

THE CONVOLVULACEAE OF MALAYSIA, IV<sup>1)</sup>  
(with Indices)

by

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The genera *Mina*, *Lepistemon*, *Stictocardia* and *Argyreia*.

The genera *Mina* and *Lepistemon* belong to the *Ipomoeae* Hall. f., *Stictocardia* and *Argyreia* to the *Argyreieae* Hall. f.

XVII. MINA Cerv.

Cerv. in De la Llave & Lex., Nov. Veg. Desc. fasc. I (1824) p. 11; Choisy in DC., Prodr. IX (1845) p. 337; Peter in Engl. & Prantl, Nat. Pfl. fam. IV, 3a (1891) p. 25 — *Ipomoea* L. subgenus *Quamoclit* (Moench) Meissn. section *Mina* (Cerv.) Meissn. in Mart., Fl. Bras. VII (1869) p. 220 — *Quamoclit* Moench section *Mina* (Cerv.) House in Bull. Torr. Bot. Club XXXVI (1909) p. 596.

Herbaceous twiners. Leaves entire or mostly palmately lobed. Flowers in axillary, pedunculate, few- to several-flowered cincinni or double cincinni, often secund; bracts minute; pedicels short. Sepals 5, herbaceous, subequal, distinctly awned, not enlarged in fruit. Corolla suddenly widened above a short narrow tubular base, the limb long-urceolate to tubular, sub-angular, slightly curved, with slightly constricted 5-toothed mouth. Stamens and style long exserted. Filaments inserted at the top of the narrow basal tubular part of the corolla. Pollen globular, spinulose. Disk annular. Ovary glabrous, 4-celled, each cell with 1 ovule; stigmas 2, capitate. Fruit a 4-valved, 4-celled capsule, with 4 or less, glabrous seeds.

Only one cultivated species in Malaysia:

*Mina lobata* Cerv. in De la Llave & Lex., Nov. Veg. Desc. fasc. I (1824) p. 12; Lindl. in Bot. Reg. XXVIII (1842) Misc. p. 5 and t. 24; Choisy in DC., Prodr. IX (1845) p. 337; Hook. in Curtis, Bot. Mag. CXXV (1899) t. 7689 — *Quamoclit Mina* G. Don, Gen. Syst. IV (1838) p. 259; Hall. f. in Versl. 's Lands Plt. 1895 (1896) p. 131 — *Ipomoea versicolor* Meissn. in Mart., Fl. Bras. VII (1869) p. 220 — *Mina cordata* Micheli in Rev. Hort. (1898) p. 554; id. (1899) p. 308 — *Quamoclit lobata*

<sup>1)</sup> Part I in Blumea III, 1 (1938) p. 62—94; part II in Blumea III, 2 (1939) p. 267—371; part III in Blumea III, 3 (1940) p. 481—582.

(Cerv.) House in Bull. Torr. Bot. Club XXXVI (1909) p. 602; Brugge-  
man, Ind. Tuinboek (1938) p. 65 — *Ipomoea lobata* (Cerv.) Thell. in  
Vierteljahrsschr. Nat. Ges. Zürich LXIV (1919) p. 775.

A glabrous, perennial twiner with slender, terete, 2—5 m long stems. Leaves petiolate; petiole 3—10 cm long; blade broadly ovate in outline, cordate at the base, 6—15 cm long and broad, bright green above, paler beneath, entire or mostly deeply 3-lobed, the lobes acuminate, the middle lobe constricted below, the lateral lobes with some coarse teeth or often again lobed. Inflorescences up to 35 cm long (peduncle included); flowers in single or double cincinnal cymes, secund; pedicels 4—8 mm long; bracts minute. Sepals oblong, 5—6 mm long, the distinct, 2—3 mm long awn included. Corolla at first red, afterwards pale yellow or whitish, the narrow basal part 5—8 mm long, the slightly curved widened limb 17—20 mm long, the teeth mucronulate. Stamens and style declinate against the upper side of the limb, finally twice as long as the corolla; stamens pubescent towards the base; disk shallowly 5-lobed; ovary and style glabrous; stigmas papillose. Capsule broadly ovoid, 6—8 mm long.

Distribution: From Mexico to Central and South America, cultivated in other tropical and temperate regions as an ornamental plant.

Cultivated specimens:  
JAVA, Buitenzorg, Buitenzorg, van Harreveld s.n., fl. Sept. 1907 (L);  
Malang, Paseroeoean, Backer 36306 (L).

### XVIII. LEPISTEMON Blume

Blume, Bijdr. (1825) p. 722; Choisy in Mém. Soc. Phys. Genève VI (1833) p. 443; id. in DC., Prodr. IX (1845) p. 347; Miq., Fl. Ned. Ind. II (1857) p. 629; Benth. & Hook., Gen. Plant. II (1876) p. 873; Clarke in Hook., Fl. Brit. Ind. IV (1883) p. 216; Baill., Hist. Pl. X (1891) p. 322; Peter in Engl. & Prantl, Nat. Pfl. fam. IV, 3a (1891) p. 25; Hall. f. in Engl., Bot. Jahrb. XVI (1893) p. 583; Boerl., Handl. Fl. Ned. Ind. II (1899) p. 503, 510; Baker & Rendle in This.-Dyer, Fl. Trop. Afr. IV, 2 (1905) p. 115; Prain in Journ. As. Soc. Bengal LXXIV (1906) p. 309; Koorders, Exk. fl. Java III (1912) p. 115; Gagnep. & Courch. in Lec., Fl. Indo-Chine IV (1915) p. 287; Ridley, Fl. Malay Penins. II (1923) p. 462; Merrill, Enum. Philipp. Fl. Pl. III (1923) p. 364; Backer, Onkruidfl. Jav. Suikerrietgr. (1931) p. 521 — *Lepidostemon* Hassk., Cat. Hort. Bog. alt. (1844) p. 140 — *Nemodon* Griff., Notul. IV (1854) p. 286 — *Ipomoea* L. series *Urceolatae* Benth., Fl. Austr. IV (1869) p. 427.

Herbaceous or woody twiners. Leaves herbaceous, ovate to orbicular, cordate at the base, entire or lobed. Flowers in dense, axillary, sessile or shortly pedunculate cymes; bracts small, deciduous. Sepals 5, subequal, herbaceous or subcoriaceous, hairy or glabrous, acute or obtuse. Corolla rather small, regular, urceolate, with a shortly 5-lobed limb. Stamens and style included. Filaments inserted near the corolla base, dilated at their base into a large concave scale, arched over the ovary. Pollen globular, spinulose. Disk large, annular or cupular. Ovary glabrous or hairy, 2-celled, each cell with 2 ovules. Style 1, very short. Stigmas 2, capitate. Fruit a 4-valved capsule with 4 or less glabrous or puberulous seeds.

### Key to the species.

- 1a. Sepals ovate to broadly lanceolate, acuminate or acute, 5—7.5 mm long, herbaceous . . . . . 1. *L. binectariferum*  
 b. Sepals ovate to orbicular, obtuse or emarginate, 2—2.5 mm long, margin membranaceous . . . . . 2. *L. urceolatum*

1. ***Lepistemon binectariferum* (Wall.) O. K., Rev. Gen. (1891) p. 446;** Hall. f. in Meded. 's Lands Plantent. XIX (1898) p. 544; Boerl., Handl. Fl. Ned. Ind. II (1899) p. 510; Koorders, Exk. fl. Java III (1912) p. 116; Koorders-Schum., Syst. Verz. (1910—13), Conv. p. 3; id. (1914) p. 110 — *Convolvulus binectariferus* Wall. in Roxb., Fl. Ind., ed. Carey & Wall. II (1824) p. 47 — *Lepistemon flavescens* Blume, Bijdr. (1825) p. 722; Choisy in Mém. Soc. Phys. Genève VI (1833) p. 444; id. in DC., Prodr. IX (1845) p. 348; Wight, Ic. IV (1850) t. 1362; Zoll., Syst. Verz., 2. Heft (1854) p. 128; Miq., Fl. Ned. Ind. II (1857) p. 629; Prain in Journ. As. Soc. Bengal LXIII (1894) p. 111; Hall. f. in Versl. 's Lands Plt. 1895 (1896) p. 128; id. in Bull. Herb. Boiss. V (1897) p. 382; id. in Engl., Bot. Jahrb. XXVIII (1899) p. 30; Boerl., Handl. Fl. Ned. Ind. II (1899) p. 510; Prain in Journ. As. Soc. Bengal LXXIV (1906) p. 309; Koorders, Exk. fl. Java III (1912) p. 116; Koorders-Schum., Syst. Verz. (1910—13), Conv. p. 4; Hall. f. in Engl., Bot. Jahrb. XLIX (1913) p. 380; Rendle in Journ. Linn. Soc. XLII (1914) p. 112; Gagnep. & Courch. in Lec., Fl. Indo-Chine IV (1915) p. 287, fig. 30; Bold., Zakfl. Java (1916) n. 829; Ridley, Fl. Malay Penins. II (1923) p. 462; Henderson in Gardens' Bull. Str. Settlem. IV (1928) p. 293; Backer, Onkruidfl. Jav. Suikerrietgr. (1931) p. 521 — *Vallaris controversa* Spr., Syst. Curiae post. (1827) p. 65 — *Convolvulus cephalanthus* Wall., Cat. (1828) n. 1402, nomen — *Lepistemon Wallichii* Choisy in Mém. Soc. Phys. Genève VI (1833) p. 443; id. in DC., Prodr. IX (1845) p. 348; Miq., Fl. Ned. Ind. II (1857) p. 629; Clarke in Hook., Fl. Brit. India IV (1883) p. 216 — *Convolvulus flavescens* D. Dietr., Syn. Pl. I (1839) p. 680 — *Ipomoea flavescens* Steud.; Nomencl., ed. 2, I (1841) p. 816 — *I. Wallichii* Steud., l. c. p. 820 — *Convolvulus ampullaceus* Vahl ex Choisy in DC., Prodr. l. c. p. 348 — *Nemodon spec.* Griff., Notul. IV (1854) p. 286.

A herbaceous twiner. Stems terete or angular, 1—3 m high (*Backer*), 1.5—3.5 mm thick, densely covered with patent or retrorse brown hairs. Leaves petiolate, petiole hairy like the stem, 2.5—16 cm long; blade broadly ovate, acuminate and mucronulate at the apex, deeply cordate at the base, 5—18 cm long, 5—15 cm broad, on both sides with appressed hairs, the young leaves, occasionally also the adult ones tomentose with a golden-brown tomentum, paler beneath than above, the margin entire or irregularly dentate with some large teeth or shallowly to deeply 3—5-lobed, the lobes acute or acuminate. Flowers in few- to many-flowered, dense, axillary, cymose clusters, which are much shorter than the petioles; common peduncle short or almost absent, at most 3 cm long; bracts small, deciduous; pedicels up to 7 mm long, glabrous or sparsely pilose. Sepals subequal or the inner ones a little shorter, broadly lanceolate to ovate, acuminate or acute, herbaceous, 5—7.5 mm long, with long patent hairs outside, glabrous inside, in fruit slightly or not enlarged. Corolla white or yellowish white, 12—15 mm long, urceolate, the tube inflated, con-

tracted above, the limb patent with 5 very short lobes, the tube glabrous outside in the lower portion, shortly hairy above and on the midpetaline bands of the limb, glabrous inside. Scales at the base of the filaments concave, papillose, reddish (*Backer*). Style about as long as the scales, glabrous; stigma biglobular, papillose. Disk about as high as the ovary, with 5-lobed margin. Ovary globose, glabrous, 2-celled. Capsule globose to ovoid, mucronate by the remaining base of the style, glabrous, 6—8 mm high, with 4 or less seeds. Seeds black, glabrous, 3—4 mm long.

MALAY PENINSULA; according to Ridley in "thickets on borders of forests".  
Kelantan, riverside, *Md. Haniff & Nur, Singapore Field n. 10056*, fl. Jan. 1923 (B). Further known from Prov. Wellesley, Perak, Negeri Sembilan and Selangor (Prain, Ridley, Henderson).

SUMATRA, without exact locality, *Korthals s.n.*, 93 and 109 (L); id., West Sumatra, collector unknown n. 31, fl. June 1909 (L); Atjeh and Dependencies, P. Weh, Sabang, S.W. of Anak Iaoet, *van Steenis 5725*, fl. Dec. 1933 (B); East Coast, without exact locality, *Yates 1246* (B); Sibolangit, *Lörzing 4113*, fl. Nov. 1915 (B); Tapanoeli, island Nias, *von Römer s.n.* (B); West Coast, W. slope of Talakmau, *Bünнемeyer 314*, fl. Apr. 1917 (B, L); Anai-kloof, *Kleinhoonte 590*, fl. and fr. Aug. 1932 (B); Ajer mantjoer, *Beccari 665*, fl. Aug. 1878 (L); Soengei Akar, Kerintji, *Bünнемeyer 8100*, fl. Febr. 1920 (B, L); Benkoelen, Kepalirang, *de Voogd 1105*, fl. May 1931 (B).

JAVA, without exact locality, *Blume s.n.* (L, U); *Horsfield s.n.* (L, U); *Korthals 227* (L); *Kuhl & van Hasselt 73* (L); *Zollinger 120* (L); Bantam, G. Kentjana, *Koorders 41424* β, fl. June 1912 (B); id., *Koorders 41375* β, fl. and fr. June 1912 (B); G. Karang, *Koorders 40725* β, fl. June 1912 (B); id., near Galoesoer, *Koorders 40632* β, fr. May 1912 (B, L); id., near id., *Koorders 40724* β, fl. June 1912 (B); Sadjira, *Backer 2131*, fl. June 1911 (B); between Tjitorek and Moentjang, *Backer 1860*, fr. June 1911 (B); between Tjilèlèè and G. Kentjana, *Backer 1203*, fl. June 1911 (B); Rangkas bitoeng, *Backer 1093*, fl. June 1911 (B); Batavia, Batavia, Pal Merah, *Backer 34437*, fl. July 1904 (B); grassfields near battery Moeara Angke, *Backer 34440*, fl. June 1903 (B); Meester Cornelis, *Backer 34439*, fl. July 1903 (B); id., *Backer 34438*, fl. Aug. 1903 (B); Wanajasa, *Backer 14357*, fl. June 1914 (B); Pasir Limoes, Boerangrang, *Bakhuisen van den Brink 4349*, fl. July 1920 (B, L); Tjihandjawar, above Wanajasa, S. of Poerwakarta, *Bakhuisen van den Brink 4313*, fl. July 1920 (B, L); Nangarang, near Wanajasa, *Bakhuisen van den Brink 4278*, fl. July 1920 (B); G. Parang, *Blume 1234*, fl. July (L, type of *Lepistemon flavescens* Bl.); id., *Backer 13940*, fl. June 1914 (B); estate Tjikoempai, E. of Poerwakarta, *Harmsen 94*, fl. Dec. 1921 (B); Buitenzorg, Depok, *Koorders 43988* β, fl. June 1917 (B, L); id., nature reserve, *Beumée 6068*, fl. Aug. (B); Tji Lodong, S.E. of Depok, *Backer, van Overeem & van Slooten 35159*, st. May 1922 (B); Buitenzorg, *Smith s.n.*, fl. July 1909 (B); id., *Reinwardt s.n.* (L); between Waroeng-mangga and Baranan-siang, *Hallier 210a*, fl. May 1893 (B); forest along Tjiliwoeng, near Botanic Gardens, *Hallier 210b*, st. Apr. 1893 (B); bank of Tjidani, above Bandongan, *Hallier 210c*, st. Apr. 1893 (B); Tjiogrek, *Backer 34436*, fl. June 1910 (B); Batoe toelis, *Lam & Went, herb. van Steenis 1553*, fl. May 1928 (B); id., *Hallier s.n.*, st. Nov. 1894 (B); along rivulet between Babakan and Kampong baroe, *Hallier s.n.*, st. Nov. 1894 (B); between Kampong baroe and Tanah sereal, *Hallier s.n.*, fl. and fr. June 1896 (B); Soekamantri, *Raap 116*, fl. May 1894 (L); Kabandoengan, *Soegandiredja 197*, fl. Apr. 1900 (B); G. Salak, above Pasir Pogor, *Backer 22187*, fl. May 1917 (B); Palaboehan Ratoe, *Boerlage s.n.*, fl. and fr. July (L); Soekaboemi, *Backer 14866*, fl. July 1914 (B); Kiara Pajoeng, N. of Tjiandjoer, *Zwaardemaker 33*, fl. Apr. 1918 (B); Tjiapoës, collector unknown, s.n. fl. June 1911 (B); Tjidadap, Tjibèber, *Bakhuisen van den Brink 2042*, fl. (B); Tjiandjoer, *Backer 3039*, fl. Sept. 1911 (B); Buitenzorg or Priangan, without exact locality, *Ploem s.n.* (L); "Bodjong Terong", *Aarts 17*, st. (B); Priangan, Soekaradja near Tasikmalaja, *Backer 8476*, fr. Aug. 1913 (B); Pekalongan, Soebah, *Beumée 4252*, fl. July 1919 (B, Wag); Banjoemas, Noesa Kambangan, *Backer 4633*, fl. Sept. 1912 (B); Limoes boentoe, *Amdjah 128*, fl. June 1909 (B); Pringambo, Bandjarnegara, *Koorders 34039* β, st. Aug. 1900 (B); Magelang,

Wonosobo, Brinkman 302, fl. June 1930 (B); Semarang, Salatiga, Kali Taman, Dooters van Leeuwen s.n., fl. June 1909 (B); G. Oengaran, Dooters van Leeuwen s.n., fl. June 1914 (B); Telomojo, Koorders 27706  $\beta$ , fl. June 1897 (B); Madioen, between Toelahan and Tegalombo, river bank, Backer 2923, fl. Apr. 1912 (B); Ngobel, Koorders 23169  $\beta$ , fl. May 1896 (B, L); id., Rant s.n. (B); Kediri, Gadoengan, Koorders 22874  $\beta$ , fl. and fr. June 1896 (B, L); id., Koorders 22967  $\beta$ , fl. May 1896 (B); Malang, between Bantoer (S. of Gondang legi) and Prigontjo, Backer 3974, fl. June 1912 (B); Wonokerto, Gondang legi, Koens s.n., fl. May 1912 (B); Poedjon, Ultée 71, fl. March 1929 (B); estate Kali Padang and Pantjoersari, Experimental station Malang s.n., young fl. June 1936 (B); between "Smeroehoeve" and Sendoera, van Steenis 7346, fl. June 1935 (B); Zuidergebergte, Tangkil, Koorders 23399  $\beta$ , fl. June 1896 (B); Ranoe Daroengen, Backer 37568, fl. June 1930 (L); S. slope of G. Smeroe, Ranoe Daroengen, Bijnouwer 209, fl. May 1932 (B); Besoeki, Djatiroti, Backer 8104, fl. May 1913 (B); Djember, Ultée 15 (B).

**Distribution:** S.E. Asia (Assam, Burma, Indo China, Malay Peninsula), Malay Archipelago (Sumatra, Java).

**Habitat:** Thickets, edges of secondary forests, waysides, occasionally on hedges, or as a weed in plantations, between 25 and 1100 m.

**Vernacular names:** akar boeloe (W. Sumatra); akar santen (W. Sumatra, Bünnemeyer); areuj boeloe, wawaloekan (W. Java, Aarts, Koorders, Zwaardemaker); samparkidoeng, bongloe (M. Java, Koorders); gamet kebo, tjaonan (E. Java, Koorders).

**Use:** According to Boerlage the root is edible (Palaboehan Ratee).

Specimens from Borneo and from Ambon have the same long patent hairs on the sepals as those from Sumatra and Java, differ, however, in the hairy ovary:

var. *borneense* Van Ooststr., nov. var.

Differit ovario piloso.

BORNEO, without exact locality, Korthals 186 (L, type); S. and E. Division, Martapoera, Korthals 228 (L); Hayoep, Winkler 2192, fl. and fr. May 1908 (B, L). MOLUCCAS, Ambon, Robinson 1762, July-Nov. 1913 (B, L).

**Distribution:** Only known from Borneo and Ambon.

**Habitat:** most probably as the species.

Another variety with a hairy ovary and with shorter, less patent, greyish hairs on the sepals can be distinguished as var. *trichocarpum*, based on *Lepistemon trichocarpum* Gagnep.

var. *trichocarpum* (Gagnep.) Van Ooststr., nov. var. — ?*Polemonium obscurum* Blanco, Fl. Filip. (1837) p. 103; id., ed. 2 (1845) p. 75; id., ed. 3, I (1877) p. 139 — *Lepistemon flavescens* auct., non Blume; F.-Vill., Novis App. (1880) p. 142 — *L. binectariferum* auct., non O. K.; Merrill, Fl. Manila (1912) p. 383; id., Spec. Blanc. (1918) p. 321 — *L. trichocarpum* Gagnep. in Not. Syst. III (1915) p. 152 — *L. obscurum* (Blanco) Merrill, Enum. Philipp. Fl. Pl. III (1923) p. 364.

Differit ovario piloso, sepalorum pilis brevioribus, minus patentibus.

CELEBES, Celebes and Dependencies, Soekon, Kaudern 382, fl. Sept. 1919 (L, type); Manado, Minahassa, way from Singkel to Bola, Bailan, Koorders 16564  $\beta$ , fl. Jan. 1895 (B, L).

MOLUCCAS, Kai Islands, Jaheri 122 (B).

PHILIPPINE ISLANDS; according to Merrill in thickets at low and medium altitudes, often common. Luzon, prov. Benguet, Sablang, Fénix, Bur. of Sc. 12676, young fl. Nov.-Dec. 1910 (B); Bontoc distr., Curran & Merritt, Forestry Bureau 16520, young fl. Jan. 1909 (L); prov. Union, Bauang, Elmer 5632, fl. Febr. 1904 (L); prov. Nueva Vizcaya, vicinity of Dupax, Mc. Gregor, Bur. of Sc. 11328, young fl. March-Apr. 1912

(L); prov. Rizal, Ramos, Bur. of So. 707, fl. Jan. 1911 (U); id., Ahern's collector, Forestry Bureau 2431, fl. Jan.-March 1905 (B); id., Pasig, Merrill, Spec. Blano. 794 (B, L). Moreover in Bulacan, Bataan and Laguna prov. and in the island of Mindanao: Lanao, Cotabato (according to Merrill).

**Distribution:** Philippine Islands, Celebes, Kai Islands.

**Habitat:** thickets, waysides, at low and medium altitudes.

**Vernacular names:** tali oetan (Tomboeloe language, Minahassa, Koorders); baai (Philipp., Bontoc language, Merrill); bangbangau-ng-buduan (Philipp., Iloko language, Merrill); pisu (Philipp., Igorot language, Merrill).

