

Noviciæ Indicæ VIII. *Some additional species of Convolvulaceæ.*—

By D. Prain.

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It is now nearly eleven years since the account of the Indian species of this order by Mr. C. B. Clarke, was published (*Flora of British India*, iv., pp. 179–228: *June* 1893). In this interval, some forms new to the area dealt with in the *Flora*, including a few that appear to be new to science, have been reported from various localities, chiefly, however, from British Indo-China, and from Malaya.

Having been directed by Dr. King to re-arrange the Indian material of the order preserved in the Calcutta Herbarium, in such a manner as to incorporate the new material as nearly as possible on the lines of Mr. Clarke's account, the writer, while doing so, has drawn up, as he did in the case of the *Labiatae*, descriptions of all the species, whether new to science or not, that are new to the Indian area, with a view to their presentation to the Society, in the hope that they may prove useful to members who require to use the *Flora of British India* in the field. As on former occasions, the descriptions have been made as nearly as possible in the style of those of the *Flora*.

Of the majority of the forms which have been previously described, but which are now for the first time reported as Indian, and of all the forms that are now being described, as the writer believes, for the first time, examples have been sent by Dr. King, Superintendent of the Royal Botanic Garden, to Mr. Dyer, Director of the Royal Gardens, Kew, for favour of comparison with the Indian material in the great national Herbarium there. In this way it has been made certain that none of the species now described as new exist under older names in the two Herbaria of Kew and Calcutta, which are the most richly endowed with Indian specimens.

The writer would wish to convey his thanks to Mr. Dyer, the Director, and to Dr. Stapf, the Assistant for India at Kew, who made the necessary comparisons, for their kindness in affording him the assurance required to render the validity of these species probable.

## 1. ERYCIBE ROXB.

*ib.* ERYCIBE PEGUENSIS *Prain*. *Erycibe paniculata* *Roxb.* VAR. *peguensis*: *Clarke, Flor. Brit. Ind.*, iv, 180. *E. glaucescens* *Kurz, For. Flor. Brit. Burma*, ii, 214 *in part, not of Wall.*

Besides the points alluded to by Mr. Clarke, this plant is distinguished from *E. paniculata* *Roxb.*, by the much larger fruit and by the margin of the corolla, which is white, not yellow, being undulate only, not finely crenulate.

CHITTAGONG: common. ARRACAN; *Prain!* PEGU: *Kurz!* TENASSERIM, common. ANDAMANS; Coco Islands. *Prain!* South Andaman; common. NICOBARS; *Kurz!*

This plant appears to take the place of *E. paniculata* throughout South-western Indo-China. This constitutes, by his specimens, the major part of *E. glaucescens* of Mr. Kurz, in the *Forest Flora of British Burma*.

2. ERYCIBE EXPANSA *Wall*, *Erycibe coriacea Kurz, For. Flor. Brit. Burma*, ii, 213 in part not of *Wall*.

Add to localities of *F. B. I.*:—MALAY PENINSULA; Kedah, *Curtis*, n. 2128!

Flowers pinkish-white (*Curtis*). There is no example of *Wall. Cat.* n. 1337 (*Erycibe coriacea Wall.*) at Calcutta; Mr. Kurz has identified with that species both *Wall. Cat.* n. 1331 (the type of *E. expansa*) and Helfer 5879 (*E. ferruginosa Griff. K. D.*), hence the discrepancy between his description of *E. coriacea*, and those of *Choisy*, and of the *F. B. I.*

3. ERYCIBE SUBSPICATA *Wall.* *Erycibe paniculata* var. *subspicata, Choisy, Ann. Sc. Nat.* 2, i, 222 and *DC. Prodr.* ix, 464. *Erycibe paniculata Kurz, For. Flor. Brit. Burma*, ii, 214, hardly of *Roxb.*

Add to localities of *F. B. I.*:—

BOOTAN; alt. 2000 ft., *King's collector!* UPPER ASSAM; Akha Hills, *King's collector!* Golaghat district, *Jenkins!* *Mann!* TENASSERIM: *Brandis!* *Parish (Dr. Stapf in litt.)*.

This is certainly, as *Choisy* and *Kurz* indicate, and as Mr. *Clarke* admits, very near *E. paniculata Roxb.* The writer, however, agrees with Mr. *Clarke* in considering it quite distinct.\* The flowers and fruits in this species are larger than in *E. paniculata*, the flowers being larger than even in *E. peguensis*. The lobules are more deeply erose than in *E. paniculata*; much more so than in *E. peguensis*.

4b. ERYCIBE ANGULATA *Prain*; branchlets angular pubescent, leaves obovate, base cuneate or rounded, apex shortly acuminate or rounded sometimes deeply emarginate, coriaceous, glabrous, lateral nerves visible above, distinctly raised beneath, cymes in axillary and terminal racemes. *Erycibe paniculata Miq., Flor. Ind. Bat. Suppl.* 248; not of *Roxb.*

MALAY PENINSULA; Perak, Larut, *Kunstler* n. 7379! *Dijong, Scortechini* n. 1816! *DISTRIB.* Sumatra (*Teysmann Hort. Bog.* n. 3682!) Java (*Kurz!*)

A robust scandent shrub (*Scortechini*) or strong creeper ("over 100 feet," *Kunstler*) with stem 4-6 in. diam., branches terete glabrous, ultimate branchlets angular rusty-

\* Equally distinct appears to be a species collected in New Guinea by *Hellwig* (n. 87 ex *Mus. Bot. Berol.*) and by *Forbes* (n. 439). This has flowers much as in *E. paniculata*, but the racemes are shorter, the fruits smaller, and the leaves ovate-acute with rounded bases and petioles  $\frac{1}{2}$ - $\frac{1}{2}$  in. long, much smaller ( $1\frac{1}{2}$ - $2\frac{1}{2}$  in. by  $\frac{3}{4}$ -1 in.) and more thickly coriaceous. To this species the writer would give the name *Erycibe Hellwigii*. This has been issued as *E. paniculata* from Berlin.

pubescent. *Leaves* petioled 4–8 in. by 2–4 in., lateral veins 5–8 pairs, raised beneath as in *E. glomerata* though not so prominently (and not as in that species impressed above) secondary veins indistinct; petioles  $\frac{1}{2}$  in., rusty puberulous. *Cymes* with angular rachis clothed with dark-red tomentum, axillary 1–6 in. by 1–1 $\frac{1}{2}$  in., terminal 7–10 in. long, with at times floral leaves intermixed. *Pedicels*  $\frac{1}{4}$ – $\frac{1}{2}$  in. *Sepals* orbicular, outer stellately rusty tomentose, inner ciliate. *Corolla* white, lobes spreading  $\frac{1}{2}$  in., interlobular portion hirsute externally, lobules glabrous, ovate-oblong, margins slightly undulate. *Berry* not seen.

This very distinct species is the *Erycibe paniculata* of Miquel's Supplement from Sumatra, as the example of Teysmann's gathering from Danoh Tjaloh, Moerie, preserved in the Calcutta Herbarium, shows. It also occurs in Java.

6. *ERYCIBE MALACCENSIS* Clarke.

Add to localities of *F. B. I.* :—

MALAY PENINSULA : Perak, *Scortechini* 2196! *Kunstler* 3180! 3575!  
Penang, *Maingay* 1154!

*Berry* purple when mature. *Corolla* tube very much shorter than in *E. paniculata*.

7. *ERYCIBE PRINCEI* Wall.

Add to localities of *F. B. I.* :—

SINGAPORE, *Kurz*! *Hullett*! Add to distribution; Sumatra (*Forbes* n. 1826!).

The plant that is known in the Buitenzorg garden as *Erycibe tomentosa* Bl. is this species. The *Hort. Bogor.* identification is most probably accurate, in which case Blume's name (*Bijdr.* 1048) will replace Wallich's more recent one.

8. *ERYCIBE GRIFFITHII* Clarke.

Add to localities of *F. B. I.* :—

PENANG: *Gaudichaud* 120; *Curtis* 181! *Kunstler*, 1458!

*Corolla* waxy cream-yellow, lobes very narrow, spreading  $\frac{1}{2}$  in., interlobular portion densely red-pubescent externally, lobules small, glabrous, narrowly oblong, obliquely cut, acute, divergent.

11. *ERYCIBE GLOMERATA* Wall.

A small tree, 10–20 feet high, with strong straggling shoots; flowers creamy yellow, "with strong odour of unripe turnips" (*Proudlock*.) *Corolla* lobes broad, spreading  $\frac{3}{4}$  in.; interlobular portion rusty-pubescent externally, lobules ovate, margins erose throughout.

The corolla is much like that of *E. coriacea* var. *fragrans*, but the lobules are broader and are erose instead of merely undulate.

It is still doubtful if this be the same as Blume's *E. glomerata*. Miquel says it is not; but there is no example of Miquel's plant (*Zollinger* n. 706) at Calcutta, nor is there any Java specimen here that will suit Miquel's description, or that will match with Wallich's plant. Blume's description is quite inadequate.

12. *ERYCIBE AENEA* Prain; branchlets round, densely rusty-tomentose, leaves quite glabrous, narrowly oblong or elliptic to an obtuse apex, base cuneate, very coriaceous, nerves impressed on both surfaces, cymes  $\frac{1}{4}$ –1 $\frac{1}{4}$  in., minutely closely rusty-tomentose.

MALAY PENINSULA: Perak, at 2,000—2,500 ft. elev., *Kunstler* n. 7337 !

A very large climber, "100-150 ft. long, 2-3 in. diam." (*Kunstler*). *Leaves*  $2\frac{1}{2}$ -5 in. by 1-2 in., shining, often blistered beneath; lateral nerves 5-6 pairs with a distinct marginal nerve, secondary veins also distinctly impressed especially beneath, petiole  $\frac{1}{2}$  in., or less. *Cymes* axillary 3-20-fl. peduncles and bracteolate pedicels ( $\frac{1}{2}$  in long) rusty close-pubescent. *Sepals* orbicular, closely brown-tomentose. *Corolla* lobes spreading  $\frac{1}{2}$  in., pale yellow; interlobular portion pale-brown tomentose externally, lobules ovate-oblong, margins undulate. *Berry* not seen.

Allied to *Erycibe coriacea*, but with smaller and more coriaceous leaves, and with flowers more like those of *E. glomerata*. The leaves when dry are of a coppery red colour.

3. *ERYCIBE PRAECIPUA* Prain; branchlets round, quite glabrous; leaves very coriaceous, nerves obscure on both surfaces, long petioled, narrowly elliptic, attenuated to both ends, apex obtuse; cymes axillary, small lax few-fl.

PENANG: Government Hill, *Curtis* n. 911! 1273!

A large climbing shrub, branches round. *Leaves*  $1\frac{1}{2}$ -3 in. by  $\frac{3}{4}$ -1 $\frac{1}{2}$  in., all nerves quite obscure; petiole  $\frac{1}{2}$  in., glabrous. *Cymes*  $\frac{1}{2}$  in. 5-8-fl., minutely adpressed pilose, pedicels bracteolate,  $\frac{1}{2}$  in. *Sepals* orbicular, outer minutely, inner densely, closely rusty pubescent. *Corolla* lobes very narrow, spreading  $\frac{1}{2}$  in.; interlobular portion rufous pubescent internally and externally; lobules small, glabrous, narrowly oblong, subacute divergent. *Berry* coriaceous rough, ovoid,  $\frac{3}{4}$  in. long  $\frac{1}{2}$  in. across, pointed.

This species is not easily differentiated from *Erycibe Maingayi*—of which there is no specimen at Calcutta—by the somewhat incomplete diagnosis of the *F. B. I.* All the characters given for *E. Maingayi* apply to *E. praecipua*, except the explicit one of 'hairy innovations' and the implication that its secondary nerves are distinct. *E. Maingayi* is, however, said to appear to be allied to *E. Princei*—an alliance by no means marked in *E. praecipua*. This, coupled with the fact that *E. praecipua* has been distributed by Mr. Curtis as *E. coriacea*, and that Dr. Stapf informs him that the plant has been associated (though not identified) with *E. coriacea* at Kew, assures the writer that it is distinct from *E. Maingayi*.

*E. coriacea* is a species founded on *Wall. Cat.* n. 1337, from Chittagong, a plant that has apparently been lost. It was seen and described by Choisy (*Ann. Sc. Nat.* 2, i, 224), but it is not present now in the Wallichian type Herbarium, or in the Herbaria at Kew and at Calcutta. But Choisy considered *E. fragrans*, *Wall. (Cat.* n. 1336) con-specific with *E. coriacea*; whence we may infer that the flowers of *E. fragrans* are similar to, if not identical with, those of *E. coriacea*.

In *E. praecipua* the corolla lobes are long and narrow, with small divergent auriculate lobules, as in *E. Griffithii*, and to a less degree in *E. Stapfiana*, while the interlobular portion of the corolla lobes are densely pubescent within as well as without. In *E. fragrans* the lobes are short and wide with large ovate over-lapping lobules, the interlobular part of the lobes being glabrous within as in every other species of *Erycibe* in the Calcutta Herbarium except *E. praecipua*.

Had this character been present in the lost *E. coriacea*, Choisy would never have united with it Wallich's *E. fragrans*; unless the same character is present in the corolla of *E. Maingayi* (which has not as yet been described), this alone should be sufficient to distinguish *E. praecipua* from all the hitherto described species of *Erycibe*.

14. *ERYCIBE STAFFIANA Prain*; branchlets round glabrous, leaves large usually elliptic or oblong, narrowed to a cuneate or narrowly truncate base, apex shortly blunt acuminate, sometimes narrowly lanceolate, coriaceous, glabrous paler beneath, lateral nerves raised beneath, cymes in axillary clusters,

MALAY PENINSULA: Perak; at considerable elevations, 300–3000 feet, *Kunstler*, 4015! 4115! 7784! *Scortechini*, 1793! TENASSERIM *Parish*!

