

THE
QUEENSLAND FLORA:

BY

F. MANSON BAILEY, F.L.S.,

COLONIAL BOTANIST OF QUEENSLAND.

WITH PLATES ILLUSTRATING SOME RARE SPECIES.

PART III.

CAPRIFOLIACEÆ TO GENTIANEÆ.



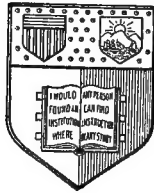
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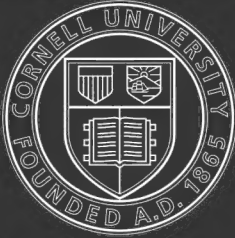
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LIST OF PLATES

(Continued.)

	To face page				
PLATE XXVI.— <i>Ophiorrhiza australiana</i> , <i>Benth.</i>	751				
PLATE XXVII.— <i>Randia hirtia</i> , <i>F. v. M.</i>	753				
PLATE XXVIII.— <i>Gardenia ovularis</i> , <i>Bail.</i>	757				
PLATE XXIX.— <i>Morinda reticulata</i> , <i>Benth.</i>	768				
PLATE XXX.— <i>Olearia hygrophila</i> , <i>Benth.</i>	806				
PLATE XXXI.— <i>Leptorhynchus Baileyi</i> , <i>F. v. M.</i>	828				
PLATE XXXII.— <i>Cassinia subtropica</i> , <i>F. v. M.</i>	842				
PLATE XXXIII.— <i>Scævola laciniata</i> , <i>Bail.</i>	910				
PLATE XXXIV.— <i>Lobelia stenophylla</i> , <i>F. v. M.</i>	918				
PLATE XXXV.— <i>Agapetes Meiniana</i> , <i>F. v. M.</i>	923				
PLATE XXXVI.— <i>Rhododendron Lochæ</i> , <i>F. v. M.</i>	924				
PLATE XXXVII.— <i>Brachyloma Scortechinii</i> , <i>F. v. M.</i>	929				
PLATE XXXVIII.— <i>Lucuma Unmackiana</i> , <i>Bail.</i>	954				
PLATE XXXIX.— <i>Lucuma chartacea</i> , <i>Bail.</i>	955				
PLATE XL.— <i>Maba rufa</i> , <i>Labill.</i>	963				
PLATES XLI AND XLII.— <i>A fruit and leaf of each</i> <i>indigenous Ochrosia</i>	<table style="display: inline-table; vertical-align: middle;"> <tr> <td style="font-size: 3em; padding: 0 5px;">{</td> <td style="padding: 0 5px;"> <i>O. elliptica</i>, <i>Labill.</i> <i>O. Newelliana</i>, <i>Bail.</i> <i>O. Poweri</i>, <i>Bail.</i> <i>O. Moorei</i>, <i>F. v. M.</i> <i>O. Kilneri</i>, <i>F. v. M.</i> <i>O. Cowleyi</i>, <i>Bail.</i> </td> <td style="font-size: 3em; padding: 0 5px;">}</td> <td style="vertical-align: middle; padding-left: 10px;"> .) .) .) .) .) .) </td> </tr> </table>	{	<i>O. elliptica</i> , <i>Labill.</i> <i>O. Newelliana</i> , <i>Bail.</i> <i>O. Poweri</i> , <i>Bail.</i> <i>O. Moorei</i> , <i>F. v. M.</i> <i>O. Kilneri</i> , <i>F. v. M.</i> <i>O. Cowleyi</i> , <i>Bail.</i>	}	.) .) .) .) .) .)
{	<i>O. elliptica</i> , <i>Labill.</i> <i>O. Newelliana</i> , <i>Bail.</i> <i>O. Poweri</i> , <i>Bail.</i> <i>O. Moorei</i> , <i>F. v. M.</i> <i>O. Kilneri</i> , <i>F. v. M.</i> <i>O. Cowleyi</i> , <i>Bail.</i>	}	.) .) .) .) .) .)		
PLATE XLIII.— <i>Strychnos Bancroftiana</i> , <i>Bail.</i>	1025				

CONTENTS.

	Page
CONSPICUUS OF THE ORDERS	739
ORDER LXIII. Caprifoliaceæ	741
LXIV. Rubiaceæ	742
LXV. Compositæ	783
LXVI. Styliidiæ	885
LXVII. Goodenoviæ	890
LXXVIII. Campanulaceæ	914
LXIX. Vacciniaceæ	923
LXX. Ericaceæ	924
LXXI. Epacridæ	925
LXXII. Plumbaginæ	943
LXXIII. Primulaceæ	945
LXXIV. Myrsinæ	947
LXXV. Sapotaceæ	952
LXXVI. Ebenaceæ	962
LXXVII. Styracaceæ	966
LXXVIII. Oleaceæ	968
LXXIX. Apocynaceæ	974
LXXX. Asclepiadæ	995
LXXXI. Loganiaceæ	1016
LXXXII. Gentianeæ	1025

THE QUEENSLAND FLORA.

(CLASS I. DICOTYLEDONS.

SUBCLASS II. GAMOPETALÆ OR MONOPETALÆ.

Petals united into a single-lobed corolla.

SERIES I. INFERRÆ.—Ovary inferior. Stamens as many as corolla-lobes, rarely less.

Alliance I. Rubiales.—*Calyx-limb usually distinct, toothed or lobed. Stamens epipetalous, isomerous, alternate with the corolla-lobes. Ovary inferior, 2 to 12 (rarely 1) celled. Albumen usually copious, very rarely wanting. Leaves opposite or whorled.*

LXIII. CAPRIFOLIACÆ. Trees, shrubs, or climbers, rarely herbs. Leaves opposite (pinnate in the Australian genus) without real stipules. Stamens as many as corolla-lobes and alternate with them. Ovary inferior, 2 or more-celled. Seeds albuminous.

LXIV. RUBIACÆ. Trees, shrubs, or herbs. Leaves opposite with interpetiolar or sheathing stipules. Stamens as many as corolla-lobes and alternate with them. Ovary inferior, 2 or more-celled, very rarely reduced to 1 cell. Seeds albuminous.

Alliance II. Asterales.—*Calyx-limb obsolete or reduced to a pappus. Stamens epipetalous, isomerous or fewer. Ovary inferior, 1-celled, 1-ovulate.*

LXV. COMPOSITÆ. Herbs, shrubs, or rarely trees. Leaves opposite or alternate, without stipules. Flowers or florets collected in heads, each head surrounded by a calyx-like involucre. The true calyx of each floret wanting or reduced to a pappus. Stamens as many as corolla-lobes and alternate with them. Ovary inferior, 1-celled, with 1 erect ovule. Seed with albumen.

Alliance III. Campanales.—*Calyx-limb toothed or partite, rarely wanting. Stamens usually epigynous and free from the corolla. Ovary inferior, 1 or many-celled, 1 or many-ovulate.*

LXVI. STYLIDIÆ. Herbs or undershrubs, rarely shrubs. Leaves radical or scattered, or in whorl-like clusters. Flowers irregular or rarely regular, the fifth lobe of the corolla usually smaller or different from the other four. Stamens 2, the filaments connate with the style in a column free from the corolla (anthers sessile on the top of the style). Ovary inferior, wholly or partly 2-celled. Seeds albuminous.

LXVII. GOODENIACÆ. Herbs or shrubs. Leaves alternate or radical. Flowers more or less irregular. Stamens 5. Ovary inferior, at least as to the corolla, 2-celled or rarely 1-celled. Style with a cup-shaped or peltate indusium under the stigma. Seeds albuminous.

LXVIII. CAMPANULACÆ. Herbs usually with a milky juice. Leaves alternate. Flowers irregular or regular. Corolla-lobes valvate. Stamens usually free from the corolla, as many as its lobes and alternating with them. Ovary more or less inferior, with 2 to 5 many-ovulate cells. Seeds albuminous.

SERIES II. HETEROMERÆ.—Ovary most frequently superior. Stamens free from the corolla, or opposite the lobes, or twice as many or more, or numerous, or, if epipetalous and alternate and of equal number to the lobes, the carpels or pistils are more than 2.

Alliance IV. Ericales.—*Flowers regular or nearly so. Stamens as many or twice as many as corolla-lobes. Ovary-cells or placentas 2 or many. Seeds small, often minute.*

LXIX. VACCINIACEÆ. Ovary inferior. Fruit fleshy or juicy. Otherwise like *Ericaceæ*.

LXX. ERICACEÆ. Shrubs. Leaves alternate. Flowers regular. Stamens usually free from the corolla, twice as many as its lobes. *Anthers 2-celled, opening in terminal pores. Ovary inferior or superior, with as many cells as corolla-lobes. Seeds albuminous.*

LXXI. EPACRIDÆ. Shrubs. Leaves usually rigid and striate. Flowers regular. Stamens as many as corolla-lobes and alternate with them, or rarely fewer. *Anthers 1-celled. Ovary superior, with 5 or fewer cells. Seeds albuminous.*

Alliance V. Primulales.—*Flowers regular. Stamens as many as corolla-lobes and opposite to them. Ovary generally superior, 1-celled; placenta central.*

LXXII. PLUMBAGINÆ. Herbs or rarely shrubs. Leaves radical or alternate. Calyx tubular. Stamens 5, opposite to the corolla-lobes or petals. *Ovary 1-celled, with 1 ovule suspended from a free filiform placenta; styles or style-branches 5. Seeds rarely albuminous.*

LXXIII. PRIMULACÆ. Herbs. Leaves radical or alternate, rarely whorled. Flowers regular. Stamens as many as corolla lobes and opposite to them. *Ovary 1-celled, with peltate ovules attached to a free central placenta. Fruit usually dehiscent. Seeds albuminous.*

LXXIV. MYRSINÆ. Trees or shrubs. Leaves alternate, usually dotted. Flowers regular. Stamens as many as corolla-lobes and opposite to them. *Ovary 1-celled, with peltate ovules attached to a free central placenta. Fruit succulent or hard, usually indehiscent. Seeds rarely without albumen.*

Alliance VI. Ebenales.—*Flowers regular, hermaphrodite or unisexual. Stamens as many as corolla-lobes and opposite to them or 2 to 3 times as many or more numerous. Ovary 2 to many-celled. Ovules solitary or in pairs.*

LXXV. SAPOTACEÆ. Trees or shrubs. Leaves alternate. Flowers regular. Corolla-lobes as many or twice as many as calyx segments. Stamens as many as corolla-lobes and opposite to them, or twice as many. *Ovary 2 or more-celled, with 1 ovule in each cell. Fruit succulent or hard, usually indehiscent. Seeds with or without albumen.*

LXXVI. EBENACEÆ. Trees or shrubs, not milky. Leaves alternate. Flowers regular, usually dioecious. Corolla-lobes 3 to 5. Stamens indefinite (few or many). *Ovary 3 or more-celled, with 1 or 2 ovules in each cell. Fruit succulent, usually indehiscent. Seeds albuminous.*

LXXVII. STYRACEÆ. Trees or shrubs. Leaves alternate. Flowers regular, hermaphrodite. Corolla-lobes as many or twice as many as calyx-lobes. Stamens usually more than twice as many, rarely twice as many as corolla-lobes or fewer. *Ovary, or at least the fruit, more or less inferior, 2 to 5-celled, with 2 or more ovules in each cell. Fruit usually succulent and indehiscent. Seeds albuminous.*

SERIES III. BICARPELLATE.—*Ovary most frequently superior. Stamens alternating with the corolla-lobes and of equal number with them, or fewer. Carpels of the pistil 2 or rarely 1 or 3.*

Alliance VII. Gentianales.—*Corolla regular. Stamens alternate and of equal number with the corolla-lobes, or, if fewer, often alternate with the carpels.*

LXXVIII. OLEACEÆ. Trees, shrubs, or climbers. Leaves opposite or very rarely alternate. Flowers regular. Corolla with 4, 5 or more lobes, rarely 2-petaled or none. *Stamens 2, alternating with the carpels. Ovary 2-celled, with one or two ovules in each cell. Fruit succulent or capsular. Seeds with or without albumen.*

LXXIX. APOCYNACEÆ. Trees, shrubs, or twiners, rarely perennial herbs. Leaves opposite or rarely scattered. Flowers regular. Stamens 5, alternating with the corolla-lobes; anthers connivent round the stigma. *Ovary of two distinct carpels; the styles connected upwards, or rarely the carpels united from the base. Fruit of 1 or 2 follicles, drupes or berries. Seeds usually albuminous.*

LXXX. ASCLEPIADEÆ. Climbers or rarely herbaceous perennials or shrubs. Leaves opposite. Flowers regular. Stamens 5, alternate with the corolla-lobes; anthers connate round the stigma, 2 to 4-celled; *pollen consolidated in 1 or 2 masses in each cell. Ovary of 2 distinct carpels; the styles united upwards. Fruit follicular. Seeds with little albumen.*

LXXXI. LOGANIACEÆ. Trees, shrubs, twiners, or herbs. Leaves opposite, often connected by stipules or raised lines. Flowers regular. Stamens as many as corolla-lobes and alternate with them. *Anthers free. Ovary usually 2-celled. Style single. Fruit a capsule or berry. Seeds albuminous.*

LXXXII. GENTIANÆ. Herbs with a bitter taste. Leaves opposite, or, in the *Menyanthes*, alternate. Flowers regular. Stamens as many as corolla-lobes and alternate with them. *Anthers free. Ovary 1-celled, with 2 or rarely more parietal placentas rarely completely dividing it into 2 cells; ovules numerous and minute. Style single. Fruit a capsule, rarely indehiscent. Seeds albuminous.*

ORDER LXIII. CAPRIFOLIACEÆ.

Calyx-tube adnate to the ovary, the limb short, truncate or of 4 or 5 rarely more lobes or teeth. Corolla gamopetalous, inserted round the epigynous disk; lobes 4 or 5 rarely 3, imbricate in the bud. Stamens as many as lobes of the corolla, alternate with them, inserted in the tube; anthers versatile with parallel cells opening longitudinally. Ovary inferior, 2 to 5-celled or rarely 1-celled, with 1 or more pendulous ovules in each cell. Stigmas as many as cells, or united into one, sessile or on a single filiform style. Fruit an indehiscent berry, or rarely dry, 1 to 5-celled. Seeds 1 or more in each cell. Embryo in the axis of a fleshy albumen; radicle superior, cotyledons oval or oblong.—Trees, shrubs, or climbers, rarely herbs. Leaves opposite, usually without stipules, simple or rarely pinnate.