**Remarks:** According to Gagnepain the seeds are puberulous.

2. *Lepistemon urceolatum* (R. Br.) F. v. Muell., Syst. Census Austr. Pl. (1882) p. 94; Hall. f. in Versl. 's Lands Plt. 1895 (1896) p. 128; Boerl., Handl. Fl. Ned. Ind. II (1899) p. 510; Hall. f. in Engl., Bot. Jahrb. XXVIII (1899) p. 31; Schum. & Lauterb., Fl. Deutsch. Schutzgeb. (1901) p. 514; Manson Bailey, Queensl. Fl. IV (1901) p. 1068; id., Compr. Cat. Queensl. Pl. (1909) p. 349; van Ooststr. in Blumea V (1942) p. 233 — *Ipomoea urceolata* R. Br., Prodr. Fl. Austr., ed. 1 (1810) p. 485; Choisy in DC., Prodr. IX (1845) p. 369; Benth., Fl. Austr. IV (1869) p. 427 — *Convolvulus urceolatus* (R. Br.) Spreng., Syst. I (1825) p. 601 — *Lepistemon Fitzlani* F. v. Muell., Fragm. Phyt. Austr. X (1877) p. 111 — *L. Lucae* F. v. Muell. in Vict. Nat. (Oct. 1885) (not seen); Manson Bailey, Queensl. Fl. IV (1901) p. 1068; id., Compr. Cat. Queensl. Pl. (1909) p. 349. — *L. asterostigma* K. Schum. in Engl., Bot. Jahrb. IX (1888) p. 216; Schum. & Hollr., Fl. Kais. Wilh. Land (1889) p. 115; Warb. in Engl., Bot. Jahrb. XIII (1891) p. 412 — *L. spec.* K. Schum. in Engl., Bot. Jahrb. IX (1888) p. 216.

A tall twiner. Stems terete or slightly striate, 2—5 m high, the young parts densely hairy with fulvous, retrorse hairs, the adult parts glabrescent, woody, to 6 mm diam. Leaves petiolate; petiole hairy like the stems, 3—11 cm long; blade broadly ovate to orbicular, acuminate and mucronulate at the apex, cordate or more or less truncate at the base, the lobes entire and broadly rounded or with a large tooth or nearly hastate, the lower surface of the leaves sparingly to densely hairy with short, appressed hairs, sometimes tomentose, the upper surface mostly less hairy, glabrescent; length of blade 5—16 cm, width 3—14 cm. Flowers in few- or mostly in many-flowered, more or less dense, axillary, cymose clusters, which are much shorter than the petiole; the common peduncle very short or almost absent, hairy like the stems; pedicels longer than the calyx, 3—7 mm long, in fruit to 14 mm, more or less pilose. Flowerbuds conical, acute. Sepals subequal, slightly concave, broadly ovate to orbicular, obtuse or slightly emarginate, 2—2.5 mm long, green or yellowish, sometimes reddish, the outer ones hairy with short whitish hairs or nearly or entirely glabrous, the inner ones nearly or entirely glabrous with somewhat scarious margin. Corolla creamy white, urceolate, of about the same form as in *L. binectariferum*, 10—12 mm long, quite glabrous inside and outside or with some hairs outside in the upper part; the limb shortly 5-lobed. Scales at the base of the filaments smaller than in *L. binectariferum*, concave, shortly pilose outside, glabrous inside. Disk half as high as the ovary, slightly

5-lobed. Style shorter than the scales, glabrous; stigma biglobular, papillose. Ovary glabrous, 2-celled. Capsule globular, glabrous, 8—10 mm diam., brownish-black; seeds greyish-black, puberulous, 4 mm long.

**CELEBES, Celebes and Dependencies**, Pangkadjene, on rocks, Teysmann 11859 (B, L); id., Tjampeang rock, Teysmann 12266 (B); Bonthain, Teysmann 14107 (B); Loewoe, Palopo, Kjellberg 1953, fl. and fr. July 1929 (B); Lagih-lagih, Rachmat 258 (exped. van Vuuren), fl. July 1913 (B, L); P. Boeton, Baoe-baoe, Elbert 2655, fl. and fr. Sept. 1909 (L); P. Moena, Lombai, Elbert 2957, fl. Aug. 1909 (L); Mando, specimens from the Minahassa, collected by Koorders are cultivated in the Botanic Gardens at Buitenzorg.

**MOLUCCAS, Talaud Islands**, Salebaboe, S.E. slope of G. Ajambana, Lam 3068, fl. May 1926 (B); Boeroe, Kajeli, Teysmann, fl. Aug. (B); Ceram, P. Boano, Kornassi 1324 (exped. Rutten), fl. May 1918 (B, L, U); M. Ceram, Manoesela, Kornassi 576 (exped. Rutten), fl. Nov. 1917 (B, L, U); between Kaniki and Manoesela, Kornassi 1404 (exped. Rutten), fl. June 1918 (B, L, U); S. of Oewrie, Rutten 2264, fl. May (B).

**NEW GUINEA, Netherlands New Guinea**, Doré, Teysmann s.n. (B); Hollandia, Gjellerup 129, fl. May 1910 (B), id., Gjellerup 424, fl. Jan. 1911 (B); near Pionier bivouac, Lam 565, fl. July 1920 (B); Territory of New Guinea, Finschhafen, Hollrung 1, fl. Apr. 1886 (BD); id., Hollrung 39, fl. Apr. 1886 (BD); id., Hollrung 173, fl. and fr. June 1886 (B, BD); id., Weinland 157, fl. and fr. Oct. 1890 (BD); id., Lauterbach 417, fl. July 1890 (BD); id., Lauterbach 1341, fl. Jan. 1891 (BD); Sattelberg, Warburg 21279 (BD); id., Weber 12, fl. July 1912 (BD); id., Clemens 1258, Dec. 1935 (BD, L); Passai, Hellwig 644, fr. Apr. 1889 (BD); id., Warburg 21279 (BD); id., Hellwig 277, fl. Jan. 1889 (BD); Wareo, Morobe, Clemens s.n., fl. Jan. 1936 (BD); Butaueng, Hellwig 482, fl. March 1889 (BD); Alexishafen, Wiesenthal 70 (BD); Stephansort, Nyman 208 bis, fl. Apr. 1899 (BD); Mt. Kani, Schlechter 17502, fl. March 1908 (BD); Ramu river, Ramu camp, Rodatz & Klink 10, fl. June 1899 (BD); Sepik river, 2nd Augusta camp, Hollrung 885, fl. Oct. 1887 (BD); id., Malu camp, Ledermann 7199, fl. Apr. 1912 (BD); Papua, Western Division, Palmer river, 2 miles below junction Black river, Brass 7290, fl. July 1936 (L); Fly river, Everill junction, Jeswiet 114, fl. July 1928 (Wag.); Lake Daviumbu, Middle Fly river, Brass 7612, fl. and fr. Aug. 1936 (L); Kanosia, Carr 11781, fl. Apr. 1935 (BD, L); Koitaki, Carr 11909, fl. and young fr. Apr. 1935 (BD, L); Isuarava, Carr 15592, fl. Febr. 1936 (L).

**BISMARCK ARCHIPELAGO, New Britain, Gazelle Peninsula, Ralum, Warburg 21278 (BD); New Ireland, Namatanai, Peekel 247 (BD).**

Specimens cultivated in the Botanic Garden at Buitenzorg: X. F. 48 (B); X. F. 48a (B); X. F. 49 (B, L); X. F. 58 (L); XV. H. 46 (B); Hallier C. 10b (= X. F. 48a and 49) (L); Hallier C. 10c (L); Hallier C. 10d (L); Hallier C. 10e (L).

**Distribution:** Celebes, Moluccas, New Guinea, tropical Australia, Solomon Islands (Bougainville Island).

**Habitat:** in thickets and secondary forests, on more or less moist places between 5 and 1000 m.

**Vernacular names:** liboeh-liboeh (Celebes, Rachmat); kepi, onugo, arra (Territ. of New Guinea, Lauterbach, Hollrung); a laklakisu (New Ireland, Peekel).

**Remarks:** 1. The density of the indumentum on the stems and the leaves is as variable as in *L. binectariferum*.

2. It is a curious fact, that, whereas the majority of the specimens has retrorse hairs on pedicels and stems, there are a few ones with hairs directed upwards, towards the leafblade and the top of the stems. (Ceram, Kornassi 1324, 1404, Rutten 2264; New Guinea, Brass 7612, Jeswiet 114).

### XIX. STICTOCARDIA Hall. f.

Hall. f. in Engl., Bot. Jahrb. XVIII (1894) p. 159; Boerl., Handl. Fl. Ned. Ind. II (1899) p. 506 and 514; Koorders, Exk. fl. Java III (1912) p. 124; Merrill, Enum. Philipp. Fl. Pl. III (1923) p. 372 — *Argyreia* Lour. section *Pomifera* Clarke in Hook., Fl. Brit. Ind. IV (1883) p. 184.

Woody or herbaceous twiners. Leaves ovate to orbicular, mostly cordate at the base, entire, the lower surface with many minute glands (black dots in dried specimens). Flowers in axillary, pedunculate, 1—many-flowered cymes; bracts small, deciduous. Sepals elliptic or orbicular, obtuse to emarginate, equal or the outer ones a little shorter, subcoriaceous, often with thinner margin, much accrescent in fruit. Corolla large, regular, funnel-shaped, the midpetaline bands often somewhat pilose outside and with minute glands like the leaves. Stamens and style included. Filaments inserted near the corolla base; pollen globular, spinulose. Ovary glabrous, 4-celled, each cell with 1 ovule; style 1, stigma biglobular. Fruit enclosed by the much enlarged calyx, globular; dissepiments with 2 transverse wings at the surface of the fruit; wall thin, loosing irregularly from the dissepiments and their wings, so that 4 openings become free (fruit then lantern-shaped) through which the 4 pubescent seeds are visible.

#### Key to the species.

- 1a. Two outer sepals distinctly cordate at the base, auricles up to 2 mm long . . . . . 4. *S. cordatosepala*
- b. Outer sepals rounded at the base . . . . . 2
- 2a. Sepals 12 mm long or mostly longer. Corolla large, 8—10 cm high : 1. *S. tiliifolia*
- b. Sepals less than 12 mm long. Corolla smaller . . . . . 3
- 3a. Stems, leaves, peduncles, pedicels and sepals very sparsely pubescent or glabrous. Leaves rather large, 8 cm long or more, long and narrowly acuminate at the apex, deeply cordate at the base . . . . . 3. *S. discolor*
- b. Stems, leaves, peduncles, pedicels and sepals densely pubescent to tomentose. Leaves smaller, attenuate to slightly acuminate at the apex, shallowly cordate to truncate at the base . . . . . 2. *S. neglecta*

1. ***Stictocardia tiliifolia* (Desr.) Hall. f.** in Engl., Bot. Jahrb. XVIII (1894) p. 159, excl. syn. Bl.; Hall. f. in Versl. 's Lands Plt. 1895 (1896) p. 131; id. in Bull. Boiss. VI (1898) p. 548; Boerlage, Handl. Fl. Ned. Ind. II (1899) p. 514; Svedelius in Flora XCVI (1906) p. 232, fig. 1—12; Merrill in Philipp. Journ. Sci. III (1908) Bot., p. 429; Hall. f. in Meded. Rijksherbar. Leiden 1 (1911) p. 26; Merrill, Fl. Manila (1912) p. 385; Koorders, Exk. fl. Java III (1912) p. 124; Gamble, Fl. Pres. Madras V (1923) p. 904 — *Ipomoea campanulata* L., Spec. Plant. (1753) p. 160, only as to the synonym *Adamboe* of Rheede (cf. van Ooststr. in Blumea III (1940) p. 568); Boldinh, Zakfl. Java (1916) n. 821 — *Convolvulus grandiflorus* L. f., Suppl. (1781) p. 136 — *Convolvulus tiliaefolius* Desr. in Lamk., Encycl. III (1789) p. 544 — *Ipomoea grandiflora* Lamk., Tabl. Encycl. I (1791) p. 467 (cf. van Ooststr. in Blumea III (1940) p. 577—578) — *Convolvulus gangeticus* Roxb., Hort. Beng. (1814) p. 13, nom. nud.; id., Fl. Ind., ed. Carey & Wall., II (1824) p. 46 — *Ipomoea tiliaefolia* R. & S., Syst. IV (1819) p. 229 — *I. benghalensis* R. & S., Syst. IV (1819) p. 229 — *Convolvulus campanulatus* Spreng., Syst. I (1825) p. 608

— *Ipomoea pulchra* Bl., Bijdr. (1825) p. 716 — *I. gangetica* Sweet, Hort. Brit., ed. 2 (1830) p. 288 — *Convolvulus melanostictus* Schlecht. in Linnaea VI (1831) p. 737 — *Rivea tiliaefolia* Choisy in Mém. Soc. Phys. Genève VI (1833) p. 407; id. in DC., Prodr. IX (1845) p. 325 — *Ipomoea melanosticta* G. Don, Gen. Syst. IV (1838) p. 271 — *Argyreia tiliaefolia* (Wight, Ic. IV, 2 (1850) p. 12, t. 1358; Miq., Fl. Ned. Ind. II (1857) p. 587; F.-Vill., Nov. App. (1880) p. 139; Clarke in Hook., Fl. Brit. Ind. IV (1883) p. 184; Vidal, Phan. Cuming. Philip. (1885) p. 129; id., Rev. Pl. Vasc. Filip. (1886) p. 195; Hillebr., Fl. Hawaiian Isl. (1888) p. 312; Trimen, Handb. Fl. Ceyl. III (1895) p. 206; Gagnep. & Courch., Fl. Indo-Chine IV (1915) p. 274 — *Rivea campanulata* House in Muhlenbergia V (1909) p. 72 — *Stictocardia campanulata* Merrill in Philipp. Journ. Sc. IX (1914) p. 133 (not of House as Merrill states in his Enum. Philipp. Fl. Pl. III (1923) p. 372); id. in Journ. Roy. As. Soc. Str. Br. Spec. Numb. (1921) p. 510 — *Argyreia campanulata* Alston in Trimen, Fl. Ceyl., Suppl. (1931) p. 201. Fig. 1, g—h.

A large woody twiner; young parts of the stems terete, often minutely striate, pubescent, finally glabrescent. Leaves petiolate; petiole slender, 3—14 cm long, mostly pubescent; blade 6—20 cm long, 5—20 cm wide, broadly ovate to orbicular, shortly acuminate with mostly obtuse, mucronulate apex, cordate at the base with broad, rounded sinus and rounded lobes; margin entire; upper and lower surface of the leaf more or less densely pubescent or nearly glabrous, the lower surface always with minute black dots (glands); lateral nerves 7—8. Inflorescences axillary, 1—3-flowered; peduncle terete to angular, pubescent, mostly shorter than the petiole, 1.5—7.5 cm long; bracts minute, deciduous; pedicels as long as or much longer than the calyx, slender, pubescent, 10—35 mm long, thickened and elongated in fruit. Sepals orbicular with rounded or slightly emarginate apex, subequal or the interior ones slightly shorter, 12—18 mm long, coriaceous with thinner margins, pubescent outside and more or less glandular with minute black glands like the lower surface of the leaves, or glabrous, much enlarged in fruit, the exterior ones then up to 4, the interior to 5 cm long. Corolla funnel-shaped, reddish purple with a darker centre, 8—10 cm high, the limb 8—10 cm diam., the mid-petaline bands sparsely pilose or glabrous and with minute black glands. Stamens and style included; stamens unequal, inserted c. 8 mm above the corolla base; filaments filiform, hairy at their base; anthers lanceolate, c. 5 mm long; ovary 4-celled, glabrous; style filiform, glabrous; stigma biglobular, papillose. Capsule enclosed by the enlarged, finally weathered sepals, globose, 2—3.5 cm diam.; dissepiments with 2 transverse wings at the surface of the fruit; wall thin, loosing irregularly from the dissepiments and their wings, so that 4 openings become free (fruit then lantern-shaped) through which the seeds are visible. Seeds black or dark brown, pubescent, c. 8—9 mm long.

MALAY PENINSULA, P. Timun, P. Langkawi, Henderson, Singapore Field n. 29113, fl. Nov. 1934 (B).

SUMATRA, East Coast, Lake Toba, N.W. side, Tongging, Lörezing 8085, fl. Nov. 1920 (B).

JAVA, Bantam, Tjaringin, van Hasselt s.n., fl. May 1823 (L); Buitenzorg, Buitenzorg, Hallier 218a, fl. and fr. May 1893 (B, L); id., Hallier 218b, fl. Apr. 1893

(B, L); Wijnkoopsbaai, Karang Hawoe, *Docters van Leeuwen* 14192, fl. Apr. 1932 (B); Priangan, Tjimahi, *van Slooten* 632, fl. Jan. 1921 (B); Malang, W. of mouth of Kali Srigontjo, *Baeker* 3914, fl. June 1912 (B); Madoera, Kangean Islands, Sepandjang, *Baeker* 28986, fl. Apr. 1919 (B).

BORNEO, Sarawak, according to Merrill in Journ. Roy. As. Soc. Str. Br. Spec. Numb. (1921) p. 510.

CELERES, Pakamisang, *Bachmat* 311 (exped. van Vuuren), fl. July 1913 (B, L); Todjamboe, *Kjellberg* 1862, fl. July 1929 (B); Salajar, T. Djamprea, *Docters van Leeuwen* 1596, fl. May 1913 (B, U); id., Kalao, *Docters van Leeuwen* 1526, fl. May 1913 (B, U).

LOMBOK, S.W. Lombok, Sepi Mountain, *Elbert* 2478, fr. July 1909 (L).

MOLUOCAS, Soela Islands, P. Soelabesi, *Teysmann s.n.*, fr. July (B); Amboon, Hila, *Reinwardt s.n.<sup>1</sup>*, fl. July 1821 (L); Noesa laoet, *Reinwardt s.n.<sup>1</sup>*, fl. July 1821 (L); Ceram, P. Kelang, Tahaloepoe, *Kornassi* 1588, fl. May 1918 (B).

PHILIPPINE ISLANDS; according to Merrill in thickets and secondary forests at low altitudes, often along the seashore and tidal streams. Luzon, prov. Ilocos Norte, Burgos, Ramos, *Bur. of So.* 27214, fr. Febr.-March 1917 (B); id., Bangui, Ramos, *Bur. of So.* 27614, fr. Febr.-March 1917 (B); prov. Laguna, Calauan, *Mc Gregor, Bur. of So.* 12385, fl. Nov.-Dec. 1910 (L). Moreover known from the Batan Islands; Luzon (Cagayan, Benguet, Union, Pangasinan, Bulacan, Rizal, Bataan, Tayabas and Albay); Alabat; Negros; Ticao and Mindanao (according to Merrill).

**Distribution:** Circumtropical; America: Central America, West Indies; Africa: St. Helena, Cape Verde Islands, Comores, Mascarenes; Asia: British India, Ceylon, Malay Peninsula, Malay Archipelago, Philippine Islands; Australia: Queensland; Pacific Islands.

**Habitat:** On and behind the beach, in thickets, hedges, and secondary forests, sometimes also in more elevated parts, between 0 and 925 m.

**Vernacular names:** areuj tatapajan gede (sund., Java, *Koorders*); katabor (Celebes, *Rachmat*); halalei (P. Kelang, Ceram, *Kornassi*); bulákan (Philipp., Tagalog and Sulu language, *Merrill*); burákan-maputí (Philipp., Samar-Leyte Bisaya language, *Merrill*); kal-kalauag (Philipp., Ilóko language, *Merrill*); tibulbúl (Philipp., Bikol language, *Merrill*).

**Remarks:** See Blumea III (1940) p. 568, under *Ipomoea illustris* (Clarke) Prain and l. c. p. 577—578, under *Ipomoea tuba* (Schlechtend.) Don.

## 2. *Stictocardia neglecta* Van Ooststr., nov. spec. Fig. 1, i—j.

Description of the type specimen, *Walsh* 373 (B) from Lombok (the data in parentheses have reference to the other specimens mentioned below).

Planta volubilis, caulibus teretibus dense breviter pilosis vel in partibus junioribus tomentosis, denique glabrescentibus lignescentibus, ad 3(—4) mm crassis. Folia petiolata, petiolis tenuibus breviter pilosis supra leviter sulcatis 2.5—7 cm longis, ovata vel late ovata 4—8 cm longa 3—5.5 (—6) cm lata apice attenuata vel acuminata, acumine acutiusculo

<sup>1</sup>) Type specimens of *Ipomoea pulchra* Bl.

Fig. 1. a: *Stictocardia cordatosepala* Van Ooststr., branch of the type specimen, *Elbert* 2011, L; b: *id.*, leaf of the type specimen; c<sub>1</sub>-c<sub>5</sub>: *id.*, sepals 1—5; d: *Stictocardia discolor* Van Ooststr., branch of the type specimen, *Reinwardt* 1550, L; e: *id.*, leaf of the type specimen; f<sub>1</sub>-f<sub>5</sub>: *id.*, sepals 1—5; g: *Stictocardia tiliifolia* (Desr.) Hall. f., branch of the type of *Ipomoea pulchra* Bl., *Reinwardt* s.n. from Amboon, L; h<sub>1</sub>-h<sub>5</sub>: *id.*, sepals 1—5; i: *Stictocardia neglecta* Van Ooststr., branch of the type specimen, *Walsh* 373, B; j<sub>1</sub>-j<sub>5</sub>: *id.*, sepals 1—5. Branches and leaves  $\frac{1}{2}$  X nat. size, sepals  $\pm$  nat. size.

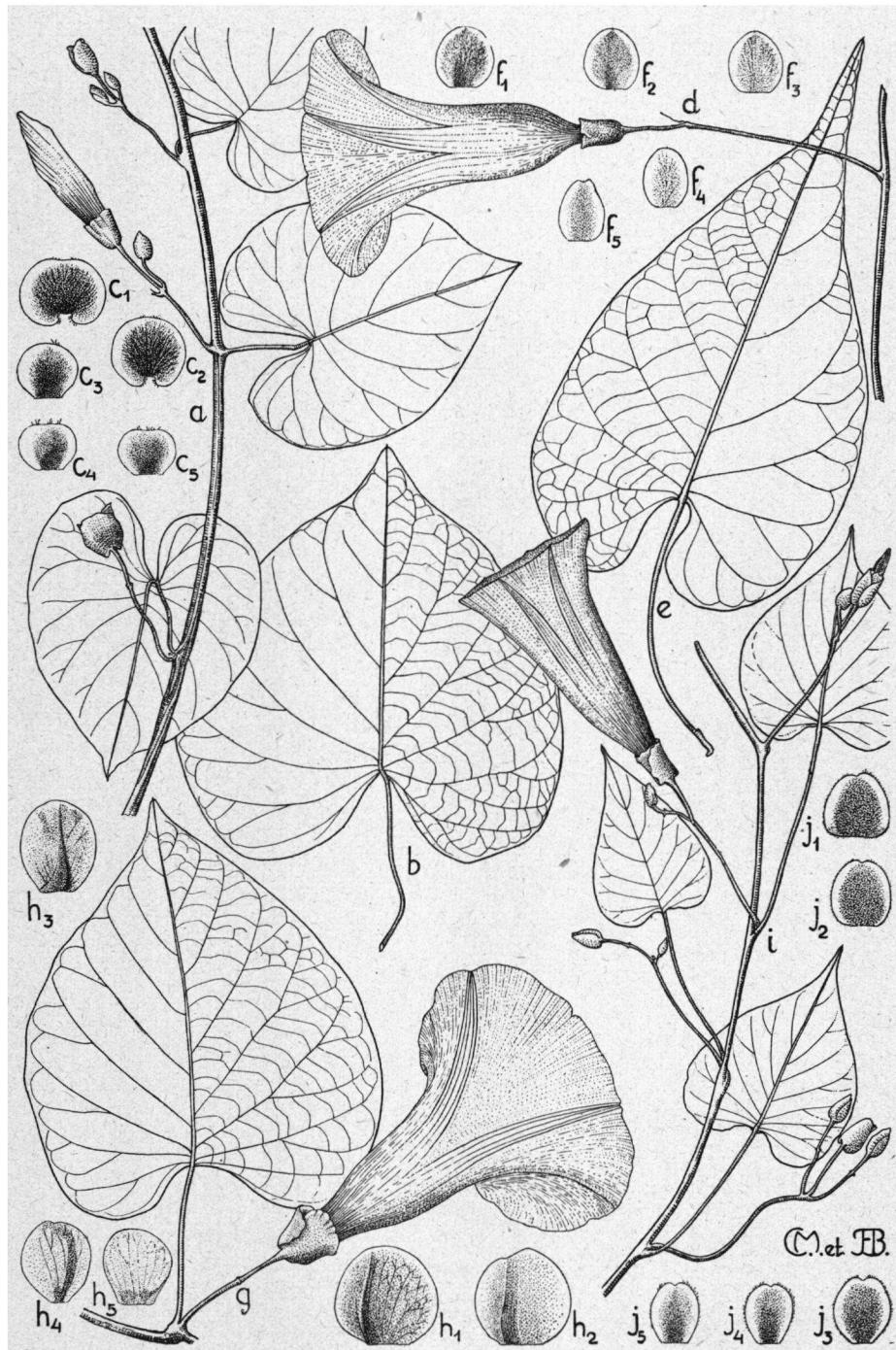


Fig. 1.

minutissime mucronulato, basi obscure cordata vel subtruncata, margine integra, utrinque viridia (vel subtus rubra), dense breviter pilosa vel juniora tomentosa, subtus glandulis multis minutissimis punctiformibus nigris praedita, nervis lateralibus utrinque 7—8, eorum 3—4 e basi orientibus. Inflorescentiae axillares pedunculatae apice 1-florae, vel cymoso-ramosae 2—3 (—4)-florae, pedunculis teretibus ut caules breviter pilosis (0.5—) 2—5 cm longis, ramis interdum ad 2.5 cm longis; bracteae minutae, mox deciduae; pedicelli ut pedunculi breviter pilosi (5—) 10—18 mm longi (sub fructu incrassati). Sepala subaequilonga vel exteriors paullo breviora, externe dense breviter pilosa vel tomentosa, tenuiter coriacea, marginibus membranaceis, exteriora 2 late ovata vel late elliptica vel orbicularia apice paullo emarginata basi rotundata 8—11 mm longa 8—10.5 mm lata, interiora 3 late elliptica apice paullo emarginata basi rotundata margine apicem versus fimbriata c. 10 mm longa et 8.5 mm lata. Corolla violacea (*Jonker*) tubuloso-infundibuliformis c. 5—6 cm longa, limbo externe breviter piloso, caeterum glabra. Stamina inclusa, filamentis glabris basi breviter pilosis c. 8 mm supra basin corollae insertis, antheris linear-lanceolatis. Discus annularis c. 0.5 mm altus obscure lobatus. Ovarium glabrum 4-locellatum; stylus filiformis glaber c. 32 mm longus, stigmate biglobulare papilloso. (Fructus subglobosus c. 1.5 cm diam. probabiliter 4-locellatus, sepalis valde accretis ad 3—3.5 cm longis arcte involueratus, pericarpio tenui fragili; semina 4 subovoidea 7—8 mm longa 5.5—6 mm lata brevissime tomentosa).

