles, 3–5 mm. longi. *Flores* conferti, 1.2–1.3 cm. longi; pedicelli ad 1 mm. longi. *Calyx* anguste campanulatus, 5 mm. longus, dense purpureo-sericeus dentibus tubo fere æquilongis; bracteolæ oblatæ, 1.5 mm. longæ, basin calycis amplectentes. *Petala* alba, glabra; vexilli lamina rotundata, basi sagittata, auriculis inflexis, ungue paullo longior; alæ carinæque petala falcata. *Stamina* monadelphæ, vexillare basi solutum. *Discus* fimbriatus. *Ovarium* sericeum, 5-ovulatum, longe acuminatum.

Flowers in January.

CONGO FREE STATE: Kamuenza, *Gillet*, 1919 (fide *De Wild.*).

SPANISH GUINEA, *Tessmann*, B 136 (450 m.).

The var. *acuminata*, *De Wild. l. c.* ii. 147, is said to differ from the type in having its leaflets rounded or nearly subcordate at the base and acuminate at the tip.

67. *M. DUCHESNEI*, *De Wild. Ann. Mus. Congo*, sér. 5, i. 138.

*Frutex* ramis pubescentibus mox glabris paullo lenticellatis. *Folia* 3-juga, 25–35 cm. longa, petiolo 4-plo longiora, rachi glabra; stipulæ 8–10 mm. longæ, oblongo-lineares paullo infra medium affixæ, deciduæ; foliola superiora lateralia ovato-oblonga, breviter acuminata, acumine truncato vel retuso, basi rotundata, chartacea, supra subglabra, opaca, infra tenuiter et brevissime adpresse hirsuta, venis marginem appropinquantibus 7-paribus arcuatis subtus prominulis; petioli 5 mm. longi; stipellæ setacæ, 2–3 mm. longæ. *Panicula* racemiformis, terminalis, 16–20 cm. longa, rachi pubescente; nodi floriferi breves. *Flores* fasciculati, 3–4-ni, 1.8 cm. longi; pedicelli 2 mm. longi. *Calyx* 1 cm. longus, anguste campanulatus, adpresse sericeus; dentibus anguste lanceolatis tubum æquantibus; bracteolæ lineares, 1 cm. longæ. *Petala* glabra, violascentia; vexilli lamina rotundata, basi transverse callosa; alæ carinæque petala oblongæ, falcata. *Stamina* diadelphæ. *Discus* nullus.

Flowers in December.

CONGO FREE STATE: Stanleyville, *Duchesne*, 4.

The flowers of the type specimen examined were not fully expanded.

68. M. SOLHEIDII, *De Wild. in Ann. Mus. Congo*, sér. 5, iii. 204.

*Frutex?* cortice pallido rugoso. *Folia* 3-juga, 15–25 cm. longa, rachi tenuiter pubescente, petiolo 3–5-plo longiora; stipulæ caducæ; foliola superiora lateralia breviter acuta, basi rotundata, 6·5–7·5 cm. longa, papyracea, supra glabra, subtus brevissime sericea, venis marginem appropinquantibus circiter 9-paribus; petioluli 3–4 mm. longi; stipellæ setaceæ, 2–3 mm. longæ. *Paniculæ* racemiformes, 10–16 cm. longæ, axillares et terminales, vel paniculam magnam 20–40 cm. longam ramosam paucifoliatam lateralem formantes; rachis pubescens; nodi floriferi 2–5 mm. longi. *Flores* fasciculati, 1·3 cm. longi; pedicelli 1–1·5 mm. longi ut calyces dense brunneo-velutini; bracteæ parvæ, caducæ. *Calyx* anguste campanulatus, 7 mm. longus, dentibus tubo æquilongis; bracteolæ ovatæ, 1 mm. longæ, deciduæ. *Petala* glabra; vexilli lamina ovata, basi breviter cordata, auriculis inflexis, ungue bis breviora; alæ carinæque petala oblongæ, falcatæ. *Stamina* monodelpha, vexillare basi solum? *Discus* calyci adnatus. *Ovarium* lineare, sericeum, multiovulatum.

CONGO FREE STATE, near Yambuya, *Solheid*.

69. M. FULGENS, *Dunn in Journ. Bot.* xlix. (1911) 220.

*Arbor* parva? cortice primo velutino. *Folia* 6-juga, 13–17 cm. longa, petiolo 5–7-plo longiora, rachi laxè adpresse sericea; stipulæ lineares, 3 mm. longæ, deciduæ; foliola lateralia superiora oblongo-lanceolata, acuminata vel acuta, apiculata, 2·5–4 cm. longa, papyracea, supra nitida fuscescentia, subtus adpresse sericea, siccitate cuprea, splendida, venis marginem approximantibus 4-paribus, infra prominulis erecto-patentibus; petioluli 2 mm. longi. *Panicula* terminalis, 16–20 cm. longa, rachi ut ramulis bracteisque dense velutina; rami floriferi ad 5 cm. longi. *Flores* tandem distantes, 1·2–1·3 cm. longi; pedicelli 1 mm. longi; bracteæ ramulorum florumque anguste lanceolatæ, 4 mm. longæ, persistentes. *Calyx* campanulatus, 5 mm. longus, dense sericeo-velutinus, siccitate brunneo-purpureus, dentibus paullo tubo brevioribus. *Petala* glabra. *Legumen* immaturum oblongum, compressum, dense velutinum.

Flowers in August.

CONGO FREE STATE: M'bota, *Burton* (1863).

The only specimen known to me is in young fruit.

70. M. LUCENS, *Dunn, l. c.* 220.—*Lonchocarpus lucens*, *Scott Elliot in Journ. Linn. Soc., Bot.* xxx. (1894) 77.

*Frutex* ramis puberulis. *Folia* 5–6-juga, 15–20 cm. longa, petiolo 7-plo longiora, rachi adpresse tandem inconspicue sericea; stipulæ caducæ; foliola lateralia superiora oblongo-lanceolata, gradatim acuminata, basi obtusa, 5–7 cm. longa, chartacea, margine revoluta, supra lucida, glabra, subtus adpresse sericea (siccitate argentea), lucentia, venis marginem appropinquantibus, 9-paribus erecto-patentibus, infra prominulis; petioluli 3–4 mm. longi;

stipellæ caducæ. *Panicula* axillares, 20–25 cm. longæ, rachi ramulisque breviter velutinis; ramuli floriferi multi, ad 4 mm. longi. *Flores* approximati, sessiles, 1.2 cm. longi, bractæ bracteolæque 1.5 mm. longæ, late ovatæ. *Calyx* anguste campanulatus, 5–6 mm. longus, dense sericeus, siccitate aureus, dentibus tubo paullo longioribus, superiore cæteris paullo longiore bidentato. *Petala* glabra; vexilli lamina ovata, basi callosa, sagittata, auriculis inflexis itaque eas alarum tenentibus, ungue 4-plo longior; alæ carinæque petala oblongæ, fortiter falcatæ. *Stamina* monadelpha, vexillare basi solutum. *Ovarium* lanceolatum, longe attenuatum, multiovulatum.

Flowers in December.

SIERRA LEONE: Samu Country, *Scott Elliot*, 4241.

71. *M. UROPHYLLOIDES*, *De Wild. in Ann. Mus. Congo*, sér. 5, ii. 147.

*Frutex?* ramulis breviter velutinis. *Folia* 3–4-juga, 15–17 cm. longa, rachi laxè pubescente, petiolo 4-plo longiora; stipulæ caducæ; foliola superiora lateralia ovato-oblonga, breviter et obtuse acuminata, basi rotundata vel subcordata, chartacea, supra glabra, reticulata, subtus adpresse sericea, venis marginem approximantibus 12–14-paribus fere patentibus infra paullo prominulis; petioluli 5 mm. longi. *Paniculae* axillares et terminales, 10–15 cm. longæ, paniculam magnam terminalem foliosam formantes; ramuli floriferi 3–10 cm. longi, fere sessiles, velutini. *Flores* approximati, 1.5 cm. longi; pedicelli 3 mm. longi; bractæ caducæ. *Calyx* in pedicellum reflexus, 8 mm. longus, dense adpresse brunneo-sericeus, dentibus tubo æquantibus, superiore aliis paullo longiore bidentato ob vexillum refractum retroflexo; bracteolæ concoideæ, 3 mm. longæ. *Petala* glabra; vexilli lamina transverse callosa, sagittata, auriculis inflexis; alæ oblongæ, uncinatæ, transverse rugosæ; carinæ petala oblonga, subfalcata. *Stamina* monadelpha, vexillare basi solutum. *Discus* fimbriatus. *Ovarium* lineare, sericeum, multiovulatum.

Flowers in August.

FRENCH CONGO, *Laurent* (4.8.1901).

72. *M. HYPOLAMPRA*, *Harms in Engl. Jahrb.* xxxiii. (1902) 168; *Dunn in Journ. Bot.* xlix. (1911) 220.

*Folia* 3-juga, 30 cm. longa, rachi paullo ferruginea, petiolo 4-plo longiora; foliola lateralia oblonga, acute acuminata, apiculata, basi obtusa, 13–15 cm. longa, papyracea, supra glabra, subtus tenuiter adpresse argenteo-sericea, venis marginem appropinquantibus utrinque 16–18 rectis parallelis ascendentibus, infra prominulis; petioluli 6 mm. longi; stipellæ persistentes, 1 mm. longæ. *Paniculae* ramuli floriferi 3–4 cm. longi, breviter sericei. *Flores* approximati, 1–1.2 cm. longi; pedicelli 1–2 mm. longi. *Calyx* anguste campanulatus, 7–8 mm. longus, dense fulvo-sericeus, dentibus tubo paullo brevioribus lanceolatis acutis, superioribus duobus dimidio connatis; bracteolæ

basales, rotundatæ, .75 mm. longæ. *Petala* glabra; vexilli lamina ovata, basi angustata, fortiter bicallosa, bihamata, ungue bis longior; alæ valde, carinæ petala paullo hamatæ. *Stamina* monadelphæ, vexillare basi solutum. *Discus* parvus, fimbriatus. *Ovarium* breve, sericeum, in stylum longum glabrum abiens, 4-ovulatum.

S. NIGERIA: Oban, *P. A. Talbot*, 578.

KAMERUN, *Rudatis*, 13 (*type*).

73. M. LECOMTEI, *Dunn in Journ. Bot.* xlix. (1911) 220.

*Arbor?* ramulis glabris lenticellatis. *Folia* 4-juga, 20–30 cm. longa, rachi pallida velutina, breviter petiolata; stipulæ breves, late triangulares; foliola superiora lateralia obovato-oblonga vel oblanceolata, subito acuminato-caudata, basi sæpe acuta, chartacea, supra glabra, subtus adpresse argenteo-sericea, venis 10–11-paribus infra paullo prominulis; petioluli 4–5 mm. longi; stipellæ minimæ. *Paniculæ* magnæ, ramosæ, terminales, 20 cm. longæ et latæ, breviter pedunculatæ, rachi ramisque pallide velutinis; ramuli floriferi sessiles, 1–3 cm. longi. *Flores* approximati, 1 cm. longi; pedicelli 1–2 mm. longi; bracteæ minutæ. *Calyx* anguste campanulatus, 5 mm. longus, brunneo-velutinus, basi bi-bracteolatus, dentibus tubo æquilongis; bracteolæ 1.5 mm. longæ, late triangulares. *Petala* glabra, alba; vexilli lamina rotundata basi auriculato-callosa, ungue bis longior; alæ oblongæ, hamatæ; carinæ petala ovata, uncinata. *Stamina* monadelphæ, vexillare basi solutum. *Discus* calyci adnatus apicè liber fimbriatus. *Ovarium* lanceolatum, sericeum, in stylum longum sensim angustatum, 4-ovulatum.

Flowers in February.

FRENCH CONGO: Mazomba Lagoon, *Lecomte*, D 103 (*type*).

74. M. DINKLAGEL, *Harms in Engl. Jahrb.* xxvi. (1899) 287; *Stapf in Johnston, Liberia*, ii. 593.

*Arbor* cortice velutino mox glabra. *Folia* 4–6-juga, 15–25 cm. longa, rachi ut eis paniculæ breviter velutina; stipulæ caducæ; foliola lateralia superiora, oblongo-lanceolata, acuta vel breviter acuminata, basi obtusa, 4–7 cm. longa, chartacea, supra glabra, subtus adpresse sericea, splendida, venis marginem appropinquantibus 13–15-paribus divergentibus intra marginem inter se arcuatis, costa supra paullo impressa, omnibus subtus prominentibus; petioluli 2–3 mm. longi; stipellæ minimæ. *Panicula* terminalis, 15–20 cm. longa, ramosa, lata; ramuli floriferi 5–6 cm. longi. *Flores* tandem distantes, 1 cm. longi; pedicelli 0.5–1 mm. longi; bracteæ bracteolæque late ovatæ, 1 mm. longæ. *Calyx* angustus, 6 mm. longus, ferrugineo-velutinus, dentibus 5 æqualibus lanceolatis tubo æquantibus. *Petala* alba, glabra; vexilli lamina rotundata, basi transverse callosa, breviter cordata, auriculis inflexis, ungue 2–3-plo longior; alæ oblongæ, uncinatæ,

transverse rugosæ ; carinæ petala oblonga hamata. *Stamina* monadelphæ, vexillare supra basin liberum, basi cum petala breviter consolidata. *Discus* nullus. *Ovarium* lanceolatum, sericeum, in stylum longum sensim abiens, 5-ovulatum. *Legumen* vix maturum, 8 cm. longum, 2.5 cm. latum, brunneo-velutinum.

LIBERIA : Grand Bassa, *Dinklage*, 1672, 1964 (*types*).

75. M. KLAINÉ, *Dunn in Journ. Bot.* xlix. (1911) 220.

*Frutex* scandens, ramulis brunneis lenticellatis scabris. *Folia* 5-juga, 15–20 cm. longa, breviter petiolata, rachi tenuiter ferruginea ; stipulæ caducæ ; foliola lateralia superiora lanceolata, in acumen apiculatum longe angustata, basi rotundata, 5–9 cm. longa, chartacea, supra glabra, subtus adpresse aureo-sericea, lucida, venis marginem appropinquantibus 10-paribus nec supra nec infra prominentibus ; petioluli 2 mm. longi ; stipellæ nullæ. *Paniculæ* parvæ, terminales axillaresque, in ramorum apicibus ; ramuli floriferi sessiles, 2–4 cm. longi ut raches subsericei ; bracteæ ramulorum florumque ut bracteolæ, parvæ, rotundatæ, 1 mm. longæ, persistentes. *Flores* brevissime pedicellati, approximati, 9–10 mm. longi ; pedicelli 8 mm. longi. *Calyx* turbinatus, 7 mm. longus, dense aureo-sericeus, dentibus ascendentibus lanceolatis tubo æquilongis, superioribus 2 liberis obtusis, cæteris acutis ; bracteolæ tubo 6-plo breviores. *Petala* glabra ; vexilli lamina rotundata, basi transverse callosa, sagittata, ungue bis longior ; alæ carinæque petala oblongæ, hamatæ. *Stamina* monadelphæ, vexillare basi solutum. *Discus* fimbriatus. *Ovarium* lanceolatum, sericeum, in stylum longum sensim abiens.

FRENCH CONGO : Gabun, *Klaine* (Herb. Paris et Berol., *types*).

76. M. AUREOCALYX, *Dunn, l. c.* 220.

*Frutex* scandens, cortice pallido glabro. *Folia* 4–5-juga, 20–30 cm. longa, rachi ut ea paniculæ et paginis inferioribus foliolorum molliter pubescente ; stipulæ caducæ ; foliola lateralia superiora anguste oblonga, apice obtusa vel breviter acuminata, basi rotundata, 6–7 cm. longa, papyracea, supra pallida, nitentia, subtus reticulata, venis marginem appropinquantibus 8-paribus ascendentibus infra prominentibus ; petioluli 1–2 mm. longi ; stipellæ persistentes, setacæ, 1 mm. longæ. *Paniculæ* terminales, 8–10 cm. longæ ; ramuli floriferi sessiles, patentes, ad 5 cm. longi, ut calyces dense velutini. *Flores* approximati, 1.8 cm. longi ; pedicelli 1–2 mm. longi ; bracteæ non visæ ; bracteolæ ovatæ, 1.5 mm. longæ. *Calyx* anguste campanulatus, 9 mm. longus, extus sericeus, dentibus tubo 4–5-plo brevioribus, 2 superioribus dimidio connatis. *Petala* glabra ; vexilli lamina rotundata, basi transverse callosa, cordata, auriculis inflexis, ungue bis longior ; alæ oblongæ, semi-hastatæ ; carinæ petala ovata, falcata. *Stamina* monadelphæ, vexillare basi

solutum. *Discus* in lobos 10 fimbriatus. *Ovarium* lanceolatum, in stylum longum angustatum.

Flowers in March.

FRENCH GUINEA : Labé, *Chevalier*, 12378, 12399 (*types*).

77. *M. BIPINDENSIS*, *Harms in Engl. Jahrb.* xxxiii. (1902) 169 ; *Dunn in Journ. Bot.* xlix. (1911) 220.

*Arbor?* cortice mox glabro rugoso. *Folia* 6–8-juga, 20–30 cm. longa, rachi glabra ; stipulæ caducæ ; foliola lateralia superiora anguste oblonga, caudata, basi obtusa, 7–8 cm. longa, papyracea, supra glabra, subtus tenuiter et obscure adpresse sericea, venis marginem appropinquantibus 8-paribus divergentibus, nec supra nec infra prominentibus ; petioluli 3–4 mm. longi ; stipellæ persistentes, setacæ, 1 mm. longæ. *Panicula* terminalis, angusta, 16–20 cm. longa, rachi primo breviter velutina ; ramuli floriferi 5 mm. longi, siccitate ut calyces purpureo-velutini. *Flores* 1·6 cm. longi ; bracteæ caducæ ; bracteolæ late ovatæ, 1 mm. longæ ; pedicelli 1·5–2 mm. longi. *Calyx* campanulatus, dense adpresse sericeus, 7–8 mm. longus, dentibus tubo æquilongis. *Petala* glabra ; vexilli lamina rotundata, basi bicallosa, auriculata, auriculis minutis inflexis ; alæ carinæque petala oblonga, uncinata. *Stamina* monadelpha, vexillare basi solutum. *Ovarium* oblongo-lanceolatum, sericeum, 5-ovulatum.

KAMERUN : Bipinde, *Zenker*, 2299 (*type*).

78. *M. MELANOCALYX*, *Dunn*, nom. nov.—*Lonchocarpus macrostachyus*, *Hook. f. in Hook. Nig. Fl.* 317. *M. macrostachya*, *Dunn in Journ. Bot.* xlix. (1911) 220, non *Coll. et Hemsl.*

*Frutex* scandens, 5 m. altus, cortice dense lenticellato. *Folia* 2-juga, 25–35 cm. longa, petiolo 5-plo longiora, rachi glabra ; stipulæ caducæ ; foliola lateralia superiora obovata, obtuse breviter acuminata, basi rotundata, 13–17 cm. longa, chartacea, supra glabra, infra tenuiter obscure adpresse sericea, utrinque paullo reticulata, venis marginem appropinquantibus 12-paribus erecto-patentibus infra prominulis ; petioluli 5 mm. longi ; stipellæ minutæ. *Paniculæ* terminales et axillares, inflorescentias magnas ad 70 cm. longas formantes, basi paullo ramosæ, rachi ut ramulis fusco-velutina ; ramuli floriferi ad 6 cm. longi. *Flores* primo approximati, 1·4–1·5 cm. longi ; pedicelli 1·5–1 mm. longi ; bracteolæ late ovatæ, 1·5 mm. longæ. *Calyx* anguste campanulatus, adpresse nigro-sericeus, dentibus tubo 7–8-plo brevioribus. *Petala* alba vel albo-viridula, glabra ; vexilli lamina rotundata, basi bicallosa, inter callos stamen vexillare tenens, breviter cordata ; alæ oblongæ, falcatae, transverse rugosæ ; carinæ petala oblongo-ovata, falcata. *Stamina* monadelpha, basi cum petalis consolidata et vexillare ibi solutum. *Discus* calyci adnatus, apice lobatus. *Ovarium* lineare, in stylum longum abiens, sericeum, multiovulatum.

NIGERIA, *Vogel* (on the Quorra at Ibaddi, *type*), *Farquarson*, 70 (N. Nigeria).

KAMERUN : Barombi, *Preuss*, 411.

