NIB

SCROPHULARIACEAE

Bacopa floribunda

(R. Br.) Wettst.

SCROPHULARIACE

26. BUCHNERA, Linn.

Calyx tubular, obscurely nerved, shortly 5-toothed. Corolla-tube slender, straight or slightly curved, the limb with 5 almost equal obovate or oblong spreading lobes, the 2 upper ones inside in the bud. Stamens 4, in pairs, included in the tube; anthers 1-celled, vertical. Style club-shaped at the top, entire. Capsule straight, not acuminate, opening loculicidally in 2 entire valves.—Stiff erect herbs, usually drying black. Lower leaves opposite, the upper ones alternate. Flowers sessile, forming terminal dense or interrupted spikes, with a pair of bracteoles under the calyx.

The genus is widely dispersed over the tropical and subtropical regions of Asia, Africa, and America. The limits of the species are exceedingly difficult to determine, and the Australian ones may be considered either as all endemic or nearly so, or all except *B. tetragona* may be referred as varieties to a single species common in tropical Asia and Africa and very near to a common American one.

Flowers in short dense 4-sided spikes, the imbricate bracts very broad and as long as the calyx . . . . . 1. *B. tetragona.*

Flowers in slender interrupted spikes, the bracts either narrow or much shorter than the calyx.

- Radical and lower leaves broad, rosulate; upper ones narrow, acute. Corolla glabrous . . . . . 2. *B. urticifolia.*
- Leaves all narrow, the lower ones oblong, the upper ones linear, mostly acute. Corolla glabrous.
  - Corolla-tube 3 to 4 lines long . . . . . 3. *B. linearis.*
  - Corolla-tube not 2 lines long . . . . . 4. *B. tenella.*
- Leaves all narrow and obtuse, usually hoary, the lower ones oblong.
  - Stems simple. Corolla glabrous outside . . . . . 5. *B. gracilis.*
  - Stems branching. Corolla pubescent or hispid outside . . . 6. *B. ramosissima.*

3. **B. linearis,** *R. Br. Prod.* 437. Scabrous-pubescent. Stems erect, simple or slightly branched, often exceeding 1 ft., the upper leaves linear and acute as in *B. urticifolia*, and sometimes the lower ones scarcely broader, but usually those near the base of the stem are oblong, obtuse, often obscurely toothed, narrowed into a petiole and not sessile nor rosulate. Flowers and fruit the same as in *B. urticifolia*, or rather larger.—Benth. in DC. Prod. x. 497.

N. Australia. Islands of the Gulf of Carpentaria, *R. Brown;* S. Goulburn Island, *A. Cunningham;* Port Essington, *Armstrong;* Victoria river and near Macadam Range, *F. Mueller;* King's Ponds, in the interior, *M'Douall Stuart's Expedition.*

Var. *asperata*. *B. asperata*, R. Br. Prod. 438; Benth. in DC. Prod. x. 496, appears to be a rather larger, coarser, and more scabrous form of the same species.

Queensland. Bustard Bay and Bay of Inlets, *Banks and Solander.*

6. **B. ramosissima,** *R. Br. Prod.* 438. Erect or decumbent at the base, more branching than the other species and usually more hoary with a short scabrous pubescence, sometimes under 6 in. but often attaining 1 ft. or more. Lower leaves oblong, obtuse, narrowed into a short petiole, $\frac{3}{4}$ to $1\frac{1}{2}$ in. long; upper ones linear but almost always obtuse, and all usually quite entire. Bracts and bracteoles usually narrow and short. Calyx 2 to 3 lines long, with acute teeth. Corolla-tube more or less exserted, always pubescent or hispid outside, especially at the top, the lobes narrow, about $1\frac{1}{2}$ lines long. Capsule about as long as the calyx.—Benth. in DC. Prod. x. 496.

N. Australia. Hunter's River, York Sound, N.W. coast, *A. Cunningham* (a large variety, attaining 2 ft. or more).

Queensland. Thirsty Sound, *R. Brown;* Port Denison, *Fitzalan;* Gracemere and near Rockhampton, *Bowman.*

Var.? *parviflora.* Corolla much smaller, slightly pubescent outside.—*B. pubescens,* Benth. in DC. Prod. x. 496.—Endeavour river, *A. Cunningham.*

4. **B. tenella,** *R. Br. Prod.* 437. More slender than the other species, simple or branched, often 1 ft. high or more, the foliage and lower part of the plant sparingly hirsute, the upper part often quite glabrous. Leaves all narrow and mostly narrow-linear and acute. Flowers "yellowish-brown," smaller than in *B. linearis* and *B. urticifolia*, but otherwise similar, the corolla glabrous outside, the tube not 2 lines long.—Benth. in DC. Prod. x. 497.

N. Australia. South Goulburn Island, *A. Cunningham;* head of Victoria river, *F. Mueller;* islands of the Gulf of Carpentaria, *R. Brown.*

Queensland. Endeavour river, *Banks and Solander;* Facing Island, *R. Brown.*

2. **B. urticifolia,** *R. Br. Prod.* 437. Scabrous-pubescent or nearly glabrous. Stems erect and simple or branching and slightly decumbent at the base, rather slender, often above 1 ft. high. Radical and lower leaves almost rosulate at the base of the stem, obovate or broadly oblong, usually sessile, obtuse, entire or slightly sinuate-toothed, 1 to 1½ or rarely 2 in. long; stem-leaves narrower, the upper ones linear or linear-lanceolate, acute. Flowers purplish or nearly white, in slender interrupted terminal spikes. Bracts mostly ovate, acute, ciliate, about half as long as the calyx or the lower ones longer and narrower; bracteoles similar, but smaller. Calyx narrow, rarely 2 lines long, the teeth acute. Corolla glabrous outside, the tube slender, not twice as long as the calyx. Capsule oblong, obtuse, either equal to or rather exceeding the calyx.—Benth. in DC. Prod. x. 496; Endl. Iconogr. t. 78.