**CELEBES, Celebes and Dependencies, Pangkadjene, on rocks, Teysmann 12171, fl. and fr. (B, L); Salajar, Zollinger 3327, fl. (L).**

**TIMOR, without exact locality, Jonker 290, fl. (U); Koepang, Teysmann s.n., fr. (B, *typus fructuum*); Lololi, Teysmann s.n. (B); South Middle Timor, Ofoe, Walsh 373, fl. May 1929 (B, *typus florum*); id., id., Walsh 107, fl. May 1929 (BD).**

**WETAR, Treub 546, young fr. (B).**

**Distribution:** Celebes, Lesser Sunda Islands.

**Habitat:** the type specimen, *Walsh 373*, was collected in Timor at 900 m altitude, the specimen *Walsh 107* at c. 540 m. According to *Walsh* the species is common in Timor ("many and everywhere").

**Vernacular name:** non lakoe (Timor, *Walsh*).

**Remarks:** 1. The specimen *Walsh 373* from Timor, *Ofoe*, can be considered as the *typus florum*, the specimen *Teysmann s.n.* from Timor, *Koepang*, as the *typus fructuum*.

2. According to a label annotation the leaves of the specimen *Teysmann s.n.* from Timor, *Lololi*, are red.

3. ***Stictocardia discolor* Van Ooststr., nom. nov.** — *Ipomoea discolor* Reinw. in sched. — *I. pulchra* Bl. var. *foliis acuminatis cum mucrone, pedunculis petiolo longioribus* Bl., Bijdr. (1825) p. 716 — *Stictocardia pulchra* Hall. f. in Bull. Herb. Boiss. V (1897) p. 380 and in Bull. Herb. Boiss. VI (1898) p. 548, as to the Timor specimens, not *Ipomoea pulchra* Bl.; Boerlage, Handl. Fl. Ned. Ind. II (1899) p. 514. **Fig. 1, d—f.**

A twiner with thin, slender, sparsely pubescent or glabrous stems. Leaves petiolate; petiole slender, 4—7 cm long, sparsely pubescent; blade 8—15 cm long, 4—7.5 cm wide, ovate, acuminate, with long and narrow, obtuse or acutish, mucronulate acumen, deeply cordate at the base, with rounded sinus and lobes; margin entire; sparsely and minutely pubescent

on both sides, more densely on the nerves beneath, or nearly glabrous, the lower surface reddish (always?) with minute black dots (glands); lateral nerves 7—10. Inflorescences axillary, 1—2-flowered; peduncle terete, thin, sparsely pubescent or nearly glabrous, 2—5 cm long; bracts minute, 1.5 mm long (only one present in the type specimen), deciduous; pedicels longer than the calyx, slender, sparsely pubescent or glabrous, 15—30 mm long. Sepals coriaceous with membranaceous margins, subequal, the exterior ones orbicular to broadly elliptic, broadly rounded at the apex, rounded at the base, 9—11 mm long, sparsely pubescent outside, shortly ciliate in the upper part; the interior ones broadly elliptic, 9—10 mm long, all with minute glands outside. Corolla funnel-shaped, probably 6—8 cm high, the mid-petaline bands sparsely pilose outside and with minute black glands like the lower surface of the leaves, or glabrous. Capsule unknown.

TIMOR, without exact locality, Reinwardt 1350, named *Ipomoea discolor* Reinw. in sched. (L, type).

**Distribution:** Only known from Timor.

**Habitat:** unknown.

**Remarks:** 1. Blume used the name *I. pulchra* for two specimens collected by Reinwardt in the Moluccas (Ambon and Noesa Iaoet). Both belong to *Stictocardia tiliifolia*. A specimen from Timor he distinguished as a variety: "variet.: foliis acuminatis cum mucrone, pedunculis petiolo longioribus". Hallier incorrectly used the name *Stictocardia pulchra* for this variety and not for the specimens of Blume's *Ipomoea pulchra* as appears from specimens in the Rijksherbarium at Leiden. As the combination *Stictocardia pulchra* can only be based on *Ipomoea pulchra* Bl. itself and as the variety distinguished by Blume represents, in my opinion, a well-characterized species, I propose a new name for it, *Stictocardia discolor*.

2. *S. discolor* can be distinguished from *S. tiliifolia*, the type of the genus, mainly by the much more slender stems and peduncles, the smaller sepals and corolla and the long acuminate leafblades with a red lower surface.

#### 4. *Stictocardia cordatosepala* Van Ooststr., nov. spec. **Fig. 1, a—c.**

Planta volubilis, caulis teretibus substriatis, partibus junioribus breviter pilosis mox glabrescentibus vel glabris, partibus adultioribus probabiliter lignescentibus ad 4 mm crassis. Folia petiolata, petiolis tenuibus breviter pilosis vel glabris supra sulcatis 3—9 cm longis, late ovata vel orbicularia, 6—12 cm longa 5—12 em lata apicem versus attenuata vel breviter acuminata, acumine obtusiusculo minutissime mucronulato, basi late cordata, margine integra, supra viridia subglabra vel glabra, subtus rubra glandulis minutissimis punctiformibus nigris praedita, caeterum glabra vel in nervis breviter pilosa; nervi laterales utrinque 6—7, eorum c. 3 e basi orientes. Inflorescentiae axillares pedunculatae apice 1-florae, vel cymosoramosae 2—3-florae; pedunculi teretes glabri vel praesertim apicem versus breviter pilosi 1—9 cm longi; bracteae oblongae obtusae margine membranaceae 3—5 mm longae deciduae; pedicelli sparse breviter pilosi 10—35 mm longi. Sepala coriacea marginibus membranacea, exteriora 2 orbicularia vel late transverso-elliptica apice late rotundata vel paullo emarginata basi cordata auriculis distinctis c. 2 mm longis fimbriatis, 12 mm

longa 12—14 mm lata, interiora 3 ± orbicularia basi rotundata 8—9 mm longa 8.5—10 mm lata, externe glandulis minutissimis punctiformibus praedita sparse pilosa vel apice breviter ciliato excepto glabra. Corolla in sicco violacea infundibuliformis prob. ± 6 cm longa, fasciis mesopetalis externe glandulis minutissimis praeditis, margine fimbriata. Stamina inclusa, filamentis glabris basi breviter pilosis. Discus annularis sub-5-lobatus. Ovarium glabrum 4-locellatum; stylus inclusus filiformis glaber, stigmate biglobulare papilloso. Fructus ignotus.

**LOMBOK**, Bindjani volcano, S.E. side, S. slope of Poessoek, Sapit valley, *Elbert 1890*, fl. June 1909 (L); id., S.S.E. side, Iwela near Pringabaya, *Elbert 2011*, fl. June 1909 (L, type).

**Distribution:** Only known from Lombok.

**Habitat:** The specimen *Elbert 1890* in monsoon forest, on loamy soil, between 600 and 700 m; the specimen *Elbert 2011* in thin forest in rather moist tract, on loamy soil, between 350 and 700 m.

**Remarks:** A species closely related to *S. discolor*, but distinguished by the larger outer sepals which have a remarkable cordate base and by the less narrowly acuminate, broader leafblades. Moreover, the stems and peduncles seem to be somewhat stouter than in *S. discolor*.

## XX. ARGYREIA Lour.<sup>1)</sup>

Lour., Fl. Cochinch. (1790) p. 134; Choisy in Mém. Soc. Phys. Genève VI (1833) p. 412; id. in DC., Prodr. IX (1845) p. 328; Miq., Fl. Ned. Ind. II (1857) p. 585; Benth. & Hook., Gen. Plant. II (1876) p. 869; Clarke in Hook., Fl. Brit. Ind. IV (1883) p. 184; Baill., Hist. Pl. X (1891) p. 323; Peter in Engl. & Prantl, Nat. Pfl. fam. IV, 3a (1891) p. 20; Hall. f. in Engl., Bot. Jahrb. XVI (1893) p. 585; Trimen, Handb. Fl. Ceyl. III (1895) p. 206; Boerl., Handl. Fl. Ned. Ind. II (1899) p. 506, 513; Prain in Journ. As. Soc. Bengal LXXIV (1906) p. 320; Koorders, Exk. fl. Java III (1912) p. 123; Gagnep. & Courch. in Lee., Fl. Indo-Chine IV (1915) p. 272; Ridley, Fl. Malay Penins. II (1923) p. 448; Merrill, Enum. Philipp. Fl. Pl. III (1923) p. 371; Backer, Onkruidfl. Jav. Suikerrietgr. (1931) p. 531 — *Lettsomia* Roxb., Fl. Ind., ed. Carey & Wall., II (1824) p. 75; id., ed. Carey, I (1832) p. 487; Miq., Fl. Ned. Ind. II (1857) p. 591; Benth. & Hook., Gen. Plant. II (1876) p. 870; Clarke in Hook., Fl. Brit. Ind. IV (1883) p. 191; Baill., Hist. Pl. X (1891) p. 323; Peter in Engl. & Prantl, Nat. Pfl. fam. IV, 3a (1891) p. 21; Trimen, Handb. Fl. Ceyl. III (1895) p. 209; Prain in Journ. As. Soc. Bengal LXXIV (1906) p. 321; Ridley, Fl. Malay Penins. II (1923) p. 449 — *Moorcroftia* Choisy in Mém. Soc. Phys. Genève VI (1833) p. 431; id. in DC., Prodr. IX (1845) p. 334 — *Rivea* Choisy in Mém. Soc. Phys. Genève VI (1833) p. 407, emend. Hall. f., in part (see remarks).

Climbing, very rarely suberect shrubs. Leaves very variable in form

<sup>1)</sup> The manner in which the genus *Argyreia* has been treated in this paper, is somewhat different from that of the foregoing genera in as far as only the species from the Malay Archipelago s.s. have been mentioned. Those from the Malay Peninsula and from the Philippine Islands will be elaborated afterwards in a special paper, as soon as the materials concerned are again available.

and size, mostly entire, hairy, rarely glabrous. Inflorescences axillary, cymose, few- or many-flowered, loose or compact to capitate; bracts minute or large; flowers large, medium-sized or small. Sepals 5, herbaceous or subcoriaceous, very variable in form and size, mostly hairy without, glabrous within, slightly or sometimes much enlarged in fruit and then often red within. Corolla regular, campanulate, funnel-shaped or tubular, purple, red, rose or white; limb plicate and nearly entire or very shortly lobed or deeply lobed, with 5 well-defined hairy midpetaline bands without and with glabrous connecting fields; in deeply lobed corollas the lobes consisting of a midpetaline band with two narrow glabrous wings. Stamens 5, inserted near the base or sometimes near the mouth of the corolla tube, included or exserted; filaments filiform, often dilated at the base, more or less unequal in length; anthers oblong or linear; pollen globular, spinulose. Disk annular or cupular, entire or shallowly lobed. Ovary glabrous, 2- or 4-celled, 4-ovuled; style filiform, included or exserted; stigma biglobular. Fruit a globose or ellipsoid berry, fleshy, leathery or mealy, purplish, red, orange-red or yellowish. Seeds glabrous, 4 or less.

Distribution: Tropical Asia, Malay Archipelago, Philippine Islands.

Remarks. 1. The genus *Argyreia*, as described by Loureiro in 1790 in his *Flora Cochinchinensis*, p. 134, contained 3 species, *A. obtusifolia* Lour. (l. c. p. 134), *A. acuta* Lour. (l. c. p. 135) and *A. arborea* Lour. (l. c. p. 135). Two of these, viz. *A. obtusifolia* and *A. acuta* doubtless belong to the family Convolvulaceae as representatives of a well-defined genus. The third, *A. arborea* considerably differs from the others and it was Hallier who identified it with the borraginaceous *Cordia Myxa* L. (cf. Hallier in Bull. Herb. Boiss. VI, 1898, p. 716). Loureiro described his new genus as having a 5-partite corolla with oblong reflexed segments, a capitate emarginate stigma and a subglobular, 4-celled berry (and a 4-celled ovary, but Loureiro did not mention this).

In 1824, in the first edition of the *Flora Indica* II, p. 75, Roxburgh established the genus *Letsomia*, mainly with the same characters, but differing in its 2-celled ovary. He subdivided this genus into two groups, one with a campanulate corolla, the other with an infundibuliform (or rather hypocarteriform) one. From his description it becomes clear that the species of the first group have a biglobular stigma, whereas the stigmas are linear in the second group.

Choisy, in *Mém. Soc. Phys. Genève* VI, 1833, p. 412, mentioned the genus *Letsomia* as a synonym of *Argyreia*, at least as to the species with a campanulate corolla and a biglobular stigma. The other species he united into a new genus, *Rivea*. One of these, *R. tiliaefolia*, is a rather aberrant one and has been transferred afterwards to *Stictocardia* by Hallier. The genus *Rivea* is mainly distinct from *Argyreia* by its linear to oblong stigmas and from *Ipomoea* by the same character and by the indehiscent instead of valvate fruit.

In 1845, in his treatment of the Convolvulaceae in DC., *Prodromus*, Choisy once again mentioned *Argyreia* with *Letsomia* p. p. as a synonym and so did Hallier in Engl., Bot. Jahrb., 1893. They are followed among

others by Boerlage (1899) and by Gagnepain & Courchet (1915). The last-named authors adduce arguments in support of their opinion by saying: "Argyreia Lour. présente un ovaire à quatre loges; Lettsomia n'en présente que 2. C'est toute la différence. On trouve des cas où les cloisons supplémentaires sont indiquées seulement sur le paroi; ce sont donc des fausses cloisons. Leur présence ou absence ne paraissent pas d'ordre générique".

Other authors, however, such as Miquel (1857), Bentham & Hooker (1876), Clarke (1883), Baillon (1891), Peter (1891), Trimen (1895), Prain (1906) and Ridley (1923) keep the two genera separate, several of them with some hesitation. Miquel, for instance, writes under *Lettsomia*, l. c. p. 591: "Argyreiae forsitan nimis affinis". Prain in Journ. As. Soc. Bengal LXIII, 1894, p. 91 also points out that the only difference between *Argyreia* and *Lettsomia* consists in the ovary being completely 4-celled in the former, 2-celled in the latter; not unfrequently, however, a partial dissepiment is found at the base of the cell in *Lettsomia*. But though he writes that he quite agrees (l. c. p. 92, line 1) with Collett and Hemsley's opinion, expressed in Journ. Linn. Soc. XXVIII, p. 95, that *Lettsomia* and *Argyreia* deserve to be re-united, he keeps the genera separate.

Once again they are kept separate in Prain's paper on the Convolvulaceae in Journ. As. Soc. Bengal LXXIV, 1906, p. 320 and 321, where he, however, again expresses his doubt by stating that "there is not, as the writer has already explained (Journ. As. Soc. Beng. LXIII, 2, 91), any very good reason for retaining *Lettsomia* as a genus apart from *Argyreia*".

Ridley, 1923, p. 49, mentions under his description of *Lettsomia* that this genus is very near *Argyreia* and passes into it! Nevertheless, he describes the two genera apart from each other.

In my opinion, *Argyreia* and *Lettsomia* can be combined without any difficulties under the name of the former genus. In keeping them apart, several species which are doubtless very nearly related should have to be inserted in different genera. The differences in the number of cells of the ovary appears to be of little value in several genera of the family Convolvulaceae. It was Hallier, 1893, who pointed this out already and the present author quite agrees with this opinion. Moreover the species formerly inserted in *Lettsomia* have so many characters in common with those of *Argyreia* (deeply or shallowly lobed corollas in both, lax or capitate inflorescences in both, hairy midpetaline bands, berrylike fruits, characters in habit, kinds of hairiness) that a separation of the two genera would be a very unnatural one.

2. As to *Moorcroftia* Choisy it is clear that the two species of it described by Choisy belong to *Argyreia*. There is not a single reason to distinguish them as representatives of a separate genus.

3. As has already been stated above, it was Choisy, 1833, who established the genus *Rivea*, based on the species of *Lettsomia* with linear-oblong stigmas and with an indehiscent, dry or nearly dry fruit. In 1845 the very natural limits of *Rivea* became blurred, when he added several American species of *Ipomoea* to it, all with biglobular stigmas. Other authors, however, have maintained the original limits of the genus [Bentham & Hooker (1876); Clarke (1883); Baillon (1891); Hallier (1893)]. After-

wards it becomes clear that Hallier has altered his opinion, for in Engl., Bot. Jahrb. XVIII, 1894, p. 155, he describes *Rivea* in a much widened sense, adding to it several African and American species with a biglobular stigma. The group of species originally described as *Rivea* he distinguishes as a section *Eurivea*. The African and American species he unites in two other sections, *Poliothamnus* and *Legendrea*, the first of which he canceled afterwards as its species, on account of the 4-valved capsules and long-haired seeds which were formerly unknown (Hallier in Sitz. ber. Kais. Akad. Wien, Math.-naturw. Cl., CVII, Abt. I, 1898, p. 51) had better be placed in *Ipomoea* sect. *Eriospermum*. In Bull. Herb. Boiss. V, 1897, p. 381, Hallier again distinguishes a new section, *Samudra* (Endl.), based on *R. nervosa* (Burm.) Hall. f. Later on he mentions a section *Moorcroftia* (in Bull. Herb. Boiss. VI, 1898, p. 714) and a section *Sycadenia* (in Jahrb. Hamb. Wiss. Anst. XVI, 1899, 3. Beih., p. 11—16), the former confined to tropical Asia and the adjacent islands, the latter to Africa. He adds that it is not impossible that some other sections could be created on the ground of a few aberrant African species.

In my opinion, *Rivea* has to be brought back to its previous limits, as indicated by Choisy in 1833 and corresponding with Hallier's section *Eurivea*. The species of *Poliothamnus* as stated above belong to *Ipomoea*. *Legendrea* has to be given generic rank with *L. corymbosa*<sup>1)</sup> as the type species. The species belonging to *Samudra* and *Moorcroftia*<sup>2)</sup> have to be transferred to *Argyreia*. As to *Sycadenia* and some other African species, I can not yet give a definite opinion, as these species are unfortunately unsufficiently known to me. It is possible that they represent one or more distinct genera nearly related to *Legendrea* or that they may be partly united with this.

Following this procedure, the representatives of *Argyreia* are confined to tropical Asia, the Malay Archipelago and the Philippine Islands; *Rivea* only occurs in tropical Asia. *Legendrea* is of American origin, with one representative also in the Canary Islands.

4. Only a thorough knowledge of all species of *Argyreia* can give a satisfactory insight in the natural subdivision of this intricate genus. For the time being, I considered the character whether the corolla is nearly entire or distinctly 5-lobed a feature of primary importance. The same subdivision we find already in Don's General System IV, 1838, p. 254 and 256 (Section *Ptychanthus* Don: "Corolla nearly entire, with 5 plaits

<sup>1)</sup> *Legendrea corymbosa* (L.) Van Ooststr., nov. comb. — *Convolvulus corymbosus* L., Syst., ed. 10 (1759) p. 923 — *Ipomoea Burmanni* Choisy in DC., Prodr. IX (1845) p. 350 — *I. sidaefolia* Choisy in Mém. Soc. Phys. Genève VI (1833) p. 459; id. in DC., Prodr. IX (1845) p. 372 — *Rivea corymbosa* (L.) Hall. f. in Engl., Bot. Jahrb. XVIII (1894) p. 157; Merrill, Fl. Manila (1912) p. 387; id., Enum. Philipp. Fl. Pl. III (1923) p. 371.

According to Merrill, 1923, introduced in the Philippine Islands from tropical America; in some places now spontaneous in thickets and secondary forests. Merrill mentions specimens from Luzon (Bulacan, Rizal, Laguna).

*L. mollissima* Webb & Berth., from the Canary Islands is a pubescent variety, var. *mollissima* (Webb & Berth.) Hall. f. in Engl., Bot. Jahrb. XVIII (1894) p. 157 (= *L. corymbosa* (L.) Van Ooststr. var. *mollissima* (Webb & Berth.) Van Ooststr.).

<sup>2)</sup> Here belong most of the species afterwards described by Hallier, Elmer and Merrill from the Malay Archipelago and the Philippine Islands.

at top. Stamens inclosed" and section *Schizanthus* Don: "Corolla 5-cleft, or 5-parted at the apex. Stamens exserted") and in Endlicher's *Genera Plantarum*, 1839, p. 655 (Section *Samudra* Endl.: "Corollae limbus plicatus subinteger. Stamina inclusa" and section *Euargyreia* Endl. "Corollae limbus quinquefidus. Stamina exserta").

Further I first treated in each group the species with a lax inflorescence followed by those with a more compact or capitate one.

