REINWARDTIA
Published by Herbarium Bogoriense, Bogor, Indonesia
Volume 6, Part 3, p.p. 195—223 (1962)

PRELIMINARY REVISIONS OF SOME GENERA OF MALAYSIAN PAPILIONACEAE III*) — A CENSUS OF THE GENUS CROTALARIA

by

W. J. DE MUNK**)

SUMMARY

A key is given to 38 species of which 29 are either native or introduced in Malaysia; 9 others have been reported from Malaysia, but no material was found to justify these records. They have been marked by an asterisk before their number.

Crotalaria grandiflora Reinw. has been reduced to *C. tetragona* Andr.

C. lejoloba Bartl. is probably the oldest name for *C. ferruginea* Grah. *ex* Bth., but as no type material could be located the latter name has been maintained for the time being.

Some sheets of the Philippines identified as *C. acicularis* Buch.-Ham. *ex* Bth. have proved to belong to *C. humifusa* Grah. *ex* Bth. which is a new record for these islands.

C. medicaginea Lamk. and *C. trifoliastrum* Willd. have sometimes been merged; they are kept apart in this paper.

A new record for Malaysia is the African *C. cleomifolia* Welw. which has been introduced in the Malay Peninsula as a green manure; whether it has spread as a weed is uncertain.

Another newly recorded species in Malaya is *C. uncinella* Lamk. collected in 1954 for the first time locally in abundance along the sandy beach.

C. prostrata Rottl. is newly recorded for the Philippines.

Among the species a few are indifferent to climate, but most apparently prefer the occurrence of a dry season in various degree. In mapping the areas it has been found that they can easily be arranged in the drought classes distinguished in the first instalment.

An index to synonyms and a list of collector's numbers have been added at the end.

INTRODUCTION

In Malaysia where savannahs are scarce the number of *Crotalaria* species is very much smaller than for example in Africa where the genus has an enormous development.

*) The foregoing instalments were published in Reinwardtia 5: 419-456, 1961 and 6: 85-108. 1961.

**) Foundation Flora Malesiana, Leyden.

Of the 29 species recorded here, a fair proportion are introductions some of recent time, mainly made for the purpose of green manure, and few species can be considered really native. Most introduced species are native in South-East Asia, a few come from Africa or America. Several are pantropical and it is difficult to ascertain their fatherland. One species, *C. valetonii* Backer, is endemic in Madura I. off the NE. coast of Java; it is very closely allied to an Indian species.

Part of the native species are indifferent to climate, but several are confined to the seasonally dry areas and their localities strictly follow the drought corridor as sketched in the first instalment of this series. They are: — drought class 1, indifferent to dry season: *C. chinensis* L., *C. ferruginea* Grah. *ex* Bth.; — drought class 2, feeble dry season: *C. alata* Buch.-Ham. & Roxb. *ex* Don, *C. albida* Heyne *ex* Roth, *C. medicaginea* Lamk., *C. sessiliflora* L.; — drought class 3, pronounced dry season: *C. linifolia* L.f. — drought class 4, rather strong dry season: *C. acicularis* Buch.-Ham. *ex* Bth., *C. calycina* Schrank, *C. humifusa* Grah. *ex* Bth., *C. laburnifolia* L., *C. prostrata* Rottl. *ex* Willd.; — drought class 6, severe dry season: *C. mysorensis* Roth, *C. nana* Burm. f., *C. triquetra* Dalz.

This study has primarily been made on the collections preserved in the Rijksherbarium at Leyden and Utrecht. I express my sincere thanks to Prof. Dr. C.G.G.J. van Steenis under whose supervision this revision was executed and to Mr. M. Jacobs who tested and helped to improve the key to the species.

CROTALARIA Linné

Crotalaria Linné, Gen. Pl. ed. 5: 320. 1754. — *Clavulium* Desv. *in* Ann. Sc. Nat. I, 9: 407. 1826. — *Chrysocalyx* Guill. & Perr., Fl. Seneg. Tent. 157, *t.* 43. 1832. — *Quirosia* Blanco, Fl. Filip. ed. 2: 398. 1845.

Erect, ascending or creeping herbs or shrubs with simple or digitately compound leaves which sometimes have more or less clearly pellucid dots; leaflets 3—5. Stipules absent or present, sometimes early coducous. Flowers in bracteate 1—to many-flowered, terminal or leaf-opposed racemes, the bracts sometimes glandular (darker coloured when dried). Bracteoles 2, inserted at the middle of the pedicel, or higher, sometimes on the base of the calyx, sometimes caducous. Calyx 5-lobed, halfway or more deeply incised. Corolla various in colour, often yellow, as long as the calyx or emergent. Vexillum at the base of the blade with 2 knobs or short-saccate appendages (?nectaria), sometimes hairy on the back. Stamens 10, monandrous, the tube slit towards the side of the vexillum; filaments and anthers alternatingly long and short. Style top barbate, stigma small. Ovary with 1—many ovules. Pod sessile or stipitate, sometimes included within the calyx, mostly inflated, without septa, 2-valved. Seeds 1—many, kidney-shaped, albuminous, without a caruncula.

KEY TO THE SPECIES

1. Leaves simple.
2. Ovary and pod glabrous.
3. Stem winged by the decurrent stipules.
4. Calyx 12—14 mm long. Hairs on the rachis of the racemes appressed or ascending. Stipular wings of equal width throughout their length. . . *2. C. alata*
4. Calyx 18—24 mm long. Hairs on rachis patent, not straight. Stipular wings rather rapidly narrowing towards their base . . . . . *29.* C. rubiginosa*
3. Stems not winged.
5. Calyx 4—10 mm long, split more than halfway; upper lobes for $^1/_3$—$^4/_5$ connate. Bracteoles inserted on the base of the calyx-tube, 1—4 mm long. Pod 6—16 mm long. Leaves ½—7½ cm long, hairy on both sides.
6. Stipules widely patent, subulate to filiform. Pod 6—8 mm long.
7. Floral bract 3—5 mm, ovate-oblong. Hairs on the calyx 1¼—3 mm long. Stem patently long-hairy. Leaf-base oblique. Stipules of a pair unequal . . *1. C. acicularis*
7. Bracts 1—2 mm long, filiform. Calyx hairs at most 1 mm long. Stem densely ascending-hairy. Leaf-base equal. Stipules equal . . . . *14. C. humifusa*
6. Stipules absent.
8. Upper calyx lobes connate to near the top.
9. Racemes dense, short. Blade of the standard c. 5 mm long . . *23. C. nana*
9. Racemes elongate, lax, many-flowered. Blade of standard 7—10 mm long . . *18. C. linifolia*
8. Upper calyx lobes halfway connate. Racemes elongate, lax, few-flowered . . *26. C. prostrata*
5. Other plants. Calyx mostly larger than 10 mm.
10. Calyx glabrous or short-hairy, split somewhat more than halfway, 9—16 mm. Corolla much larger than the calyx.
11. Floral bract leaf-like, with cordate base. Calyx glabrous. Leaves obovate . . *31.* C. sericea*
11. Floral bract subulate, 2—5 mm long. Calyx hairy.
12. Pod 2½—3½ cm. Leaves 3½—7½ cm long, obovate. Calyx 9—12 mm, laxly hairy. Pedicel shorter than the calyx . . . . . *28. C. retusa*
12. Pod. 3½—5 cm. Leaves 5—10 cm long, widest about the middle. Calyx 12—15 mm, densely hairy. Pedicel as long as the calyx . . . . . *5. C. assamica*
10. Calyx long-hairy, split to the base. Corolla hardly exceeding the calyx.
13. Floral bract 1—2½ mm. Bracteoles c. 2 mm. No stipules. Flowers and pods secund . . . . . *3. C. albida*
13. Floral bract at least 5 mm. Bracteoles 5—20 mm.
14. Racemes dense. Pod 1—1¾ cm.
15. Stipules none. Leaves sometimes hairy above, all or mostly 2—4 times as long as wide. Calyx in fruit to 1½ cm. Racemes head-like. . *10. C. chinensis*
15. Stipules present. Leaves glabrous above, the higher ones 6 or more times as long as wide. Calyx in fruit up to 2—2¾ cm. Racemes more elongate. *32. C. sessiliflora*

---

*) Species marked with an asterisk have been recorded in literature to occur in Malaysia but no material was found to sustain these records.

14. Racemes lax. Pod 1¾—4 cm long.
16. Bracteoles inserted below the calyx. Upper surface of the leaves glabrous, but the midrib hairy. Pods not exceeding the calyx . . . *9. C. calycina*
16. Bracteoles inserted on the calyx. Upper surface of the leaves hairy. Pod far exceeding the calyx. Leaves 1½—6 cm long.
17. Stipules patent, 3—25 mm.
18. Bracteoles 5—8 mm. Pedicels 7—10 mm. Hairs on the calyx less than 1½ mm long. . . . . *12. C. ferruginea*
18. Bracteoles 10—16 mm. Pedicels 7—10 mm. Hairs on the calyx 3—4 mm long . . . . . *22. C. mysorensis*
17. Stipules, if present, appressed, shorter than 5 mm. Leaves c. 5—7½ cm long . . . . . *6.* C. barbata*

2. Ovary and pod hairy.
19. Stipules 5—25 mm, semilunar-falcate, acute-acuminate or mucronate, leaf-like. Bracteoles inserted on the pedicel.
20. Stem largely terete, angular towards the top. Bracteoles at the top of the pedicel or somewhat lower down, c. 1½—3 mm long. Flowers yellow often striped purple. Upper surface of leaf often glabrous. . . *30. C. semperflorens*
20. Stem sharply 4-angled upwards, towards the base angled-furrowed. Bracteoles inserted in the middle of the pedicel, ½—1½ mm long. Flowers blue-purple, often tinged with white, rarely white. Leaves short-hairy on both surfaces . . *38. C. verrucosa*
19. Stipules symmetrical, linear, or minute or wanting.
21. Stem prostrate or ascending, angled. Racemes peduncled, 1—3-flowered. Leaves shorter than 5 cm, glabrous or with a few lax long hairs. Calyx 5—10 mm.
22. Calyx 8—10 mm. Stipules patent or reflexed, oblong, 1—6 mm. Bract acute-ovate, 2—3 mm. Pod 17—20 mm. . . . . *34. C. triquetra*
22. Calyx 5—8 mm. Stipules absent or minute. Bract subulate, minute. Pod 9—13 mm. . . . . *7.* C. biflora*
21. Stem erect. Calyx 1—2½ cm long. Leaves short-appressedly hairy.
23. Calyx 1½—2½ cm. Pod 2½—5 cm long, densely patent-short-hairy. Seeds 6 or more. Corolla much longer than calyx.
24. Bracteoles inserted close to tip of pedicel or on calyx base. Pod 2½—3¼ cm. Stipules erect, 1—2 mm. Leaves 3—10 cm by ½—3 cm . . *16. C. juncea*
24. Bracteoles inserted about halfway the pedicel. Pod 5 cm. Stipules erect to recurved, 4—8 mm. Leaves 4—20 cm by 1—6 cm. . . . . *33.* C. tetragona*
23. Calyx 1—1½ cm. Pod ¾—1½ cm. Ovary with 2 ovules. Seeds 1—2. Indumentum dense, long, golden-coloured.
25. Leaves obovate, long 1—12 cm, wide ⅓—3½ cm, base narrowed.
26. Bracts appressed, elliptic, 5—9 mm by 5—12 mm, not glandular. Sepals 4—8 mm wide, inside glandular and dark coloured when dried all over. Hairs on the stem appressed . . . . . *13.* C. fulva*
26. Bracts recurved, linear, 1 mm by 6—8 mm, glandular like the stipules. Sepals 1—3 mm wide, inside glandular towards the top . . *25.* C. paniculata*
25. Leaves elliptic, 3½—9 cm long, 2—4 cm wide, base rounded. Bracts cordate, sessile, recurved 3—8 mm by 3—4 mm, glandular and dark coloured when dried like the bracteoles and the sepals inside, the latter 2—4 mm wide. Hairs on the stem patent . . . . . *37. C. valetonii*

1. Leaves compound.
27. Leaflets mostly 5, rarely 3 or 4.
28. Stem hollow. Calyx 12 mm, glabrous. Pod inflated, glabrous, brownish . . . . *27. C. quinquefolia*
28. Stem pithy. Calyx 5—7 mm, hairy. Pod not inflated, cylindrical, hairy . . . *11. C. cleomifolia*
27. Leaflets mostly 3.
29. Bract persistent till fruit is set.
30. Blade of vexillum 2—3 cm long. Ovary and pod distinctly stipitate. Bracteoles minute, inserted far below the calyx . . . . . *17. C. laburnifolia*
30. Blade of vexillum ½—1½ cm long. Pod sessile or 1—4 mm stipitate. Bracteoles inserted near or at the top of the pedicel.
31. Pod 5—6 mm, acutely beaked. Calyx deeply divided. Seeds 2—3.
32. Leaflets obovate or parallel-sided, with truncate top, central leaflet 2—6½ mm wide. Pod oblique, somewhat angular in outline (fig. a). . . . . *19. C. medicaginea*
32. Leaflets elliptic with rounded top, central leaflet ¾—1¾ cm wide. Pod approximately symmetrical, rounded (fig. b) . . . . . *35. C. uncinella*
31. Pod exceeding 1 cm. Seeds 5 or more. Calyx divided halfway.
33. Pods 3—4½ cm. Stipules absent . . . . . *36. C. usaramoensis*
33. Pod 1½—2 cm. Stipules present, sometimes small.
34. Pod glabrous, 5 mm stalked. Racemes lax-flowered. Corolla hardly exceeding the calyx . . . . . *24.* C. orixensis*
34. Pod hairy, sessile or short-stalked. Racemes dense-flowered. Corolla exceeding the calyx.
35. Leaves c. 3 by ¾ cm, with scattered hairs. Pods densely puberulous. Wings as long as the keel . . . . . *20.* C. mesopontica*
35. Leaves c. 7 by 2—4 cm, fulvous-puberulent. Pods thick-pubescent. Wings shorter than the keel . . . . . *8. C. bracteata*
29. Bract caducous before anthesis, leaving a distinct scar.
36. Blade of vexillum 16—26 mm. Stipules persistent. Bracteoles about halfway the pedicel, subulate, caducous. Calyx 13—15 mm . . . . *4. C. anagyroides*
36. Blade of vexillum 10—15 mm. Stipules early caducous. Bracteoles at top of pedicel or on the calyx at the base. Calyx 4—12 mm.
37. Bracteoles inserted on the calyx at the base, subulate. Calyx 4—8 mm long. Wings much shorter than the keel. Pod 4—5½ cm long, almost glabrous . . *21. C. mucronata*
37. Bracteoles inserted at the top of the pedicel. Calyx 10—12 mm. Wings approximately equalling the keel. Pod 2½—3½ cm, densely long-hairy . . . *15. C. incana*

1. Crotalaria acicularis Buch.-Ham.

Crotalaria acicularis Buch.-Ham. [*in* Wall., Cat. 5390. 1832] *ex* Bth. *in* Hook. Lond. J. Bot. 2: 476. 1843; Pl. Jungh. 1: 205. 1852; Miq., Fl. Ind. Bat. 1, 1: 326. 1855; Baker *in* Hook., Fl. Br. Ind. 2: 68. 1876; F.-Vill., Nov. App. 57. 1880; Merr. *in* Philip. J. Sc. 5: Bot. 61. 1910; Backer, Schoolfl. Java 308. 1911; Gagnep., Fl. Gén. I.-C. 2:

334. 1916; Merr., En. Philip. 2: 271. 1923; Craib, Fl. Siam. En. 1: 366. 1928; Backer, Bekn. Fl. Java (em. ed.) 5: fam. 120, p. 30. 1941.