A shrubby or slender climber, much branched. *Leaves* 4–7 by 2–3 in. oblong or elliptic in all the Perak specimens, narrow lanceolate  $4\frac{1}{2}$  by  $1\frac{1}{4}$  in. in Tenasserim ones, lateral nerves 4–6 pairs, obliquely ascending (the lowest pairs extending more than  $\frac{1}{2}$ -way along the margin) visible above and raised beneath, secondary veins reticulately raised beneath inconspicuous above, petiole  $\frac{1}{4}$  in. glabrous. *Cymes*  $\frac{1}{2}$ –2 in. long, in fascicles of 4–9, from an axillary woody protuberance, 5–20-fld., peduncles densely dark-brown tomentose as are the bracteolate pedicels  $\frac{1}{2}$ – $\frac{1}{3}$  in. *Sepals* orbicular densely brown-tomentose. *Corolla* lobes narrow, spreading  $\frac{1}{2}$  in., waxy white within; interlobular portion very dark-brown tomentose externally, lobules narrow divergent, slightly crenulate along the obliquely truncate apex. *Berry* ovoid,  $\frac{3}{8}$  in. long,  $\frac{1}{2}$  in. diam., densely clothed with a fine dark-brown velvety tomentum.

A remarkable species, well characterised by its leaves, which bear a striking superficial resemblance to those of *Casearia macrocarpa*, and by its velvety epicarp.

15. *ERYCIBE FESTIVA Prain*; branchlets angular, sparingly pubescent, leaves rather long petioled large thinly coriaceous glabrous, elliptic or oblong, base cuneate, apex long acuminate, lateral nerves distinct on both surfaces, especially beneath, cymes very short, few-fld.

MALAY PENINSULA: Singapore, *Hullett* n. 624! Perak, *Kunstler* n. 6445!

A small tree (*Hullett*) or creeper, 60–70 feet long (*Kunstler*) branches grooved or angular. *Leaves* 3–6 in. by  $1\frac{1}{2}$ – $2\frac{1}{2}$  in. dark green, lateral nerves 7–9 pairs, secondary veins invisible, petioles  $\frac{1}{2}$ – $\frac{3}{4}$  in. *Cymes* axillary many-fld., peduncles  $\frac{1}{3}$ – $\frac{1}{2}$  in., rusty pubescent; pedicels bracteolate rusty pubescent  $\frac{1}{3}$  in. *Sepals* rusty pubescent orbicular. *Corolla* lobes broad, spreading  $\frac{3}{4}$  in., pale greenish white; interlobular portion brown tomentose externally, lobules ovate, margins deeply erose throughout. *Berry* not seen.

Resembles most closely *E. albida*, but differs very markedly in tomentum, in size of flowers and in shape of corolla lobules. A very distinct species.

16. *ERYCIBE ALBIDA Prain*; branchlets round sparingly pubescent leaves very large elliptic or narrow oblong shortly attenuated at both ends, coriaceous glabrous pale beneath, lateral nerves visible but not raised on both surfaces, cymes very short, few-fld., flowers large.

MALAY PENINSULA: Perak, *Kunstler* n. 7373! *Scortechini*. Pungah, *Curtis* n. 2947!

A shrub (*Scortechini*, *Curtis*) or small tree (*Kunstler*) 10–20 feet high, erect, much spreading. *Leaves* 7–12 in. by 3–5 in., dark green above waxy pale greenish yellow beneath (*Kunstler*); lateral nerves 8–9 pairs, secondary veins invisible, petiole  $\frac{1}{4}$ – $\frac{1}{3}$  in. *Cymes* axillary 5–8-fld., peduncles  $\frac{1}{10}$  in., flowers nearly sessile with 3

slightly rusty pubescent bracteoles at the base of the calyx. *Sepals* subglabrous pale waxy green (*Kunstler*) orbicular, margins ciliate. *Corolla* lobes narrow, spreading 1½ in. white; interlobular portion rufous externally, lobules oblong obtuse slightly crenulate at the apex. *Berry* not seen.

The very large leaves pale beneath, the large flowers with nearly glabrous calyx and the erect habit render this species very distinct from any of the others here described.

## 2. RIVEA CHOISY.

1. RIVEA ORNATA *Choisy*, *Convolv. Or.* 27, t. 3 and *DC. Prodr.* ix, 326; *Sweet, Hort. Brit.*, ed. iii, 481; *Wight in Calc. Journ. Nat. Hist.* viii, 179, t. 5, f. 1; *Ill.* t. 168 bis, f. 1, and  *Ic. Pl.* t. 1356; *Dalz. & Gibs., Bomb. Fl.* 168.

VAR. *typica* *Clarke, Flor. Ind.* iv, 183 (*excl. syn. Roxb., Wall., Ham. Sweet and Brand.*). *Convolvulus candicans* *Roth., Nov. Sp.* 106; *Roem. & Schult., Syst.* iv, 273 and 790 (*not of Soland. [Ipomea fastigiata], nor of Rottl., Willd., Wall. and Roem. & Schult., l. c. 302 [Rivea hypocrateriformis]*). *Lettsonia ornata*, *Wall. in Roxb. Flor. Ind.*, ed. *Carey & Wall.* ii, 86 *in foot-note (not of Roxb.)*. A shrub with climbing stems and orbicular-cordate leaves, densely silky tomentose beneath, acute sepals and mostly 3-fl. peduncles.

DECCAN PENINSULA: common in dry jungles, &c. CEYLON; in the hotter parts of the island.

There is nothing to add to Mr. Clarke's excellent description of this plant, which, as he remarks, appears strictly confined to South India and Ceylon.

VAR. *Griffithii* *Clarke, Flor. Brit. Ind.* iv, 183. An erect stout shrub with branches at length twining, leaves reniform, rarely orbicular-cordate sparsely grey-hirsute beneath, sepals obtuse, peduncles mostly 7-fl. *Lettsonia ornata* *Roxb. Hort. Beng.* 13; *Flor. Ind.*, ed. *Carey & Wall.* ii, 86 (*text*) and *Flor. Ind.* i, 496. *Argyreia ornata* *Sweet, Hort. Brit.* ed. ii, 373; *Brandis, For. Flor.* 343.

SUB-HIMALAYAN region, from the Sivaliks to the Sikkim Terai: common. Sivaliks: *Falconer! Gamble!* Dehra Dun: *Vicary!* Nepal Terai *Wallich 1369/1!* Sikkim Terai at Jhenaikuri, at Tukria Jhar, and in the Sivoke Sal Forest, *Gamble*.

A complete account of the synonymy is given here as it is almost certain that these two plants, first clearly differentiated by Mr. Clarke, are really specifically distinct. The specimens in Griffith's Herbarium are from the Roxburghian plants of the Calcutta Botanic Garden. Roxburgh originally got the seeds from General Hardwicke who collected largely in the Western Himalayas and along their base, but did not, so far as can be ascertained, collect in Southern India. In any case the plant figured by Roxburgh in his  *Ic. Ined.*, and described by him, is *not* the South Indian but the Sub-Himalayan plant. It is to the latter that Roxburgh's trivial name of 'ornata' ought therefore rightly to belong; but as its application to *Roth's Convolvulus candicans* has now become stereotyped, it will be necessary to

allow the name *Rivea ornata* Choisy, to continue to designate the plant from Southern India, and be preferable to name the North-Indian one *Rivea Roxburghii*. *Convolvulus Tarita* Ham. (*Wall. Cat.* n. 2253) is not at Calcutta; the plant was collected at Monghir: if it really be this species, it is probably not from a wild plant; the only *Rivea* reported, since Dr. Buchanan-Hamilton's time, from the Monghir Hills is *R. hypocrateriformis*, which is common throughout Behar.

### 3. ARGYREIA LOUR.

3 b. ARGYREIA VENUSTA Choisy, *Convolv. Or.* 36, and *DC. Prodr.* ix., 330; leaves ovate cordate, obtuse or acute, glabrous above grey tomentose beneath; corymbs peduncled dense; bracts narrow oblong-obtuse with a few ovate-acute larger intermixed, and usually one or two foliaceous large ones at base of corymb; corolla sparingly hairy without; berry brownish, fruiting sepals lanceolate-reflexed. *Argyreia argentea* VAR. *venusta* Clarke, *Flor. Brit. Ind.* iv., 185. *Argyreia zeylanica* VAR. *hirsuta* Kurz, *For. Flor. Brit. Burma*, ii., 215. *Convolvulus festivus* *Wall. Cat.* n. 1414 (not *Argyreia festiva* Wall, *Pl. As. Par.*).

BENGAL: Faridpur, Clarke. BURMA: Pegu, McLelland, R. Scott! Ava, Wallich! Mandalay, etc., King's Collectors! common.

A large climber. *Leaves* usually 3-4 in. diam. (lower leaves sometimes as much as 7 in., diam.) quite glabrous above at all stages; petiole  $2\frac{1}{2}$ -4 in. long. *Peduncles* 2-4 in.; *corymbs* rather large; bracts usually  $\frac{3}{4}$  in. by  $\frac{1}{2}$  in. *Corolla*  $1\frac{1}{2}$  in. to  $1\frac{3}{4}$  in. long, tubular funnel-shaped,  $1\frac{1}{4}$  in. wide at mouth; white or pale purple. *Berry*  $\frac{1}{3}$  in. diam., globose, very hard and tough; sepals ultimately exceeding  $\frac{1}{2}$  in., in fruit coriaceous deflexed.

A very distinct species, easily differentiated from *A. argentea*, with which Choisy and Clarke have associated it, by its leaves glabrous above, its totally different tomentum on the leaves beneath; its longer, narrower, more reflexed sepals, and its smaller hard fruit.

5. ARGYREIA HOOKERI Clarke. Add to synonyms of *F. B. I.*:—*Argyreia zeylanica* VAR. *populifolia* Kurz, *For. Flor. Brit. Burma* ii., 215. *Lettsomia*? *Kurzii* Clarke, *Flor. Brit. Ind.* iv., 196.

Add to localities:—

NEPAL: Scully! ASSAM: Goalpara, King's Collectors! BURMA: Chin Hills, Prazer! Pegu, Kurz! ANDAMANS: Coco group, common, Prain! South Andaman, common, E. H. Man! King's Collectors!

6. ARGYREIA SPLENDENS Sweet.

Add to localities of *F. B. I.*:—

NAGA HILLS: Clarke, Collett!

7. ARGYREIA CHAMPIONI Benth., *Fl. Hong-kong*, 236 (1861). *A. obtecta*, Clarke, *Flor. Brit. Ind.* iv. 186 (1883). *Convolvulus obtectus* *Wall. Cat.* 1416. *Rivea*? *obtecta* Choisy, *Convolv. Or.* 28 and *DC. Prodr.* ix., 326. *Lettsomia* *Championi* Bth. & Hook. f., *Gen. Pl.* ii., 869.

VAR. *typica*. Add to localities of *F. B. I.* :—

BURMA: Karen Hills, *Mason*! Shan Hills *Collett*! Pegu Yomah, *Kurz*! ANDAMANS: Coco group, *Prain*! MALAY PENINSULA: Perak, *Scortechini*! DISTRIB.: China.

VAR. *obtusifolia*. Add to localities :—

ANDAMANS: Port Blair, very common; *E. H. Man*! *King's Collectors*!

This species, nearest to *A. splendens*, is well distinguished by the marks indicated by Mr. Clarke.

The two varieties are perhaps hardly separable, the original specimens of *A. Championi*, from Hongkong, which is not separable from Wallich's *Convolvulus obtectus*, being intermediate as to form of leaves between the two. The leaves in the first variety (which includes here all forms with acute leaf-apices) vary in size from 3 by 1½ in. (in Wallich's), or 3 by 2 in. (in Bentham's) original specimens, to 8 by 3½ in. in some of Kurz's (from the lower part of the plant) in Pegu specimens, and in shape from elliptic-oblong (which is usual) to sublanceolate in some from Tenasserim (*Gallatly*, 557) and Kedah (*Curtis*, 2582). In Gallatly's specimens, however, leaves of the usual type occur on the same branch with the narrow ones referred to. The base, moreover, which is usually euncate is sometimes rounded, especially in the Pegu, the Karen, and some of the Tenasserim specimens; but the same branches bear leaves of the ordinary type. Similarly, in the Andamans, branches of VAR. *obtusifolia* (which here includes the forms with apices of leaves obtuse) bear at the same time some leaves with acute tips.

Both varieties vary in degree of tomentum, especially on the upper surface: those from Pegu, the Karen Hills, the Coco-group, and some, but not all, from Tenasserim and the Andamans being glabrous above; the others (including both Wallich's & Bentham's types) are sparsely hirsute. The tomentum beneath is usually brown, but is grey in the Hong-Kong plant, and in that from the Pegu Yomah. This closely resembles in flowering calyx and in foliage *Arygria*? *mollis* Choisy, from Java, and from Sumatra (Teysmann, n. 4332, Hort. Bogor.) which has, however, a very different calyx (sepals sub-connivent) in fruit.

## 22. ARGYREIA DALTONI Clarke.

Add to localities of *F. B. I.* :—

MADRAS PRESY: Ganjam, at Kuknalu, alt. 500 ft., and in Rampa State, alt. 2000 ft., *Gamble*, n. 13766, 15995!

## 3b. BLINKWORTHIA CHOISY.

Erect or scandent or trailing shrubs with slender branches. *Leaves* oblong or elliptic sparsely strigose beneath. *Flowers* axillary solitary involucrate, pedicels short, usually four-bracteate, bracts small coriaceous. *Sepals* sub-orbicular sub-equal coriaceous, slightly accrescent. *Corolla* campanulate waxy-white, limb very slightly lobed. *Stamens* included; anthers oblong. *Ovary* 2-celled, surrounded by a prominent tubular disc; locules 2-ovuled; style filiform, stigmas 2, sessile globose. *Fruit* indehiscent, baccate, 4-1 seeded.—Species 2, Indo-Chinese.

1. BLINKWORTHIA LYCIOIDES Choisy, *Convolv.* Or. 48, t. 5 and DC.

*Prodr.* ix., 354; erect, branches numerous slender, short, rigid; flowers longer than the leaves, bracts narrowly oblong, pedicels very short. *Coll. & Hemsley, Journ. Linn. Soc.* xxviii., 94, t. 15. *Convolvulus lycioides*, *Wall. Cat.* 1890.