### Key to the species.

- 1a. Limb of corolla shallowly lobed or nearly entire . . . . . 2
- b. Limb of corolla deeply 5-lobed to 5-parted . . . . . 11
- 2a. Cymes capitate or sub-capitate; bracts large, persistent . . . . . 10
- b. Cymes mostly lax; bracts small or rarely large, deciduous, occasionally with a casual foliaceous persistent bract in the cyme . . . . . 3
- 3a. Bracts large, outer ones 3.5—5 cm long, ovate to oblong or elliptic, long and narrowly acuminate. Leaves large, ovate, deeply cordate, glabrous or nearly so above, densely white-tomentose beneath. Peduncles long, stout. Corolla large, c. 6 em long . . . . . 6. *A. nervosa*
- b. Bracts smaller. Leaf base not deeply cordate . . . . . 4
- 4a. Sepals narrowly lanceolate, acute, patently hirsute. Leaves hairy on both sides, elliptic or elliptic-oblong, base rounded or slightly cordate. Corolla c. 2 cm long . . . . . 8. *A. adpressa*
- b. Sepals oblong, ovate or elliptic, obtuse, very rarely acutish, never patently hirsute . . . . . 5
- 5a. Sepals glabrous or very sparsely pilose; the inner cucullate, afterwards (always?) deeply emarginate by tearing of the apex . . . . . 7. *A. cucullata*
- b. Sepals densely sericeous or tomentose; inner ones not cucullate . . . . . 6
- 6a. Sepals equal or subequal . . . . . 7
- b. Outer sepals much longer than inner ones . . . . . 9
- 7a. Stamens and style much shorter than corolla; corolla 5 cm long or more. Lower surface of leaves densely sericeous, silvery white or pale fulvous . . . . . 1. *A. mollis*
- b. Stamens and style about as long as or longer than corolla; corolla smaller . . . . . 8
- 8a. Stamens and style about as long as the corolla or shortly exserted. Sepals broadly elliptic. Lower leaf surface densely pilose to tomentose with short curled hairs . . . . . 3. *A. Walshae*
- b. Stamens and style long exserted. Sepals ovate or oblong. Lower leaf surface sericeous . . . . . 5. *A. sumbawana*
- 9a. Sepals inside glabrous or nearly so. Upper surface of leaves glabrous or nearly so, lower surface sparsely pilose with very short, appressed, straight hairs. Leafblade ovate to oblong . . . . . 2. *A. Reinwardtiana*
- b. Sepals inside densely pubescent. Upper surface of leaves densely sericeous, lower surface tomentose with short curled hairs. Leafblade ovate . . . . . 4. *A. bifrons*
- 10a. Sepals lanceolate, acuminate, hirsute, outer ones 15—17 mm long. Peduncles mostly exceeding the petioles. Leaves ovate-cordate . . . . . 9. *A. capitata*
- b. Outer sepals ovate, acute, glabrous or hairy, 6—7 mm long. Peduncles at most as long as the petioles. Leaves elliptic or oblong, base rounded or shortly attenuate into the petiole . . . . . 10. *A. Ridleyi*
- 11a. Outer sepals distinctly acuminate. Segments of corolla linear, 18—20 mm long. Leaves caudate to cuspidate at apex . . . . . 18. *A. caudata*
- b. Sepals never acuminate, mostly obtuse, very rarely acutish . . . . . 12
- 12a. Sepals densely hirsute-strigillose as are the peduncles and the pedicels. Leaves ovate or elliptic, glabrous above or with a few hairs on the nerves, strigillose beneath . . . . . 13. *A. erinacea*
- b. Sepals, pedicels and peduncles not hirsute-strigillose . . . . . 13
- 13a. Inflorescences densely capitate; bracts spatulate to orbicular, 8—12 mm long. Outer sepals obovate to spatulate, 9—10 mm long, inner slightly shorter, all tomentose without . . . . . 19. *A. aggregata*

- b. Inflorescences lax. Sepals smaller, equal in length or the inner ones longer than the outer . . . . . 14
- 14a. Inner sepals 6—6.5 mm long, outer ones slightly shorter . . . . . 15
  - b. Sepals equal or subequal, 2.5—3 mm, sometimes up to 4 mm long . . . . . 16
- 15a. Leaves densely appressed-hairy beneath, glabrous or nearly so above. Pedicels shorter than the calyx, 1—4 mm long, in fruit 4—10 mm. Bracts triangular to orbicular, minute. Base of filaments with a large tooth . . . . . 11. *A. rubicunda*
  - b. Leaves ± glabrous on both sides. Pedicels longer than the calyx, 7—9 mm long, in fruit up to 18 mm. Bracts linear, larger. Base of filaments without tooth . . . . . 12. *A. glabra*
- 16a. Leaves with a minute crisped pubescence beneath. Pedicels 1—2 mm long. Corolla small; tube cylindric, 2.5—3.5 mm long; lobes oblong, 5.5—6 mm long . . . . . 14. *A. cinerea*
  - b. Leaves sparsely hairy beneath, with straight appressed hairs, or glabrous . . . . . 17
- 17a. Leaves ovate-oblong or elliptic-oblong<sup>1)</sup>, margins not parallel, shortly appressed-pilose on both sides, glabrescent. Pedicels 2.5—5 mm long. Two inner sepals transverse-elliptic with broadly rounded apex. Corolla tube cylindrical, 4—5 mm long; lobes oblong, 8—10 mm long. Sepals in fruit 5—6 mm long. Berry broadly ellipsoid, c. 12 mm long . . . . . 15. *A. micrantha*
  - b. Leaves oblong or narrowly oblong with almost parallel margins, glabrous or nearly so. Pedicels 2—3 mm long. Two inner sepals broadly ovate-triangular, attenuate towards the apex. Corolla tube gradually widened towards the limb, 5—6 mm long; lobes ovate-oblong, c. 9 mm long. Sepals in fruit 3—4 mm long. Berry ellipsoid, c. 15 mm long . . . . . 16. *A. oblongifolia*
- 20. *A. Robinsonii* and 21. *A. parviflora* are unknown to me.

1. *Argyreia mollis* (Burm. f.) Choisy in Mém. Soc. Phys. Genève VI (1833) p. 421; id. in DC., Prodr. IX (1845) p. 331; Zoll., Syst. Verz., 2. Hft. (1854) p. 128; Miq., Fl. Ned. Ind. II (1857) p. 588; id., Fl. Ned. Ind., Suppl. (1860) p. 234; Hall. f. in Versl. 's Lands Pl.t. 1895 (1896) p. 131; id. in Bull. Herb. Boiss. V (1897) p. 381; Boerl., Handl. Fl. Ned. Ind. II (1899) p. 513; Hall. f. in Meded. Rijksherbar. Leiden 12 (1912) p. 14; Koorders, Exk. Fl. Java III (1912) p. 123; Koorders-Schum., Syst. Verz. I (1910—13), Conv. p. 7; Bold., Zakfl. Java (1916) n. 799; Merrill in Philipp. Journ. Sc. XIX (1921) p. 375; Ridley, Fl. Malay Penins. II (1923) p. 449; Beumée in Hand. 3e Ned. Ind. Natuurw. Congr. (1924) p. 178; Heyne, Nutt. Pl. Ned. Ind., ed. 2 (1927) p. 1306; Backer, Onkruid-fl. Jav. Suikerrietgr. (1931) p. 531 — *Convolvulus sericeus* L., Mant. I (1767) p. 43, not of Burman (1768), not *Argyreia sericea* Dalz. & Gibbs. — *Convolvulus mollis* Burm. f., Fl. Ind. (1768) p. 44, tab. 17 — *Ipomoea sericea* (L.) Blume, Bijdr. (1825) p. 720 — *Argyreia argentata* Miq., Fl. Ned. Ind. II (1857) p. 588; Boerl., Handl. Fl. Ned. Ind. II (1899) p. 513; Koorders, Exk. Fl. Java III (1912) p. 123 — ? *Lettosmia argentea* Ridley in Journ. Fed. Malay States Mus. VII (1916) p. 47.

A woody twiner, up to 10 m high. Stems with white milky juice, terete or finely ribbed, young parts densely appressed-pilose with whitish or pale fulvous hairs, glabrescent, occasionally more or less farinose, the old parts up to 10 mm thick, brownish or greyish. Leaves petiolate, the petiole 1—6 cm long, shortly appressed-pilose; the blade rather variable in form, elliptic to oblong or narrowly oblong, sometimes ovate or lanceolate, the base acute, or somewhat attenuate into the petiole, or rounded,

<sup>1)</sup> 17. *A. celebica* of which the flowers are unknown, has oblong-lanceolate or ovate-oblong, glabrous leaves; margins not parallel. Sepals in fruit 3—4 mm long. Berry ellipsoid, c. 10 mm long.

never cordate, the apex acute or short-acuminate, mucronulate, or obtuse (in broad leaves as well as in narrower ones), 4—15 cm long, 2—7 cm broad, the upper surface densely of sparsely appressed-hairy or glabrous or only with hairs along the nerves, the lower surface densely sericeo-tomentose, with silvery white or pale fulvous hairs or sometimes the indument much less dense; lateral nerves 9—18 (—20) on each side of the midrib, straight, curved near the margin, prominent beneath. Inflorescences axillary, along the main-stems or on short lateral branches, solitary or occasionally two in a leaf axil; the peduncle shorter to slightly longer than the petiole, slightly angular, softly hairy, 5—25, sometimes up to 45 mm long, with 1 to 5, rarely with more flowers; pedicels 5—15 mm long, hairy like the peduncle, angular; bracts obovate-oblong, obtuse, glabrous or almost glabrous inside, densely sericeo-lanate outside, deciduous. Sepals about equal in length, 2 exterior ones broadly elliptic, obtuse, 8—10 mm long, the third and fourth sepal elliptic to elliptic-oblong, obtuse to slightly emarginate, the fifth oblong, slightly emarginate, all densely sericeo-lanate outside and glabrous inside, all enlarged in fruit, and then 12—14 mm long, concave, patent, red or purplish inside. Corolla pale violet or pink with a white base, sometimes entirely white, large, funnel-shaped to campanulate, 5.5—9 cm high, attenuate towards the base into a narrow tube, 8—10 mm long; the limb shallowly lobed; the midpetaline bands outside pilose with rather long, appressed hairs, the basal part of the corolla and the connecting fields glabrous. Stamens and style much shorter than the corolla; filaments inserted at the mouth of the short tube, sparsely pilose at the base, 15—18 mm long, anthers 4 mm long. Disk annular, nearly 1 mm high. Ovary conical, glabrous, 4-celled. Style c. 30 mm long; stigmas globular, papillose. Fruit subglobose, red or orange red, c. 8—10 mm diam., 4- or less-seeded. Seeds smooth, black, about 5 mm long.

SUMATRA, East Coast, without exact locality, *Yates 1212* (B); Asahan, Goerach Batoe, *Yates 1948* (B); Lampung Districts, Natar, *Teymann, H. B. 4332* (B, L, U).

JAVA, without exact locality, *Blume s.n.* (L, U); *Junghuhn s.n.* (L); *Korthals 257* (L); *Reinwardt s.n.* (L); *De Vriese 214* (L); *Waite s.n.* (L); Bantam, between Tjileles and G. Kentjana, *Backer 1206*, fl. June 1911 (B); between Tjitorek and Moentjong, *Backer 1848*, fl. June 1911 (B); Batavia, *Vorderman s.n.* (B); id., *Hallier s.n.*, fr. Aug. 1896 (L); Tandjong Priok, *Backer 35442*, fl. May 1903 (B); Weltevreden, *Backer 35441* (B); Bidara tjina, *Edeberg & s.n.* (B); Tanah abang, *Hallier s.n.*, fr. Aug. 1896 (B); Tjikampek, *Boedijn* (herb. *Van Steenis 5060*), fr. Aug. 1929 (B); Kemajoran, *Backer 35443*, fl. June 1903 (B); Karendang, *Backer 35440*, fr. March 1903 (B); Krawang, *De Monchy 151*, fl. July 1891 (B); Poerwakarta, *Backer 13982*, fr. June 1914 (B); Tjikoempaj estate, E. of Poerwakarta, *Harmsen 103*, st. Dec. 1921 (B); Buitenzorg, Buitenzorg, *Reinwardt s.n.* (L); id., *Hallier 216 a*, st. Apr. 1893 (B); id., *Hallier 216 b*, fl. Apr. 1893 (L); id., *Hallier s.n.*, st. Oct. 1894 (B); island in Tjiliwoeng, Botanic Garden, Buitenzorg, *Hallier 216 b*, fl. Apr. 1893 (B); Depok, *Hallier s.n.*, st. Aug. 1896 (B); id., *Soegandiredja 245*, fl. May 1900 (B, L); id., *Koorders 44070* β, fr. July 1918 (B, L); id., *Beumée 6011*, fl. Apr. 1923 (B); G. Wangoen, *Soegandiredja 220*, fl. May 1900 (B); Rawa Tjampea, *Reinwardt s.n.* (L); limestone rocks of Tjiseng, Koeripan, *Backer 30834 bis*, fl. May 1920 (B); Tjipetir, *Burok & De Monchy s.n.* (B); Takoka, *Koorders 15279* β, fl. Fr. 1894 (B); Tjisaroea, near Tjikidang, *Bakhuisen van den Brink 1475*, fl. June 1907 (B); Tjisaroea, *Raap 894*, fr. July 1896 (L); Kiara Pajoeng, N. of Tjiandjoer, *Zwaardemaker 75*, fl. Apr. 1918 (B); id., *Backer 23674* and *23760*, fl. March 1918 (B); hills S. of Tjibeber, *Backer 18411*, fl. May 1914 (B, L); G. Boeleud, S. of Tjibeber, *Winckel 362* β, fl. June 1919 (B);

G. Beser, near Tjidadap, S. of Tjibeber, *Winckel* 1157 $\beta$ , fl. May 1917 (B); Tjidadap, Tjibeber, *Bakhuizen van den Brink* 876, fl. May 1916 (B, L); Batoe Karoet, Tjidadap, *Winckel* 353 and 354 $\beta$ , fl. May 1919 (B, L); Tjitibo, Tjidadap, *Bakhuizen van den Brink* 2102, fl. May 1916 (B); Priangan, Bandoeng, *Ploem s.n.* (B, L); near Telaga bodas, *A. J. K.* (?) 229, fl. May 1913 (B); Tjikorai, *Burek* 369, fl. June 1891 (B); N. slope of G. Boerangrang, *Backer* 14147, fr. June 1914 (B); Tjipanas, *Van der Pyl* 605, fr. July 1936 (B); Tasikmalaja, *Koorders* 44309 $\beta$ , fr. Aug. 1917 (B); id., Noesagede island in lake of Pendjaloe, *Koorders* 47918 $\beta$ , fr. July 1917 (B); Cheribon, Losarang, *Backer* 16751, fr. Sept. 1914 (B); Madjalengka, *Beumée* 1756, young fl. March 1918 (B); Pekalongan, forestry E. Tegal, *Beumée* 1882, young fl. March 1918 (B); forestry Margasari, *Beumée* 5134, fl. Apr. 1920 (B); Magelang, N.E. of mouth of K. Loekoela, *Brinkman* 494, fl. Aug. 1931 (B); Semarang, Grobogan, forestry S. Kradenan, *De Boer* 2, fl. May (B); Karang balong, *Lörzing* 1693, fl. June 1914 (B); Kedoeng djati, *Koorders* 28233 $\beta$ , fr. June 1897 (B); id., G. Woelan, *Koorders* 28092 $\beta$ , fl. June 1897 (B, L); Sugar factory Rendeng, without coll. name (L); Salatiga, source of K. Sindjojo, *Docters van Leeuwen* s.n., fl. March 1909 (B); Sepokoeng, *Koorders* 35788 $\beta$ , fl. May 1899 (B); Telemojo, *Koorders* 27707 $\beta$ , fl. June 1897 (B, L); Oengaran, N. slope, *Junghuhn* s.n., fl. Apr. (L), the same sheet bears two more labels, indicating Jogjakarta and G. Gambing as the collecting locality; Djapara-Rembang, Ngarengan, *Koorders* 33613 $\beta$ , fl. May 1899 (B, L); id., *Koorders* 35599 $\beta$ , fl. May 1899 (B); forestry Bekoetoeck, *Blokhuis* s.n., fl. March 1919 (B); forestry Doplang, *Beumée* 973, fr. Aug. 1917 (B); Soerakarta, *Horsfield* s.n. (L; U, type of *Argyreia argentata* Miq.); Klaten, *Leefmans* 102, fr. Sept. 1922 (B); Telawah, *Koorders* 28291 $\beta$ , fl. June 1897 (B, L); Jogjakarta, between Jogjakarta and Wonosari, *Backer* 2528, fl. Apr. 1912 (B); Madioen, Ngawi, *Soeradji* 9, fl. May 1918 (B); Karang anjar, *Stoutjesdijk* 26, 112, 133, 134, fl. and fr. June, July 1921 (B); Ngobel, *Koorders* 23900 $\beta$ , fl. May 1896 (B, L); id., *Koorders* 29191 $\beta$ , fr. Aug. 1897 (L); Pilangredjo, *Wisse* 94, fr. July 1919 (B); Tjerong forest, Ponorogo, *Koorders* 29191 $\beta$ , fr. Aug. 1897 (B, U); Trinil, *Elbert* 364 (L); Kediri, Berbek, *Beumée* 2244, young fl. Apr. 1918 (B); id., *Grutterink* 3053, fl. June 1918 (B); G. Pandan, *Grutterink* 3030, fl. June 1918 (B); Soerabaja, Soerabaja, *Dorgelo* 275, fl. Apr. 1922 (L); id., *Dorgelo* 503, fl. June 1922 (L); id., *Dorgelo* 745, fl. July 1922 (L); forest district S. Soerabaja, Medowo, *Beumée* 2642, fl. May 1918 (B); above Patjet, *Altmann* 66, fl. Apr. 1932 (B); Wonokromo, *Van Slooten* 2066, fr. Sept. 1928 (B); Malang, G. Semongkong, E. of Paseroean, *Backer* 7705, fl. May 1913 (B, L); Bantoer, S. of Gondang legi, *Backer* 3861, fl. June 1912 (B); Poerwodadi, N.E. of Lawang, *Backer* 36187, st. Apr. 1930 (L); Malang, *Wisse* s.n., fl. June 1920 (B); Tangkil, *Koorders* 23808 $\beta$ , st. June 1896 (B); G. Anjar, G. Lamongan, *Heyning* 7, fl. Apr. 1933 (B); G. Bentar near Probolinggo, fl. alb., *Backer* 24335, fl. June 1918 (B); Besoeki, Djember, *Ultée* 14 (B); Poeger, *Koorders* 21072 $\beta$ , fl. and fr. Oct. 1895 (B, L); id., *Koorders* 21073 $\beta$ , 21074 $\beta$ , 21081 $\beta$ , fl. and fr. Oct. 1895 (B); Pradjekan, *Backer* 24573, fl. June 1918 (B); Madoera, Pegantenan, *Vorderman* 79 (B); Kangean Archipelago, Kangean, S. of Ardjasa, *Backer* 27369, st. March 1919 (B); id., dessa Doeko, *Dommers* 35, fr. Sept. 1919 (B); id., Pandeman, *Beguin* V 3, fl. June 1919 (B); id., kali Sangka, *Beguin* E 4, fl. June 1919 (B); Sepandjang, *Backer* 28954, st. Apr. 1919 (B).

BALI, Batoer, *De Voogd* 2028, fl. May 1935 (B); Brambang, *Sarip* 16 (exped. R. Maier), fl. July 1918 (B, L); Galioekir, *De Voogd* 2464, fl. May 1936 (B).

Cultivated specimens: *Hort. Bog.* XV. G. 68 (B); id. XV. G. 69, *Wigman Jr.*, fl. and fr. Oct. 1910 (B); id. XV. G. 69a, *Wigman Jr.*, fr. Oct. 1910 (B); id., *Pulle* s.n., fl. (U); id., seedlings, *Hallier* C 170 b, Dec. 1894 (L).

**Distribution:** Malay Peninsula (according to Ridley, 1923), Sumatra, Java, Bali.

**Habitat:** Thickets, secondary forests, teak woods, lava fields, alang fields, waysides, occasionally in hedges; between 1 and 1500 m.

**Vernacular names:** areuj tatapajan, tatapajan (sund., W. Java, *Blume*, *Koorders*, *de Monchy*, *Soegandiredja*, *Winckel*); tatajan gedé (sund., W. Java, *Blume*, *Miquel*); areuj koejapoe (sund., W. Java, *Blume*, *Miquel*); podol landak (sund., W. Java, *Bakhuizen van den Brink*, *Winckel*); kihoei (sund., W. Java, *Koorders*); kemarogan, kelawatan (javan., M. Java,

*Koorders*); rambatan (javan., M. Java, *Brinkman*); toeloepan (javan., M. Java, *Backer, Junghuhn, Koorders*); oeloek oeloek (javan., E. Java, *Koorders*); rabet po-sepo (Madoera, *Backer, Koorders*); sepo sepoan (Kangean Arch., *Dommers*); boentetoeeloepan (Bali, *Sarip*).

2. **Argyreia Reinwardtiana** (Bl.) Miq., Fl. Ned. Ind. II (1857) p. 589; Forbes, Wander., Germ. ed. II (1886) p. 222; Hall. f. in Bull. Herb. Boiss. V (1897) p. 381; Boerl., Handl. Fl. Ned. Ind. II (1899) p. 513 — *Ipomoea Reinwardtiana* Bl., Bijdr. (1825) p. 720; Hall. f. in Bull. Boiss. V (1897) p. 381 — *Argyreia Guichenotii* Choisy in Mém. Soc. Phys. Genève VI (1833) p. 423 with exception of the synonym *Ipomoea pulchra* Bl., which belongs to *Stictocardia tiliifolia* (Desr.) Hall. f.; Decaisne, Herb. Timor. (1835) p. 61; Spanoghe in Linnaea XV (1841) p. 338; Choisy in DC., Prodr. IX (1845) p. 331, excl. specim. et syn. Bl.; Miq., Fl. Ned. Ind. II (1857) p. 589, excl. syn. Bl. et specim. Jav.; Forbes, Wander., Germ. ed. II (1886) p. 222; Boerl., Handl. Fl. Ned. Ind. II (1899) p. 513 — *Convolvulus Reinwardtianus* (Bl.) D. Dietr., Syn. Pl. I (1839) p. 675 — *C. ovatus* Reinw. mss. ex Choisy in DC., Prodr. IX (1845) p. 332, in syn.