C. disticha Zoll. *in* Nat. & Geneesk. Arch. 3: 52, 75. 1846; *in* Flora 30: 694. 1847.

C. prostrata (*non* Roxb., *nec* Rottl.) Ceron, Cat. Pl. Herb. Manila 60. 1892.

DISTRIBUTION.—Southeast Asia (Assam, Chittagong, Pegu, Tonkin, Cochinchina); in Malaysia: Philippines (Luzon, Mindoro), SW. Celebes, Central to East Java and the Lesser Sunda Islands (Bali).

2. CROTALARIA ALATA Buch.-Ham. & Roxb. *ex* Don

Crotalaria alata Buch.-Ham. & Roxb. [Hort. Beng 98. 1814] *ex* Don, Fl. Nep. 241. 1825; DC., Prod 2: 124. 1825; Roxb., Fl. Ind. ed. Carey 3: 274. 1832; Don, Gard. Dict. 2: 134. 1832; Miq., Fl. Ind. Bat. 1, 1: 329. 1855; Baker *in* Hook., Fl. Br. Ind. 2: 69. 1876; Backer, Schoolfl. Java 307. 1911; Gagnep., Fl. Gén. I.-C. 2: 328. 1916; Craib, Fl. Siam. En. 1: 367. 1928; Backer, Bekn. Fl. Java (em. ed.) 5: fam.. 120, p. 29. 1941.

C. bialata Roxb., Fl. Ind. ed. Carey 3: 274. 1832.

DISTRIBUTION.—Southeast Asia (Assam, Khasya, Kumaon, S. Shan States; Siam; Sikkim; Tonkin); in Malaysia: Westcoast of Central Sumatra (Korthals), East Java, and East New Guinea (Milne Bay Distr.: *Hoogland 4759*).

According to Backer (1911 *l.c.*) long ago found in hedges near Klakah (Probolinggo); sometimes used as a green manure.

3. CROTALARIA ALBIDA Heyne *ex* Roth

Crotalaria albida Heyne *ex* Roth, Nov. Pl. Sp. 333. 1821; DC., Prod. 2: 126. *no* 28. 1825; Don, Gard. Dict. 2: 135, *no* 29. 1832; W. & A., Prod. 189. 1834; Dietr., Syn. Plant. 4: 925. 1847; Bth. *in* Hook. Lond. J. Bot. 2: 567. 1843; Miq., Fl. Ind. Bat. 1, 1: 340. 1855; Backer *in* Hook., Fl. Br. Ind. 2: 71. 1876; Merr. *in* Philip. J. Sc. 5: Bot. 61. 1910; Backer, Schoolfl. Java 310. 1911; Gagnep., Fl. Gén. I.-C. 2: 330. 1916; Merr., En. Philip. 2: 271. 1923; Craib, Fl. Siam. En. 1: 367. 1928; Backer, Bekn. Fl. Java (em. ed.) 5: fam. 120, p. 32. 1941.

C. montana Roxb., Fl. Ind. ed. Carey 3: 265. 1832; W. & A., Prod. 182. 1834.

C. arenaria Zoll. *in* Nat. & Geneesk. Arch 3: 52, 75. 1846, *non* Bth. 1843.

C. deflexa Bth. *in* Pl. Jungh. 206. 1852; Miq., Fl. Ind. Bat. 1, 1: 340. 1855.

C. henrici Hochr. *in* Candollea 2: 390. 1925.

C. pseudo-henrici Hochr., *l.c.*

DISTRIBUTION.—Southeast Asia (Nilgiris, Concan, Kashmir, Assam, Siam, Kwangtung); in Malaysia: N. Sumatra (Atjeh), Philippines (W. Luzon), SW. Celebes, Central and East Java, rare in West Java (Dago, Lembang, Guntur), Lesser Sunda Islands (Lombok, Sumbawa, Sumba, Alor), and New Guinea (Moresby Distr.).

4. CROTALARIA ANAGYROIDES H. B. K.

Crotalaria anagyroides H.B.K., Nov. Gen. et Sp. 6: 404. 1823; DC., Prod. 2: 130, no 75. 1825; Don, Gard. Dict. 2: 138, no 78. 1832; Dietr., Syn. Plant. 4: 934. 1847;

Backer, Onkruid. Suiker. 292. 1930; Bekn. Fl. Java (em. ed.) 5: fam .120, p. 40. 1941; Wilczek *in* Fl. Cong. Belg. 4: 157. 1953.

DISTRIBUTION.—Introduced as a green manure from tropical America and commonly found throughout Malaysia in all major islands and island groups, also in the Philippines and New Guinea.

5. CROTALARIA ASSAMICA Bth.

Crotalaria assamica Bth. *in* Hook. Lond. J. Bot. 2: 481. 1843; Baker *in* Hook., Fl. Br. Ind. 2: 75. 1876; Merr. *in* Philip. J. Sc. 5: Bot. 62. 1910; Gagnep., Fl. Gén. I.-C. 2: 358. 1916; Merr., En. Philip. 2: 271. 1923; Craib, Fl. Siam. En. 1: 367. 1928.

DISTRIBUTION.—Southeast Asia (Khasya; Siam); in Malaysia: Philippines (Luzon: Abra, Ilocos Norte, Pangasinan, Bataan, and Zambales); introduced in the Hawaiian Islands (Oahu, *A. A. Heller 2911,* Nov. 1895).

NOTES.—Differs from *C. retusa* by a larger and inflated pod 3½—5 cm long and c. 7 mm stipitate, longer pedicels, and larger leaves which are oblong to obovate-oblong and up to 15 cm long. Pedicel as long as the calyx which is 12—15 mm. The two specimens examined from the Philippines have a pod only c. 3 cm. *C. kurzii* Baker seems closely related.

*6. CROTALARIA BARBATA Grah. *ex* W. & A.

Crotalaria barbata Grah. [*in* Wall., Cat. 5394. 1832] *ex* W. & A., Prod. 181. 1834; Walp., Rep. Bot. 1: 583. 1842; Bth. *in* Hook. Lond. J. Bot. 2: 483. 1843; Dietr., Syn. Plant. 4: 923. 1847; Miq., Fl. Ind. Bat. 1, 1: 338. 1855; Baker *in* Hook., Fl. Br. Ind. 2: 76. 1876; Backer, Schoolfl. Java 309. 1911.

DISTRIBUTION.—Native in Southeast Asia, obviously only in the Deccan, doubtfully recorded for Java.

NOTES.—Miquel, *l.c.* refers (with doubt) to this species a specimen collected by Horsfield near Surakarta which he said Bentham had identified as "*C. glauca*". I have seen no material of it from Malaysia.

*7. CROTALARIA BIFLORA (L.) Linné

Crotalaria biflora (L.) Linné, Mant. 570. 1771; W. & A., Prod. 190. 1834; Miq., Fl. Ind. Bat. 1, 1: 326. 1855; Baker *in* Hook., Fl. Br. Ind. 2: 66. 1876; Backer, Schoolfl. Java 311. 1911.

Astragalus biflorus Linné, Mant. 273. 1771.

Cicer nummularifolium Lamk., Enc. Méth. 2: 2. 1790; DC., Prod. 2: 354. 1825.

C. nummularia Willd., Sp. Pl. 3: 979. 1802; DC., Prod. 2: 129. 1825; Wall., Cat. 5417. 1832, *ex parte*; Roxb., Fl. Ind. ed. Carey 3: 271. 1832.

C. hirta Roth, Nov. Spec. 339. 1821, *non* Willd. 1803.

C. rothiana DC., Prod 2: 127. 1825, incl. var *β ferruginosa.*

C. rothii Spreng., Syst. Veg. 3: 237. 1826.

DISTRIBUTION.—Southeast Asia (Deccan, Ceylon); in Malaysia recorded for Java by Baker *in* Hook. f. and by Miquel.

NOTES.—Miquel does not quote specimens on which his records are based. Backer never saw specimens from Java, and at Leyden there is not a single sheet from Malaysia.

8. CROTALARIA BRACTEATA Roxb.

Crotalaria bracteata Roxb., Fl. Ind. ed. Carey 3: 278. 1832; Bth. *in* Hook. Lond. J. Bot. 2: 586. 1843; Miq., Fl. Ind. Bat. 1, 1: 346. 1855; Baker *in* Hook., Fl. Br. Ind. 2: 83. 1876; Merr. *in* Philip. J. Sc. 5: Bot. 63. 1910; Backer, Schoolfl. Java 314. 1911; Merr., Fl. Manila 252. 1912; Gagnep., Fl. Gén. I.-C. 2: 346. 1916; Merr., En. Philip. 2: 271. 1923.

DISTRIBUTION.—Southeast Asia (India: Bhotan; Chittagong; Burma: Tenasserim; Pegu; N. Siam: Chieng Dao); in Malaysia: Philippines (North Luzon).

NOTES.—Baker *in* Hook. f. mentioned its occurrence in the Malay Islands, Miquel mentioned Java, but neither Backer nor I have a certain record from that island.

9. CROTALARIA CALYCINA Schrank

Crotalaria calycina Schrank, Pl. rar. Hort. Monac. tab. 12. 1819; DC., Prod. 2: 129. 1825; Bth. *in* Hook. Lond. J. Bot. 2: 564. 1843; *in* Miq., Pl. Jungh. 206. 1852; A. Gray, Bot. Wilkes U.S. expl. Exped. 390. 1854; Miq., Fl. Ind. Bat. 1, 1: 337. 1855; Baker *in* Hook., Fl. Br. Ind. 2: 72. 1876; F.-Vill., Nov. App. 57. 1880; Vidal, Phan. Cuming. Philip. 107. 1885; Rev. Pl. Vasc. Filip. 105. 1886; Merr. *in* Philip. J. Sc. 5: Bot. 60. 1910; Backer, Schoolfl. Java 309. 1911; Gagnep., Fl. Gén. I.-C. 2: 337. 1916; Merr., En. Philip. 2: 271. 1923; Backer, Onkruid. Suiker. 288. 1930; Bekn. Fl. Java (em. ed.) 5: fam. 120, p. 33. 1941.

C. anthylloides D. Don, Prod. Nep. 241. 1825 (*non* Lamk., 1790); W. & A., Prod. 181. 1834; Zoll. *in* Nat. & Geneesk. Arch. 3: 52, *no* 965. 1846.

C. roxburghiana DC., Prod. 2: 129. 1825.

C. stricta Roxb., Fl. Ind. ed. Carey 3: 265. 1832, *non* Roth, 1821.

DISTRIBUTION.—Africa, Southeast Asia (Concan, Bengal, Tonkin) to Australia, through Malaysia: Philippines (Luzon: Zambales, Rizal, Mindoro, East Mindanao), Celebes (Minahassa, SW. Peninsula, Buton I.), East Java (also Madura I.), Lesser Sunda Islands (Timor, Alor, Wetar), and New Guinea (Hollandia).

NOTES.—Miquel, *l.c.*, mentioned material collected by Junghuhn in Sumatra (Batak Lands) but I could not locate this material.

10. CROTALARIA CHINENSIS Linné

Crotalaria chinensis Linné, Syst. ed. 10: 1158. 1759; Sp. Pl. ed. 2: 1003. 1763; Willd., Sp. Pl. 3: 974. 1802; DC., Prod 2: 130. 1825; Bth. *in* Hook. Lond. J. Bot. 2: 566. 1843; Miq., Fl. Ind. Bat. 1, 1: 339. 1855; Baker *in* Hook., Fl. Br. Ind. 2: 73. 1876;

F.-Vill., Nov. App. 57. 1880; Vidal, Phan. Cuming. Philip. 107. 1885; Gagnep., Fl. Gén. I.-C. 2: 335. 1916; Merr., En. Philip. 2: 272. 1923; Backer, Bekn. Fl. Java (em. ed.) 5: fam. 120, p. 33. 1941.

DISTRIBUTION.—Southeast Asia (Concan, Malabar, Bengal, Upper Ganges, Pegu, Tenasserim); in Malaysia: Sumatra (Westcoast and Eastcoast Res.; Palembang: Pasemah Lands), SE. Borneo, Philippines (Luzon: Rizal; Negros; Mindanao: Misamis), and West New Guinea (Arfak; Kebar).

NOTES.—Backer assumed that this species may occur in Java in sunny grassy places, but I am not aware of any records, neither in the literature nor in the Rijksherbarium collections.