A rather small Order, chiefly dispersed over the temperate regions of the northern hemisphere, with a very few tropical or southern species, represented in Australia by a single genus having a wide range in the northern hemisphere, and remarkable for its pinnate leaves. Many other genera scarcely differ from *Rubiaceæ* except in the want of stipules.—*Benth.*

1. SAMBUCUS, Linn.

(From the Greek, a musical instrument having been made from the wood of one species.)

Calyx-limb of 3 to 5 small teeth. Corolla with a very short tube and 3 to 5 lobes, spreading so as to appear rotate. Stamens inserted at the base of the corolla. Ovary 3 to 5-celled with 1 pendulous ovule in each cell; stigma sessile, 3 to 5-lobed. Fruit a berry-like drupe, with 3 to 5 seed-like pyrenes, each containing a single seed.—Trees, shrubs, or tall herbs. Leaves opposite, pinnate. Flowers white or yellow, rather small, in large terminal corymbose cymes.

The genus is widely dispersed over Europe, temperate Asia, and North America. The Australian species are both endemic, but nearly correspond to the two commonest of the northern ones.—*Benth.*

Shrub or tree. Leaves without stipule-like lobes. Flowers mostly

3-merous. Berries yellow 1. *S. xanthocarpa*.
Tall shrub. Lowest leaflets of each leaf close to the stem, short and
broad, looking like stipules. Flowers mostly 4-merous. Berries white 2. *S. Gaudichaudiana*.

1. ***S. xanthocarpa*** (fruit yellow), *P. v. M. in Hook. Kew Journ.* viii. 145, and in *Trans. Phil. Inst. Vict.* i. 42; *Pl. Vict.* t. 29; *Benth. Fl. Austr.* iii. 398. A tall shrub or small tree, quite glabrous. Leaflets 3 or 5, all petiolulate, the lower pair sometimes again divided into 2 or 3 each, lanceolate or ovate-lanceolate, acuminate, narrowed at the base, acutely but not deeply serrate or almost entire, mostly 2 to 3 in. long. Primary branches of the corymb umbellate, the others cymose. Flowers mostly 3-merous, rarely 4-merous, white. Berries yellow.—*Tripetelus australasicus*, Lindl. in Mitch. Three Exped. ii. 14.

Hab.: Brisbane River, Moreton Bay, and from there to Trinity Bay.

Wood soft, light, and pale-coloured.—*Bailey's Cat. Ql. Woods* No. 238.

2. ***S. Gaudichaudiana*** (after A. Gaudichaud), *DC. Prod.* iv. 322; *Benth. Fl. Austr.* iii. 398. Stems from a perennial stock herbaceous, erect, 3 to 5 ft. high, glabrous as well as the rest of the plant. Leaflets 5 to 11, sessile or petiolulate, ovate or ovate-lanceolate, coarsely and acutely toothed, 2 to 5 in. long, the lowest of each leaf close to the stem, short, broad, and toothed, resembling stipules. Primary branches of the corymb umbellate, the others cymose. Flowers mostly 4-merous. Berries oblong, white.—Hook. f. *Fl. Tasm.* i. 164.

Hab.: Many localities in the southern parts of the colony.

ORDER LXIV. RUBIACEÆ.

Calyx-tube adnate to the ovary; the limb entire or with as many teeth lobes or divisions as lobes of the corolla, rarely more, fewer or none. Corolla gamopetalous, inserted round the epigynous disk; lobes 4, 5 or sometimes more, rarely only 3, either imbricate (often contorted) or valvate in the bud. Stamens as many as lobes of the corolla, alternating with them and inserted in the tube; anthers versatile, with parallel cells opening longitudinally. Ovary inferior, 2 or more-celled, with 1 or more ovules in each cell, rarely 1-celled with parietal placentas, or reduced to one 1-ovulate cell; style more or less divided into as many stigmatic lobes as carpels to the gyncœcium, or undivided with a thickened entire or notched stigma. Fruit a capsule, drupe, berry or indehiscent nut. Seeds with a fleshy or horny albumen, and rather small straight embryo with flat cotyledons, or rarely with little or no albumen and cylindrical embryo with semiterete cotyledons.—Trees, shrubs, herbs, or rarely climbers. Leaves opposite or whorled. Stipules interpetiolar, either free or connate with the petioles in a sheath bordered by cilia or leaf-like lobes, or with one or two points on each side, or connate within the petioles in a short sheath or ring round the stem. Inflorescence various, usually more or less cymose, axillary or terminal. Flowers occasionally polygamous or unisexual. Species chiefly tropical and subtropical.

SERIES A.—Ovules numerous in each cell (rarely in a few *Hedyotideæ*).

TRIBE I. **Naucleææ**.—Flowers collected into dense globose heads. Corolla funnel-shaped; stigma simple.

*Ovaries confluent; fruits forming a globose fleshy mass; corolla-lobes imbricate in bud.

Ovary 2-celled, ovules numerous 1. SARCOCEPHALUS.
 **Ovaries free or nearly so; fruits free, capsular.

Flowers ebracteolate.

Corolla-lobes imbricate 2. NAUCLEA.
 Corolla-lobes valvate, climbers with hooked peduncles 3. UNCARIA.

TRIBE II. **Rondeletiææ**.—Calyx-lobes twisted in bud. Fruit capsular, 2-celled. Seeds angular. Shrubs or trees.

Flowers simply paniculate 4. WENDLANDIA.

TRIBE III. **Hedyotideææ**.—Corolla-lobes valvate in bud. Fruit a loculicidal or septicidal 2 rarely 4-celled capsule, or of 2 or 4 dehiscent or indehiscent cocci, rarely altogether indehiscent. Seeds small or minute, rarely winged. Herbs, rarely shrubs.

*Fruit 2-celled, usually indehiscent, stipules entire.

Corolla funnel-shaped, lobes 4 or 5-toothed 5. DENTELLA.

**Fruit oblong, subglobose, or orbicular, 2 rarely 4-celled, usually dehiscent; cells many rarely 1-seeded.

Capsule loculicidal or septicidal, rarely indehiscent, with contiguous calyx-teeth, seeds usually angular 6. HEDYOTIS.

Capsule loculicidal above the remote calyx-teeth, rarely indehiscent; seeds minute, angular 7. OLDENLANDIA.

Stamens 4. Capsule $\frac{3}{4}$ -superior. Corolla rotate, marcescent, retaining the stamens 8. SYNAPTANTHA.

**Fruit broadly didymously obovate, of 2 compressed spreading lobes, loculicidal above the calyx.

Flowers crowded on the upper side of the branches of a pedunculate cyme 9. OPHIORRHIZA.

TRIBE IV. **Mussaendææ**.—Corolla-lobes valvate in bud. Fruit fleshy or drupaceous, indehiscent. Seeds minute.

Corolla-lobes 4, induplicate-valvate. Anthers cohering in a tube. Fruit a berry, seeds numerous 10. ABBOTTIA.

TRIBE V. **Gardeniææ**.—Corolla-lobes twisted in bud. Fruit berried, fleshy, or dry. Seeds usually large; cotyledons often foliaceous.

*Seeds usually many in each cell.

Inflorescence terminal, flowers 2-sexual, stigma fusiform 11. WEBERA.

Inflorescence usually axillary, stigma fusiform.

Ovary 2-celled 12. RANDIA.

Ovary 1-celled 13. GARDENIA.

**Style-arms 2, free. Ovary 2-celled. Seeds few in each cell. Inflorescence axillary.

Calyx calyculate, limb truncate or 2 to 5-lobed, flowers fascicled, rarely cymose 14. DIPLOSORA.

SERIES B.—Ovules 2 in each cell (ovary 2-celled).

(Genus of uncertain affinity.)

- Corolla-lobes twisted, ovules inserted together half-way up the cell, 1
pendulous, 1 erect 15. SCYPHIPHORA.

SERIES C.—Ovules solitary in each cell.

SUBSERIES A.—Radicle superior.

TRIBE VI. **Guettardeæ**.—*Corolla-lobes imbricate or valvate in bud. Stamens inserted on the mouth of the corolla. Fruit drupaceous with 2 to many free or cohering pyrenes. Seed cylindrical; albumen scanty or none.*

Corolla imbricate.

- Calyx-limb deciduous 16. GUETTARDA.
Calyx-limb persistent 17. ANTIRRHÆA.
Corolla valvate, calyx-limb cupular, ovary 4 to 12-celled 18. TIMONIUS.

TRIBE VII. **Knoxieæ**.—*Corolla-lobes valvate in bud. Stamens inserted on mouth of the corolla. Fruit of 2 cocci. Seeds dorsally compressed.*

- Albumen copious. Herbs. Fruit very small 19. KNOXIA.

TRIBE VIII. **Chiococceæ**.—*Corolla valvate or imbricate. Stamens inserted at base of corolla. Seeds albuminous.*

- Inflorescence axillary. Flowers umbellulate. Anthers dorsifixed. Style-branches 2 to 4 20. HODGKINSONIA.

TRIBE IX. **Vanguerieæ**.—*Corolla-lobes valvate in bud. Stamens inserted in the mouth of the corolla. Drupe with 2 to many free or cohering pyrenes. Seeds various, albumen copious.*

- Flowers in axillary cymes or clusters. Ovary 2-celled. Stipules equal 21. CANTHUM.

SUBSERIES B.—Radicle inferior.

TRIBE X. **Ixoreæ**.—*Corolla-lobes twisted in bud. Ovary 2 to 4-celled; ovules usually inserted about the middle of the cell, rarely basilar. Fruit a 2 to 4-celled berry or drupe with 2 to 4 free or united pyrenes. Seeds usually plano-convex.*

Flowers panicled or corymbose.

- Bracts coriaceous, not sheathing 22. IXORA.
Bracts membranous, lower sheathing 23. PAVETTA.
Flowers axillary, fascicled or solitary 24. COFFEA.

TRIBE XI. **Morindeæ**.—*Corolla-lobes valvate in bud. Stamens inserted in the mouth or throat of the corolla. Ovules usually inserted below the middle of the cell and amphitropous. Fruit a 2 to 4-celled berry, or a drupe with 2 to 4 pyrenes.*

*Calyx-tubes cohering in a head.

- Head many-flowered, solitary or umbelled 25. MORINDA.

**Flowers free.

- Calyx-limb truncate. Drupe with 4 pyrenes. Flowers in panicles or umbels 26. CELOSPERMUM.

TRIBE XII. **Psychotriææ**.—*Corolla-lobes valvate in bud. Stamens inserted near the mouth of the corolla. Ovules basilar, cuneate, anatropous. Drupe with 2 or more pyrenes.*

*Flowers in terminal, rarely axillary, corymbose or panicled, rarely capitate, cymes.

- Calyx-limb short, 4 or 5-toothed. Corolla usually short, straight 27. PSYCHOTRIA.

**Flowers capitate or fascicled, axillary or terminal (or solitary in Geophila).

- Calyx with 4 to 7 rather long lobes. Creeping herbs. Leaves cordate 28. GEOPHILA.

- Calyx-limb 3 to 6-fid. Style-arms 3 to 9. Leaves distichous 29. LASIANTHUS.

***Flowers axillary and terminal, solitary or few. Anthers 4, subsessile.

Calyx-limb truncate.

- Drupe with 2 pyrenes; stem tuberous, epiphytes 30. HYDNOPHYTUM.
Drupe with 3 pyrenes; stem tuberous, epiphytes 31. MYRMECODIA.

TRIBE XIII. **Operculariææ**, Benth. Fl. Austr.—*Corolla-lobes valvate. Ovules erect from the base, usually one only to each flower. Style-branches long. Fruit capsular, 2-valved. Albumen copious.—Herbs, undershrubs, or rarely small shrubs. Flowers in simple or compound heads, the calyx-tubes connate. Outer valves of the fruits of each partial head connate in a persistent cup; inner valves of the same fruits connate in a deciduous operculum.*

- Flower-heads connate in a compound head, or rarely solitary 32. OPERCLARIA.

- Flower-heads several in an umbel 33. POMAX.

TRIBE XIV. **Spermacocææ**.—*Corolla-lobes valvate in bud. Ovary 2, rarely 3 to 4-celled; style entire; stigma capitate or 2-fid, rarely style-arms elongate. Ovules attached to the septum of the ovary, amphitropous. Fruit small, dry, capsular or of 2 cocci, or circumsciss at the base. Seeds usually oblong, deeply grooved on the ventral face.*—Herbs, rarely undershrubs. Leaves opposite. Stipules usually setaceous.

Fruit of 2 separable cocci, both or one only dehiscing ventrally 34. SPERMACOCE.
Ovary 3-celled. Corolla-lobes usually 5, occasionally 4 35. RICHARDSONIA.

TRIBE XV. **Galieæ**.—*Calyx-lobes valvate in the bud. Ovary 2-celled; style-arms 2; ovules attached to the base of the septum. Fruit of 2 small coriaceous or fleshy indehiscent lobes. Seeds peltate, usually hollowed ventrally.*—Herbs. Leaves usually whorled, without stipules.

Corolla nearly rotate, with scarcely any tube 36. GALIUM.
Corolla funnel-shaped, with a distinct tube 37. ASPERULA.

1. SARCOCEPHALUS, Afz.

(Fruit-heads fleshy.)

(Platanocarpus, Korth.)

Flowers densely packed in a globular head, the calyxes cohering. Corolla-tube slender; lobes 4 or 5, spreading, slightly imbricate in the bud. Anthers nearly sessile at the mouth of the corolla-tube. Ovary 2-celled, with several linear ovules in each cell inversely imbricate on a linear placenta, pendulous from the top of the cell. Style much exserted, with 2 short stigmatic lobes. Fruits connate in a dense globular mass, fleshy when fresh, hard when dry, but capsular at the base. Seeds 1 or 2 in each cell, not winged. Albumen abundant.—Trees or shrubs. Stipules interpetiolar, membranous, very deciduous. Flower-heads solitary on terminal peduncles.

The genus is spread over tropical Africa and Asia.

Branches and leaves glabrous 1. *S. cordatus*.
Branches and leaves velvety-pubescent 2. *S. Bartlingii*.