A woody twiner. Stems terete, the young parts sparsely pilose with very short, appressed whitish hairs, later on lignescent and glabrous, dark or pale brown, lenticellate, up to 4 mm diam. Leaves petiolate; petiole shortly appressed-pilose like the stems, slender, 3—5 cm long; blade herbaceous or chartaceous, entire, ovate, ovate-oblong or elliptic-oblong, 5.5—17 cm long, 3—10 cm broad, rounded, truncate or very slightly cordate at the base, attenuate or acuminate at the apex, minutely mucronate, glabrous or nearly so above, sparsely to rather densely pilose beneath with short appressed, straight hairs; midrib and 8—10 pairs of lateral nerves rather prominent beneath; minute venation reticulate beneath. Inflorescences axillary; peduncles much shorter than the petioles, 1—2.5 cm long, rather densely pilose, with minute whitish hairs, cymosely 2—few-flowered; bracts linear to oblong, appressed-pilose beneath, glabrous or nearly so above, 8—15 mm long, c. 3 mm broad; pedicels hairy like the peduncles, 3—5 mm long. Sepals unequal, the outer ones much longer than the inner, with ± undulate margins; two outer ones ovate, acutish, outside densely sericeous, sometimes less densely towards the apex, inside glabrous or nearly so, (12—) 15—18 mm long; third sepal narrow-elliptic, obtuse, c. 13 mm long; two inner ones elliptic to ovate-oblong, obtuse, 8—9 mm long, densely whitish sericeous outside, sometimes with exception of the membranaceous margins, which are glabrous but finely ciliate (in the specimen collected by Spanoghe the outer sepals are, at least partly, broadly ovate to orbicular, obtuse, c. 13 mm long, the inner ones ovate to broad-ovate, c. 7 mm long); sepals accrescent in fruit, outer ones up to 20 mm long, red inside. Corolla purplish pink (Walsh), funnel-shaped, c. 4—4.5 cm long; limb shallowly lobed, c. 3.5—4 cm diam.; tube glabrous at the base, densely sericeous towards the limb; midpetaline bands sericeous like the upper portion of the tube; connecting fields glabrous. Stamens and style nearly as long as the corolla; filaments slightly unequal, inserted near the base of the corolla tube, c. 3 cm long, glabrous except for the base; anthers sagittate, c. 5 mm long. Disk annular, nearly 1 mm high. Ovary 2-celled, glabrous, style glabrous, stigmas papillose. Fruit presum-

ably a rather dry berry, in the *Teysmann* specimen depressed-globose, 7–10 mm diam., 2–4-seeded. Seeds glabrous, with 1 flat and 1 convex side if 2, and with 2 flat and 1 convex side, if 4 are present, c. 5.5 mm long (ripe?).

TIMOR, without exact locality, *Reinwardt* 1351, named *Convolvulus ovatus* Reinw. in sched., fl. (L, type); id., *Spanoghe s.n.*, named *Ipomoea speciosa* L.f., by Spanoghe, fl. (L); Nonbaun, *Teysmann s.n.*, fr. (B); South Middle Timor, Soë, *Walsh* 153, fl. March 1929 (B).

**Distribution:** Only known from Timor.

**Habitat:** The specimen *Walsh* 153 between limestone rocks, at 850 m altitude.

**Remarks:** 1. The description of *A. Guichenotii* Choisy so well agrees with the specimens of *A. Reinwardtiana*, that the two species are doubtless identic.

2. The form of the sepals is rather variable; in the type the outer ones are acute or acutish, in other specimens they are sometimes partly or all obtuse or broadly rounded; in *A. Guichenotii* they are described as being very obtuse.

3. It is not impossible that the specimen from Timor mentioned by Choisy in *Mém. Soc. Phys. Genève* VI (1833) p. 425; id. in DC., *Prodri.* IX (1845) p. 332 under *Argyreia setosa* Choisy, belongs to *A. Reinwardtiana* (Bl.) Miq. See also Decaisne, *Herb. Timor.* (1835) p. 61; Spanoghe in *Linnaea* XV (1841) p. 338; Boerl., *Handl. Fl. Ned. Ind.* II (1899) p. 513.

**3. *Argyreia* Walshae Van Ooststr., nov. spec. Fig. 2, n—p.**

*Frutex scandens*, ramulis teretibus, in secco longitudinaliter rugosis, fulvis vel cinereis, glabris vel sparse breviter pilosis vel farinosis, adultioribus ad 6 mm diam. lenticellatis solidis. Folia petiolata, petiolis gracilibus breviter pubescentibus ad 10 cm longis, laminis late ovatis vel ovatis, apice acutis vel paulo acuminatis mucronulatis, basi rotundatis vel paulo emarginatis, superioribus 5–6 cm longis, 2.5–3.5 cm latis, adultioribus ad 16 cm longis 13 cm latis, supra sparse adpressoque pilosis, pilis albidis, glabrescentibus, subtus dense pubescentibus vel breviter tomentosis, pilis crispatis fulvo-cinereis, nervo mediano et nervis lateralibus utrinque 9–12 subtus prominentibus. Inflorescentiae axillares, apice umbellato-cymosae, 4–12- (vel multi, ad 20-) florae, pedunculis quam petoli brevioribus vel eis aequantibus 1–6 cm longis ut pedicelli et calyces sordide albo- (vel cinereo-fulvo-) tomentosis, pedicellis 3–6 mm longis, apice incrassatis, bracteis lanceolatis vel linearibus, subtus tomentosis, supra glabris. Sepala subaequalia late elliptica obtusa 6–8 mm longa, externe tomentosa, interne glabra brunnea. Corolla tubuloso-infundibuliformis 2–2.8 cm longa, limbo obscure lobato, fasciis mesopetalis et tubo in parte superiore sericeis, ceterum glabra. Stamina ut stylus paulo exserta, filamenta c. 5 mm supra basin corollae inserta, ad 20 mm longa, basi pilosa; antherae 3.5–4 mm longae; stylus filiformis c. 20–25 mm longus, stigmata globosa papillosa; ovarium glabrum 2-locellatum; discus annulatus c. 1 mm altus. Fructus deest.

TIMOR, without exact locality, *Jonker* 273, young fl. Apr. (U); Beloe, Tobaki (Naïtimoe), *Walsh* 388, fl. June 1929 (B, type).

**Distribution:** Only known from Timor.

**Habitat:** The type specimen was collected at 800 m altitude; according to Mrs. Walsh rather frequent in Timor.

**Remarks:** 1. Named in honour of Mrs. M. E. Walsh, who, during her stay in Timor has made important botanical and entomological collections, supplying in this way many valuable contributions to the knowledge of the flora and fauna of the island.

2. According to Jonker the young corollas of his specimen are pale green with greyish midpetaline bands.

**4. *Argyreia bifrons* Van Ooststr., nov. spec. Fig. 2, t.**

Frutex scandens, ramulis junioribus dense pubescentibus vel farinosis teretibus substriatis cinereo-brunneis solidis ad 4 mm diam. Folia breviter petiolata, petiolis 1—2 cm longis dense breviterque cinereo- vel olivaceo-tomentosis, laminis ovatis, basi truncatis vel emarginatis, apice acutis vel breviter acuminatis, 5—10 cm longis 3.5—6.5 cm latis, supra dense adpresque cinereo- vel olivaceo-sericeis nitidis, subtus dense breviterque crispato-tomentosis pallidioribus cinereis vel olivaceis opacis, nervo mediano et nervis lateralibus utrinque 10—14 subtus prominentibus. Inflorescentiae axillares, pedunculis quam petioli multo longioribus, in sicco angulatis vel sulcatis 6—10 cm longis breviter tomentosis, apice umbellato-cymosis, multifloris, pedicellis in floribus junioribus (adultiores desunt) ad 5 mm longis, bracteis oblongis vel anguste spathulatis, utrinque dense breviterque pubescentibus vel tomentosis, 6 mm longis. Sepala utrinque dense pubescentia vel tomentosa, inaequalia, exteriora 2 oblonga apice obtusa vel paulo emarginata 8—9 mm longa c. 4.5 mm lata, sepalam tertium paulo angustius et brevius obtusum c. 6.5 mm longum, sepala interiora 2 late elliptica obtusa 5 mm longa 4 mm lata. Corolla infundibuliformis laete violacea (*Rensch*), fasciis mesopetalis sericeis, ceterum glabra. Filamenta prope basin corollae inserta filiformia, basi pilosa. Ovarium 2-loculare glabrum. Stylus filiformis; stigmata globosa papillosa. Discus annulatus sublobatus.

LOMBOK, Ekas, *Mrs. Rensch* 454 (B, type).

**Distribution:** Only known from Lombok.

**Habitat:** Twining on trees and shrubs, frequent (according to Mrs. Rensch) and collected between 5—10 m altitude.

**Remarks:** 1. The specific name *bifrons* refers to the striking difference in hairiness of the upper and lower surface of the leaves.

2. The young flowers of the type specimen do not yet permit a close examination of the form and dimensions of the corolla, stamens and pistil.

**5. *Argyreia sumbawana* Van Ooststr., nov. spec. — *Rivea sumbawana***

Fig. 2. a: *Argyreia oblongifolia* Van Ooststr., branch of the type specimen, Endert 4509, B; b: *id.*, fruits; c<sub>1</sub>—c<sub>5</sub>: *id.*, sepals 1—5; d—e: *id.*, segment of corolla (outside) and stamen, showing place of insertion of the latter; f: *Argyreia celebica* Van Ooststr., fruiting branch of the type specimen, Koorders 18214 $\beta$ , L; g: *id.*, leaf; h: *Argyreia pedicellata* Van Ooststr., fruiting branch of the type specimen, Elmer 8439, L; i: *id.*, fruit of the specimen Clemens s.n., from Mindanao; j: *id.*, leaf; k: *Argyreia cucullata* Van Ooststr., inflorescences of the type specimen, Lötzing 8514, L; l: *id.*, leaf; m<sub>1</sub>—m<sub>5</sub>: *id.*, sepals 1—5; n: *Argyreia Walshae* Van Ooststr., inflorescence of the type specimen, Walsh 388, B; o: *id.*, leaf; p<sub>1</sub>—p<sub>5</sub>: *id.*, sepals 1—5; q—r: *Argyreia sumbawana* Van Ooststr., branches of the type specimen, Colfs 318, L; s<sub>1</sub>—s<sub>5</sub>: *id.*, sepals 1—5; t<sub>1</sub>—t<sub>5</sub>: *Argyreia bifrons* Van Ooststr., sepals of the type specimen, Mrs. Rensch 454, B. Branches, leaves and fruits (a, b, f, g, h, i, j, k, l, n, o, q, r)  $\frac{1}{2}$  X nat. size; sepals (c, m, p, s, t) 3 X nat. size; corolla segment and stamen (d, e)  $\frac{1}{2}$  X nat. size.

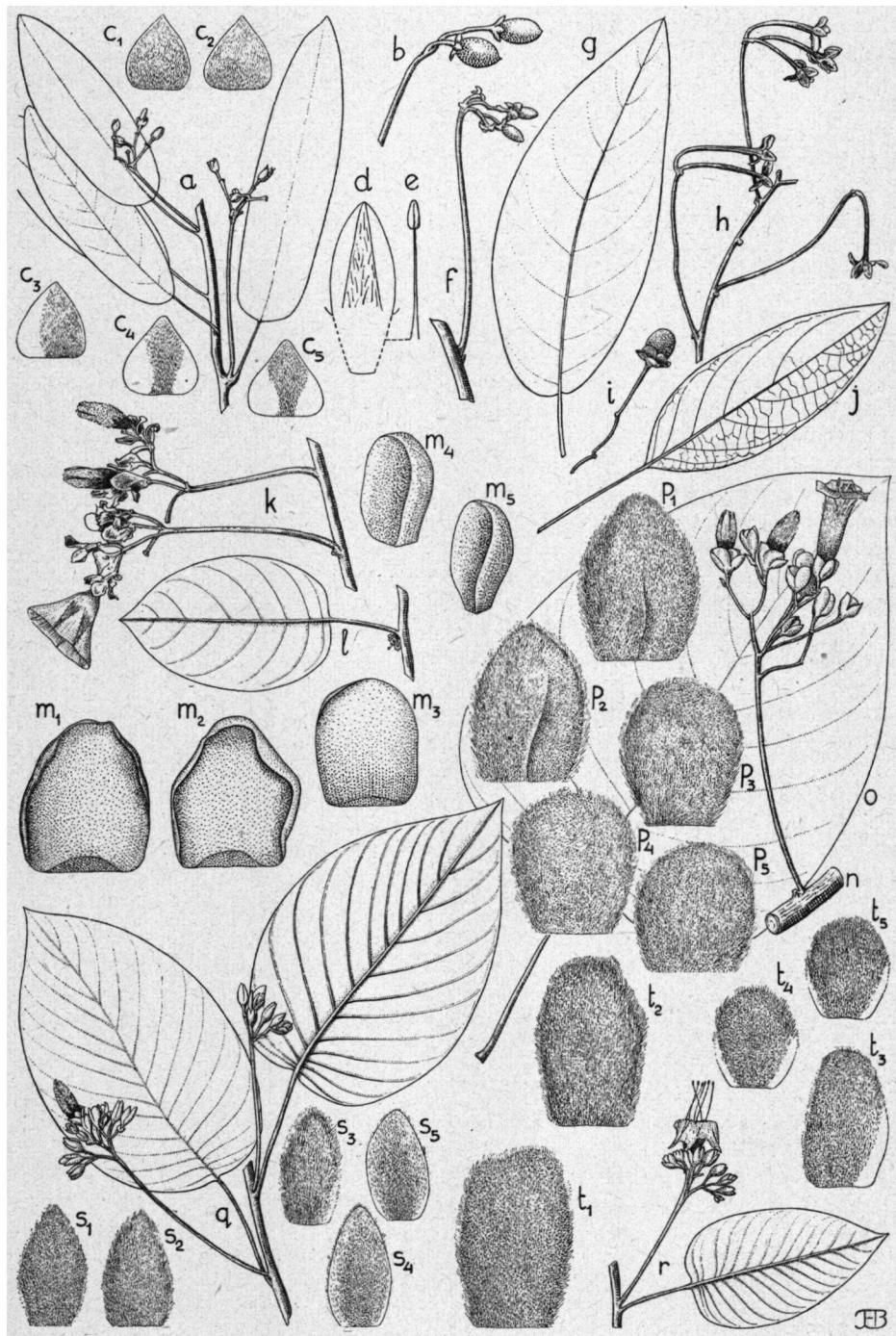


Fig. 2.

Hall. f. in Elbert, Sunda-Exped. II (1912) p. 281, nomen nudum.  
**Fig. 2, q—s.**

Description of the type specimen, *Colfs 318* (L); the data in parentheses refer to the other specimens mentioned below:

*Frutex scandens*, ramulis junioribus teretibus dense adpresso pubescentibus vel farinosis pallide fulvis, adultioribus interdum longitudinaliter rugosis lenticellatis farinosis vel glabris solidis ad 5 mm diam. Folia petiolata, petiolis dense adpresso breviter pubescentibus 2.5—6 cm longis, laminis ovatis, basi paullo emarginatis vel truncatis (vel in petiolas brevissime attenuatis), apice breviter acuminatis acutis mucronulatis, 6—13 cm longis 3—8.5 cm latis, supra dense adpresso sericeis, subtus dense breviterque sericeo-tomentosis pallidioribus pallide fulvis, nervo mediano et nervis primariis utrinque (9—)10—14 subtus prominentibus supra leviter impressis. Inflorescentiae axillares, pedunculis gracilibus teretibus vel subangulatis, quam petioli longioribus 3—7(—11) cm longis, apice umbellato-cymosis, ut rami cymae et pedicelli dense pubescentibus vel farinosis; pedicelli 4—8 mm longi; bracteae minutae ovato-lanceolatae acutae, externe dense pubescentes, interne subglabrae, mox deciduae. Sepala aequalia (vel paullo inaequalia), externe dense interne sparse praesertim apicem versus adpresso pubescentia vel interne glabra, exteriora 2 ovato-oblonga vel ovato-triangularia (vel oblonga) obtusa 5.5(—6.5) mm longa (2—)3 mm lata; sepalum tertium anguste ellipticum (vel oblongum paullo obliquum) 5.5(—6.5) mm longum (2.5—)3(—3.5) mm latum; sepala interiora 2 ovata vel ovato-triangularia, apicem obtusum versus attenuata, marginibus tenuioribus, 5(—6) mm longa 3(—4) mm lata. Corolla rosea vel pallide roseopurpurea tubulosa vel infundibuliformis c. 2.5 cm longa; tubus c. 1.3 cm longus c. 7 mm supra basin dilatatus; limbus obscure lobatus, denique reflexus; pars superior tubi et fascii mesopetalii (c. 12 mm longi) sericei. Stamina ut stylus exserta. Filamenta c. 7 mm supra basin corollae inserta, basi dense pilosa, pilis erassis, (10—)14(—19) mm longa, antherae c. (2.5—)3.5—4 mm longae; stylus filiformis c. 20(—24) mm longus; stigmata globosa papillosa; ovarium glabrum 4-locellatum. Discus annulatus subinteger (vel obscure 5-lobatus) c. 1 mm altus. Fructus deest.

SOEMBAWA, without exact locality, *Colfs 318*, fl. Nov. 1879 (L, type); Soembawa-besar, *Mrs. Rensch 484*, fl. Apr. 1927 (B); West Soembawa, near Lenangoean, *De Voogd 2730*, fl. June 1936 (B).

**Distribution:** Only known from Soembawa.

**Habitat:** The specimen *Rensch 484* in dry thickets, at 50 m altitude, rather frequent; the specimen *de Voogd 2730* in open places, at 500 m alt.

**Remarks:** Whereas the outer sepals in the type specimen are ovate to ovate-oblong they are narrower in the two other specimens, especially in that collected by *de Voogd*.

6. *Argyreia nervosa* (Burm. f.) Bojer, Hort. Maurit. (1837) p. 224 (not seen); Merr., Fl. Manila (1912) p. 386; id., Enum. Philipp. Fl. Pl. III (1923) p. 371 — *Convolvulus nervosus* Burm. f., Fl. Ind. (1768) p. 48, tab. 20, fig. 1 — *C. speciosus* L. f., Suppl. (1781) p. 137, excl. patria — *Ipomoea speciosa* (L. f.) Pers., Syn. Pl. I (1805) p. 183; Curtis, Bot. Mag. (1824) t. 2446; Blume, Bijdr. (1825) p. 381 — *Lettsomia speciosa* (L. f.) Roxb.,

Hort. Bengal. (1814) p. 13, nomen — *L. nervosa* (Burm. f.) Roxb., Fl. Ind., ed. Carey & Wall., II (1824) p. 78; id., ed. Carey, I (1832) p. 488 — *Argyreia speciosa* (L. f.) Sweet, Hort. Brit. (1827) p. 289; Choisy in Mém. Soc. Phys. Genève VI (1833) p. 411; id. in DC., Prodr. IX (1845) p. 328; Wight, Icon. III (1844—45) t. 851 (*Argeriea* s.); Zoll., Syst. Verz., 2. Heft (1854) p. 127; Hassk., Retzia I (1855) p. 68; Miq., Fl. Ned. Ind. II, (1857) p. 585; Clarke in Hook., Fl. Brit. Ind. IV (1883) p. 185; Hillebr., Fl. Hawaiian Isl. (1888) p. 312; Hall. f. in Versl. 's Lands Pl.t. 1895 (1896) p. 131; Cooke, Fl. Bombay II (1905) p. 255; Duthie, Fl. Upper Ganget. Pl. II (1911) p. 120; Bold., Zakfl. Java (1916) n. 799; Gamble, Fl. Pres. Madras V (1923) p. 907 — *Rivea nervosa* (Burm. f.) Hall. f. in Bull. Herb. Boiss. V (1897) p. 381; Boerl., Handl. Fl. Ned. Ind. II (1899) p. 513; Koorders, Exk. Fl. Java III (1912) p. 123.

A large climber, with milky, viscid juice (Wight). Stems 5—10 m high, robust, terete, densely minutely tomentose, whitish or fulvous. Leaves large, ovate to orbicular, 10 to 30 cm or more long, 8 to 25 cm or more broad, the apex obtuse or acute to shortly cuspidate, mucronulate, the base deeply cordate; upper surface glabrous or nearly so, lower surface densely fulvous to greyish or white sericeo-tomentose, shining; midrib and 11—15 nerves on each side of it prominent beneath, minor nerves many, parallel between the primary lateral ones; petiole shorter than or as long as the blade, tomentose like the stems. Flowers in a subcapitiate cyme at the end of a stout peduncle, this peduncle tomentose like the stems, terete, attaining a length of 20 cm or more. Bracts large, ovate to oblong or elliptic, with long and narrow acumen, thinly membranaceous, veined, softly pilose outside, glabrous inside, 3.5—5 cm long, deciduous; pedicels short, angular. Sepals almost equal in length or the interior ones a little shorter, all densely whitish tomentose outside, glabrous inside, the two outer ones broadly elliptic, obtuse or acutish, up to 15 mm long, the 3 inner ones broadly elliptic to orbicular, obtuse, about 10—12 mm long. Corolla rose-purple, large, tubular to funnel-shaped, constricted at the base into a narrow tube, and with a slightly lobed limb; about 6 cm long, the tube 6—7 mm; corolla densely appressed white sericeo-lanate without, with exception of the connecting fields between the midpetaline bands and the most basal part of the corolla, glabrous within. Stamens and style included. Filaments inserted at the mouth of the short tube, pilose at their bases, different in length, 13—18 mm long; anthers about 5.5 mm long. Ovary glabrous, 4-celled; style filiform, nearly 30 mm long; disk annular. Fruit globose, apiculate, c. 2 cm diam., yellowish brown, nearly dry (according to Clarke).

SUMATRA, Atjeh and Dependencies, Poeloe Weh, Sabang, along road to the lake, *Van Slooten* 820, fl. May 1928 (B).

JAVA, Batavia, Weltevreden, cult., Backer 34295, fl. Apr. 1905 (B); Buitenzorg, Buitenzorg, Tjikeumeuh, cult., Hallier 217, fl. May 1893 (B); Semarang, Semarang, cult., Backer 37350, fl. July 1929 (L); Jogjakarta, Jogjakarta, cult., Backer 12059, fl. March 1914 (B); Malang, Paseroean, cult., according to Backer in sched.

**Distribution:** Originally in British India, from Assam and Bengal to Belgaum and Mysore, cultivated in other tropical countries; occasionally escaped from culture.

**Vernacular names:** elephant creeper; areuj boël kebo, areuj bohol kebak (kebok) (sund., W. Java, *Hasskarl, Koorders, Miquel*).

**Use:** Cultivated in gardens for ornamental purposes.

**7. *Argyreia cucullata* Van Ooststr., nov. spec. Fig. 2, k—m.**

Description of the type specimen, *Lörzing* 8514 (L):

*Frtex scandens ad 5 m altus, ramulis teretibus, junioribus pilis brevissimis laxe adpressis praeditis, adultioribus glabrescentibus vel glabris brunneis ad 3.5 mm diam. Folia petiolata, petiolis ut ramuli brevissime pilosis 1.5—2 cm longis, laminis coriaceis ovatis, apice acutiusculis vel obtusis mucronulatis, basi rotundatis, marginibus subrevolutis, 4—6 cm longis 2—3.5 cm latis, supra glabris, subtus pilis brevissimis laxe adpressis praeditis, nervo mediano et nervis lateralibus utrinque c. 7 subtus prominentibus. Inflorescentiae in axillis foliorum superiorem positae secundae, pedunculi sparse pilosi, pilis ut in ramuli, vel glabri, sulcati vel angulati, 3.5—5 cm longi, apice umbellato-cymosi multiflores; rami adpresso pilosi; pedicelli breves 2—3 mm longi apicem versus incrassati; bracteae oblongae crispatae inferiores ad 9 mm longae. Sepala glabra vel externe sparse breviterque pilosa, exteriora dua late ovata haud vel paullo crispata, apice late rotundata, marginibus inflexis, c. 7—9 mm longa; sepalum tertium latius 5—6 mm longum; sepala interiora dua c. 5—5.5 mm longa valde concava cucullata. Corolla campanulata vel infundibuliformis c. 3 cm longa violacea, limbo margine pallidiore vel albo (*Lörzing*), paullo lobato c. 4.5 cm diam. (*Lörzing*), lobis denique reflexis, fasciis mesopetalis subhirsutis, ceterum glabra. Filamenta c. 5 mm supra basin corollae inserta 15—16 mm longa, basi incrassata glabra; antherae c. 3 mm longae. Stylus filiformis; ovarium conicum 2-loculare glabrum; stigmata globosa papillosa. Discus annularis 1 mm altus. Fructus deest.*

SUMATRA, East Coast, Upper Petani valley, *Lörzing* 8514, fl. Oct. 1921 (B; L, type). Presumably the following specimens belong here too: E. Sibajak, Petani valley, *Lörzing* 9434, young fl. Jan. 1923 (B, L); Karo upland, near Kabandjahe, *Lörzing* 8731, fr. May 1922, see remarks (B).