11. CROTALARIA CLEOMIFOLIA Welw. *ex* Baker

Crotalaria cleomifolia Welw. *ex* Baker *in* Fl. Trop. Afr. 2: 43. 1871; Wilczek *in* Fl. Cong. Belg. 4: 158. 1953.

DISTRIBUTION.—Tropical Africa, introduced in the Malay Peninsula (Pahang: Cameron Highlands, Tanah Rata).

NOTES.—The only specimen (*Burkill 867*) is said to have been introduced by an agricultural experiment station. The specimen differs slightly from the description given by Baker through the presence of small stipules, but for the rest agrees better with *C. cleomifolia* than with the other 5-foliolate species.

12. CROTALARIA FERRUGINEA Grah. *ex* Bth.

Crotalaria ferruginea Grah. [*in* Wall., Cat. 5398. 1832] *ex* Bth. *in* Hook. Lond. J. Bot. 2: 476, 570. 1843, descr., incl. var. *major* et var. *pilosissima; in* Miq., Pl. Jungh. 205. 1852; Miq., Fl. Ind. Bat. 1, 1: 327. 1855; Baker *in* Hook., Fl. Br. Ind. 2: 68. 1879; F.-Vill., Nov. App. 57. 1880; Vidal, Phan. Cuming. Philip. 107. 1885; Rev. Pl. Vasc. Filip. 105. 1886; Merr. *in* Philip. J. Sc. 5: Bot. 61. 1910; Backer, Schoolfl. Java 309. 1911; Gagnep., Fl. Gén. I.-C. 2: 329. 1916; Merr., En. Philip. 2: 272. 1923; Backer, Bekn. Fl. Java (em. ed.) 5: fam. 120, p. 33. 1941.

? *C. lejoloba* Bartl., Ind. Sem. Hort. Gott. 2. 1837; *in* Linnaea 12, 2: Lit. Ber. 80. 1838, *descr.* lat.; Walp., Rep. Bot. Syst. 1: 595. 1842; Hochr. *in* Candollea 2: 73. 1925.

C. pilosissima Miq., Fl. Ind. Bat. 1, 1: 327. 1855 (T in U).

DISTRIBUTION.—Southeast Asia (Ceylon, Ava, Martaban, Nepal, Assam); in Malaysia: Sumatra (Tarutung, Liwa), Borneo (Sarawak); Java, Lesser Sunda Islands (Bali, Lombok), SW. and Central Celebes (also Saleyer), Philippines (Mindanao: Bukidnon, Davao, Cotabatu, Lanao), Moluccas (Buru), and New Guinea (Ifar, Hollandia, Goroka, Central and Eastern Highlands).

NOTES.—Wight & Arnott (Prod. 189. 1834) and Walpers (Rep. Bot. Syst. 1: 587. 1842) refer this species as a synonym to C. *prostrata*, but all other authors accept it as distinct.

It may well occur that the oldest specific epithet for this very common species is *C. lejoloba* Bartl. which Bentham (1843, 1852) referred with a question mark to its synonymy. In recent time Hochreutiner accepted *C. lejoloba* as the correct name. It is true that the brief original description of *C. lejoloba* is fairly good and covers the characters of *C. ferruginea*, but before definitely accepting this name for a widely distributed plant which has almost universally been called *C. ferruginea*, checking of the type material would be most desirable. This material must then consist of dried material of the plants raised in the Göttingen Botanic Gardens where it was introduced from seed said to have come from Java. Unfortunately Dr. Hans-Jürgen Beug, Kustos of the Göttingen Herbarium, informed us (24-5-1961) that authentic specimens are not preserved there. They may, of course, never have been made and the description may have been drawn merely from living plants.

*13. CROTALARIA FULVA Roxb.

Crotalaria fulva Roxb., Fl. Ind. ed. Carey 3: 266. 1832; W. & A., Prod. 183. 1834; Dalz. & Gibs., Bomb. Fl. 54. 1861; Wight, Cat. 936. 1833; Walp., Rep. Bot. Syst. 1: 585. 1842; Bth. *in* Hook. Lond. J. Bot. 2: 563. 1843; *in* Miq., Pl. Jungh. 206. 1852; Miq., Fl. Ind. Bat. 1, 1: 336. 1855; Baker *in* Hook., Fl. Br. Ind. 2: 80. 1879; Backer, Schoolfl. Java 312. 1911; Bekn. Fl. Java (em. ed.) 5: fam. 120, p. 38. 1941. —*C. pulchra* (*non* Andr.) DC., Prod. 2: 126. 1825.

DISTRIBUTION.—Native in Madagascar, the Seychelles, Mauritius, and Southeast Asia (Ceylon, Nilgiris, Concan, Mysore); in Malaysia said to have been collected at the Westcoast of Sumatra by Korthals and Junghuhn and in Java by Reinwardt. It seems, however, that all these materials were derived from Hortus Bogoriensis. On the sheets of Reinwardt 'e Bengali' is mentioned as origin. It may of course have locally and temporarily escaped, but if this introduction has taken place indeed it has presumably not been successful, as no other material has been collected since. It has been introduced in the Hawaiian Islands; I examined a sheet collected near Honolulu, in Oahu.

NOTES.—Baker (1876) reduced *C. pulchra* (*non* Andr.) DC. to *C. fulva*. Miquel (Fl. Ind. Bat. 1, 1: 336. 1855) referred it correctly to *C. pulcherrima* Roxb. under which name Andrews had received seed from Lady Amelia Hume. Andrews published this plant, however, not with the epithet *pulcherrima*, but as *C. pulchra* Andr. Consequently *C. pulcherrima* Roxb. *ex* Sims *in* Bot. Mag. 46: *t. 2027* 1819; Fl. Ind. ed. Carey 3: 267. 1832; Miq., Fl. Ind. Bat. 1, 1: 336. 1855; Baker in Hook., Fl. Br. Ind. 2: 80. 1876 is a synonym of *C. pulchra* Andr., Bot. Rep. 9: *t. 601*. 1810.

14. CROTALARIA HUMIFUSA Grah. *ex* Bth.

Crotalaria humifusa Grah. [*in* Wall., Cat. 5421. 1832] *ex* Bth. *in* Hook. Lond. J. Bot. 2: 476. 1843; Baker *in* Hook., Fl. Br. Ind. 2: 67. 1879; Merr. *in* Philip. J. Sc. 5: Bot. 61. 1910; Backer, Bekn. Fl. Java (em. ed.) 5: fam. 120, p. 30. 1941.

DISTRIBUTION.—Southeast Asia (Kumaon to Sikkim, Khasya, Nepal, Anamalay Hills); in Malaysia: Philippines (Benguet), Central Java (Mt Lawu, sec. Backer, *l.c.*), the Lesser Sunda Islands (Lombok, Alor).

NOTES.—Merrill cited under *C. acicularis* Ham. *ex* Bth. at least one number (*Merrill 4266*) which belongs to *C. humifusa*, by the characters of the bract, indumentum of the rachis, etc. Also in the Kew Herbarium this specimen was referred to *C. humifusa*. In his new Flora of Java Backer said that there would be 6—8 seeds in each pod, but in *Merrill 4266* there are 14, and presumably the number of seeds is variable from 6—20, as it is in *C. acicularis*.

15. CROTALARIA INCANA Linné

Crotalaria incana Linné, Sp. Pl. 716. 1753; Jacq., Observ. Bot. Icon. 4: 82. 1771; Cav., Icon. 4: tab. 322. 1797; Willd. Sp. Pl. 3: 985. 1802; DC., Prod. 2: 132. 1825; Spreng., Syst. Veg. 3: 240. 1826; Bot. Reg. 377. 1815—27; Don, Gard. Dict. 2: 139. 1832; Macf., Fl. Jam. 242. 1837; Bth. *in* Hook. Lond. J. Bot. 2: 587. 1843; Hassk., Pl. Jav. Rar. 329. 1848; Bth. *in* Miq., Pl. Jungh. 207. 1852; Miq., Fl. Ind. Bat. 1, 1: 347. 1855; Oliv., Fl. Trop. Afr.. 2: 31. 1871; Baker in Hook., Fl. Br. Ind. 2: 83. 1879; F.-Vill., Nov. App. 58. 1880; Naves *in* Blanco, Fl. Filip. 160. 1877—83; Vidal, Rev. Pl. Vasc. Filip. 104. 1886; Merr. *in* Philip. J. Sc. 3: Bot. 409. 1908; *ibid.* 5: Bot. 63. 1910; Backer, Schoolfl. Java 315. 1911; Merr., Fl. Manila 252. 1912; En. Philip. 2: 272. 1923; Backer, Onkruid. Suiker. 293. 1930; Bekn. Fl. Java (em. ed.) 5: fam. 120. p. 41. 1941.

?*C. purpurascens* Lamk., Enc. Méth. 2: 200. 1790; DC., Prod. 2: 131. 1825; Spreng., Syst. Veg. 3: 240. 1826.

C. pubescens Moench., Meth. 161. 1794; DC., Prod. 2: 131. 1825.

C. affinis DC., Prod. 2: 132. 1825; W. & A., Prod. 180. 1834.

C. herbacea Schweig. *in* Schrank, Syll. Pl. Ratisb. 2: 77. 1828.

C. schimperi A. Rich., Tent. Fl. Abyss. 1: 151. 1847.

C. radiata Merr. *in* Philip. J. Sc. 5: Bot. 63. 1910.

DISTRIBUTION.—Presumably native in the Caribbean Islands, widely introduced and now almost pantropical, in Central and Tropical America, Africa, Queensland, Hawaiian Islands; in Southeast Asia (Ceylon, Kumaon, Assam); in Malaysia very common: Sumatra (Westcoast: Korthals), Malay Peninsula (Singapore), throughout Java and also on the N. coast of Madura I., Philippines (Luzon: Albay, Banao, Rizal, Batangas; Panay), Moluccas (Batjan; Obi), and New Guinea (Morobe Distr.).

16. CROTALARIA JUNCEA Linné

Crotalaria juncea Linné, Sp. Pl. 714. 1753; *ibid.* ed. 2: 1004. 1763; Curt. in Bot. Mag. tab. 490. 1800; Willd., Sp. Pl. 3: 974. 1802; Roxb., Pl. Corom 2: 193. 1805; Andr., Bot. Rep. 6: 422. 1805; DC., Prod. 2: 125. 1825; Spreng., Syst. Veg. 3: 238. 1826; Wall., Cat. 5409. 1832; Roxb., Fl. Ind. ed. Carey 3: 259. 1832; Don, Gard. Dict. 2: 135. 1832; W. & A., Prod. 185. 1834; Span. *in* Linnaea 15: 189. 1841; Walp., Rep. Bot. Syst. 1: 585. 1842; Bth. *in* Hook. Lond. J. Bot. 2: 562. 1843; Miq., Anal. Bot. Ind. 1: 7. 1850; Bth. *in* Miq., Pl. Jungh. 206. 1852; Miq., Fl. Ind. Bat. 1, 1: 334. 1855; Dalz. & Gibs., Bomb. Fl. 54. 1861; Baker *in* Hook., Fl. Br. Ind. 2: 79. 1876; Merr. *in* Philip. J. Sc. 5: Bot. 62. 1910; Backer, Schoolfl. Java 312. 1911; Merr., Fl. Manila 251. 1912; Gagnep., Fl. Gén. I.-C. 2: 341. 1916; Merr., En. Philip. 2: 272. 1923; Backer Bekn. Fl. Java (em. ed.) 5: fam. 120, p. 36. 1941.

C. benghalensis Lamk., Enc. Méth. 2: 196. 1790; DC., Prod. 2: 125. 1825; Spreng., Syst. Veg. 3: 238. 1826.

C. sericea (*non* Retz.) Willd., Sp. Pl. 3: 975. 1802; Zoll. *in* Nat. & Geneesk. Arch. 3: 51. 1846.

C. tenuifolia Roxb. [Hort. Beng.54. 1814]*ex* DC., Prod. 2: 126. 1825; Roxb., Fl. Ind. ed. Carey 3: 263. 1832; Don, Gard. Dict. 2: 135. 1832.

C. fenestrata Sims *in* Bot. Mag. tab. 1933. 1817; DC., Prod. 2: 126. 1825; Spreng., Syst. Veg. 3: 238. 1826.

DISTRIBUTION.—Madagascar, probably native in Southeast Asia (India: Madras, Concan, Mangalore, Gangetic Plains, Khasya; Burma: Pegu; Indo-China); in Malaysia introduced as a fibre plant, cultivated and naturalized: Malay Peninsula (Johore), Borneo, throughout Java (also in Madura I.), Lesser Sunda Islands (E. Sumba; Kisar), S. Celebes (Bone), Philippines (Luzon: Rizal, Laguna), and New Guinea (Hollandia).

NOTES.—There has been confusion about the interpretation of *C. sericea* Retz. and according to Baker (1876) the description of Willdenow refers to *C. juncea.*

17. CROTALARIA LABURNIFOLIA Linné

Crotalaria laburnifolia Linné, Sp. Pl. 715. 1753; *ibid.* ed. 2: 1005. 1763; Willd., Sp. Pl. 3: 982. 1802; DC., Prod. 2: 130. 1825; Spreng., Syst. Veg. 3: 240. 1826; Roxb. Fl. Ind. ed. Carey 3: 275. 1832; Don, Gard. Dict. 2: 138. 1832; W. & A., Prod. 193. 1834; Span. *in* Linnaea 15: 189. 1841; Walp., Rep. Bot. Syst. 1: 589. 1842; Bth. in Hook. Lond. J. Bot. 2: 582. 1843; Hassk., Cat. Bog. 270. 1844; Miq., Fl. Ind. Bat. 1, 1: 345. 1855; Dalz. & Gibs., Bomb. Fl. 57. 1861; Baker *in* Hook., Fl. Br. Ind. 2: 84. 1876; F.-Vill., Nov. App. 58. 1880; Merr. *in* Philip. J. Sc. 5: Bot. 64. 1910; Backer, Schoolfl. Java 314. 1911; Merr., En. Philip. 2: 274. 1923; Backer, Onkruid. Suiker. 292. 1930; Bekn. Fl. Java (em.ed.) 5: fam. 120, p. 38. 1941; Wilczek *in* Fl. Cong. Belg. 4: 227. 1953.