1. **S. cordatus** (heart-shaped), *Miq. Fl. Ind. Bat.* ii. 133; *Benth. Fl. Austr.* iii. 402. Leichhardt Tree or Canary Wood. "Oolpanje," Mitchell River, "Coobiaby," Cloncurry, *Palmer*; "Toka," Rockhampton, "Taberol," Cleveland Bay, *Thozet*; "Poan-ja," Cooktown, *Roth*. A handsome tree, quite glabrous, or very slightly pubescent. Leaves broadly ovate, obtuse, rounded, or cordate at the base, from 4 or 5 in. to twice that length. Stipules large, broad, obtuse, very deciduous. Flowers yellow, in dense globular heads above 1 in. diameter without the styles. Calyx-limb shortly campanulate, with 4 or 5 stipitate clavate gland-like lobes. Corolla-tube slender, about 2 lines long; lobes about half that length, obtuse. Style very long, with a thick ovoid shortly 2-lobed stigma. Fruits united in a hard globular mass of above 1 in. diameter, pitted and rough with the remains of the more or less succulent calyxes and disks. Seeds either 1 oblong, or 2 superposed and truncate in each cell.—*Nauclea coadunata*, Sm. in *Rees Cycl.* xxiv.; DC. *Prod.* iv. 344; *N. undulata* and *N. cordata*, *Roxb. Fl. Ind.* i. 508, 509; *Sarcocephalus undulatus*, *Miq. Fl. Ind. Bat.* ii. 133.

Hab.: A common tree in the northern scrubs.

Tincture of the bark is somewhat fluorescent; may be used medicinally in cases where simple bitters are indicated; appears to be as useful as Calumba. Some commercial use, such as a bitter for beer; might be made of this bark, which could be obtained in any quantity. When dry it is extremely light and is apparently free from tannin.—*T. L. Bancroft, M.B.*

Fruit eaten. Bark soaked in water produces vomiting and cure in cases of sore stomach.—*Roth*.

Wood of a dark-yellow colour, close-grained, soft, and having a strong musk-like odour when fresh cut; useful both to the carpenter and cabinetmaker. The wood also furnishes a good dye.—*Bailey's Cat. Ql. Woods* No. 239.

2. **S. Bartlingii** (after C. Bartling), *Miq. Fl. Ind. Bat.* ii. 133. A tree, the branchlets pubescent and more or less compressed. Leaves ovate-cordate, 7in. long, 5in. broad, on petioles of about 7 or 8 lines, or leaves on other trees oblong-lanceolate, and about 5in. long, 2in. broad, on petioles $\frac{1}{2}$ to $\frac{3}{4}$ in., the nerves on the upper side hairy, otherwise glabrous, the under side velvety. Stipules oblong, about $\frac{3}{4}$ in. long, velvety outside. Flowers and fruits in dense globular heads above 1in. diameter, like *S. cordatus*, Miq., except perhaps the corolla-tubes longer.

Hab.: This tree is met with in the tropical scrubs, but not so frequently as *S. cordatus*. There can be no doubt as to there being two species of this genus in Queensland, and as Mr. Bentham, Fl. Austr. iii. 402, considered it probable that the pubescent one might be *S. Bartlingii*, Miq., it is given under that name here.

2. NAUCLEA, Linn.

(From the boat-shaped fruits.)

Flowers crowded in globose peduncle, bracteate, solitary or subpanicled heads. Calyx-tube turbinate or obconic; lobes 5, usually tipped with valvate processes. Corolla elongate-funnel-shaped, throat glabrous; lobes short imbricate. Stamens 5, on the throat of the corolla, filaments none or short or long. Ovary 2-celled; style filiform, stigma capitate, cylindric or subtrifid; ovules many pendulous on adnate ascending placentas. Fruit of 2 dehiscent many-seeded cocci. Seeds imbricate, testa winged; embryo clavate in fleshy albumen.—Trees or shrubs. Leaves usually large, sessile or petiolated; stipules large, caducous or subpersistent.—Hook., Fl. Brit. Inst. iii. 26.

An Asiatic and Polynesian genus.

1. **N. Gordoniana** (after P. R. Gordon, Chief Inspector of Stock), *Bail. Bot. Bull.* x. An erect tree of about 40ft., with a rather thin, scaly bark. Leaves elliptic-lanceolate, obtusely acuminate, 4 or 5in. long, and from $1\frac{1}{2}$ to 2in. broad at the centre, tapering to a petiole of from $\frac{1}{4}$ to $\frac{1}{2}$ in., the primary veins few and distant, very oblique; the pair of leaves or bracts below the peduncles narrow-lanceolate, 1 to $1\frac{1}{4}$ in. long, and shortly petiolate. Flower-heads solitary or 3 at the end of the branchlets, globose, and when in flower scarcely attaining 1in. in diameter, on peduncles of about 1in. Flowers glabrous. Calyx with very hairy, short, acute lobes. Corolla-tube slender in the lower half, then expanding upwards, lobes short, acute. Stamens 5, the filaments scarcely half as long as the anthers, style glabrous, exerted, stigma capitate. No ripe fruit to hand.

Hab.: Barron River, *E. Cowley*.

This tree is certainly in some respects related to our Leichhardt Tree, of which there are probably more than one species; it is, however, of more slender habit, and the inflorescence I consider to agree better with the genus *Nauclea*, in which I place it, than with *Sarcocephalus*, the genus to which the common Leichhardt Tree belongs.

Wood of a light-yellow colour, close-grained, and firm; useful for studs and lining-boards.—*Bailey's Cat. Ql. Woods* No. 238a.

3. UNCARIA, Schreb.

(Named from the hooks formed by the old peduncles.)

Calyx-tube spindle-shaped; limb 5-lobed or parted. Corolla-tube long funnel-shaped; limb 5-lobed, valvate; throat glabrous. Stamens 5, attached on the throat of the corolla; filaments short; anthers with 2 basal bristles. Ovary 2-celled; style slender; stigma capitate; ovules many, ascending on projecting placentas. Capsule elongate, septicidally 2-valved, many-seeded. Seed imbricating upwards, testas winged above and below; embryo clavate, in fleshy albumen.

—Climbing shrubs. Leaves shortly petiolate; stipules entire or 2-fid. Flowers in globose, axillary, pedunculate, solitary, or paniculate heads. The peduncles often headless and converted into hooked tendrils.

This genus is most abundant in Asia, but is also represented in Africa, America, Australia, and New Guinea.

1. **U. ferrea** (referring to its rusty hairs), *DC. Prod.* iv. 348; *Hook. Fl. Ind.* iii. 38; *Bail. Rep. Bellenden Ker Exped.* 1889. A robust climbing shrub often attaining the height of 30 or 40ft.; branches subterete and more or less covered by rusty-brown short hairs, which also extend to the nerves of the leaves. Leaves ovate or elliptical-ovate, obtusely acuminate, primary nerves of 8 or 9 pairs, very prominent; petiole short. Stipules large, 2-fid. Peduncles axillary, with several ovate, acuminate, tomentose bracts nearly $\frac{1}{2}$ in. long. Heads 2in. diameter; flowers subsessile; calyx-tube shorter than the lobes, hirsute; lobes filiform; corolla glabrous. Capsule about $\frac{1}{2}$ in. long, fusiform, hairy, the pedicels about the same length.—In part from *Hook. Fl. Ind.* The flowers of the Queensland plant not seen.

Hab.: Mulgrave River (in fruit), *Bellenden Ker Expedition*, 1889; Mourilyan Harbour (in early flower-bud), *W. Macford*, 1898.

From the appearance of the flower-heads on the Mourilyan specimens, the pedicels elongate as the fruit matures.

Dr. Thos. L. Bancroft found this plant to contain catechu, like *U. Gambier*, another Indian species, from the foliage of which the catechu of commerce, *Gambier* or *Terra japonica*, is obtained.

4. WENDLANDIA, Bartl.

(After Henry Ludov. Wendland.)

Shrubs or small trees. Leaves opposite or ternately whorled; stipules entire or 2-fid. Flowers small, rosy or white, in terminal dense thyrsoid or panicked cymes, 2 or 3-bracteolate. Calyx-lobes 4 or 5, subequal, small, persistent. Corolla tubular, salver or funnel-shaped, throat glabrous or hairy; lobes 4 or 5, imbricate in bud. Stamens 4 or 5, between the corolla-lobes, filaments none or elongate; anthers versatile, exerted. Ovary 2 (rarely 3) celled; style filiform, stigma entire, 2-fid or 2-partite; ovules numerous, on small globose placentas aduate to the septum. Capsule small, globose, loculicidally, rarely septicidally, 2-valved, many-seeded. Seeds very minute, horizontal, compressed; testa membranous, obscurely winged; embryo short, cylindric, in fleshy albumen.

An Asiatic tropical genus.

Stipules almost deltoid, incised at the apex. Stamens attached close to base of corolla. Anthers large. Style glabrous

Stipules deltoid, shortly pointed. Anthers almost sessile, slightly 2-lobed at the base and 2-toothed at apex.

1. *W. basistaminea*.

2. *W. psychotrioides*.

1. **W. basistaminea** (from position of stamens), *F. v. M. Vict. Nat.*, March 1892. Branches almost silky pubescent with appressed hairs. Leaves opposite, attaining the length of 5in. and breadth of $1\frac{1}{2}$ in., on short petioles or almost sessile, chartaceous, mostly ovate-lanceolate, pale or brownish on the under side, the primary nerves and veins more or less hairy. Stipules almost deltoid, incised at the apex, soon deciduous. Panicles terminal, with the peduncle seldom over 2in. long, the flowers in cymes or fasciculate, with a short pubescence. Pedicels about 3 lines long. Bracts minute, linear-semilanceolate; calyx-lobes deltoid-semilanceolate; corolla hardly 3 lines long, with 5 oval lobes distinctly imbricate, nearly glabrous, shorter than the tube, slightly twisted before expansion. Stamens fixed close to the base of the corolla and nearly as long as the tube; filaments short, anthers large, the base bilobed, included, and as well as the style glabrous. Fruit about $1\frac{1}{4}$ line long, slightly protruding beyond the calyx-tube, pubescent at the top. Placentas expanded into 2 narrow divaricate plates.—*F. v. M. l.c.*

Hab.: Russell River, *Stephen Johnson* (*F. v. M.*)

2. **W. psychotrioides** (Psychotria-like), *F. v. M. Vict. Nat.* viii. 178. Leaves rather large, ovate to elongate-lanceolate, somewhat acuminate, almost membranous, narrowed into a short petiole, glabrous above, pale beneath, the veins hairy, stipules deltoid, short-pointed, fugacious; cymes in a terminal divergently branched panicle, densely clothed with short, appressed, brownish-grey hairs. Flowers imbricate in bud, quite small, 5-merous; bracts minute, narrow-semilanceolate; calyx-lobes roundish-deltoid, very short; tube of the corolla almost entirely enclosed, inside glabrous, turgid; lobes membranous, venulous, about as long as the tube; anthers almost sessile, ovate-ellipsoid, broadest towards the base and there slightly bilobed, their apex minutely bidenticular, dehiscence introrse; style never much elongated; stigmas very short; epigynous disk beset with minute hairs; fruit small, the 4-valved summit alone emerging, ovate-globular, slightly compressed; placentas inserted about the middle of the dissepiment; seeds numerous, very minute, shining brown, somewhat oblique-ovate, angular, reticular-foveolate.—*Oldenlandia psychotrioides*, *F. v. M. Vict.* vi. 54.

Hab.: Russell River, *W. Sayer* (*F. v. M.*)

5. DENTELLA, Forst.

(Corolla-lobes toothed.)

(*Lippaya*, *Endl.*)

Calyx-limb tubular, 5-lobed, persistent. Corolla-tube somewhat dilated upwards; lobes 5, usually 2 or 3-toothed, induplicate-valvate in the bud. Anthers included in the tube. Ovary 2-celled, with several ovules in each cell, attached to a placenta arising from near the base. Style with 2 linear stigmatic lobes. Capsule globular, crowned by the calyx-limb, 2-celled, scarcely dehiscent. Seeds more or less angular.—Prostrate herb. Stipules interpetiolar, entire or ciliate. Flowers solitary, sessile in the axils or forks.

The genus is limited to a single species found in Malayan Islands and Polynesia as well as in Australia.

1. **D. repens** (creeping), *Forst.: DC. Prod.* iv. 419; *Benth. Fl. Austr.* iii. 406. Stems from a perennial stock, prostrate or creeping, sometimes very small, forming dense patches of 1 or 2 in., sometimes extending to 1 or 2 ft., glabrous or hirsute with transparent almost scarious hairs. Leaves from ovate or oblong obtuse and petiolate to lanceolate or linear and acute, under $\frac{1}{2}$ in. and often under $\frac{1}{4}$ in. long. Stipules short and scarious. Flowers sessile in the axils of the leaves or in the forks of the branches. Calyx-tube nearly globular, $\frac{1}{2}$ to $\frac{3}{4}$ line diameter, usually very hispid; limb tubular, membranous, nearly 2 lines long, divided to about the middle into linear lobes. Corolla 2 to 3 lines long, the lobes shorter than the tube. Anthers linear. Capsule about $1\frac{1}{2}$ line diameter, hispid with long transparent hairs.—*W. and Arn. Prod.* 405; *Lippaya telephioides*, *Endl. Atakta*, 13 t. 13.

Hab.: Islands of the Gulf of Carpentaria, *R. Brown*; Dawson River, *F. v. Mueller*; Port Curtis, *M'Gillivray*; Wide Bay, *Bidwill*; Moreton Bay, *C. Stuart*. Not uncommon in the colony.

6. HEDYOTIS, Linn.

(From the sweet-scented flower, and the leaves of some species being ear-shaped.)

Calyx-limb of 4 (very rarely 5) persistent teeth or lobes. Corolla-tube short or slender, of 4 (very rarely 5) lobes, valvate in the bud. Anthers usually exerted from the tube. Ovary 2 (rarely 3 or 4) celled, with several ovules in each cell, attached to placentas arising from near the base. Style entire or with 2 (rarely 3 or 4) stigmatic lobes. Capsule globular or ovoid, sometimes more

than half-superior, the carpels separating septically, and indehiscent or loculicidally 2-valved, or the whole capsule loculicidally 2-valved, the valves remaining entire or splitting septically.—Herbs, undershrubs, or rarely climbers. Stipules interpetiolar, united with the petioles in a short sheath or almost free, either truncate or ovate, entire or fringed with bristle-like subulate lobes.

A large genus, widely spread over tropical and subtropical Asia and Africa, with a few American species. Of the 4 Queensland species, one is common in India and the Archipelago, the others appear to be endemic.

- Capsule hard, indehiscent or separable into 2 indehiscent cocci. Coarse plant. Flowers numerous, in sessile axillary clusters 1. *H. auricularia*.
 Capsule slightly protruding from the calyx-tube, and opening loculicidally, or both septically and loculicidally. Leaves narrow-linear. Pedicels slender, solitary, or 2 or 3 together.
 Very slender, erect. Panicle loose, almost leafless. Corolla-lobes shorter than the tube. Capsule loculicidal and septical 2. *H. mitrasacmoides*.
 Slender and diffuse. Pedicels axillary. Corolla-lobes shorter than the tube. Capsule loculicidal and septical 3. *H. galioides*.
 Capsule at least half-superior, opening in 4 valves. Corolla-lobes shorter than the tube. Seeds broad, concave, petalately attached by a prominent rib on the inner face. Perennials with linear leaves. Pedicels slender. Corolla-tube nearly 2 lines long 4. *H. trachymenioides*.