**Distribution:** Sumatra.

**Habitat:** moist thickets, edges of virgin forests, between 1150 and 1300 m.

**Remarks:** Presumably the specimens *Lörzing* 9434 with young flowers and *Lörzing* 8731 with fruits belong here too. The former mainly differs in its longer and more slender petioles and peduncles, in the more thinly coriaceous leaves and in the longer and narrower bracts of the inflorescences. It has the leaves long petiolate, petiole 3—6 cm, terete, the leafblade ovate to narrowly elliptic, shortly acuminate at the apex, rounded at the base or slightly attenuate into the petiole, 7—10.5 cm long, 2.5—4.5 cm broad; nerves 6—8 pairs; upper surface glabrous except for the midrib, lower one with short, stiff, slightly appressed hairs. Peduncles long, slender, 8—14 cm long, sparsely appressedly pilose. Inflorescences umbellately-cymose, many-flowered. Bracts linear, crispate, the lower ones up to 20 mm long, sparsely pilose outside, glabrous inside, pink (*Lörzing*). Sepal 1 broad-ovate or ovate-oblong, obtuse, crispate, 9—10 mm long, 6 mm broad; s. 2 ovate or ovate-oblong, obtuse, crispate, 10 mm long, 6 mm broad; s. 3 broad-ovate, flat or cucullate, 6 mm long; s. 4 and 5 deeply concave,

cucullate, 5 mm long, finally deeply emarginate at the apex (always?)<sup>1)</sup>; 2 outer sepals with some appressed hairs. *Lörzing* describes the fruits as being of a pink colour; they are, however, not represented on the sheet. *Lörzing* 8731 has very young flowers and fruits and seems to be identic. In this specimen the leaves are more densely appressedly pilose beneath with short soft hairs; the upper surface is glabrous in the old, but appressedly pilose in the young leaves. Fruit ovoid, to about 15 mm long, attenuate into a mucro, at base enclosed by the sepals.

**8. *Argyreia adpressa* (Wall.) Boerl., Handl. Fl. Ned. Ind. II (1899) p. 513 — *Convolvulus adpressus* Wall., Cat. (1828) n. 1424, nomen — *Moorecroftia adpressa* (Wall.) Choisy in Mém. Soc. Phys. Genève VI (1833) p. 431; id. in DC., Prodr. IX (1845) p. 334 — *Letsomia adpressa* (Wall.) Miq., Fl. Ned. Ind. II (1857) p. 591; Clarke in Hook., Fl. Brit. Ind. IV (1883) p. 196; Prain in Journ. As. Soc. Bengal LXIII (1894) p. 99; id. in Journ. As. Soc. Bengal LXXIV (1906) p. 324; Ridley, Fl. Malay Penins. II (1923) p. 451.**

Woody climber, stems terete, brown pilose to hirsute in the young parts, later glabrescent and dark brown, up to 20 m long. Leaves petiolate, petiole hairy like the stems, 1.5—5.5 cm long; blade elliptic or elliptic-oblong, obtuse or acutish to very shortly acuminate at the apex, rounded at the base or slightly cordate, more or less densely and loosely appressed-pilose to strigillose on both sides or upper surface very sparsely strigillose, the indument more or less shining, surface of the older leaves more or less rough, 4—13 cm long and 2—8 cm broad; midrib and lateral nerves prominent beneath, lateral nerves 9—11 on each side of the midrib, parallel, straight at first, curved at the margin. Inflorescences axillary, pedunculate; peduncle hirsute, 2.5—11 cm long; flowers at the end in a dense capitate or umbelliform cyme; branches of the cyme and pedicels hairy like the peduncle; pedicels 2—3 mm long; bracts of the same form as the outer sepals, greenish white (*Lörzing*); two outer sepals linear-lanceolate, acute, 10—11 mm long, in dry specimens often with recurved apex, hirsute outside, glabrous inside or with some patent hairs; three inner sepals shorter, lanceolate, gradually attenuate towards the apex, respectively about 8, 6.5 and 5.5—6 mm long, hirsute outside, but with glabrous margins, glabrous inside. Corolla funnel-shaped, about 18 mm long, white with bright reddish purple bands, inside of throat and tube violet (*Lörzing*), the limb almost entire, the midpetaline bands with long patent hairs, forming a kind of pencil in flowerbud, for the rest glabrous; filaments inserted about 2 mm above the base of the corolla, thickened and glabrous at their base, 12—14 mm long; anthers linear, 3.5 mm long; ovary conical, 2-celled, glabrous; style filiform, 18 mm long; stigma biglobose, papillose. Fruit ellipsoid, reddish-purple (*Lörzing*), 16 × 12 mm (*Lörzing*) in dried state, at base with the irregularly spreading and reflexed sepals.

SUMATRA, East Coast, above Sibolangit, rare, *Lörzing* 4347, fl. June 1916 (B, L); id., *Lörzing* 4392, fl. Aug. 1916 (B, L); id., nature reserve, not frequent, *Lörzing* 5074, fr. Apr. 1917 (B); S.W. of Sibolangit, *Lörzing* 4182, fr. Jan. 1916 (B);

<sup>1)</sup> Prain mentions such deeply emarginate inner sepals for *Letsomia Curtisi* Prain in Journ. As. Soc. Beng. LXIII (1894) p. 100 (= *Argyreia Curtisi* Prain, l.c.), a species that seems to be closely related or perhaps identic.

N.W. of Sibolangit, bank of Betimoes, rare, *Lörzing* 5358, fl. Oct. 1917 (B); E. of Sibolangit, valley Lan Klewang, rare, *Lörzing* 5366, fl. and fr. Oct. 1917 (B, L); Asahan, Goerach Batoe, *Yates* 1659, fl. (B).

**Distribution:** Malay Peninsula, Sumatra.

**Habitat:** In thickets and thin forests, between 350 and 800 m.

**9. Argyreia capitata** (Vahl) Choisy in Mém. Soc. Phys. Genève VI (1833) p. 423; id. in DC., Prodr. IX (1845) p. 332; Zoll., Syst. Verz., 2. Heft (1854) p. 128; Miq., Fl. Ned. Ind. II (1857) p. 589; Hall. f. in Versl. 's Lands Plt. 1895 (1896) p. 131; id. in Bull. Herb. Boiss. V (1897) p. 381; Boerl., Handl. Fl. Ned. Ind. II (1899) p. 513; Koorders, Exk. Fl. Java III (1912) p. 124; Koorders-Schum., Syst. Verz. I (1910—13), Conv. p. 7; Gagnep. & Courch. in Lee., Fl. Indo-Chine IV (1915) p. 277; Bold., Zakfl. Java (1916) n. 798 — *Convolvulus capitatus* Vahl, Symb. III (1794) p. 28 — *C. capitiformis* Poir. in Lamk., Eneyel. Suppl. III (1814) p. 469 — *Ipomoea capitata* (Vahl) R. & Sch., Syst. IV (1819) p. 238 — *Lettsomia strigosa* Roxb., Fl. Ind., ed. Carey & Wall., II (1824) p. 80; Clarke in Hook., Fl. Brit. Ind. IV (1883) p. 193; Prain in Journ. As. Soc. Bengal LXIII (1894) p. 93; S. Moore in Journ. Bot. LXIII, Suppl. (1925) p. 71 — *Ipomoea trichotosa* Blume, Bijdr. (1825) p. 717; Spanoghe in Linnaea XV (1841) p. 340 — *Convolvulus trichotosus* (Bl.) Dietr., Syn. Pl. I (1839) p. 670 — *Lettsomia capitata* Miq., Fl. Ned. Ind. II (1857) p. 591. — *Rivea capitata* Hall. f. in Meded. Rijksherbar. Leiden 1 (1911) p. 26; id. in Meded. Rijksherbar. Leiden 12 (1912) p. 14.

A large twiner. Stems with white milky juice, up to 10 (15?) m high, striate when dry, to 3 mm, the old woody parts to 5 mm diam., black or brown, patently brown or fulvous hirsute, occasionally appressed-pilose with softer hairs. Leaves slenderly petiolate; petiole 5—16 cm long, mostly patently hirsute; blade ovate, broad-ovate or orbicular, very rarely oblong-lanceolate (in the specimen Cramer 117, from Benkoelen), occasionally slightly contracted in the middle, acuminate at the apex, shallowly to deeply cordate at the base, 7.5—18 cm long, 4—13 cm broad, brown or fulvous hirsute on both sides, hairs patent to appressed; nerves 13—18 pairs, straight at the base, curved near the margin. Peduncles rather stout, terete, patently hirsute, 3—30 cm long. Flowers in a dense capitate cyme at the end of the peduncle; diam. of capitulum generally 3—7 cm, with the corollas to 12 cm, sometimes smaller in poorly developed specimens; outer bracts elliptic to elliptic-oblong, acute at both ends, 1.7—4 cm long, brown or fulvous hirsute externally and at the margins, glabrous internally except for the apical part; the upper bracts narrower, oblong to linear-oblong, to 2 cm long; pedicels very short or none. Sepals lanceolate, acuminate, the 3 outer ones 15—17 mm long, outside long hirsute, with brown patent hairs, inside glabrous except for the apical part, the 2 inner ones 12 mm long, outside hirsute, the broader base with glabrous margins, inside glabrous, except towards the top. Corolla reddish purple, pale violet or pink, often paler without and towards the base, rarely entirely white (*Galoengi* 73), funnel-shaped, 4.5—5.5 cm high, limb subentire, midpetaline bands hirsute outside. Stamens and style included. Filaments inserted c. 7—8 mm above the corolla base, shortly glandular-pilose at their bases, the corolla inside with long hairs between the places of insertion of the

filaments; length of filaments about 20 mm; anthers linear, c. 5 mm long. Ovary 2-celled, cylindrical, glabrous; style glabrous, to 34 mm long; stigma biglobular, papillose. Disk low, cupular, yellowish white (*Backer*). Fruit globose, 8 mm diam., with leathery wall, orange red, reddish or brownish (*Backer*, *Lörzing*), 4- or less-seeded. Seeds glabrous.

SUMATRA. Atjeh and Dependencies, Takengon, *Van Steenis* 5825, fl. Aug. 1934 (B); East Coast, without exact locality, *Yates* 1255 (B, L); Karo upland, near Bintang meriah, W. of Kabandjahe, *Galoengi* 73, fl. Febr. 1919, a specimen with white flowers (B); Haboko estate, *Docters van Leeuwen* 3186, fl. Febr. 1919 (B, L); Gedong djohore, S. of Medan, not rare, *Lörzing* 3521, fl. Febr. 1915 (B); Sibolangit, *Karta* 58, fl. Dec. 1928 (B, L, U); id., Botanic Garden, rather frequent, *Lörzing* 4149, fl. Dec. 1915 (B); West Coast, G. Malintang, *Bünnemeyer* 4188, fl. Aug. 1918 (B, L); id., foot, *Bünnemeyer* 4441, fl. Aug. 1918 (B, L); id., N.W. slope, *Bünnemeyer* 3531, fl. July 1918 (B); Baboei near G. Malintang, *Bünnemeyer* 4185, fl. July 1918 (B); Bt. nan Tigo, near G. Malintang, *Bünnemeyer* 3759, fl. July 1918 (B); Ophir district, Penagar, *Bünnemeyer* 236, fl. Apr. 1917 (B, L); W. slope of Talakmau, *Bünnemeyer* 524a, fl. Apr. 1917 (B); Benkoelen, Kroei, *Cramer* 117, fl. Sept., a specimen with oblong-lanceolate leaves (B); Rimbo pengadang, *Ajoeb* 382 (exped. Jacobson), fl. June 1916 (B); Lampung Districts, Kotaboeomi, *Van Heurck* 8, st. Febr. 1934 (B); Kota agoeng, *Cramer* 119, Aug. 1915 (B); id., Oeloe Beloe, *Cramer* 118, fl. Aug. 1915 (B); Kenali, Negara Batin, *Cramer* 116, fl. Aug. 1915 (B); Palembang, Martapoera, *Bal* 52, st. Jan. 1930 (B).

JAVA, without exact locality, *Horsfield* s.n. (L; U, type of *Lettsonia capitata* Miq.); *Korthals* 255 (L); *Kuhl & Van Hasselt* s.n. (L); *De Vriese* 222 (L); Bantam, G. Kentjana, *Koorders* 41252β, fl. June 1912 (B, L, U); id., *Koorders* 41298β, fl. June 1912 (B); between Tjileles and G. Kentjana, *Backer* 1158, fl. June 1911 (B); between G. Kendeng and Malingping, *Backer* 1841, fl. June 1911 (B); Batavia, G. Parang, *Blume* 1233, fl. July (L, type of *Ipomoea trichotosa* Bl.; U); id., *Backer* 13910, fl. June 1914 (B); Buitenzorg, without exact locality, probably Sindanglaja, *Ploem* s.n. (L); Depok, *Hallier* s.n., st. Aug. 1896 (B, L); id., *Soegandiredja* 242, st. May 1900 (B); id., *Koorders* 44069β, fl. July 1918 (B, L); id., nature reserve, *Koorders* 42633β, st. Febr. 1914 (B); id., id., *Beumée* 6058 (B); Tjipetir, *Burck & De Monchy* s.n. (B); G. Boeboet, S. of Leuwiliang, *Bakhuisen van den Brink* fil. 3390, fl. June 1924 (B); Salak, *Raap* 213, fl. June 1894 (L); Tjitoeroeg near Tjidadap, S. of Tjibeber, *Bakhuisen van den Brink* 2605, fl. Febr. 1917 (B); Tji Sokan, E. of Tjidadap, *Backer* 22383, fl. June 1917 (B); Pelaboean Ratoe, *Boerlage* s.n. (L); id., *Koorders* 34660β, st. Apr. 1899 (B); Priangan, Bandoeng, Dago, *Van Steenis* 1652, fl. May 1928 (B); Rawah Lakbok, S. of Tjikawoeng, collector unknown, fr. Aug. 1912 (B); Pekalongan, near Soebah, *Koorders* 37140β, fl. May 1899 (B); Koeripan, N. of Soebah, *Docters van Leeuwen* 67, fl. July 1911 (B); Semarang, between Soebah and Weperi, *Backer* 16570, fl. Sept. 1914 (B); forestry Manggar, near Kedoeng djati, *De Boer* 4506, fr. Oct. 1919 (B); Kramat, near Kedoeng djati, *Koorders* 25014β, fr. Sept. 1896 (B); near Karang asem, *Koorders* 28237β, fl. June 1897 (B, L); id., *Koorders* 25014β, fl. Sept. 1896 (L); Salatiga, Kali Taman, *Docters van Leeuwen* s.n., fl. July 1909 (B); Djapara-Rembaang, Djapara, *Teysmann* s.n. (B); Pasokan, *Koorders* 35602β, fl. June 1899 (B); near Ngarengan, *Koorders* 35611β, st. May 1899 (B); forestry id., *Beumée* 3571, fr. Dec. 1918 (B); Madioen, Pandan, *Elbert* 477 (L); Ngebel, *Koorders* 23166β, fl. May 1896 (B); Telogo-Ngebel, *Koorders* 23183β, fl. May 1896 (B, L); id., *Koorders* 29190β, fr. Aug. 1897 (B, L); Kediri, Soekaradja, *Koorders* 22823β, fl. June 1896 (B); G. Parang, *Koorders* 23048β, fl. June 1896 (B, L); Soerabaja, foot of Welirang, *Altmann* 164, fl. Sept. 1932 (B); Malang, Djatiroti, *Backer* 7889, fl. May 1913 (B, L); Wonokerto, near Gondang legi, *Backer* 3485, fl. May 1912 (B); Bantoer, *Backer* 96686, fl. July 1927 (L); S. of Bantoer, *Backer* 4002, fl. June 1912 (B); sugar estate Alkmaar near Poerwodadi, *Mousset* 877 (B); Besoeiki, Poeger, *Koorders* 21083β, fl. Oct. 1895 (B, L); id., *Koorders* 21464β, fl. Oct. 1895 (B); N. slope of G. Idjen, near Bajeman, *Backer* 25008, fl. June 1918 (B); Djember, *Ultée* 4 (B); Madoera, Ketapang daja, *Backer* 21171, fl. July 1916 (B); Kamal, *Dorgelo* 655, fl. June 1922 (L).

Cultivated specimens: *Hort. Bog. X. F.* 44, *Hallier C. 3. b*, fl. July 1893 (L); *Hort. Bog. XV. G.* 70 (B); id., *Pulle* s.n. (U).

**Distribution:** Bengal, Burma, Assam, Malay Peninsula, Malay Archipelago (Sumatra, Java).

**Habitat:** thickets, secondary forests, edges of forests, teak woods, waysides, between 1 and 1700 m.

**Vernacular names:** waren mboekboek (Karobatak, Sumatra, Galoengi); akar boeboeloe, akasantan (Sumatra, W. coast, Bünнемeyer); akar boeloe (Sumatra, Palembang, Bal); areuj boeloe or poeloe (sund., W. Java, Blume, Boerlage, Koorders, Miquel); areuj boeloe beureum, areuj ki-boeloe (sund., W. Java, Koorders); ojod djemboeta (M. Java, Koorders); kótong (javan., M. Java, Koorders); djamet, kloerak (javan., E. Java, Koorders).

**Use:** the stems are sometimes used as binding material for bundles of firewood (Karo upland, according to Galoengi).

**Remarks:** The density of the hairiness in this species varies to a considerable extent; mostly the hairs are rather stiff and bristly, sometimes they are softer, more silky, and more or less appressed to the stems, petioles and surfaces of the leaves (Sumatra: Bünнемeyer 236, 524 a, Docters van Leeuwen 3186, Van Steenis 5825, Yates 1235; W. Java: Backer 4319; Madoera: Backer 21171). It is possible that these specimens agree with *Lettsomia peguensis* Clarke of which I could examine a specimen mentioned by Prain and represented in the Buitenzorg Herbarium. Prain (in Journ. As. Soc. Beng. LXIII (1894) p. 93) gives as his opinion that the specimen from Java upon which Miquel based his *Lettsomia capitata* (Horsfield s. n.) belongs to *Lettsomia peguensis* Clarke. In my opinion, however, this specimen much more agrees with materials mentioned by Clarke and by Prain as *Lettsomia strigosa*. It is for that reason that I have mentioned the synonym *L. capitata* Miq. as well as *L. strigosa* Roxb. under *Argyreia capitata*. A full account of the entangled synonymy of this species (see Prain l. c. p. 93—95) can only be given after a careful research of several types, which at present are inaccessible.

10. **Argyreia Ridleyi** Prain in Journ. As. Soc. Bengal LXIII (1894) p. 98, in syn. — *Lettsomia Ridleyi* Prain in Journ. As. Soc. Bengal LXIII (1894) p. 98; id. in Journ. As. Soc. Bengal LXXIV (1906) p. 324; Ridley, Fl. Malay Penins. II (1923) p. 451; Henderson in Gard. Bull. Str. Settlem. IV (1928) p. 292.

Description of the specimens from the Riouw and the Lingga Archipelago; the dimensions in parentheses refer to specimens from the Malay Peninsula.

**A woody twiner:** Stems terete, densely hairy with fulvous, appressed hairs, solid, up to 6 mm thick. Leaves petiolate, petiole 2.5—7(—8) cm long, hairy like the stems, the hairs directed towards the top of the petiole; blade ovate or elliptic or in the upper leaves elliptic-oblong, acuminate to cuspidate at the apex, with a narrow, acute and minutely mucronate acumen, rounded at the base, or shortly attenuate into the petiole, 10—16(—18) cm long, 5—11(—13) cm broad; upper surface glabrous or nearly so, lower surface rather densely hairy with patent or loosely appressed hairs, more densely hairy on the nerves; midrib and 6—9 nerves on each side of it prominent beneath, minor nervation reticulate, rather prominent beneath, more or less impressed above. Inflorescences axillary;

peduncles shorter than or at most as long as the petioles, stout, 1—3 (—7.5) cm long, hairy like the stems; flowers in a broad capitate 8—10-flowered (*Prain*) cyme, with large bracts; lower bracts ovate, acuminate, 2—2.5 cm long, purple (*Teysmann*) and glabrous inside, almost tomentose outside, upper bracts smaller and narrower; pedicels very short. Two exterior sepals ovate, acute, glabrous or with some hairs outside immediately below the apex, subequal, 6—7 mm long; three interior sepals elliptic or broadly elliptic, obtusish, with thin margins, c. 5.5 mm long, glabrous, sometimes with exception of the third one, which bears a few hairs near the apex. Corolla white, tinted pink (*Ridley*), c. 3 cm long, funnel-shaped with distinct tube, limb shallowly lobed, midpetaline bands hirsute outside, connecting fields glabrous. Filaments thinly filiform, inserted about 8 mm above the corolla base, c. 15 mm long, slightly dilated at their base; anthers linear-oblong, 3.5 mm long; style c. 25 mm long (description after a specimen collected by *Burkill*, *Singapore Field nr. 6107*, from Singapore, Mandai Road (B)). Ovary conical, glabrous, 2-celled. Disk distinct, 5-lobed, c. 1 mm high. Berry ovoid, ± 13 mm long, ± 9 mm broad, pink (*Ridley*), at base with the patent or reflexed sepals.

SUMATRA, Riouw and Dependencies, Biouw Archipelago, P. Bintan, *Teysmann s.n.*, fl. (B, L); Lingga Archipelago, B. Oewan Pelok, *Teysmann s.n.*, fl. (B, L).

**Distribution:** Only known from the Malay Peninsula and from the Riouw and Lingga Archipelago.

**Habitat:** In the Malay Peninsula local in damp forests (*Ridley*).

**Remarks:** The specimens from the Malay Archipelago have the leaves of var. *typica* as distinguished by *Prain*, l. c. p. 98. The lower bracts of these specimens are rather broadly ovate; several specimens from the Malay Peninsula have narrower, lanceolate lower bracts. Another difference between the *Teysmann* specimens and those from the Malay Peninsula may be found in the hairiness of the sepals. They are densely hairy externally over the whole surface or at least in the middle portion in the specimens from the Peninsula, whereas in the specimens from the islands they are glabrous except for some hairs outside, immediately below the apex.

11. *Argyreia rubicunda* Choisy in Mém. Soc. Phys. Genève VI (1833) p. 426; id. in DC., Prodr. IX (1845) p. 333; Miq., Fl. Ned. Ind. II (1857) p. 590; Boerl., Handl. Fl. Ned. Ind. II (1899) p. 513 — *Convolvulus rubicundus* Wall., Cat. (1828) n. 1409, nomen — *Lettsomia rubicunda* Clarke in Hook., Fl. Brit. Ind. IV (1883) p. 195; *Prain* in Journ. As. Soc. Bengal LXXIV (1906) p. 326; *Ridley*, Fl. Malay Penins. II (1923) p. 453.