N. Australia. Victoria river, *F. Mueller;* Glenelg district, N.W. coast, *Marten.*
Queensland. Common along the coast, *R. Brown* and others; from Cape York, *Daemel,* to Moreton Bay, *F. Mueller.*

The common E. Indian *B. hispida* differs chiefly in being much more hirsute. The African *B. leptostachya* can scarcely be distinguished from some forms of the species, which might indeed include, as slight varieties, the following four.

18. GLOSSOSTIGMA, Arn.

(Tricholoma, *Benth.*)

Calyx campanulate, obtusely 3- or 4-lobed, the upper lobes sometimes slightly notched. Corolla very small, with a short tube and 5 nearly equal lobes (the 2 upper more united, the lowest rather larger). Stamens 2 or 4; filaments filiform; anthers 1-celled (by the confluence of 2 diverging or divaricate cells). Style short, dilated upwards into a broad spathulate lamina curved over the stamens in the bud. Capsule globular or ovoid, included in the calyx, opening loculicidally in 2 entire valves, leaving the placental column free.—Small creeping herbs. Leaves opposite but often clustered at the nodes. Flowers very small, on axillary pedicels, without bracteoles.

The genus is apparently limited to the three Australian species, of which one extends to tropical Asia and Africa, another to New Zealand, and the third is endemic. It differs from *Microcarpæa* in the calyx, from *Limosella* in the opposite leaves, in the calyx, style, ovary and capsule. F. Mueller has, however, (in his herbarium as well as in Fragm. vi. 104,) united the three species under the name of *Limosella Drummondii*.

Stamens 2 (**Glossostigma**) . . . . . 1. *G. spathulatum.*
Stamens 4 (**Tricholoma**).
Calyx usually 3-lobed. Stamens as long as or exceeding the very short corolla-lobes . . . . . 2. *G. Drummondii.*
Calyx 4-lobed. Stamens much shorter than the ovate fringed corolla-lobes . . . . . 3. *G. elatinoides.*

1. **G. spathulatum,** *Arn.; Benth. in DC. Prod.* x. 426. A very slender and minute intricately-branched glabrous plant, creeping and rooting at the nodes. Leaves linear-spathulate, obtuse, entire, 1 to 2 lines long, but usually tapering into a much longer petiole. Pedicels slender, scarcely exceeding the leaves. Calyx scarcely above ½ line long, 3-lobed. Corolla scarcely exceeding the calyx, with very small blue entire lobes. Stamens 2, nearly as long as the corolla. Capsule not exceeding the calyx, opening loculicidally in 2 valves.—*Microcarpæa spathulata*, Hook. Bot. Misc. ii. 101. t. suppl. 4.

Queensland. Rockhampton, *O'Shanesy*, who observes that the numerous little blue flowers look like tiny drops of dew. The species is dispersed over tropical Asia and Africa.

SCROPHULARIACEÆ

29. HEMIARRHENA, Benth.

Calyx deeply divided into narrow obtuse segments. Corolla tubular at the base, the throat dilated, the upper lip erect, narrow, concave, entire, the lower one longer, spreading, divided into 3 narrow lobes folded over the upper lip in the bud. Stamens 2, without any rudiment of the upper pair; filaments arched; anthers connivent under the upper lip but free, each with one pendulous cell, with a fine rigid point or awn at the end, opening longitudinally from the base to near the end. Style filiform, slightly dilated at the end, entire. Capsule ovoid, opening in 2 entire thin valves, parallel to the thin dissepiment. Seeds numerous, striate and reticulate, like those of *Gratioleæ*.—Slender perennial. Leaves opposite rosulate or clustered at the base of the stem. Flowers in short terminal racemes, without bracteoles.

The genus is limited to a single species endemic in Australia, and singularly exceptional in whichever of the great suborders it is placed. The form and æstivation of the corolla and aristate anthers, so decidedly those of Euphrasieæ, are absolutely unknown in Antirrhinideæ, whilst the capsule and seeds, exactly those of Lindernieæ, are as foreign to any of the genera hitherto known in Euphrasieæ, or indeed in any but a very doubtful one of the whole suborder of Rhinanthideæ.

1. **H. plantaginea,** *Benth.* Stems from a thick perennial almost woody stem, erect, very slender, simple, often above 1 ft. long, quite glabrous. Leaves in few pairs at the base of the stem, almost rosulate, very shortly petiolate, ovate or broadly oblong, obtuse, entire, glabrous, $\frac{1}{2}$ to 1 in. long, and sometimes 1 or 2 pairs of minute scale-like sessile leaves higher up the stem. Flowers densely crowded in a short oblong terminal raceme, with sometimes a branch proceeding from the base bearing a second raceme. Pedicels very short, glandular-pubescent, in the axils of minute bracts. Calyx-segments above 1 line long, membranous, with a dark-coloured midrib and a few large glands on each side. Corolla-tube slender, about 3 lines long, the throat dilated, the upper lip scarcely above 1 line long, the lobes of the lip longer, the whole corolla of a delicate texture and veined like that of *Euphrasia*. Capsule obtuse, not exceeding the calyx.—*Vandellia plantaginea*, F. Muell. in Trans. Vict. Inst. iii. 62; *Lindernia plantaginea*, F. Muell. Fragm. vi. 102.