1. ***H. auricularia*** (ear-shaped), *Linn.*; *DC. Prod.* iv. 420; *Benth. Fl. Austr.* iii. 404. A decumbent straggling herb of 1 to 3ft., the branches hairy or pubescent all round or on the opposite sides only or almost glabrous. Leaves shortly petiolate, ovate-lanceolate to oblong-lanceolate, 1 to 3in. long, glabrous or pubescent, with very oblique raised veins diverging from the midrib and very prominent underneath. Stipules short, with long bristle-like lobes or teeth. Flowers but little more than 1 line long, in dense axillary sessile clusters. Calyx-lobes subulate and recurved, about as long as the tube, the corolla scarcely exceeding them. Capsules small, crowned by the calyx-lobes, and quite indehiscent or rarely separating into 2 hard indehiscent cocci, each containing 4 to 6 angular seeds.—*W. and Arn. Prod.* 412; *Benth. Fl. Hongk.* 150; *H. geniculata*, *Roxb.*; *DC. Prod.* iv. 420; *Metabolos venosus*, *Blume*; *DC. Prod.* iv. 435.

Hab.: Cape York. *M. Gillivray*.

Widely spread over E. India, the Archipelago, and the islands of the S. Pacific.

2. ***H. mitrasacmoides*** (like a *Mitrasacme*), *F. v. M. Fragm.* iv. 37; *Benth. Fl. Austr.* iii. 404. A slender erect dichotomous glabrous annual of 1ft. or more. Leaves few, narrow-linear. Stipules small, scarious, with 1 or 2 short bristle-like lobes on each side. Flowers very small, in a loose irregular 2-3-lobed cyme or panicle, the floral leaves reduced to minute bracts. Pedicels solitary or 2 together, long and filiform. Calyx very small, with minute distant teeth. Corolla scarcely exceeding 1 line, the tube somewhat dilated upwards, the lobes rather shorter than the tube. Fruit ovoid or as broad as long, somewhat compressed, deeply furrowed at the dissepiment, $1\frac{1}{2}$ line long. Capsule as long as the calyx-teeth, opening loculicidally and septically in 4 valves.

Hab.: Gulf country.

3. ***H. galioides*** (like a *Galium*), *F. v. M. Fragm.* iv. 38; *Benth. Fl. Austr.* iii. 404. A slender diffuse much-branched glabrous annual. Leaves narrow-linear. Stipules very small, with 1 or 2 small bristle-like lobes on each side. Pedicels filiform, axillary, solitary or 2 or 3 together. Calyx-tube globular, contracted at the orifice, the lobes acute, nearly as long as the tube, separated by narrow acute sinuses. Corolla-tube shorter than the calyx-lobes, the lobes scarcely so long as the tube. Fruit ovoid-globular, 1 line long or rather more, contracted at the top, furrowed at the dissepiment. Capsule scarcely protruding, the carpels separating septically at the top, and opening each in 2 valves. Seeds small, angular.

Hab.: Shoal Bay, *R. Brown*; Port Curtis, *M. Gillivray*; Cape Race and Broad-sound, *Bowman*.

4. **H. trachymenioides** (Trachymene-like), *F. v. M. Fragm.* iv. 40; *Benth. Fl. Austr.* iii. 405. Perennial, erect, with numerous dichotomous branches, slender but rigid. Leaves linear-filiform, the upper ones very short. Stipular sheath short, entire or with 1 or 2 short bristle-like lobes on each side. Pedicels slender in the upper axils, forming sometimes an irregular panicle. Calyx-tube very short, broad, with distant teeth. Corolla-tube slender, nearly 2 lines long; lobes much shorter. Fruit $1\frac{1}{2}$ line broad and scarcely 1 line long, compressed, furrowed at the dissepiment, the capsule half exserted, opening loculicidally in 2 valves. Seeds rather numerous, orbicular, concave, thin, peltately attached by a prominent ridge on the concave face.

Hab.: Dawson River, *F. v. Mueller*; Isaacs River, *Bowman*.

This species agrees perfectly with the N. American *Houstonias* in flower, fruit and seed, although with the habit of *Oldenlandia*.—*Benth.*

7. OLDENLANDIA, Linn.

(After H. B. Oldenland.)

Calyx-teeth 4 rarely 5, usually erect and distant in fruit, with sometimes alternating teeth. Corolla rotate, funnel or salver-shaped, tube short or long; lobes 4 or rarely 5, obtuse, valvate. Ovary 2-celled; style filiform; stigmas 2, linear; ovules numerous, placentas attached to the septum. Capsule small, usually membranous, terete, didymous, or angled, loculicidal at the top, rarely indehiscent, many-seeded. Seeds angled or globose, testa not winged, smooth or pitted; embryo clavate in fleshy albumen.—*Hook.* in *Fl. Brit. Ind.* iii. 64.

The species of this genus are chiefly Asiatic, and might (as is done by some botanists) all be included in *Hedyotis*.

Peduncles solitary, 1 to 4-flowered. Seeds angular; testa smooth	1. <i>O. corymbosa</i> .
Cymes in the upper axils, short, 3 to 8-flowered. Seeds subglobose; testa pitted	2. <i>O. paniculata</i> .
Peduncles filiform at the ends of the branchlets, solitary or in pairs. Seeds angular; testa reticulate	3. <i>O. polyclada</i> .
Pedicels in the upper axils, solitary or in pairs, or 2 to 4 on a common peduncle. Seeds small, slightly angular, black	4. <i>O. cœrulescens</i> .

1. **O. corymbosa** (flowers corymbose), *Linn.*; *Hiern. in Oliv. Fl. Trop. Afr.* iii. 62. An erect ascending or diffuse annual, smooth and glabrous or nearly so, branched, up to 1ft. in height. Branches 4-angled, usually smooth. Leaves linear or nearly so, acute or apiculate, narrowed to the sessile base, usually glaucous or paler underneath, the longer ones $\frac{2}{3}$ to $1\frac{1}{2}$ in. long, or in some forms longer; stipules truncate, shortly sheathing, sub-3-setose. Flowers tetramerous, white, 1 to $1\frac{1}{2}$ line long, 2 to 5 together in axillary and terminal umbellate corymbs usually rather shorter than the leaves or rarely solitary; pedicels 1 to 3 lines long; peduncles ranging up to $\frac{1}{2}$ in. Calyx about equalling the corolla-tube, teeth lanceolate, as long as the tube. Corolla campanulate or subrotate; throat pubescent or nearly glabrous. Anthers included or subexserted. Fruit subglobose, a little over 1 line diameter, subdidymous, crowned by the calyx-limb, at length bursting loculicidally at the apex. Seeds angular.—*Hiern l.c.*; *Hedyotis Burmanniana*, *F. v. M. Fragm.* vii. 45.

Hab.: Rockingham Bay, *F. v. M. l.c.*

2. **O. paniculata** (flowers paniculate), *Linn. Burm. Fl. Ind.* 38 t. 15 f. 1. A glabrous stout or slender annual, succulent, 6 to 18in. high, erect or diffuse, branched from the base, the branches obtusely 4-angled. Leaves petiolate, elliptic-ovate or oblong, $\frac{1}{3}$ to 3in. long, $\frac{1}{4}$ to $1\frac{1}{2}$ in. broad, bright green, soft, nerves indistinct, narrowed to the petiole. Stipules truncate, with median points or bristles. Cymes in the upper axils, short, 3 to 8-fid. Flowers minute, white.

Capsules very variable, $1\frac{1}{2}$ to 2 lines diameter, turbinate, didymous, or hemispherical, terete or 4-ribbed, membranous; crown usually exceeding the calyx-teeth.—Hook. Fl. Brit. Ind. iii. 69; *Hedyotis racemosa*, F. v. M. Fragm. vii. 45.

Hab.: Rockingham Bay, F. v. M. l.c.

3. **O. polyclada** (many-branched), F. v. M. Fragm. viii. 146. A much-branched undershrub. Branchlets very shortly pubescent. Stipules mucronulate-laciniate. Leaves linear, acute, 4 to 8 lines long and $\frac{1}{2}$ to $\frac{2}{3}$ line broad or sometimes exceeding these measurements. Peduncles filiform at the ends of the branchlets, solitary or in pairs. Calyx-lobes semilanceolate, mucronulate; corolla pale rose, much longer than the calyx; lobes 4, semilanceolate, with a ring of hairs inside the tube. Filaments shortly extended beyond the sinus. Anthers thin, $\frac{2}{3}$ line long. Style glabrous, capillary, 2 or 3 lines long. Stigma scarcely $\frac{1}{2}$ line long, recurved. Capsule inferior, very thinly crustaceous, almost globose, loculicidal, bivalved at the top. Seeds angular with a reticulate brown testa.

Hab.: Rockingham Bay, J. Dallachy (F. v. M. l.c.)

4. **O. cærulescens** (bluish), F. v. M. Fragm. iv. 38. Annual or perennial, with slender but rigid virgate stems of about 1ft., quite glabrous. Leaves narrow-linear, acute, attaining sometimes 1in. or even more. Pedicels in the upper axils, solitary or in pairs, or 3 or 4 on a common peduncle, the pedicels unequal in length, forming a very irregular loose terminal slightly leafy panicle. Calyx-tube when in flower 1 line long, the lobes much shorter. Corolla white, at length blue, about 1 line long, deeply 4-cleft. Fruit about 2 lines long and much narrower, laterally compressed and furrowed at the dissepiment, truncate at the top, the capsule very slightly prominent, opening loculicidally in 2 valves, not splitting septically. Seed small and angular.—*Hedyotis cærulescens*, F. v. M. in Benth. Fl. Austr. iii. 404, who considered the species an *Oldenlandia*.

Hab.: Broadsound, R. Brown; Peak Downs, F. v. Mueller.

8. SYNAPTANTHA, Hook. f.

(Referring to the flowers coalescing.)

Calyx-tube turbinate, half-superior, limb-lobes 4, herbaceous, linear, distant, persistent. Corolla rotate, completely 4-partite, glabrous, segments scarcely connate, ovate-lanceolate, acute, valvate, marcescent. Stamens 4, inserted between the corolla-segments, to the base of which they are attached as well as to the ovary; anthers dorsifixed, small, oblong. Disk inconspicuous. Ovary half-superior, 2-celled; style slender, branches 2, small, recurved. Ovules numerous in each cell. Capsule three-quarter superior, 2-celled, cells 2-valved, few-seeded. Seeds oblong, obtuse-angular, testa smooth, albumen fleshy. Embryo terete, cotyledons oblong.—A small herb with puberulent branches. Leaves opposite. Stipules small, connate with the petioles, 2-toothed. Flowers small, axillary, solitary or in pairs.

1. **S. tillæacea** (Tillæa-like), Hook. f. in Benth. and Hook. f. Gen. Pl. ii. 61; Hook. f. Ic. Pl. 1146. In Benth. Fl. Austr. iii. 405 given as *Hedyotis tillæacea*. Perennial, much-branched, erect or diffuse, about 3 or 4in. high, glabrous or minutely pubescent. Leaves linear or linear-oblong, mostly obtuse, about 3 or 4 lines long. Stipules small, usually with 2 teeth on each side. Pedicels axillary, not exceeding the leaves. Calyx-tube turbinate, not $\frac{1}{2}$ line long; lobes linear, herbaceous, distant, rather longer than the tube. Corolla broadly campanulate, about $\frac{1}{2}$ line long, divided nearly to the base, persistent on the ripe fruit. Capsule more than half-superior, compressed, about 1 line broad, opening loculicidally in 2 valves, not usually splitting. Seeds ovate, attached by the inner face, which is sometimes broad and flat, sometimes narrow and prominent.

Hab.: Common on Downs country.



I. C. Wills, Del.

Ophiorrhiza australiana, Benth.

9. OPHIORRHIZA, Linn.

(Snake-root.)

Calyx-limb of 5 persistent lobes or teeth. Corolla-tube slender; lobes 5, valvate in the bud. Anthers included in the corolla-tube. Ovary 2-celled, with several ovules in each cell, attached to a placenta ascending from near the base. Style usually included, with 2 stigmatic lobes. Capsule much flattened and very broad, almost 2-lobed, opening loculicidally in 2 valves. Seeds several, angular. —Herbs or low straggling shrubs. Stipules united with the petioles in a very short truncate sheath, either entire or occasionally with 1 or 2 long hair-like points. Flowers sessile along the branches of terminal or rarely axillary pedunculate cymes.

A considerable genus, extending over tropical and eastern subtropical Asia. The only Australian species is endemic, although nearly allied to an East Indian one.—*Benth.*

1. **O. australiana** (Australian), *Benth.* A low shrub with weak branches, the younger ones rusty-tomentose with short crisped hairs. Leaves ovate-lanceolate or elliptical, acutely acuminate, narrowed into a rather long petiole, mostly 2 to 3 in. long, but those of the same pair often unequal, sprinkled with appressed hairs on the upper side, pale underneath, with the veins more or less hirsute. Stipules with long hair-like points. Cymes pedunculate, shorter than the leaves. Bracts small, setaceous. Calyx-lobes linear, about as long as the hirsute tube. Corolla nearly glabrous outside, the tube scarcely above 1 line long, the lobes rather shorter, tomentose inside. Fruit about 3 lines broad and scarcely above 1 line long.

Hab.: Rockingham Bay, *Dallachy*; Bellenden Ker, *W. Hill*; Barron River, *E. Cowley*.

The species is nearly allied to the common Indian *O. Mungos*, which, however, appears to have the leaves always glabrous, and the corolla-lobes much shorter.—*Benth.*

10. ABBOTTIA, F. v. M.

(After F. Abbott, Director Hobart Botanical Gardens.)

Calyx-limb cylindrical, persistent, truncate. Corolla-lobes 4, induplicate-valvate, semilanceolate; tube cylindrical. Stamens 4. Filaments adnate to the lower part of corolla. Anthers cohering, at length free, sagittate-linear, basifixed, dehiscing longitudinally inside. Style very short. Stigmas together forming a very short subulate one. Berry 1-celled, many-seeded. Pulp granulose. Seeds pendulous, cylindrical, all collateral. Albumen none. Embryo terete.

A monotypic genus.