In dealing with *Vogel's* plant the younger *Hooker* was doubtful, in the absence of fruit, whether to place it in *Lonchocarpus* or *Millettia*. Numerous species have since come to Europe from this and neighbouring regions having similar habit and its peculiar floral characters. Some of them have typical *Millettia* fruit, and they have been distinguished as a section of that genus (*Efulgentes*), with this plant among them.

79. M. PORPHYROCALYX, *Dunn in Journ. Bot.* xlix. (1911) 220.

*Frutex* scandens?, cortice primo tenuiter rufo-hirsuto. *Folia* 5-juga, 15–20 cm. longa, rachi ut costa sub foliis tenuiter pilis vineis vestita; stipulæ triangulares, 2–3 mm. longæ, persistentes; foliola superiora lateralia oblanceolata, apice brevissime acuminata, basi rotundata, 6–7 cm. longa, papyracea, supra pallida, nitentia, subtus leviter reticulata, breviter et tenuiter adpresse sericea nec lucentia, venis marginem appropinquantibus 10–12-paribus erecto-patentibus infra prominulis; petioluli 1–1.5 mm. longi; stipellæ persistentes, 2–3 mm. longæ, setaceæ. *Paniculæ* terminales, 20–30 cm. longæ; ramuli floriferi ad 10 cm. longi, ut rachi laxè vineo-hirsuti. *Flores* primo approximati, 1.3 cm. longi; pedicelli 1–2 mm. longi; bracteæ obscuræ; bracteolæ ovatæ, 1.5 mm. longæ ut calyces pilis longis rubropurpureis dense velutini. *Calyx* anguste campanulatus, dentibus 3–4-plo tubo brevioribus triangularibus. *Petala* glabra; vexilli lamina rotundata, basi fortiter bicallosa, sagittata, auriculis inflexis; alæ oblongæ, hamatæ, transverse rugosæ; carinæ petala ovata, falcata. *Stamina* petalis ima basi coalita, monadelphæ, vexillare ibidem solutum. *Discus* fimbriatus. *Ovarium* lanceolatum, in stylum longum abiens, pubescens, 4-ovulatum.

Flowers in March.

FRENCH GUINEA : Entre la Koukouré et Timbo, *Chevalier*, 12507 (*type*).

79 a. M. RHODANTHA, *Baill. Adans.* vi. 223; *Baker in Oliver, Fl. Trop. Afr.* ii. 131 (p. p.).

*Arbor* 10–12 m. alta, cortice pallido rugoso; gemmæ compressæ, acutæ, striatæ, ramulis pendulis. *Folia* (4–)5–6-juga, ad 20 cm. longa, petiolo 6–7-plo longiora, rachi ut pagina inferiore præcipue costa foliolorum et racemis pube brevi fulvescente dense obsita; stipulæ caducæ; foliola superiora lateralia lanceolata, basi cuneata, apice acuta vel acuminata, 4–6 cm. longa, papyracea, præter costa mox glabra, siccitate subtus glauca, venis marginem approximantibus 10–12-paribus, erecto-patentibus haud prominentibus; petioluli 2–3 mm. longæ; stipellæ persistentes, 3 mm. longæ, setaceæ. *Paniculæ* racemiformes axillares et in caule summo fasciculatæ, nutantes, 12–20 cm. longæ, fere ad basin floriferæ; nodi floriferi 2–7 mm.

longi, sessiles. *Flores* in nodis 2-4-nim fasciculati, 1.4-1.5 cm. longi, rosei, odorati; bracteæ bracteolæque caducæ; pedicelli 3 mm. longi, graciles. *Calyx* campanulatus, brevissime villosulus, dentibus 4, superiore paullo longiore bidentato, tubo fere æquilongis. *Petala* glabra; vexilli lamina ovata, ad basin saggitatam contracta, basi paullo bicallosa, ungue 3-4-plo brevior; alæ carinæque petala oblonga basi truncatæ. *Stamina* monadelpha, vexillare basi solutum. *Discus* nullus. *Ovarium* lineare, sericeum, multiovulatum.

Flowers in March and April.

SENEGAMBIA, *Heudelot* 815 (Rio Nunez, *type*).

SIERRA LEONE, *Morson*, *Lane Poole*, 6.

IVORY COAST: Moyenne Sassandra, Soubré, *Chevalier*, 19110.

80. *M. CHRYSOPHYLLA*, *Dunn in Journ. Bot.* xlix. (1911) 220.

*Arbor*, 15 m. alta, ramulis lenticellatis. *Folia* 3(2-4)-juga, 20-30 cm. longa, rachi glabrescente, petiolo 4-plo longiora; stipulæ caducæ; foliola superiora lateralia ovato-oblonga, ad apicem obtusum paullo angustata, basi obtusa, 6-14 cm. longa, chartacea, supra glabra, subtus adpresse aureo-sericea, venis 10-14-paribus subtus prominulis; petioli 3-5 mm. longi; stipellæ nullæ. *Paniculae* terminales, 10-25 cm. longæ, laxæ vel rarius congestæ, rachi breviter velutina; ramuli floriferi 1-5 cm. longi. *Flores* approximati, 1.5-1.6 cm. longi; pedicelli 1.5 mm. longi; bracteolæ 1 mm. longæ, late ovatæ. *Calyx* anguste campanulatus, 5 mm. longus, dentibus tubo 3-5-plo brevioribus, extus sericeus. *Petala* alba, glabra; vexilli lamina rotundata, basi sagittata, auriculis inflexis uncos alarum tenentibus, ungue bis longior; alæ oblongæ, transverse rugosæ, uncinatæ; carinæ petala oblongo-ovata. *Stamina* monadelpha, basi cum petalis consolidata, vexillare ibi solutum. *Discus* fimbriatus. *Ovarium* lineare, sericeum, multiovulatum.

Flowers, August.

IVORY COAST: Lower Cavally, *Chevalier*, 19895 (between Prolo and Bliéron).

FRENCH GUINEA: Kouria, Koukouré, *Chevalier*, 15002.

81. *M. SCOTT-ELLIOTI*, *Dunn, l. c.* 220.

*Arbor*, cortice griseo glabro. *Folia* 5-6-juga, 12-16 cm. longa, rachi ut pagina inferiore præcipue costa foliolorum et rachi paniculæ pilis longis rubiginosis laxè vestita; stipulæ caducæ; foliola lateralia superiora anguste oblonga, acuta, apiculata, basi obtusa, 4-6 cm. longa, papyracea, supra glabra, nitentia, venis marginem appropinquantibus 10-12-paribus erecto-patentibus infra prominulis; petioluli 1-2 mm. longi; stipellæ persistentes, setaceæ, 2 mm. longæ. *Panicula* terminalis, 8-10 cm. longa; rami floriferi ad 4 cm. longi. *Flores* approximati, 1 cm. longi; pedicelli 1.5 mm. longi; bracteolæ lanceolatæ, 1-1.5 mm. longæ. *Calyx* anguste campanulatus,

6 mm. longus, dense (siccitate) purpureo-velutinus, dentibus tubo 2-3-plo brevioribus. *Petala* glabra; vexilli lamina rotundata, basi callosa, cordata, auriculis inflexis; alæ oblongæ, uncinatæ, transverse rugosæ; carinæ petala, ovata, basi obtusa. *Stamina* monadelphæ. *Discus* fimbriatus, lobis partim calyci adnatus. *Ovarium* sericeum, lanceolatum, in stylum angustatum, multiovulatum.

Flowers in March.

SIERRA LEONE: Talla Hills, *Scott Elliot*, 5126 A (near Mussaia).

82. M. WARNECKE, *Harms in Engl. Jahrb.* xxx. (1901) 87; *Dunn in Journ. Bot.* xlix. (1911) 220.

*Arbor* 6-7 m. alta, ramulis diu pallidis glabris. *Folia* 5-6-juga, 8-13 cm. longa, breviter petiolata; stipulæ caducæ; foliola superiora lateralia ovato-oblonga, breviter acuta, basi rotundata, 2-5 cm. longa, chartacea, supra glabra, subtus molliter sericea, venis 8-10-paribus, infra prominulis; petioluli 2 mm. longi; stipellæ setacæ, 2 mm. longæ. *Panicula* terminalis, 12-16 cm. longa, pedunculata; rachi ramisque velutinis; ramuli floriferi 4-5 cm. longi, sessiles. *Flores* in ramulis racemosi, 1.2-1.4 cm. longi; pedicelli 1.5 mm. longi; bracteæ caducissimæ. *Calyx* campanulatus, velutinus, 5-6 mm. longus. *Petala* rosea, glabra; vexilli lamina rotundata, basi callosa, sagittata, auriculis inflexis uncos alarum tenentibus, ungue duplo longior; alæ carinæque petala uncinatæ, oblongæ. *Stamina* monadelphæ, vexillare basi solutum. *Discus* fimbriatus, 5-lobus. *Ovarium* sericeum, lineare, multiovulatum. *Legumen* lineare, dehiscens, ferrugineo-villosum, demum glabrescens, 3-7-spermiis, 9-12 cm. longum, 1.8-2.3 cm. latum.

Flowers and pods in April.

Togo: Bagidar, *Warnecke*, 108 (in "Parksteppe," type).

83. M. SAPINI, *De Wild. Compagnie du Kasai* (1910), 310.

*Frutex* scandens, cortice glabro pallido lenticellato. *Folia* 5-juga, 15-25 cm. longa, rachi tenuiter pubescente, petiolo 3-plo longiora; stipulæ caducæ; foliola superiora lateralia anguste oblonga, apice breviter acute acuminata, basi rotundata, 6-8 cm. longa, papyracea, supra glabra, subtus adpresse sericea, lucentia, venis marginem appropinquantibus 8-12-paribus infra prominulis; petioluli 3 mm. longi; stipellæ setacæ, 1 mm. longæ. *Panicule* racemiformes vel pauciramosæ, axillares et terminales, 6-10 cm. longæ, rachi puberula; nodi floriferi, 1-2 mm. longi. *Flores* fasciculati, 1.2 cm. longi; pedicelli 1-2 mm. longi; bracteæ nullæ. *Calyx* anguste campanulatus, 4.5 mm. longus, dense breviter brunneo-sericeus, dentibus tubo paullo vel bis brevioribus; bracteolæ rotundatæ, 1 mm. longæ, persistentes. *Petala* glabra; vexilli lamina ovata, basi callosa, inflexo-auriculata, auriculis uncos longos alarum tenentibus; alæ oblongæ, longe uncinatæ; carinæ petala

subfalcata. *Stamina* monadelphia, vexillare basi solutum. *Discus* calyci adnatus, breviter lobatus. *Ovarium* lineare, sericeum, multiovulatum.

Flowers in October.

CONGO FREE STATE : Kasai, *Sapin*, D 1 ("Liane des bois," type).

84. *M. CONGOLENSIS*, *De Wild. et Durand in Bull. Herb. Boiss.* sér. 2, i. 15 (nomen); *Ann. Mus. Congo*, sér. 3, i. 61, sér. 5, i. 140; *Comp. de Kasai* (1910), 309; *Mission Laurent* (1905), 109.—*M. macrophylla*, *De Wild. et Durand in Compt. Rend. Soc. Bot. Belg.* xxxvii. 47 (non *Benth.* fide *De Wild. et Durand*).

*Frutex* 3–4 m. altus, præter inflorescentiam glaber, cortice lenticellato. *Folia* 3–4-juga, 40–50 cm. longa, petiolo 4-plo longiora; stipulæ parvæ, oblongæ, deciduæ; foliola superiora lateralia elliptica, acuminato-caudata, basi rotundata, 14 cm. longa, papyracea, supra glabra, infra tenuissime pubescentia, reticulata venis marginem approximantibus 6-paribus; petioluli 5 mm. longi; stipellæ 1.5 mm. longæ, setacæ. *Paniculæ* racemiformes, axillares, 25–35 cm. versus apicem velutinæ; nodi floriferi 3–6 mm. *Flores* conferti, 1.3 cm. longi; pedicelli 2 mm. longi, ut calyces breviter velutini; bractæe bracteolæque minutæ. *Calyx* campanulatus, 4 mm. longus, dentibus brevibus. *Petala* glabra; vexilli lamina rotundata, basi obtusa ecallosa (?), apice obtusa, ungue 4–5-plo longior, medio viridula, margine rubido-brunnea, albo-lineata; alæ lineari-oblongæ, basi truncatæ, albæ, rubido-marginatæ; carinæ petala ovata, rostrata, subfalcata, alba. *Ovarium* pubescens, lineare. *Legumen* immaturum obovato-oblongum, brunneo-velutinum, suturis incrassatis.

CONGO FREE STATE, *De Wevre*, 773 (type). Valée de la Djuma, Sanda, Sadi (fide *De Wild. et Durand in Ann. Mus. Congo*, sér. 5, i. 140).

Native name *Kifundi*, fide *De Wild. and Durand*.

85. *M. CABRÆ*, *De Wild. in Ann. Mus. Congo*, sér. 5, i. 136.

*Frutex* 2–3 m. altus, ramulis hornotinis velutinis. *Folia* 3–4-juga, 15–20 cm. longa, rachi tenuiter adpresse sericea, petiolo 6-plo longiora; stipulæ breves, ovatæ, persistentes; foliola superiora lateralia oblonga, acuminata, basi rotundata, 6–7 cm. longa, papyracea, supra glabra, subtus adpresse tenuiter sericea, venis marginem appropinquantibus circiter 7-paribus infra prominulis; petioluli 2 mm. longi; stipellæ setacæ, 1 mm. longæ. *Inflorescentia* (ramo singulo et forsitan abnormali tantum viso) probabiliter panicula contracta, terminalis, ramis ut ramulis pedicellis calycibusque dense brunneo-purpureo-sericeis, bractea triangulari 5 mm. longa suffultis; ramuli floriferi 5–10 mm. longi. *Flores* conferti, 1.5 cm. longi; pedicelli 1 mm. longi; bractæe ovatæ, persistentes, 1.5 mm. longæ. *Calyx* anguste campanulatus, 8 mm. longus, dentibus tubo bis brevioribus. *Petala* glabra, siccitate nigra, margine alba; vexilli lamina ovata, basi subcordata, auriculis pubescentibus erectis; alæ carinæque petala hamatæ. *Stamina* monadelphia,

vexillare basi solutum. *Discus* fimbriatus. *Ovarium* lineare, sericeum, multiovulatum.

Flowers at beginning of wet season.

CONGO FREE STATE, *Cabra*, 110 (Forest of Inteba, *type*).

86. M. THOLLONI, *Dunn in Journ. Bot.* xlix. (1911) 220.

*Frutex* scandens, ramulis tenuiter ferrugineis. *Folia* 2-juga, 15–20 cm. longa, rachi sparse rubro-hirta, petiolo 4-plo longiora; stipulæ brevès, lanceolatae, persistentes; foliola superiora lateralia obovata, acuminata, basi rotundata, chartacea, supra præter venas glabra, opaca, subtus breviter sericea, venis utrinque 4–6 haud prominulis; stipellæ brevissimæ. *Panicula* racemiformes, terminales, 10–20 cm. longæ, breviter pedunculatæ, rachi velutina; nodi floriferi 2–4 mm. longi. *Flores* fasciculati, 1.5 cm. longi; pedicelli 1.5 mm. longi; bracteæ obsoletæ. *Calyx* campanulatus, 4 mm. longus, breviter velutinus, bracteolæ basales minutæ, lineares, caducæ. *Petala* glabra, violacea; vexilli lamina ovata, basi bicallosa, ungue 2–3-plo longior; alæ carinæque petala oblongæ, basi obtusæ. *Stamina* monadelpha, vexillare basi solutum, perigyna. *Ovarium* versus basin hirtum, lineare, 5-ovulatum.

Flowers in January.

FRENCH CONGO: Brazzaville, *Thollon*, 486 (marshes, *type*).

87. M. MACROURA, *Harms in Engl. Jahrb.* xxvi. (1899) 289; *Dunn in Journ. Bot.* xlix. (1911) 220.

*Arbor* 4–7 m. alta, ramulis lævibus striatis rubro-brunneis. *Folia* 4-juga, 30–40 cm. longa, omnino glabra, petiolo 3–4-plo longiora; stipulæ caducæ; foliola superiora lateralia ovata, obtuse acuminata, basi truncato-rotundata, 12 cm. longa, chartacea, utrinque leviter reticulata, venis 6–7-paribus arcuatis; petioluli 7–9 mm. longi; stipellæ nullæ. *Panicula* terminalis, racemiformis, 25–40 cm. longa, chartacea, utrinque leviter reticulata, venis 6–7-paribus arcuatis; petioluli 7–9 mm. longi; stipellæ nullæ. *Panicula* terminalis, racemiformis, 25–40 cm. longa, pedunculata, rachi brevissime ferruginea; nodi floriferi approximati, 5–7 mm. longi. *Flores* dense conferti, 1.0 cm. longi; pedicelli 2–3 mm. longi; bracteæ minutæ. *Calyx* campanulatus, 4 mm. longus, tenuiter adpresse ferrugineus, dentibus 2 superioribus fere ad apicem connatis, rotundatis, cæteris triangularibus acutis, tubo paullo brevioribus; bracteolæ minutæ, basales. *Petala* glabra, violacea; vexilli lamina ovata, basi bicallosa, cordata, auriculis inflexis, ungue fere bis longior; alæ carinæque petala oblongæ, uncinatæ. *Stamina* monadelpha, vexillare basi solutum. *Discus* nullus. *Ovarium* lineare, adpresse, ferrugineum, 4-ovulatum. *Legumen* oblongum vel oblanceolatum, 9 cm. longum, 2.3 cm. latum, subglabrum, dehiscens.

Flowers May, fruits August.

FRENCH CONGO : Kassa in the great forest near the banks of the Congo, *Chevalier*, 5081.

CONGO FREE STATE : Mukengi, *Pogge*, 838 (*type*).

88. M. DUBIA, *De Wild. in Ann. Mus. Congo*, sér. 5, i. 137.

*Frutex?* cortice rugoso albido, ramulis hornotinis velutinis. *Folia* 4-juga, 30 cm. longa, rachi tenuiter sericea, petiolo 4-plo longiora; stipulæ deciduæ; foliola superiora lateralia oblongo-lanceolata, gradatim acuminata, caudata, basi acuta vel obtusa, 10–12 cm. longa, papyracea, supra glabra, subtus tenuiter adpresse sericea, venis marginem approximantibus circiter 10-paribus, infra prominulis; petioluli 3–4 mm. longi; stipellæ setaceæ, 3–4 mm. longæ. *Panicula* racemiformis terminalis, rachi tenuiter velutina; nodi floriferi 2 mm. longi. *Ovarium* 7-ovulatum. *Legumen* subsessile, oblongum, breviter acuminatum, 9 cm. longum, 2.5 cm. latum, sericeum, elasticè dehiscens; valvæ tenuiter lignosæ. *Semina* 2, lenticularia nigra, 1.0 cm. diametro.

CONGO FREE STATE : Valley of the Dzuma, *Gentil* (*type*).

89. M. STUHMANNII, *Taub. in Engl. Pflanzenwelt Ost-Afr.* C, 212; *Harms in Engl. Jahrb.* xxviii. (1900) 405; *Dunn in Journ. Bot.* xlix. (1911) 221; *Baker fil. in Journ. Linn. Soc., Bot.* xl. (1911) 54.—*Lonchocarpus mossambicensis*, *T. R. Sim in For. Fl. Portug. E. Afr.* 45, t. 53.

*Arbor* 20 m. alta, cortice sæpe papyraceo, aurantiaco, ramulis et foliis primo pubescentibus mox glaberrimis. *Gemmæ* lenticulares. *Folia* 3–4-juga, 20–30 cm. longa; foliola ovali-obcordata, basi obtusa vel rotundata, 9–10 cm. longa, chartacea, supra glabra, subtus pallida, minute adpresse sericea, venis in nervum marginalem currentibus 7–10-paribus regularibus rectis ascendentibus subtus prominentibus; stipellæ magnæ petiolulos sæpe æquantes. *Panicula* terminalis, angusta, 20–35 cm. longa, rachi ramisque superne pubescentibus. *Flores* 2.6 cm. longa, in ramulis 3–4 cm. longis secus rachin laxè dispositi, ebracteati, singuli. *Calyx* campanulatus, pubescens, 12 mm. longus, dentibus ovatis tandem reflexis, supremo 5 mm. longo emarginato, aliis 3 paullo minoribus; pedicelli æquilongi. *Petala* glabra, cærulea; vexilli lamina ovata, basi cordata, auriculata, lineolata; alæ carinæque petala æquilongæ, basi truncatæ. *Stamina* monadelpha, vexillare basi solutum. *Discus* calyci adnatus, crenulatus. *Ovarium* stipitatum, sericeum, 4–5-ovulatum. *Legumen* magnum, lineare, ad 27 cm. longum, 4 cm. latum, glabrescens, lenticellatum, dehiscens, valvis lignosis inter semina coherentibus. *Semina* complanata, 2 cm. longa, 1.5 cm. lata.