N. Australia. Mount King, Glenelg district, N.W. coast, *Marten;* between Providence Hill and M'Adam Range, *F. Mueller;* Arnhem's Land, *M'Douall Stuart's Expedition.*

14. **ILYSANTHES**, Rafin.

Calyx divided to the base into 5 narrow segments. Corolla tubular at the base, the upper lip erect, shortly 2-lobed, the lower larger, spreading, 3-lobed. Perfect stamens 2, included in the tube, the anthers cohering, with divaricate cells, the lower pair reduced to staminodia adnate to the throat, thence usually projecting and 2-lobed, one lobe ascending, acute, filiform or reduced to a short tooth, the other obtuse and glandular or reduced to an angle. Style with 2 flat stigmatic lobes. Capsule globular ovoid or shortly oblong, opening in 2 entire valves parallel to the thin dissepiment.—Glabrous slender annuals. Leaves opposite. Flowers on slender pedicels, axillary or in terminal loose racemes, without bracteoles.

There are several species dispersed over the warmer regions of Asia, Africa, and America, extending into more temperate North America and South Africa. The only Australian species appears to be endemic. The genus differs from *Vandellia* and *Lindernia* in the abortion of the lower stamens, from *Bonnaya* chiefly in the short capsule.

1. **I. lobelioides,** *Benth.* A glabrous erect very slender annual, attaining about 6 in. and scarcely branched. Leaves few, near the base of the stem, ovate obovate or oblong, entire, narrowed into a short petiole and only 3 or 4 lines long; and 1 or 2 pairs of minute distant narrow sessile leaves higher up the stem, the floral ones reduced to minute bracts. Flowers in a short loose terminal raceme, on slender pedicels of $\frac{1}{2}$ to 1 in., opposite or one only to each pair of bracts. Calyx-segments linear-lanceolate, $1\frac{1}{2}$ lines long. Corolla-tube above 3 lines long, the lower lip much shorter than the tube, the upper one still shorter. Staminodia very shortly ascending, acute, the glandular lobe reduced to a prominent angle near its base. Capsule broadly ovate, obtuse, about as long as the calyx.—*Vandellia lobelioides*, F. Muell. in Trans. Phil. Inst. Vict. iii. 61.

N. Australia. Victoria Range, *F. Mueller*. In the 'Fragmenta,' vi. 102, F. Mueller refers this to *Vandellia scapigera*, which, however, besides the difference in foliage, has always 4 perfect stamens.

NIB

SCROPHULARIACEAE

Ilysanthes mitrasacmoid
schwarz.

SCROPHULARIACEAE

8. **LIMNOPHILA**, R. Br.

Calyx divided to the base or below the middle into 5 narrow segments, all equal or nearly so. Corolla tubular at the base, the upper lip broad, entire, notched or shortly 2-lobed, the lower one spreading, 3-lobed. Stamens 4, in pairs; anthers 2-celled, with the cells quite separate and somewhat stipitate. Style deflected at the summit, with 2 short flat stigmatic lobes, scarcely winged at the bend. Capsule broadly ovoid or oblong, usually obtuse, opening in 4 valves, leaving the dissepiment entire at least at the base, bearing the placentas on its faces, thus forming as it were two wings to the undivided placental column. Seeds numerous, small, striate and transversely reticulate. —Herbs usually growing in marshes or shallow water, glabrous or slightly pubescent, usually scented and marked with pellucid dots. Leaves opposite or whorled, toothed or deeply cut, the submerged ones in some species divided into numerous capillary segments. Flowers solitary in the axils, the upper ones sometimes forming a terminal raceme. Bracteoles linear, close under the calyx.

A considerable genus, chiefly tropical, and limited to the Old World. The four Australian species are all widely spread in tropical Asia, and one at least extends into Africa.

Lower leaves (or all) deeply divided. Flowers pedicellate. Calyx-segments 1-nerved . . . . . 1. *L. gratioloides.*

Leaves all undivided.

Flowers pedicellate. Calyx-segments several-nerved, striate.

Glabrous . . . . . 2. *L. punctata.*

Pubescent or villous . . . . . 3. *L. hirsuta.*

Flowers sessile. Calyx-segments united at the base, slightly striate 4. *L. serrata.*

NIB

SCROPHULARIACEAE

Limnophila chinensis
(Osbeck) Me

NIB

SCROPHULARIACEAE

Limnophila fragrans
(Forst.) Seem.

1. **L. gratioloides,** *R. Br. Prod.* 442. Stems from a creeping base, ascending or erect, usually about 6 in. high, but sometimes very short decumbent and branched, or drawn up into simple stems of 1 to 2 ft., the whole plant glabrous. Leaves mostly opposite, but the lower ones usually divided to the base into narrow toothed or pinnatifid segments so as to appear whorled, and when under water cut up into numerous capillary segments or lobes; the upper ones sometimes, or very rarely nearly all, undivided, sessile, linear or lanceolate and slightly toothed, all under 1 in. long and usually about ½ in. Pedicels in the upper axils longer than the calyx and usually exceeding the leaves. Bracteoles small. Calyx usually under 2 lines long at the time of flowering, the segments lanceolate, acuminate, broad at the base especially after flowering, membranous and 1-nerved. Corolla blue, with the centre yellow inside, about 5 or 6 lines long, the tube exceeding the calyx, the lips broad and shorter than the tube, the upper one shortly 2-lobed. Anthers cohering in pairs. Capsule broad and obtuse.—Benth. in DC. Prod. x. 389, with the synonyms quoted (except the reference to Gaudichaud's plate in Freyc. Voy. t. 57. f. 1, which is evidently *L. sessiliflora*); F. Muell. Fragm. vi. 104.