1. **A. singularis** (peculiar), *F. v. M. Fragm.* ix. 181. A tree of about 30ft., often flowering as a shrub. Leaves 2 to 5 in. long, tapering into a petiole of about 1 in., the midrib thick, lateral nerves and veins scarcely showing, upper side glossy, under side of a paler green. Stipules almost 1 in. long, narrow, gradually acute, cylindrically convolute. Cymes shortly pedunculate, bearing from 3 to 5 flowers. Calyx $1\frac{1}{2}$ line long. Corolla beardless; tube 6 to 10 lines long, slightly attenuated towards the base; lobes reflexed or at length revolute, gradually acuminate, with wing-like membranous margins, papillose-cristate on the face. Filaments glabrous; anthers about 2 lines long. Style with the undivided stigmatic lobes about 2 lines long. Ovary cylindrical, glabrous. Berry quite inferior, slightly compressed, with the limb 3 to 4 lines high and 4 to 5 lines broad, not very juicy. Pericarp almost membranous. Pulp granulous, dark-red, glossy. Placenta terminal. Seeds scarcely over $1\frac{1}{2}$ line; testa rugulous, thin-chartaceous.

Hab.: Mountains about Rockingham Bay, *J. Dallachy* (F. v. M.)

11. WEBERA, Schreb.

(After G. H. Weber.)

(Stylocoryne, *W. and Arn. and others, not of Cav.*)

Calyx-limb short, truncate or 5-toothed, deciduous. Corolla-tube cylindrical; lobes 5, imbricate (usually contorted) in the bud. Anthers nearly sessile, more or less exerted. Ovary 2-celled with several ovules in each cell, attached to a peltate placenta. Fruit a globular berry. Style long, slightly thickened upwards, undivided. Seeds angular, without any or with a very thin pulp.—Shrubs or trees, without thorns. Stipules solitary on each side, pointed, with a broad base but not united. Flowers not usually numerous, in broad terminal cymes or corymbs.

The species are scattered over tropical Africa, Asia, and the S. Pacific Islands. The Australian species is apparently endemic, although very closely allied to a common one in the S. Pacific.—*Benth.*

1. **W. Dallachiana** (after J. Dallachy), *F. v. M.: Benth. Fl. Austr.* iii. 412. A tree of 20 to 30ft. (*Dallachy*). Leaves petiolate, oval elliptical or oblong, acuminate, narrowed at the base, often 6 to 8in. long. Flowers very numerous in a terminal trichotomous corymb shorter than the leaves. Calyx very small, the limb short, cup-shaped, obscurely toothed. Corolla-tube slender, about 5 lines long; lobes oblong, less than half the length of the tube; anthers linear. Style very long.

Hab.: Albany Island, *W. Hill*; Rockingham Bay, *Dallachy*.

In fruit and foliage the species is indistinguishable from the common *W. sambucina* (*Pavetta*, DC., *Stylocoryne*, A. Gray) of the Fiji and other Pacific Islands, and the specimens have a similar tendency to dry black; the only difference I can detect is in the corolla-tube fully twice as long, but this appears to be constant.—*Benth.*

Wood close-grained and light-coloured.—*Bailey's Cat. Ql. Woods No. 239a.*

12. RANDIA, Linn.

(After Isaac Rand, F.R.S.)

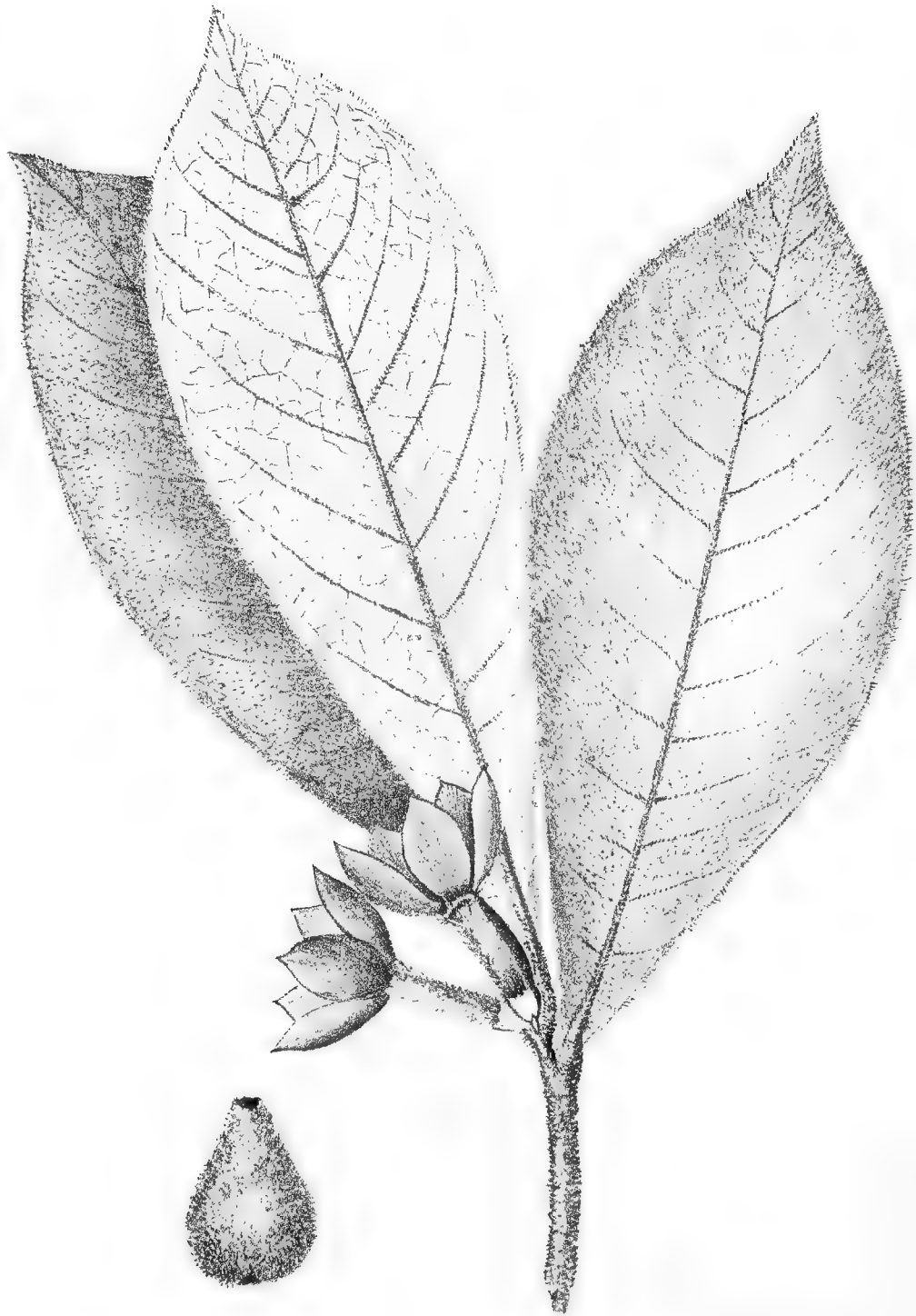
(Stylocoryne, *Cav., not of others*; Griffithia, *W. and Arn.*; Cupia, DC.; Gynopachys, *Bl.*)

Calyx-limb tubular campanulate or annular, truncate toothed or lobed. Corolla-tube cylindrical, short or long, rarely dilated at the top; lobes 5, imbricate (usually contorted) in the bud. Anthers nearly sessile, included in the tube or exerted. Ovary 2-celled, with several, usually numerous, ovules in each cell, attached to a fleshy peltate placenta. Style with 2 thick stigmatic lobes or entire. Fruit succulent, indehiscent, often crowned by the calyx-limb. Seeds several, immersed in the fleshy or pulpy placenta.—Shrubs or rarely trees, often, especially in species not Australian, armed with opposite axillary thorns. Stipules interpetiolar, solitary on each side, pointed, with a broad base but not united, often deciduous. Flowers in axillary cymes or clusters, or solitary at the summit of short branches or tufts of leaves.

A considerable genus, dispersed over the tropical regions of the New and the Old World.

Unarmed.

- | | |
|---|---------------------------|
| Leaves large, sessile, lanceolate. Calyx long, cylindrical, enclosing the corolla-tube, strigose-sericeous. Corolla-lobes lanceolate | 1. <i>R. hirta.</i> |
| Leaves on very short petioles, sometimes whorled, always long, either very narrow or broad with distant oblique nerves. Calyx hirsute, tube short. Fruit reddish, resembling a gooseberry | 2. <i>R. chartacea.</i> |
| Leaves on longer petioles than the last, ovate-lanceolate. Calyx ciliate, tube campanulate, 5-toothed. Corolla-tube turgid; lobes 5, oblique, falcate. Fruit small, globular | 3. <i>R. Benthamiana.</i> |
| Leaves large, oblong, chartaceous. Cymes of few large flowers. Calyx truncate. Corolla-tube oblong; lobes oblong, 6 lines long. Fruit oval, often 2in. long | 4. <i>R. Fitzalani.</i> |



F.C. Wills, Del.

F. Elliott, Lith.

Randia hirta, F.v.M.

Leaves large, ovate-lanceolate, petioles very short. Calyx cylindrical, repando-dentate. Corolla-lobes lanceolate. Fruit globose-ovate, solitary, sessile 5. *R. sessilis*.
 Leaves lanceolate. Flowers numerous in dense, leaf-opposed cymes. Corolla-tubes shorter than the lobes. Fruit rather small, globose- or ovoid 6. *R. densiflora*.

Thorny.

Leaves ovate, on short petioles. Flowers solitary, on slender pedicels. Corolla-tube cylindrical, longer than the lobes 7. *R. Moorei*.
 Young growth strigulose. Leaves lanceolate-ovate. Flowers above the axils. Fruit prominently verrucose, compressed, tapering to each end 8. *R. tuberculosa*.

1. ***R. hirta*** (hairy), *F. v. M. Cens. of Austr. Pl.* 1889; *F. v. M. Fragm.* vii. 46 as *Gardenia hirta*. Small tree, flowering as a small shrub; the branches, leaves, and inflorescence hirsute. Leaves opposite or three in a whorl, 3 to 7 in. long, 1 to 2 in. broad, ovate lanceolate, sessile, herbaceous. Stipules about 1 in. long, scarious, soon deciduous. Flowers sessile, 1 to 3 together, terminal. Calyx about 1 in. long. Corolla tube about as long as the calyx; lobes about as long as the tube, lanceolate-ovate. Anthers linear, $2\frac{1}{2}$ lines long. Style filiform, glabrous, 4 to 5 lines long; the stigmas scarcely exceeding 2 lines.

Hab.: In many of the tropical scrubs.

2. ***R. chartacea*** (leaves thin for the genus), *F. v. M. Fragm.* ix. 180. A tall usually slender shrub, more or less pubescent. Leaves very variable on the same plant, 2 to 6 in. long, 3 lines to 2 in. broad, opposite to whorled; veins few, prominent, distant and very oblique. Stipules of *Gardenia*. Flowers white, very numerous and highly fragrant, axillary or terminal. Calyx hirsute, the tube about 2 lines long; limb about the same length, with 5 short teeth. Corolla-tube broad, almost ovoid, about 3 lines long; lobes 5 or 6, lanceolate, acuminate, much longer than the tube. Fruit red when ripe, oval, sometimes exceeding 1 in. long and like a gooseberry, the seeds enveloped in a sweet pulp.—*Gardenia chartacea*, *F. v. M. in Fl. Austr.* iii. 410.

Hab.: Plentiful in southern localities.

Wood close-grained, hard, tough, and nicely marked.—*Bailey's Cat. Ql. Woods No.* 239b.

3. ***R. Benthamiana*** (after Geo. Bentham, author of *Fl. Austr.*), *F. v. M. Fragm.* ix. 180. An arborescent shrub. Leaves 4 to 6 in. long, ovate-lanceolate. The lateral nerves distant, and more or less hispid on the under side. The petioles longer than in *R. chartacea*. Flowers in terminal clusters on short 3-fid peduncles, the pedicels long and villous. Calyx glabrous except the margins, which are ciliate, teeth 5-acute. Corolla-tube campanulate-turgid, lobes 5, oblique, falcate-lanceolate, throat not bearded. Anthers within the tube of corolla. Style very short. Fruit small, globose. Seed oblique-ovate or round-ovate, slightly compressed, about 2 lines long. Testa thin, somewhat smooth, dark-green.

Hab.: Southern localities.

4. ***R. Fitzalani*** (after E. Fitzalan), *F. v. M. Herb.: Benth. Fl. Austr.* iii. 411. "Papajarin," Mt. Cook, *Roth*. An unarmed tree, quite glabrous, 3' to 50 ft. high. Leaves obovate-oblong or elliptical, obtuse, narrowed into a rather long petiole, often above 6 in. long, smooth and shining. Stipules lanceolate, very deciduous. Cymes loose, few-flowered or the fertile flowers almost solitary, axillary at the base of the young shoot, appearing terminal before the branch grows out. Flowers half deciduous, the males with semiabortive ovaries, the females with imperfect stamens. Calyx-limb campanulate, truncate, nearly 3 lines diameter. Corolla-tube oblong, 4 to 6 lines long, slightly contracted at the

orifice; lobes oblong, about as long as the tube or rather longer. Anthers long-linear, included in the tube. Style slightly thickened in the middle, with 2 short linear lobes. Fruit globular and $1\frac{1}{2}$ in. diameter, or ovoid and longer, on stout peduncles from 6 to 12 lines long.—*Gardenia Fitalani*, F. v. M. Rep. Burdek. Exped. 12.

Hab.: Cape Upstart, Magnetic Island. &c., *Burdekin Expedition*; Endeavour River, *W. Hill*; Broadsound, *Burman*; Rockingham Bay, *Dallachy, W. Hill*; a very common tree of the tropical scrubs.

Fruit eaten raw.—*Roth*.

Wood straw-coloured, close in grain, hard and tough.—*Bailey's Cat. Ql. Woods No. 240*.

5. ***R. sessilis*** (stalkless), *F. v. M. Fragm.* vii. 47. A small tree. Leaves chartaceous, obovate-lanceolate, about 5 to 6 in. long, glabrous, very shortly petiolate. Stipules about $\frac{1}{2}$ in. long, scarcely 1 line broad, acute. Flowers axillary, sessile or nearly so. Calyx about $\frac{1}{2}$ in. long, cylindrical. Corolla about 1 in., tube attenuated at the base, slightly bearded inside, irregularly repandodentate, lobes lanceolate, acute. Filaments very short. Anthers within the tube of corolla, $1\frac{1}{2}$ to 2 lines long, linear, acute. Stigmatic lobes 2, as long as the style. Fruit solitary, nearly or quite sessile, globose-ovate, $1\frac{1}{2}$ in. long; pericarp dry, coriaceous-crustaceous.