Flowers in November, fruit in March.

GERMAN EAST AFRICA : Kilwa, *Kirk*.

PORTUGUESE EAST AFRICA : *Kirk* (Livingstone's S. African Expedition, LINN. JOURN.—BOTANY, VOL. XLI.

14°–19° S. lat.) ; Gazaland, *Swynnerton*, 145, 146, 1396, 1428 ; Mozambique, *Vasse*, 297, *Stuhlmann*, 856, 868 (*types*), *Dawe*, 312, 511.

An important hard-wood timber of the S.E. tropical part of Africa, known to the native races as *Musala*, *Panga-panga*, *Chicuswa*, *Pangira*, and *Mpangeli*. Sim (*l. c.*) mentions that it is planted as a shade-tree from stem-cuttings along the roads at Quisico. It is frequent in M'Choepo and Inhambane (extra-tropical) and abundant in the tropical forests of Quilimane, Magenja da Costa, and Nhamacurra.

90. M. LAURENTII, *De Wild. in Belg. Colon.* 1904, 378 ; *Mission Laurent*, 109 ; *Notice Pl. Utiles Congo*, 341 ; *Ann. Mus. Congo*, sér. 5, i. 259, ii. 147 ; *Compagnie de Kasai*, 310 ; *Dunn in Journ. Bot.* xlix. (1911) 221.—M. Tessmanni, *Harms in Engl. Jahrb.* xlv. (1910) 310.

*Arbor magna*, cortice lenticellato, præter inflorescentiam glabra ; gemmæ lenticulares. *Folia* 6-juga, 30–40 cm. longa, petiolo 4-plo longiora ; stipulæ minutæ, caducæ ; foliola lateralia superiora oblonga, acuminata, caudata, basi acuta, ad 12 cm. longa, papyracea, siccitate nigrescentia, utrinque reticulata, venis marginem proxime appropinquantibus 8–9-paribus supra et subtus prominulis ; petioluli 5–8 mm. longi ; stipellæ nullæ. *Panicula* angusta terminalis, 25–35 cm. longa, rachi dense puberula ; ramuli floriferi 1.5–3 cm. longi, ut calyces dense adpresse aureo-sericei. *Flores* approximati, 1.9 cm. longi ; pedicelli graciles, 3–5 mm. longi. *Calyx* campanulatus, 7–8 mm. longus, dentibus oblongis tubo paullo longioribus ; bractæolæ 2–4 mm. longæ. *Petala* glabra, lilacina ; vexilli lamina rotundata, basi cordata et bicallosa, auriculis laminæ inflexis et callorum erectis, ungue bis longior ; alæ carinæque petala oblongæ, hamatæ. *Stamina* monadelphia, vexillare basi solutum. *Discus* calyci adnatus, apice lobulatus. *Ovarium* lineare, pubescens, multiovulatum. *Legumen* lineari-oblongum, apice acuminatum, basi angustatum, 15–25 cm. longum, 3.5–4 cm. latum, glabrum, dehiscens ; valvæ lignosæ.

Flowers March to October, fruit November.

CONGO FREE STATE : Leopoldville and Kutu, *Laurent (type)* ; Kasai region, *Bunge, Sapin*.

FRENCH CONGO : Brazzaville, *Brazza and Thollon*, 78.

SPANISH GUINEA : Akonanga, *Tessmann*, 940, B 228.

Produces a fine ebony known as *M'Botu* in the Lower Congo district.

91. M. MICANS, *Taub. in Engl. Pflanzenw. Ost-Afr. C.* 212 ; *Dunn in Journ. Bot.* xlix. (1911) 221.

*Arbor?* cortice primo velutino. *Folia* 3–5-juga, 20–30 cm. longa, rachi ferruginea ; stipellæ persistentes, oblongæ, acutæ, 1 cm. longæ vel longiores peltate juxta basin affixæ ; foliola lateralia superiora oblonga, breviter acuminata, basi rotundata vel truncata et subcordata, 10–15 cm. longa, coriacea, supra pubescentia, venis tomentosis, subtus molliter tomentosa,

venis marginem appropinquantibus 8-10-paribus parallelis approximatis in nervum marginalem exeuntibus; petioluli 5-6 mm. longi; stipellæ fortiter setaceæ, 3 mm. longæ. *Panicule* racemiformes terminales, 20 cm. longæ, pedunculatæ, rachi ramulis pedicellis calycibusque dense velutinis; ramuli floriferi ad 2 cm. longi. *Flores* approximati, 3 cm. longi; pedicelli 1 cm. longi; bracteæ oblongæ, 2-3 mm. longæ, caducæ. *Calyx* campanulatus, dentibus 2-3-plo tubo brevioribus. *Vexilli* lamina ovata, basi subsagittata, medio auriculis erectis bicallosa, dorso longe sericeo-pilosa, ungue 3-4-plo brevior, basi stamen vexillare amplectente; alæ oblongæ, transverse rugosæ, longe uncinatæ; carinæ petala oblonga hamata. *Stamina* monadelphica, vexillare basi solutum. *Discus* fimbriatus, lobulis infra calyci adnatis supra breviter liberis pubescentibus. *Ovarium* lineare, in stylum longum attenuatum, pubescens, 4-ovulatum. *Legumen* oblongo-lineare, utrinque obtusum, elastice dehiscens, 14 cm. longum, 3.5 cm. latum, 1 cm. crassum, suturis leviter incrassatis; valvæ lignosæ, dense velutinæ. *Semina* circiter 6, ovato-lenticularia.

GERMAN EAST AFRICA, *Busse*, 65, *Stuhlmann*, 6750 (*type*).

92. *M. VERSICOLOR*, *Welw. ex Baker in Fl. Trop. Afr.* ii. 129; *Hiern, Cat. Welw. Afr. Pl.* i. 227; *De Wild. in Ann. Mus. Congo*, sér. 5, ii. 260, t. 47; *De Wild. in Notice Pl. Utile Congo*, 343; *De Wild. in Compagnie de Kasai*, 311; *Ficalho, Pl. Ut. Afr. Portug.* 132; *Dunn in Journ. Bot.* xlix. (1911) 221.—*Lonchocarpus Dewevrei*, *M. Micheli in Durand et De Wild. in Compt. Rend. Soc. Bot. Bely.* xxxvi. (1897) 68, t. 5 (fide *De Wild.*).

*Frutex* 1-2 m. altus vel rarius arbor parva, 4-7 m. alta, ramulis striatis glabris; gemmæ complanatæ. *Folia* 5-juga, 25-30 cm. longa, petiolo 5-plo longiora, rachi glabra; stipulæ caducæ; foliola lateralia superiora oblongo-lanceolata, acuminata, basi obtusa, 9-11(-18) cm. longa, papyracea, supra glabra, subtus adpresse pubescentia, venis marginem appropinquantibus 16-paribus erecto-patentibus approximatis parallelis in nervum marginalem exeuntibus infra prominulis; petioluli 2.3 mm. longi; stipellæ setaceæ, 2 mm. longæ. *Panicule* terminales, pedunculatæ, angustæ, 30 cm. longæ, rachi tenuiter pubescente; ramuli floriferi, ad 6(-10) cm longi, adpresse pubescentes. *Flores* approximati, 2 cm. longi; pedicelli 3-4 mm. longi, ut calyx vexillique dorsum indumento aureo-brunneo adpresso sericeo fulgentes. *Calyx* 6-7 mm. longus, dentibus brevibus latis. *Petala* glabra; vexilli lamina intus alba, rotundata, basi subcordata, medio duobus longitudinalibus callis contiguis notata; alæ carinæque petala purpureæ, oblongæ, subhamatæ. *Stamina* diadelphica, vexillare complanatum leviter cohærens. *Discus* calyci adnatus, annulo apice libero. *Ovarium* lineare, dense velutinum, 4-ovulatum. *Legumen* oblongum, velutinum, 7-13 cm. longum, 3-4 cm. latum, dehiscens, suturis incrassatis; valvæ lignosæ, inter semina paullo cohærentes. *Semina* 2-3, oblonga, compressa, 2 cm. longa, 1.3 cm. lata.

Flowers in January, fruits in July.

CONGO: Brazzaville, *Chevalier*, 4112, 11377.

ANGOLA, *Wetwitsch*, 1859 (*type*).

The tree produces a very hard and useful timber, and its inner bark is employed for binding. The Angolan tribes call it *Muzumbo*.

93. *M. CAFFRA*, *Meissn. in Lond. Journ. Bot.* ii. (1843) 99; *Harvey & Sonder, Fl. Cap.* ii. 211; *Wood, Natal Pl.* t. 32; *J. R. Sim in For. Fl. Cape of Good Hope*, 203, t. 55; *Dunn in Journ. Bot.* xlix. (1911) 221.—*Virgilia grandis*, *E. Mey. Comm.* 1?

*Arbor* ad 40 m. alta, cortice griseo lenticellato; gemmæ compressæ striatæ. *Folia* 6-juga, 15–25 cm. longa, petiolo 5–6-plo longiora, rachi sulcata pubescente; stipulæ caducæ; foliola lateralia superiora anguste oblonga, sæpius apice obtusa vel rotundata, in apiculum brevem deflexa, nonnunquam breviter et obtuse acuminata, basi paullo obliqua, rotundata, 5–7 cm. longa, chartacea, supra glabra, subtus adpresse pubescentia, venis marginem appropinquantibus 14–16-paribus erecto-patentibus approximatis parallelis, in nervum marginalem excurrentibus infra prominulis; petioluli 3–4 mm. longi; stipellæ setaceæ, paullo longiores. *Paniculæ* terminales, pedunculatæ, cylindricæ, 20–25 cm. longæ, rachi puberula; rami floriferi ad 7 cm. longi, breviter velutini. *Flores* dense congesti, 2.0 cm. longi; pedicelli 3–4 mm. longi; bracteæ bracteolæque caducæ. *Calyx* campanulatus, dense adpresse sericeus, dentibus rotundatis tubo bis brevioribus. *Petala* purpurea; vexilli lamina rotundata, basi fortiter transverse callosa, dorso longe sericeo-piloso, ungue 4-plo longior; alæ carinæque petala ovatæ, valde uncinatæ. *Stamina* diadelpa, perigyna. *Discus* nullus. *Ovarium* lineari-lanceolatum, velutinum, 5-ovulatum. *Legumen* oblongum, brunneo-velutinum, suturis incrassatis, 15 cm. longum, 3.5 cm. latum, valvis lignosis tandem elastice tortis. *Semina* oblonga, 2 cm. longa, compressa.

Flowers in January.

S. AFRICA: Natal, *Plant*, 20, *Wood*, 326 (Inanda), 650, 1025 (Berea), *Sutherland* (common in Mimosa valleys), *Krauss*, 194 (*type*), *Gerrard*, 9 (Zululand); Cape Colony, *Webe* (Transkeian Conservancy).

In Museum No. I. in the Royal Botanic Gardens, Kew, are specimens of the wood and examples of tool-handles and other objects made from it. A fine photograph of the tree accompanies the exhibit. *Sim (l. c.)* declares the timber to be the best of all S. African woods, and with one exception the heaviest.

94. *M. SACLEUXII*, *Dunn in Journ. Bot.* xlix. (1911) 221.

*Arbor* duro-lignosa, cortice albida striata, ramulis angularibus sæpe complanatis, gemmis lenticularibus. *Folia* 3-juga, 30–50 cm. longa, petiolo 4-plo longiora, rachi glabra; stipulæ caducæ; foliola lateralia superiora late

oblonga, apice subito et obtuse acuminata, 15 cm. longa, 7-9 cm. lata, chartacea, præter paginam inferiorem brevissime adpresse sericeam glabra, venis marginem appropinquantibus 15-paribus fere ad marginem rectis parallelis ascendentibus infra prominentibus; petioluli 6-7 mm. longi; stipellæ capillaceæ, 4 mm. longæ. *Panicula* parvæ, præcoces, terminales, ad 10 cm. longæ, sessiles, rachi tenuiter laxe ferruginea; ramuli pauciflori. *Flores* laxi, 3 cm. longi; pedicelli 1.0-1.4 cm. longi, breviter sericei; bracteæ deciduæ, lanceolatæ, membranaceæ, 1 cm. longæ. *Calyx* turbinatus, 1-1.2 cm. longus, dense purpureo-sericeus, dentibus tubo paullo brevioribus erectopatulis anguste triangularibus, superioribus 2 fere ad apicem connatis; bracteolæ basales bracteis omnino similes. *Petala* violacea?; vexilli lamina orbiculata, basi subcordata, reflexa, fortiter bicallosa, extus tenuiter sericea, unguem fere bis superans; alæ carinæque petala valde hamatæ. *Stamina* monadelphæ. *Discus* calyci adnatus, apice crenulatus. *Ovarium* lineare, dense albo-tomentosum, 6-ovulatum. *Legumen* crassum, validum, 15-20 cm. longum, 4-5 cm. latum, 2-4-spermum, primo dense sericeo-tomentosum, glabrescens. *Semina* lenticularia.

Flowers from August to January, fruit ripe in July.

GERMAN EAST AFRICA: Mkonda, Ngourou, and Gagara, *Sacleux*, 2047, *Holtz*, 1227 (*types*).

95. M. SOYAUXII, *Taub. in Engl. Jahrb.* xxiii. (1896) 185.

*Frutex* scandens, cortice primo ferrugineo-villoso, tandem glabro. *Folia* 3-5-juga, 10-14 cm. longa, petiolo 3-4-plo longiora, rachi ut foliolorum pagina inferiore ut rachi inflorescentiæ ut pedicellis et calycibus ferrugineo-villosa; stipulæ anguste lanceolatæ, acutæ, 6-8 mm. longæ, persistentes; foliola lateralia superiora oblanceolato-oblonga, breviter acuminata, basi rotundata, 4-6 cm. longa, chartacea, supra glabra, nitida, venis principibus 8-9-paribus arcuatis supra impressis infra prominentibus; stipellæ nullæ. *Panicula* racemiformes terminales et axillares, basi foliatæ, ad 20 cm. longæ; nodi floriferi breves globulares. *Flores* fasciculati, 1.8 cm. longi; pedicelli 2-3 mm. longi; bracteæ bracteolæque 1 cm. longæ, lineares. *Calyx* 3-4 mm. longus, dentibus tribus inferioribus tubo bis brevioribus duobus superioribus latioribus minoribus coalitis. *Vexilli* lamina ovata, dorso laxe adpresse villosa, in unguem brevem acuminata; alæ oblongæ, vexillo breviores, basi truncatæ, ungui æquales; carinæ petala ovata, longe unguiculata, subfalcata. *Stamina* monadelphæ. *Discus* annularis. *Ovarium* lineare, sericeum, 6-ovulatum.

Flowers in July.

FRENCH CONGO: Gabun, *Soyaux*, 96 (wood-borders from Zala to Tschin-schoscho, *type*).

96. *M. HIRSUTA*, *Dunn*, sp. n.

*Frutex* scandens?, caulibus tenuiter pubescentibus mox glabris lenticellatis. *Folia* 3-juga, 20–25 cm. longa, petiolo 3–4-plo longiora, rachi laxe rufo-pilosa; stipulæ caducæ; foliola superiora lateralia obovata vel oblanceolata, breviter acuminata, basi obtusa, 8–12 cm. longa, papyracea, supra præter costas glabra, opaca, subtus longe laxèque sericeo-hirsuta, venis marginem appropinquantibus 7–8-paribus supra paullo impressis infra prominulis; petioluli 3 mm. longi; stipellæ setaceæ, 1–2 mm. longæ. *Paniculæ* racemiformes in axillis superioribus, 8–12 cm. longæ, rachi tomentosa; ramuli floriferi breves. *Petala* ignota. *Calyx* rufo-tomentosus. *Legumen* lineare, 8–12 cm. longum, 2 cm. latum, dense velutinum, dehiscens; valvæ crasse coriaceæ. *Semina* 1–5.

Fruits in December.

IVORY COAST, *Chevalier*, 16829 (Pont de l'Agbo at the 82nd kilo. of railway), 22640, 22644 (Région du Moyen-Comee).

Distinguished from *M. Soyauvii*, Taub., by its conspicuous stipels.

97. *M. GAGNEPAINIANA*, *Dunn in Journ. Bot.* xlix. (1911) 221 (sphalm. *M. Gagnepaineana*).

*Frutex* parva scandens, apice longe flabelliformis, præter stipulis aphyllis nuda, cortice breviter rubiginosa. *Folia* (3–)4-juga, 20–25 cm. longa, petiolis quater longiora, rachi ut petiolulis breviter autem primo dense ferruginea; stipulæ persistentes, lineares, 0·7–1·2 cm. longæ; foliola lateralia superiora oblongo-obovata, basi rotundata, 5–10 cm. longa, papyracea, supra præter costam glabra, subtus tenuiter adpresse brunneo-sericea, venis 6–7-paribus rubiginosis infra prominentibus; petioluli 3–4 mm. longi; stipellæ nullæ. *Paniculæ* racemiformes, axillares vel supra folia oreuntes, pedunculatæ, ad 35 cm. longæ, rachi breviter ferruginea; nodi floriferi 2–3 mm. longi, bracteati. *Flores* fasciculati, 1·1–1·3 cm. longi; pedicelli 2 mm. longi; bracteæ lineares, 3 mm. longæ. *Calyx* campanulatus, 4 mm. longus, 3 mm. latus, dense brunneo-sericeus, dentibus tubo 3–4-plo brevioribus, superioribus duobus in unum late rotundatum emarginatum connati, cæteris triangularibus; bracteolæ basilares, 1 mm. longæ. *Petala* alba, luteo-tincta; vexilli lamina reflexa, rotundato-ovata, in unguem angustata, exauriculata, extus dense sericea; alarum laminæ apice sericeæ, bis longiores quam latæ, basi truncatæ; carinæ petala leviter falcata, ter longiora quam lata. *Stamina* monadelphæ. *Discus* obsoletus. *Ovarium* oblongum, sericeum, 5-ovulatum.

Flowers in September.

FRENCH CONGO: Libreville, *Klaine*, 569 (*type*), *Burton* (Ma Kau Ka).

This beautiful climber is named after my friend M. Gagnepain, of the Museum d'Histoire Naturelle.

98. *M. BICOLOR*, *Dunn in Journ. Bot.* xlix. (1911) 221.

*Frutex* scandens, ramulis ut rachibus paginisque inferioribus foliolorum pilis longis rufis tenuiter vestita. *Folia* 4-juga, 20–30 cm. longa, petiolis 3–4-plo longiora; stipulæ lineares, 1–1·5 cm. longæ, persistentes; foliola superiora oblonga, obtuse acuminata, basi rotundata, 8–10 cm. longa, chartacea, supra glabra; petioluli 3–4 mm. longi; stipellæ nullæ. *Paniculæ* racemiformes terminales, 15–20 cm. longæ, ad basin et ad nodos bracteatae; nodi floriferi globosi; bracteæ lineares, 0·8–1·0 cm. longæ, extus pilosæ; rachis breviter ferruginea; nodi floriferi 1–3 mm. longi. *Flores* fasciculati, 1·4 cm. longi; pedicelli 2 mm. longi, graciles. *Calyx* campanulatus, 4 mm. longus, dentibus 2 superioribus fere ad apicem coalitis, cæteris tubo 4–5-plo brevioribus, adpresse brunneo-pilosus; bracteolæ lineares, dimidium calycis æquantés. *Petala* alba, vexillo violascente; vexilli lamina rotundata in unguem brevem angustata, extus dense aureo-pilosa; alæ carinæque petala oblongo-ovata, basi truncatæ. *Stamina* monadelpha, vexillare basi solutum. *Discus* nullus. *Ovarium* lineare, pubescens, 4-ovulatum.

Flowers in September.

FRENCH CONGO: Kilabi, *Lecomte*, A 8 (*type*).

99. *M. GOETZIANA*, *Harms in Engl. Jahrb.* xxviii. (1899) 404; *Dunn in Journ. Bot.* xlix. (1911) 221.