N. Australia. Gulf of Carpentaria, *F. Mueller.*

Queensland. Broad Sound, *R. Brown, Bowman;* Port Denison, *Fitzalan;* Rockingham Bay, *Dallachy;* Rockhampton, *O'Shanesy.*

The species is widely dispersed over tropical Asia and Africa. The flowers are variously described by Australian collectors as yellow pink or red.

NIB

SCROPHULARIACEAE

Limnophila indica
(L.) Druce.

NIB

SCROPHULARIACEAE

Limnophila kingii

4. **L. serrata,** *Gaudich. in Freyc. Voy.* 448. *t.* 57. Decumbent or erect, not much branched and quite glabrous, the stems usually slender, ½ to 1 ft. long. Leaves ovate oblong or lanceolate, obtuse, obtusely-serrulate, the lower ones contracted at the base, the upper ones with a broader base, all stem-clasping, under 1 in. long. Flowers closely sessile in the upper axils, mostly distant, but the upper ones sometimes crowded into a short terminal leafy spike. Bracteoles small, linear. Calyx thinner than in the two preceding species, not exceeding 2 lines, the segments subulate-acuminate, slightly striate and connected at the base into a short tube. Corolla rather slender, nearly twice as long as the calyx, the lips not half as long as the tube, the upper one broad, slightly notched, the lower of 3 broad rounded lobes. Anthers slightly cohering in pairs. Capsule ovoid, the persistent dissepiment broad.—Benth. in DC. Prod. x. 387.

N. Australia. Victoria, Upper Roper, and Fitzmaurice rivers, and swamps near Providence Hill, *F. Mueller*. The species is dispersed over the Indian Archipelago, and extends to the Pacific Islands, and if, as is probable, *L. conferta*, Benth. l. c., is but a variety of the same, it is also in Ceylon and several parts of E. India.

NIB.

SCROPHULARIACEAE

Lindernia alsinoides R.B

NIB

SCROPHULARIACEAE

Linderina clausa

(F. Muell.) F. Mu

N=3

SCROPHULARIACEAE

Lindernia lobelioides

(F. muell.) F. muell

NIB.

SCROPHULARIACEAE

Lindernia subulata

R. Br.

SCROPHULARIACEÆ

17. **MICROCARPÆA**, R. Br.

Calyx tubular, 5-angled, 5-toothed. Corolla with a short tube and 5 nearly equal lobes (the 2 upper more united, the lowest rather larger). Stamens 2; filaments filiform; anthers 1-celled (by the confluence of 2 divaricate cells). Ovary completely 2-celled. Style short, dilated upwards into a broad spathulate lamina curved over the stamens. Capsule ovoid, included in the calyx, opening loculicidally in 2 entire valves, leaving the transverse dissepiment free.—Small creeping herb. Leaves opposite. Flowers very small, axillary, without bracteoles.

The genus, as now constituted, is limited to the single Australian species, which extends into tropical Asia. If, however, the dehiscence of the capsule be neglected, it might include *Peplidium*, and even *Glossostigma* might be added as a section, differing chiefly in the calyx.

1. **M. muscosa,** *R. Br. Prod.* 436. A dwarf slender intricately-branched prostrate plant, creeping and rooting at the nodes, nearly glabrous or the margins of the leaves, angles of the stems and calyxes ciliate with small rigid hairs. Leaves sessile, linear, narrow-oblong or linear-lanceolate, obtuse, entire, under 2 lines long. Flowers all but sessile in the axils, usually one only to each pair of leaves. Calyx $\frac{3}{4}$ line long, prominently angled, with 5 acute ciliate teeth. Corolla-tube shorter than the calyx and the lobes very shortly exceeding it. Stamens nearly as long as the corolla. Capsule much shorter than the calyx.—Benth. in DC. Prod. x. 433.

N. Australia. Near Macadam Range, *F. Mueller.*
Queensland. Shoalwater Bay, *R. Brown.*

3. **MIMULUS**, Linn.

(Uvedalia, *R. Br.*)

Calyx tubular, with 5 prominent angles, ending in 5 small teeth. Corolla tubular at the base, the upper lip erect or spreading, 2-lobed; the lower lip spreading, 3-lobed, usually with 2 protuberances at its base in the throat; all the lobes broad and rounded. Stamens 4 in pairs; anthers all perfect, 2-celled, but the cells often confluent at the top. Style with 2 ovate nearly equal stigmatic laminæ. Capsule scarcely furrowed, opening loculicidally in 2 valves which sometimes split along the dissepiment; leaving an entire or bifid central column bearing the placentas. Seeds small, numerous.—Erect or prostrate herbs. Leaves opposite. Flowers solitary on axillary pedicels, without bracteoles, the upper ones forming sometimes a terminal raceme.

The genus is widely dispersed over the temperate regions of N. and S. America, as well as along the range of the Andes, more sparingly in Eastern Asia, the mountains of tropical Asia and in S. Africa. Of the four Australian species, one is closely allied to, if not identical with, a common one in Asia and Africa, another extends to New Zealand, the remaining two are endemic.