Hab.: Cape York, *B. Gulliver*; Cooktown, *Hon. A. Norton*; Palmer River, *Mrs. J. Garraway*; ranges about Cairns, *L. J. Nugent*, who says this seems the mountain form of *R. Fitalani*.

6. ***R. densiflora*** (flowers close together), *Benth. Fl. Hongk.* 155, and *Fl. Austr.* iii. 412. An unarmed shrub or small tree, glabrous except sometimes the flowers. Leaves oval-oblong or almost lanceolate, coriaceous, shining, 4 to 5 in. long. Flowers very fragrant, rather crowded in shortly pedunculate or almost sessile cymes, really axillary, although they appear leaf-opposed by the abortion of the subtending leaf. Calyx-limb cup-shaped, obscurely toothed. Corolla-tube of equal length, with the lobes then often 3 lines long, very hairy inside at the orifice; lobes oblong, nearly 3 lines long. Anthers exerted, very narrow, about 2 lines long. Style linear, much exerted, the lobes not separating spontaneously. Berries scarlet, small and globular or larger and ovoid. Seeds ovoid, compressed or angular, more or less immersed in the pulpy placenta.—*Cupia densiflora*, DC. Prod. iv. 391, and other synonyms quoted *Fl. Hongk. l.c.*; *Leora Thozetiana*, F. v. M. *Fragm.* ii. 132.

Hab.: Gulf of Carpentaria, *R. Brown* (from his MS., *Benth.*); Northumberland Islands, *R. Brown*; Port Denison, *Thozet, Dallachy*; Barron River, *E. Cowley*; Rockingham Bay and Rockhampton, *Dallachy*; and sometimes met with further south.

The species is common in the Eastern Archipelago. It is evidently closely allied to *Stylocoryne racemosa*, Cav., from the Philippine Islands, which I think should include *S. coffeoides*, A. Gray, as originally proposed by Hooker and Arnott. *Griffithia Gardneri*, Thw., Enum. Pl. Ceyl. 158, from Ceylon, is scarcely to be distinguished specifically from *R. densiflora*. *Stylocoryne Harveyi*, A. Gray, from the Fiji Islands, is rather more distinct, but yet belonging to the same group of closely allied species.—*Benth.*

Wood of a light colour, very close in the grain, hard and tough, and might prove suitable for wood stamps.—*Bailey's Cat. Ql. Woods No. 241*.

7. ***R. Moorei*** (after Chas. Moore, the late Colonial Botanist of New South Wales), *F. v. M. Herb.*; *Benth. Fl. Austr.* iii. 411. A shrub of 8 ft. (*C. Moore*), quite glabrous, producing axillary thorns, very small and few in the specimen, but probably sometimes large. Leaves ovate, $1\frac{1}{2}$ to 3 in. long, on short petioles. Stipules broad, with acute points. Pedicels axillary, slender, solitary, 1 to 1 lines long, 1-flowered, with a pair of small bracteoles at the end. Calyx about 2 lines long, the limb campanulate, truncate, obscurely toothed. Corolla-tube about 4 lines long, cylindrical, slightly dilated at the orifice; lobes 5, obtuse, not quite so long as the tube. Fruit not seen.

Hab.: Logan River, *Rev. B. Scortechini*,

8. **R. tuberculosa** (fruit tuberculose), *Bail. Bot. Bull.* ii. 12, 1891. A slender erect shrub, from 5 to 10ft. in height; branchlets somewhat 4-angular and the young growth strigulose. Leaves ovate-acuminate, 2 to 4in. long, rounded at the base and there nearly 1½in. broad. Margins entire, primary veins distant, reticulations obscure; petioles very short, seldom exceeding 1 or 2 lines, texture thin. Stipules about 2 lines long, subulate from a broad base, very deciduous. Flowers on slender rigid peduncles inserted above the axils, bearing a single or few shortly pedicellate flowers arising from between a pair of minute triangular bracts, the peduncles lengthening out under the fruit and often in the lower branches barren and forming spines. Calyx-tube slightly hairy, the free portion a membranous tube about 1 line long, bearing 5 minute teeth. Corolla, stamens, and style not seen. Fruit yellow, prominently verrucose, compressed and tapering towards each end, over 1in. long, somewhat succulent, 2-celled. Seed compressed, velvety-tomentose.—*R. spinuligeru*, *F. v. M. Vict. Nat.* ix. 43, 1892.

Hab: Scrubs of Harvey's Creek off Russell River, *Bellenden Ker Expedition*, 1889; Mount Bartle Frere, *Stephen Johnson* (*F. v. M.*)

13. GARDENIA, Linn.

(After Dr. A. Garden.)

Calyx-limb tubular, truncate, toothed, lobed or divided to the base into 5 or more lobes. Corolla-tube cylindrical or slightly dilated upwards; lobes 5 or more, imbricate in the bud. Anthers nearly sessile, usually more or less exserted. Ovary 1-celled, incompletely divided by 2, 3 or rarely more projecting parietal placentas, with several ovules to each placenta. Style with 2, 3 or rarely more thick erect stigmatic lobes, or nearly entire. Fruit succulent, indehiscent, usually crowned by the calyx. Seeds numerous, immersed in the fleshy or pulpy placentas.—Shrubs or trees, the young shoots often exuding a resinous gum. Stipules solitary on each side, entire, more or less connate round the stem within the petioles, and often very deciduous. Flowers usually rather large and solitary or 3 together, terminal or axillary by the nondevelopment of the flowering-branch.

The genus is confined to the Old World, spreading over the tropical and subtropical regions of Asia and Africa. As far as hitherto observed, all the Australian species appear to be endemic.—*Benth.*

- Calyx-limb large, scarcely toothed, but splitting on one side or into 2 lobes. Plant glabrous. Leaves under 1in. long, narrowed at the base. Corolla-tube dilated upwards, longer than the calyx 1. *G. edulis*.
- Calyx-limb with 4 to 6 linear-obtuse lobes, rarely cohering. Young shoots pubescent. Leaves broadly ovate or orbicular, 2 to 3in. long. Fruits 1½ to 2in. long 2. *G. megasperma*.
- Calyx-limb campanulate, truncate, with long subulate-acuminate teeth. Corolla-tube long and cylindrical. Quite glabrous. Calyx-limb without the teeth at least 4 lines long 3. *G. Macgillivraei*.
- Foliage and flowers softly pubescent or villous. Calyx-limb without the teeth not 2 lines long. Tall shrub or tree. Leaves broadly ovate 4. *G. ochreate*.
- Low shrub or undershrub. Leaves narrow-oblong 5. *G. suffruticosa*.
- Calyx-teeth distinct from the base. Fruit large. Plant glabrous. Leaves oblong, 1 to 2in. long 6. *G. fucata*.
- Leaves ovate, 3 to 4in. long 7. *G. Jardinei*.
- Leaves lanceolate, 5 to 9in. long 8. *G. ovularis*.

1. **G. edulis** (fruit edible), *F. v. M. Fragm.* i. 54; *Benth. Fl. Austr.* iii. 408. A small tree, apparently glabrous, the young shoots resinous. Leaves small, obovate or oblong, narrowed into a short petiole, very obtuse, rarely above 1in. long. Flowers rather small, white with a green tube, solitary or 3 together and almost sessile. Calyx-limb scarcely above 2 lines long, irregularly and shortly toothed, usually splitting on one side. Corolla-tube about 4 lines long,

much dilated upwards; lobes 5 or 6, oval-oblong, rather shorter than the tube. Ovary with 3 or 4 parietal placentas. Fruit nearly globular, $\frac{1}{2}$ to $\frac{3}{4}$ in. diameter, crowned by the remains of the calyx-limb.

Hab.: Gilbert River and between Flinders and Lynd Rivers (the Breadfruit Tree of Leichhardt), *F. v. Mueller*.

2. ***G. megasperma*** (large-seeded), *F. v. M. Fragm.* i. 54; *Benth. Fl. Austr.* iii. 409. A shrub with thick branches, the young shoots and buds hoary-pubescent, the older leaves glabrous or nearly so. Leaves petiolate or nearly sessile, broadly ovate or almost orbicular, very obtuse, rounded or cordate at the base, coriaceous, marked as in some other species with ciliate pits in the axils of the primary veins, but these may not be constant. Flowers terminal, solitary, nearly sessile, pubescent. Calyx-limb ribbed, 4 to 6 lines long, divided to about the middle into linear obtuse lobes, occasionally cohering; corolla-tube $\frac{3}{4}$ in. long, slightly dilated upwards; lobes 4 to 7, oblong, rather shorter than the tube. Fruits ovoid-oblong, nearly 2 in. long, crowned by the base of the calyx-limb.

Hab.: Islands of the Gulf of Carpentaria, *R. Brown*.

3. ***G. Macgillivrayi*** (after John M'Gillivray), *Benth. Fl. Austr.* iii. 409; *F. v. M. Fragm.* vii. 46. A small tree, quite glabrous or the calyx slightly pubescent. Leaves almost sessile, elliptical or obovate-oblong, acuminate, narrowed at the base, membranous and 3 to 4 in. long in our specimens, but still young. Flowers solitary or in threes, terminal but appearing lateral from the growing out of the new shoot, very shortly pedicellate, 6-merous. Calyx-tube ovoid, about 3 lines long; limb campanulate, at least 4 lines long, besides the long unequal subulate teeth. Corolla-tube $1\frac{1}{2}$ in. long, slightly pilose outside; lobes oblong, about 1 in. Anthers about 4 lines long, linear-acute. Placentas (in the ovary examined) 3. Style slightly thickened at the end. Fruit (if rightly matched) hard, ovoid, $1\frac{1}{2}$ in. long.

Hab.: Cape York, *M'Gillivray, W. Hill*.

M'Gillivray's specimens are in flower only, *Hill's* in fruit only, but they appear to belong to the same species.—*Benth.*

Wood of a light colour, close-grained and hard.—*Bailey's Cat. Ql. Woods No. 242.*

4. ***G. ochreata*** (stipules grease-like), *F. v. M. Fragm.* i. 55, vii. 46, and *Rep. Burdeke. Exped.* 11; *Benth. Fl. Austr.* iii. 409. A large shrub or small tree, the branches, under side of the leaves, inflorescence, flowers and fruit softly pubescent or villous. Leaves shortly petiolate, broadly ovate, obtuse, 2 to 4 in. long on the flowering-branches, the upper surface minutely pubescent or at length glabrous. Flowers 6-merous, terminal, solitary or in threes, very shortly pedunculate or sessile. Calyx-limb shortly campanulate, with subulate lobes much longer than the entire part. Corolla-tube from $\frac{3}{4}$ to 2 in. long; lobes nearly as long when fully out, though much shorter when first expanding. Placentas 3. Style slightly clavate at the end, entire. Fruit ovoid or nearly globular, 1 to $1\frac{1}{2}$ in. long or rather more, said to be eatable when fresh.

Hab.: Grassy barren places, Burdekin River, *F. v. Mueller*; Granite Hills, Cape Upstart, *Fitzalan*; Mount Elliot, Edgecombe Bay, *Dallachy*; and many other similar localities in the tropics.

5. ***G. suffruticosa*** (shrubby), *R. Br. Herb.*; *Benth. Fl. Austr.* iii. 410. Stems erect, under 1 ft. high, simple and leafless at the base, with 2 or 3 very short leafy branches, forming a tuft at the end. Leaves crowded, oblong, $1\frac{1}{2}$ to 3 in. long, narrowed into a very short petiole, resinous and pubescent on both sides or at least underneath. Flowers solitary and nearly sessile in the fork of the branches. Calyx pubescent; limb campanulate, about 2 lines long, truncate,



F. C. Wills, Del.

Gardenia ovularis, Bail.

F. Ellis, Lith.

with 5 or 6 linear-subulate lobes longer than the entire part. Corolla not seen, but according to Brown's MSS. the tube is pubescent, 10 to 11 lines long, with 6 lobes, the anthers included in the tube. Placentas 3. Fruit globular, pubescent, about $\frac{3}{4}$ in. diameter.

Hab.: Gulf of Carpentaria, *R. Brown*.

6. **G. fucata** (coloured), *R. Br. Herb.; Benth. Fl. Austr.* iii. 410. An erect branching shrub, quite glabrous. Leaves oblong, obtuse at both ends or narrowed into the very short petiole, 1 to nearly 2 in. long. Flowers solitary, terminal. Calyx-tube slender, attenuated into a short pedicel; limb divided to the base into 5 or 6 linear lobes, about 3 lines long. Corolla-tube slender, about 6 lines long; lobes 5 or 6, broad, shorter than the tube.

Hab.: Gulf of Carpentaria, *R. Brown*.

I have not dissected the flower, but from *R. Brown's* notes, as well as from the stipules and resinous shoots, there can be no doubt of its belonging to the genus.—*Benth.*

7. **G. Jardinei** (after *F. L. Jardine*), *F. v. M. Herb.; Benth. Fl. Austr.* iii. 410; *F. v. M. Fragm.* vii. 46. A tree, quite glabrous. Bark rough, greyish. Leaves very shortly petiolate, ovate, obtuse at both ends, 3 to 4 in. long in the specimens seen. Flowers not seen, the remains of the pedicels lateral from the new shoot having grown out. Fruit ovoid, glabrous, nearly 2 in. long, crowned by the remains of 5 distinct teeth, without any prominent entire limb. Placentas 2 or 3.

Hab.: Port Denison and Mount Elliott, *Dallachy*.

8. **G. ovularis** (fruit oval), *Bail. Bot. Bull.* vii. A small tree, quite glabrous except for the tufts of hairs in the axils of the primary nerves of the leaves, the young shoots resinous; bark smooth, wood light-coloured and close in grain. Leaves glossy on both sides, lanceolate, 5 to 9 in. long, and from $1\frac{1}{2}$ to 3 in. broad in the middle, the midrib and primary parallel nerves alone prominent, texture membranous, petioles $\frac{1}{4}$ to $\frac{1}{2}$ in. long. Flowers terminal, rarely in the upper axils, solitary but sometimes appearing as if 3, the upper pairs of leaves being wanting, the stipules then appearing as bracts upon an elongated peduncle, 6-merous. Peduncle $\frac{1}{2}$ in. or less. Calyx-tube slightly ribbed, 2 or 3 lines long; teeth 5 lines long, narrow-linear. Corolla white, tube dilated upwards, from 1 to $1\frac{1}{4}$ in. long; lobes oblong, about $\frac{3}{4}$ in. long. Anthers 4-angled, $\frac{1}{2}$ in. long. Style included in all the flowers examined, with short connivent stigmatic lobes. Fruit oval, $1\frac{1}{4}$ in. long, smooth, crowned by the free part of the calyx-tube, placentas 3. The outer shell or pericarp very thin and marked with 9 or more faint ribs.