*Frutex* volubilis, ramis primo hirsutis tandem glabris. *Folia* 3–4-juga, 6–30 cm. longa, petiolo 3–4-plo longiora, rachi tenuiter breviter hirsuta; stipulæ breves lanceolatae; foliola superiora lateralia obovato-oblonga, breviter obtuse acuminata, rotundata vel emarginata, basi rotundata, 3–10 cm. longa, coriacea, tandem præter venas subtus paullo pubescentes omnino glabra, venis marginem approximantibus 6–8-paribus arcuatis supra impressis subtus prominentibus; petioluli 2–4 mm. longi; stipellæ setaceæ, 3–4 mm. longæ. *Paniculæ* racemiformes axillares et terminales, 20–30 cm. longæ, ad basin floriferæ, rachi præsertim superius breviter ferrugineo-velutina; nodi floriferi ad 5 mm. longi. *Flores* fasciculati, 1·0–1·3 cm. longi; pedicelli ut calyces tenuiter adpresse ferrugineo sericei, ad 2 mm. longi; bracteæ bracteolæque lineares, 3 mm. longæ. *Calyx* 6 mm. longus, dentibus 4, superiore lato emarginato, cæteris longioribus triangularibus tubo 3–4-plo brevioribus. *Vexilli* lamina rotundata, basi longitudinaliter bicallosa in unguem 3-plo breviorē subito contracta, dorso dense adpresse sericea; alæ oblongæ, basi truncatæ; carinæ petala apice paullo pubescentia, basi subhamata. *Stamina* monadelpha, vexillare basi solutum et ibi lateraliter compressum in unguem plicatam vexilli intrusum et retentum. *Discus* nullus. *Ovarium* lineare, sericeum, 6-ovulatum.

GERMAN EAST AFRICA: Usaramo, *Goetze*, 11 (*type*); Kilwa, *Kirk*.

100. *M. IMPRESSA*, *Harms in Engl. Jahrb.* xxvi. (1899) 288 ; *Dunn in Journ. Bot.* xlix. (1911) 221.

*Frutex* scandens, ramis primo ferrugineo-pubescentibus tandem glabris. *Folia* 3-4-juga, 15-20 cm. longa, petiolo 3-4-plo longiora, rachi laxè hirsuta ; stipulæ oblongæ, 3-4 mm. longæ, apice rotundatæ ; foliola lanceolato-oblonga, breviter obtusè acuminata, acumine retuso vel apiculato, basi rotundata, 6-8 cm. longa, coriacea, tandem glabra, venis marginem appropinquantibus 5-7-paribus arcuatis supra impressis subtus prominentibus ; petioluli 3-4 mm. longi ; stipellæ setacæ, 2-3 mm. longæ. *Panicula* racemiformes axillares vel ramosæ terminales, ad basin floriferæ, rachi præsertim superius breviter ferrugineo-tomentosa ; no li floriferi elongati, ad 3 mm. longi. *Flores* fasciculati, 1.2 cm. longi ; pedicelli 2 mm. longi ut calyx et dorsum vexilli breviter sed dense adpresse sericei ; bracteæ bracteolæque lineares, 1-2 mm. longæ. *Calyx* campanulatus, dentibus brevibus præter inferiorem acuminatum tubo bis breviorum. *Vexilli* lamina rotundata, basi medio longitudinaliter bicallosa, in unguem brevem acuminata ; alæ oblongæ, basi truncatæ ; carinæ petala apice pubescentia, subhamata. *Stamina* monadelphia, vexillare basi solutum. *Discus* nullus. *Ovarium* lineare, sericeum, multiovulatum. *Legumen* lineare, 6 cm. longum, 1.5 cm. latum, compressum, ferrugineo-hirsutum, dehiscens. *Semina* 2-4.

FRENCH CONGO : Loango, *Soyaux*, 99 (*type*).

CONGO FREE STATE, *Chr. Smith*, 38, 40, 43, 52, 74.

101. *M. CALABARICA*, *Dunn in Journ. Bot.* xlix. (1911) 221.

*Frutex* scandens, cortice glabro. *Folia* 3-4-juga, 15-50 cm. longa, petiolo 3-plo longiora, rachi primo ut rachibus panicularum pedicellis calycibus dorsisque vexillorum brevissime velutina tandem fere glabra ; stipulæ 2 mm. longæ, ovatæ ; foliola superiora lateralia obovata, breviter acuminata, basi rotundata, 7-20 cm. longa, coriacea, glabra, venis marginem appropinquantibus 7-8-paribus arcuatis supra impressis subtus prominentibus ; petioluli 4-8 mm. longi ; stipellæ nullæ. *Panicula* axillares, 15-25 cm. longæ, ad basin ramosæ ; nodi floriferi globosi, 1-2 mm. longi. *Flores* fasciculatæ, 1.2-1.5 cm. longæ ; bracteæ bracteolæque 1-1.5 mm. longæ, lanceolatæ. *Calyx* campanulatus, dentibus tubo 4-5-plo brevioribus. *Vexilli* lamina ovata, in unguem brevem acuminata, ecallosa ; alæ lineari-oblongæ, basi angustatæ ; carinæ petala basi truncata. *Stamina* monadelphia, vexillare basi solutum. *Discus* calyci breviter adnatus, apice crenulatus. *Ovarium* lineare, sericeum, multiovulatum.

NIGERIA : Old Calabar River, *Mann*, 2259 ; Oban, *P. A. Talbot* (*types*).

102. *M. BARTERI*, *Dunn, l. c.* 221.—*M. urophylla*, *Welw. ex Baker in Oliver, Fl. Trop. Afr.* ii. 129 (1871) ; *Hiern, Cat. Welw. Afr. Pl.* i. 228.

*M. Demeusei*, *De Wild. in Ann. Mus. Congo*, sér. 5, ii. 37. *M. Gentilii*, *De Wild. l. c.* 138, 258, t. liii.; *De Wild. Etude Fl. Bangala*, 323. *Lonchocarpus Barteri*, *Benth. in Journ. Linn. Soc., Bot.* iv. Suppl. 99 (1860); *Bot. Mag.* t. 6943; *Baker in Oliver, Fl. Trop. Afr.* ii. 243; *Baill. Adansonia*, vi. 222. *L. Heudelotianus*, *Baill. l. c.*

*Frutex* magnus scandens (nonnunquam arborescens?), ramis primo ferrugineo-pubescentibus mox glabris lenticellatis. *Folia* (2-)3-4-juga, 15-30 cm. longa, petiolo 2-3-plo longiora, rachi glabra vel rarius pubescente; stipulæ caducæ; foliola superiora lateralia ovato-vel obovato-oblonga, apice abrupte acuminata, acumine caudata emarginata, vel rarius gradatim acuminata, basi rotundata, 7-15 cm. longa, chartacea, glabra vel rarius, præcipue in costa, pubescentia, venis marginem approximantibus 7-9-paribus arcuatis infra prominentibus, petioli 4-7 mm. longi; stipellæ nullæ. *Paniculae* racemiformes, terminales et axillares, laxæ, 30-40(-80) cm. longæ, rachi ut pedicellis calycibusque breviter ferrugineo-velutinæ; nodi floriferi sæpius globulares, 1-2 mm. longi, rarius oblongi ad 4 mm. longi. *Flores* fasciculati, 1.2-1.4 cm. longi. *Calyx* 4-5 mm. longus, dentibus late triangularibus tubo 4-5-plo brevioribus. *Petala* rosea, sæpe violascentia; vexilli lamina ovata, in unguem brevem angustata, dorso pubescens; alæ lineari-oblongæ, basi truncatæ; carinæ petala, oblonga, subhamata. *Stamina* primo monadelphæ, vexillare basi solum mox omnino liberum. *Discus* breviter annularis. *Ovarium* pubescens, lineare, multiovulatum. *Legumen* oblongum, 4-7 cm. longum, 2 cm. latum, dense brunneo-velutinum, 1-2-spermum. *Semina* 2.5 cm. longum, 1.8 cm. latum.

Flowers February to May.

SENEGAMBIA: Rio Nunez, *Heudelot*, 803; *Chevalier*, 13174 (Guinée Française, Tarauna), 13244 (Haute Guinée Française, Vallée de la Kaba), 18206 (Fonta Djallon, Kouria).

SIERRA LEONE, *Scott Elliot*, 4202.

LIBERIA, *Whyte*.

IVORY COAST: Bouroukrou, *Chevalier*, 16984.

NIGERIA, *Barter*, 67 (Brass River), 1609 (Nupe), 3253, 3401 (R. Obba, types), *Millson* (Yoruba), *Shaw*, 23 (Lokoya), *Mann*, 822 (Bagroo River), *W. C. Thomson*, 64 (Old Calabar), *Bowland* (W. Lagos).

KAMERUN, *Zenker*, 971, 1029, 2532, and 3266 (Bipindi), 1703, 2367, 3440, 3796, *Staudt*, 92, *Preuss*, 1187.

NIAMNIAM, *Schweinfurth*, 3189, 3227.

FRENCH CONGO, *Klaine*, 5, 69, *Lecomte*, D 97 (Mazomba), 723 (Poste de la Mission), *Chevalier*, 14356 (San Thomé), *Soyaux*, 444.

CONGO FREE STATE, *Burton, Chr. Smith*, 63, *Schweinfurth*, 3189 (Monbuttu).

ANGOLA, *Webwitsch*, 1851.

CULT. Kew Gardens.

103. *M. MACROPHYLLA*, *Benth. in Hook. Ic. Pl. t. 788-9 (1848)*; *Hook. f. Niger Fl. (1849) 318, t. 32-3*; *Baker in Oliver, Fl. Trop. Afr. ii. 127*; *Harms in Notizbl. Bot. Gart. Berlin, App. xxi. (1911) 68, t. ?—M. Hookeriana, Taub. in Engl. u. Prantl, Pflanzenfam. iii. 3, 271.*

*Arbor* parva, 2-5 m. alta, cortice brunneo, ramis lenticellatis. *Folia* 5-6-juga, 30-60 cm. longa, petiolo 3-plo longiora, rachi mox glabra; foliola superiora lateralia ovato-oblonga, obtuse acuminata, basi obtusa, 10-20 cm. longa, chartacea, supra glabra et pallide viridia, subtus tenuiter adpresse griseo-sericea, venis marginem appropinquantibus 12-14-paribus erecto-patentibus subtus prominentibus; petioluli 5-8 mm. longi; stipellæ caducæ. *Paniculæ* racemiformes in foliorum superiorum axillis erectæ, 40-60 cm. longæ, pedunculis 3-plo longiores, rachi primo puberula; nodi floriferi 3-5 mm. longi, velutini, bracteis brevibus lanceolatis suffulti. *Flores* in nodis fasciculati, 2.4 cm. longi; pedicelli 6-9 mm. longi, ut calyces brunneo-pubescentes; bracteæ 1-2 mm. longæ, lanceolatæ. *Calyx* campanulatus, basi truncatus, 5 mm. longus, 6 mm. latus, dentibus obsoletis; bracteolæ rotundatæ, 1 mm. longæ, deciduæ. *Petala* glabra, rosea vel purpurea; vexilli lamina ovata, in unguem brevem angustata, 2.1 cm. longa, 1.8 cm. lata; alæ carinæque petala oblongæ, basi truncatæ. *Stamina* monadelphæ, vexillare basi solutum. *Discus* brevis, lobulatus. *Ovarium* lineare, velutinum, multiovulatum. *Legumen* lineare, ad basin angustatum, 15 cm. longum, 2-3 cm. latum, velutinum, glabrescens, facile dehiscens, valvis tenuiter lignosis, liberis, obscure marginatis. *Semina* 3-4, oblonga, compressa; radícula brevis inclusa.

Flowers in November.

KAMERUN, *Zenker, 3110, Ledermann, 6182 (Ndonge), Bates, 59 (Batanga).*

FRENCH CONGO, *Griffon, 693.*

CULTIVATED: Fernando Po, *Vogel, 117 (type).*

Bentham and Hooker apparently published this species independently, but under the same name and with the same (Fitch's) plate. Many plates were prepared about 1848-9 from West African material in the Kew Herbarium for publication in the 'Icones,' and the name *M. macrophylla* was doubtless in MS. on the type specimens.

Taubert apparently thought that Bentham's and Hooker's *M. macrophylla* were different plants, and therefore distinguished the latter as *M. Hookeriana*.

104. *M. MANNII*, *Baker in Oliver, Fl. Trop. Afr. ii. 127*; *De Wild. in Ann. Mus. Congo, sér. 3, i. 62, sér. 5, ii. 147*; *De Wild. Etudes Fl. Bangala, 323.*—*Lonchocarpus Zenkeri, Taub. in Engl. Jahrb. xxiii. (1896) 193.*

*Arbor* parva, 6-8 m. alta, cortice fusco lævi lenticellato, novellis brunneo-sericeis. *Folia* 7-11-juga, 30-50 cm. longa, petiolo 3-plo longiora, rachi ut ea paniculæ fere glabra; stipulæ oblongo-lineares, 5-6 mm. longæ, reflexæ, persistentes; foliola superiora lateralia oblonga, breviter acuminata, basi

obtusa, 8 cm. longa, chartacea, glabra, venis marginem appropinquantibus 8-10-paribus erecto-patentibus ob colorem solum conspicuis; petioluli pubescentes, 4 mm. longi. *Panicule* racemiformes axillares, 25-40 cm. longæ; nodi floriferi elongati, multiflori, ad 7 mm. longi. *Flores* aggregati, 2.4 cm. longi; pedicelli 4 mm. longi; bracteæ bracteolæque breves, obtusæ. *Calyx* campanulatus, basi apiceque truncatus, dentibus obsoletis, breviter adpresse sericeus. *Petala* glabra; vexilli lamina rotundata, in unguem 3-plo breviorum abrupte angustata; alæ oblongæ, basi subfalcatae; carinæ petala conformia, apice paullo velutina. *Stamina* monadelphæ, vexillare basi solutum. *Ovarium* lineare, breviter velutinum, multiovulatum. *Legumen* lineare, 13 cm. longum, 2 cm. latum, velutinum, valvis crasse coriaceis.

FRENCH CONGO, *Mann* (type).

KAMERUN: Bipinde, *Zenker*, 1173, 1009, *Preuss*, 258, *Zenker*, 100 (at 800 m.).

105. *M. PSILOPETALA*, *Harms in Wiss. Erg. Deutsch. Zentr. Afr. Exp.* 1907-8, ii. 256 (reimpr.).

*Frutex* elatus vel arbor parva, ramis primo velutinis sulcatis. *Folia* 2-4-juga, 15-40 cm. longa, rachi glabra vel tenuiter puberula; stipulæ caducæ; foliola lateralia superiora oblonga, caudata, basi rotundata, 10-11 cm. longa, papyracea, glabra, venis marginem appropinquantibus 6-paribus inter se arcuatis supra impressis infra prominentibus; petioluli 5 mm. longi; stipellæ caducæ. *Panicule* perulatae, sessiles, ramosæ, in foliorum superiorum axillis, 13-15 cm. longa, rachi ut ramis calycibusque sericeo-pubescente; ramuli floriferi, ad 3 mm. longi. *Flores* fasciculati, 1.4 mm. longi; pedicelli 4 mm. longi; bracteæ lanceolatae, caducæ, parvæ. *Calyx* campanulatus, puberulus, 5-6 mm. longus, dentibus 5 obscuris; bracteolæ subulatae, 1-2 mm. longæ. *Petala* glabra, brunneo-viridula; vexilli lamina rotundata, ecallosa, basi abrupte in unguem brevem angustata, purpurascens; alæ carinæque petala oblongæ, hamatae. *Stamina* diadelphe. *Ovarium* lineari-lanceolatum, in stylum angustatum, multiovulatum, pubescens.

Flowers January to April.

CONGO FREE STATE: Fort Beni, *Mildbraed*, 3209.

106. *M. THONNERI*, *De Wild. in Etudes Fl. Bangala*, 218, t. i.

*Frutex* vel arbor parva, cortice lævi. *Folia* 4-juga, circ. 20 cm. longa, rachi subglabra, petiolo 3-4-plo longiora; stipulæ parvæ, ovatae, persistentes; foliola superiora lateralia obovata, breviter et obtuse acuminata, apice retusa, basi rotundata vel subcordata, 6-9 cm. longa, chartacea, glabra, venis marginem appropinquantibus 6-7-paribus infra prominulis; petioluli 5-6 mm. longi, puberuli; stipellæ nullæ. *Panicule* axillares, 30-50 cm. longi, rachi ramisque velutinis; nodi floriferi 1-2 mm. longi. *Flores* fasciculati, 1.6 cm.

longi; pedicelli 2 mm. longi; bracteæ minutæ. *Calyx* campanulatus, apice basique truncatus, 4 mm. longus, aureo-velutinus; bracteolæ minutæ. *Petala* glabra, rubida; vexilli lamina ovata, in unguem brevem acuminata; alæ lineari-oblongæ, basi obtusæ; carinæ petala oblonga, subhamata. *Stamina* diadelpa. *Discus* brevis, annularis. *Ovarium* breviter stipitatum, lanceolatum, multiovulatum, sericeum.

Flowers in March.

CONGO FREE STATE: Mokoange (Ubangi), *Thonner*, 268 (*type*).

107. *M. ABOENSIS*, *Hook. f. ex Baker in Oliver, Fl. Trop. Afr.* ii. 130.—*M. macrophylla*, *Benth., var. aboensis, Hook. f. in Hook. Niger Fl.* 319.

*Arbor* 10–15 m. vel rarius minor, cortice rugoso griseo, novellis velutinis mox glabris. *Folia* 6–9-juga, 40–60 cm. longa, petiolo 5-plo longiora, rachi ut pagina inferiore foliolorum et ut inflorescentia tota præter petala plus minus ferruginea; stipulæ bracteæque lineares, obtusæ, curvatæ, 6 mm. longæ; foliola lateralia superiora anguste oblonga, breviter acuminata, apiculata, basi rotundata, chartacea, supra glabra, nitentia, venis marginem appropinquantibus 10–11-paribus arcuatis infra prominentibus; petioluli 5 mm. longi; stipellæ caducæ. *Paniculæ* racemiformes apice approximatae, sæpius supra-axillares, erectæ, 20–50 cm. longæ, pedunculis 4-plo longiores; rami floriferi 1.0–1.5 cm. longi, rarius breviores. *Flores* in ramulis approximati, 2.4–2.6 cm. longi; pedicelli 5–8 mm. longi. *Calyx* brunneus, 8 mm. longus, apice basique truncatus, dentibus obsoletis. *Petala* glabra, purpurea; vexilli lamina rotundata, ecallosa, in unguem abrupte angustata; alæ carinæque petala oblongæ, subhamatæ. *Stamina* monadelpa, vexillare basi solutum. *Discus* annularis. *Ovarium* lineare, multiovulatum. *Legumen* lineare, 14 cm. longum, 2–3 cm. latum, rubro-brunneum, velutinum, obscure marginatum. *Semina* 4–5.

NIGERIA, *Ansell* (Ebo, *type*), *Barter*, 148, 1806, *Mann*, 512 (Bonny River), *Vogel* (Ebo), *H. H. Johnston* (Cross River Exp.), *Williams*, 24 (Calabar), *Holland*, 201 (Okuni), *Dennett*, 15, and *H. N. Thompson*, 5 (Benin City).

KAMERUN: Yaunde Station, *Zenker*, 317.

Var. *GLABRESCENS*, *Dunn*, var. nov. Omnibus partibus glabrior.

SPANISH GUINEA: Nelleburg, *Tessmann*, 412.

KAMERUN: *Zenker et Staudt*, 100 (Yaunde).

108. *M. PAUCIJUGA*, *Harms in Engl. Jahrb.* xxvi. (1899) 287.

*Fruticæ?* ramulis rugosis rubro-brunneis. *Folia* 2-juga, 10–12 cm. longa, rachi ut petiolulis paginaque inferiore foliolorum puberula, petiolo ter longiora; foliola superiora lateralia obovata, apice obtusa, basi rotundata, 5 cm. longa, membranacea, supra glabra, reticulata, venis 6–7-paribus utrinque inconspicuis; petioluli 3 mm. longi; stipellæ nullæ. *Paniculæ* racemiformes apice ramulorum fasciculati; nodi floriferi parvi, sessiles.

*Flores* 1-2-ni, 1.0-1.1 cm. longi; pedicelli 6-7 mm. longi, ut calyces minute puberuli; bracteæ bracteolæque nullæ vel caducæ. *Calyx* campanulatus, 3-4 mm. longus, dentibus tubo 10-plo brevioribus. *Vexilli* lamina rotundata, in unguem brevissimum angustata, basi bicallosa; alæ carinæque petala ovatæ, basi obtusæ. *Stamina* monadelpha. *Discus* nullus. *Ovarium* lanceolatum, pubescens, multiovulatum.

GERMAN EAST AFRICA (probably): Salanda, *Fischer*, 194 (*type*).