Stems ascending or erect, not much branched except at the base. Plant glabrous.
- Annual (?), very slender and weak, with small linear-lanceolate distant leaves . . . . . 1. *M. Uvedaliæ.*
- Perennial. Leaves oblong or lanceolate, obtuse . . . . . 2. *M. gracilis.*

Stems prostrate or creeping, much branched.
- Plant glabrous. Leaves rather thick, ovate or oblong . . . . . 3. *M. repens.*
- Plant more or less pubescent. Leaves very small, narrow-oblong.
  - Corolla-tube long . . . . . 4. *M. prostratus.*

2. **M. gracilis,** *R. Br. Prod.* 439. Quite glabrous. Stems from a perennial somewhat creeping rhizome, erect, usually about 6 in. and rarely in the Australian specimens nearly 1 ft. high, not much branched except at the base. Leaves linear-oblong to oblong-lanceolate, obtuse, entire, in some specimens attaining 1 in., but in others all under $\frac{1}{2}$ in. long. Pedicels sometimes scarcely longer than the leaves, but often attaining 1 to 2 in. Calyx about $2\frac{1}{2}$ lines long, with short acute teeth. Corolla violet purple or blue, the tube shortly exceeding the calyx or rarely half as long again, the lobes very broad, those of the lower lip retuse, all minutely ciliolate. Capsule enclosed in the calyx, oblong, the valves readily splitting.—Benth. in DC. Prod. x. 369; *M. pusillus,* Benth. l. c.

Queensland. Broad Sound, *R. Brown;* Dawson river, *F. Mueller;* Rockhampton, *O'Shanesy;* Curriwillighi, *Dalton;* Warwick, *Beckler.*

N. S. Wales. Hunter's River, *R. Brown;* Blue Mountains, *A. Cunningham, Woolls,* and others; New England, *C. Stuart, C. Moore,* and others; towards Bathurst, *A. Cunningham;* Murray and Darling rivers and Monument Creek, *Victorian Expedition.*

Victoria. Station Peak and Avoca river, *F. Mueller;* Wimmera, *Dallachy.*

The species is also widely spread over hilly regions in Asia and Africa, but there represented chiefly by a luxuriant variety larger in all its parts, which I had originally published under the name of *M. strictus,* and from which the description of *M. gracilis* in the 'Prodromus' is chiefly taken. The common form in Australia is the smaller one which I had considered as a distinct species under the name of *M. pusillus,* but some of the luxuriant Queensland specimens come very near to the Asiatic ones.

N.I.B.

SCROPHULARIACEAE

Mimulus linearis

(R.Br.) Wettst.

7. MORGANIA, R. Br.

Calyx divided to the base into 5 narrow segments, all equal or nearly so. Corolla tubular at the base, the upper lip broad, entire or shortly 2-lobed, the lower one spreading, 3-lobed. Stamens 4, in pairs; anthers 2-celled, with the cells quite separate and somewhat stipitate. Style deflected at the summit, with 2 short spathulate stigmatic lobes, scarcely winged at the bend. Capsule ovoid oblong or shortly acuminate, opening septicidally in 2 2-fid or in 4 valves, leaving the placentas united in a single column in the centre. Seeds numerous, small, striate.—Herbs either glabrous or slightly pubescent. Leaves opposite or rarely in whorls of 3, narrow. Flowers solitary in the axils, sessile or pedicellate, with small linear bracts close under the calyx.

The genus is limited to Australia. The four forms here admitted as species are very closely allied to each other, and are all united by F. Mueller, Fragm. vi. 104, with the Australian specimens of *Stemodia viscosa* into one species, transferred to *Limnophila* under the name of *L. Morgania*, and there is no doubt but that the three genera *Stemodia*, *Morgania*, and *Limnophila* are so closely connected that they might almost equally well be considered as sections of one genus characterized chiefly by the stamens. Still the differences in the capsule between *Stemodia* (sect. *Adenosma*) *Morgania* and *Limnophila* prove, upon examination, to be rather more definite than I had thought when working up *Morgania* for the 'Prodromus' on insufficient materials. In *Stemodia* (*Adenosma*) the carpels separate completely each one carrying off its own placenta; in *Morgania* the dissepiment splits, forming inflexed margins to the valves, but the two placentas remain consolidated in a single central column; in *Limnophila* the margins of the valves are still somewhat inflexed, but a considerable portion of the dissepiment remains entire, detached from the valves, and bearing the placentas on its face: the dehiscence in the first two is septicidal, in the third partially septifragal. The American section *Diamoste* of *Stemodia* has, however, much more the dehiscence of *Morgania;* and if the latter intermediate genus is to be united with one of the two others, it is rather with *Stemodia* than with *Limnophila*. The three, however, as now constituted, are natural groups easily recognized.

Flowers sessile or the pedicels rarely as long as the calyx. Corolla-lips as long as the tube, the upper one entire.
- Plant glabrous or nearly so . . . . . 1. *M. floribunda.*
- Plant hoary-pubescent . . . . . 2. *M. pubescens.*

Pedicels mostly longer than the calyx.
- Flowers rather large, the lips shorter than the tube, the upper one entire . . . . . 3. *M. glabra.*
- Flowers small, the lips as long as the tube, the upper one shortly 2-lobed . . . . . 4. *M. parviflora.*

1. **M. floribunda,** *Benth. in Mitch. Trop. Austr.* 384. Stems from a perennial stock erect, usually taller less branched and more rigid than in *M. glabra*, glabrous or nearly so and often glaucous. Leaves linear or linear-lanceolate, entire or with few teeth, from about ½ in. to above 1 in. long. Flowers (blue?) almost sessile or on pedicels usually very short or rarely as long as the calyx, often appearing clustered with small leaves in the axils owing to the partial development of axillary branchlets. Calyx rather larger than in *M. glabra* and corolla the same size, but much more deeply cleft, the tube scarcely exceeding the calyx and the lips as long as the tube, the upper one broad truncate and entire as in *M. glabra*. Capsule shortly acuminate.