Hab.: Johnstone River, *Dr. T. L. Bancroft*; Barron River, *E. Cowley*; Cooktown, *Hon. Miss Lovell*.

A log of *Dr. Bancroft's* tree was worked for the Queensland wood exhibit at the Centennial International Exhibition, Melbourne, 1888, and given in my Catalogue of Woods as a doubtful variety of *G. Macgillivraei*, No. 242a, the fruit then being unknown.

Wood of a light colour, firm, and close-grained.

14. DIPLOSPORA, DC.

(Two or more ovules in each cell.)

(Discospermum, *Dalz.*)

Calyx-limb short, 4-toothed or truncate. Corolla-tube short, lobes 4, spreading, imbricate in the bud. Anthers exerted. Ovary 2-celled, with 2 or more ovules in each cell, attached to a small peltate placenta. Style with 2 stigmatic lobes. Fruit a globular berry. Seeds solitary or few in each cell.—Trees or shrubs.

Stipules interpetiolar, pointed, with a broad base. Flowers in axillary clusters or close cymes, or in pairs of clusters with one terminal one, forming a short terminal raceme.

Besides the Australian species, which are endemic, others are met with in tropical Asia and Malaya.

Leaves ovate or elliptical, 2 to 3in. long 1. *D. australis*.
 Leaves ovate or elliptical-oblong, 1 to 1½in. long 2. *D. ixoroides*.

1. ***D. australis*** (Australian), *Benth. Fl. Austr.* iii. 418. A small glabrous tree. Leaves ovate or elliptical, shortly and obtusely acuminate, narrowed into a short petiole, 2 to 3in. long, coriaceous and shining. Stipules triangular, acute, deciduous. Peduncles 3 or 5 in a short terminal raceme, the lateral ones opposite in pairs, divaricate, each with 3 flowers sessile within a pair of concave bracts. Flowers altogether not 2 lines long. Calyx-limb cup-shaped, with 4 short rounded teeth or lobes. Corolla-tube very short and broad; lobes 4, much longer than the tube. Óvules about 3 to each placenta. Style short with oblong stigmatic lobes.

Hab.: Cape York, *W. Hill, M'Gillivray*.

2. ***D. ixoroides*** (Ixora-like), *F. v. M. Fragm.* ix. 182. A shrub of about 8 or 10ft. high, glabrous, dichotomously branched. Leaves ovate or elliptical-oblong, obtuse or scarcely acuminate, shortly narrowed into the petiole, 1 to 1½in. long, very coriaceous, smooth and shining. Stipules membranous, short, broad, and deciduous. Peduncles very short, in little terminal clusters, each with from 3 to 5 very small sessile flowers. Calyx-limb short, obscurely toothed. Corolla not 2 lines long, green on the outside, white inside, sparsely bearded in the throat; lobes 4, longer than the tube, imbricate, not contorted. Anthers exserted. Style shortly lobed. Fruit black, smooth, ovoid. Seeds 3 or 4, hemispherical, rugose, the inner face not concave, sometimes they are 3 or 4-angular. Testa shiny brown.—*Ixora triflora*, *R. Br. in Fl. Austr.* iii. 416.

Hab.: East coast, *R. Br.*; Broadsound, *Bowman*; Rockhampton, *Thozet*; Port Denison, *Fitzalan*.

15. SCYPHIPHORA, Gærtn.

(Flowers supposed to resemble a jug.)

(*Epithinia*, *Jack.*)

Calyx-limb truncate or minutely toothed. Corolla-tube cylindrical or slightly dilated upwards; lobes 4 or rarely 5, imbricate in the bud. Anthers linear-sagittate, exserted. Ovary really 2-celled, but each cell divided by a spurious dissepiment into 2 superposed ones, with one ovule in each, the upper ovule erect, the lower one pendulous. Style filiform, with 2 short linear stigmatic lobes. Fruit a drupe with a hard endocarp scarcely separable into pyrenes, with 4 1-seeded cells superposed in pairs, or fewer by abortion. Seeds of *Guettarda*.—Shrub. Stipules interpetiolar, broad and short. Flowers in small pedunculate axillary cymes.

The genus consists of a single species, extending from Ceylon over the Indian Archipelago.—*Benth.*

1. ***S. hydrophylacea*** (resembling a plant of *Hydrophylacæ*), *Gærtn.*; *DC. Prod.* iv. 577; *Benth. Fl. Austr.* iii. 418. "Yar-ro-kal," Cooktown, *Roth*. A shrub of several feet, quite glabrous, the young shoots resinous. Leaves obovate, very obtuse, narrowed into a rather long petiole, 1½ to nearly 3in. long, coriaceous, smooth and shining. Cymes dense, very shortly pedunculate,

Corolla-tube $1\frac{1}{2}$ to nearly 2 lines long, hairy inside at the orifice; lobes ovate-oblong, rather obtuse. Drupe oblong, crowned by the calyx-limb, longitudinally ribbed and furrowed, 3 to 4 lines long. Albumen present but very scanty.—*Epithinia Malayana*, Jack.; DC. Prod. iv. 478.

Hab.: Albany Island, Cape York, *M'Gillivray*, *W. Hill*; Curtis Island, *P. O'Shanesy*; and many other tropical localities.

The species appears to be common on the coasts of Ceylon, of the islands of the Archipelago, and of the Malayan Peninsula. The figures and descriptions of *Gærtner*, Fr. iii. 91 t. 196, and of *A. Rich* in *Mém. Soc. Hist. Nat.* v. 159 t. 14 are incorrect in many particulars. The only accurate account of the structure of the ovary and fruit I am aware of is that of *A. Gray*, *Not. Rub.* 19.—*Benth.*

A very hard timber, used by natives for making true yam-sticks.—*Roth.*

16. GUETTARDA, Linn.

(After Etienne Guettard.)

Calyx-tube campanulate or globose; limb cup-shaped, truncate or toothed, deciduous. Corolla salver-shaped; tube cylindrical, much exceeding the calyx, rather slender; throat naked or thinly bearded; limb spreading; lobes 4 to 9, imbricate. Stamens 4 to 9, inserted on the tube of the corolla, sessile or subsessile; anthers linear, fixed at the back rather above the base, included or half-exserted. Ovary 4 to 9-celled; cells distant, 1-ovulate; funicles thickened; style filiform; stigma subcapitate, slightly lobed, included or shortly exserted. Fruit globose, drupaceous; flesh scanty; putamen woody, 4 to 9-celled; cells narrow. Seeds straight or curved; testa membranous; albumen wanting or scanty; radicle elongated.—Shrubs or trees with opposite leaves, intrapetiolar deciduous stipules and hermaphrodite or polygamo-dioecious flowers, sessile, secund, on the branches of opposite axillary cymes.

The species of this genus chiefly inhabit tropical America.

1. *G. speciosa* (beautiful), *Linn.*; DC. Prod. iv. 455; *Benth. Fl. Austr.* iii. 419. A coarse shrub attaining 5 or 6 ft., the young branches thick, often flattened, gummy and glabrous or tomentose. Leaves shortly petiolate, broadly obovate-orbicular or ovate, very obtuse, rounded or slightly cordate at the base, 6 to 10 in. long or even more, glabrous above, softly pubescent tomentose or nearly glabrous underneath. Flowers large, white, very fragrant, in rather dense cymes. Calyx-limb truncate, deciduous, 1 to $1\frac{1}{2}$ line long. Corolla-tube above lin., sometimes $1\frac{1}{2}$ in. long; lobes 4 to 9, oblong, obtuse, not $\frac{1}{2}$ in. long. Ovary-cells 4 to 9, usually 5 or 6. Drupe nearly globular, attaining lin. diameter, chiefly consisting of the very hard woody endocarp, more or less lobed, the interstices filled with a hard fibrous mesocarp, the cells and seeds small and curved.—*Wight*, Ic. t. 40; *Bot. Reg.* t. 1898.

Hab.: Torres Straits, *R. Brown*, and along the coast and adjoining islands from thence to Edgcombe Bay and Port Denison, *F. v. Mueller*, *W. Hill*, and others. Very common on the tropical coast sands.

17. ANTIRRHÆA, Juss.

(From *anti*, against, and *reo*, to flow; plants of the genus used to stop hæmorrhage in Bourbon.)

Calyx-limb 4-lobed. Corolla-tube slender; lobes 4, imbricate in bud. Anthers included in the tube. Ovary 2-celled, with 1 pendulous ovule in each cell. Style filiform, with 2 short linear stigmatic lobes. Fruit a drupe, the nucleus hard, separating into 2 1-seeded pyrenes. Seeds of *Guettarda*.—Shrubs or trees. Stipules interpetiolar, acuminate, deciduous. Flowers often polygamous, sessile on the branches of a forked cyme or the females solitary, on axillary peduncles.

Leaves ovate-elliptical, acuminate, 3 to 6 in. long, glabrous above, often

slightly pubescent on the under side. Drupe red, ovate-quadrangular,

nearly $\frac{1}{2}$ in. long, 4-celled 1. *A. tenuiflora*.

Leaves obovate to oblong, very obtuse, rarely above often less than 1 in. long, smooth and shining. Drupe blackish, ovoid or oblong, about 3 lines long, usually 5 or 6-celled or separating into as many pyrenes 2. *A. putaminosa*.
 Leaves obovate-lanceolate, 2 to 3 in. long, 1 in. broad, pale-green on the under side. Drupe 3 to 5 lines long, 4-celled or separating into 4 pyrenes 3. *A. myrtiloides*.

1. ***A. tenuiflora*** (flowers slender), *F. v. M. Herb.*; *Benth. Fl. Austr.* iii. 418. A shrub or small tree, glabrous or the young parts silky-pubescent. Leaves oval-elliptical, acuminate, narrowed into a petiole, 3 to 6 in. long, membranous, glabrous above, the under side often sparingly pubescent. Peduncles axillary, forked with several sessile flowers along the branches. Calyx scarcely 1 line long, the lobes short and spreading. Corolla white, nearly glabrous; the slender tube between 4 and 5 lines long; the lobes ovate, about 1 line. Anthers sessile, linear, hidden in the mouth of the corolla or scarcely exerted. Style with the 2 stigmatic lobes 2 lines long. Drupe ovate, 4-angular, often compressed, nearly $\frac{1}{2}$ in. long; pericarp red; putamen hard, 4-angular (not separating into pyrenes, *F. v. M.*)

Hab.: Many of the tropical scrubs.

2. ***A. putaminosa*** (having putamen), *Benth. and Hook. f. Gen. Pl.* ii. 100. A small tree with a grey bark; much-branched, slender, glabrous, or the young parts silky-pubescent. Leaves from obovate to oblong, very obtuse, narrowed into a short petiole, rarely above 1 in. long and mostly smaller, smooth and shining. Peduncles slender, axillary, bearing either 1 or a cyme of 3 to 7 yellowish flowers. Calyx-lobes small, obtuse. Corolla-tube very slender, about 2 lines long, silky pubescent; lobes 4 to 6, very obtuse, about $\frac{1}{2}$ line long and broad. Drupe ovoid or oblong, blackish, about 3 lines long, glabrous, the putamen hard, 5 or 6-celled, or separating into as many pyrenes.—*Bobea putaminosa* or *Timonius putaminosus*, *F. v. M. Fragm.* iv. 92 v. 212; *Guettardella putaminosa*, *Benth. Fl. Austr.* iii. 419.

Hab.: Rockhampton, *Thozet*.

Wood of a light-yellowish colour; quite equal to Box; the grain is close and should prove suitable for engraving.—*Bailey's Cat. Ql. Woods* No. 244.

3. ***A. myrtiloides*** (Myrtle-like), *F. v. M. Fragm.* ix. 114, *Guettarda* (sect. *Antirrhæa*) *myrtiloides*. A shrub, almost glabrous. Leaves obovate-lanceolate, 2 to 3 in. long and about 1 in. broad, the under side pale-green; lateral nerves thin, widely patent, shortly decurrent upon the petiole. Stipules scarcely exceeding 1 line, silky outside, deltoid-lanceolate, soon deciduous. Peduncles 1 to 1 $\frac{1}{2}$ in. long, slender. Bracts on the pedicel under the flower, minute. Flowers 1 to 3, some shortly pedicellate, the others sessile. Calyx 1 line long, with 4 minute teeth. Corolla 4 to 5 lines long; tube cylindrical, not bearded at the throat; lobes ovate, slightly silky. Anthers sagittate-linear, sessile. Style subulate, glabrous, 1 $\frac{1}{2}$ line long; stigmatic lobes 2, minute, setaceous. Drupe 3 to 5 lines long, ovate-globular, separating into 4 pyrenes.

Hab.: Rockingham Bay, *J. Dallachy* (*F. v. M.*) and other tropical parts.

18. TIMONIUS, Rumph.

(From *Timon* or *Aytimon*, the name of a species in Amboyna.)

(*Polyphragmon*, *Desf.*)

Calyx-limb truncate or irregularly toothed. Corolla-tube cylindrical; lobes 4 or more, short, thick, obtuse, with a central rib prominent inside, the margins more or less imbricate in the bud. Anthers included in the tube. Ovary (normally 5 to 10-celled with several ovules to each cell) divided by spurious dissepiments between the ovules into very numerous 1-ovulate cells, superposed

in several irregular rows. Style divided into about 5 to 10 linear lobes. Fruit a drupe, with exceedingly numerous oblong-linear 1-seeded pyrenes, closely packed and diverging into many rows from the axis. Seeds of *Guettarda*.—Trees or shrubs. Stipules membranous, so deciduous as to be rarely seen. Flowers polygamo-dicecious, on axillary peduncles, the females (with small or imperfect stamens) usually solitary, the males (with an abortive ovary) 3 or more together, sessile in the forks or along the branches of pedunculate cymes.

The genus consists of a few species, dispersed over the Archipelago and islands of the South Pacific, the Australian species extending to Sumatra and Amboyna.