109. *M. THONNINGII*, *Baker in Oliver, Fl. Trop. Afr.* ii. 128 (syn. exclus.); *De Wild. in Ann. Mus. Congo*, sér. 3, i. 62; *Stapf in Johnston, Liberia*, ii. 593.—*M. Atite, Harms in Engl. Jahrb.* xxxiii. (1902) 167. *Robinia Thonningii*, *Schum. et Thonn. Pl. Guin.* 349.

*Arbor* mediocris, 6-10 m. alta, præter inflorescentiam et costam foliolorum glabra, cortice pallido rugoso. *Folia* (3-)4-juga, 15-20 cm. longa, petiolo 5-6-plo longiora; stipulæ oblongæ, caducæ; folia lateralia superiora lanceolata vel ovato-oblonga, obtuse acuminata, apiculata, basi obtusa, 5-6 cm. longa, chartacea, tandem reticulata, venis marginem approximantibus 5-7-paribus arcuatis infra prominulis, costa basi subtus utrinque setulosa; petioluli 4-5 mm. longi; stipellæ nullæ. *Racemi* (rarissime paniculæ racemiformes) præcoces, axillares, 12-22 cm. longi, ad basin sæpius nodiferi sed solum in partibus tres superioribus floriferi, rachi pubescenti; nodi floriferi sæpissime sessiles, uniflori. *Flores* approximati, 1.5-1.8 cm. longi; bracteæ oblongæ, caducæ; pedicelli 6-7 mm. longi, paullo supra medium bibracteolati, ut calyces bracteolæque setaceæ 1 mm. longæ adpressæ sericeæ. *Calyx* campanulatus, 6-7 mm. longus, dentibus tubo 8-plo brevioribus. *Petala* lilacina vel rarius alba; vexilli lamina rotundata, in unguem 4-plo breviorem subito contracta, leviter bicallosa, medio basi et dorso ut unguis tenuiter hirtula; alæ carinæque petala oblongæ, basi obtusæ, præcipue inferius hirtulæ. *Stamina* monadelpha, vexillare basi solutum. *Discus* breviter annularis. *Ovarium* lineare, sericeum, multiovulatum. *Legumen* lineare, ad 16 cm. longum, 2 cm. latum, suturis immaturis incrassatis, glabrum, nitens, dehiscens; valvæ lignosæ, inter semina coherentes. *Semina* 4-6, oblonga, lenticularia.

Flowers from August to March, fruits in the following December.

SIERRA LEONE, *Irving* (Abbeokuta, "Indigo").

GOLD COAST, *W. H. Johnson*, 456, 911 (Krobo Plains).

DAHOMÉY: Cercle d'Abomey, *Chevalier*, 23271 (entre Massi et Goutyssa), Moyen-Dahomey, Cercle de Sabalon, *Chevalier*, 23730 (entre Gonka et Banté).

TOGO, *Warnecke*, 66, *Baumann*, 128 (Misahöhe).

NIGERIA: Old Calabar, *Robb*; Lagos, *Foster*, 21, *MacGregor*, 216, *Rowland*; N. Nigeria, *Dalziel*, 404, 23, *Elliott*, 36, 37, *Parsons* (Zario); S. Nigeria, *Uwain*, 24, *Barter*, 481, 1618, 1624.

ANGOLA (cultivated), *Gossweiler*, 491 (Loanda) ; St. Thomé, *Quintas*, 113.

As a shade-tree in towns and villages it is commonly cultivated throughout and beyond its natural range. Mr. Gossweiler tells me that in Angola it is a favourite tree for forming avenues along new roads, on account of its beauty during flowering-time and the ease with which it can be propagated. Large branches up to 3 inches thick, severed from the trees and planted in the ground, will root and be in leaf again in a month or two. Baker in revising the *Milletias* for the 'Flora of Tropical Africa,' did not distinguish Baillon's *M. Griffoniana* from *Robinia Thoningii*, and, as the abundant material now available proves the former to be a *Lonchocarpus*, his synonymy and geographical distribution have to be restricted. An unailing mark of distinction of *M. Thoningii* from all allied species is the small brush of hairs at the base of the midrib below its otherwise glabrous leaflets.

110. *M. SANAGANA*, *Harms in Engl. Jahrb.* xxvi. (1899) 288.

*Arbor* parva, cortice hornotino tenuiter velutino lenticellato. *Folia* 4-(3-5-)juga, 30-40 cm. longa, rachi tereti striata mox glabra ; stipulæ caducæ ; foliola superiora lateralia oblonga vel lanceolato-oblonga, apice acuminata, caudata, basi obtusa, 10-15(-25) cm. longa, papyracea, glabra, venis marginem appropinquantibus 7-9-paribus haud prominentibus ; petioluli 4-5 mm. longi ; stipellæ nullæ. *Paniculæ* racemiformes, ab apice ramorum plures, 25-35 cm. longæ, rachi brevissimæ velutina ; nodi floriferi globulares, 2 mm. longi. *Flores* fasciculati, 1.8-2.0 cm. longi. *Calyx* apice basique truncatus, dentibus obsoletis, sericeus. *Vexilli* lamina rotundata, basi truncata, dorso dense sericea, ungue 4-5-plo longior ; alæ ovatæ, basi in unguem æquilongum obtuse contractæ ; carinæ petala conformia, basi autem subhamata. *Stamina* monadelphæ, vexillare basi solutum. *Discus* annularis. *Ovarium* lineare, sericeum, multiovulatum. *Legumen* lineare, 13 cm. longum, 3 cm. latum, dehiscens ; valvæ elasticæ, glabræ, inter semina primo cohærentes, commissura acuta. *Semina* 4, 1.5 cm. longa et lata, nitentia, castanea.

Flowers in February, fruits in March.

SIERRA LEONE : Yelisanda, *Smythe*, 66 ; Kambia, *Scott Elliot*, 5225 b ; Kofu, Scarcies, *Scott Elliot*, 4598.

FRENCH GUINEA, *Chevalier*, 12053, 12165, 12737 (Conaky), 13091 (Vallée de la Santa).

KAMERUN, *Zenker*, 1466 (*type*), 2449 ; Fernando Po, *Barter*, 1597.

Closely resembles *Lonchocarpus sericeus*, H. B. K., but is distinguished by its fruit.

111. *M. ZECHIANA*, *Harms in Engl. Jahrb.* xl. (1907) 36.

*Arbor* magna, præter inflorescentiam glabra, cortice lenticellato. *Folia* 6-8-juga, 20-60 cm. longa, petiolo 5-plo longiora; stipulæ caducæ; foliola superiora lateralia lanceolato-oblonga, acuminata, basi obtusa, 6-15 cm. longa, chartacea, supra nitentia, venis marginem approximantibus 6-8-paribus erecto-patentibus infra prominentibus; petioluli 3 mm. longi; stipellæ minimæ vel nullæ. *Paniculæ* racemiformes in paniculam terminalem basi paullo foliosam collectæ, et apice ramorum aggregatæ, 15-25 cm. longæ, rachi ut ramulis pedicellis calycibus dorsoque vexilli breviter dense sericeo-velutina; ramuli floriferi ad 1.1 cm. longi, rare longiores, basi breviter nudi. *Flores* aggregati, 2.5-2.8 cm. longi; pedicelli 3-5 mm. longi; bracteæ non visæ; bracteolæ 1 mm. longæ, deciduæ. *Calyx* 7-8 mm. longus, apice basi que truncatus, dentibus tubo 8-plo brevioribus. *Vexilli* lamina rotundata, basi truncata, ungue bis longior, dorso pulchre brunneo-sericea, ecallosa; alæ oblongæ, hamatæ; carinæ petala oblonga, hamata, apice paullo hirtula. *Stamina* monadelphæ, vexillare basi solutum. *Discus* breviter tubularis vel annularis. *Ovarium* lineare, sericeum, multiovulatum. *Legumen* lineare, ad 14 cm. longum, 1.5-2.5 cm. latum, glabrum, facile dehiscens, valvis coriaceis. *Semina* ad 8, discoidea, 1.4 cm. longa et lata.

SIERRA LEONE, *Smythe*, 127.

LIBERIA, *Dinklage*, 2632 (Webbo-am-Cavally).

IVORY COAST: Moyenne Sassandra, *Chevalier*, 19142; Grabo, *Chevalier*, 19740; Endé, *Chevalier*, 22473.

TOGO, *Busse*, 3449 (Vedeme, type).

NIGERIA: Oban, *Talbot*.

GOLD COAST: Aburi Hills, *W. H. Johnson*, 464.

112. *M. STAFFIANA*, *Dunn*, sp. n.

*Frutex* 3-4 m. altus, præter inflorescentiam glaber, cortice lenticellato. *Folia* 4-juga, 20-30 cm. longa, petiolo 5-plo longiora; stipulæ oblongæ, 3 mm. longæ, deciduæ; foliola superiora lateralia 8-10 cm. longa, acuminata, basi obtusa, chartacea, supra nitentia, venis marginem approximantibus 7-8-paribus erecto-patentibus infra prominentibus; petioluli 3 mm. longi; stipellæ nullæ. *Paniculæ* racemiformes in summis ramis aphyllis aggregatæ, 10-15 cm. longæ, rachi superius ut pedicellis calycibus dorsoque vexilli dense breviter adpresso sericea; nodi floriferi ad 4 mm. longi. *Flores* fasciculati, 2.1-2.4 cm. longi; pedicelli 3-4 mm. longi; bracteæ nullæ. *Calyx* campanulatus, basi truncatus, dentibus tubo 6-plo brevioribus; bracteolæ minutæ, persistentes, lanceolatæ. *Vexilli* lamina rotundata, in unguem brevem subito contracta, ecallosa; alæ carinæque petala oblongæ, hamatæ. *Stamina* monadelphæ, vexillare basi solutum. *Discus* annularis. *Ovarium* lineare, sericeum, multiovulatum.

KAMERUN, *Mann*, 2216 (Cameroon River).

This fine species is dedicated to my friend Dr. Otto Stapf, the distinguished Keeper of Kew Herbarium, to whose kindness I owe many of the advantages which I have enjoyed in revising this genus.

113. *M. NUDIFLORA*, *Welw. ex Baker in Oliver, Fl. Trop. Afr. ii. 130; Hiern, Cat. Welw. Afr. Pl. i. 228; Ficalho, Pl. Uteis Afr. Portug. 132.*

*Arbor* at 13 m. alta, ramis tuberculatis, ramulis pendulis mox glabris. *Folia* 4-juga, 15-25 cm. longa, petiolo 5-plo longiora, rachi laxè ferruginea; stipulæ caducæ; foliola lateralia superiora oblongo-lanceolata, breviter acuminata, basi cuneata, 6-8 cm. longa, molliter coriacea, fere carnosa (*Welw.*), supra atro-viridia, subtus breviter tomentosa, venis marginem appropinquantibus 7-9-paribus erecto-patulis haud prominentibus; petioluli 4-6 mm. longi; stipellæ nullæ. *Racemi* præcoces, ad 30 cm. longi, breviter pedunculati; rachis pedicelli calycesque laxè ferruginei; nodi floriferi parvi, sessiles, pauciflori. *Flores* fasciculati, præcoces, 2 cm. longi; pedicelli 3 mm. longi; bracteæ deciduæ, bracteolæque paullo subtus calycem affixæ, setaceæ, 2-3 mm. longæ. *Calyx* 9 mm. longus, basi atro-brunneus cæteroque rubro-brunneus, dentibus angustis acuminatis tubo bis brevioribus setuliferis. *Petala* pulchre purpureo-violacea; vexilli lamina ovata, in unguem 4-plo breviorè abruptè contracta, dorso tenuiter sed facie in medio basis densius pubescens; alæ anguste oblongæ, basi truncatæ setulosæ; carinæ petala oblonga, basi cuneata, in parte inferiore ungueque hirtula. *Stamina* monadelphæ, vexillare basi solutum. *Discus* nullus. *Ovarium* lineare, pubescens, 7-10-ovulatum. *Legumen* pendulum.

Flowers, which appear before the leaves and cover the whole tree, in July and August, nearly ripe fruit in August.

ANGOLA, *Welwitsch*, 1850 (primitive forests of Quibanga about Sange and on the left bank of the River Cuango: *type*).

Described by *Welwitsch* as "a vast and beautiful tree," leafless at time of flowering.

114. *M. PALLENS*, *Stapf in Johnston, Liberia, ii. 593.*

*Frutex* cortice fusco lenticellato, præter inflorescentiam glaber. *Folia* 6-juga, ad 30 cm. longa, petiolo 6-plo longiora; stipulæ caducæ; foliola lateralia superiora ovato-oblonga vel oblonga, acuminata, sæpe fere caudata, basi oblique obtusa, 6-12 cm. longa, papyracea, utrinque tenuiter reticulata, venis marginem approximantibus 5-7-paribus arcuatis; petioluli 2-4 mm. longi; stipellæ setaceæ, 1-2 mm. longæ. *Panicule* racemiformes, axillares, 15-20 cm. longæ, dimidio inferiore vel plure nudo, rachi superiore pubescente; nodi floriferi ad 4 mm. longi. *Flores* 1-4-ni, 2 cm. longi; pedicelli 3-4 mm. longi; bracteæ minutæ. *Calyx* 5-6 mm. longus, dentibus tubo 6-plo brevioribus, laxè adpresse sericeus, basi bibracteolatus; bracteolæ minutæ.

*Petala* rubida vel purpurea, exodorata; vexilli lamina ovata, in unguem brevem angustata, dorso tenuiter adpresse sericea; alæ oblongæ, basi hamatæ; carinæ petala subhamata. *Stamina* monadelphæ, vexillare basi solutum. *Discus* breviter tubulosus. *Ovarium* pubescens, lineare, multiovulatum. *Legumen* lineare, 7 cm. longum, 1·8 cm. latum, suturis incrassatis, subglabrum. *Semina* 3.

Flowers January to March.

FRENCH GUINEA, *Chevalier*, 12637 (Timbo), *Farmar*, 259, *Heudelot*, 793.

SIERRA LEONE, *Scott Elliot*, 4609, 5771, 5839, *H. H. Johnston*, 68 (Free Town), *Sierra Leone Herb.* 7 (Furca).

LIBERIA, *Whyte* (within 6 miles of Munrovia, *type*), *Dinklage*, 1787, 1962, 1994.

115. M. CONRAU, *Harms in Engl. Jahrb.* xxxiii. (1902) 168.

*Arbor* parva, cortice brunneo lenticellato. *Folia* 5-6-juga, 22-28 cm. longa, omnino glabra, nigrescentia; stipulæ caducæ; foliola lateralia superiora oblonga, caudata, 5-10 cm. longa, chartacea, venis marginem appropinquantibus 7-9-paribus supra et subtus paullo prominulis; petioluli 4 mm. longi; stipellæ breves, setacæ. *Panicule* racemiformes ad ramorum apices fasciculatæ, 10-20 cm. longæ, pedunculatæ, rachi ut pedicellis calycibusque breviter aureo-velutina; nodi floriferi globosi vel breviter clavati. *Flores* fasciculati, 1·7-1·9 cm. longi; pedicelli 5 mm. longi. *Calyx* campanulatus, 7 mm. longus et latus, dentibus 3-5-plo tubo brevioribus. *Petala* pallide violacea; vexilli lamina late ovata, reflexa, basi truncata, bicarinata, extus dense sericea, ungue paullo longior; alæ fortiter hamatæ; carinæ petala in unguem angustata. *Stamina* monadelphæ. *Discus* obsoletus. *Ovarium* lineare, sericeum.

Flowers in February.

Var. TYPICA. Calycis dentibus tubo 5-plo brevioribus rotundatis.

KAMERUN, *Courau*, 71 (Bangwe, *type*).

Var. LEDERMANNII, *Dunn*, var. nov. Calycis dentibus tubo 3-plo brevioribus, triangularibus.

KAMERUN, *Ledermann*, 2754 (Tchape Pass).

116. M. SERETI, *De Wild. in Ann. Mus. Congo*, sér. 5, iii. 204.

*Arbor* ligno durissimo, præter inflorescentiam glabra, ramulis lævibus paullo lenticellatis. *Folia* 8-juga, 30-40 cm. longa, petiolis 7-plo longiora; stipulæ parvæ, oblongæ, persistentes; foliola superiora lateralia oblonga, subito acuminata, caudata, basi obtusa, 10-12 cm. longa, papyracea, utrinque reticulata, venis marginem propinquantibus 9-paribus parum prominentibus; petioluli 4 mm. longi; stipellæ setacæ, 2 mm. longæ. *Panicule* racemiformes axillares, 15-25 cm. longi, parte florifera duplo longiore quam sterili; rachis

apice puberula; nodi floriferi 1-3 mm. longi; bracteis parvis setaceis. Flores fasciculati, 1.8 cm. longi; pedicelli 3-4 mm. longi; bracteæ nullæ. Calyx late campanulatus, 4 mm. longus, 3.5 mm. latus, breviter aureo-sericeus, dentibus brevibus; bracteolæ oblongæ, 1 mm. longæ. Vexilli lamina alba, rotundata, in unguem abrupte angustata, dorso breviter dense sericea; alæ carinæque petala miniaria, albo-maculata, oblonga, uncinata. Stamina monadelpha, vexillare basi solutum. Discus tubularis. Ovarium lineare, sericeum, multiovulatum.

CONGO FREE STATE, *Seret*, 793 (*Gagara*, type).

117. *M. DRASTICA*, *Welw. ex Baker in Oliver, Fl. Trop. Afr.* ii. 128; *De Wild. in Ann. Mus. Congo*, sér. 3, i. 61, sér. 4, 193; *De Wild. in Compagnie de Kasai*, 310; *De Wild. Études Fl. Bangala*, 218; *Hiern, Cat. Welw. Afr. Pl.* i. 226; *Ficalho, Pl. Ut. Afr. Portug.* 132.

*Frutex* vel *arbor* 2-30 m. alta, cortice fusco lenticellato. *Folia* 8-10-juga, 25-35 cm. longa, petiolo 10-plo longiora, rachi canaliculato paullo rufopubescente; stipulæ oblongæ, 4-5 mm. longæ, persistentes; foliola lateralia superiora oblanceolato-oblonga, acuminata, basi obliqua, obtusa, 5-8 cm. longa, chartacea, supra glabra, subtus, præter venas plus minus sericeo-pubescentes, glabra, glauca, venis marginem approximantibus 6-8-paribus porrectis utrinque obscuris; petioluli 3 mm. longi; stipellæ setaceæ, 1-1.5 mm. longæ. *Paniculæ* racemiformes axillares, et in summo caule fasciculati, 15-20 cm. longi, pedunculo brevi, rachi robusta breviter velutina; nodi floriferi globulares, sessiles vel subsessiles, 1-3 mm. longi. *Flores* in nodo quoque pauci, fasciculati, 1.6-1.8 cm. longi; pedicelli 3 mm. longi; bracteæ caducæ. *Calyx* dense brunneo-velutinus, campanulatus, 5 mm. longus, dentibus tubo 7-plo brevioribus, inferiori paullo cæteris longiore. *Petala* violacea; vexilli lamina ovata, in unguem brevem angustata, dorso brunnea adpresse sericea; alæ oblongæ, uncinatæ; carinæ petala subhamata. *Stamina* monadelpha, vexillare basi solutum. *Discus* annularis. *Ovarium* pubescens, lineare, multiovulatum. *Legumen* immaturum lineare, 17 cm. longum, 2 cm. latum, suturis incrassatis, glabrum.

Flowers in January and February.

KAMERUN, *Ledermann*, 2070 and 2082 (*Ngom*), 2572 (*Mba*), *Zenker*, 670, 711 (*Jaunde Station*).

FRENCH CONGO, *Tessmann*, 834, *Soyaux*, 57 (*Loango*).

CONGO FREE STATE, *Schweinfurth*, 3470 (*Monbuttu*), *Chr. Smith*, 60, *Mildbraed*, 2355 (*Fort Beni*), 2466 (*Lumengo*), *Marques*, 33 (*Malange*).

ANGOLA, *Welwitsch*, 1856-8 (*types*).

*Welwitsch* describes *M. drastica* as a tree with strong wood used for making charcoal. It has an ample crown and the habit of an Ash. In Angola it is called *Ditenda* or *Quitenda*.

118. *M. BREVISTIPPELLATA*, *De Wild. in Ann. Mus. Congo*, sér. 4, 193.