Queensland. Rockhampton and Keppel Bay, *Thozet;* Crocodile Creek, *Bowman;* Balonne and Narran rivers, *Mitchell.*
N. S. Wales. Macquarrie river, *Mitchell;* Murray and Darling rivers, *Victorian Expedition, Dallachy,* and others; Mount Murchison, *Giles.*
Victoria. Wimmera, *Dallachy.*
S. Australia, *Behr;* Holdfast Bay, *F. Mueller,* towards Spencer's Gulf, *Warburton;* Torrens river, *Whittaker;* Wills' Creek, Cooper's Creek, etc., *Howitt's Expedition.*
W. Australia. Murchison river, *Oldfield, Drummond, 6th Coll. n.* 126.

3. **M. glabra,** *R. Br. Prod.* 441. Stems from a perennial stock erect, usually branched, rather slender, ½ to 1 ft. high, glabrous or with a minute almost granular pubescence on the upper parts and flowers. Leaves sessile, linear or linear-lanceolate, entire or with very few small teeth, ½ to 1 in. long. Flowers in the upper axils, on slender pedicels, sometimes short at first but at length much longer than the calyx. Calyx not 2 lines long, deeply divided into narrow segments. Corolla above ½ in. long, the tube twice as long as the calyx, the lips broad, the upper one truncate, the lower 3-lobed, both much shorter than the tube. Capsule shortly acuminate.—Benth. in DC. Prod. xi 385.

N. Australia. Upper Roper river and Alligator Point, *F. Mueller;* Albert river, *Henne;* Gulf of Carpentaria, *Landsborough.*

Queensland. Broad Sound, *R. Brown;* estuary of the Burdekin, *F. Mueller;* Fitzroy river, *Bowman;* Barcoo river, *Mitchell;* Curriwillighi, *Dalton.*

N. S. Wales. Plains of the Gwydir, *Mitchell;* between the Darling and Cooper's Creek, *Neilson;* Ballandool river, *Locker.*

4. **M. parviflora,** *Benth.* Stems from a perennial almost woody stock erect, paniculately branched, 6 in. to above 1 ft. high, glabrous or slightly pubescent. Leaves very few, small and distant, all linear, a few of the largest $\frac{1}{2}$ to $\frac{3}{4}$ in. long, but mostly reduced to small scales. Flowers much smaller than in the other species, on short rigid pedicels. Calyx about $1\frac{1}{2}$ lines long, glandular-pubescent. Corolla scarcely above 3 lines long, the lips about as long as the tube, the upper one shortly 2-lobed, the lower one 3-lobed to about the middle; anthers of the longer stamens smaller than those of the shorter ones, but all 2-celled. Capsule $1\frac{1}{2}$ lines long, scarcely acuminate.

N. Australia. Arnhem's Land, *F. Mueller.*

2. **M. pubescens,** *R. Br. Prod.* 441. Very nearly allied to *M. floribunda*, and, as far as I can ascertain in the few specimens seen, with the same nearly sessile flowers calyx and corolla, but the whole plant hoary with a short soft pubescence.—Benth. in DC. Prod. x. 385; Endl. Iconogr. t. 103.

N. Australia. Roper river, *F. Mueller.*
Queensland. Comet river, *Leichhardt;* Broad Sound, *R. Brown.*

16. **PEPLIDIUM**, Delile.

SCROPHULARIACEA

Calyx tubular, 5-angled, 5-toothed or shortly 5-lobed. Corolla with a short tube and 5 nearly equal lobes. Stamens 2, the filaments somewhat dilated at the base; anthers 1-celled (by the confluence of 2 divaricate cells?). Ovary completely 2-celled. Style short, dilated upwards into a broad spathulate lamina curved over the stamens. Capsule globular or ovoid, indehiscent or irregularly bursting (or sometimes 4-valved?).—Small creeping or prostrate herbs. Leaves opposite. Flowers very small, axillary, without bracteoles.

The genus is limited to the two Australian species, of which one is widely diffused over the warmer regions of Asia and Africa, the other is endemic. The genus ought, perhaps, to be reunited with *Microcarpæa*, in which Smith had placed the common species. The anthers appear to have been erroneously described as bilocular.

Flowers sessile or nearly so. Capsule globular, obtuse . . . . . 1. *P. humifusum*.
Flowers distinctly pedicellate. Capsule ovoid, acute . . . . . 2. *P. Muelleri*.

1. **P. humifusum,** *Delile; Benth. in DC. Prod.* x. 422. A dwarf prostrate glabrous plant, creeping and rooting at the nodes, sometimes forming dense tufts of 2 or 3 in. diameter, sometimes spreading to a considerable extent. Leaves ovate obovate or orbicular, obtuse, entire, contracted into a short petiole, rather thick especially when small, $\frac{1}{4}$ to $\frac{1}{2}$ in. long or rarely rather larger (in very wet situations?), the short petioles of each pair connected by their membranous margins. Flowers sessile or nearly so in the axils. Calyx scarcely above 1 line at the time of flowering, with 5 prominent angles or folds and membranous between them, the teeth short and obtuse. Corolla-tube rather shorter than the calyx, the lobes very short and rounded. Filaments rather thick, especially towards the base, angularly incurved. Capsule globular, large for the plant, very obtuse, enclosed in the distended calyx, about $1\frac{1}{2}$ lines diameter, membranous and indehiscent or at length bursting irregularly towards the base.—*Microcarpæa cochlearifolia*, Sm.; Hook. Bot. Misc. iii. 95. t. suppl. 29, and other synonyms quoted in the 'Prodromus.'