BURMA: Kyauk-Taloong, *Wallich!* Pegu Yomah, *Kurz!* Meiktla, *Collett!* Tagoung, Up-slay, *J. Anderson!* Pienmona, *King's Collectors!*

An erect bush, 6-10 feet; ultimate branches straight, virgate, 2-10 in.; leaves numerous  $\frac{1}{2}$ - $\frac{3}{4}$  in. by  $\frac{1}{4}$ - $\frac{1}{2}$  in. glabrous above sparingly hirsute beneath, as are the branches, peduncles and outside of the bracts; peduncles  $\frac{1}{4}$  in., bracts  $\frac{1}{2}$  in. long; pedicels 0- $\frac{1}{2}$  in. Sepals  $\frac{1}{2}$  in. (fruiting  $\frac{1}{4}$  in.) diam., glabrous, as are the pedicels. Corolla  $\frac{3}{4}$  in., white. Berry  $\frac{1}{4}$  in. diam.

2. *BLINKWORTHIA CONVOLVULOIDES* Prain; climbing or trailing, branches few slender long flexuous; flowers shorter than the leaves, bracts ovate-oblong, pedicels distinct.

BURMA: Kendat Prazer! Myingyan Prazer!

A climber, over 40 feet long (Kendat specn.) or a prostrate creeper (Myingyan specn.), ultimate branchlets 10-18 in.; leaves sparse  $1\frac{1}{2}$ -2 in., by  $\frac{1}{2}$ - $\frac{3}{4}$  in., glabrous above sparingly hirsute beneath, as are the branches, peduncles, and bracts externally; peduncles  $\frac{1}{4}$ - $\frac{1}{2}$  in. Sepals  $\frac{1}{4}$  in. diam. (in fruit  $\frac{1}{2}$  in.) glabrous, as are the pedicels. Corolla  $\frac{3}{4}$  in. campanulate, white. Berry  $\frac{1}{2}$  in. diam.

This has distinctly larger leaves, bracts, sepals and fruit than *B. lycioides*, though the writer would not on these grounds alone claim for it the rank of a species. The habit, however, is too digeiverent to admit of its treatment as a mere variety. This is not a case of what is under ordinary circumstances an erect shrub becoming a climber under suitable conditions; the field-notes made by the Calcutta Garden collector show that even when deprived of support this remains a weak, slender, prostrate species.

#### 4. *LETTSONIA* ROXB.

The difference between *Argyreia* and *Lettsomia* consists in the ovary being completely 4-celled in the former, only 2-celled in the latter; not infrequently, however, a partial dissepiment is found at the base of the cell in *Lettsomia*; the fruits are in both genera indehiscent.

In *Ipomoea* (§§ *Batatas* and *Quamoelit*) the ovary is, as in *Argyreia*, completely 4-celled; in *Ipomoea* (§§ *Calonyction*, *Aniseia*, and *Euipomoea*) the ovary, as in *Lettsomia*, is 2-celled, while in many of the species of *Euipomoea* the same partial dissepiment is found at the base of the cell. If, therefore, *Ipomoea* is to retain within it those plants of both classes where the fruit is dehiscent it seems essential that the plants of both classes where the fruit is not dehiscent should be included in one widened genus *Argyreia*. Choisy in his monograph of *Convolvulaceæ* (*DC. Prodr.* ix.), includes Roxburgh's *Lettsomia* in *Argyreia*; but breaks up *Ipomoea* into as many genera as there are now recognised sections. Bentham and Hooker, (*Genera Plantarum*, ii.) on the other hand, recognise, and it seems very justly so, a widened *Ipomoea* which includes all of these, but separate *Lettsomia* from *Argyreia*. The opinion that *Lettsomia* and *Argyreia* deserve to be re-united has been formally expressed by Collett and Hemsley (*Journ. Linn. Soc.* xxviii, 95). With that opinion

the writer quite agrees. Whether it be accepted generally or not, it is certain that any system of arrangement of the *Convolvulacæ* which recognises *Lettsomia* as a genus apart from *Argyreia*, must of logical necessity rehabilitate the various sections of *Ipomoea* as separate genera.

26. SUB-GENUS 1. *EULETTSOMIA LAXIFLORA* Prain; leaves cordate mucronulate sparsely adpressed-hirsute, ultimately glabrescent above, rather thinly grey-tomentose beneath; peduncles long round white, tomentose; corymbs many-fl. lax axillary or arranged in large terminal panicles; bracts small lanceolate obtuse deciduous, outer sepals ovate, inner lanceolate rather narrower, all externally densely patently grey-hirsute. *Argyreia laxiflora* Prain Mss.

UPPER BURMA: Ava, Wallich (*Cat.* n. 1362 in part)! Ngyah Kyun, J. Anderson! Chin Hills, King's Collectors! Shan Hills, frequent, King's Collectors!

Scandent, branches closely white-tomentose; leaves  $1\frac{1}{2}$ – $2\frac{1}{2}$  in. long,  $1$ – $1\frac{1}{2}$  in. across; petioles  $\frac{1}{2}$ – $1\frac{1}{2}$  in., peduncles 2–4 in.; corymbs 4–12-fl. pedicels  $\frac{1}{4}$ – $\frac{1}{2}$  in.; bracts  $\frac{1}{8}$  in. Sepals  $\frac{1}{2}$  in. long, outer  $\frac{1}{4}$ , inner  $\frac{1}{8}$  in. wide. Corolla  $\frac{2}{3}$  in., narrowly tubular below campanulate above, purple, hirsute externally. Stamens exserted. Capsule  $\frac{1}{2}$  in. red, as are the fruiting sepals within.

This species is a member of the group to which *Lettsomia aggregata* (*Argyreia aggregata*, Choisy), *L. mysorensis*, and *L. bella* belong. The corolla is exactly like that of *L. aggregata*, the calyx is almost like that of *L. bella*. From the former it differs in having small bracts, from the latter in having long peduncles: from both it is distinguished by its lax cymes. From *L. mysorensis* it is distinguished by its inner sepals being as long as the outer.

### 3. LETTSOMIA BELLA Clarke.

Add to synonyms of *F. B. I.*:—

*Argyreia tomentosa* Choisy var. *cordata* Choisy, DC. Prodr. ix., 333  
*Convolvulus multibracteatus* Wall. var.  $\beta$  *cordata* Wall. Cat. n. 1408/ $\beta$ . *Convolvulus vestitus* Wall. Cat. n. 1411.

Add to localities of *F. B. I.*:—

NEPAL: Wallich! GANJAM: Baibali, Gamble!

### 4. LETTSOMIA BRACTEOSA Clarke.

Add to description of *F. B. I.*:—

Corolla  $1\frac{1}{2}$  in. long, campanulate; stamens included.

Add to synonyms:—

*Argyreia tomentosa* Choisy, DC. Prodr. ix., 333, (except as to the description of the corolla which refers to *Lettsomia aggregata* var. *osyrensis*). *Convolvulus multibracteatus* Wall. Cat. n. 1408/1 in part.

Of two gatherings issued under this name by Wallich, one is this species, the other is *Lettsomia aggregata* var. *osyrensis*.

### 7. LETTSOMIA HIRSUTISSIMA Clarke.

VAR. *typica*; leaves rather widely ovate-cordate, bracts oblong. Add to localities of *F. B. I.*:—

UPPER BURMA: Myingiu, *Prazer!*

VAR. *Collettii* Prain; leaves narrower, bracts lanceolate. *L. strigosa* Coll. & Hemsl., *Journ. Linn. Soc.* xxviii., 95, *not of Roxb.*

UPPER BURMA: Shan Hills at Fort Stedman, *Collett* n. 5! *King's Collectors!* Maymyo, *King's Collectors!*

This differs from the type in the leaves, which more resemble those of *L. setosa*; and in the bracts, which are quite unlike those of true *L. hirsutissima*. The inflorescence, calyx and corolla are quite like those of the true plant, but the corolla is reported in the Maymyo gathering to be white; that of true *L. hirsutissima* is said by Prazer to be purple. It is not impossible that this may ultimately prove to be specifically distinct.

What appears to be a third variety of this species is reported (but in fruit only) by our native collectors from the Ruby Mines District. The bracts in this plant are as in VAR. *typica*, but the tomentum is as in *L. setosa*.

S. LETTSOMIA STRIGOSA Roxb., *Flor. Ind.*, ed. Carey & Wall. ii., 80 (1824), *not of Hort. Beng.* 13; Clarke, *Flor. Brit. Ind.* iv., 193 (*excluding the Java plant and the synonym L. capitata* Mig.) *Argyrea capitata* Arn., ex Choisy, *Convolv. Or.* 41 [1834], and DC. *Prodr.* ix., 332 (*in part*); Kurz, *For. Flor. Brit. Burma*, ii., 216 (*in part*). *Ipomoea capitata* Roem. & Schult. *Syst.* iv., 238 [1819], *not of Choisy*. *Convolvulus capitatus* Vahl, *Symb.* iii., 28 [1794]. *C. capitiformis* Poiret in Lamk. *Encyc. Meth.*, *Suppl.* iii., 469. *C. strigosus* Wall. *Cat.* 1365/1, 1365/D, 1365/E partly.

Add to localities of *F. B. I.*:—

CHITTAGONG: Kodala Hill, etc., common, *King's Collectors!* BURMA: Arracan, at Sandoway *Maregrave!* Pegu, *Kurz!* Shan Hills, common, *King's Collectors!* ANDAMANS: Coco Islands, *Prain!* DISTRIB. Yunnan (*J. Anderson!*)

Though less common in Indo-China than the plant described by Mr. Clarke as *L. peguensis*, this is widely spread throughout Upper Burma; it does not appear to extend to Tenasserim where its place is taken by *L. peguensis*. This forms part of Kurz's *Argyrea capitata*—which is thus co-extensive with Choisy's, but it is not Miquel's *Lettsomia capitata* which is founded on a Java plant collected by Horsfield that, so far as the Calcutta specimen goes, is undoubtedly *L. peguensis* Clarke.

There is no doubt, from the description given by its author, that this is *Convolvulus capitatus* Vahl. Dr. Wallich, himself one of the editors of the first edition of Roxburgh's *Flora Indica*, admits that this, though the *Lettsomia strigosa* of that work, is not the *Lettsomia strigosa* of the *Hortus Bengalensis*, which was issued (*Cat.* n. 1404/1) as *Convolvulus barbiger* Wall.; unfortunately Wallich associated with this a different plant (or rather a mixture of two) from Burma (*Cat.* n. 1404/2). One of these Choisy has made the type of his *Argyrea barbiger* (*Lettsomia barbiger* Clarke) the other has dropped out of notice as completely as has the plant that Wallich really intended by *Convolvulus barbiger*.

9. LETTSOMIA PEGUENSIS Clarke, *Flor. Brit. Ind.*, iv., 193 [1883]. *L. strigosa* Roxb. *Hort. Beng.*, 13 [1814] ex Wall. in *Cat. Lith. sub.* n. 1404. *L. capitata* Miq., *Flor. Ind. Bat.*, ii., 591 [1856]. *Argyreia capitata* Choisy, *DC. Prodr.* ix. 332 [1845] (in part and excluding var.  $\beta$ . *conferta*); Kurz, *For. Flor. Brit. Burma* ii., 216 (chiefly). *Convolvulus strigosus* Wall., *Cat.* 1365/2, 1365/C, 1365/E partly. *Convolvulus barbiger* Wall., *Cat.* 1404/1, 1404/2 in part only. *Argyreia barbiger* Choisy, *Convolv. Or.* 42 and *DC. Prodr.* ix., 332; Brand. *For. Flor.* 343.

Add to localities of *F. B. I.* :—

MALAY PENINSULA: Perak, common, *Scortechini* n. 1628! Kunstler n. 2622! 8627! *DISTRIB.* Java.

Much confusion has been caused owing to Dr. Wallich having in the first place mixed in his distribution of *Lettsomia strigosa* (*Cat.* n. 1365) that species and *L. peguensis*; and again in his differentiation of *L. peguensis* (*Cat.* n. 1404) having included with it another species whose presence has helped to obscure the identity of this.

When the somewhat tangled synonymy is unravelled, we find that what constitutes the *Lettsomia strigosa* of the *F. B. I.* is really without a name, while the plant that Mr. Clarke has there for the first time satisfactorily differentiated is already provided with two names in the genus *Lettsomia*.

The name *Lettsomia strigosa* was in reality first applied to what is in the *F. B. I.* named *L. peguensis*, a plant which, at the time the name was applied to it by Roxburgh, was being cultivated in the Caleutta Garden from seed received from "the Straits." But to re-transfer the name to that species now (though doubtless the act will commend itself to pedantic purists in nomenclature) and to coin a new name for *L. strigosa* as limited in the *F. B. I.*, would—in view of the fact that Roxburgh under the name has written a careful description which can only apply to the "*F. B. I.*" *L. strigosa*—be, in the writer's opinion, not only unnecessary but reprehensible. The name *L. strigosa* is better kept for the original *Convolvulus capitatus* of Vahl, even though we know that its first application was to *L. peguensis*. The name *L. capitata* at all events is not available since that name was employed by Miquel to designate precisely the plant that is not Vahl's *Convolvulus capitatus*. At the same time it does not seem necessary to replace the name *L. peguensis* by Miquel's one of *L. capitata*, though it is older by nearly 30 years than Mr. Clarke's one and though we know that it applies precisely to *L. peguensis*. For it has to be recollected that *L. capitata* Miq. is not the same as *Convolvulus capitatus* Vahl, and therefore is not equivalent to *Argyreia capitata* Arn.—the name that will have to be applied to *Lettsomia strigosa* of the *F. B. I.* when *Lettsomia* is once more merged in *Argyreia*; and that though it is included in *Argyreia capitata* as that species has been understood by Choisy and by Kurz, it is not equivalent to the species of these two authors.

When *Lettsomia* is again merged in *Argyreia* the *Lettsomia peguensis* of the *F. B. I.* (*L. strigosa*, Roxb., *Hort. Beng.* not *Flor. Ind.*) must—as will be shown in the writer's note on the next species—be known as *Argyreia barbiger* Choisy.

The further question whether these two plants are really specifically (they certainly are at least varietally) distinct is one that cannot be raised here; it can only be properly discussed by a monographer of the combined genera, though it is the writer's opinion that they should be reunited.