*Arbor* ramulis velutinis lenticellatis. *Folia* 7-juga, 20 cm. longa, rachi hirtella; foliola superiora lateralia oblongo-lanceolata, acuminata, basi cuneata, 5-7 cm. longa, utrinque tenuiter hirsuta præcipue in venis infra; stipellæ setaceæ, 1 mm. longæ. *Paniculæ* racemiformes axillares, foliis brevioribus, rachi ferrugineo-hirsuta; ramuli floriferi breves, apice multiflori. *Flores* 2.2 cm. longi; pedicelli ferruginei, 5 mm. longi; bracteolæ minutæ. *Calyx* 5 mm. longus, sparse ferrugineus, ciliatus, dentibus inconspicuis. *Vexilli* lamina suborbicularis, dorso sericea. *Stamina* monadelpha, vexillare basi solutum. *Ovarium* pubescens.

Flowers in August.

CONGO FREE STATE: Lukafu, *Verdick*, 55 (*type*).

Native name *Solemosji*.

119. *M. CYANANTHA*, *Dunn*, sp. n.

*Frutex* cortice lenticellato. *Folia* 7-8-juga, 25-35 cm. longa, petiolo decies longiora, rachi sulcata subglabra; stipulæ deciduæ; foliola lateralia superiora anguste oblonga, acuminata, basi obtusa, 9-11 cm. longa, papyracea, supra glabra, nitentia, subtus, præcipue in venis, breviter ferruginea, venis marginem appropinquantibus 6-8-paribus arcuatis supra impressis infra prominulis; petioluli 5-6 mm. longi. *Paniculæ* racemiformes plures, in summo caule fasciculatæ, 8-10 cm. longæ, sessiles, rachi ut pedicellis rufo-velutina; nodi floriferi sessiles, lati. *Flores* fasciculati, 2.7 cm. longi, pedicelli 7-8 mm. longi; bracteæ obscuræ. *Calyx* campanulatus, 8 mm. longus, 5-6 mm. latus, breviter et tenuiter ferrugineus, margine tomentosus, dentibus 4 latis tubo 7-8-plo brevioribus, superiore emarginato; bracteolæ minutæ, deciduæ. *Petala* cyanea; vexilli lamina subrotundata, in unguem gradatim angustata, ecallosa, dorso laxè sericea; alæ et carinæ petala paullo hamatæ. *Stamina* monadelpha, vexillare basi solutum. *Ovarium* lineare, dense sericeum, pluriovulatum, in stylum glabrum complanatum exiens.

Flowers in June.

UGANDA, *Bagshawe*, 357 (bank of the Kagera near Chulema).

120. *M. FERRUGINEA*, *Hochst. in Flora*, xxix. (1846) 597; *Baker in Oliver, Fl. Trop. Afr.* ii. 130; *Fiori, Boschi e Piante Legnose Eritrea*, 186.—*Sesbania ferruginea*, *Hochst. in Schimper, Herb. Abyss.* n. 279. *Berberera ferruginea*, *Hochst. in Flora*, xxix. (1846) 597. *Inga byrsinocarpa*, *Hochst. in Schimper, Herb. Abyss.* n. 536.

*Arbor* parva, cortice mox glabra nitente. *Folia* 10-11-juga, 23-26 cm. longa, pedunculo 6-plo longiora, rachi ut pagina inferiore foliolorum ad maturitatem velutina tarde glabrescente tandem omnino glabra glauca; stipulæ lineares, laxæ, 4 mm. longæ; foliola lateralia superiora anguste

lanceolata, oblonga, gradatim acuminata, basi rotundata, obtusa, 5-7 cm. longa, chartacea, supra glabra, venis marginem appropinquantibus 8-10-paribus erecto-patentibus infra prominulis; petioluli 1.5-2 mm. longi; stipellæ setaceæ, persistentes, 1 mm. longæ. *Paniculæ* racemiformes in caule summo axillares, 20-30 cm. longæ, in dimidio inferiore nudæ, rachi ferrugineo-velutina; nodi floriferi globulares vel ovales vel cylindrici, cum pedunculo brevi 3-8 mm. longi, 3 mm. lati. *Flores* 2-4-ni fasciculati, 2.1-2.3 cm. longi; pedicelli 3.5-4.5 mm. longi, ut calyx vexillique dorsum adpresse dense sericei. *Calyx* 8 mm. longus, dentibus tubo 8-plo brevioribus; bracteolæ minutæ, .5 mm. longæ. *Vexilli* lamina rotundata, basi truncata, ecallosa, in unguem 7-plo breviorē abrupte contracta; alæ carinæque petala oblongæ, basi truncatæ vel subhamatæ, breviter unguiculatæ. *Stamina* monadelphæ, vexillare basi solutum. *Discus* breviter tubulosus. *Ovarium* lineare, sericeum, multiovulatum. *Legumen* lineare, 18-27 cm. longum, 2.5-3 cm. latum, glabrum, suturis paulo incrassatis.

Flowers in December, fruit in June.

ABYSSINIA, *Schimper*, 279, 861 (Abba Gerima, *types*), *Salt*.

SOUDAN, *Heudner*, 80.

GALLALAND, *Ellenbeck*, 1725 (Sidamo).

ERITREA (fide *Fiore*, l. c.).

Herbarium specimens gathered at different seasons have strikingly different facies owing to the change in hairiness of the leaflets. In June, when the flowers are in bud and the fruit ripe, the leaflets are softly velvety beneath, but they become quite glabrous and glaucous beneath by the time the flowers are expanded in December.

120 a. *M. AROMATICA*, *Dunn*, sp. n.—*M. rhodantha*, *Hiern*. *Cat. Welw. Afr. Pl.* i. 229; *Ficalho*, *Pl. Uteis Afr. Portug.* 133, non *Baill.*

*Arbor* 4-9 m. alta; lignum flavescens, aromaticum; ramuli rugosi, mox glabri. *Folia* 9-10-juga, 25-27 cm. longa, petiolo 7-plo longiora; rachis laxè ferruginea; stipulæ lanceolatæ, 4 mm. longæ, caducæ; foliola superiora lateralia lanceolato-oblonga, apice breviter obtuse acuminata, nonnunquam retusa, 5-6 cm. longa, papyracea, glaucescentia, præter costam subtus dense ferrugineam tandem utrinque subglabra; venæ marginem appropinquantē 6-8-pares in nervum marginalem currentes, utrinque paulo reticulatæ; petioluli 2 mm. longi; stipellæ setaceæ, 3 mm. longæ, persistentes. *Paniculæ* racemiformes axillares, 14.5 cm. longæ (una tantum visa); ramuli floriferi versus apicem floriferi, 3-4 mm. longi, ut rachis ferruginei. *Flores* fasciculati, 1.2 cm. longi; pedicelli 3-4 mm. longi; bracteæ bracteolæque lanceolatæ, 1 mm. longæ. *Calyx* campanulatus, laxè pubescens, 3 mm. longus; dentes tubo 6-8-plo breviores, acuminati. *Petala* violacea; vexilli lamina rotundata in unguem brevem angustata, basi ecallosa, dorso adpresse sericea; alæ carinæque petala oblonga, basi obtusæ. *Stamina* monadelphæ, vexillare

basi solutum. *Ovarium* pubescens, lineare, pluriovulatum. *Legumen* immaturum lineare.

Flowers in January.

ANGOLA : District Pungo Andongo, *Welwitsch*, 1853 (wooded or bushy slopes near Caghuy) ; District of Golungo Alto, 1852 (banks of Mata de Quisucula).

The tree is called *Quisecua* by the natives, who highly value its aromatic wood.

121. *M. DURA*, *Dunn in Journ. Bot.* xlix. (1911) 221.—*M. ferruginea*, *Harms in Wiss. Erg. Deutsch. Zentr. Afr. Exp.* 1907-8, ii. 256, non *Hochst.*

*Arbor* vel *frutex* 2-12 m. alta, gracilis vel scandens, cortice olivaceo lenticellato primo ferrugineo mox glabro. *Folia* 8-9-juga, 25-35 cm. longa, petiolo 5-6-plo longiora, rachi ut pagina inferiore foliolorum primo laxè ferruginea mox præter costa glabra ; stipulæ tarde deciduæ, lineares, obtusæ, 5-7 mm. longæ ; foliola lateralia superiora anguste oblanceolato-oblonga, gradatim acuminata, basi rotundata, 6-9 cm. longa, chartacea, venis marginem approximantibus 8-paribus erecto-patentibus infra prominulis ; petioluli 3.5-4.5 mm. longi ; stipellæ setaceæ, 1.5-2 mm. longæ. *Paniculæ* racemiformes in caule summo axillares, 20-25 cm. longæ, in partibus tribus superioribus vel paullo majus floriferæ, rachi ut pedicellis calyceque breviter laxèque ferruginea ; nodi floriferi sessiles. *Flores* 2-4-ni, fasciculati, 2.5-2.7 cm. longi ; pedicelli 1.0-1.3 cm. longi. *Calyx* campanulatus, 6-8 mm. longus, dentibus tubo 6-plo brevioribus ; bracteolæ parvæ, paullo infra calycem affixæ. *Petala* pulchre roseo-violacea ; vexilli lamina rotundata, basi cordata, medio rugosa, in unguem angustata ; alæ basi truncatæ, carinæ petala subhamata. *Stamina* monadelphæ, vexillare basi solutum. *Discus* calyci adnatus. *Ovarium* pubescens, lineare, multiovulatum. *Legumen* lineare, 12 cm. longum, 2 cm. latum, suturis haud incrassatis, dehiscens, valvis inter semina cohærentibus. *Semina* 1.2 cm. longa, ovati-lenticularia ; radícula in commissura basis truncatæ cotyledonum accumbens.

CONGO FREE STATE : Ruwenzori, *Mildbraed*, 2479.

UGANDA, *Dawe*, 452, 459, 481, *Scott Elliot*, 7544 (Ruwenzori), *Tufnell*, *Bagshawe*, 1071 (near Mpanga, River Toro).

GERMAN EAST AFRICA : Ruanda, *Kandt*, 112 (Berg Niansa).

CULTIVATED : Kew.

122. *M. OBLATA*, *Dunn, l. c.* 221.—*M. ferruginea*, *Taub. in Engl. Pflanzenw. Ost-Afr.* C, 212, non *Hochst.*

*Arbor* ad 30 m. alta, ramulis rugosis brunneis paullo ferrugineis. *Folia* pallida, 8-10-juga, 20-45 cm. longa, breviter petiolata, rachi laxè ferruginea glabrescente ; stipulæ oblongæ, 1 cm. longæ, persistentes ; foliola superiora lateralia lanceolato-oblonga, apice angustata, acuta vel acuminata, basi rotun-

data, 6-13 cm. longa, chartacea, supra glabra, subtus sparse hirsuta, venis molliter ferruginea, glabrescentia, venis marginem appropinquantibus 7-9-paribus infra prominentibus supra tandem impressis; petioluli 3-4 mm. longi; stipellæ setaceæ, 2-3 mm. longæ, tarde deciduæ. *Panicula* racemiformes, axillares, 15-35 cm. longæ, pedunculatæ, rachi laxè ferruginea; nodi floriferi sessiles vel nonnunquam breviter pedunculati. *Flores* fasciculati, 1.7-2.2 cm. longi; pedicelli 0.6-1.0 cm. longi, apice vel in parte superiore bibracteolati; bracteolæ lanceolatæ, 2 mm. longæ. *Calyx* late campanulatus, 5-7 mm. longus, tenuiter laxè ferrugineus, dentibus tubo 5-plo brevioribus. *Petala* lilacina; vexilli lamina oblata, tertia parte latior quam longa, basi ecallosa, in unguem paullo breviorè abruptè vel subcordatè contracta, dorso pubescens; alæ carinæque petalæ oblongæ, hamatæ. *Stamina* monadelphia, vexillare basi solutum. *Discus* nullus. *Ovarium* lineare, præter apicem stylumque complanatum adpressè sericeum, multiovulatum. *Legumen* lineare, 12 cm. longum, 2.5 cm. latum, 3-4-spermum, valvis tenuiter lignosis elasticis glabris.

Flowers from October to January, fruits ripe in December.

GERMAN EAST AFRICA, *Goetze*, 1309 (Upper Kondeland), *Buchwald*, 79 and 144 (Usambara), *Zimmermann*, 1113 a and 2194 (Amani), *Warnecke*, 46, *Scheffler*, 212 (Derema, Usambara), *Eick*, 166 (Kwa, Usambara), *Braun*, 1544, *Holz*, 183 (Kyimbila), *Holst*, 620 (Usambara), *Stuhlmann*, 1625 (Bach Kanjawani), *Inst. Amani*, 1662 a, 1486, 2292 (Mkala).

Var. PARVIFLORA, *Dunn*. Flores 1.1 mm. longi; pedicelli calyce breviores.

GERMAN EAST AFRICA, *Stuhlmann*, 8833 and 9285 (Uluguru).

A very variable tree both in height, size of leaves and flowers, and in length of pedicel. Like *M. ferruginea*, the deciduous pubescence of its leaves changes its appearance as the season advances. Its flowers appear with the young leaves. It appears to range over the whole of German East Africa from Amani to Kondeland, especially the mountainous portions, in which it reaches an altitude of 1300 m.

123. *M. USARAMENSIS*, *Taub. in Engl. Pflanzenwelt Ost-Afr.* C, 212.

*Arbor?* ramulis gracilibus mox glabris, cortice pallide ochroleuco lenticellato. *Folia* 4-8-juga, 15-20 cm. longa, petiolo 6-plo longiora, rachi glabra canaliculata; stipulæ caducæ; foliola lateralia superiora, sæpius lanceolato-oblonga, paullo obtuse acuminata, apice sæpe retusa, apiculata, basi rotundata, obliqua, 3.5-5.5 cm. longa, tenuiter papyracea, sæpius subglabra, nonnunquam autem griseo-puberula, venis marginem appropinquantibus 6-7-paribus paullo reticulatis; petioluli 2 mm. longi; stipellæ 1 mm. longæ, setaceæ, persistentes. *Panicula* racemiformes axillares, ad 20 cm. longæ, pedunculis 4-5-plo longiores, rachi fere glabra; nodi floriferi

brevissimi, sessiles vel rare pedunculati, puberuli. *Flores* in nodis fasciculati, 2-3-ni, 1.5 cm. longi; pedicelli 0.8-1.0 cm. longi, ut calyces glabri; bracteae minutae; bracteolae setaceae, 1 mm. longae, infra calycem affixae. *Calyx* 4 mm. longus, dentibus praeter inferiorem paullo longiorem tubo 6-plo brevioribus. *Petala* violacea; vexilli lamina rotundata, basi ecallosa, truncata, in unguem 4-plo brevior contracta, dorso breviter adpresse sericea; alae anguste oblongae et carinae petala ovata subfalcatae. *Stamina* monadelphica. *Discus* nullus. *Ovarium* lineari, pubescens, multiovulatum. *Legumen* parvum, lineare, ad 5 cm. longum, 1 cm. latum, primo albo-sericea, tum tomentosa et tandem glabra.

BRITISH EAST AFRICA: Tana River, *Battiscombe*, 26.

GERMAN EAST AFRICA: *Stuhlmann*, 6358 and 7044 (Usaramo, *types*), 7456 (Dar-es-Salaam), 1039, *Busse*, 2851, *Holtz*, 1004 (Manerainango), 987, *Kirk* (Kilwa), *Wangenheim*, 8 (Tanganyika), *Holst*, 2948 (Usambara).

BRITISH CENTRAL AFRICA: Nyika Country, *Wakefield*.

PORTUGUESE EAST AFRICA: *Swynnerton*, 1425, 1474 (Chironda), *Dave*, 513 (Mozambique), 446 (Madanda).

Var. PARVIFOLIA, *Dunn*, var. nov. Foliolis minoribus, 2-3 cm. longis.

GERMAN EAST AFRICA, *Stuhlmann*, *Perrot* (Lindi).

A species which presents rather different facies at different seasons.

124. *M. ERIOCARPA*, *Dunn*, sp. n.

*Arbor* 8 m. alta, cortice vivente viridula laevi, ramulis siccitate brunneis rugosis. *Folia* 8-juga, 15-18 cm. longa, breviter petiolata, rachi ferruginea; stipulae oblongae, caducae; foliola lateralia superiora lineari-lanceolata, ad apicem obtusam mucronatam angustata, basi rotundata, 4-7 cm. longa, chartacea, supra praeter venas glabra, subtus praecipue in venis laxe ferruginea, venis supra paullo impressis subtus prominentibus utrinque 4-7; petioluli 1-2 mm. longi; stipellae 1 mm. longae. *Paniculae* axillares, parvae, ramis brevioribus paucifloris. *Ovarium* 5-6-ovulatum. *Legumen* lineari-oblongum, 8-11 cm. longum, dense molliter luteo-velutinum, valvis crassis elasticis inter semina 3-4 cohaerentibus; pedicelli ad 1 cm. longi. *Semina* castanea, lenticularia, 8 mm. diam.

GERMAN EAST AFRICA: Noto Plateau, nr. village of Noto, *Busse*, 2920 (at 500 m.); Mt. Uluguru, *Goetze*, 207.

125. *M. LEPTOCARPA*, *Dunn* in *Journ. Bot.* xlix. (1911) 221.

*Arbor?* ramulis brunneis rugosis. *Folia* 7-8-juga, breviter petiolata, 12-16 cm. longa, rachi ut foliolis laxe ferruginea glabrescente; stipulae caducae; foliola superiora lateralia ovato-oblonga, acuminata, basi rotundata 3-4 cm. longa, papyracea, praeter venis paullo ferrugineis maturitate glabra, venis 7-9-paribus inconspicuis; petioluli 3 mm. longi; stipellae setaceae, 1 mm. longae. *Paniculae* racemiformes axillares, 13 cm. longae, 4-5 cm. in

anthesi plena latæ, pedunculati, rachi ut pedicellis laxè ferruginea; nodi floriferi sessiles vel rarius breviter pedunculati. *Flores* fasciculati, 1.7-1.8 cm. longi; pedicelli 4-5 mm. longi, apice bibracteolati; bracteæ minutæ, subulatæ; bracteolæ lanceolatæ, 5 mm. longæ. *Calyx* campanulatus, basi truncatus, 4 mm. longus, præter marginem glabram tenuiter puberulus, dentibus tubo 6-plo brevioribus late triangularibus, superioribus 2 connatis, breviter patentibus. *Petala* lilacina; vexilli lamina rotundata, in unguem brevem acuminata, dorso tenuiter sericea; alæ carinæque petala oblongæ, subhamatæ. *Stamina* monadelpha, vexillare basi solutum. *Discus* nullus. *Ovarium* lineare, multiovulatum. *Legumen* lineare, 15 cm. longum, 1.5 cm. latum, glabrum, lignosum, inter semina cohærens. *Semina* 5-8, lenticularia, 1 cm. longa.

CONGO FREE STATE: Mukenge, *Pogge*, 887 (Campine, type).

Differs from *M. drastica* in its pedicels being longer than the subglabrous calyx, and from *M. dura* by its smaller flowers, subglabrous calyx, and long narrow pod.

127. *M. LASIANTHA*, *Dunn in Journ. Bot.* xlix. (1911) 221.

*Arbor* parva, ramulis brevissime velutinis glabrescentibus lenticellatis. *Folia* 3-(rarius 4-)juga, 12-20 cm. longa, petiolis ter longiora; stipulæ caducæ; foliola lateralia superiora oblongo-obovata, acuminata vel acuta, apiculata, 5-7 cm. longa, papyracea, supra glabra, infra ut raches tenuiter adpresse brunneo-sericea, venis 8-9-paribus ascendentibus arcuatis supra inconspicuis infra prominulis; petioluli 2-3 mm. longi; stipellæ setaceæ, 3-4 mm. longæ. *Panicula* racemiformis vel ramosa, sæpissime terminalis, sessilis, rachi brevissime tomentosa; ramuli floriferi 3-10 mm. longi, sessiles, ut raches pedicellique vestiti. *Flores* approximati, 1.2 cm. longi; pedicelli 2-3 mm. longi; bracteæ minutæ, caducæ. *Calyx* campanulatus, 4 mm. longus, 3 mm. latus, dense adpresse brunneo- vel purpureo-hirsutus, bibracteolatus, dentibus tubo bis brevioribus; bracteolæ lanceolatæ, 1 mm. longæ. *Petala* cærulea; vexilli lamina ovata, basi sagittata, ungue bis brevior ad basin attenuato, dorso ut apices petalorum aliorum longe et laxè hirta; alæ oblongæ, basi obtusæ; carinæ petala ovata, subhamata. *Stamina* monadelpha, vexillare basi solutum mox omnino liberum. *Ovarium* lineare, sericeum, 4-ovulatum. *Legumen* immaturum oblongum, adpresse brunneo-sericeum.

Flowers in February to May.