N. Australia. Upper Victoria river, *F. Mueller.*

Queensland. Rockhampton, *O'Shanesy;* Cape river, *Bowman;* between the Darling and the Lachlan rivers, *Burkitt.*

The species extends over the greater part of tropical and subtropical Asia and Africa.

2. **P. Muelleri,** *Benth.* Stems procumbent, much firmer than in *P. humifusum,* and not rooting at the nodes, glabrous or sparingly scabrous-pubescent. Leaves petiolate, ovate or obovate, very obtuse, entire, rather thick, 4 to 8 lines long. Flowers usually 2 together in each axil, on pedicels of 1 to 2 lines. Calyx tubular, $1\frac{1}{2}$ lines long, 5-angled, with obtuse teeth. Corolla-tube nearly as long as the calyx; lobes oval-oblong, at least half as long as the tube, with 2 very prominent ridges (rudiments of staminodia?) in the throat opposite the sinus of the lower lobes, which are entirely wanting in *P. humifusum.* Filaments scarcely curved. Capsule ovoid, acute, readily opening in 2 or 4 valves, although not quite ripe in our specimens.

N. Australia. Upper Victoria river, *F. Mueller.* Several specimens of this are in the Hookerian herbarium, sent by F. Mueller as a large-leaved variety of *P. humifusum*: but, besides the foliage, the pedicellate and longer flowers, the shape of the corolla, the stamens and the fruit appear to me to be quite different from those of *P. humifusum*, which is remarkably constant in its character throughout its very extended range.

6. **STEMODIA**, Linn.

SCROPHULARIACEAE

Calyx divided to the base into 5 segments or sepals, all equal or the upper one scarcely larger. Corolla tubular at the base, the upper lip broad, entire or notched, the lower one spreading, 3-lobed. Stamens 4, in pairs; anthers 2-celled with the cells quite separate, usually stipitate. Style dilated at the summit into 2 stigmatic lobes or rarely entire, not winged. Capsule globular, ovate or acuminate, opening septicidally in 2 usually 2-fid valves or in 4 valves, the placentas of the two carpels completely separating at maturity (at least in the Australian section). Seeds numerous, small, striate and usually reticulate.—Herbs, rarely undershrubs, more or less glandular-pubescent or villous and often strong-scented. Leaves opposite or in whorls of 3 or 4. Flowers solitary in the axils, the upper ones often forming terminal spikes. Bracteoles usually 2, linear, close under the calyx.

The genus is chiefly from tropical and southern extratropical America, represented by two species in tropical Asia and Africa. Of the four Australian species, one is the common Asiatic one, the other three endemic. They all belong to the section to which I had given the name of *Adenosma*, in the belief that it included Brown's genus of that name; but, as that now proves to be my *Pterostigma*, the present section, differing from it only by the anthers having all 2 perfect cells, may take the name of *Adenosmoides*.

Leaves mostly lanceolate or oblong, sessile and stem-clasping or a few of the lowest rarely petiolate. Stems erect or ascending.
- Flowers sessile or very shortly pedicellate.
  - Corolla (about 3 lines long) shortly exceeding the calyx . . . . 1. *S. lythrifolia.*
  - Corolla (about 6 to 7 lines long) twice as long as the calyx . . . 2. *S. grossa.*
- Flowers on pedicels longer than the calyx . . . . . 3. *S. viscosa.*

Leaves mostly ovate on long petioles. Stems decumbent. (Corolla 3 to 4 lines long?) . . . . . 4. *S. debilis.*

N.I.B.

SCROPHULARIACEAE

Stemodia coerulea

Benth.

N.I.B.

SCROPHULARIACEAE

Stemodia flaccida
W.V. Fitzg.

2. **S. grossa,** *Benth.* A stout erect hard perennial or undershrub of 1 to 2 ft., glandular-villous all over, and strongly scented when fresh. Leaves mostly in whorls of three, ovate oblong or lanceolate, acutely toothed, the lower ones contracted below the middle, dilated and stem-clasping at the base, the larger ones above 1 in. long, the floral ones gradually smaller and more ovate. Flowers large for the genus, sessile in the upper axils, forming a terminal interrupted leafy spike. Calyx glandular-villous, about 3 lines long, the segments lanceolate, nearly equal. Corolla dark-coloured, at least 6 or 7 lines long, the tube broad, hairy inside, the upper lip very broad, entire, as long as the tube, the lower lip of the same length, with ovate obtuse lobes. Anthers all 2-celled. Capsule acuminate, about 2 lines long.

N. Australia. Desert Island of the N.W. coast, *Bynoe;* Nichol Bay, *Walcott.*

N.I.B.

SCROPHULARIACEAE

Stemodia kingii
F. Muell.

1. **S. lythrifolia,** *F. Muell. in Herb. Hook.* A hard erect slightly-branched herb attaining 1 to 2 ft., very softly villous all over, almost woolly, and sometimes slightly viscid. Leaves ovate-lanceolate, oblong or lanceolate, serrate or almost entire, narrowed below the middle but usually dilated and stem-clasping at the base, soft and rugose, the larger ones 1 to 2 in. long, the lowest sometimes more distinctly petiolate, the floral ones small and ovate passing into entire bracts. Flowers small, sessile in the upper axils, the uppermost forming a compact spike with the ovate bracts almost imbricate in 4 rows and scarcely exceeding the calyxes. Calyx glandular-pubescent, about 2 lines long, the segments narrow-lanceolate, acute, rather unequal. Corolla shortly exceeding the calyx, the upper lip broad, truncate or slightly notched. Anthers all 2-celled. Capsule hard, acuminate, not exceeding the calyx.—*Stemodia cærulea*, Benth. in DC. Prod. x. 381, as to A. Cunningham's plant but not R. Brown's synonym.