10. LETTSOMIA BARBIGERA Clarke, *Flor. Brit. Ind.* iv., 194, excluding all the synonyms.

The writer has failed to discover what this species, which is not represented in the Calcutta Herbarium, really is. The localities given are "ASSAM; Jenkins," and "BRITISH BURMA: Prome, Wallich." To these Mr. Clarke has since added MANIPUR (*Journ. Linn. Soc.* xxv., 49). The last-mentioned gathering is not represented here; all of Capt. Jenkins' "Assam" specimens at Calcutta are referable to other species; the plant collected by Wallich at Prome and issued as part of *Cat. n.* 1404 belongs to a species which, Dr. Stapf informs the writer, is not Mr. Clarke's *Lettsomia barbiger* as represented in the Herbarium at Kew.

Wallich's *Convolvulus barbiger* (*Cat. n.* 1404) consists of two parts; viz., 1404/1, a plant cultivated in the Botanic Garden at Calcutta and stated expressly by Wallich to be *Lettsomia strigosa* Roxb. of the *Hortus Bengalensis* as opposed to the plant so named in the *Flora Indica*; and 1404/2, made up of two gatherings from Burma, the first from the Irrawaddy Delta, the second from Prome. Of the three gatherings which therefore go to make up *Convolvulus barbiger* Wall. the *F. B. I.* formally excludes two and retains only the one from Prome: *Cat. n.* 1404 is therefore only quoted *in part*. The part which is quoted is not the first sheet, which (in the event of any confusion having occurred) must be taken as the type, and indeed only forms a portion of the remainder. As it is specifically distinct from the type of *C. barbiger* that name must therefore be excluded entirely from the synonymy.

It is not *Pharbitis barbiger* Don (*Gen. Syst.* iv., 262) at all. That plant is a native of North America and is a true *Ipomoea*.

Not being *Convolvulus barbiger* of Wallich, it cannot be *Argyreia barbiger* of Choisy, for though that author somewhat unaccountably ignores altogether *Wall. Cat.* 1404/1, which is the true type of Wallich's plant, he has written a description that applies only to the gathering of 1404/2 from the Irrawaddy Delta which is the same as 1404/1 and which is, therefore, as explained in the note under the preceding species, precisely = *Lettsomia peguensis* Clarke.

Choisy was not unaware of the fact that the remaining gathering of 1404/2 differed from the one to which his description alone applies. He speaks of it as a variety (though he does not distinguish it by name) with "leaves hardly cordate, peduncles short and few-fl., and leaves, at least when adult, less tomentose."

The citation of *Pharbitis barbiger* Don as a synonym originated with Choisy; who errs also in speaking of the species as coming from "Prome ad aestuar. Irrawady" whereas Wallich explicitly says in his *Catalogue* "Aestuar. Irrawadi; et Prome;" Choisy's citation of locality therefore reads as if he supposed that Prome was situated in the delta of the Irrawady. At all events it does not make the fact clear that Wallich has two gatherings under 1404/2, still less that these gatherings represented two different species.

Since Wallich's time the Prome plant referred to above has been collected on the Pegu Yomah by Kurz, and more recently still in Upper Burma and the Shan Hills by native collectors sent from the Calcutta garden. One of these latter specimens which Dr. Stapf has kindly compared with the Kew material of *Lettsomia barbiger* Clarke, he has been able to assure us differs from that species. Since, therefore, one part of Wallich's *Cat. n.* 1404 agrees with Mr. Clarke's plant, it is evident that Dr. Wallich must have issued three things under that number, viz. 1. *Lettsomia peguensis* = 1404/1 and 1404/2, (*in part*), 2. *Lettsomia barbiger* = some part of 1404/2, from Burma, and by Mr. Clarke's citation, some

part of the Prome gathering thereof; and 3. *Lettsomia confusa* = 1404/2 from Prome as represented at Calcutta—part of the species now to be described.

10 b. *LETTSOMIA CONFUSA* Prain; leaves ovate acute, base subcordate or truncate, sparingly hirsute to nearly glabrous on both surfaces, peduncles short, 1-3-flid., bracts  $\frac{1}{4}$ - $\frac{1}{3}$  in. oblong obtuse adpressedly strigose deciduous, sepals ovate-obtuse or sub-acute, longer than the bracts, densely adpressedly strigose. *Argyrea confusa* Prain Mss.

VAR. *typica*; peduncles glabrous usually capitately 3-flid., nearly as long as the glabrous petioles.

BURMA: Shan Hills, *King's Collectors!* Makhoye Hill, *King's Collectors!*

VAR. *brevipes* Prain; peduncles puberulous usually 1-flid., much shorter than the pubescent petioles.

BURMA: Prome Hills, *Wallich* (*Cat. n.* 1404/2 in part in Herb. Calcutta)! Pegu Yomah, in Eng forests, *Kurz* n. 1087!

A slender climber with glabrous branches. *Leaves* long petioled 1-3 in. by  $\frac{1}{2}$ - $2\frac{1}{2}$  in., acute or acuminate, petioles slender, in VAR. *typica* 2- $2\frac{1}{2}$  in. long, in VAR. *brevipes* 1-2 (sometimes even 4) in. long. *Peduncles* very slender, in VAR. *typica* 2 in. in VAR. *brevipes* 0- $\frac{1}{2}$  in.; bracts herbaceous  $\frac{1}{2}$  in. across: pedicels 0- $\frac{1}{3}$  in. *Sepals*  $\frac{1}{2}$  in., coriaceous, enlarging in fruit, accrescent. *Corolla*  $1\frac{1}{2}$  in externally setose, white (*King's Collector*) or purple (*Kurz*). *Stamens* included. *Fruit* globose, pink,  $\frac{1}{3}$  in. diam. 4-seeded, pericarp thin, papery.

A very distinct species with the facies of *Lettsomia setosa* VAR. *minor*, but with a very different fruit which indicates a closer natural relationship to *L. strigosa* than to *L. setosa*. That portion of *Convolvulus multibracteatus* Wall. (*Cat.* 1404) which is not *Lettsomia aggregata*, seems nearly related to VAR. *brevipes*: it has a very similar corolla and fruit but the leaves are obtuse with rounded bases, and the bracts are very different, as is the shape of, and the tomentum on, the sepals. If *Lettsomia bracteosa* is the same in reality as *Convolvulus multibracteatus* (*Argyrea tomentosa* Choisy), that species must be removed from the group of species with exerted stamens, and placed next to this plant.

12 b. *LETTSOMIA LONGIFOLIA* Coll. § *Hemsl., Journ. Linn. Soc.*, xxviii, 95; leaves narrowly oblong-lanceolate acuminate, base rounded or slightly cuneate, glabrous except the midrib above, sparsely strigose throughout beneath; heads few-flid., axillary shortly peduncled, bracts large oblong-lanceolate, persistent.

BURMA: Shan Hills, at 3000 feet, *Collett!* Maymo, *King's Collectors!* Makhoye, *King's Collectors!*

A large climber. *Leaves* 5-8 in. by  $\frac{3}{4}$  in., petiole  $\frac{1}{2}$ - $\frac{3}{4}$  in. *Peduncles*  $\frac{3}{4}$ -1 in., hirsute; bracts obtuse or subacute, reddish-purple, strigose beneath 1- $1\frac{1}{4}$  in. long. *Sepals* equal oblong-orbicular,  $\frac{1}{3}$ - $\frac{1}{2}$  in., coriaceous, dark red within, glabrous. *Corolla*  $1\frac{1}{4}$  in. glabrous externally, dark purple. *Fruit* depressed, subglobose, dark red, usually 2-seeded,  $\frac{1}{2}$  in. long,  $\frac{1}{2}$  in. diam.

A very distinct species; most nearly allied to *Lettsomia atropurpurea*.

13. LETTSOMIA SIKKIMENSIS *Clarke, Flor. Brit. Ind.* iv., 194. *Argyreia elliptica Choisy, DC. Prodr.* ix., 330 (in part, and as to the Burmese locality). *A zeylanica Kurz. (not of Gaertn.)* VAR. *peduncularis Kurz, For. Flor. Brit. Burma,* ii., 215. *Convolvulus peduncularis Wall. Cat.,* 1417.

EASTERN HIMALAYA : Sikkim, *Clarke!* Akha Hills, *King's Collectors!*  
 ASSAM : Naga Hills, *Masters!* Khasia, *Hooker!* Cachar, *Keenan.* BURMA :  
 Taong Doung, *Wallich!* Ruby Mines, *King's Collectors!*

The chief distinction between *Lettsomia sikkimensis* and *Lettsomia elliptica* (*Argyreia elliptica* Choisy) is the size of the flowers and fruit. Recent specimens of *L. elliptica* show corollas nearly as long as in the Himalo-Burmese plant; the calyx and fruit however are always larger in the latter than in the Peninsular species. Possibly Choisy is right in uniting the two, but they should at least be distinguished varietally: in any case the species ought to be placed near each other.

14. LETTSOMIA RUBENS *Clarke,* has been re-transferred to *Ipomoea.*

14 b. LETTSOMIA PALLIDA *Prain;* leaves ovate-oblong acute, or orbicular-ovate mucronulate, glabrous except for a few hairs on the midrib above, sparsely ashy-pubescent beneath as are the petioles, peduncles and branches; peduncles short, corymbs small few-fl'd., bracts minute caducous linear-oblong, sepals  $\frac{1}{4}$  in. outer orbicular inner broader than long, glabrous. *Argyreia pallida Choisy, Convolv. Or.* 34 and *DC. Prodr.* ix., 330; *Coll. § Hemsl., Journ. Linn. Soc.,* xxviii, 94. *Convolvulus pallidus Wall., Cat.* 1418.

BURMAH : Between Yandabu and Paghanmyo, on the road to the Petroleum Wells, *Wallich!* Mandalay, *J. Anderson!* Pwau-olwe, *Collett!* Trongla, *King's Collectors!* Shan Hills, at Meiktila, *Collett!* *King's Collectors!*

A large handsome climber. *Leaves* 2-3 $\frac{1}{2}$  in. by 1 $\frac{1}{2}$ -2 $\frac{1}{2}$  in., base usually slightly cordate but often truncate, sometimes shortly cuneate; petioles  $\frac{1}{2}$ -1 $\frac{1}{4}$  in. *Peduncles*  $\frac{1}{4}$ -1 in., usually about  $\frac{1}{2}$  in., slender. *Corymbs* 3-12-fl'd.; bracts  $\frac{1}{2}$  in. pubescent externally, early caducous, pedicels  $\frac{1}{4}$  in. or less, pubescent. *Sepals* glabrous except along the margins even in bud; slightly accrescent, coriaceous. *Corolla*  $\frac{2}{3}$  in. long,  $\frac{2}{3}$  in. wide at mouth, campanulate, glabrous externally, white. *Stamens* included, inserted near the base of corolla tube; filaments glabrous, anthers oblong, not twisted. *Disc* prominent; *ovary* 2-celled; stigmas 2, subsessile globose. *Fruit* a hard brown indehiscent 2-seeded berry, depressed globose,  $\frac{1}{4}$  in. long,  $\frac{1}{2}$  in. across; seeds 1 in each loculus, black, smooth.

This species, not taken up in the *F. B. I.*, is dealt with, in passing, in Sir Henry Collett's list of Shan Hill plants. More recent and very complete suites of specimens received from Dr. King's native collectors from various parts of Upper-Burma render it possible to give a full description of the species and to show that while it really has an indehiscent fruit the ovary is only 2-celled. As already said, the writer believes that *Lettsomia* must be again united to *Argyreia* when Choisy's name will once more be applicable. In the meantime, and so long as generic rank is accorded to *Lettsomia* in India, it is necessary to indicate the fact that this is not a

genuine 4-celled *Argyreia*. The flowers a good deal resemble those of *Ipomoea staphylina*, which has, however, longer, many-fl. corymbs, a dehiscent capsule and hairy seeds.

15 b. *LETTSOMIA MASTERSII* Prain; leaves large ovate-cordate acute or acuminate, sparsely hirsute above densely or sparsely softly grey tomentose beneath, heads of many-fl. dense dichotomous cymes shortly peduncled axillary, bracts long ligulate or lanceolate persistent. *Argyreia Mastersii* Prain Mss.

ASSAM: Naga Hills, *Masters! Collett!* Garo Hills, *King's Collectors!*  
BURMA: Chin Hills, *King's Collectors!*

An extensive climber, stems, petioles and peduncles densely rusty-tomentose. *Leaves* 4-10 in. by  $2\frac{1}{2}$ -7 in., towards ends of branches with base sometimes truncate not cordate; petiole  $\frac{3}{4}$ -1 in. *Peduncle*  $\frac{1}{2}$ - $\frac{3}{4}$  in., bracts very many outer ligulate  $1\frac{1}{4}$ - $1\frac{1}{2}$  in. long,  $\frac{1}{4}$ - $\frac{1}{5}$  in. wide throughout, sometimes one or two foliaceous near base of cyme, sparsely hirsute above densely tomentose beneath, and with longer spreading hairs along margins; inner lanceolate covered externally with spreading hairs. *Sepals* ovate acuminate,  $\frac{1}{2}$  in. (in fruit  $\frac{3}{4}$  in.) long,  $\frac{1}{4}$  in. across, glabrous within, clothed with long spreading hairs externally, firmly coriaceous. *Corolla* (expanded not seen) in bud externally hirsute. *Berry* ovoid,  $\frac{1}{2}$  in. long  $\frac{1}{4}$  in. diam., dark-purple completely hidden within the conniving sepals.

A very distinct species, nearest to *L. barbata*, but with larger bracts, more open heads and a very different calyx. The flower is reported (by a native collector, of the Chin Hill specimens) to be yellow.

#### SUB-GENUS 2. MOORCROFTIA.

16 b. *LETTSOMIA SCORTECHINII* Prain; leaves petioled ovate-acute glabrous above, very sparsely hirsute with rusty hairs beneath, peduncles long, bracts deciduous, corymbs few-fl., sepals orbicular minutely adpressed grey-tomentose externally. *Argyreia Scortechinii* Prain Mss.