GERMAN EAST AFRICA: *Holst*, 2968, 2215 (Usambara), *Holtz*, 1041 (Pugu), *Braun*, 1790 (Hemiafa), *Sacleux* (M'konda, collected by Dulbac), *Wakefield* (Nyika). All types.

128. *M. LEUCANTHA*, *Vatke in Oestr. Bot. Zeitschr.* xxix. (1879) 223 ; *Dunn in Journ. Bot.* xlix. (1911) 221.

*Suffrutex*, ramis ut paginis inferioribus foliolorum, rachi, pedicellis, calycibus dorsisque petalorum primo dense tomentoso-velutinis, ramis tandem glabris lenticellatis. *Folia* 3-4-juga, 12-18 cm. longa, petiolo 4-plo longiora, rachi primo hirta tandem glabra ; stipulæ minutæ ; folioli lateralialia superiora ovata vel sæpius late obovata, apiculata, basi rotundata, 5-7 cm. longa, coriacea, supra glabra nitida, subtus tandem tenuiter et laxè hirta, venis principibus 10-11-paribus subtus prominulis ; petioluli 3-4 mm. longi ; stipellæ setaceæ, 2-3 mm. longæ. *Panicula* terminalis, 9-17 cm. longa ; rami floriferi ad 1 cm. longi, apice 3-4-flori. *Flores* fasciculati, 1.2-1.4 cm. longi ; pedicelli 1-2 mm. longi ; bracteæ bracteolæque obscuræ. *Calyx* 4 mm. longus, dentibus parvis. *Vexilli* lamina ovata, basi cordata, ecallosa, dorso longe hirta ; alæ carinæque petala apice hirtæ basi truncatæ. *Stamina* monadelphæ. *Ovarium* lineare, pluriovulatum.

Flowers in May.

BRITISH EAST AFRICA : Ukamba, *Hildebrandt*, 2789 ; *Kassner*, 807 (*Galsusha*, *type*).

129. *M. BUSSEI*, *Harms in Engl. Jahrb.* xxxiii. (1902) 170.

*Frutex* vel *arbor* 7-20 m. altus, cortice pallido, ramulis primo ferrugineo-tomentellis. *Folia* 3-4-juga, 15-25 cm. longa, rachi ut paniculis, pedicellis bracteis calycibusque tomentella ; foliola lateralialia superiora oblongo-obovata vel oblanceolata vel oblique ovata, apice rotundata, mucronata basi obtusa, 5-10 cm. longa, chartacea, primo utrinque sericeo-tomentosa, tandem supra tenuiter adpresse puberula, infra tomentella, venis marginem appropinquantibus 6-9-paribus erecto-patentibus infra prominulis ; petioluli 3-4 mm. longi ; stipellæ nullæ. *Panicula* racemiformes ex novellis enatæ, 10-20 cm. longæ, fere ad basin floriferæ, tomentellæ ; ramuli floriferi ad 8 mm. longi, 2-3-flori. *Flores* laxè fasciculati, 1.7-2.0 cm. longi ; pedicelli 6 mm. longi ; bracteæ ramulorum florumque et bracteolæ anguste lineares, 6-8 mm. longæ. *Calyx* 8 mm. longus, dentibus 4, superiore cæteris latiori bidentato, inferiore cæteris angustiore, tubo paullo brevioribus. *Vexilli* lamina rotundata, dorso et ungue utrinque adpresse dense sericeo-pubescens, basi truncata bisacculata ; alæ oblongæ, basi utrinque obtusæ et ibi ciliatæ ; carinæ petala ovata, obtusa, ciliata. *Stamina* monadelphæ, vexillare basi solutum. *Discus* calyci adnatus margine brevi libera. *Ovarium* lineare, pubescens, multiovulatum. *Legumen* lineare, acutum, 10 cm. longum, 2 cm. latum, valvis crassis lignosis dehiscentibus velutinis, 2-3-spermis.

Flowers in December.

GERMAN EAST AFRICA : *Busse*, 534 (*Mananda*, *type*), 1372, 2820 (*Ruangwa*), 2849 (*Liho* at *Lagar Palikope*).

130. *M. SERICANTHA*, *Harms in Engl. Jahrb.* xxviii. (1900) 404.

*Frutex* vel *arbor*? ramis primo breviter velutina, tandem glabris pallidis. *Folia* 3-4-juga, 20-30 cm. longa, petiolo 3-plo longiora, rachi ut pagina inferiore foliolorum paniculæ rachi pedicellis calycibusque breviter dense tomentosa; stipulæ persistentes, oblongæ, apice rotundatæ, 5 mm. longæ; foliola superiora lateralia ovato-oblonga vel ovata, apice rotundata, apiculata vel emarginata, basi obtusa vel acuta, 6-12 cm. longa, chartacea, supra tenuiter adpresse sericea, nervis marginem appropinquantibus 8-10-paribus subtus prominulis reticulatis; petioluli 4-6 mm. longi; stipellæ nullæ, nisi cristulæ in earum loco tenantur. *Panicule* racemiformes 9-16 cm. longæ, in novellis brevibus ante folia enatæ; nodi floriferi globulares vel ovoides, 1-2 mm. longi. *Flores* fasciculati, 1.6 cm. longi; pedicelli 5-6 mm. longi; bracteæ bracteolæque 7-8 mm. longæ, lineares. *Calyx* campanulatus, 7-8 mm. longus, breviter dense pubescens, dentibus tubo 6-7-plo brevioribus. *Vexilli* lamina rotundata, basi truncata, dorso longe et laxè sericea, basi ut ungue breviter velutina; alæ oblongæ, uncinatæ, apice basi que paullo hirtæ; carinæ petala oblonga, basi obtusa, similiter vestita. *Stamina* monadelphæ, vexillare basi solutum. *Discus* ad annulum perigynum reductus. *Ovarium* lineare, pubescens, multiovulatum.

GERMAN EAST AFRICA: Uluguru Mts., *Goetze*, 142 (*type*).

131. *M. GRACILIS*, *Welw. ex Baker in Oliver, Fl. Trop. Afr.* ii. 129; *Hiern, Cat. Welw. Afr. Pl.* i. 227.

*Arbor* parva, gracilis, cortice lævi lenticellato. *Folia* 9-10-juga, 20-30 cm. longa, petiolo 5-plo longiora, rachi ut pagina inferiore foliolorum primo laxè hirsuta tandem glabra; stipulæ anguste lanceolatæ, mox deciduæ; foliola ad basin decrescentia, superiora lateralia oblongo-elliptica, apice retusa, basi paullo cordata, 4-6 cm. longa, glauco-viridia, papyracea, tandem glabra, venis marginem appropinquantibus 8-9-paribus, haud prominentibus; petioluli 2 mm. longi; stipellæ setaceæ, 1 mm. longæ. *Racemi* in novellis enati, præcoces, 15-20 cm. longi, fere ad basin floriferi, rachi ut pedicellis breviter velutina; nodi floriferi parvi, sessiles, pauciflori. *Flores* fasciculati, magnitudine variables, nonnunquam 9-10 mm. longi; pedicelli graciles, 3-4 mm. longi; bracteæ deciduæ; bracteolæ lanceolatæ, 1 mm. longæ. *Calyx* tenuiter sericeus, 2-3 mm. longus, dentibus brevibus latis. *Petala* intense violacea; vexilli lamina rotundata, basi obtusa, dorso dense sericea; alæ oblongæ, basi obtusæ, apice paullo pubescentes; carinæ petala ovata, basi truncata, apice ciliolata. *Stamina* diadelphæ. *Discus* nullus. *Ovarium* sericeum, lineare, multiovulatum. *Legumen* lineare, 9 cm. longum, 1.3 cm. latum, facile dehiscens, glabrum; valvæ tenuiter lignosæ, inter semina coherentes. *Semina* compressa, castanea, 8 mm. diam.

Flowers in March and October, fruits in September.

ANGOLA: *Welwitsch*, 1854-5; thickets on the mountains of Serra de Alto

Queta (*types*) ; Capopu on margins of forests ; Praia Cacarambola ; round Pemba, Ngombe, Zanga, and Cabinde.

Mr. Gossweiler tells me that it is largely grown in Angola as an ornamental tree. Like most of the *Millettiæ*, it loses its leaves just before flowering.

132. *M. POLYPHYLLA*, *Dunn.*—*Derris polyphylla*, *Baker in Journ. Linn. Soc., Bot.* xxv. (1890) 312, non *Benth.* ; (*sphalm. polystachia*), *Drake in Madag. Hist. Pl.* i. 190.

*Arbor?* ramis primo ferrugineo-tomentosis tandem glabris lenticellatis. *Folia* 17–19-juga, 16–18 cm. longa, petiolo 9-plo longiora, rachi tenuiter pubescens ; stipulæ lanceolatæ, obtusæ, 1·5 mm. longæ, tarde deciduæ ; foliola lineari-oblonga, apice obtusa, basi truncata, 2–2·5 cm. longa, papyracea, utrinque adpresse pubescentia, mox, præter costam, glabra, venis principibus 8–9-paribus, intra marginem quaque in proximam arcuatis inconspicuis ; petioluli 1·5 mm. longi ; stipellæ setacæ, 1 mm. longæ. *Racemi* axillares, 12–15 cm. longi, basi nudi, rachi breviter tomentosa ; nodi floriferi 2–3-flori, globosi, sessiles vel subsessiles. *Flores* fasciculati, 11–13 mm. longi ; pedicelli 2–3 mm. longi ut calyx et dorsum vexilli adpresse sericei ; bracteolæ minutæ, lanceolatæ. *Calyx* 2–3 mm. longus, dentibus brevibus, tenuiter sericeus. *Vexilli* lamina rotundata, basi transverse plicata, in unguem brevem abrupte acuminata, dorso sericea ; alæ carinæque petala oblongæ, basi obtusæ vel truncatæ. *Stamina* monadelphæ, vexillare basi solutum. *Ovarium* lineare, sericeum, multiovulatum.

MADAGASCAR, *Baron*, 5381 (*type*).

133. *M. LENNEOIDES*, *Vatke in Linnæa*, xliii. (1880–82) 335 ; *Vatke in Abh. Brem.* vii. (1882) 246 ; *Drake, Hist. Madag.* i. 140.—*M. Grandidieri*, *Baill. in Bull. Soc. Linn. Par.* i. (1883) 395 (fide *Drake*).

*Arbor* cortice glabro lenticellato. *Folia* 13–15-juga, 15–25 cm. longa, petiolo 7-plo longiora, rachi ut pagina inferiore foliolorum et rachi inflorescentiæ, primo breviter tomentosa, cito vel tardius glabra ; stipulæ lanceolatæ, obtusæ, 1·5 mm. longæ, tarde deciduæ ; foliola superiora lateralia anguste oblonga, apice obtusa vel retusa, basi rotundata vel obtusa, 2·5–3·5 cm. longa, papyracea, supra glabra, venis principibus 8–9-paribus intra marginem quaque in proximam arcuatis inconspicuis ; petioluli 1–2 mm. longi. *Racemi* axillares, 15–20 cm. longi, basi nudi ; nodi floriferi 2–3-flori, globulares, sessiles vel subsessiles. *Flores* fasciculati, 1·1–1·3 cm. longi ; pedicelli 3 mm. longi, ut calyces dorsaque vexillorum adpresse sericei ; bractæ bracteolæque minutæ, lanceolatæ. *Calyx* campanulatus, 2–3 mm. longus, sericeus, dentibus brevibus. *Vexilli* lamina rotundata, basi abrupte angustata, transverse plicata ; alæ carinæque petala oblongæ, basi obtusæ vel truncatæ. *Stamina* monadelphæ,

vexillare basi solutum. *Ovarium* lineare, breviter stipitatum, multiovulatum. *Legumen* (fide Drake) oblongum, 10 cm. longum, 1.5 cm. latum, acutum, ad basin gradatim angustatum.

Flowers in March.

MADAGASCAR, *Hildebrandt*, 3370 (Vorberge des Ambóhitsi, Gebirges bei Nosi-Andiana, type), *Baron*, 4665, 6836.

134. *M. THEUSZII* (vel *sphalm. Teuszii*), *De Wild. in Ann. Mus. Congo*, sér. 5, i. 140, 260, t. 48, ii. 147; *De Wild. Mission Laurent*, 110; *De Wild. Compagnie de Kasai*, 311.—*M. Chevalieri*, *Harms in Engl. Jahrb.* xl. (May 1907) 35, and in *Bull. Soc. Bot. Fr. Mém.* viii. (Aug. 1907) 15. *Lonchocarpus*? *Theuszii*, *Büttner in Verhandl. Bot. Ver. Brandenb.* xxxii. (1891) 51.

*Arbor* ramis ferrugineo-tomentosis glabrescentibus. *Folia* 4–6-juga, 15 cm. longa, tenuiter albo-tomentosa; foliola superiora lateralia oblonga vel obovata, basi rotundata, brevissime acuminata, 7–8 cm. longa, subcoriacea, supra glabra, glauca, subtus adpresse dense aureo-sericea, venis marginem approximantibus 8–10-paribus supra tenuiter reticulatis subtus prominulis; petioluli 4–5 mm. longi; stipellæ setaceæ, 1 mm. longæ. *Panicula* terminalis, 30–40 cm. longa, cum ramis brevibus rigidis erecto-patentibus breviter rufo-tomentosa; rami ad basin nodis approximatis obsessi; nodi 4–5-flori, globulares, sessiles. *Flores* fasciculati, 2.4–2.6 cm. longi; pedicelli 1.7 cm. longi, medio duabus bracteolis caducis provisi. *Calyx* obconico-campanulatus, 1.1 cm. longus, rubro-velutinus, dentibus 4 tubo æquilongis. *Vexilli* lamina rotundata, basi cordata, ungue 10-plo longior, dorso breviter sericea, exauriculata; alæ carinæque petala oblongæ, apice angustatæ, basi subhamatæ. *Stamina* diadelphe, antheris protrusis. *Discus* calyci adnatus, longitudinaliter corrugatus. *Ovarium* lineare, 6-ovulatum, sericeum. *Legumen* in pedicello 1.2–1.8 cm. longo, 17–20 cm. longum, 2–3.5 latum, 3–4 mm. crassum, dehiscens, valvis breviter rubro-brunneo-velutinis. *Semina* 5–6, brunnea, 2 cm. lata.

Flowers in September to January.

FRENCH CONGO: Brazzaville, *Chevalier*, 11172.

CONGO FREE STATE, *Rensch*, 517.

ANGOLA: San Salvador, *Büttner*, 455 (type), 755.

Dr. Harms himself pointed out to me the identity of his *M. Chevalieri* with Büttner's species.

## NUMERI COLLECTORUM VEL COLLECTIONUM.

- Abdul Huk*, 51 ovalifolia, 147 Brandisiana, 173 pendula.  
*Amani Inst. Herb.*, 1486, 1662 a, 2292 oblata.  
*Assam Forest Herb.*, 700 auriculata.  
*Badal Khan*, 10 auriculata, 142 tetraptera.  
*Bagshaw*, 357 cyanantha, 1071 dura.  
*Balansa*, 2300, 2302-4 eurybotrya, 2236-7 ichthyochtona, 2306 pachyloba,  
 2238-9 setigera, 1205, 2230 speciosa.  
*Barber*, 3107 rubiginosa.  
*Barchet*, 128 Dielsiana.  
*Baron*, 4665, 6836 lenneoides, 5381 polyphylla.  
*Barter*, 148, 1806 aboensis, 67, 1609, 3253, 3401 Barteri, 1597 sanagana,  
 481, 1618, 1624 Thonningii.  
*Bates*, 59 macrophylla.  
*Battiscombe*, 26 usaramensis.  
*Baumann*, 128 Thonningii.  
*Beccari*, 3070 glaucescens.  
*Beddome*, 37 auriculata, 14 glaucescens, 33, 1900, 1901, 1903 racemosa.  
*Bons d'Anty*, 244, 251 leptobotrya.  
*Braun*, 1544 oblata, 1790 lasiantha.  
*Brazza & Thollon*, 78 Laurentii.  
*Buchwald*, 79, 144 oblata.  
*Busse*, 534, 1372, 2820, 2849 Bussei, 2920 eriocarpa, 2851 usaramensis,  
 3449 Zechiana.  
*Büttner*, 455, 755 Theuszii.  
*Cabra*, 110 Cabræ.  
*Cave*, 177 Prainii.  
*Champion*, 263 Championi, 261, 505 speciosa.  
*Chevalier*, 12378, 12399 aureocalyx, 13174, 13244, 14356, 16984, 18206  
 Barteri, 15002, 19895 chrysophylla, 16829, 22640, 22644 hirsuta, 5081  
 macrourea, 12637 pallens, 12507 porphyrocalyx, 19110 rhodantha, 12053,  
 12165, 12737, 13091 sanagana, 11172 Theuszii, 23271, 23730 Thonningii,  
 4112, 11377 versicolor, 19142, 19740, 22473 Zechiana.  
*Clarke (C. B.)*, 9040 c, 11685, 11687, 13829 H, 21295 B, 26551 E, 33758 B  
 auriculata, 5514 caudata, 11850, 11850 G, 27976 D, 40235 B, 40310,  
 44038 c, 44106 A cinerea, 17739 A, 43242 c, 43280 B, 44208 pachycarpa,  
 15194, 43713, 44713, 7328 pulchra.  
*Collett*, 15 Brandisiana, 620 Cubitti, 759, 773 Dorwardi, 601 glaucescens,  
 443, 605 macrostachya, 516, 553 multiflora, 436, 482 pendula.  
*Conrau*, 71 Conraui.  
*Craib*, 409 cinerea.  
*Cubitt*, 226 Cubitti, 51, 332, 288 Dorwardi.  
*Curtis*, 2459 albiflora, 844, 2967 sericea, 1615 unifoliata.

- Dalziel*, 23, 404 Thonningii.  
*Dawe*, 452, 459, 481 dura, 312, 511 Stuhlmanni, 446, 513 usaramensis.  
*Dennett*, 15 aboensis.  
*De Vore & Hoover*, 250 litoralis.  
*De Wevre*, 773 congolensis.  
*Diepenhorst*, 695 sericea.  
*Dinklage*, 785 coruscans, 1672, 1964 Dinklagei, 1787, 1962, 1994 pallens,  
 2632 Zechiana.  
*Duchesne*, 4 Duchesnei.  
*Ducloux*, 810 Bonatiana, 375, 384, 389 Dielsiana, 2 pulchra.  
*Dun*, 99 Brandisiana.  
*Eich*, 166 oblata.  
*Ellenbeck*, 1725 ferruginea.  
*Elliott*, 36, 37 Thonningii.  
*Elmer*, 6166 Merrillii.  
*Faber*, 757, 758, 773, 774 Dielsiana.  
*Falconer*, 572 auriculata.  
*Farmar*, 259 pallens.  
*Farquarson*, 70 melanocalyx.  
*Faurie*, 146, 164 reticulata.  
*Fischer*, 194 paucijuga.  
*Fisher*, 1412 racemosa.  
*Forbes (F. B.)*, 592 nitida, 122, 862 reticulata, 589 Championi.  
*Forbes (H. O.)*, 2916 nivea, 3103 A sericea.  
*Ford*, 63 Dielsiana, 62 Fordii, 371 oosperma, 35 oraria, 368 pachyloba, 38,  
 403, 503, 644-5 pulchra, 10, 36, 37, 43 reticulata.  
*Fortune*, 17 Dielsiana, 68, A 95 reticulata.  
*Foster*, 21 Thonningii.  
*Fox*, 10788 pterocarpa.  
*Gallatly*, 29, 573, 903 auriculata, 107, 147, 160 Brandisiana, 383, 701 cinerea,  
 725 pachycarpa, 562 pubinervis, 531 puerarioides, 198 pulchra, 61 racemosa.  
*Gamble*, 8843 auriculata, 2105, 2107 A, 492 C, 9844, 10525 cinerea, 765 A,  
 765 C, 1103 A, 2102 A, 6669 B pachycarpa, 689 B, 2238 A, 2240 C Prainii,  
 9311, 16507, 13847, 18566, 18716 racemosa, 14353, 16195, 17778,  
 22580 splendens.  
*Gammie*, 420, 488, 492 pulchra.  
*Gerrard*, 9 caffra.  
*Goetze*, 11 Goetzeana, 207 eriocarpa, 1309 oblata, 142 sericantha.  
*Goodenough*, 1706 sericea.  
*Gossweiler*, 491 Thonningii.  
*Griffith*, 1787 auriculata, 1176, 1766, 1785, 1786 cinerea, 1771, 1813 fruticosa,  
 1783 Griffithii, 1767 pachycarpa, 67, 1768 Piscidia, 1784, 1791 pulchra,  
 1764 sericea.