N. Australia. Common in the rocky islands of the N.W. coast, *A. Cunningham. Bynoe;* Upper Victoria river, *F. Mueller;* islands of the Gulf of Carpentaria, *R. Brown* (not inserted in Brown's Prodromus).

Var.? *tenuior.* Less woolly, the leaves broader and more membranous, the floral ones all toothed and not imbricate.—York Sound, N.W. coast, *A. Cunningham.* Perhaps a distinct species, but the specimens too imperfect to determine.

3. **S. viscosa,** *Roxb. Pl. Corom.* ii. 33. *t.* 163. A perennial with ascending or erect not much-branched stems from under 6 in. to above 1 ft. high, the whole plant pubescent or villous, viscid and scented. Leaves opposite or in whorls of three, the lower ones often ovate and contracted into a petiole, the upper ones or nearly all lanceolate, acute, serrate, often dilated and stem-clasping at the base, the larger ones 1 to 2 in. long but often all under 1 in., the upper floral ones gradually smaller but usually distant. Flowers axillary, on pedicels always longer than the calyx and sometimes exceeding the leaves. Calyx usually about 2 lines long, the segments narrow, nearly equal or one larger. Corolla at least twice as long as the calyx, the upper lip very broad, entire or slightly notched, the lower with 3 ovate very obtuse lobes. Anthers all 2-celled. Capsule acuminate, as long as the calyx.—Benth. in DC. Prod. x. 381.

N. Australia. Victoria river, *F. Mueller*; Gulf of Carpentaria, *Landsborough*.
W. Australia. Murchison river, *Oldfield*, *Drummond*, *6th Coll. n.* 127.

The species is common in East India, and I can find no difference in the above Australian specimens.

Var. ? *grandiflora.* A coarser plant, with the flowers $\frac{3}{4}$ in. long and very broad.—Murchison river, *Oldfield*, *Drummond*, *6th Coll. n.* 128.

27. **STRIGA**, Lour.

Calyx tubular-campanulate, with prominent nerves, 5-toothed or 5-lobed. Corolla-tube slender, abruptly bent at or above the middle, the limb 2-lipped, the upper lip emarginate or 2-lobed, innermost in the bud, the lower 3-lobed. Stamens 4, in pairs, included in the tube; anthers vertical, 1-celled. Style club-shaped at the top, entire. Capsule straight, not acuminate, opening loculicidally in 2 valves.—Rigid erect annuals, usually scabrous and drying black. Lower leaves opposite, upper ones alternate, sometimes, in species not Australian, all reduced to small scales. Flowers sessile, usually forming terminal interrupted spikes.

A genus of several species, dispersed over the tropical regions of the Old World, and all probably parasites on roots. Of the four Australian species, one is a common one in tropical Asia; the other three, closely allied to each other, may be all endemic. The characters by which several of the species are distinguished, those especially which are derived from the size and proportions of the corolla, are very difficult to observe correctly in dried specimens, and appear often to be very variable.

Calyx with 10 equally prominent ribs . . . . . 1. *S. hirsuta.*

Calyx with 5 prominent ribs, smooth between them or rarely here and there an obscure vein.

Corolla scarcely $\frac{1}{4}$ in. long, the upper lip more than half as long as the lower . . . . . 2. *S. parviflora.*

Corolla above $\frac{1}{2}$ in. long, the upper lip more than half as long as the lower . . . . . 3. *S. multiflora.*

Corolla nearly or fully $\frac{3}{4}$ in. long, the upper lip less than half as long as the lower . . . . . 4. *S. curviflora.*

4. **S. curviflora,** *Benth. in Comp. Bot. Mag. and in DC. Prod.* x. 501. Usually a much taller and stouter plant than *S. parviflora*, many of the specimens above 1 ft. high, simple and slightly branched and very scabrous. Leaves linear, the lower ones above 1 in. high. Flowers (blue or purple?) in terminal interrupted spikes. Calyx 3 lines long or more, with long subulate-acuminate teeth, the tube with 5 prominent scabrous ribs, and smooth between them. Corolla pubescent, the tube 4 to 5 lines long, bent near the top, the lobes of the lower lip 3 to 4 lines long, the upper lip slightly notched, only 1 to 1½ lines long, usually somewhat recurved.—*Buchnera curviflora*, R. Br. Prod. 438.

N. Australia. Islands of the Gulf of Carpentaria, *R. Brown*; N.W. coast, *Bynoe.*
Queensland. Endeavour river, *Banks and Solander*; Rockhampton, *O'Shanesy*; Cape York, *Daemel.*

3. **S. multiflora,** *Benth. in Comp. Bot. Mag. and in DC. Prod.* x. 501. Nearly allied to *S. parviflora* and to *S. curviflora*, and in some respects intermediate between the two, with a similar calyx but different corolla. Stems erect and usually branched, often above 1 ft. high. Leaves linear, often above 1 in. long, the floral ones small and narrow. Flowers usually numerous (blue or purple?). Corolla glabrous glandular or pubescent, intermediate in size between those of *S. parviflora* and *S. curviflora*, but in some specimens fully as large as in the latter, the upper lip shortly and broadly 2-lobed, more than half as long as the lower lip.

N. Australia. Victoria river and Sturt's Creek, *F. Mueller;* on all the islands to the westward of Goulburn island, *A. Cunningham;* Port Essington, *Armstrong;* Camden Harbour, Glenelg district, N.W. coast, *Marten* (with remarkably large flowers).

I have now some doubts whether the Philippine Island and Molucca plant I referred to this species in the 'Prodromus' be really the same.