MALAY PENINSULA: Perak, *Scortechini!*

A strong climber; branches and peduncles rusty brown. *Leaves* 2-3 in. by 1-2 in., very thick, base rounded; petiole  $\frac{1}{2}$ - $\frac{3}{4}$  in. minutely rusty pubescent. *Peduncles* 2-5 in., corymbs 3-5-fl.; bracts caducous before the flowers expand. *Sepals*  $\frac{1}{4}$  in., in fruit  $\frac{1}{2}$  in., the inner pair larger than the three outer. *Corolla*  $\frac{5}{8}$  in. densely fulvous strigose outside. *Fruit* sub-spherical,  $\frac{1}{2}$  in. diam., tip slightly umbonate, smooth, nearly dry, lower  $\frac{2}{3}$ ths closely embraced by the calyx.

Closely related to *L. rubicunda*, but with fewer-fl. cymes, rather smaller corolla and fruit, somewhat different calyx, and very different leaves and tomentum.

16 c. *LETTSOMIA RIDLEYI* Prain; leaves large elliptic acuminate quite glabrous above tomentose especially on the nerves beneath, peduncles usually short, cymes sub-capitate surrounded by large ovate acute foliaceous persistent bracts, sepals sub-equal ovate lanceolate ashy-pubescent externally. *Argyreia Ridleyi* Prain Mss.

VAR. *typica*; leaves rather larger,  $5\frac{1}{2}$  by  $3\frac{1}{2}$  in., outline regularly

elliptic, sparsely hirsute except on the nerves beneath, as are the petioles, pedicels and bracts externally.

MALAY PENINSULA: Johore, at Kota Tinggi, *Ridley*, n. 4214! Chan Chin, *Lake & Kelsall*!

VAR. *velutina* Prain; leaves somewhat smaller, 4 in. by  $2\frac{1}{2}$  in., slightly narrowed from above the rounded base, densely hirsute especially on the nerves beneath, as are the petioles pedicels and bracts externally.

MALAY PENINSULA: Singapore, at Bukit Mandan, *Ridley*, n. 1635!

Scandent, branches sparsely ashy-hirsute. *Leaves* petioled, petioles 1-3 in. *Peduncles* 2-6 in., heads  $1\frac{1}{2}$  in. diam., 8-10-fl., bracts sessile, quite glabrous above. *Sepals*  $\frac{3}{8}$  in. corolla  $1\frac{1}{4}$  in. tubular funnel-shaped, hirsute externally. *Berry*  $\frac{1}{2}$  in. by  $\frac{1}{2}$  in., ovoid, two-thirds embraced by calyx.

Easily distinguished by its large bracts from all hitherto reported *Moorcroftias* except from *L. Maingayi*, where however the heads are sessile, or nearly so, the flowers are larger, and the bract and sepals much larger, longer and more lanceolate. A very distinct species.

17. LETTSOMIA MAINGAYI *Clarke*; *Ridley*, *Trans. Linn. Soc.* n.s., iii. 323.

Add to description of *F. B. I.*:—

Bracts dark purple above; corolla  $2\frac{1}{4}$  in. long, tubular, slightly enlarging upwards, purple, the folds whitish, hairy outside glabrous within; filaments inserted near base of tube, glandular-hairy at the thickened base.

Add to localities of *F. B. I.*:—Perak, *Scortechini*! Pahang, *Ridley*.

19. LETTSOMIA ADDRESSA "*Miq.*"

Add to localities of *F. B. I.*:—

PERAK: Larut, etc., very common, *Scortechini* n. 1280! *Kunstler* n. 2457! 5400! *Wray* n. 1914! 3298! 3961!

Recent Penang gatherings are *Curtis* n. 318! *Kunstler* n. 1324! n. 5271!

*Corolla* dull pale claret (*Wray*) or pale pink and white (*Kunstler*) or white with claret stripes (*Wray*). *Fruit* at first green with a reddish tint, becomes bright pink and at length red-brown when ripe.

20. LETTSOMIA PENANGIANA "*Miq.*"

VAR. *typica*, leaves thinly coriaceous, secondary nerves obscure.

Add to localities of *F. B. I.*:—

PERAK: Larut, etc., very common, *Scortechini* n. 1147! *Kunstler* n. 2048! n. 2574! n. 5339! *Curtis* n. 2034! *Wray* n. 2095! 2334! 2601! 2733! (A recent Penang gathering is *Curtis* n. 1586!)

The *corolla* is as figured by Choisy; as a rule the terminal flower of the cyme is distinctly larger than the others; in color bright claret (*Wray*) or purple (*Kunstler*); the fruit a beautiful rose-pink (*Wray*) bluish red (*Kunstler*) or purplish (*Curtis*). The leaves beneath are very characteristically glandular-punctulate.

VAR. *reticulata* Prain; leaves thicker, secondary nerves beneath very distinct.

PERAK: Larut, *Kunstler* n. 8544!

The peduncles and pedicels of this plant are rather shorter than in *L. penangiana*. The sepals though as long are rather narrower, and the corolla—described by *Kunstler* as “waxy white, pale blue inside”—is but two-thirds the length and only half the width of that of *L. penangiana*. But the leaves have exactly the sparse adpressed tomentum of the type and have the same characteristic glandular punctulation, while the fruit—described by *Kunstler* as “rich pink”—is indistinguishable from that of *L. penangiana*; so that this form, though very distinct, does not appear to deserve more than varietal rank.

21. LETTSONIA? KURZII *Clarke*.

This plant is shown by *Kurz*'s specimens to be *Argyrea Hookeri* *Clarke*. Mr. *Clarke* had not an opportunity of examining the material from which Mr. *Kurz* described his *Argyrea weylanica* (*For. Flor. Brit. Burma* ii., 215). That description is not very clear and the three varieties recognised by Mr. *Kurz* refer, as the sheets named by him in the Calcutta Herbarium show, to as many very distinct species; VAR. *populifolia* is *Argyrea Hookeri* *Clarke*, and is not = *Argyrea populifolia* *Gaertn.*; VAR. *hirsuta* is *Argyrea venusta* *Choisy*, and is not = *A. populifolia* VAR. *hirsuta* *Thwaites*; VAR. *peduncularis* is *Convolvulus peduncularis* *Wall.*, which is the same thing as *Lettsonia sikkimensis* *Clarke*.

22. LETTSONIA CURTISII *Prain*; leaves large elliptic shortly acuminate glabrous except for a few hairs on the midrib above, sparingly hispid beneath, peduncles long, cymes compound subumbellate, bracts deciduous, sepals coriaceous the three outer sparingly hirsute rounded, the two inner deeply emarginate glabrous. *Argyrea Curtisii* *Prain* *Ms.*

MALAY PENINSULA: Selangor at Kwala Lampar, *Curtis* n. 2158!

Scandent; branches brown glabrous. Leaves long-petioled 4–5 in. by 2½–3 in., petioles 2–3 in. glabrous. Peduncles 4–10 in. brown glabrous, bracts deciduous, cymes rather open, 2½–3 in. diam., 12–16-fl. Sepals ¼ in. Berry ovoid, fleshy, ¾ in. by ½ in., the lower third only embraced by the calyx. Corolla not seen.

A very distinct species, easily recognisable by its emarginate inner sepals.

23. LETTSONIA KUNSTLERI *Prain*; leaves petioled large elliptic acuminate, quite glabrous above sparsely strigose-hirsute beneath; nerves more densely hirsute as are the petioles, peduncles and young branches: bracts small linear-lanceolate hirsute deciduous, peduncles long, cymes loose 12–20-fl., flowers small, sepals orbicular subequal, 3 outer pubescent the others glabrous externally. *Argyrea Kunstleri* *Prain* *Ms.*

MALAY PENINSULA: Perak; Goping, *Kunstler* n. 732! Chanderiang, *Kunstler* n. 5672! Kota, *Wray* n. 2856! DISTRIB. Sumatra.

A slender climber “50–80 feet long” (*Kunstler*). Leaves 3½–4½ in. by 2–2½ in., glossy above (*Kunstler*), petioles 1–1½ in. Peduncles 5–8 in, pedicels ¼–½ in., cymes 2–3 in. across, bracts ½ in., sepals ½ in. the outer, (originally hirsute) three ultimately glabrescent. Corolla ½ in. or less, white outside, bright pink or red within, externally hirsute. Berry ½ in. by ¼ in., the lower fourth embraced by the calyx.

A very distinct *Moorcroftia* perhaps nearest to *L. rubicunda*, but well distinguished by its small flowers from all the other species of the section. With this the writer identifies Forbes n. 2530, from Sumatra (in fruit only), which has, however, rather longer petioles and less sharply acuminate leaves than the Perak plant, while the midrib near the base of the leaf is sparsely hirsute above. Perhaps Forbes's plant should be considered varietally distinct; it does not, however, appear to the writer to deserve specific rank.

## 5. IPOMOEA LINN.

## SUB-GENUS I. CALONYCTION. Key to the Indian Species.

- \* Sepals lanceolate (glabrous); seeds glabrous; (leaves glabrous above and below; capsule  $\frac{1}{2}$  in. diam.):—
  - § Corolla white, tube linear, glabrous within; *stamens exerted; sepals cuspidate.* ... *I. bona-nox* VAR. *grandiflora*.
  - §§ Corolla *purplish*, tube infundibuliform, hairy within; stamens included; *sepals lanceolate not cuspidate* ... *I. muricata*.
- \*\* Sepals ovate; seeds hairy; (stamens included):—
  - ¶ Sepals glabrous; leaves glabrous above and below; (hairs on seeds short; capsule 1 in. diam.):—
    - § Corolla-tube linear ... .. *I. glaberrima*.
    - §§ Corolla-tube *wide-infundibuliform* ... .. *I. longiflora*.
  - ¶¶ Sepals hirsute; leaves beneath and petioles hirsute; corolla-tube linear:—
    - § *Branches pilose*, leaves deep-cordate. Corolla long; hairs on seeds short; capsule  $\frac{1}{2}$  in. diam. ... .. *I. yomæ*.
    - §§ Branches glabrous, leaves shallow-cordate. Corolla rather short; *hairs on seeds very long*; capsule 1 in. diam. ... .. *I. jucunda*.

## 1. IPOMOEA BONA-NOX Linn.—The MOON-FLOWER.

VAR. *grandiflora* C. B. Clarke.

Add to distribution of *F. B. I.*:—

Australia: Baron Von Mueller has sent (under the name *I. longiflora*) to Herb. Calcutta excellent specimens of *I. bona-nox* with the cuspidate sepals and exerted stamens characteristic of the species.

As in true *I. bona-nox*, which hardly differs varietally from this, the stamens are always far exerted. This is well shown in *Rheede, Hort. Malabar*, xi., t. 50 which therefore belongs here and not to the coast moon-flower, where the stamens do not reach beyond the junction of the mid and upper thirds of the tube. Consequently *Ipomoea grandiflora* Lamk, which is based on *Rheede's* figure, also comes here as to the citation: the diagnosis however applies to *I. yomæ* alone of Indian *Calonyctia*.

## 2. IPOMOEA MURICATA Jacq.—The PURPLISH MOON-FLOWER.

Add to localities of *F. B. I.* :—

CENTRAL INDIA, near Goonah, *King!* “Montes Silhet,” (KHASIA or JAINTEA) *Wallich, mixed with Convolvulus asper (I. yomæ) under Cat. n. 1388!* UPPER BURMA: Shan Hills, *King's Collectors!*

Add to distribution of *F. B. I.* :—

Persia (*fide* Roxburgh); S. China.

3. IPOMOEA GLABERRIMA *Boj. ex. Bouton in Hook. Journ. Bot. i., 357 [1834]; Baker., Flor. Maurit. 211. I. grandiflora C. B. Clarke in Flor. Brit. Ind. iv., 198, not of Lamk. either as to description or as to synonyms cited, and excluding the synonyms I. longiflora, I. macrantha, I. tuba; Convolvulus tuba; Calonyction grandiflorum and C. longiflorum, which are all = I. longiflora R. Br. (I. trichosperma Bl.): also the synonym I. jucunda which is a distinct species: also the synonyms Convolvulus grandiflorus Linn. f.; Casper; Calonyction asperum, which are = I. Yomæ: also the synonym C. pseudo-muricatum, which is not, by its description, distinguishable from I. muricata.*—The COAST MOON-FLOWER.

Substitute for localities of *F. B. I.* :—

SEA-SHORES OF INDIA: Travancore, at Quilon *Rottler!* Laccadives, Betrapar *Hume!* Alcock! Ceylon, at Dichwale, close to the sea, *Thwaites C. P. n. 3536!* Coromandel coast, *Wight!* Sunderbuns, *Kurz!* *Heinig!* Arracan coast, at Copal, *Kurz!* in Diamond Island, *Prain!* Andaman Group: Great Coco, *Prain!* Little Coco, *Prain!* Narcondam, *Prain!* South Andaman, at Perseverance Bay, *Kurz!* Rungachang, *Prain!* Navy Bay, Port Mouat, and many other points on the coast, *King's Collectors!* Nicobars: *E. H. Man!*

The plant common in the Deccan is *I. longiflora*; that from Dolosbage district, Ceylon is *I. jucunda*.

This species is easily recognised by its close general resemblance to the true moon-flower, and as easily differentiated by its habitat, by its included stamens, by its blunt sepals, and by its hairy seeds. From *I. longiflora (I. trichosperma)* it is as easily differentiated by its leaves never being lobed or hastate; though sometimes those of *I. longiflora* are entire and therefore not distinguishable from those of *I. glaberrima*, the corolla-tube of *I. longiflora* is rather widely funnel-shaped below the limb, while that of *I. glaberrima* is straight as in the true moon-flower. *Kurz (For. Flor. Brit. Burma ii., 218)* in his *Ipomoea campanulata*, which is mainly *Argyrea tiliæfolia*, has also included this plant.