C. pedunculosa Desv. *in* J. Bot. 3: 76. 1814; DC., Prod. 2: 132. 1825.

C. pendula Bert. *ex* DC., Prod., 2: 130. 1825.

Clavulium pedunculosum Desv. *in* Ann. Sc. Nat. 1, ser. 9: 407. 1826; Don, Gard. Dict. 2: 142. 1832.

DISTRIBUTION.—Africa (Zomba Distr.; Kongo, Katanga), Southeast Asia (Ceylon, Carnatic, Mysore); Malaysia: Malay Peninsula (*Cuming 2282*), Java (East Java only, E of Puger), Madura I. (Boernih, Pamekasan, Ketapang, Bangkalan, and Tamberu), Lesser Sunda Islands (Bali, Alor, Wetar).

NOTES.—Baker localized *Cuming 2282* in the Philippines, but according to Merrill (1923) this number was collected outside the Philippines, possibly in the Malay Peninsula. F.-Villar (1880) mentioned to have seen living specimens in Luzon and Panay but specimens to sustain these records are not represented in the herbaria. As the species distinctly prefers very dry places it would be astonishing if Cuming had found it in Malaya. Miquel mentioned it to be common in Java, but that generalization is certainly erroneous; in 1911 Backer had not seen a single specimen from Java except in the cultivated state in the Botanic Gardens.

18. CROTALARIA LINIFOLIA L. f.

Crotalaria linifolia L.f., Suppl. 322. 1781; Willd., Sp. Pl. 3: 975. 1802; DC., Prod. 2: 128. 1825; Don, Prod. Fl. Nep. 241. 1825; Spreng., Syst. Veg. 3: 239. 1826; Roxb., Fl. Ind. ed. Carey 3: 266. 1832; Don, Gard. Dict. 2: 136. 1832; W. & A., Prod. 190. 1834; Blanco, Fl.Filip. 570. 1837; Bth. *in* Hook. Lond. J. Bot. 2: 569. 1843; Zoll. *in* Nat. & Geneesk. Arch. 3: 52. 1846; Miq., Fl. Ind. Bat. 1, 1: 342. 1855; Dalz. & Gibs., Bomb. Fl. 56. 1861; Baker *in* Hook., Fl. Br. Ind. 2: 72. 1876; F.-Vill., Nov. App. 57. 1880; Vidal, Phan. Cuming. Philip. 107. 1885; Rev. Pl. Vasc. Filip. 104. 1886; Forbes & Hemsl. *in* J. Linn. Soc. Bot. 23: 151. 1886; K. Sch. & Laut., Fl. Deut. Schutzgeb. Südsee 350. 1901; Pulle *in* Nova Guinea 8: 345. 1910; Merr. *in* Philip. J. Sc. 5: Bot. 60. 1910; Backer, Schoolfl. Java 310. 1911; Merr., Fl. Manila 241. 1912; Gagnep., Fl. Gén. I.-C. 2: 331. 1916; Merr., Sp. Blanc. 178. 1918; En. Philip. 2: 272. 1923; Backer, Onkruid. Suiker. 287. 1930; Bekn. Fl. Java (em.ed.) 5: fam. 120, p. 31. 1941.

C. montana Heyne *in* Roth, Nov. Pl. Sp. 335. 1821; DC., Prod. 2: 126. 1825, *non* Roxb. 1832.

C. diffusa Link, En. 2: 228. 1822; DC., Prod. 2: 127. 1825; W. & A., Prod. 190. 1834.

C. caespitosa Roxb., Fl. Ind. ed. Carey 3: 269. 1832.

C. pallida (*non* Ait.) Blanco, Fl. Filip. 570. 1837.

C. stenophylla Vogel *in* Nov. Act. Acad. Nat. Cur. 19: Suppl. 1, 7. 1843; Walp., Rep. Bot. Syst. 1: 586. 1842; Bth. *in* Hook. Lond. J. Bot. 2: 568. 1843; *in* Miq., Pl. Jungh. 207. 1852; Miq., Fl. Ind. Bat. 1, 1: 341. 1855.

C. pumila (*non* Schrank) Blanco, Fl. Filip. ed. 2: 397. 1845; ed. 3, 2: 365. 1879.

Quirosia secunda Blanco, Fl. Filip. ed. 2: 398. 1845; ed. 3, 2: 366, *t. 268*. 1879.

C. saxatilis Zoll. *in* Nat. & Geneesk. Arch. 3: 75. 1846; *in* Flora oder Allg. Bot. Z. 30: 694. 1847.

C. vogelii Dietr., Syn. Plant. 4: 926. 1847.

C. formosana Matsum. *in* J. Coll. Sc. Univ. Tokyo 12: 395. 1900; Matsum. & Hayata, *ibid* 22: 103, *t. 10*. 1906.

DISTRIBUTION.—Southeast tropical Asia (India: Mysore, Carnatic; Siam; Indo-China) to Australia (Queensland and Northern Territory); in Malaysia: N. Borneo (Ranau, near Kinabalu), Java (some places round Bandung in West Java, further in East Java), Madura I. (Pamekasan), Lesser Sunda Islands (W. Bali, Sumba, Timor, Alor, Wetar), and Celebes (throughout the island; also on the adjacent Tanah Djampea and Buton Is.), Philippines (Luzon: Rizal, Manila, Bulacan; Mindoro), Moluccas (Halmaheira; Ambon and Tanimbar Is.), and New Guinea (throughout the island).

19. CROTALARIA MEDICAGINEA Lamk.

Crotalaria medicaginea Lamk., Enc. Méth. 2: 201. 1790; Spreng., Syst. Veg. 3: 239. 1826; W. & A., Prod. 192. 1834; Walp., Rep. Bot. Syst. 1: 588. 1842; Bth. *in* Hook. Lond. J. Bot. 2: 577. 1843; Miq., Fl. Ind. Bat. 1, 1: 343. 1855; Thw., En. Pl. Zeyl. 82. 1859; F. v. M., Fragm. Phyt. Austr. 3: 56. 1862, excl. syn. *trifoliastrum*; *ibid.* 9: 156. 1875; Baker *in* Hook., Fl. Br. Ind. 2: 81. 1876; Hance *in* J. Bot. 10. 1879; Forbes & Hemsl. *in* J. Linn. Soc. Bot. 23: 152. 1886; Backer, Schoolfl. Java 313. 1911; Gagnep., Fl. Gén. I.-C. 2: 345. 1916; Backer, Onkruid. Suiker. 290. 1930; Bekn. Fl. Java (em. ed.) 5: fam. 120, p. 39. 1941.

C. foliosa Willd. *in* Ges. Naturf. Fr., Neue Schr.4: 217. 1803; En. 747. 1809; DC., Prod. 2: 131. 1825; Don, Gard. Dict. 2: 139. 1832.

Indigofera foliosa Willd. *in* Ges. Naturf. Fr., Neue Schr. 4: 217. 1803.

C. virgata Roxb. *ex* Mart. *in* Denk. Schr. Akad. Wiss. München 6: 157, *tab.* G. 1820; DC., Prod. 2: 131. 1825; Don, Gard. Dict. 2: 139. 1832.

C. procumbens Roxb. [Hort. Beng. 98. 1814], Fl. Ind. ed. Carey 3: 278. 1832.

C. neglecta W. & A., Prod. 192. 1834; Walp., Rep. Bot. Syst. 1: 588. 1842; Bth. *in* Hook. Lond. J. Bot. 2: 578. 1843.

C. herniarioides W. & A., Prod. 192. 1834; Walp., Rep. Bot. Syst. 1: 588. 1842.

C. luxurians Bth. *in* Hook. Lond. J. Bot. 2: 578. 1843.

C. striata (*non* Retz.) Zoll. *in* Nat. & Geneesk. Arch. 3: 52. 1846.

C. zollingeriana Miq., Fl. Ind. Bat. 1, 1: 344. 1855 (T in U).

C. trifoliastrum (*non* Willd. 1802) Bth., Fl. Austr. 2: 183. 1864; Bailey, Fl. Queensl. 2: 375. 1900; Merr. *in* Philip. J. Sc. 13: Bot. 17. 1918; En. Philip. 2: 273. 1923; Specht, Rec. Exp. Arnhem Land 3: 240. 1958.

C. tappenbeckiana Laut. & K. Sch., Fl. Deut. Schutzgeb. Südsee 351. 1901.

DISTRIBUTION.—Southeast Asia (Afghanistan; India: West and East Himalaya, Mysore, Carnatic; Burma; Siam), to Australia (Northern Territory: Yirrkala, Pt Bradshaw); in Malaysia: Java (Djakarta: Edam I.; S. Priangan: Zandbaai; Surabaja) and Southeast New Guinea (Pt Moresby).

NOTES.—Bentham (1864), followed by Bailey, and recently by Specht identified the Australian material as *C. trifoliastrum* Willd., Sp. Pl. 3, 2: 983. 1802; *in* Ges. Naturf. Fr., Neue Schr. 4: 223, *tab.* 5. 1803, but this material belongs in my opinion to *C. medicaginea* Lamk. I admit that these two species are very closely allied; in a concise way they can be contrasted as follows:

C. trifoliastrum: Calyx c. 4 mm long; wings of corolla c. 5½ mm; standard at base provided with 2 auricles, c. 7 mm long, as long as the keel; pod tending to be rectangular in outline, with the sides more or less parallel and the apex transverse.

C. medicaginea: Calyx c. 2½ mm; wings c. 3½ mm; standard c. 4 mm, without auricles at the base; keel c. 4½ mm; pod oblique tending to be triangular in outline through a median bulge, and with acute apex.

In the literature it has repeatedly been mentioned that there would also be a difference in the length proportion of the pedicel in relation to the leaflets, but this does not hold.

Baker distinguished three varieties, mainly according to the size and robustness of the plants; Backer mentioned that in Java only var. *luxurians* would occur. I cannot attach much significance to these forms.

C. tappenbeckiana Laut. & K. Sch. is tentatively reduced to this species; I have not seen the type (*Lauterbach 2775*).

*20. CROTALARIA MESOPONTICA Taub.

Crotalaria mesopontica Taub. *in* Engl., Pflanzenwelt Ost-Afr. C: 207. 1895; Engl. *in* Von Götzen, Durch Afr. von O. nach W. 375. 1895; Backer, Bekn. Fl. Java (em. ed.) 5: fam. 120, p. 39. 1941; Wilczek *in* Fl. Cong. Belg. 4: 170. 1953.

DISTRIBUTION.—Native in tropical Africa, according to Backer (1941) sometimes used as a green manure in Java, but presumably very rarely. I have seen specimens from Africa, but none from Java.

21. CROTALARIA MUCRONATA Desv.

Crotalaria mucronata Desv. *in* J. Bot. 3: 76. 1814; DC., Prod. 2: 132. 1825; Desv. *in* Ann. Sc. Nat. 9: 407. 1826; Don, Gard. Dict. 2: 139. 1832; Dietr., Syn. Plant. 4: 935. 1847; Wilczek *in* Fl. Cong. Belg. 4: 270. 1953.

C. striata DC., Prod. 2: 131. 1825; Bot. Mag. *t. 3200.* 1832; Don, Gard. Dict. 2: 138. 1832; Bth. *in* Hook. Lond. J. Bot. 2: 586. 1843; Hassk., Cat. Bog. 269. 1844; Miq., Anal. Ind. 1: 7. 1850; Bth. *in* Miq., Pl. Jungh. 207. 1852; Miq., Fl. Ind. Bat. 1, 1: 346. 1855; Baker *in* Hook., Fl. Br. Ind. 2: 84. 1876; Oliv., Fl. Tr. Afr. 2: 38: 1871; Perk., Fragm. Fl. Philip. 16. 1904; Fawc. & Rendle, Fl. Jam. 4, 2: 12. 1920; Backer, Bekn. Fl. Java (em. ed.) 5: fam. 120, p. 40. 1941.

C. brownei Bertero *ex* DC., Prod. 2: 130. 1825; Reichb., Icon. bot. Exot. 3: 12, *tab. 232.* 1827—30; Don, Gard. Dict. 2: 138. 1832; Dietr., Syn. Plant. 4: 934. 1847.

C. pisiformis Guill. & Perr., Fl. Seneg. 162. 1830—33; Walp., Rep. Bot. Syst. 1: 590. 1842; Dietr., Syn. Plant. 4: 927. 1847.

C. latifolia Roxb. *ex* W. & A., Prod. 180. 1834.

C. hookeri Arn. *in* Ann. Sc. Nat. sér. 2, 3: 248. 1835; Dietr., Syn. Plant. 4: 935. 1847.

C. javanica Jungh. *in* Tijd. Nat. Gesch. 7: 303. 1840; Walp., Rep. Bot. Syst. 1: 589. 1842; Dietr., Syn. Plant. 4: 930. 1847.

C. pallida Klotzsch *in* Peters' Mossamb. Bot. 57. 1862, *non* Ait. 1789.
C. laburnoides Klotzsch, *l.c.*
Lebeckia rostrata Fenzl *in* Flora oder Allg. Bot. Z. 27: 312. 1844.
C. zuccariniana Dietr., Syn. Plant. 4: 935. 1847.
C. saltiana (*non* Andr. 1811) Prain *ex* King *in* J. As. Soc. Beng. 66, ii: 41, 353. 1897; Merr. *in* Philip. J. Sc. 5: Bot. 62. 1910; En. Philip. 2: 273. 1923.
C. siamica Williams *in* Bull. Herb. Boissier sér. 2, 5: 20. 1905.

DISTRIBUTION.—Native of Central and tropical America, widely introduced in other tropical countries, Africa, Asia, throughout Malaysia (extremely common) and Queensland, both in everwet and in seasonal countries, often referred to as *C. striata*, *C. saltiana*, and *C. brownei*.