Description of the specimens from Sumatra (see remarks):

A woody climber, stems up to 5 m high, terete, up to 7 mm diam., solid, brown pubescent to tomentose, later glabrous. Leaves petiolate; petiole shortly tomentose, 2—10 cm long; blade ovate-oblong, ovate or elliptic, rounded or slightly cordate at the base, obtuse to acute at the apex, subcoriaceous, glabrous above, or with some hairs on the midrib, more or less densely appressed-pilose beneath, moderate leaves 6.5—11 cm long and 3.5—7 cm broad, large ones attaining a length of 16 cm and

a width of 10 cm; nerves prominent beneath, 6—10 nerves on each side of the midrib. Peduncles long, brown pubescent to tomentose, 5—20 cm long, corymbosely ramified at the apex, many-flowered; inflorescence sometimes with 1 or few interspersed leaves of an oblong to lanceolate form; pedicels 1—4 mm, in fruit 4—10 mm long, somewhat incrassate; bracts minute, triangular to orbicular, 1—2 mm long, soon deciduous. Two outer sepals ovate-triangular, obtuse, 5 mm long, sparsely to densely appressed-pilose outside, sometimes partly glabrescent, glabrous inside; third sepal orbicular, rounded at the apex, about 6 mm long, with a membranaceous glabrous margin at one side, two inner sepals orbicular to transversely elliptic, strongly concave, about 6 mm long, appressedly pilose outside, with 2 glabrous margins, glabrous inside. Corolla deeply 5-lobed, pinkish purple (*de Voogd*), tube cylindrical, c. 6 mm long, glabrous, lobes linear-lanceolate, reflexed, glabrous inside, appressed-sericeous outside, c. 16—18 mm long, at the top with 2 small glabrous wings. Filaments dilated, thickened and provided with a large tooth inside at the glabrous base, c. 14 mm long; anthers c. 2.5—3 mm. Style filiform, stigma biglobular, papillose; ovary 2-celled; disk annular, slightly 5-lobed, c. 1 mm high. Fruit ellipsoid, c. 15 mm long, pink (*Lörzing*).

SUMATRA, without exact locality, *Korthals* 327 (110), fr. (B, L); *Forbes* 2530, fr. (L); East Coast, Hoeta Padang, near the Continental Plantation Company concession, Asahan, *Krukoff* 4363, fr. Nov.-Dec. 1932 (L); Tapanoeli, Middle Habisaran, Aek Koewaloe, between Parsoboeran and Nassau, *Lörzing* 7924, fr. Nov. 1920 (B); West Coast, Ajer mantjoer, *Beccari* 650, fl. Aug. 1878 (L); Benkoelen, Kroei, *De Voogd* 1478, fl. July 1932 (B, L); Soekaradja-Kenali, *Cramer* 14, fl. Aug. 1915 (B, L).

A specimen in L, according to the label collected in Java by *Van Hasselt*, and numbered 86, most probably belongs to the *Korthals* herbarium from Sumatra. It fully agrees with the other specimens from this collector in the Leiden herbarium.

**Distribution:** Sumatra (Malay Peninsula, Burma?).

**Habitat:** in thickets, secondary and primary forests, between 360 and 800 m.

**Remarks:** 1. The type of *Argyreia rubicunda* Choisy is unknown to me. I identified the above-mentioned specimens with this species, on account of Hallier's identifications in the Rijksherbarium at Leiden.

2. The specimen *Forbes* 2530 has been identified by Prain (in Journ. As. Soc. Bengal LXIII, 1894, p. 101) with *Lettsomia Kunstleri* Prain. It agrees, however, very well with the other fruiting specimens mentioned above as *Argyreia rubicunda* Choisy.

3. The density of the indument of the stems, leaves and inflorescences of this species appears to be rather variable. Some specimens are densely tomentose especially on the lower surface of the leaves and the inflorescences (*Beccari* 650). Less densely hairy are the leaves, but especially the inflorescences in the specimens *de Voogd* 1478 and *Cramer* 14. In the former of these two numbers the sepals are partly glabrous. Still less dense is the tomentum in the *Korthals* collection.

4. The following specimens are closely related if not identic. The flowers seem to be smaller; they are, however, extremely young and for this reason a close examination of their interior parts and a comparison with those of *A. rubicunda* remains unsatisfactory.

SUMATRA, without exact locality, *Korthals 327* (122 a), very young fl. (B, L); West Coast, Doekoe, *Korthals 123* a, very young fl. (L).

12. *Argyreia glabra* Choisy in Zoll., Syst. Verz., 2. Heft (1854) p. 128, 130; Miq., Fl. Ned. Ind. II (1857) p. 590; Boerl., Handl. Fl. Ned. Ind. II (1899) p. 513 — *Rivea glabra* (Choisy) Hall. f. in Bull. Herb. Boiss. VI (1898) p. 714.

Description of the specimens from Sumatra (see remarks):

A woody twiner. Stems terete, glabrous, dark brown and striate when dry. Leaves petiolate; petiole rather short, 1.5—4 cm long, glabrous; blade thinly coriaceous, ovate to elliptic, obtusish or acutish or very shortly acuminate at the apex, rounded or slightly retuse at the base, 6—12 cm long, 3.5—8.5 cm broad, glabrous on both sides or nearly so; midrib prominent beneath, sulcate above, lateral nerves 6—8 on each side of the midrib, not distinctly prominent. Inflorescences axillary, peduncle terete, glabrous or very shortly appressed-pilose, especially towards the apex, 3—15 cm long, umbellato-cymose, few to several-flowered; pedicels longer than the calyx, 7—9 mm long, in fruit 10—16(—18) mm, very shortly appressed-pilose; bracts at the base of the cyme linear, c. 10 mm long, the upper ones shorter. Sepals slightly unequal, sparsely appressed-pilose with very short hairs, two outer ones ovate-triangular, obtuse, c. 5 mm long, three inner ones orbicular to transverse-elliptic, the third with one, the fourth and fifth with two narrow glabrous thin margins, all c. 6—6.5 mm long. Corolla (only one not fully expanded corolla is present) c. 22 mm long, deeply 5-lobed; tube c. 5—6 mm long, lobes c. 12—13 mm long, consisting of the midpetaline band with a narrow thin glabrous wing on each side along the whole length; midpetaline band glabrous except for the apical part. Stamens inserted c. 5 mm above the corolla base; filaments filiform, dilated and sparsely pilose at their base, c. 14 mm long. Style filiform; stigma biglobular, papillose; ovary glabrous, most probably 2-celled; disk annular, subentire, c. 1 mm high. Fruit ellipsoid, c. 15 mm high, at base enclosed by the cupular calyx.

SUMATRA, without exact locality, *Korthals 114*, young fl.; 124 a, fr.; 163 (118) fl. (L); West Coast, Doekoe, *Korthals 121*, young fl.; 123 a, young fl.; 171, young fl., fr. (L); Singgalang, *Korthals 327* (113), fr. (L); Palembang, Moeara Enim, *Teyssmann 3818* H. B. (B, L, U).

Distribution: Sumatra, Lombok (?; see remarks).

Habitat: not mentioned on the collectors' labels.

Vernacular name: akkar dedaup ketjiel (Sumatra, Palembang, Teyssmann).

Remarks: Hallier identified the above-mentioned specimens with *Argyreia glabra* Choisy, described from the island of Lombok. From a careful comparison of the description given by Choisy and of the plants from Sumatra, the impression is gained that there must be a great resemblance between them indeed. There are, however, a few points of difference. Choisy describes the sepals as ovate, equal and white-sericeous, whereas they are slightly unequal and sparsely appressedly pilose with very short hairs, not sericeous, in the specimens from Sumatra. Moreover the bracts (bracteoles) in the type of Choisy are presumably smaller than in the Sumatran materials. Whether both are really identic can only be decided with certainty on account of a study of the type specimen of

Choisy. Unfortunately this specimen, Zollinger 985 from Laboean Tring, Lombok, is unknown to me and inaccessible for the time being.

**13. *Argyreia erinacea* Van Ooststr., nov. spec. Fig. 3, f—g.**

Description of the type specimen, *Clemens 30401* (B); the data in parentheses refer to the other specimen mentioned below. The description of the flower is rather fragmentary, as only one not fully developed corolla was available for examination.

*Frutex scandens*, ramulis teretibus (vel subangulatis), junioribus dense adpresso vel subpatente cinereo- vel fulvo-strigilosis glabrescentibus. Folia petiolata, petiolis 2.5—4(—5) cm longis leviter sulcatis, ut ramuli strigilosis, laminis ovatis vel ellipticis, apice obtusis vel brevissime acuminatis mucronulatis, basi rotundatis vel truncatis (vel subretusis), 7—11 cm longis 4.5—7 cm latis subcoriaceis, supra glabris vel pilis strigilosis nonnullis in nervo mediano et nervis lateralibus basalibus praeditis, subtus strigilosis, nervo mediano et nervis lateralibus utrinque 6—7 subtus prominentibus, nervis minoribus indistinctis. Inflorescentiae axillares, pedunculis 3—7 cm longis dense strigilosis, apice umbellato-cymosis, ramis primariis ad 1 cm longis, ramis sequentibus brevioribus 5—6 mm longis, pedicellis brevissimis 0.5—1.5 mm longis. Sepala dua exteriora late ovato-triangularia obtusa c. 4.5 mm longa, externe dense strigillosa, interne glabra; sepulum tertium orbiculare, apice rotundatum, c. 5 mm longum, externe margine uno latere excepto strigilsum, interne glabrum; sepala dua interiora orbicularia vel transverso-elliptica, apice rotundata, c. 5 mm longa, externe marginibus lateralibus latis exceptis strigillosa, interne glabra. Corolla profunde 5-lobata, tubo 7 mm longo externe glabro, lobis oblongis vel probabiliter anguste ovato-oblongis ad 17 mm longis, fasciis mesopetalis externe sericeo-strigilosis, marginibus glabris. Filamenta in flore juvenili c. 13 mm longa basi incrassata glabra. Ovarium 2-loculare glabrum; stigma biglobosum papillosum; discus obscure 5-lobatus. (Bacca ellipsoidea obtusa 8—10 mm longa; semen 1).

BORNEO, British North Borneo, Mt. Kinabalu, Tenompok, *Clemens 30401*, young fl. Febr. 1932 (B, type); id., id., *Clemens 26635*, fr. Sept. 1931 (B).

**Distribution:** Borneo.

**Habitat:** The specimen *Clemens 30401* in the jungle at 5000 ft. elevation, the specimen *Clemens 26635*, in a forest at 4—5000 ft. elevation.

**Remarks:** 1. According to the collectors the stems are up to 2.5 cm diam. (breast high) and the corolla is "white with pale purple inside". The fruits are red.

2. Only one not fully developed flower was available for examination; the other flower-buds were too young.

3. The specific name *erinacea* is proposed on account of the densely strigillose or hirsute hairiness of the calyx.

**14. *Argyreia cinerea* Van Ooststr., nov. spec. — *Rivea glabra* Hall. f. var.; Koorders in Meded. 's Lands Plantent. XIX (1898) p. 545. Fig. 3, n—s.**

Description of the type specimen, *Sarasin 523* (L); the data in parentheses refer to the other specimens mentioned below.

*Frutex scandens* (15—20 m altus, *Koorders*), ramulis teretibus, junioribus dense pallide cinereo-pubescentibus vel ut petioli pedunculi et in-

florescentiae brevissime tomentosis (adultioribus glabrescentibus lignescentibus). Folia petiolata, petiolis 1.5—2.5(—6) cm longis modice crassis (vel gracilibus), laminis elliptico-oblongis vel ellipticis vel late-ellipticis vel ovato-ellipticis, basi rotundatis vel in petiolas brevissime contractis (vel subcordatis), apicem obtusiusculum vel obtusum et mucronulatum versus attenuatis interdum breviter et plus minusve abrupte acuminatis 6—10(—13) cm longis 3.5—6.5(—10) cm latis, subtus praesertim in nervis pilosis, pilis brevissimis crispatis, supra adpresso pilosis, pilis strictioribus basi incrassatis, nervo mediano subtus crasso prominente, supra plano vel subsulcato, nervis lateralibus utrinque 9—11(—12), subtus prominulis dense brevissime pilosis, supra planis tenuibus, nervis minoribus reticulatis supra et subtus paullo conspicuis. Inflorescentiae axillares pedunculatae, pedunculis quam petioli valde longioribus strictis vel leviter curvatis 4.5—15 cm longis, apice umbellato-cymosis 3—5-brachiatis, pedicellis 1—2 mm longis, bracteis inferioribus oblongo-lanceolatis 7—8(—15) mm longis superioribus 2—3 mm longis. Sepala dua exteriora late ovato-triangularia vel semiorbicularia obtusa vel rotundata 2.5—3 mm longa, interiora tria orbicularia vel transverso-elliptica 2.5—3 mm longa, omnia externe dense pallide cinereo-pubescentia vel brevissime tomentosa, interne glabra; sepali tertii margo uno latere, sepalorum duorum interiorum margines duobus lateribus glabri. Corolla parva, tubo cylindrato 2.5(—3.5) mm longo glabro, limbo profunde 5-lobato, lobis oblongis c. 5.5—6 mm longis reflexis, fasciis mesopetalis externe sericeis, interne glabris, marginibus membranaceis glabris. Filamenta ad orem tubi inserta c. 2.5 mm longa, basi applanata dilatata, pilis brevissimis nonnullis praedita; antherae oblongae c. 1.5 mm longae. Ovarium 2-loculare glabrum; stylus glaber c. 4—4.5 mm longus; stigma biglobosum papillosum. Discus annulatus c. 0.75 mm altus. Bacca immatura ellipsoidea 5—7 mm longa.

CELEBES, Manado, Minahassa, near Tondano, Forsten 51, fl., young fr. June 1840 (B, L); Tomohon, Sarasin 523, fl. June 1894 (L, type); Ratahan, Koorders 16579  $\beta$ , fr. March 1895 (B, L); G. Lolomboelan, near Pakoe-oerè, Koorders 16578  $\beta$ , fl. Apr. 1895 (B).

**Distribution:** Northern Celebes.

**Habitat:** in forests on fertile volcanic soil, at 300—400 m altitude (Koorders).

**Vernacular name:** woelilten (Manado, Tontemboan language, Koorders).

**Remarks:** Corolla white (*Sarasin*) or dirty white (*Koorders*); stigma violet (*Sarasin*); fruits reddish purple (according to the label of Koorders 16579  $\beta$ ; the fruits are, however, not extant).

### 15. *Argyreia micrantha* Van Ooststr., nov. spec. Fig. 3, a—e.

Description of the type specimen, *Clemens* 29544 (L); the data in parentheses refer to the other specimens mentioned below. Only one fully expanded corolla was available for examination, the other corollas were too young or had already fallen off.

Frutex scandens ad 40 ped. altus (*Clemens*), ramulis junioribus teretibus solidis dense adpresso pallide griseo-fulvo- vel olivaceo-pilosus, pilis strictis brevissimis, vel quasi farinosis (adultioribus glabrescentibus griseis). Folia petiolata, petiolis (1.5—)2—3.5 cm longis, ut ramuli pilosis, laminis

ovato-oblongis vel elliptico-oblongis, apice valde acutis vel acuto-acuminatis mucronulatis, basi rotundatis, (6—)7—12 cm longis (2—)2.5—6 cm latis chartaceis, subtus in siccо olivaceis, supra valde obscurioribus, utrinque sparse valde adpresso et breviter pilosis glabrescentibus, nervo mediano subtus prominente, supra sulcato, nervis lateralibus utrinque 7—9 tenuibus, subtus et supra paullo prominentibus, nervis minoribus inconspicuis. Inflorescentiae axillares, pedunculis strictis patento-erectis teretibus 3—12 cm longis ut ramuli adpresso brevissime pilosis, apice umbellato-cymosis 3—6-brachiatis; ramis primariis 5—16 mm longis, sequentibus brevioribus, pedicellis 2.5—5 mm longis, omnibus subangulatis vel sulcatis, ut ramuli, sed densius pilosis; bracteae desunt. Sepala aequalia c. 3 mm longa, externe breviter pilosa; dua exteriora late ovato-triangularia vel suborbicularia obtusa; sepalum tertium late triangulare vel orbiculare, apice obtusum, margine uno latere glabro; sepala dua interiora transverso-elliptica, apice late rotundata, marginibus lateralibus glabris. Corolla profunde 5-lobata, lobis plus minusve reflexis oblongis c. 8—10 mm longis, fasciis mesopetalis externe sericeo-strigilosis, interne glabris, marginibus membranaceis glabris, tubo cylindrato c. 4—5 mm longo glabro. Filamenta ad orem tubi inserta 10—11 mm longa, basi paullo dilatata glabra; antherae 2—2.5 mm longae. Ovarium 2-loculare glabrum; stylus c. 14 mm longus; stigma biglobosum papillosum; discus cupulatus 5-lobatus 1.25 mm altus, ovarium involvens. (Pedicelli et rami cymae in fructescens reflexi; bacca late ellipsoidea obtusa c. 12 mm longa, basi sepalis persistentibus c. 5 mm longis adpresso praedita).

BORNEO, British North Borneo, Mt. Kinabalu, Tenompok, J. & M. S. Clemens 29544, fl. May 1932 (B; L, type); id., J. & M. S. Clemens 30361, fl. and fr. Febr. 1932 (B, L).

#### Distribution: Borneo.

Habitat: The type specimen in the jungle, at about 5000 feet elevation.

Remarks: According to Clemens (n. 29544) the corolla is purple and the stamens are white.

#### 16. *Argyreia oblongifolia* Van Ooststr., nov. spec. Fig. 2, a—e.

Frutex scandens, ramulis junioribus teretibus brevissime adpresso cinereo-pilosis, adultioribus angulatis carinis suberosis irregularibus praeditis glabrescentibus cinereo-brunneis. Folia petiolata, petiolis 1.5—3 cm longis gracilibus, ut ramuli brevissime adpresso pilosis, laminis oblongis vel anguste oblongis, marginibus subparallelis, apicem obtusiuseulum mucronulatum versus attenuatis, basi rotundatis, 5—10 cm longis 1.5—3 cm latis chartaceis vel tenuiter coriaceis, junioribus utrinque sparse adpresso et brevissime pilosis mox glabris, nervo mediano subtus prominente supra leviter impresso, nervis lateralibus 7—8 vix conspicuis, nervis minoribus inconspicuis. Inflorescentiae axillares, ut ramuli pilosae, pedunculis strictis patento-erectis 2.5—7 cm longis apice umbellato-cymosis 2—5-brachiatis, ramis primariis 3—9 mm longis, ramis sequentibus brevioribus, pedicellis 2—3 mm longis, bracteis (bracteolis) minutis 1—1.5 mm longis triangularibus, interdum foliaceis. Sepala subaequalia, externe adpresso brevissime pilosa, interne glabra, exteriora dua ovato-triangularia, interiora tria late ovato-triangularia, omnia apicem acutiuseulum versus attenuata c. 3.5—4 mm

longa; sepali tertii margo uno latere glaber, sepalorum duorum interiorum margines laterales glabri. Corolla infundibuliformis c. 15 mm longa profunde 5-lobata, lobis oblongo-ovatis c. 9 mm longis c. 6,5 mm latis, fasciis mesopetalis externe sericeis, marginibus tenuibus glabris, tubo c. 5—6 mm longo glabro, apicem versus dilatato. Filamenta c. 3—4 mm supra basin corollae inserta verisimiliter glabra c. 11 mm longa; antherae lanceolatae 2,25—2,5 mm longae. Ovarium glabrum 2-loculare; stylus glaber c. 14 mm longus; stigma biglobosum papillosum. Discus cupulatus obscure 5-lobatus c. 1 mm altus. Bacca ovoidea, ad 15 mm longa (matura?) cernua, basi sepalis haud vel paullo auctis c. 4 mm longis praedita.

BORNEO, South and East Division, W. Koetai, Kemoel, Endert 4509, fl., fr. Oct. 1925 (B).

**Distribution:** Borneo.

**Habitat:** virgin forest, at c. 1600 m altitude.

**Remarks:** 1. According to Endert the corolla is white and the berries are reddish.

2. This species seems to be very closely related to *A. micrantha*, from which it mainly differs in the narrower and glabrous or nearly glabrous leaves, in the form of the inner sepals and in that of the corolla. The inner sepals are transversely elliptic and broadly rounded in *A. micrantha*, in the present species they are broadly ovate-triangular and attenuate towards the acutish apex. Moreover, the corolla of *A. micrantha* has a distinct cylindric tube, whereas in *A. oblongifolia* the tube gradually widens towards the limb.

### 17. *Argyreia celebica* Van Ooststr., nov. spec. Fig. 2, f—g.

Description of the type, a fruiting specimen, Koorders 18214 $\beta$  (L); the data in parentheses refer to the other specimens mentioned below.

Frutex scandens 15—25 m altus (Koorders), ramulis teretibus leviter striatis cinereo-brunneis glabris. Folia petiolata, petiolis glabris (1,5—) 2—3(—4,5) cm longis, laminis oblongo-lanceolatis vel anguste ovato-oblongis, apicem acutiusculum versus gradatim attenuatis, basi rotundatis vel breviter attenuatis, (7—)11—13(—14) cm longis (3—)4—5,5 cm latis glabris, nervo mediano subtus prominente, supra leviter impresso, nervis lateralibus utrinque 6—7 subtus et supra prominulis curvatis, nervis minoribus inconspicuis. Pedunculi stricti vel leviter curvati (2,5—)3—7(—7,5) cm longi glabri, apice 2—4 (vel ultra)-flori, pedicellis fructiferis 3—5 mm longis subangulatis vel sulcatis, apicem versus incrassatis curvatis, ergo bacca cernua. Sepala sub fructu late ovato-triangularia vel semiorbicularia aequalia c. (3—)4 mm longa, externe, interiora dua marginibus lateralibus exceptis adpresso breviter pilosa. Bacca ellipsoidea, ad 1 cm longa (matura?); semen 1 ellipsoideum.

CELEBES, Manado, Pinamoengan Mts., Kakas, Koorders 18214 $\beta$ , fr. Jan. 1895 (B; L, type); bivouac Pinamorongan, near Kajoewatoe, Koorders 19571 $\beta$ , fr. Febr. 1895 (B).