4. IPOMŒA LONGIFLORA *R. Br., Prodr. Flor. Nov. Holl. 484 [1810] (not I. longiflora Humb. & Bonpl. ex. Willd. in Enum. Hort. Berol. i., 207 [1809] which is I. bona-nox Linn.); Benth., Flor. Austral. iv., 418. I. latiflora Roem. & Schult., Syst. iv., 240 [1819]. I. macrantha Roem. & Schult. Syst. iv., 251 [1819]. I. tricosperma Bl. Bijdr. 710 [1825]; C. B. Clarke in Flor. Brit. Ind. iv., 198 (excluding the synonym I. Yomæ which is a distinct species). Convolvulus latiflorus Desr. in Lamk. Encyc. Meth.*

iii., 561: *C. grandiflorus* Jacq., *Hort. Vindob.* iii. t. 69 (not of Linn. fl. even in part): *C. longiflorus* Spreng., *Syst.* i., 595. *Calonyction speciosum* Choisy, *Conv. Or.* 59 VAR. *a. vulgare*, DC. *Prodr.* ix., 345 in part, and VAR. *s. laeve*, *Prodr. l. c.*, altogether; Miq., *Flor. Ind. Bat.* ii., 596 (where the same confusion exists): *C. trichospermum* Choisy, *Conv. Or.* 60, and DC. *Prodr.* ix., 346; Miq., *Flor. Ind. Bat.* ii., 598. *C. diversifolium* Hassk. *Flora* (1842) *Beibl.* p. 189; *Pl. Jav. Rar.* 523—The WIDETUBED MOON-FLOWER.

Add to localities of *F. B. I.*:—

WESTERN INDIA: Kanara, Talbot! CHITTAGONG; Fenoa Hill, King's Collectors! ANDAMANS: Hills near Port Mouat, King's Collectors! Add to distribution:—Australia, West Indies.

The usually lobed leaves (they are not however always lobed in Old World specimens, and do not seem to be so in American ones) and the funnel-shaped corolla-tube distinguish this species very well. The reversal of the leaf-character in this, as compared with *I. bona-nox*, is worth mentioning: in that species it is in America that the leaves may be either lobed or entire, but are usually lobed; wild specimens of the Asiatic form of the "true Moon-flower" seem never to have lobed leaves.

4 b. *IPOMOEA YOMAE* Kurz, *For. Flor. Brit. Burma*, ii. 218 [1877]; leaves deep-cordate, sinus usually obtuse, long acuminate, membranous, generally glabrous except the nerves above, always sparsely or closely adpressed-pilose beneath as are the petioles and the younger branches; pedicels short axillary 1 (rarely 2 or 3)-fld., sepals ovate subacute subequal externally adpressed pilose, in fruit glabrescent; corolla hypocrateriform, tube long straight glabrous externally; stamens included; capsule ovoid; seeds dark brown velvety throughout with shaggy margins. *I. trichosperma* C. B. Clarke in *F. B. I.*, iv., 198 in part, not of Blume. *Convolvulus grandiflorus* Linn. f., *Suppl.* 136 as to description, and excluding the syn. Rheed. *Hort. Malab.* t. 50. *C. asper* Wall. *Cat.* n. 1388. *Calonyction speciosum* Choisy VAR.  $\gamma$  pubescens, Choisy, DC. *Prodr.* ix., 345 as to the description. *C. asper* Choisy, DC. *Prodr.* ix., 345, in part. *C. mollissimum* Zoll., *Syst. Verzeichn.* 131; Miq., *Flor. Ind. Bat.* ii. 597.

SILHET: Wallich! PEGU Yomah, Kurz! TENASSERIM: Mawayda, Gallatly! DISTRIB. JAVA.

A large climber, branchlets muricate; leaves 4-8 in. by 3-7 in., petioles 1-3 in.; pedicels  $\frac{1}{2}$ -1 in., thickened in fruit under the capsule, on axillary peduncles with pulvinar swellings on branch at their base,  $\frac{1}{4}$ -1 in. long if 1-fld. 1-2 $\frac{1}{2}$  in. long when 2 or 3-fld., sepals  $\frac{1}{2}$  in. long somewhat enlarged in fruit; corolla white, tube 5-6 in. long; capsule ovoid  $\frac{3}{4}$  in. long  $\frac{1}{2}$  in. in diam.

4 c. *IPOMOEA JUCUNDA* Thw., *Enum.* 211 [1860]; leaves rounded cordate, rather long acuminate entire glabrous above tomentose beneath

as are the petioles; pedicels axillary, 1-3-fld., puberulous as long as the petioles; sepals ovate-oblong mucronulate externally hirsute; corolla hypocrateriform, tube straight puberulous externally; stamens included; capsule large depressed-ovoid; seeds densely clothed throughout with very long greyish-brown silky hairs. *I. longiflora* Benth., *Flor. Austr.* iv., 419 in note. *I. grandiflora* C. B. Clarke, *Flor. Brit. Ind.*, iv., 198 in part, not of Lamk.

CEYLON: Dolosbage district, rare, *Thwaites* n. 3448!

A large lofty night-flowering climber; leaves  $3\frac{1}{2}$  in. by 3 in., petioles and pedicels 2 in.; pedicels usually 1-fld.; sepals 1 in. long, sub-reflexed in fruit; corolla white, tube 2 in. long, limb 4 in. across; capsule  $\frac{3}{4}$  in. long about 1 in. in diam.

### SUB-GENUS III. PHARBITIS.

8b. *IPOMOEA CONGESTA* R. Br., *Prodr. Fl. Nov. Holl.* 485 [1810]; leaves broadly or deeply cordate acute entire or slightly 3-lobed, softly sparingly hirsute above, more densely below; flowers large in congested cymes on long peduncles with sometimes a foliar bract close to the flowers; sepals long lanceolate acuminate; corolla suddenly campanulate from a short narrow cylindrical base. *I. congesta* Benth. *Fl. Austral.* iv., 417. *Convolvulus congestus* Spreng. *Syst.* i., 601. *Pharbitis insularis* Choisy, *Conv. Or.* 57; *DC. Prodr.* ix., 341. *Ipomoea insularis* Steud.

CHITTAGONG: Kodala Hill, *King's Collector!* MALAY PENINSULA: Singapur, *Hullett!* DISTRIB. N. Australia, Polynesia.

A tall hirsute climber; leaves 3-6 in. by 2-5 in., petioles 2-3 in., peduncles 3-7 in., softly hairy as are the petioles and stem, foliar bracts when present  $1\frac{1}{2}$  in. by  $\frac{1}{2}$ - $\frac{1}{2}$  in., with cuneate more rarely sub-cordate base; cymes 3-7 fld.; sepals  $\frac{3}{4}$  in. long; corolla blue-purple or mixed red and blue, nearly 3 in. long.

Mr. Hullett has noted on his specimen (n. 646) "Jany. 1885: blue convolvulus, wild? Have never seen it in seed." Perhaps therefore it is only an escape. It is not however at all frequent in cultivation in India and its occurrence in the Chittagong Hill Tracts in at least a thoroughly naturalised state leads the writer to provide a description.

10. *IPOMOEA DISSECTA* Willd.

Add to localities of *F. B. I.*:—

UPPER BURMA: Shan Hills, 4,000 ft., *Collett! King's Collectors!*

### SUB-GENUS IV. ANISEIA.

13. *IPOMEA BARLERIODES* Benth.

Add to localities of *F. B. I.*:—

UPPER BURMA: Shan Hills: Meiktila, *Collett! Koni, Prazer!*

13 b. *IPOMEA NANA* Coll. & Hemsl., *Journ. Linn. Soc.* xxviii., 97; leaves simple shortly petioled or sub-sessile, thickly herbaceous, obovate-lanceolate or narrow-oblong obtuse or acute, base cuneate, margin

entire on both surfaces sparsely hirsute with long strigose hairs; flowers axillary solitary, peduncles short, sepals narrow lanceolate acuminate unequal externally pilose; corolla narrowly infundibuliform sparsely hairy externally; stamens included, filaments hirsute.

BURMA; Shan Hills, 4,000 ft., common, *Collett!*

An erect or ascending herb, 6–12 in. high, root fusiform; leaves  $1\frac{1}{2}$ – $2\frac{1}{2}$  in. Sepals  $\frac{1}{2}$  in. long. Corolla  $2\frac{1}{2}$ –3 in. long,  $1\frac{1}{4}$  in. across mouth.

The sepals in fruit are reflexed, but the fruits themselves have fallen, and it is not known whether they have been capsules or berries. The flowers are very like those of *Ipomœa barlerioides*, but the plant has the facies of a *Lettsonia* rather than of an *Ipomœa*.

13 c. *IPOMŒA POPAHENSIS* Coll. & Hemsl., *Journ. Linn. Soc.* xxviii., 97; leaves simple shortly petioled narrowly oblong lanceolate or sometimes linear apiculate, entire, on both surfaces sparsely hirsute with short strigose hairs; flowers axillary on short peduncles with usually 1, rarely 2–3 flowers; sepals ovate-lanceolate acuminate or linear lanceolate, pilose externally as are the lanceolate bracts at the base of the very short pedicels; corolla narrowly infundibuliform sparsely hairy externally; stamens included filaments papillose.

UPPER BURMA: on Popah Daung, *Collett!* Shan Hills, near Boi Tat, 3,000 ft., and at Meiktila, *Collett!*

A very slender twiner, leaves  $1\frac{1}{2}$ –4 in. long, sepals  $\frac{1}{2}$ – $\frac{3}{4}$  in. long,  $\frac{1}{8}$ – $\frac{1}{4}$  in. wide, purplish; corolla purple 2 in. long, 1 in. wide at mouth.

This species also has flowers very like those of *Ipomœa barlerioides*. None of the specimens have ripe fruits; the largest unripe ones present are  $\frac{1}{4}$  in. in diameter sub-globose smooth with a thin pericarp, which however shows no trace of ultimate dehiscence. The plant suggests by its general facies that it may be a *Lettsonia*, in which case it would come nearest *L. barbata* Clarke and *L. Mastersii* Prain.

#### SUB-GENUS VI. EUIPOMŒA.

##### 20. *IPOMŒA PES-TIGRIDIS* Linn.

Add to localities of *F. B. I.* :—

UPPER BURMA: Sagaing, Pyinmana, Fort Stedman, *King's Collectors!*

##### 21. *IPOMŒA ERIOCARPA* Br.

Add to localities of *F. B. I.* :—

TENASSERIM: Moulmein, *Falconer!* BURMA: Rangoon, *Oleghorn!* Shan Hills, 3,000 ft. *Collett!*

##### 22. *IPOMŒA STOCKSII* Clarke.

Add to localities of *F. B. I.* :

CENTL. INDIA: Goonah, *King!*

##### 27. *IPOMŒA POLYANTHA* Mig.

The synonym *Convolvulus polyanthus* Wall. Cat. n. 1378 should be J. II. 14

omitted. Wall. Cat. n. 1378 is *Ipomoea staphylina* Roem. & Schult.  
 VAR. *malayana* Prain (*Lettsonia sumatrana* Miq.)

VAR. *affinis* is now reported from Chittagong, Khasia Hills, Shan Hills, and Tenasserim in addition to the localities mentioned in *F. B. I.*; it is further distributed to Yunnan.

28. *IPOMOEA RENIFORMIS*, *Choisy*.

Add to localities of *F. B. I.*:—

UPPER BURMA: 'near Amerapoora in fields,' *Wallich!*

30. *IPOMOEA OBSCURA*, *Ker*.

VAR. *typica*; add to localities of *F. B. I.*:—

Throughout Tenasserim; in Burma from Rangoon to Bhamo and the Shan states: Andamans, frequent.

VAR. *gemella*; add to localities:—

CENTL. INDIA: Goonah, *King!* S. INDIA: Dindygul, *King!*

This form hardly deserves varietal rank.

33. *IPOMOEA PORANOIDES* *Clarke*.

Add to localities of *F. B. I.*:—

N.-W. HIMALAYA: Garhwal Babur, *King!* NAGA HILLS: Kohima, *C. B. Clarke, Prain!*

34. *IPOMOEA CYNANCHIFOLIA* *Clarke*.

Add to distribution of *F. B. I.*:—South-West China.

Dr. J. Anderson collected this species at Poneshee in Yunnan.

36. *IPOMOEA DENTICULATA* *Choisy*.

Substitute for localities of *F. B. I.*:—

SEA-SHORES OF INDIA, INDO-CHINA AND MALAYA: Westn. India; Kanara, *Talbot!* Laccadives; Minikoi, *Alcock!* Ceylon, at Galle, *Thwaites!* Arracan; at Akyab, frequent along the sea-shore, *Kurz!* Kobah, *Kurz!* Diamond Island, *Prain!* Andaman Group: Narcondam, Great Coco, Little Coco, *Prain!* S. Andaman, *King's Collectors!* Rutland Island, Little Andaman, *Prain!* Nicobars; Kamorta, *Kurz!* Great Nicobar, *Kurz!* Malay Peninsula; Perak, *Scortechini!* Penang, *Curtis!* Pahang, *Ridley!*

42. *IPOMOEA STAPHYLINA* *Roem. & Schult.*

VAR. *typica*: corolla wide-campanulate from a very short narrow cylindrical base, usually  $\frac{1}{2}$ – $\frac{3}{4}$ , very rarely 1 in. long. and  $\frac{1}{2}$ – $\frac{3}{4}$ , sometimes 1 in. diam. at limb.

To this belong all the synonyms of *F. B. I.*, except *Convolvulus polyanthus* Wall., and all the localities except the Penang one.

VAR. *malayana* *Prain*; corolla uniformly narrowly infundibuliform from base to limb, 1 to  $1\frac{1}{4}$  in. long and hardly  $\frac{1}{2}$  in. diam. at mouth. *Convolvulus polyanthus* *Wall. Cat.* n. 1378 (*not Ipomoea polyantha* *Miq.*) *Lettsonia sumatrana* *Miq., Flor. Ind. Bat., Suppl.* 560 (1860.)

MALAY PENINSULA; Perak; *Kunstler!* Penang, *Wallich!* DISTRIB. Sumatra.

*Wall. Cat.* n. 1378 is exactly the same as authentic specimens of *Lettsonia sumatrana* collected by Teysmann in Sumatra. Though the two varieties differ so markedly in the shape of the corolla, the leaves, calyces, ovaries and capsules are identical. The corolla in the Malay variety is much as in the Indian, red purple at the base, white streaked with pink near the mouth.