NOTES.—Some authors take *C. saltiana* Andr. as a different species. I have not seen the type; in the drawing the stipules and bracteoles are not drawn and the wings are equal in length to the vexillum, which characters plead against conspecificity with *C. mucronata* Desv.

22. CROTALARIA MYSORENSIS Roth

Crotalaria mysorensis Roth, Nov. Sp. 338. 1821; DC., Prod. 2: 126. 1825; Spreng., Syst. Veg. 3: 237. 1826; Wall., Cat. 5361A. 1832; Don, Gard. Dict. 2: 135. 1832; W. & A., Prod. 182. 1834; Walp., Rep. Bot. Syst. 1: 583. 1842; Bth. *in* Hook. Lond. J. Bot. 2: 566. 1843; Zoll. *in* Nat. & Geneesk. Arch. 3: 52. 1846; Dietr., Syn. Plant. 4: 923. 1847; Miq., Fl. Ind. Bat. 1, 1: 339. 1855; Baker *in* Hook., Fl. Br. Ind. 2: 70. 1876; Backer, Schoolfl. Java 309. 1911; Onkruid. Suiker. 286. 1930; Bekn. Fl. Java (em. ed.) 5: fam. 120, p. 34. 1941.
C. stipulacea Roxb., Fl. Ind. ed. Carey 3: 264. 1832.

DISTRIBUTION.—Native in Southeast Asia (Himalayan tracts, Concan, Upper Gangetic Plains); in Malaysia: Northeast Java (Surabaja, Pasuruan, North Idjen, Asembagus), Madura I. (Sumenep; P. Puteran) and Lesser Sunda Islands (Lombok), obviously confined to the periodically driest areas in Malaysia.

23. CROTALARIA NANA Burm. f.

Crotalaria nana Burm. f., Fl. Ind. 156, *tab. 48 fig. 2.* 1768; Lamk, Enc. Méth. 2: 197. 1790; DC., Prod. 2: 127. 1825; W. & A., Prod. 191. 1834; Span. *in* Linnaea 15, 1: 189. 1841; Bth. *in* Hook. Lond. J. Bot. 2: 570. 1843; Dietr., Syn. Plant. 4: 926. 1847; Miq., Fl. Ind. Bat. 1, 1: 342. 1855; Thw., En. Zeyl. 82. 1859; Dalz. & Gibs., Bomb. Fl. 56. 1861; Baker *in* Hook., Fl. Br. Ind. 2: 71. 1876; Prain *in* J. As. Soc. Beng. 66, ii: 351. 1897; Bailey, Fl. Queensl. 6: 2000. 1902; Backer, Schoolfl. Java 310. 1911; Gagnep., Fl. Gén. I.-C. 2: 331. 1916; Backer, Onkruid. Suiker. 288. 1930; Bekn. Fl. Java (em. ed.) 5: fam. 120, p. 30. 1941.
C. umbellata Wight [Cat. 700. 1833]*ex* W. & A., Prod. 191. 1834; Dietr., Syn. Pl. 4: 926. 1847; Dalz. & Gibs., Bomb. Fl. 56. 1861.
C. biflora (*non* L.) Willd., Sp. Pl. 3: 978. 1802.

DISTRIBUTION.—Southeast Asia (Nilgiris, Concan, Mysore, Carnatic); in Malaysia in Madura I. (Bangkalan, Arosbaja), also in Queensland. According to Miquel it would also have been collected on Mt Tengger (Bromo, Ider-Ider) but I have seen no material of that locality. This is possibly caused by the fact that Miquel erroneously reduced *C. arenaria* Zoll., *non* Bth., to this species. Though I have not seen Zollinger's specimen I placed this under *C. albida* on the authority of Hochreutiner (*in* Candollea 2: 390. 1925).

*24. CROTALARIA ORIXENSIS Willd.

Crotalaria orixensis Willd. *in* Ges. Naturf. Fr., Neue Schr. 4: 217. 1803; Mart. in Denkschr. Akad. Wiss. München 6: 157, *tab. H.* 1820; DC., Prod. 2: 131. 1825; Don, Gard. Dict. 2: 139. 1832; Oliv., Fl. Trop. Afr. 2: 27. 1871; Baker *in* Hook., Fl. Br. Ind. 2: 83. 1876; Merr. *in* Philip. J. Sc. 10: Bot. 18. 1915; En. Philip. 2: 273. 1923.

C. macropoda Hochst. *ex* A. Rich., Tent. Fl. Abyss. 1: 157. 1847.

DISTRIBUTION.—Tropical Africa, Aethiopia, India.

NOTES.—The only data I have is Merrill's statement (1923): "Luzon, Manila. *B.S. 19145 Guerrero.* Apparently a casual introduction which will perhaps not persist".

*25. CROTALARIA PANICULATA Willd.

Crotalaria paniculata Willd., Sp. Pl. 3, 2: 980. 1802; DC., Prod. 2: 126. 1825; Roxb., Fl. Ind. ed. Carey 3: 274. 1832; Wall., Cat. 5397. 1832; W. & A., Prod. 183. 1834; Bth. *in* Hook. Lond. J. Bot. 2: 564. 1843; Dietr., Syn. Plant. 4: 924. 1847; Miq., Fl. Ind. Bat. 1, 1: 337. 1855; Baker *in* Hook., Fl. Br. Ind. 2: 81. 1876; Forb. & Hemsl. in J. Linn. Soc. Bot. 23: 152. 1886; Backer, Schoolfl. Java 312. 1911; Bekn. Fl. Java (em. ed.) 5: fam. 120, p. 37. 1941.

C. chinensis (*non* L.) Lamk., Enc. Méth. 2: 195. 1790.

Ononis glutinosa Mart. *in* Denkschr. Akad. Wiss. München 6: 155. 1820.

NOTES.—Lamarck, Willdenow, Miquel, Bentham, and Baker record this species to occur in Java. It is not impossible to be due to a confusion with the specimen collected by Sonnerat which was erroneously identified as *C. chinensis* by Lamarck. Neither Backer nor I have seen any Malaysian material of *C. paniculata.*

26. CROTALARIA PROSTRATA Rottl. *ex* Willd.

Crotalaria prostrata Rottler *ex* Willd., En. Hort. Berol. 2: 747. 1809; DC., Prod. 2: 130. 1825; Don, Gard. Dict. 2: 138. 1832; Backer, Onkruid. Suiker. 288. 1930; Bekn. Fl. Java (em. ed.) 5: fam. 120, p. 31. 1941.

C. prostrata Roxb. [Hort. Beng. 54. 1814], Fl. Ind. ed. Carey 3: 270. 1832; W. & A., Prod. 189. 1834; Span. *in* Linnaea 15, 1: 189. 1841; Bth. *in* Hook. Lond. J. Bot. 2: 475. 1843; Dietr., Syn. Plant. 4: 925. 1847; Miq., Fl. Ind. Bat. 1, 1: 326. 1855; Baker *in* Hook., Fl. Br. Ind. 2: 67. 1876; Backer, Schoolfl. Java 308. 1911; Mart. *in* Denkschr. Akad. Wiss. München (1816—1817) 6: 155, *tab. E.* 1820.

C. obliqua Span. *in* Linnaea 15, 1: 189. 1841, *nomen.*

DISTRIBUTION.—Southeast Asia (Concan, Himalayan tracts, Bengal); in Malaysia: Philippines (West Mindoro), S. Celebes (P. Muna), Lesser Sunda Islands (Bali), and Central and East Java (Jogjakarta; Lumadjang).

NOTE.—This is a new record for the Philippines (*Sulit PNH 13759*).

27. CROTALARIA QUINQUEFOLIA Linné

Crotalaria quinquefolia Linné, Sp. Pl. 716. 1753; ed. 2: 1006. 1763; Burm. f., Fl. Ind. 157. 1768; Lamk., Enc. Méth. 2: 202. 1790; Willd., Sp. Pl. 3, 2: 988. 1802; Roth, Nov. Pl. Spec. 344. 1821; DC., Prod. 2: 135. 1825; Roxb., Fl. Ind. ed. Carey 3: 279. 1832; Don, Gard. Dict. 2: 141, *no* 137. 1832; W. & A., Prod. 194. 1834; Blanco, Fl. Filip. 569. 1837; ed. 2: 397. 1845; ed. 3, 2: 365, *t. 159*. 1879; Walp., Rep. Bot. Syst. 1: 589. 1842; Vog. *in* Nov. Act. Acad. Nat. Cur. 19: Suppl. 1, 9. 1843; Bth. *in* Hook. Lond. J. Bot. *2: 593. 1843; Hassk., Cat. Bog. 269. 1844; Zoll. in* Nat. & Geneesk. *Arch. 3: 52. 1846; Dietr., Syn. Plant. 4: 930, no 103. 1847; Miq., Fl. Ind. Bat. 1, 1: 347. 1855;* Dalz. & Gibs., Bomb. Fl. 57. 1861; Baker *in* Hook., Fl. Br. Ind. 2: 84. 1876; F.-Vill., Nov. App. 58. 1880; Vidal, Phan. Cuming. Philip. 107. 1885; Rev. Pl. Vasc. Philip. 104. 1886; Bailey, Queensl. Fl. 2: 377. 1900; Merr. *in* Philip. J. Sc. 5: Bot. 64. 1910; Backer, Schoolfl. Java 313. 1911; Merr., Fl. Manila 252. 1912; Gagnep., Fl. Gén. I.-C. 2: 348. 1916; Merr., Sp. Blanc. 177. 1918; Fawcett & Rendle, Fl. Jam. 4, 2: 12. 1920; Merr., En. Philip. 2: 273. 1923; Backer, Onkruid. Suiker. 295. 1930; Bekn. Fl. Java (em. ed.) 5: fam. 120, p. 38. 1941.

C. heterophylla Linné f., Suppl. 323. 1781; Willd., Sp. Pl. 3, 2: 987. 1802; DC., Prod. 2: 131. 1825.

DISTRIBUTION.—Native country not exactly known to me, now almost pantropical in distribution and throughout Malaysia indifferent to presence or absence of a dry season.

28. CROTALARIA RETUSA Linné

Crotalaria retusa Linné, Sp. Pl. 715. 1753; ed. 2: 1004. 1763; Burm. f., Fl. Ind. 155. 1768; Lamk., Enc. Méth. 2: 196, *no* 11. 1790; Willd., Sp. Pl. 3, 2: 976. 1802; DC., Prod. 2: 125. 1825; Spreng., Syst. Veg. 3: 237. 1826; Roxb., Fl. Ind. ed. Carey 3: 272. 1832; Don, Gard. Dict. 2: 134, *no* 15. 1832; W. & A., Prod. 187. 1834; Walp., Rep. Bot. Syst. 1: 586. 1842; Bth. *in* Hook. Lond. J. Bot. 2: 480. 1843; Zoll. *in* Nat. & Geneesk. Arch. 3: 51. 1846; Dietr., Syn. Plant. 4: 925, *no* 27. 1847; Bth. *in* Miq., Pl. Jungh. 205. 1852; Miq., Fl. Ind. Bat. 1, 1: 330. 1855; Dalz. & Gibs., Bomb. Fl. 55. 1861; F. v. M., Fragm. 3: 51. 1862; Oliv., Fl. Trop. Afr. 2: 13. 1871; Baker *in* Hook., Fl. Br. Ind. 2: 75. 1876; F.-Vill., Nov. App. 57. 1880; Bailey, Queensl. Fl. 2: 374. 1900; Perk., Fragm. Fl. Philip. 16. 1904; Merr. *in* Philip. J. Sc. 5: Bot. 62. 1910; Backer, Schoolfl. Java 307. 1911; Gagnep., Fl. Gén. I.-C. 2: 336. 1916; Fawcett & Rendle, Fl. Jam. 2: 9. 1920; Merr., En. Philip. 2: 273. 1923; Backer, Onkruid. Suiker. 289. 1930; Bekn. Fl. Java (em. ed.) 5: fam. 120, p. 32. 1941; Wilczek *in* Fl. Cong. Belg. 4: 90. 1953.

Lupinus cochinchinensis Lour., Fl. Coch. 2: 521. 1793; DC., Prod. 2: 410. 1825; J. G. Agardh, Syn. Gen. Lupin. 42, *no* 76. 1835.

C. paulina Schrank *ex* DC., Prod. 2: 127. 1825.

C. hostmanni Steud. *in* Flora oder Allg. Bot. Z. 26: 757. 1843.

DISTRIBUTION.—Probably a native of Southeast Asia, now pantropical in distribution, cultivated and introduced throughout Malaysia.

NOTES.—At Leyden there are two specimens, one from Hawaii (*Heller 1911*) and one from Siam (*Kerr 830*) which have been distributed as *C. assamica* but which, by their leaves, are very similar to *C. retusa*, and cannot be referred to *C. assamica*. The ripe pods of the Siamese plant are 6—6½ cm long, the immature ones of Hawaii measure 4½ cm; they are too long for *C. retusa* and may account for a variety.

*29. CROTALARIA RUBIGINOSA Willd.

Crotalaria rubiginosa Willd., Sp. Pl. 3, 2: 973. 1802; DC., Prod. 2: 125. 1825; Spreng., Syst. Veg. 3: 238. 1826; Don, Gard. Dict. 2: 134, *no* 11. 1832; W. & A., Prod. 181. 1834; Bth. *in* Hook. Lond. J. Bot. 2: 478. 1843; Dietr. Syn. Plant. 4: 923. 1847; Miq., Fl. Ind. Bat. 1, 1: 328. 1855; Baker *in* Hook., Fl. Br. Ind. 2: 69. 1876; Backer, Bekn. Fl. Java (em. ed.) 5: fam. 120, p. 29. 1941.

C. wightiana Grah. [*in* Wall., Cat. 5358B. 1832] *ex* W. & A., Prod. 181. 1834; Miq., Fl. Ind. Bat. 1, 1: 329. 1855.

DISTRIBUTION.—Ceylon and the Deccan Peninsula. This species has often been confused with *C. alata* Don. It has been assumed to occur in Malaysia, but neither Miquel nor Backer saw any material from Malaysia and it is not represented from that area in the Bogor and Leyden herbaria.