**Distribution:** Northern Celebes.

**Habitat:** in virgin forest, on fertile volcanic soil, at 500 m altitude.

**Vernacular names:** koenit, pahanap (Manado, Koorders).

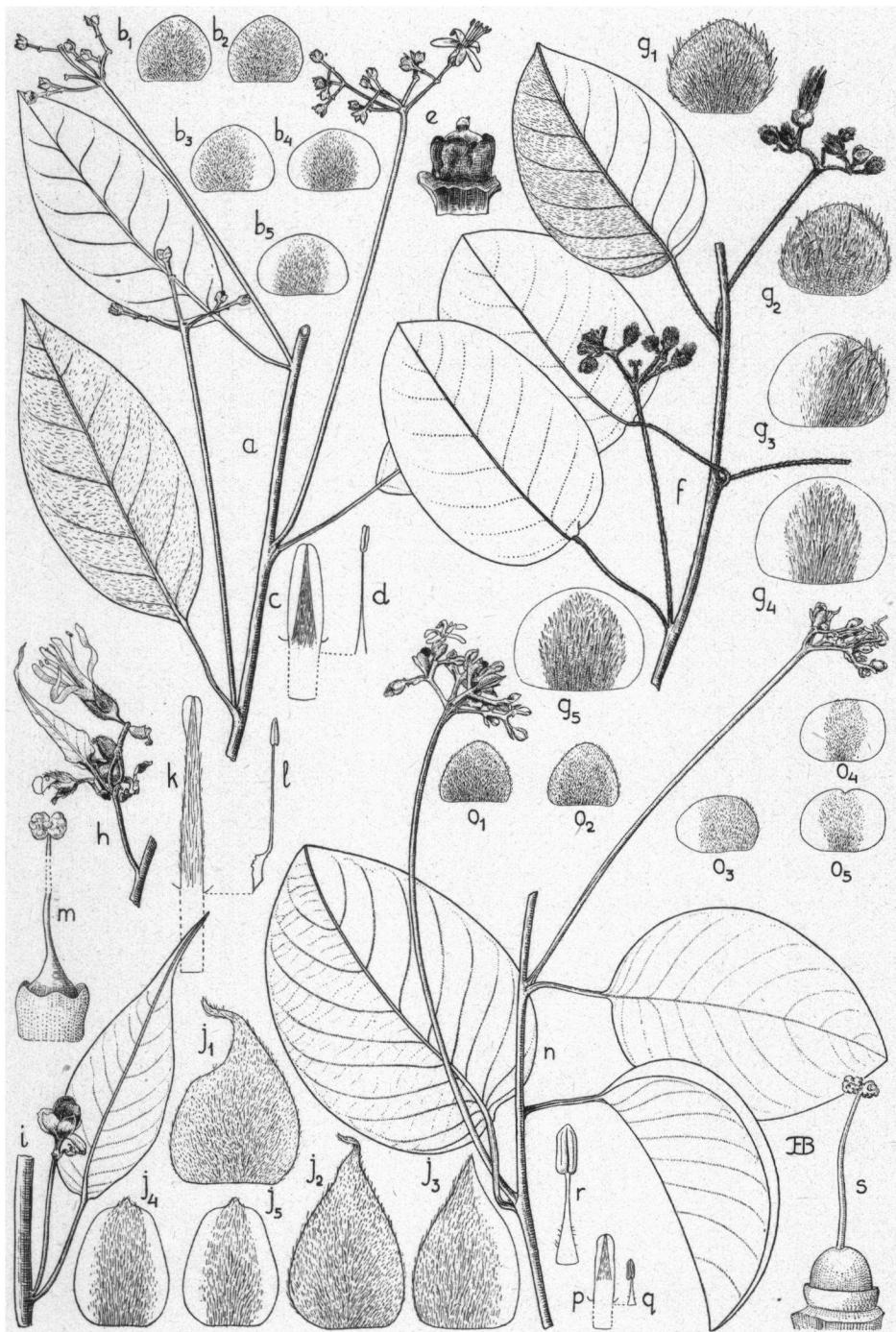


Fig. 3.

**Remarks:** 1. This species seems to be closely related to *Argyreia luzonensis* (Hall. f.) Van Ooststr.<sup>1)</sup>, from which it differs in the form and texture of the leafblades (in *A. luzonensis* mostly broader, ovate with a truncate to very slightly cordate base, and a thinner texture), with less distinct minor nervation between the lateral nerves (in *A. luzonensis* the minor nerves are distinctly reticulate), in the smaller and broader sepals (in *A. luzonensis* ovate-oblong and 5—6 mm long) and in the ellipsoid berries (in *A. luzonensis* globose), with pedicels 3—5 mm long (in *A. luzonensis* up to 8 mm long)<sup>2)</sup>.

2. According to Koorders the fruits are purplish pink.

18. *Argyreia caudata* Van Ooststr., nov. spec. **Fig. 3, h—m.**

Description of the type specimen, *Amdjah* 847 in the Rijksherbarium, Leiden:

Frutex scandens (ad 30 ped. altus, *Clemens*), ramulis teretibus breviter cinereo-tomentosis solidis. Folia petiolata, petiolis ut ramuli breviter tomentosis 2—5.5 cm longis, laminis anguste ovatis vel ovato-lanceolatis, basi rotundatis, apice longe lineariter caudatis, 7—10 cm longis 2—3 cm latis, subtus pilis brevibus mollibus subdense, supra rigidioribus minus dense praeditis, nervo mediano nervisque lateralibus utrinque 9—10 subtus prominentibus, nervis minoribus inconspicuis. Inflorescentiae, ramulorum

<sup>1)</sup> *Argyreia luzonensis* (Hall.f.) Van Ooststr., nov. comb. — *Rivea luzonensis* Hall. f. in Bull. Herb. Boiss. VI (1898) p. 714.

<sup>2)</sup> Another closely related species is *Argyreia pedicellata* Van Ooststr., nov. spec., from the Philippine Islands. **Fig. 2, h—j.**

Frutex scandens, partibus juvenilibus dense adpresso pilosis, mox glabris. Folia petiolata, petiolis 1.5—3.5 cm longis, laminis oblongis 5.5—8 cm longis 2—3 cm latis, apicem obtusiusculum mucronulatum versus attenuatis vel paulo acuminatis, nervo mediano nervisque lateralibus ascendentibus utrinque 5—7 subtus prominulis. Pedunculi fructiferi 4—7 cm longi; pedicelli fructiferi cernui, apicem versus gradatim incrassati, 15—22 mm longi leviter sulcati. Sepala sub fructu oblongo-triangularia obtusa c. 5—5.5 mm longa, breviter adpresso pilosa, interiora marginibus glabris. Baccæ ellipsoidea ad 12 mm longa. Semen 1 ellipsoideum.

PHILIPPINE ISLANDS, Luzon, Prov. Benguet, Baguio, Elmer 8439, fr. March 1907 (B; L, type); Mindanao, Camp Keithley, Lake Lanao, M. S. Clemens s.n., fr. March 1906 (B).

**Distribution:** Philippine Islands.

**Remarks:** Differs from *A. luzonensis* in the ellipsoid fruits and seeds (in *A. luzonensis* globose) with very long, 15—22 mm long, pedicels (in *A. luzonensis* up to 8 mm long). The specimen from Mindanao has broader, almost orbicular sepals.

Fig. 3. a: *Argyreia micrantha* Van Ooststr., branch of the type specimen, Clemens 29544, L; b<sub>1</sub>—b<sub>5</sub>: *id.*, sepals 1—5; c—d: *id.*, segment of corolla (outside) and stamen, showing place of insertion of the latter; e: *id.*, ovary with disk; f: *Argyreia erinacea* Van Ooststr., branch of the type specimen, Clemens 30401, B; g<sub>1</sub>—g<sub>5</sub>: *id.*, sepals 1—5; h: *Argyreia caudata* Van Ooststr., part of inflorescence of the type specimen showing elevated bract, Amdjah 847, L; i: *id.*, one-flowered fruiting peduncle with subtending leaf (bract) at its base, Amdjah 847, L; j<sub>1</sub>—j<sub>5</sub>: *id.*, sepals 1—5; k—l: *id.*, segment of corolla (outside) and stamen, showing place of insertion of the latter; m: *id.*, pistil with disk; n: *Argyreia cinerea* Van Ooststr., branch of the type specimen, Sarasin 523, L; o<sub>1</sub>—o<sub>5</sub>: *id.*, sepals 1—5; p—q: *id.*, segment of corolla (outside) and stamen, showing place of insertion of the latter; r: *id.*, stamen; s: *id.*, pistil with disk. Branches (a, f, h, i, n)  $\frac{1}{2} \times$  nat. size; sepals (b, g, j, o) 3  $\times$  nat. size; corolla segments and stamens (c—d; k—l; p—q) 1 $\frac{1}{2} \times$  nat. size; stamen (r) 5  $\times$  nat. size; pistils and disks (e, m, s) 5  $\times$  nat. size.

apicibus approximatae, paniculam elongatam angustam formantes, inferiores axillares, superiores haud in axillis foliorum positae, sed folia (bracteae) ad pedunculos elevata vel ad ramifications inferiores cymae inserta, pedunculis 1—6 cm longis, ut ramuli tomentosis, bracteis (bracteolis) lanceolatis vel anguste lanceolatis longe caudatis, pedicellis 4—5 mm longis subangulatis, sub fructibus incrassatis. Sepala dua exteriora late ovata vel elliptica longe et anguste acuminata 8—10 mm longa, sepulum tertium ovatum breviter acuminatum c. 7.5—9 mm longum, sepala dua interiora ovata vel elliptica obtusa sed breviter cuspidata c. 6—7 mm longa, omnia externe pilosa interne glabra. Corolla tubo glabro c. 8 mm longo, limbo profunde lobato, lobis linearibus c. 18—20 mm longis, fasciis mesopetalis externe adpresse sericeis vel strigilosis interne glabris, apicem versus alatis, alis glaberrimis. Filamenta ad orem tubi inserta c. 13 mm longa, basi incrassata verrucosa; antherae c. 2.5 mm longae. Ovarium conicum glabrum 2-loculare; stylus c. 22 mm longus; stigma biglobosum papillosum. Discus annulatus ovarium involvens 5-lobatus c. 1.5 mm altus. Fructus ellipsoideus c. 12 mm longus.

BORNEO, S. and E. Division, Pembeliangan, *Amdjah* 847, fl. and fr. Oct. 1912 (B; L, type); Boekit Batoe milier, *Jaheri* 337 (exped. Nieuwenhuis), fr. (B); British North Borneo, Mt. Kinabalu, Tenompok, *Clemens* 30314, very young fl. May 1932 (B, L); Dallas, *Clemens* #6064, fl. Aug. 1931 (L).

#### Distribution: Borneo.

Habitat: in the jungle, at 3000—5000 ft. altitude (*Clemens*).

Remarks: 1. The flowers of *Clemens* 30314 and 26064 are identical with those of *Amdjah* 847; the leaves of both specimens are, however, much broader, ovate to broadly ovate, acuminate with a long and narrow acumens, very slightly cordate at the base, up to 7.5 cm broad; they have, moreover, a much denser indument, much softer beneath than above and of a greyish to fulvous colour. The nerves of the leaves are prominent beneath and the minor nervation, consisting of parallel veins between the primary lateral nerves is more distinctly visible than in the specimen *Amdjah* 847. The petioles are up to 7 cm and the peduncles up to 8 cm long. The specimen *Jaheri* 337 is a fruiting one with elliptic, obtuse and very shortly cuspidate leaves of which the largest ones are 15 cm long and 11.5 cm broad. Most probably this specimen belongs here too.

2. According to *Clemens* (26064) the corolla is whitish with purple; height of the plant 30 ft., diam. of stem, breast high c. 2.5 cm.

19. *Argyreia aggregata* (Roxb.) Choisy in Mém. Soc. Phys. Genève VI (1833) p. 427; id., in DC., Prodr. IX (1845) p. 333; Miq., Fl. Ned. Ind. II (1857) p. 591; Hall. f. in Versl. 's Lands Plt. 1895 (1896) p. 131 — *Letsomia aggregata* Roxb., Fl. Ind., ed. Carey & Wall., II (1824) p. 76; id., ed. Carey, I (1832) p. 488; Wight, Icones IV (1850) t. 1359 (the capitules are much denser than in the drawing); Clarke in Hook., Fl. Brit. Ind. IV (1883) p. 191; Cooke, Fl. Bombay II (1905) p. 259; Gamble, Fl. Pres. Madras V (1923) p. 910.

A woody climber. Stems terete, densely covered with a short, white, greyish or pale brown tomentum. Leaves petiolate, petiole 2—5 cm long, tomentose like the stems, grooved; limb ovate or broadly ovate, cordate at the base, subacute at the apex, 4—12 cm long, 4—10 cm broad, the

lower surface densely tomentose to shortly lanate, the upper surface less tomentose, darker; midrib and 7—11 pairs of lateral nerves rather prominent beneath. Peduncles angular when dry, densely tomentose like the stems, 2.5—6 cm long; flowers sessile or nearly so, in threes, crowded at the end of the peduncle in rounded capitate inflorescences; bracts broadly obovate to spathulate or orbicular, truncate, c. 8—12 mm long, densely tomentose outside, glabrous inside, subpersistent. Two exterior sepals obovate to spathulate, obtuse, 9—10 mm long; third sepal oblong, obtuse, c. 8 mm long; two interior ones oblong, obtuse, 5.5—6 mm long, all tomentose without and glabrous within. Corolla pink, tubular-campanulate, deeply 5-lobed, 12—15 mm long, the tube cylindrical, 6—7 mm long, glabrous, the lobes narrow-ovate, emarginate, c. 8 mm long, with hairy midpetaline bands and narrow glabrous margins, glabrous inside. Stamens and style exserted. Filaments inserted about 5 mm above the corolla base, dilated and hairy at their base, c. 12 mm long. Ovary 2-celled, glabrous. Disk low, annular. Fruit globose, 6—8 mm diam., red, 2—1-seeded, surrounded by the enlarged concave sepals, which are red within; seeds subglobose.

SUMATRA, Atjeh and Dependencies, Gajo Loeëus, Tjintjangdoeri, Pringo Atmodjo 10 (exped. Van Daalen), fl. Febr. 1904 (B, L).

**Distribution:** Deccan Peninsula, Ceylon, Burma, Tenasserim, Sumatra.

**Habitat:** dry open places.

**Remarks:** Clarke, l.c. p. 192, distinguished a var. *osyrensis* of *Letsomia aggregata* Roxb., based on *Ipomoea osyrensis* Roth, Nov. Plant. Spec. (1821) p. 117 = *Argyreia osyrensis* Choisy in DC., Prodr. IX (1845) p. 334. This var. he characterized with the words "leaves softly hairy above, white-tomentose or somewhat fuscous-villous beneath", such in contradistinction with the typical form of *L. aggregata* of which the leaves are glabrous above. According to Clarke and some other authors (Clarke, l.c. p. 192; Trimen, Handb. Fl. Ceyl. III (1895) p. 209; Gagnep. & Courch. in Lee., Fl. Indo-Chine IV (1915) p. 280; Gamble, Fl. Pres. Madras V (1923) p. 910) such specimens with hairy upper leaf surface have been found in the Deccan Peninsula and Ceylon, as well as in Indo China, Burma and Tenasserim. As far as I can trace they have not yet been discovered in the Malay Peninsula. The only specimen known from the Malay Archipelago (Northern Sumatra) has also a hairy upper leaf surface and is supposed to be identic.

#### The following species are unknown to me

20. *Argyreia Robinsonii* (Ridley) Van Ooststr., nov. comb. — *Letsomia Robinsonii* Ridley in Journ. Fed. Malay States Mus. VIII, 4 (1917) p. 65; Merrill in Contrib. Arn. Arb. VIII (1934) p. 145.

"Scandens, caule appresse pubescente. *Folia* lanceolata vel ovata tenuiter coriacea, basi rotundata vel obtusa apice subacuta, superne glabra subtus appresse pubescentia nervis elevatis 8 paribus 6—12 cm longa, 2.5—7.5 cm lata, petiolis 1—8 cm longa pubescentibus. *Pedunculi* 4—18 cm longi pubescentes. *Cymae laxae* multiflorae 1—4 cm longae. *Bracteae* perparvae ovatae acutae. *Pedicelli* 5 mm longi. *Sepala* oblonga truncata 4 mm longa, glabra. *Corolla* tubo brevi glabro campanulato 8 mm

lobis extus sericeis intus glabris albis vel purpureis reflexis-oblongis. *Stamina filiforma longa, longe exserta antheris oblongis. Stylus paullo brevior. Stigma capitatum*" (Ridley). "Fruits purplish red" (Merrill).

SUMATRA, Atjeh and Dependencies, along the road, Takengön to Bireuen, Bangham 840 and 1131, Jan. and Febr. 1932 (according to Merrill); West Coast, Siolak Daras, Robinson (according to Ridley, type).

#### Distribution: Sumatra.

Habitat: Edges of and in primary forests (Merrill), alt. 3000—3300 ft. (Ridley, Merrill).

Remarks: According to Ridley this species is allied to *Lettsomia Kunstleri* (= *Argyreia Kunstleri* Prain mss.<sup>1)</sup>), "but the calyx is quite glabrous and only the lobes of the corolla silky outside". Ridley's description of the corolla is not very detailed, but his statement that the lobes are oblong and reflexed and that the stamens are long-exserted leads one to insert *A. Robinsonii* in the group of *Argyreia* species with deeply lobed corolla. The affinity with *A. Kunstleri* is not very obvious, as the specimen of that species I could examine (*King's collector* 2307, from Larut, Perak, in the Buitenzorg herbarium) has the corolla limb only slightly lobed, and the stamens not long-exserted.

**21. *Argyreia parviflora* (Ridley) Van Ooststr., nov. comb. — *Lettsomia parviflora* Ridley in Kew Bull. (1925) p. 86.**

"Scandens glabra; foliis subcoriaceis glabris ovatis subpeltatis, acuminate basibus rotundatis, nervis 4-paribus, 10 cm longis, 4.5 cm latis, petiolis 1.5 cm longis; pedunculis axillaribus 8—9 cm longis, cymis in capitulo terminali 2.5—4 cm lato, ramis 1 cm longis, pubescentibus, bracteis linearibus oblongis subacutis 1.5 cm longis, 3 mm latis; sepalis 5, 3 exterioribus ovatis rotundatis sericeo-pubescentibus coriaceis, 2 interioribus glabris paullo majoribus, omnibus roseo-marginatis, corolla 1 cm longa, tubo brevi, lobis 5 lanceolatis acutis coriaceis, marginibus tenuibus extus sericeis, staminibus 5, filamentis gracilibus basibus incrassatis corolla brevioribus, in ore tubi insertis, antheris linearibus curvis, dorsifixis, ovario conico canaliculato, biloculari in disco annulari lobato immerso, stylo gracili, stigmate bilobo, lobis parvis rotundatis" (Ridley).

SUMATRA, Benkoelen, Loebok Tandai, Brooks s.n. (Kew Herb., according to Ridley, type).

#### Distribution: Sumatra.

Habitat: unknown.

Remarks: According to Ridley this species is allied to *Lettsomia Kunstleri* Prain (*Argyreia Kunstleri* Prain), but differs by the entirely glabrous subpeltate leaves and the white capitulate small flowers. Ridley adds: "The smallest flowered species known to me, with almost completely coriaceous corolla, and with the leaves nearly peltate and very shortly bilobed at the base." As in *A. Robinsonii*, the affinity with *A. Kunstleri* is not very obvious. The specimen of *A. Kunstleri* I could examine has a corolla limb that is only slightly lobed (see remarks under *A. Robinsonii*).

<sup>1)</sup> *Argyreia Kunstleri* Prain mss. — *Lettsomia Kunstleri* Prain in Journ. As. Soc. Beng. LXIII (1894) p. 100.

Mentioned for the Malay Archipelago only on account of cultivated specimens:

**Argyreia Kurzii** (Clarke) Boerl., Handl. Fl. Ned. Ind. II (1899) p. 513; Koorders, Exk. fl. Java III (1912) p. 124 — *Letsomia Kurzii* Clarke in Hook, Fl. Brit. Ind. IV (1883) p. 196; originally described from Pegu; cultivated in Buitenzorg.

Doubtful for the Malay Archipelago are:

**Argyreia Kunstleri** Prain mss. — *Letsomia Kunstleri* Prain in Journ. As. Soc. Bengal LXIII (1894) p. 100; id. in Journ. As. Soc. Bengal LXXIV (1906) p. 327; Ridley, Fl. Malay Penins. II (1923) p. 453; Henderson in Gard. Bull. Str. Settlem. IV (1928) p. 292.

This species has been mentioned for Sumatra by Prain, Ridley and Henderson. As far as I know, it is, however, restricted to the Malay Peninsula. The specimen *Forbes* 2530 from Sumatra which Prain identified with it, most probably belongs to the species provisionally named *A. rubicunda* by the present author (see remarks under *A. rubicunda*).

**Argyreia Roxburghii** Choisy in Mém. Soc. Phys. Genève VI (1833) p. 419.

Miquel, Fl. Ned. Ind. II (1857) p. 586 mentions a specimen collected in the Moluccas by Reinwardt, as *Argyreia Roxburghii* Choisy. This specimen is unknown to me, but it is rather doubtful that the species occurs in the Moluccas.

**Argyreia setosa** Choisy in Mém. Soc. Phys. Genève VI (1833) p. 425; Decaisne, Herb. Timor. (1835) p. 61; Spanoghe in Linnaea XV (1841) p. 338; Choisy in DC. Prodr. IX (1845) p. 332; Boerl., Handl. Fl. Ned. Ind. II (1899) p. 513.

The specimen mentioned under this name for the island of Timor probably belongs to *A. Reinwardtiana* (Bl.) Miq. *Argyreia setosa* itself occurs in British India and Ceylon.

**Rivea hypocateriformis** Choisy and **R. ornata** Choisy, both mentioned for the Netherlands Indies by Boerlage (Handl. Fl. Ned. Ind. II, 1899, p. 513) do not occur in these islands.

#### Excluded species.

*Argyreia alulata* Miq., Fl. Ned. Ind. II (1857) p. 587 = *Operculina Turpethum* (L.) S. Manso, Enum. Subst. Bras. (1836) p. 16.

*Argyreia sumatrana* (Miq.) Boerl., Handl. Fl. Ned. Ind. II (1899) p. 513 = *Ipomoea sumatrana* (Miq.) Van Ooststr. in Blumea III (1940) p. 571.

*Letsomia bancana* Miq., Fl. Ned. Ind. Suppl. (1860) p. 561 = *Bonamia semidigyna* (Roxb.) Hall. f. var. *farinacea* Hall. f. in Versl. 's Lands Pl. tuin Buitenz. 1895 (1896) p. 125.

*Letsomia sumatrana* Miq., Fl. Ned. Ind. Suppl. (1860) p. 560 = *Ipomoea sumatrana* (Miq.) Van Ooststr. in Blumea III (1940) p. 571.

*Letsomia tomentella* Miq., Fl. Ned. Ind. Suppl. (1860) p. 560 = *Jacquemontia tomentella* (Miq.) Hall. f. in Versl. 's Lands Pl. tuin Buitenz. 1895 (1896) p. 126.

Corrections and Additions.

- Vol. III, p. 80, line 12, for *Lettsonia*, read *Lettsomia*.  
 id., p. 87, line 10, for 2. *P. paniculata*, read 3. *P. paniculata*.  
 id., p. 87, line 13, for 3. *P. racemosa*, read 2. *P. racemosa*.  
 id., p. 88, line 4, add: *P. volubilis* Burm. f. var. *microcarpa* Engl.  
     in Engl., Bot. Jahrb. VII (1886) p. 472.  
 id., p. 270, line 2, add: *Convolvulus parviflorus* Vahl var. *Neumannii*  
     Engl. in Engl., Bot. Jahrb. VII (1886) p. 472.  
 id., p. 292, line 5, for Dennst. ex Hall. f., read Dennst. ex Hall. f.  
     emend.  
 id., p. 308, line 19, for *Convolvulus hibridus*, read *Convolvulus hy-  
     bridus*.  
 id., p. 483, line 17 from bottom, for Klotsch, read Klotzsch.  
 id., p. 502, line 16, for Sept. 115, read Sept. 1915.  
 id., p. 502, line 19, for Strickland River, read Strickland River,  
     Baeuerlen.  
 id., p. 560, line 17 from bottom, after XV. K. B. XII. 6, add: var.  
     *fol. variegatis* Hall. f.  
 id., p. 561, line 4 from bottom, after XV. H. 5 and 5 A, add: and  
     XV. K. B. XII. 6.  
 id., p. 570, line 7 from bottom, for as far as south, read as far south.  
 id., p. 571, line 14, add: ? *Argyreia sumatrana* Boerl., Handl. Fl. Ned.  
     Ind. II (1899) p. 513.  
 id., p. 575, line 8 from bottom, for *Ipomoea grandiflora* (Choisy)  
     Hall. f., read *Ipomoea grandiflora* (Jacq.) Hall. f.  
 Vol. V, p. 360, between line 4 and 5, add: Use: See Heyne, l. c. p. 1307.

## Indices to parts I—IV.

## Index of scientific names.

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Vernacular names, mentioned by de Clercq—Pulle, Nieuw Plantkundig Woordenboek voor Nederlandsch Indië, ed. 2 (1927) and by Heyne, De Nuttige Planten van Nederlandsch Indië II (1927), to which the author referred in this paper have been added to the index.

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