42 b. IPOMOEA NYMPHÆEFOLIA *Bl., Bijdr.* 719 [1825] not of *Grisebach* [1866]; leaves orbicular-ovate, shortly acuminate entire glabrous on both surfaces or sparingly hairy on the nerves beneath, peltate with a rounded or slightly retuse base, the floral leaves more deeply cut and at times cordate with a narrow sinus; flowers large in loose cymes on a common peduncle sometimes shorter than the petioles sometimes longer than the leaves; sepals broad obtuse coriaceous nearly equal; corolla wide campanulate glabrous externally; capsule large. *Ipomœa peltata Choisy, Conv. Or.* 70 (1833); *DC. Prodr.* ix., 359; *Miq. Flor. Ind. Bat.* ii., 605; *Benth., Flor. Austral.* iv., 418; *Baker, Flor. Maurit.* 208. *I. Rumphii Miq., Flor. Ind. Bat.* ii., 605. *Convolvulus peltatus Linn., Sp. Pl.* 1194. *Spiranthera peltata Boj., Hort. Maurit.* 226.—*Rheede Herb. Amboin.* v., 428, t. 157 (both figures).

PERAK: Pangkor, *Scortechini* n. 1074! DISTRIB. Mascarene Islands to Malaya, N. Australia and Polynesia.

A tall woody climber; leaves 6-10 in. by 5-8 in.; cymes 4-15-fl.; sepals glabrous  $\frac{1}{2}$  in. in flower, nearly 1 in. in fruit; corolla 2-2 $\frac{1}{2}$  in., yellowish-white with red spots in the Mascarene Islands, yellow or white or purplish in Malaya, white in N. Australia and Polynesia; anthers hirsute; capsule 1 in. in diam.; seeds pilose. *Ipomœa Grisebachii* (*I. nymphaefolia Griseb., Cat. Pl. Cub.* [1866], is not this plant. The flowers in Rumphius' figures are much too small; otherwise the description and figures leave no doubt as to this being the plant intended.

43. IPOMOEA CAMPANULATA *Linn.*

VAR. *typica.* Add to synonyms of *F. B. I.*:—*Argyreia tiliaefolia Kurz, For. Flor. Brit. Burma* ii., 215., not of *Wight.* and delete syn. *I. campanulata Kurz, l. c.* 218.

*Kurz's Argyreia tiliaefolia*, as his elaborate description and all his specimens in *Herb. Calcutta* show, is *Ipomœa campanulata* *Linn.* which extends from South-West Yunnan (*Anderson!*) and the Shan States (*Manders! King's Collectors!*) to Tenasserim. *Argyreia tiliaefolia*, a purely sea-shore species, is on the other hand the plant described by *Kurz, l. c.*, and named by him in *Herb. Calcutta*, *Ipomœa campanulata*, though he has included in this species his specimens of *Ipomœa* (*Calonyction*) *glaberrima* as well.

VAR. *illustris.* Add to localities of *F. B. I.*:—

CEYLON: *Thwaites!* SUNDERBUNS: *Heinig!* ARRACAN: mouth of Kolodyne river, *Kurz!* COCO group, *Prain!* South Andaman, *King! Prain! King's Collectors!* NICOBARS: *King's Collectors!* MALAY PENINSULA: Penang, *Curtis!*

This very distinct sea-shore form seems, as Mr. Clarke suggests, to deserve specific rank. Though collected by Kurz, it is not included by him either in his *Ipomoea campanulata* or his *Argyreia tiliæfolia*; a note in Herb. Calcutta shows that he shared Mr. Clarke's opinion that it is perhaps deserving of specific rank.

44. IPOMOEA LACTEA Wall. ex Voigt. in *Hort. Suburb. Calcutta* 361 [1845]. *Convolvulus lacteus* Wall. ex *Grah. Cat. Bomb. Pl.* 133. *Ipomoea Gomezii* C. B. Clarke in *Flor. Brit. Ind.* iv., 211 [1883] in part, and as to the Tavoy plant only.

ASSAM: foot of Naga Hills, *Masters!* TENASSERIM: Tavoy, *Gomez.*

There is not now at Calcutta a specimen collected by Gomez in Tavoy, but there is a specimen collected in the Calcutta Garden, noted as being raised from seed received from Burma from Gomez, and named in Dr. Wallich's own handwriting *Convolvulus lacteus*.

The calyx and corolla in this species closely resemble those of *Ipomoea nymphaefolia* but are twice as large; in fruit the calyx and capsule are nearly thrice as large. As in *I. nymphaefolia* the seeds are hairy, the corolla externally is glabrous. *I. lactea* in fruit still more closely resembles a macrocarpon form of *I. petaloidea* from the Andamans and the Malayan Archipelago. This plant, which the writer had supposed to be the Andaman one included by Mr. Clarke under *Ipomoea Gomezii* has a corolla smaller than that of *I. lactea*, and is shaggy externally even when full grown, whereas the corolla of *I. lactea* is glabrous externally even in bud. Dr. Stapf, however, informs the writer that while the Andaman plant referred to is certainly not *I. lactea* it does not appear to be *I. petaloidea* either. "It is, however," Dr. Stapf says, "a very poor one. There is one flower mounted with it, though not exactly attached;" he also says that, though the calyx agrees with that of the variety of *I. petaloidea* referred to, 'the shrivelled corolla seems to have had a narrow tube about two inches long and is glabrous outside.' This description would suit a badly prepared specimen of *Ipomoea glaberrima*, and it is not impossible that, so far at least as the flower is concerned, the Andamans *I. Gomezii* will have to be referred to that species.

45. IPOMOEA CYMOSA Roem. & Schult.

VAR. *typica*. Add to localities of *F. B. I.*:—Equally abundant in Indo-China from Upper Assam and Bhamo to the Andamans and Nicobars, and the Malay Peninsula.

To this belong all the synonyms of the *F. B. I.* except *Convolvulus umbellatus* Wall. (*Cat.* n. 2329), which is from a plant grown in the Calcutta Botanic Garden. It forms the type of Choisy's *Ipomoea cymosa* VAR. *culta*, and is perhaps a synonym of *Ipomoea umbellata* Meyer.

VAR. *culta*; Choisy, *DC. Prodr.* ix., 371; leaves cordate with an obtuse sinus and rounded auricles, softly velvety tomentose on both surfaces, flowers large uniformly dark-yellow. *Convolvulus umbellatus* Wall. *Cat.* n. 2239.

LOWER BENGAL: naturalised in various places near the Royal Botanic Garden, *Kurz!* MALAY PENINSULA: Perak; at Sungah Ryah, *Kunstler!*

The cymes in this plant are almost umbellate and the leaves, which are 4 by 3½ in., are much wider than in var. *typica*, where also the corolla is pure white or white tinged with yellow. The calyx and seeds are exactly as in *I. cymosa*, but the corolla is considerably larger, and in size and colour agrees with that of *Ipomœa umbellata* Mey. (*Prim. Flor. Esseq.* 99), an American plant with very similar leaves equally deeply cordate, but with an acute sinus and glabrous above very sparingly hirsute below. This latter difference is no greater than exists between different forms of *I. cymosa* proper, and it is probable that *I. cymosa*, var. *culta*, and *I. umbellata* are but forms of one plant which is only a variety, as Bentham (*Flor. Austral.* iv., 423) suggests, of *I. cymosa*.

It has always been supposed that Wallich's *Convolvulus umbellatus*, cult. in Hort. Calcutta, was derived from American seed; it now seems as probable that Wallich's plant was of Malayan origin.

Dr. Stapf who has kindly examined this plant, doubts very much that it is entitled to varietal rank. He also adds "it is extremely like *I. umbellata* Meyer, from America, and I cannot find characters to separate them."

45 b. *IPOMŒA RUBENS* Choisy, *Convolv. Or.* 81 and *DC. Prodr.* ix., 371. *Convolvulus rubens* Wall. *Cat.* 1421. *C. glandulosus* Ham. in Wall. *Cat.* 2252. *Lettsomia rubens* Clarke, *Flor. Brit. Ind.* iv., 195.

NORTH BENGAL: Rangpur, at Pirganj, *Hamilton*; Purnea, near Caragola, *Kurz*! ASSAM: *Jenkins*! *Gibson*! Goalpara, *Hamilton*! *Simons*! Gauhati, *Jenkins*! Silhet, *DeSilva*! Cachar, *Keenan*.

This is, as Choisy says, an *Ipomœa* not a *Lettsomia*. M. Choisy does not appear to have seen fruit; Mr. Clarke says, *loc. cit.*, that he had not seen any. The plant, Mr. Clarke adds, has been supposed a *Rivea*; its facies suggests an *Ipomœa* in the vicinity of *I. cymosa* var. *culta*, from which however, it differs in having fewer flowers in the umbelliform cymes, a tomentose calyx, a corolla which is whitish-purple instead of dark yellow, and strigose on the plaits externally instead of quite glabrous, as well as in having glabrous in place of hirsute seeds.

There is no example of Hamilton's *Convolvulus glandulosus* at Calcutta, at Kew, or in the type set of Wallich's Herbarium at the Linnean Society; what however is evidently, from Choisy's description, the same thing, is represented at Calcutta by specimens collected in Assam (exact locality not stated) by Gibson, and at Gauhati by Jenkins. These specimens have rather larger leaves than any of the others densely velvety tomentose on both surfaces, and closely resembling those of *Argyrea Roxburghii*. There is however not the slightest difference as to calyx or corolla between these specimens and those which form the type of *Ipomœa rubens*, so that the separation of a variety *lanata*, proposed by M. Choisy, appears to be hardly necessary. The Goalpara specimens in Wallich's Herbarium (*Convolvulus bifidus*, Ham. Wall. *Cat.* n. 1421/B and n. 1421/C) are identical with those of DeSilva from Silhet (Wall. *Cat.* n. 1421/1) on which the species was founded. *Kurz*'s Purnea specimens have leaves less densely hirsute above.

The species is evidently very closely related to the next one of which there is not a specimen at Calcutta. Being unable to separate it by Mr. Clarke's description and figure, the writer asked that the two might be compared at Kew where the type of *Ipomœa Wattii* is preserved. Dr. Stapf, who has kindly made the comparison at Kew writes:—" *Lettsomia rubens* Clarke, and *Ipomœa Wattii* are very like; but note

the sepals, which are narrower and acute in the latter." This appears to be the only tangible distinction, and is perhaps hardly sufficient to separate the two plants; till however, full material of *Ipomœa Wattii* is available it would be improper to propose the formal reduction of Mr. Clarke's species, a description of which, taken from the author's original diagnosis and figure, is given here.

45 c. *IPOMOEA WATTII* Clarke, *Journ. Linn. Soc.* xxv., 49, t. 22; leaves ovate-cordate acute, sparingly hairy above and on the nerves beneath, peduncles long, 3-5-fl., sepals widely oblong acute, hairy.

NAGA HILLS: Kohima, alt. 5,000 feet, Clarke.

Scandent. Leaves  $3\frac{1}{2}$ - $2\frac{1}{2}$  in., somewhat deeply cordate; petiole 2-3 in. Peduncles 3-5 in., pedicels 1 in. Sepals  $\frac{1}{2}$ - $\frac{1}{2}$  in. Corolla  $1\frac{1}{4}$  in. long, and as much across, white with a purple tinge. Capsule glabrous  $\frac{1}{4}$ - $\frac{1}{2}$  in. diam., seeds glabrous.

The chief difference, apparently the only one, between this and *Ipomœa rubens* lies, as already said, in the sepals, which are here widely oblong acute, while in *I. rubens* they are widely oblong obtuse and rather shorter.

From the figure quoted, the artist has altogether omitted the tomentum of leaves and calyx, while the sepals are shown as lanceolate instead of widely oblong.

46. *IPOMOEA PETALOIDEA* Choisy.

VAR. *typica*; add to localities of *F. B. I.*:—

BEHAR: Kurz! Wood! Revd. Campbell! CENTL. INDIA: Godaveri district, Beddome! Gamble! Sagor, Vicary!

VAR. *pauciflora* Clarke, *Flor. Brit. Ind.* iv., 212. *I. petaloidea*, VAR. ? *foliis fere linearibus* Coll. & Hemsl., *Journ. Linn. Soc.*, xxviii., 97. *I. petaloidea* VAR. *linearifolia* Kurz. *Mss. in Herb. Calc.* Add to localities:—

BURMA: Pegu, at Palawa Zeik, Tonkyeghat, Kurz! Shan Hills, at Pwehla, 4000 feet, Collett! Southern Shan States, Manders!

This very distinct-looking variety has also been collected by Dr. King near Mussorie, in the district where it was first obtained by Dr. Thomson.

VAR. *andamanica* Prain; sepals larger, enlarging in fruit, capsule much larger. *Convolvulus platypeltis* Span. *Linnea* xv., 338.

ANDAMANS: Kurz! King's Collectors! Common. DISTRIB: Timor.

The fruit of this closely resembles *Ipomœa lactea* Wall., but the corolla is much smaller and is shaggy externally. Spanoghe's Timor plant, referred by Miquel to *I. petaloidea*, is evidently this form.

46 b. *IPOMOEA KINGII* Prain: leaves narrow ovate cordate acute with shallow or deep rounded sinus and rounded auricles, glabrous above or with the midrib sometimes puberulous, sparingly hirsute on the nerves beneath, petioles long puberulous; peduncles glabrous longer than the petioles, bearing sometimes 1-3, more often a lax branching cyme of 5-12 flowers, with long smooth pedicels thickened, even in flower, under the calyx; flowers large, sepals broad ovate obtuse glabrous coriaceous, with membranous margins nearly equal; corolla wide campanulate glabrous externally; capsule large, seeds uniformly covered

with long brownish-grey hairs. *Ipomoea cymosa* VAR. *macra* C. B. Clarke, *Flor. Brit. Ind.* iv., 212; *Journ. Linn. Soc.*, xxv., 49.

SIKKIM: Rishap, etc., 2500–5000 feet, very common, King! Gam-mie! Clarke! Gamble! BOOTAN! Parkes! Cummins! ASSAM: Khasia Hills, Griffith, Hooker! Gaubati, Simons! Dibrugur, Masters! Naga Hills, Clarke, Prain! BURMA: Karen Hills, 3000 ft., Kurz! Shan Hills, 3000 ft., Collett!