30. CROTALARIA SEMPERFLORENS Vent.

Crotalaria semperflorens Vent., Descr. Nouv. Jard. Cels tab. 17. 1800; Willd., Sp. Pl. 3, 2: 978. 1802; DC., Prod. 2: 125. 1825; Spreng., Syst. Veg. 3: 236. 1826; Don, Gard. Dict. 2: 134, *no* 14. 1832; Roxb., Fl. Ind. ed. Carey 3: 274. 1832; W. & A., Prod. 187. 1834; Bth. *in* Hook. Lond. J. Bot. 2: 560. 1843; Zoll. *in* Nat. & Geneesk. Arch. 3: 51, 75. 1846; Miq., Fl. Ind. Bat. 1, 1: 333. 1855; Baker *in* Hook., Fl. Br. Ind. 2: 78. 1876, incl. var. *walkeri* (Arn.) Baker; Backer, Schoolfl. Java 311. 1911; Bekn. Fl. Java (em. ed.) 5: fam. 120, p. 34. 1941.

C. walkeri Arn. *in* Nov. Act. Acad. Nat. Cur. 18, 1: tab. 18, 328. 1840; Walp., Rep. Bot. Syst. 1: 586. 1842.

C. wallichiana W. & A., Prod. 187. 1834; Walp., Rep. Bot. Syst. 1: 586. 1842; Wight, Ic. 3, 3: 8, *tab. 982*. 1845.

C. arnottiana Bth. *in* Hook. Lond. J. Bot. 2: 560. 1843; *in* Miq., Pl. Jungh. 205. 1852; Miq., Fl. Ind. Bat. 1, 1: 332. 1855.

DISTRIBUTION.—Native in Southeast Asia (Ceylon, Nilgiris, Canara, Madras), not certainly native in Malaysia where it occurs widely distributed throughout Sumatra, Java, Borneo (one collection) and the Lesser Sunda Islands (Lombok, Sumbawa, Timor).

NOTES.—It occurs mostly above 600—700 m altitude. Formerly probably used as a green manure.

*31. CROTALARIA SERICEA Retz.

Crotalaria sericea Retz., Observ. Bot. 5: 26. 1789; DC., Prod. 2: 126. 1825; Spreng., Syst. Veg. 3: 238. 1826; Roxb., Fl. Ind. ed. Carey 3: 273. 1832; W. & A., Prod. 186. 1834; Bth. *in* Hook Lond. J. Bot. 2: 481. 1843; Dietr., Syn. Plant. 4: 925, *no* 25. 1847; Miq., Fl. Ind. Bat. 1, 1: 330. 1855; Dalz. & Gibs., Bomb. Fl. 55. 1861; Baker *in* Hook., Fl. Br. Ind. 2: 75 1876; F.-Vill., Nov. App. 57. 1880; Backer, Schoolfl. Java 307. 1911; Fawcett & Rendle, Fl. Jam. 4: 9. 1920; Merr., En. Philip. 2: 274. 1923; Wilczek *in* Fl. Cong. Belg. 4: 88. 1953.

C. juncea (*non* L.) Willd., Sp. Pl. 3, 2: 974. 1802.

C. spectabilis Roth, Nov. Spec. 341. 1821; DC., Prod. 2: 125. 1825; Spreng., Syst. Veg. 3: 237. 1826; Don, Gard. Dict. 2: 135, *no* 17. 1832.

C. leschenaultii DC., Prod. 2: 125. 1825; Don, Gard. Dict. 2: 134. 1832; W. & A., Prod. 186. 1834; Bth. *in* Hook. Lond.. J. Bot. 2: 481. 1843; Dietr., Syn. Plant. 4: 925, *no* 24. 1847; Baker *in* Hook., Fl. Br. Ind. 2: 76. 1876; Dalz. & Gibs., Bomb. Fl. 54. 1861.

C. macrophylla Weinm. *in* Syll. Ratisb. 2: 26. 1828.

DISTRIBUTION.—Widely distributed throughout the Old World and Polynesia, native country not exactly known to me, not known from Malaysia.

NOTES.—The Malaysian specimens which have been referred to this species belong mostly to *C. juncea* L., e.g. *Zollinger 2679* mentioned by him *in* Nat. & Geneesk. Arch. 3: 51. 1846. Merrill (1923) excluded the species from the Philippine flora. Baker mentioned it from Pegu and Malacca, but I could not verify this. The confusion arose by the misinterpretation by Willdenow of *C. juncea* L. for which he took *C. sericea*. Hence, all subsequent authors accepted the pod of *C. sericea* as being hairy which is true for *C. juncea*, but not for *C. sericea*.

32. CROTALARIA SESSILIFLORA Linné

Crotalaria sessiliflora Linné, Sp. Pl. ed. 2: 1004. 1763; Burm. f., Fl. Ind. 156. 1768; Lamk, Enc. Méth. 2: 197. 1790; DC., Prod. 2: 129. 1825; Spreng., Syst. Veg. 3: 238. 1826; Don, Gard. Dict. 2: 137. 1832; Bth. *in* Hook. Lond. J. Bot. 2: 565. 1843; Walp., Rep. Bot.Syst. 5: 441. 1846; A. Gray, Bot. Wilkes U.S. Expl. Exped. 390. 1854; Miq., Fl. Ind. Bat. 1, 1: 338. 1855; *in* Ann. Mus. Bot Lugd. Bat. 3: 42. 1867; Baker *in* Hook., Fl. Br. Ind. 2: 73. 1876; F.-Vill., Nov. App. 57. 1880; Vidal, Phan. Cuming. Philip. 107. 1885; Rev. Pl. Vasc. Filip. 105. 1886; Merr. *in* Philip. J. Sc. 3: Bot. 81. 1908; *ibid.* 5: Bot. 105. 1910; Backer, Schoolfl. Java 308. 1911; Gagnep., Fl. Gén. I.-C. 2: 333. 1916; Merr., En. Philip. 2: 273. 1923; Backer, Bekn. Fl. Java (em. ed.) 5: fam. 120, p. 32. 1941.

C. anthylloides Lamk., Enc. Méth. 2: 191. 1790; DC., Prod. 2: 129. 1825; Spreng., Syst. Veg. 3: 239. 1826; Zoll. *in* Nat. & Geneesk. Arch. 3: 52. 1846.

C. nepalensis Link, En. Hort. Berol. 2: 228. 1822; DC., Prod. 2: 129. 1825; ('*napaulensis*'); Don, Gard. Dict. 2: 137, *no* 66. 1832 ('*nipaulensis*').

C. eriantha Sieb. & Zucc. *in* Abh. Akad. Münch. 4, 2: 121. 1843.

C. oldhami Miq. *in* Ann. Mus. Bot. Lugd. Bat. 3: 42. 1867.
C. brevipes Champ. *ex* Bth. *in* Hook., J. Bot. Kew. 4: 44. 1852.
C. calycina (*non* Schrank) Pulle *in* Nova Guinea 8, 2: 375. 1910.

DISTRIBUTION.—Southeast and East Asia (India: Himalayan tracts, Sikkim, Assam, Khasya; Siam; Indo-China; Japan: Nagasaki); in Malaysia: Sumatra (Kota Tjané, Brastagi, Padang Sidempoan, Angkola, Palembang: Bt. Serillo, Pasemah), Malay Peninsula (Trengganu: G. Tebu F.R.), Java (throughout), Lesser Sunda Islands (Timor), Central and S. Celebes, Philippines (Palawan, Luzon), Moluccas (Buru; Aru Is.: Trangan), and New Guinea (throughout). It occurs in areas subject to at least a feeble dry monsoon and is most abundant in pyrogenous grasslands and woodland savannahs.

*33. CROTALARIA TETRAGONA Andr.

Crotalaria tetragona Andr., Bot. Rep. 9: tab. 593. 1810; DC., Prod. 2: 128. 1825; Spreng., Syst. Veg. 3: 238. 1826; Roxb., Fl. Ind. ed. Carey 3: 263. 1832; W. & A., Prod. 185. 1834; Bth. *in* Hook. Lond. J. Bot. 2: 562. 1843; Zoll. *in* Nat. & Geneesk. Arch. 3: 52. 1846; Dietr., Syn. Plant. 4: 924. 1847; Baker *in* Hook., Fl. Br. Ind. 2: 78. 1876; Backer, Schoolfl. Java 312. 1911; Gagnep., Fl. Gén. I.-C. 2, 3: 342. 1916; Fawcett & Rendle, Fl. Jam. 4, 2: 9. 1920; Craib, Fl. Siam. En. 1: 375. 1928.
C. grandiflora Reinw. *ex* Miq., Fl. Ind. Bat. 1, 1: 333. 1855 (T in L, U) *non* Bth. 1839; Backer, Schoolfl. Java 312. 1911; Bekn. Fl. Java (em. ed.) 5: fam. 120, p. 37. 1941.

DISTRIBUTION.—Southeast Asia (Sikkim, Assam, Khasya; S. China: Yunnan). It is said to have been collected in Java but neither Backer nor I have seen wild specimens.

NOTES.—Andrews based his description on plants from a garden at Arley, raised from seeds received from Dr. Roxburgh who had forwarded them from India under the name *C. tetragona*.

Miquel described *C. grandiflora* Reinw. based on a specimen of Reinwardt's which was by some held to have come from Mt Malabar in West Java; the plant, or the seeds from which it was raised, came possibly from Malabar in India. It may have been cultivated in Java. Miquel also cited a specimen of Horsfield which I have not seen. Zollinger mentioned under the name *C. tetragona* two numbers of his collection, viz *2205* from Modjokerto and *1173*; these could not be located at Leyden.

34. CROTALARIA TRIQUETRA Dalz.

Crotalaria triquetra Dalz. *in* Hook., J. Bot. Kew. 2: 34. 1850; Dalz. & Gibs., Bomb. Fl. 56. 1861; Baker *in* Hook., Fl. Br. Ind. 2: 71. 1876; Backer, Schoolfl. Java 311. 1911; Bekn. Fl. Java (em. ed.) 5: fam. 120, p. 35. 1941, incl. var. *tetragona* (Miq.) Backer, *comb. illeg.*
C. tetragona (*non* Andr.) Miq., Fl. Ind. Bat. 1, 1: 335. 1855.

DISTRIBUTION.—Southeast Asia (Deccan, Concan, Bombay) and in Malaysia: East Java (Asembagus, Sempol) and the Lesser Sunda Islands (Bali), *possibly also Sumbawa (Mt Tambora, leg. Zollinger, sec. Miquel), and Timor (sec. Backer, 1911, sed legum. glabr.).*

NOTES.—Backer, *l.c. 1941,* recorded for Java a var. *tetragona* (Miq.) Backer which is anyhow an illegitimate name, as in merging *C. tetragona* Andr. with *C. triquetra* Dalz. the former is the correct name. Backer's variety should be suppressed as the Javanese material belongs distinctly to *C. triquetra; C. tetragona* is an entirely different species.

35. CROTALARIA UNCINELLA Lamk.

Crotalaria uncinella Lamk., Enc. Méth. 2: 200. 1790; DC., Prod. 2: 133. 1825; Spreng., Syst. Veg. 3: 239. 1826; Don, Gard. Dict. 2: 140. 1832; Bth. *in* Hook. Lond. J. Bot. 2: 579. 1843; Prain *in* J. As. Soc. Beng. 66, ii: 352. 1897; Gagnep., Fl. Gén. I.-C. 2, 3: 344. 1916.

C. vachellii Hook. & Arn., Bot. Beech. 1: 180. 1830; Walp., Rep. Bot. Syst 1: 588. 1842.

C. elliptica Roxb., Fl. Ind. ed. Carey 3: 279. 1832; Bth. *in* Hook. Lond. J. Bot. 2: 580. 1843; Fl. Hongkong 75. 1861; Baker *in* Hook., Fl. Br. Ind. 2: 85. 1876; Forbes & Hemsl. *in* J. Linn. Soc. Bot. 23: 151. 1886; Craib, Fl. Siam. En. 1: 369. 1928.

C. splendens Vogel *in* Nov. Act. Acad. Nat. Cur. 19, Suppl. 1: 8. 1842; Walp., Rep. Bot. Syst. 1: 590. 1842.

DISTRIBUTION.—Africa, Madagascar, Bourbon, in Southeast Asia, not in India (Baker, *l.c.*), but in Siam, Indo-China (Hanoi, Tourane) and South China, recently introduced in the Malay Peninsula (Kuala Trengganu, *J. Sinclair SF 40505*).

NOTES.—The type of Lamarck is from Bourbon collected by Commerson. De Candolle distinguished already a var. *glabra,* observing that leaves and pods may be glabrous in the species.

Craib maintained *C. elliptica* alongside *C. uncinella,* because he found some differences between the Mascarene material and that of Siam, though he did not specify these differences. The material from Madagascar I examined does not, as far as I can judge, show differences from that of Siam.

36. CROTALARIA USARAMOENSIS Baker f.

Crotalaria usaramoensis Baker f. *in* J. Linn. Soc. Bot. 42: 346. 1914; Backer, Bekn. Fl. Java (em. ed.) 5: fam. 120, p. 39. 1941; Wilczek *in* Fl. Cong. Belg. 4: 272. 1953.

DISTRIBUTION.—Native in Africa (?), because of its usefulness distributed as a green manure throughout Malaysia and found in all island groups under both everwet and seasonal climate.

37. Crotalaria valetonii Backer

Crotalaria valetonii Backer *in* Bull. Jard. Bot. Btzg sér. 3, 2: 324. 1920; Bekn. Fl. Java (em. ed.) 5: fam. 120, p. 37. 1941.

Distribution.—Only known from the island of Madura, NE. of Java (Ambunten, Tamberu), under seasonal climatic conditions.

Notes.—It would be very much surprising if there would be a local endemic Malaysian species, as all other species are either introduced from or shared with tropical southeast Asia. In comparing the material from Madura I. with Asiatic species it appears to come extremely close to that of the Indian *C. madurensis* Wight. They have a very similar calyx (c. 11—15 mm long, with black, recurved margins of the acute lobes). As far as I can see in the specimens present at Leyden, there are the following slight differences: *C. madurensis:* corolla 15 mm. Pods (sec. Baker) 2½ cm. Seeds 10—12. *C. valetonii*: corolla 17—20 mm. Pods 1½ cm; ovules 2, of which 1 abortive.