- Griffon*, 693 macrophylla.  
*Haines*, 783 racemosa.  
*Hance*, 21961 sericosema, 1489 reticulata.  
*Hasskarl*, 3997 sericea.  
*Henry (A.)*, 10939 Cubitti, 1584, 1938, 2917, 3074, 9633, 10813 Dielsiana, 12792, 12792 A leptobotrya, 8235, 10265, 10670 B, C, 12292 A oosperma, 10521, 13000, 13530 pachycarpa, 8498 pachyloba, 994, 12322, 13031 pulchra, 68, 631, 894, 1554 A, 2280, 2333, 4211, 8392 reticulata, 8341 speciosa, 9728, 9728 B, 9728 D, 9728 F velutina.  
*Henry (B. C.)*, 45 pulchra.  
*Heudelot*, 803 Barteri, 793 pallens, 815 rhodantha.  
*Heudner*, 80 ferruginea.  
*Hildebrandt*, 3370 lenneoides, 2789 leucantha.  
*Holland*, 201 aboensis.  
*Holmberg*, 834, 888 sericea.  
*Holst*, 2968 lasiantha, 2215, 2968 leucantha, 620 oblata, 2948 usaramensis.  
*Holtz*, 1041 lasiantha, 183 oblata, 1227 Sacleuxii, 987, 1004 usaramensis.  
*Hongkong Herb.*, 1253, 9393 Championi, 1799, 2579, 4805, 5059, 7094, 9394 Dielsiana, 8527 japonica, 1903 nitida, 1428 oosperma, 2564 pachycarpa, 6638 pachyloba, 1151, 1754, 2588, 6860, 9397 reticulata, 1181, 2011, 4806, 6631, 9341 speciosa.  
*Hooker & Thomson*, 2399 cinerea, 1724 Piscidia, 698 pulchra.  
*Horsfield*, 23 sericea, 48 unifoliata.  
*Hosseus*, 140 Brandisiana.  
*Johnson (W. H.)*, 456, 911 Thonningii, 464 Zechiana.  
*Johnston (H. H.)*, 68 pallens.  
*Junghuhn*, 48, 72, 223 sericea.  
*Kandt*, 112 dura.  
*Kässner*, 807 leucantha.  
*Kerr*, 595, 1724 auriculata, 985, 2029 Brandisiana, 2579 cærulea, 1733 latifolia, 1770 pachycarpa, 1452 pubinervis.  
*King*, 833, 871, 2423, 4826 cinerea.  
*King's Collector*, 38, 60, 384, 541 cinerea, 10718 Hemsleyana, 188 pulchra, 401, 3179, 3960, 4042, 5804, 6844, 7019, 7299, 7366, 7493, 10479 sericea.  
*Klaine*, 5, 69 Barteri, 569 Gagnepainiana.  
*Koorders et Valetton*, 4105, 14191 dehiscens.  
*Korthals*, 873 sericea.  
*Krauss*, 194 caffra.  
*Kunstler*, 729, 4201, 4467, 5357, 5833, 5993, 6077, 6709, 6842 albiflora, 4251, 4267, 4492, 8210 unifoliata.  
*Kuntze*, 5975 dehiscens, 5564 pachycarpa.

- Kurz*, 1774, 2534 auriculata, 1773, 2538 Brandisiana, 121, 204 cinerea, 1777, 2613 glaucescens, 2605, 2606 ovalifolia, 142, 306 pachycarpa, 1769, 2600 pendula, 325 Piscidia, 1778 pubinervis, 1765 puerarioides, 1722 racemosa.
- Lace*, 3135, 3282 auriculata, 2710, 4181, 4435, 4529, 4674 Brandisiana, 5730 Cubitti, 5797, 5849 Dorwardi, 4721 pubinervis, 3289 pachycarpa, 4167, 4530 pendula.
- Lamont*, 161 A, reticulata, 160 speciosa, 158-9 nitida.
- Lecomte*, D 97, 723 Barteri, A 8 bicolor, D 103 Lecomtei.
- Ledermann*, 2754 Conraui, 2082, 2070, 2572 drastica, 6182 macrophylla.
- Lemann*, 359 cinerea.
- Leslie*, 340 cinerea.
- Lister*, 402 cinerea.
- Lobb*, 310 sericea.
- Loher*, 2413-6 Merrillii.
- Luang Vanpruck*, 188 racemosa.
- MacGregor*, 808 auriculata, 803 cinerea, 618 pulchra, 216 Thonningii.
- Maingay*, 606, 1191 albiflora, 518, 1182, 1184 sericea.
- Maire*, 156 Bonatiana, 163 Dielsiana, 142, 165 pulchra, 160 velutina.
- Mann*, 512 aboensis, 822 Barteri, 2259 calabarica, 1743 coruscans, 2216 Stapfiana.
- Marques*, 33 drastica.
- Meebold*, 7847, 15560 auriculata, 15536 ovalifolia, 7123 pachycarpa, 7823 podocarpa, 5337 pulchra, 13078 rubiginosa.
- Merrill*, 4181 cavitensis, 1387, 1625, 1633, 2801, 3831, 9821 Merrillii.
- Milbraed*, 2466, 2355 drastica, 2479 dura, 3209 psilopetala.
- Mokim (Shaik)*, 1471, 1721 auriculata, 1322 Brandisiana, 469, 1083 cana, 79 puerarioides, 1576 racemosa, 636 tetraptera.
- Morse*, 23 Bonatiana, 582 Dielsiana, 294, 648 oosperma.
- Oldham*, 386, 801 japonica, 158 reticulata.
- Parker*, 107 pulchra.
- Philippine Bureau of Science*, 12436 Ahernii, 4711, 4727 canariifolia, 740 Foxworthyi, 2178 Merrillii, 1064 racemosa.
- Philippine Forestry Bureau*, 3373, 5221, 5655 Ahernii, 18549 capillipes, 13815 cavitensis, 11140 stipulata.
- Plant*, 20 caffra.
- Playfair*, 120 reticulata.
- Pogge*, 887 leptocarpa, 838 macrourea.
- Poole*, 6 rhodantha.
- Prain's Collector*, 438 pachycarpa, 52 Prainii.
- Prazer*, 23 auriculata, 7 pachycarpa, 64 pendula.
- Preuss*, 1187 Barteri, 258 Mannii, 411 melanocalyx.
- Proudlock*, 94 ovalifolia.

- Quintas*, 113 Thonningii.  
*Rensch*, 517 Theuszii.  
*Reporter on Econ. Prod. to Govt. Ind.*, 29992, 18078, 20204, 23348, 29462  
 auriculata, 10263, 12062, 12415, 26072, 29928 pachycarpa.  
*Ribu & Rhomoo*, 3614 Prainii.  
*Ridley*, 2641, 8598, 10596 albiflora, 2591-2, 14677 Hemsleyana, 7981,  
 8004 unifoliata.  
*Ritchie*, 1719 racemosa.  
*Robertson*, 289 macrostachya, 126 trifoliata.  
*Rodger*, 305 pulchra.  
*Rosthorn*, 1626, 1638 Dielsiana.  
*Rudatis*, 13 hypolampra.  
*Sacleux*, 2047 Sacleuxii.  
*Sapin*, D 1 Sapini.  
*Scheffler*, 212 oblata.  
*Schimper*, 279, 861 ferruginea.  
*Schlagintweit*, 271 Piscidia.  
*Schweinfurth*, 3189, 3227 Barteri, 3470 drastica.  
*Scortechini*, 1288, 1948 albiflora, 1749 decipiens, 1797 sericea, 124, 1023,  
 1711 unifoliata.  
*Scott Elliot*, 4202 Barteri, 7544 dura, 4241 lucens, 4609, 5839 pallens, 4598,  
 5225 B, 5771 sanagana, 5126 A Scott-Elliotti.  
*Searlight*, 219 cinerea.  
*Seret*, 793 Sereti.  
*Shaik Mokim* see *Mokim*.  
*Shaw*, 23 Barteri.  
*Sierra Leone Herb.*, 7 pallens.  
*Smith (Christian)*, 63 Barteri, 60 drastica, 38, 40, 43, 52, 74 impressa.  
*Smythe*, 66 sanagana, 127 Zechiana.  
*Soyaux*, 444 Barteri, 57 drastica, 99 impressa, 96 Soyauxii.  
*Staudt*, 92 Barteri.  
*Stuhlmann*, 6750 micans, 1625, 8833, 9285 oblata, 668, 856, 868 Stuhl-  
 manni, 1039, 6358, 7044, 7456 usaramensis.  
*Swinhoe*, 1489 reticulata.  
*Swynnerton*, 145-6, 1396, 1428 Stuhlmanni, 1425, 1474 usaramensis.  
*Talbot*, 590 racemosa.  
*Talbot (P. A.)*, 578 hypolampra.  
*Tessmann*, 412 aboensis, 834 drastica, B 136 Harmsiana, B 228, 940 Laurentii.  
*Teymann*, 6026 ovalifolia, 5984 pendula.  
*Thollon*, 486 Tholloni.  
*Thompson (H. N.)*, 5 aboensis.  
*Thomson*, 852 auriculata.  
*Thomson (W. C.)*, 64 Barteri.

- Thonner*, 268 *Thonneri*.  
*Unwin*, 24 *Thonningii*.  
*Vasse*, 297 *Stuhlmannii*.  
*Verdick*, 55 *brevistipellata*.  
*Vidal*, 2573 *cavitensis*, 240, 1243 *Foxworthyi*, 2572 *Merrillii*.  
*Vogel*, 117 *macrophylla*.  
*Wallich's Catalogue*, 909 C, 5892, 5892 A, 5900 *auriculata*, 5894 *cærulea*, 5903 *cana*, 5895 *caudata*, 5887, 5888, 5888 A, 5889, 5903-4 *cinerea*, 909, 909 B *fruticosa*, 5902 *pendula*, 5630, 5630 C *pulehra*, 5891, 5914 *racemosa*, 5976-7 *tetraptera*, 5918 *Brandisiana*.  
*Wangenheim*, 8 *usaramensis*.  
*Warburg*, 12094, 12095, 12112 *longipes*, 12578, 12891 *Merrillii*.  
*Warnecke*, 46 *oblata*, 66 *Thonningi*, 108 *Warneckei*.  
*Watt*, 5032 *cinerea*, 7257 *pachycarpa*, 6254, 6746, 11758 *pulchra*.  
*Weber*, 1123 *platyphylla*.  
*Welwitsch*, 1852-3 *aromatica*, 1856-8 *drastica*, 1854-5 *gracilis*, 1850 *nudi-flora*, 1859 *versicolor*.  
*Wight*, 245-6, 813, 912 *rubiginosa*, 807, 998 *splendens*.  
*Wilford*, 146 *nitida*, 462 *reticulata*.  
*Williams*, 24 *aboensis*.  
*Wilson*, 824, 1089, 3412, 3412 A, 3413, 4834-5 *Dielsiana*, 3414 *pachycarpa*, 1017, 1648 *reticulata*.  
*Wood (Medley)*, 326, 650, 1025 *caffra*.  
*Wray*, 1864, 1943 *albiflora*, 168 *pterocarpa*, 548, 3308, 3310, 3608 *Hemslayana*, 2178, 2364, 3164 *sericea*, 2836 *unifoliata*.  
*Wright (C.)*, 136 *Championi*, 137 *Dielsiana*, 138 *speciosa*.  
*Zenker*, 317 *aboensis*, 971, 1029, 1703, 2367, 2532, 3266, 3440, 3796 *Barteri*, 2299 *bipindensis*, 670, 711 *drastica*, 3110 *macrophylla*, 100, 1009, 1173 *Mannii*, 1466, 2449 *sanagana*.  
*Zenker et Staudt*, 100 *aboensis*.  
*Zimmermann*, 1113 A, 2194 *oblata*.

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SPECIES EXCLUDENDÆ.

- M. ADENOPETALA, Taub. in Engl. Jahrb. xxxiii. (1902) 184 = *Schefflerodendron adenopetalum*, Harms.  
M. ATROPURPUREA, Benth. in Pl. Jungh. 249 = *Adinobotrys atropurpureus*, Dunn in Kew Bull. 1911, 197.  
M. BAPTISTARUM, Büttn. in Brandenb. Verhand. xxxii. (1891) 50 = *Craibia Baptistarum*, Dunn in Journ. Bot. xlix. (1911) 109.  
M. BARONI, Drake, Hist. Pl. Madag. i. 141. The inflorescence is not known, but the leaves and fruit bear a close resemblance to those of *Mundulea*

- hysterantha*, Baker, with which it is possibly conspecific, certainly congeneric.
- M. BLACKII, F. v. Muell. Fragm. ii. 123 = *Lonchocarpus Blackii*, Benth. Fl. Austral. ii. 271.
- M. BOGERI, Vatke in Bremen Abh. vii. (1882) 246. The type from Berlin has been compared with the type of *Mundulea revoluta*, Baker, at Kew, and proves to be conspecific, and therefore a true *Mundulea*.
- M. BREVIFLORA, De Wild. in Ann. Mus. Congo, sér. 5, i. 136 = *Ostryocarpus lucidus*, Dunn in Kew Bull. 1911, 363.
- M. CAULIFLORA, Prain in Journ. As. Soc. Beng. xlvii. ii. (1897) 94, 363 = *Fordia pauciflora*, Dunn, comb. nov. (non *Fordia cauliflora*, Hemsl.).
- M. CHINENSIS, Benth. in Miq. Pl. Jungh. 249 = *Wistaria chinensis*, DC. Prodr. ii. 390.  
One of the true *Wistarias*.
- M. ERIANTHA, Benth. in Plant. Jungh. 250 = *Adinobotrys erianthus*, Dunn in Kew Bull. 1911, 194.
- M. FLORIBUNDA, Matsum. in Bot. Mag. Tokyo (1902) 64 = *Wistaria chinensis*, DC.
- M. GRACILLIMA, Hemsl. in Kew Bull. 1895, 134. Solomon Is.  
Quite unlike any *Millettia* known. From its want of stipules, few leaflets, lax inflorescence, and few ovules, it is more likely to prove a *Derris*.
- M. GRIFFONIANA, Baill. Adans. vi. (1866) 222 = *Lonchocarpus Griffonianus*, Dunn in Journ. Bot. 1911, 15.
- M. MADAGASCARIENSIS, Vatke in Linnæa, xliii. (1880-82) 101 = *Lonchocarpus polystachyus*, Baker, an undoubted *Lonchocarpus*.
- M. MAINGAYI, Baker in Hook. f. Fl. Brit. Ind. ii. 110 = *Padbruggea Maingayi*, Dunn in Kew Bull. 1911, 198.
- M. MAKONDENSIS, Harms in Engl. Jahrb. xxxiii. (1902) 169.  
Apparently herbaceous. Its racemes are simple, axillary, and its pistil 2-ovulate. These characters do not occur elsewhere in *Millettia*, and the species should perhaps be referred to some other genus.
- M. MICRANTHA, Harms in Engl. Jahrb. xxvi. (1899) 290, is an *Ostryocarpus*.
- M. MONOPHYLLA, Harms in Engl. Jahrb. xxvi. (1899) 288 = *Eriosema ellipticum*, Welw. *vide* Harms in *litt.*
- M. MONTICOLA, Kurz in Journ. As. Soc. Beng. xlvii. ii. (1873) 67 = *Derris monticola*, Prain in Journ. As. Soc. Beng. lxxvi. ii. (1897) 361. Prain here points out that this name may have to be superseded by *D. secunda*,

- Baker, a type specimen of which he had not seen. The writer has, however, compared Kurz's specimens with this type, which is apparently only represented in the Wallichian Herbarium (under the name of *Amerimum secundum*, Ham.). Its flowers, and especially the calyx, are considerably smaller, only 8 and 2 mm. long respectively, and it is in general a very different species to *M. monticola*, so that Prain's name should stand.
- M. NIEUWENHUISII, J. J. Sm. in Bull. Dép. Agric. Ind. Néerl. iii. 17 = *Adinobotrys Nieuwenhuisii*, Dunn in Kew Bull. 1911, 196.
- M. OOCARPA, Prain in Journ. As. Soc. Beng. lxvi. II. (1897) 365 = *Padbruggea dasyphylla*, Miq.
- M. PANICULATA, Miq. Fl. Ind. Bat. Suppl. 301. The type specimens from the Leiden Herbarium show that it is a mixture of two species, neither of them *Millettia*. Miquel placed flowers of *Derris thyrsoflora* with fruit of *Adinobotrys atropurpureus*, being deceived by the similarity of the leaves and arrangement of the pedicels.
- M. PIRIFOLIA, Vatke in Oestr. Bot. Zeitschr. xxviii. (1878) 215, is a *Baphia*.
- M. SCABRICAULIS, Franch. in Pl. Delav. i. 158, is apparently a *Derris*.
- M. SPECIOSA, Welw. Apont. 585 = *Lonchocarpus sericeus*, H. B. K. (*fide* Hiern).
- M. STIPULARIS, Prain in Journ. As. Soc. Beng. xlvi. II. (1897) 363 = *Fordia stipularis*, Dunn in Kew Bull. 1911, 64.
- M. SUTHERLANDI, Harv. in Harv. & Sond. Fl. Cap. iii. 211, is a *Lonchocarpus*.
- M. THYRSIFLORA, Benth. in Miq. Pl. Jungh. 249 = *Derris thyrsoflora*, Benth.
- M. ZENKERIANA, Harms in Engl. Jahrb. xxvi. (1899) 291 = *Ostryocarpus Zenkerianus*, Dunn in Kew Bull. 1911, 362.

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SPECIES DUBIÆ.

- M. AMYGDALINA, Baill. in Bull. Soc. Linn. Par. i. (1883) 396. The description suggests *Leptoderris*.
- M. ANSAHALANBENSIS, Baill. *l. c.* 395; Drake, Hist. Madag. i. 140. The very meagre descriptions are quite insufficient to place it even generically. A photograph from a type specimen at Paris shows it to have a terminal raceme, and its general appearance in conjunction with that character render it probable that it is a *Mundulea*.

- M. ARGENTEA, Miq. Fl. Ind. Bat. i. 156.—*Dalbergia argentea*, Zippel, *ex* Miq. *l. c.* The type in the Leiden Herbarium (Herb. Lugd.-Bat.) is a portion of a climbing leafy shoot with twining petioles, and from the latter character can hardly be included in *Millettia*. The absence of flowers and fruit renders even its generic identification impossible.
- M. ATENENSIS, De Wild. Compagnie du Kasai (1910), 309.  
The description is from leaves and young flower-buds. It can only be conjectured that it is a *Millettia* of the section *Efulgentes*, perhaps near *M. urophylloides*.
- M. CHAPELIERI, Bail. in Bull. Soc. Linn. Par. i. (1883) 395; Drake, Hist. Madag. i. 140.  
The description is meagre and leaves the genus doubtful, but it is more likely to prove a *Craibia* than a *Millettia*.
- M. LUZONENSIS, A. Gray, Bot. U. St. Expl. Exped. i. 456. No specimen has been seen, and the description hardly warrants its inclusion in *Millettia*.
- M. PISCATORIA, Merrill in Philipp. Gov. Lab. Bur. Bull. xxvii. 37.—*Cylista piscatoria*, Blanco, Fl. Filip. ed. 1, 589. *Galactia terminiflora*, Blanco, *l. c.* ed. 2, 411.  
No specimen has been seen.
- M. ROSTRATA, Miq. Fl. Ned. Ind. i. 155.—*Dalbergia rostrata*, Hassk. Flora.  
The descriptions are from foliage only, and leave the genus quite doubtful.
- M. SPLENDIDISSIMA, Blume, *ex* Miq. Fl. Ind. Bat. i. 156. The type consists of leaves only, so that the genus cannot be determined. It has, however, the look of a *Fordia*, and may prove to be *F. filipes*.
- M. XYLOCARPA, Miq. Fl. Ned. Ind. i. 157. The specimen in Horsfield's own herbarium at the Linnean Society's Rooms consists of foliage and pods, and there is nothing to show that Miquel was not right in referring it to *Millettia*. Flowers, however, would be necessary to verify his conclusion. It is exstipellate, and the pod shows that the pistil was 5-ovulate.
- M. ZOLLINGERIANA, Miq. Fl. Ind. Bat. i. 156. The very meagre description leaves the genus doubtful.
- FORNASINIA EBENIFERA, Bertol. Misc. Bot. viii. (1849) 18, t. i., is known to me only from the description and figure quoted, which, while leaving no doubt as to the genus, cannot be definitely reduced or placed as a species.
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