A large climber: leaves  $3\frac{1}{2}$ –6 in. by 2–4 in., petioles 1–3 in.; peduncles 2–6 in. with small deciduous linear bracts at origin of pedicels, which are from 1–2 in. long. Sepals  $\frac{3}{4}$  in., reflexed but not enlarging in fruit. Corolla white,  $2\frac{1}{2}$  in. long, mouth 2 in. across. Capsule  $\frac{3}{4}$  in. diam.

This is a very distinct species, much nearer to *I. petaloidea* (with which it agrees in having thickened pedicels and of which it has exactly the calyx) than to *I. cymosa*. It is however easily distinguished from *I. petaloidea* by its leaves, which are quite like those of *I. cymosa*, and by its glabrous corolla.

#### 49. IPOMOEA CARNORA Br.

Add to localities of *F. B. I.* :—

PAHANG: Ridley!

56 b. IPOMOEA GRACILLIMA Prain; glabrous, leaves pedately lobed, lobes narrow, spatulate sub-sinuate, peduncles 1–7 fld., filiform elongated, sepals ovate obtuse, corolla small purple, seeds velvety with a few long hairs at tip. *I. palmata* VAR? *gracillima*, Coll. & Hemsl., *Journ. Linn. Soc.*, xxviii., 97.

UPPER BURMA: Meiktila, Collett!

A slender climber; leaves 1–2 in. diam. petioles 1 in.; peduncles much larger than leaves (2–4 in.); sepals  $\frac{1}{2}$  in., corolla  $\frac{1}{2}$ – $\frac{3}{4}$  in.; capsule  $\frac{1}{2}$  in.

Very closely resembles *I. palmata* in appearance but is easily distinguished by its much longer peduncles, its flowers less than half the size, and its very different seeds.

## 6. LEPISTEMON Bl.

1. LEPISTEMON FLAVESCENS Bl. *Bijdr.* 722. *Lepistemon Wallichii* Choisy *Convolv. Or.* 61; *Flor. Brit. Ind.* iv. 216.

Add to localities of *F. B. I.* :—

MALAY PENINSULA: Perak, at Larut, *Scortechini* n. 1544! DISTRIB. Java, Borneo; Philippines.

*Lepistemon Wallichii* (*Convolvulus cephalanthus* Wall. *Cat.* n. 1402; *Ipomoea Wallichii* Steud.) scarcely differs from *Lepistemon flavescens* (*Ipomoea flavescens* Steud.) as has been already pointed out by Choisy (*DC. Prodr.* ix, 348.) Choisy, however, has not seen his way to formally uniting the two plants even when monographing the natural order; on this account, and also because the geographical areas of the two forms did not then seem to overlap, Mr. Clarke has kept up the distinctive name and position of the Indian one; he has however, pointed out how closely they are related, and how nearly both are allied to still another form from

Borneo and the Philippines. The form collected by Father Scortechini in Larut differs somewhat from both the Indian and the Java plant; it has the widely urceolate corolla of *L. flavescens*, and therefore is not true *L. Wallichii*; at the same time it has sepals that are longer and more lanceolate than even in *L. Wallichii*, and therefore is not true *L. flavescens*.

Dr. Stapf writes:—“I do not think that *L. flavescens*, *L. Wallichii*, and the Borneo-Philippine plant are specifically distinct. They seem to be *very slight* variations of *one* species.” This opinion, coupled with the communication from an intermediate locality of a form that combines the characters of Steudel's two “species,” leads the writer to propose the identification of the Indian plant with that distributed throughout the Malayan region.

## 9. CONVULVULUS LINN.

\* *Erect or diffuse, not twining (except sometimes C. glomeratus); stigmas filiform, nearly as long as, or longer than the style.*

† *Spiny or spinescent shrubs or under-shrubs.*

1. \* CONVULVULUS LEIOCALYCINUS *Boiss. Flor. Orient.* iv., 86; a rigid shrub with elongated again dividing branches, young parts adpressed-silky, elsewhere glabrous, the ends of branches and peduncles developing into short sharp spines, leaves small shortly petioled, shortly silky hairy, spatulate oblong subacute with rounded or sub-hastate bases, flowers solitary axillary, pedicels shorter than the leaves, sepals glabrous coriaceous ovate-obtuse mucronulate, corolla white glabrous 5-6 times longer than the calyx, ovary hirsute, stigmas filiform, as long as the style. *C. lasiophlaeus Jaub. & Spach, Ill.*, t. 368. *C. lycioides Boiss. Diagn.*, Ser. i., 7, p. 29.

PANJAB FRONTIER: *Duke!* BRITISH BELUCHISTAN: *Lace!* DISTRIB. Afghanistan (*Bellew*); Beluchistan, Persia.

Height 3-4 feet; leaves  $\frac{1}{2}$  in. or less; calyx  $\frac{1}{8}$  in.; corolla 1-1 $\frac{1}{4}$  in. long, capsule ovoid.

The occurrence of this species just within the British Indian frontier renders it necessary to supply a description of the plant. It is readily distinguished from the next species by its hastate or cordate-based leaves.

1. \* \* CONVULVULUS SPINOSUS *Burm. Flor. Ind.* 47, t. 19, f. 4; a low much-branched shrub with elongated again much divided branches, all parts covered with a short adpressed ash-grey silky pubescence, the ends of branches developing into sharp slender spines; leaves small elliptic subacute, bases narrowed, the uppermost linear and scale-like; flowers on axillary, 1-3-fl. pedicels as long as the leaves, sepals hirsute coriaceous ovate-obtuse, corolla hirsute 3-4 times longer than the calyx, ovary hirsute; stigmas filiform as long as the style. *C. spinosus Boiss., Flor. Or.* iv., 87, *not of Desr. nor of Eichwald* *C. genistoides Jaub. & Spach. Ill.* t. 370.

NORTH-WEST FRONTIER: Nal, *Duke*. DISTRIB. Afghanistan (*Griffith*) Beluchistan (*Stocks*); Persia.

Height 1-3 ft.; leaves  $\frac{1}{4}$ - $\frac{1}{2}$  in.; calyx  $\frac{1}{2}$  in.; corolla  $\frac{3}{4}$ -1 in.

A description of this species is necessary for the same reason that calls for one of *C. leiocalycinus*. From that species the longer pedicels, the hirsute calyx and corolla, and the different leaves, easily distinguish it.

1. CONVOLVULUS SCINDICUS *Stocks*.

† † *Herbaceous not spinescent*.

4 b. CONVOLVULUS LINEATUS *Linn*: *Boiss. Flor. Or.* iv., 97; adpressed sericeous, leaves oblong; the lower narrowed into a long petiole, the upper most often narrowly linear, cymes few-fl. at the ends of the branches; flowers solitary shortly pedicelled; sepals oblong lanceolate membranous at the base, tips herbaceous spreading, corolla 3 times as long as the calyx, ovary hirsute. *Convolvulus spicæfolius Desr. in Lamk. Encycl. Meth.* iii., 549. *C. Besseri Spreng. Syst.* i, 610.

BRITISH BELUCHISTAN: Quetta, *Stocks*! PUNJAB FRONTIER: frequent, *Sanders*! *Duke*! *etc.* DISTRIB: Europe, N. Africa, Western Asia, Siberia.

Root-stock woody, stems 4-8 in., herbaceous numerous, ascending or procumbent, lower leaves 2-3 in. by  $\frac{1}{4}$ - $\frac{1}{2}$  in., petioles 1 in. or longer, stem leaves  $\frac{3}{4}$ -1 in.; sepals  $\frac{3}{8}$  in., adpressed sericeous; corolla rose, 1 in., externally adpressed, sericeous on the plaits.

Described for the reasons given under *C. leiocalycinus* and *C. spinosus*.

6. CONVOLVULUS GLOMERATUS *Choisy*.

Add to localities of *F. B. I.*:—

RAJPUTANA: Jodhpur, *King*!

7 b. CONVOLVULUS TENELLUS *Stocks, Hook. Kew Journ.* iv., 172; pale-green, sparingly adpressed hirsute, leaves sessile linear, peduncles 1-3-fl., sepals ovate mucronulate or suddenly acuminate, quite glabrous, corolla  $\frac{3}{4}$  in. wide, campanulate; ovary glabrous style very long. *Convolvulus Stocksii Boiss. Flor. Or.* iv., 110 [1879]. *C. Rottlerianus* var. *tenella Clarke, Flor. Brit. Ind.* iv., 219.

SCINDE: Cutch, *Stoliczka*! DISTRIB. Beluchistan (*Stocks*! *Ball*!)

Erect strictly branched, stems and branches wiry; leaves  $\frac{3}{4}$  in. very narrowly linear; peduncles long, 2-2 $\frac{1}{2}$  in.; sepals  $\frac{1}{6}$  in., corolla rose,  $\frac{3}{4}$  in. at mouth, very sparingly hispid along the angles.

This is extremely distinct from *C. Rottlerianus*, and may be at once recognised by its glabrous calyx and its much longer scarcely hirsute corolla.

Boissier's name, *C. Stocksii*, is given because there is a prior name *C. tenellus* (*Desr. in Lamk. Encycl.*) As the "C. tenellus" of Desrousseau is a *Breweria* and not a *Convolvulus*, there is no reason why Stock's name should not be used.

7 c. CONVOLVULUS SINUATO-DENTATUS, *Coll. & Hemsl., Journ. Linn. Soc.*, xxviii., 98; pubescent, leaves petioled thick cordate-

oblong sub-obtuse sinuate-toothed; flowers axillary solitary or pubescent; pedicels as long as the leaves bracteolate near the middle; sepals coriaceous ovate-obtuse pubescent externally; corolla twice as long as the calyx, externally hirsute; ovary glabrous.

UPPER BURMA: Shan Hills, at Pwehla, *Collett!* at Koni, *Praser!*

Root-stock thick woody; stems slender prostrate internodes short; leaves  $\frac{1}{2}$ –1 in. long,  $\frac{1}{4}$ – $\frac{1}{2}$  in., across, petioles  $\frac{1}{4}$  in. or less; pedicels sometimes  $1\frac{1}{2}$  in. long, bracteoles 2 or 1; sepals  $\frac{1}{4}$  in.; corolla white,  $\frac{1}{2}$  in.

\* \* *Stems twining; stigmas narrowly oblong or linear, shorter than the style.*

9. *CONVOLVULUS FLAVUS Willd.*

Add to localities of *F. B. I.* :—

RAJPUTANA: Mt. Aboo, *King!*

11. *CONVOLVULUS MICROCALYX Clarke.*

Substitute for localities of *F. B. I.* :—

MISHMI: *Griffith* (mixed with *Porana paniculata*)! ASSAM: *Jenkins!*

11. PORANA BURM.

3. *PORANA SPECTABILIS Kurz.*

Add to localities of *F. B. I.* :—

ASSAM: Naga Hills, at Nichuguard, *Clarke*; Lushai Hills at Changsil, *Praser!* BURMAH: Shan Hills, *Collett!* ANDAMANS: Coeo Islands, *Prain!* S. Andaman, *Prain!* *King's collectors!*

13 b. *DICHONDRA FORST.*

Prostrate creeping small herbs; leaves entire, flowers small axillary; corolla campanulate deeply 5-lobed; ovary of 2 distinct carpels, each with an almost basal style, and 1 or 2 ovules; stigmas capitate. Fruit of 1 or 2 membranous capsules, each with 1 or rarely 2 seeds.—Species 2, one tropical American, the other cosmopolitan in the tropics.

1. *DICHONDRA REPENS Forst; Choisy, DC. Prodr., ix, 451;* a slender creeping perennial, rooting at the nodes, hoary with minute pubescence, or silky; leaves long-petioled, orbicular or reniform; flowers solitary on peduncles shorter than the petioles; sepals obovate, very short; corolla yellow rather shorter than the calyx; carpels about as long as the calyx, nearly globular. *R. Br., Prodr., 491; Wall. Cat. 1339; Benth. Flor. Austral. iv, 438; Coll. & Hemsl., Journ. Linn. Soc. xxvii., 99.*

UPPER BURMA: Taong-Doung Mts., *Wallich!* Shan Hills, *Collett!*

*King's Collectors!* **DISTRIB.** Tropical and sub-tropical regions of both hemispheres.

Leaves  $\frac{1}{2}$ –1 in. diam.; petioles sometimes 2 in. (in Wallich's specimens as much as 4 in.) long, sepals about 1 line long.

## 15. CUSCUTA LINN.

### 1. CUSCUTA REFLEXA *Roxb.*

Add to localities of F. B. I. :—

UPPER BURMAH: Karen Hills, *Mason!* Shan Hills, *Collett!* *King's Collectors!* Hotha, *J. Anderson!*

Add to distribution :—China.

### 4. CUSCUTA CHINENSIS *Lamk.*

Add to localities of F. B. I. :—

UPPER BURMAH: Shan Hills, *King's Collectors!*

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*Natural History Notes from H. M. Indian Marine Survey Steamer 'Investigator,' Commander C. F. Oldham, R. N., Commanding. Series II., No. 11. An Account of a Recent Collection of Bathybial Fishes from the Bay of Bengal and from the Laccadive Sea.—By A. ALCOCK, M. B., C. M. Z. S., Superintendent of the Indian Museum.*

Plates VI & VII.

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## INTRODUCTION.

The collection of deep-sea fishes recently added to the Indian Museum through the exertions of the Marine Zoological Survey is a large one and numbers many species, of which only those that appear to be either hitherto unknown or new to the Indian record are here noticed.

In the list of these new forms it is interesting to find *Hoplostethus*, *Thyrsites*, *Bembrops*, *Pacilopsetta*, *Chlorophthalmus*, *Xenomystax*, (a remarkable deep-sea Eel of the Sauromurænesocine alliance, lately discovered by the U. S. Steamer 'Albatross' off the coast of Ecuador, and now appearing in the Laccadive Sea), *Nemichthys*, and *Triacanthodes*.

The discovery in these waters of representatives of these genera shows that the exploration of the Indian Seas is still far from complete, and leads us to hope that other unaccountable gaps in our knowledge of the geographical relations of the fish fauna of India may yet be filled up.