38. Crotalaria verrucosa Linné

Crotalaria verrucosa Linné, Sp. Pl. 715. 1753; ed. 2: 1005. 1763; Willd., Sp. Pl. 3, 2: 977. 1802; DC., Prod. 2: 125. 1825, incl. var. *obtusa* and var. *acuminata*; Spreng., Syst. Veg. 3: 237. 1826; Curtis *in* Bot. Mag. 57*: tab. 3034.* 1830; Roxb., Fl. Ind. ed. Carey 3: 273. 1832; Don, Gard. Dict. 2: 134, *no* 12. 1832; Wight, Cat. 688. 1833; W. & A. Prod. 187. 1834; Wight, Ic. 1: *tab. 200.* 1839; Bth. *in* Hook. Lond. J. Bot. 2: 560. 1843; Hassk., Cat. Bog. 269. 1844; Zoll. *in* Nat. & Geneesk. Arch. 3: 51. 1846; Dietr., Syn. Plant. 4: 925, *no* 28. 1847; Miq., Anal. Bot. Ind. 1: 7. 1850, incl. f. *puberula*; Bth. in Miq., Pl. Jungh. 205. 1852; A. Gray, Bot. Wilkes U.S. Expl. Exped. 390. 1854; Miq., Fl. Ind. Bat. 1, 1: 331. 1855; Dalz. & Gibs., Bomb. Fl. 55. 1861; Griseb., Fl. Br. W. Ind. 178. 1864; Oliv., Fl. Trop. Afr. 2: 14. 1871; Baker *in* Hook., Fl. Br. Ind. 2: 77. 1876; F.-Vill., Nov. App. 57. 1880; Vidal, Phan. Cuming. Philip. 107. 1885; Rev. Pl. Vasc. Filip. 104. 1886; Bailey, Queensl. Fl. 2: 372. 1900; Merr. *in* Philip. J. Sc. 3: Bot. 80. 1908; *ibid* 5: Bot. 62. 1910; Backer, Schoolfl. Java 311. 1911; Merr., Fl. Manila 251. 1912; Gagnep., Fl. Gén. I.-C. 2, 3: 343. 1916; Merr., Sp. Blanc. 177. 1918; Fawc. & Rendle, Fl. Jam. 4, 2: 8. 1920; Merr., En. Philip. 2: 274. 1923; Hochr. *in* Candollea 2: 76. 1925; Backer, Onkruid. Suiker. 290. 1930; Bekn. Fl. Java (em. ed.) 5: fam. 120, p. 35. 1941.

C. caerulea Jacq., Ic. Rar. 4: *tab. 144.* 1784; Coll. 1: 67. 1787.

C. angulosa Lamk., Enc. Méth. 2: 197, *no* 16. 1790; Cav., Ic. 4: 10, *tab. 321.* 1797; Roxb., Fl. Ind. ed. Carey 3: 274. 1832.

C. flexuosa Moench., Meth. Suppl. 55. 1802.

C. acuminata G. Don, Gard. Dict. 2: 134. 1832.

Phaseolus bulai Blanco, Fl. Filip. 572. 1837.

Quirosia anceps Blanco, *ibid.* ed. 2: 398. 1845; *ibid.* ed. 3, 2: 367. 1879.

DISTRIBUTION.—A pantropical weed of uncertain native country; in Malaysia commonly represented in all the larger islands or island groups, largely below 300 m altitude. Several authors have distinguished minor varieties which have no merit for distinction.

Hochreutiner (1925) believed that *C. verrucosa* and *C. semperflorens* are connected by transitional specimens (*Wight 200, Hochreutiner 2491, 2611*); I have examined the last mentioned specimen; this is in my opinion *C. verrucosa*, and not transitional.

DOUBTFUL SPECIES

Crotalaria auriculata Noronha *in* Verh. Bat. Gen. 5, 4: 11. 1790, *nomen*.

INDEX TO COLLECTORS' NUMBERS

The *first number* of each pair is the collector's number, the second refers to the number of the species in the text. No numbers are given under series numbers, except two under HB of which the proper collector is not known. All numbers examined have been cited also of collections from outside Indonesia. All cited numbers have been examined by the author; numbers recorded in literature but not seen by the author have not been cited.

Adelbert 364: 15; *443*: 30 — *Aet* (*exp. Lundquist*) *713*: 36 — *Aet & Idjan 584*: 4 — *Akisono 9*: 15 — *Anang* (*exp. De Haan*) *103*: 36 — *Añonuevo PNH 13474*: 36 — *Anta* (*exp. Wentholt*) *3*: 36; *105*: 36; *176*: 36 — *Asdat 114*: 28 — *Ashton Brunei 5411*: 21 — *Atasrip 132*: 12.

Backer 33: 15; *34*: 27; *35*: 38; *Herb. Proefst. Suiker. 525*: 18; *856*: 19; *1554*: 28; *2483*: 28; *2730*: 26; *2787*: 38; *4171*: 30; *5265*: 3; *5782*: 32; *6625*: 9; *6703*: 30; *6735*: 3; *7614*: 27; *8000*: 32; *8049*: 38; *8121*: 32; *8184*: 28; *8190*: 22; *8227*: 34; *8310*: 3; *8347*: 30; *9458*: 38; *9668*: 12; *12143*: 32; *12973*: 22; *13398*: 27; *13820*: 32; *18167*: 21; *18305*: 15; *18541*: 21; *18918*: 17; *18954*: 28; *18959*: 9; *19017*: 23; *19054*: 27; *19259*: 23; *19570*: 38; *19970*: 17; *19998*: 15; *20460*: 17; *20540*: 17; *20840*: 22; *20897*: 38; *20921*: 22; *20945*: 16; *21176*: 37; *21187*: 37; *24580*: 38; *24817*: 16; *25083*: 12; *25145*: 18; *30164*: 21; *30766*: 22; *33871*: 15; *33872*: 15; *36435*: 38; *36924*: 15; *37241*: 36; *37299*: 30; *37340*: 3; *37356*: 18; *37421a*: 4; *37423*: 16; *37446*: 30; *37468*: 22; *37522*: 18; *37701*: 38 — *Bakhuizen van den Brink Sr, R.C. 4063*: 36; *4521*: 21; *5082*: 36; *6308*: 36 — *Bakhuizen van den Brink Jr, R.C. 74*: 21; *132*: 30; *386*: 15; *544*: 15; *1170*: 30; *1250*: 36; *1843*: 4; *2732*: 2; *3623*: 15; *3655* (*3666*): 28 — *Balansa 2217*: 9; *2219*: 32; *2227*: 38 — *Bartlett 8356*: 12; *8442*: 21; — *Bartlett & La Rue 285*: 12 — *Beccari PS 256*: 30 — *Beguin 812*: 36 — *Bloembergen 3213*: 28; *3303*: 9; *3728*: 9; *3739*: 18; *3848*: 16; *4089*: 28; *4393*: 21; *4638*: 21 — *Blume 951*: 32; *1335*: 30; *1535*: 12; *1559*: 30; *1911*: 12 — *Boerlage 236*: 21; *237a & b*: 30 — *Boivin 1443*: 31 — *Borssum Waalkes, van 1664*: 10; *3008*: 21; *3123*: 9; *3155*: 18 — *Bourgeau 3176*: 15 — *Bovien 51*: 21; *88*: 28; *90*: 21 — *Branderhorst 100*: 32; *285*: 18 — *Brass 6317*: 18; *11655*: 18; *16306*: 17; *27223*: 18; *28679*: 27 — *Brinkman 713*: 30 — *Britton 4*: 21 — *Broadway 2914*: 15; *3387*: 28; *4146*: 38 — *Brongersma* 17:

21 — *Brooke 10361*: 12; *10815*: 21 — *Bugel 45*: 28 — *Bünnemeijer 1242*: 30; *1441*: 21; *2528*: 30; *2967*: 30; *3870*: 21; *4180*: 30; *4328*: 30; *4836*: 30; *5088*: 30; *7674*: 27; *7735*: 21; *8105*: 30; *8118*: 30; *10602*: 21; *10946*: 18; *10955*: 21; *11067*: 18; *11201*: 12; *11341*: 38; *12610*: 3 — *Burkill, H. M. 867*: 11; *1881*: 27; *216*: 4 — *Buwalda 2798*: 36; *4054*: 18; *4370*: 36; *4887*: 4; *5363 pro parte*: 32; *5832*: 21; *7198*: 28 — *Buysman 68*: 30; *272*: 3; *277*: 28; *279*: 12; *384*: 21; *2895*: 15.

Carr 2135: 35; *11053*: 18; *11395*: 38; *11449*: 18; *11610*: 21; *11611*: 21; *11828*: 19; *12346*: 3; *12383*: 32; *12671*: 10; *13413*: 12; *15636*: 12; *16015*: 36; *16047*: 12 — *Clemens 3095*: 21; *3280*: 28; *BS 15585*: 38; *26327*: 38 — *Coert 514*: 27; *776*: 17; *1683*: 2; *1686*: 21 — *Conklin PNH 18656*: 21 — *Cuming 462*: 38; *749*: 18; *1868*: 9; *2282*: 17; *2401*: 21 — *Curtis 25*: 28; *29*: 38.

Darnton 94: 21 — *Demandt & van Dillewijn 649*: 28 — *Denker 26*: 21 — *Derry 260*: 21 — *Docters van Leeuwen 1800*: 12; *3145*: 21; *3156*: 10; *8256*: 19 — *Dorgelo S.5*: 12; *78*: 28; *S.299*: 30; *355*: 18; *764*: 22; *768*: 3; *775*: 36; *1498*: 30; *1845*: 26; *1851*: 3; *1895*: 3; *2093*: 19.

Edaño PNH 18033: 8 — *Eggers 130*: 28; *143*: 15; *225*: 28; *226*: 38; *3473*: 21; *14626*: 15 — *Elbert 157*: 21; *395*: 38; *575*: 22; *658*: 22; *711*: 21; *783*: 38; *807*: 21; *979*: 3; *1168*: 12; *1450*: 3; *1454*: 12; *1469*: 3; *1481*: 12; *1482*: 21; *1539*: 3; *1570*: 30; *1718*: 14; *2642*: 38; *4168*: 30; *4590*: 17 — *Elmer 10304*: 28; *11134*: 9; *11931*: 38; *16490*: 32; — *Enoh, Moh. 291*: 36 — *Eyma 2872*: 28; *3333*: 38; *3421*: 18; *3456*: 12; *4182*: 36.

Falconer 584: 8 — *Fenix BS 29236*: 8; *BS 30050*: 3 — *Fiebrig 4999*: 15 — *Foetze 56*: 38 — *Forbes 1076*: 12; *1594*: 30; *2103*: 12; *3887*: 9; *3921*: 30 — *Fox PNH 13426*: 32 — *Fryar NGF 3619*: 12; *NGF 3637*: 32 — *Fuertes 508*: 15.

Gachalian c.s. PNH 33557: 4 — *Galoengi 107*: 12 — *Gamble 13738*: 31 — *Garrett 1207*: 8; *1350*: 21; *1355*: 2; *1361*: 8; *1469*: 12 — *Gavino Trono Jr PNH 35166*: 4 — *Gertrude & Frohne PNH 35074*: 28; *PNH 35084*: 21 — *Gisius 49*: 12 — *Gjellerup 808*: 27; *1220?*: 10 — *Grevenstuk 13*: 3 — *Griffith 1422*: 12; *1425*: 16; *1433*: 19 — *Groenhart 65*: 36; *66*: 21; *74*: 37; *79*: 4; *198*: 16 — *Guerrero BS 723*: 27.

Hallier 70: 21; *71*: 15; *3365*: 28; *4322*: 5; *4357*: 18; *4746*: 38 — *Hasskarl 16*: 2 — *Hassler 11747*: 15 — *Haviland & Hose 3281*: 38 — *HB 860*: 27; *HB 1849*: 32 — *Helfer 83*: 10; *102*: 3; *1426*: 3 — *Hellendoorn, van 62*: 36 — *Heller 1966*: 15; *1983a*: 13; *2029*: 31; *2071*: 21; *4509*: 28 — *Henty NGF 10652*: 15 — *Hering 101*: 38 — *Herzog 1251*: 15 — *Heutsz Jr, van 815*: 27 — *Hildebrandt 1193a*: 28; *1583*: 28 — *Hochreutiner 1364*: 3; *1840*: 21; *2287*: 15; *2611*: 38; *2747*: 12 — *Hohenacker 48*: 28; *312*: 27; *315*: 30; *598*: 21; *841*: 23; *1207*: 6; *1209*: 30; *1589*: 23 — *Holstvoogd 62*: 38; *179*: 12; *254*: 30; *274*: 3; *275*: 19; *277*: 30; *298*: 18; *370*: 3; *377*: 30 — *Hoogland 3269*: 36; *3281*: 4; *4144*: 28; *4361*: 28; *4362*: 21; *4688*: 18; *4759*: 2; *4826*: 18 — *Hoogland & Pullen Can 5267*: 12 — *Hosseus 49*: 18; *59*: 3; *712*: 32 — *How 70883*: 28 — *Hubbard 2301*: 18; *2383*: 21; *2645*: 18; *2935*: 15; *3498*: 15; *3735*: 31; *4829*: 18; *5378*: 15.

Iboet 33: 18; *93*: 28; *324*: 21 — *Idjan & Mochtar 73*: 21.

Jaag 237: 3; *709*: 17; *1140*: 3; *1194*: 9; *1197*: 18; *1371*: 14 — *Janowsky 532*: 21; *812*: 18 — *Junghuhn 101*: 38; *103*: 30; *ined. 167*: 30; *274*: 3.

Kadir A 2742: 21 — *Kalkman BW 3620*: 36; *BW 3628*: 21; *BW 3629*: 16; *BW 3670*: 4; *BW 3687*: 4; *BW 6391*: 10; *BW 6392*: 18; *BW 6410*: 32 — *Karta*

80: 21 — *Kaudern 16*: 21; *113*: 28; *321*: 12; *395*: 21 — *Kerr 776*: 2; *830*: 5; *909*: 8; *8796*: 19; *15077*: 17 — *Kievits 22*: 21; *1537*: 28; *2213*: 15; *2399*: 21 — *King's coll. 52*: 38; *274*: 38; *614*: 31 — *Kjellberg 92*: 9; *101*: 18 — *Koch 623*: 18; *624*: 27 — *Kondo & Edaño PNH 38882*: 21 — *Kooper 525*: 21 — *Koorders 17583*: 21; *17585*: 28; *17586*: 9; *21529*: 38; *24928*: 28; *26222*: 21; *27435*: 21; *29780*: 12; *37638*: 30; *37639*: 30; *37642*: 12; *37950*: 3; *43094*: 34 — *Kornassi* (*all nos exp. Rutten*) *60*: 28; *61*: 28; *781*: 28; *800*: 21; *1179*: 21; *1739*: 28 — *Kostermans 1344*: 2; *10015*: 28 — *Kreulen 146*: 12 — *Kurz 1661*: 38.

Lauterbach 687: 18; *1273*: 18 — *Leeuwen, van Keb. 22*: 10 — *Lehmann BT 885*: 28 — *Lei 120*: 21; *920*: 21 — *Lesger 200*: 10 — *Lörzing 217*: 30; *5264*: 28; *6816*: 36; *14669*: 10.

McKee 1298: 12; *1661*: 21; *1690*: 18; *1767*: 18; *1780*: 12; *1793a*: 32; *1798*: 9; *1896*: 12; *1908*: 21; *4638*: 31 — *Meer, van der & den Hoed 2076*: 15; *2097*: 21 — *Mendoza PNH 18498*: 9; *PNH 18558*: 15 — *Mendosa & Reynozo PNH 41323*: 28 — *Merrill Sp. Blanc. 29*: 27; *BS 86*: 16; *BS 205*: 38; *BS 213*: 21; *BS 284*: 3; *BS 316*: 18; *Sp. Blanc. 502*: 18; *Sp. Blanc. 937*: 38; *3396*: 38; *BS 4266*: 14; *BS 4316*: 8; *BS 6233*: 16 — *Meijer 1462*: 4; *5536*: 38; *5660*: 10; *5733*: 10 — *Meijer Drees 97*: 12 — *Mondih 203*: 21 — *Monod de Froideville 1*: 27; *2*: 12; *4*: 12; *5*: 32; *6*: 9; *74*: 26; *79*: 18; *86*: 18; *90*: 1; *104*: 18; *310*: 28; *314*: 28; *320*: 15; *348*: 2; *412*: 16; *413*: 16; *414*: 12; *415*: 28; *416*: 21; *480*: 9; *481*: 12; *482*: 32; *602*: 21 — *Monterie 45*: 30 — *Mooney 3984*: 18 — *Müller Herb. Jav. 53*: 30; *61*: 15.

Native coll. BS 1042: 21 — *Nedi* (*all nos exp. De Haan*) *129*: 15; *398*: 18; *428*: 28; *678*: 28; *680*: 15 — *Nedi & Idjan 254*: 21; *328*: 28; *338*: 16 — *Noerkas* (*exp. Van Vuuren*) *42*: 28; (*exp. Van Vuuren*) *45*: 18; (*exp. Van Vuuren*) *125*: 9; *131*: 1.

Oldham 320: 32; *321*: 32 — *Ooststroom, van 12508*: 21; *12510*: 36; *12511*: 36; *12549*: 21; *12727*: 36; *12761*: 21; *12798*: 4; *12969*: 4; *13086*: 4; *13143*: 4; *13541*: 4; *13542*: 36; *13568*: 15; *13685*: 36; *13702*: 12.

Peng Imbal A 1627: 27 — *Pleyte 8*: 18; *1152*: 18 — *Popta 438*: 4; *758/174*: 30 — *Posthumus 885*: 30; *918*: 30 — *Pringo Atmodjo 89*: 10; *243*: 3; (*101*) *656*: 12; *657*: 12 — *Pulle 3081*: 30 — *Pullen 606*: 4 — *Purseglove P 4611*: 21; *P 4847*: 21; *P 5439*: 28; *P 6034*: 28 — *Put 2047*: 19 — *Pijl, van der 674*: 3.

Raap 45: 15; *50*: 21 — *Rachmat* (*all nos exp. Van Vuuren*) 28: 21; *104*: 27; *112*: 18; *147*: 28; *256*: 21 — *Rahmat si Boeea 6133*: 12; *6157*: 32; *8389*: 21; (*Bartlett*) *8414*: 36; *8415*: 4; *10010*: 4; *10110*: 4; *10496*: 4; *11115*: 4 — *Raizada c.s. 21136*: 19; *21418*: 33; *24127*: 32; *25766*: 21 — *Ramos BS 283*: 9; *BS 449*: 10; *BS 462*: 1; *BS 1096*: 32; *BS 1802*: 15; *BS 1979*: 9; *BS 2004*: 10; *BS 5759*: 18; *BS 7255*: 5; *BS 8099*: 9; *BS 11127*: 38; *BS 21662*: 18; *BS 21996*: 9; *BS 24078*: 15; *BS 41969*: 1; *BS 44626*: 1 — *Ramos &Edaño BS 31492*: 21; *BS 38486*: 12; *BS 44587*: 9; *BS 44629*: 3 — *Rant 333*: 18 — *Rant & Coert 71*: 17 — *Raynaud 2828*: 16 — *Reinwardt 253*: 38; *1353 pro parte*: 9; *1353 pro parte*: 32; *1402 pro parte*: 28; *1402 pro parte*: 38 — *Robinson BS 2011*: 21; *BS 2464*: 28; *BS 11711*: 27 — *Royen, van 3788*: 12; *3817*: 18; *4147*: 18; *4497*: 32; *4630*: 18; *4939*: 18; *5022*: 18; *5049*: 10; *5050*: 32 — *Rugel 45*: 28; *46*: 15.

Saänan (*exp. Van Hulstijn*) *16*: 28 — *Santos 4626*: 27; *4835*: 9; *4997*: 12; *5009*: 21; *5038*: 36; *5096*: 16; *5652*: 36; *6054*: 21; *6138*: 3 — *Sapiin 2115*: 21 — *Saunders 155*: 18; *685*: 18 —

Schefield SFN 31185: 16 — *Schiffner* [illegible]: 30; *2046*: 21; *2048*: 30; *2053*: 30; [illegible]: 21; *2072*: 12; *2085*: 21; *2092*: 34; [illegible]: 34; *2099*: 34; *2100*: 34 — *Schimper 1611*: 24 — *Schlagintweit 13519*: [illegible] — *Schlechter 12497*: 21 — *Schmid*, [illegible] 117: 6 — *Schram BW 7930*: 18 — *Shah, Mohd 23*: 21 — *Shah & Kadim* [illegible]: 21 — *Shaik Mokim 109*: 19 — *Sieber 178*: 38; *445*: 38 — *Sinclair c.s.* [illegible]: 18; *SF 38874*: 15; *SF 38882*: 15; *SF 40427*: 32 — *Sinclair & Kiah SF* [illegible]: 35; *SF 40908*: 27 — *Sintenis* [illegible]: 15 — *Smith, A. C. 4430*: 21 — *Smith, H. H. 72*: 15 — *Smith, J. J.* [illegible]: 12 — *Smith, L. S. NGF 1145*: 12 — *Soriano PNH 16444*: 15 — *Specht* [illegible]: 19; *332*: 18; *333*: 19; *538*: 18; [illegible]: 19; *707*: 19; *847*: 9; *879*: 18 — *Spitzgerber 25*: 28; *175*: 38 — *Steenis*, [illegible] *6656*: 32; *7597*: 18; *8167*: 32; [illegible]: 18; *10666*: 3; *11554*: 28; *17529*: [illegible]; *17884*: 18; *18587*: 18; *19607*: 2; [illegible]: 3; *19620*: 32 — *Steiner PNH* [illegible]: 21 — *Stolz 224*: 15 — *Sulit PNH 13759*: 26; *PNH 16931*: 16; *PNH* [illegible]: 9; *PNH 17091*: 28; *PNH 17154*: [illegible]; *PNH 17762*: 18; *PNH 34071*: 36 — *Surbeck 197*: 3; *201*: 10; *562*: 12; [illegible]: 36; *490*: 32.

Tanaka & Shimada 17876: 21 — *Thompson BS 419*: 21 — *Thomsen 812*: 18 — *Tozopeus 451*: 12; *513*: 28 — *Tsui 550*: 3; *642*: 3 — *Tulleken 13*: 38; *39*: 28; *551*: 28 — *Türckheim, von 2598*: 28.

Verboom 26: 32; *52*: 10; *52a*: 32 — *Versteeg 1842*: 18 — *Versteegh 42*: 18; *BW 728*: 18; *BW 7542*: 12; *BW 7565*: 32 — *Vesco 479*: 31; *5256*: 38 — *Vidal Com. Fl. Forestal Filip. 238*: 27; *Com. Fl. Forestal Filip. 1931*: 18 — *Villaflor PNH 37511*: 36 — *Voogd, de 136*: 38; *805*: 12; *806*: 30; *1088*: 38; *1221*: 12; *1231*: 28; *1524*: 32; *1686*: 17; *1875*: 16;*1925*: 12; *2054*: 1; *2122*: 1; *2160*: 34; *2162*: 26; *2163*: 12; *2167*: 36; *2554*: 3.

Wallich 5379: 25; *5383*: 23 — *Warnecke 239*: 21 — *Wells NGF 7394*: 21 — *Wenzel 1473*: 28 — *Wichian 987*: 38 — *Wight 587*: 2; *589*: 31; *591*: 28; *592*: 7; *595*: 38; *597*: 13; *599*: 16; *605*: 9; *607*: 23; *608*: 22; *609*: 22; *610*: 6; *613*: 30; *614*: 30; *617*: 25; *619*: 3; *621*: 23; *627*: 26; *628*: 12; *629*: 17; *631*: 19; *634*: 27; *637*: 24; *989*: 25 — *Winckel 1401*: 30 — *Winders & Hubbard 7409*: 19; *7519*: 19 — *Winkler, Hub. 3386*: 10 — *Wisse* 1043: 3 — *Womersley NGF 3656*: 32 — *Womersley & Hoogland NGF 4974*: 12:

Yates 2392: 36.

Zimmermann 135: 21 — *Zollinger 614*: 38; *965*: 32; *1555*: 2; *1589*: 12; *1661 (herb. propr.)*: 16; *2482*: 3; *2561 pro parte*: 28; *2561 pro parte*: 30; *3140*: 3.

Index to scientific names

The numerals refer to the number of the species in this census. Synonyms are printed in *italics*.

bialata Roxb. 2
biflora (L.) Linné 7
biflora (*non L.*) Willd. 23
bracteata Roxb. 8
brevipes Champ. *ex* Bth. 32
brownei Bertero *ex* DC. 21
caerulea Jacq. 38
caespitosa Roxb. 18
calycina Schrank 9
calycina (*non* Schrank) Pulle 32
chinensis Linné 10
chinensis (*non* L.) Lamk. 25
cleomifolia Welw. *ex* Baker 11
deflexa Bth. 3
diffusa Link 18
disticha Zoll. 1
elliptica Roxb. 35
eriantha Sieb. & Zucc. 32
fenestrata Sims 16
ferruginea Grah. *ex* Bth. 12
  var. major 12
  var. pilosissima 12
flexuosa Moench. 38
foliosa Willd. 19
formosana Matsum. 18
fulva Roxb. 13
grandiflora Reinw. *ex* Miq. 33
henrici Hochr. 3
herbacea Schweig. 15
herniarioides W. & A. 19
heterophylla Linné f. 27
hirta Roth 7
hookeri Arn. 21
hostmanni Steud. 28
humifusa Grah. *ex* Bth. 14
incana Linné 15
javanica Jungh. 21
juncea Linné 16
juncea (*non* L.) Willd. 31
kurzii Baker 5
laburnifolia Linné 17
laburnoides Klotzsch 21
latifolia Roxb. *ex* W. & A. 21
lejoloba Bartl. 12
leschenaultii DC. 31
linifolia L.f. 18
luxurians Bth. 19
macrophylla Weinm. 31
macropoda Hochst. *ex* A. Rich. 24
madurensis Wight 37
medicaginea Lamk. 19
mesopontica Taub. 20
montana Heyne, *non* Roxb. 18
montana Roxb. 3
mucronata Desv. 21
mysorensis Roth 22
nana Burm. f. 23
neglecta W. & A. 19
nepalensis Link 32
nummularia Willd. 7
obliqua Span. 26
oldhami Miq. 32
orixensis Willd. 24
pallida (*non* Ait.) Blanco 18
pallida Klotzsch, *non* Ait. 21
paniculata Willd. 25
paulina Schrank *ex* DC. 28
pedunculosa Desv. 17
pendula Bert. *ex* DC. 17
pilosissima Miq. 12
pisiformis Guill. & Perr. 21
procumbens Roxb. 19
prostrata Rottler *ex* Willd. 26
prostrata Roxb. 26
prostrata (*non* Roxb., *nec* Rottl.) Ceres 1
pseudohenrici Hochr. 3
pubescens Moench. 15
pulcherrima Roxb. *ex* Sims 13
pulchra Andr. 13
pulchra (*non* Andr.) DC. 13
pumila (*non* Schrank) Blanco 18
pupurascens Lamk. 15
quinquefolia Linné 27
radiata Merr. 15
retusa Linné 28
rothiana DC. 7
  var. *β ferruginosa* 7
rothii Spreng. 7
roxburghiana DC. 9
rubiginosa Willd. 29
saltiana Andr. 21
saltiana (*non* Andr.) Prain *ex* King 21
saxatilis Zoll. 18
schimperi A. Rich. 15
semperflorens Vent. 30
sericea Retz. 31