1. **T. Rumphii** (after G. E. Rumph), *DC. Prod.* iv. 461; *Benth. Fl. Austr.* iii. 417. "Pun-oi," Fraser's Island, *Mitchell*. A tall shrub or small tree, either glabrous except the inflorescence, or the young shoots silky-hairy, and the older leaves sprinkled with long soft hairs. Leaves from ovate-elliptical to oblong-lanceolate, acuminate, narrowed into a petiole, mostly 3 to 5 in. long. Male flowers several in a forked cyme. Calyx-limb tubular, 2 to nearly 3 lines long, truncate or irregularly toothed, the ovary quite abortive. Corolla tomentose, the tube about 4 lines long; lobes 4 to 10, oblong-linear, rather more than half as long as the tube. Style rudimentary. Female flowers solitary, resembling the males, except that the stamens are small and the ovary perfect, the 1-ovulate cells exceedingly numerous. Style with about 5 to 10 linear unequal lobes. Fruit globular, about $\frac{1}{2}$ in. diameter, crowned by the calyx-limb.—*Polyphragmon sericeum*, Desf. in *Mem. Mus.* vi. 6 t. 2; *DC. Prod.* iv. 445; *Guettarda polyphragmoides*, F. v. M. *Fragm.* ii. 134.

Hab.: Sweers Island, *Henne*; Upper Lynd River, *Leichhardt*; Cape York, *M'Gillivray*; Percy Islands, *A. Cunningham*; Rockingham Bay, *W. Hill*; Rockhampton, *Dallachy* and others. Or from Moreton Bay to Cape York.

The species is also in Timor, Amboyna, Sumatra, and probably in other islands of the Archipelago.—*Benth.*

Wood light in colour and close in grain, suitable for lining-boards; is easily worked, resembling somewhat the English Sycamore.—*Bailey's Cat. Ql. Woods* No. 245.

19. KNOXIA, Linn.

(After Robert Knox.)

Calyx-limb of 4 minute persistent teeth. Corolla-tube slender; lobes 4, valvate in the bud. Anthers scarcely exerted. Ovary 2-celled, with 1 pendulous ovule in each cell; style with 2 short stigmatic lobes. Fruit small and dry, the 2 carpels either separating from the base upwards or falling off together, leaving a persistent filiform axis.—Herbs or undershrubs. Stipules 1 on each side, usually fringed with bristle-like teeth. Flowers in terminal cymes or corymbs, the branches often lengthened into one-sided spikes.

A small genus, extending over tropical Asia and Africa, the only Australian species being the most common one in Asia.—*Benth.*

1. **K. corymbosa** (flowers in corymbs), *Willd.; W. and Arn. Prod.* i. 439; *Benth. Fl. Austr.* iii. 438. A perennial, usually erect, 1 to 2 ft. high, often almost woody at the base, more or less pubescent and but little branched. Leaves oblong lanceolate or rarely nearly ovate, 2 to 3 in. long. Flowers 1 to $1\frac{1}{2}$ line long, numerous, in loose terminal cymes, white or purplish. Capsule ovoid, about 1 line long, usually falling off entire from the filiform persistent axis.—*Wight, Illustr.* t. 128.

Hab.: Common from Brisbane to far into the tropics.

Common in tropical Asia, from Ceylon and the Peninsula to the Archipelago.

20. HODGKINSONIA, F. v. M.

(After Clement Hodgkinson.)

Calyx-limb minute, 4-toothed. Corolla-tubes ovoid; lobes 4, very short, obtuse (slightly imbricate?) Anthers included, the filaments inserted near the base of the corolla-tube. Ovary 2 to 4-celled, with 1 pendulous ovule in each cell; style with as many linear-lobes as ovary-cells. Fruit a drupe, with a thick hard 2 to 4-celled putamen. Seeds of *Guettarda*, the albumen present but scanty.—Tree. Stipules interpetiolar, acuminate, very deciduous. Flowers polygamo-dioecious, umbellate, on slender axillary peduncles.

The genus consists of a single species, endemic in Australia.

1. *H. ovatiflora* (flowers oval), *F. v. M. Fragm.* ii. 132; *Benth. Fl. Austr.* iii. 420. A tree with slender branches, glabrous or the young shoots with a few appressed hairs. Leaves petiolate, elliptical or ovate, obtuse or obtusely acuminate, narrowed at the base, the veins not prominent, $1\frac{1}{2}$ to 3 in. long. Peduncles slender, shorter than the leaves, bearing either a single umbel or also a pair of lateral branches each with an umbel, each umbel on the male plant with 10 to 12 flowers, on the female with only 3 to 6. Pedicels short. Calyx-limb very small. Corolla in the males ovoid, almost urceolate, fully 2 lines long, the lobes very short, thick, and obtuse, the ovary abortive. Corolla in the females much smaller and nearly globular; anthers small; style short. Drupe small, ovoid or globular.

Hab.: Wide Bay, *Bidwill*; Rockhampton, *Dallachy*; Brisbane River, Moreton Bay, *Fraser*, *F. v. Mueller*.

Wood white, close-grained, and firm.—*Bailey's Cat. Ql. Woods* No. 246.

21. CANTHIUM, Lam.

(From *Canti*, the name of one species in Malabar.)

Calyx-limb short, more or less toothed. Corolla-tube short or cylindrical; lobes 4 or 5, valvate in the bud. Anthers exerted or rarely included in the tube. Ovary 2-celled, with 1 ovule in each cell, laterally attached near or at the top. Style exerted, with a thick ovoid or mitre-shaped entire or 2-lobed stigma. Fruit a globular compressed or didymous drupe, with 1 or 2 1-seeded pyrenes.—Shrubs either unarmed or with axillary thorns. Stipules interpetiolar, pointed, with a broad base. Flowers in axillary cymes or clusters.

A considerable genus, extending over tropical Africa, Asia, and the Pacific Islands. Of the 8 Queensland species, one extends into the Pacific Islands, the others appear to be endemic.

This genus is included in *Plectronia* in B. and H. Gen. Pl., and is so given in several of my publications; but as Sir J. D. Hooker and some other botanists still retain the genus *Canthium*, I have considered it advisable to follow them in the present work.

Stigma ovoid or mitre-shaped, entire or very shortly 2-lobed. Flowers in pedunculate cymes, the lobes of the corolla longer than the tube.

Leaves broadly ovate, prominently penniveined and reticulate. 1. *C. latifolium*.

Leaves oblong-elliptical to narrow-lanceolate, prominently and obliquely penniveined 2. *C. attenuatum*.

Leaves ovate to oblong-elliptical (2 to 6 in. long), very smooth and shining, the veins scarcely prominent 3. *C. lucidum*.

Leaves oblong, rarely $1\frac{1}{2}$ in. long, scarcely shining, the veins rarely conspicuous. Flowers about 3 lines long 4. *C. oleifolium*.

Leaves ovate, rarely above 1 in. long, smooth and shining. Flowers not 2 lines long 5. *C. buxifolium*.

Stigma subquadrate, notched or 2-fid. Flowers in cymes, 5-merous. Fruit 3 to 4 lines, globose, ellipsoid or obovoid, compressed-subdidymous; putamen rugose 6. *C. didymum*.

Stigma thick, deeply 2-lobed. Flowers 2 or 3 together. Lobes of the corolla narrow, rather shorter than the tube. Leaves small 7. *C. vacciniifolium*.

Stigma broad, peltate, entire. Flowers in sessile clusters. Lobes of the corolla much shorter than the tube 8. *C. coprosmoides*.

1. **C. latifolium** (broad-leaved), *F. v. M. Herb.*; *Benth. Fl. Austr.* iii. 421. A small glabrous tree or sometimes glaucous shrub, nearly allied to *C. lucidum*. Leaves broadly ovate, very rigid, the pinnate veins and reticulations much more prominent than in *C. lucidum*. Flowers much smaller than in that species, and in looser cymes, otherwise their structure as well as the inflorescence the same.

Hab.: Various localities south and north. Wood pink, with darker streaks; close-grained and hard; a cabinet wood.—*Bailey's Cat. Ql. Woods No. 247.*

2. **C. attenuatum** (attenuated), *R. Br. ms.*; *Benth. Fl. Austr.* iii. 421. "Dun-jo," Cooktown, *Roth*. A glabrous shrub or small tree, very nearly allied to *C. lucidum*. Leaves narrower, from oblong-elliptical and about 2in. to narrow-lanceolate and 5 or 6in. long, the pinnate veins much more oblique and more prominent than in *C. lucidum*. Flowers nearly the same, but in shorter and more dense cymes, and the tube of the corolla longer in proportion to the lobes.

Hab.: Sweers Island, *Henne*; Burdekin and Burnett Rivers, *F. v. Mueller*; Port Denison, *W. Hill*; St. George's Bridge on the Balonne, *Mitchell*.

3. **C. lucidum** (bright), *Hook. and Arn. Bot. Beech.* 65; *Benth. Fl. Austr.* iii. 421. "I-am-boto," Red Island, "Nyam-mal," Cooktown, *Roth*. A tall shrub or small tree, perfectly glabrous. Leaves ovate, obovate, or elliptical-oblong, obtuse or scarcely acuminate, narrowed into a short petiole, scarcely exceeding 2in. in some specimens, 4 to 6in. long in others, coriaceous, very smooth and shining, with distant very oblique veins scarcely prominent. Cymes axillary, shortly pedunculate, often large and many-flowered but shorter than the leaves. Pedicels short or sometimes the flowers sessile, except those in the forks. Corolla glabrous outside, slightly hairy inside, the tube about 1 line; lobes about 2 lines long. Anthers exerted. Stigma thick, ovoid, more or less mitre-shaped (hollowed at the base round the style). Fruit, when both carpels ripen, somewhat compressed and didymous, 3 to 4 lines broad, but often 1-seeded and nearly globular.—*C. lamprophyllum*, *F. v. M. Fragm.* ii. 133.

Hab.: Gulf of Carpentaria and E. coast, *R. Brown*; Dawson and Burnett Rivers, *F. v. Mueller*; Port Denison, *Fitzalan*; Edgecombe Bay, *Dallachy*; Rockhampton, *Thozet*; Brisbane River, Moreton Bay, *A. Cunningham*, *F. v. Mueller*, and others.

Wood of a yellow colour, close-grained, tough, and nicely marked; likely to prove a good cabinet wood.—*Bailey's Cat. Ql. Woods No. 248.*

4. **C. oleifolium** (Olive-leaved), *Hook. in Mitch. Trop. Austr.* 397; *Benth. Fl. Austr.* iii. 422. "Boorgoolbean," St. George, *Wedd*. A small tree or tall glabrous shrub, sometimes glaucous, a few branchlets occasionally degenerating into short spines. Leaves oblong, obtuse, narrowed into a short petiole, rarely above 1½in. long in the flowering specimens, larger in barren ones, thick and smooth but scarcely shining, the veins usually inconspicuous. Flowers in short almost sessile axillary cymes, rather smaller than in *C. lucidum*, and varying in the number of parts 4 or 5. Corolla-tube nearly as long as the lobes, the flowers otherwise the same as in *C. lucidum*. Fruit also the same, didymous when both carpels ripen.

Hab.: Burdekin River, *F. v. Mueller*; Suttor River, *Sutherland*.

5. **C. buxifolium** (Box-leaved), *Benth. Fl. Austr.* iii. 422. Glabrous and much-branched small tree. Leaves ovate or broadly elliptical, obtuse or obscurely and obtusely acuminate, narrowed into a short petiole, rarely exceeding 1in. in length, coriaceous, very smooth and shining, the veins few, very oblique and scarcely conspicuous. Flowers 4-merous, very small, rather numerous, in pedunculate cymes about as long as the leaves, the pedicels short except those in the

forks. Corolla not 2 lines long, the tube exceedingly short, glabrous inside, the lobes much longer. Stamens exerted. Stigma mitre-shaped. Fruit of *C. lucidum*, or rather smaller.

Hab.: Burnett and Dawson Rivers, *F. v. Mueller*; also in *Leichhardt's* collection.

Wood of a light colour; close in grain; useful for turnery and cabinet work.—*Bailey's Cat. Ql. Woods No. 252a*.

6. ***C. didymum*** (twin-fruited), *Rowb. Fl. Ind.* i. 535; *Hook. in Fl. Brit. Ind.* iii. 132. A stout shrub or small tree. Bark smooth. Leaves ovate, lanceolate or orbicular, the size various, 2in. or more long, $\frac{1}{2}$ to more than 1in. broad, very coriaceous, polished above, usually obtusely cordate-acuminate, the base acute obtuse or even cordate; petioles 2 to 4 lines long. Cymes sessile or on a short peduncle, sometimes puberulous. Calyx truncate or obscurely toothed. Corolla campanulate, tube 1 to 3 lines long; lobes 5, subacute. Style glabrous; stigma subquadrate, notched or 2-fid. Fruit $\frac{1}{4}$ to $\frac{1}{2}$ in., globose ellipsoid or obovoid, compressed-subdidymous; putamen rugose.

Hab.: Rockingham Bay, *J. Dallachy* (*F. v. M. Fragm.* ix. 186).

7. ***C. vacciniifolium*** (*Vaccinium*-leaved), *F. v. M. in Trans. Phil. Inst. Vic.* iii. 47; *Benth. Fl. Austr.* iii. 422. A small tree or a shrub attaining 16ft. or more, with very numerous slender divaricate branches, the smaller branchlets sometimes spinescent. Leaves petiolate from broadly obovate to oblong, obtuse, $\frac{1}{4}$ to nearly $\frac{1}{2}$ in. long, the veins scarcely conspicuous. Flowers usually 4-merous, 2 or 3 together in little axillary cymes, the common peduncle and pedicels very short and slender. Corolla about 3 lines long, the lobes narrow, acute, rather shorter than the tube. Stamens exerted. Stigma ovoid, divided to the base into 2 thick lobes. Fruit, when ripening both carpels a little more than 2 lines diameter, the pyrenes not so hard as in *C. lucidum*, and especially as in *C. coprosmoides*.—*C. microphyllum*, *F. v. M. Fragm.* ii. 134.

Hab.: Cairneross Island and Suttor River, *F. v. Mueller*; Mount Wyatt, *Bowman*; Kent's Lagoon, *Leichhardt*; Brisbane River and Moreton Bay, not uncommon.

Wood straw-coloured, close-grained, and tough.—*Bailey's Cat. Ql. Woods No. 251*.

8. ***C. coprosmoides*** (*Coprosma*-like), *F. v. M. in Trans. Vic. Phil. Inst.* iii. 47; *Benth. Fl. Austr.* iii. 422. "Kooni," Bundaberg, *Keys*; "Bil-loo-bal," Mount Cook, "Mar-ko," Bloomfield River, *Roth*. A tall shrub or small tree, quite glabrous. Leaves obovate, ovate or broadly elliptical, obtuse, shortly contracted at the base, in some specimens all under 2in., in others 3 to 4in. long, coriaceous but scarcely shining, the veins distant and not prominent. Flowers 4-merous or 5-merous, very shortly pedicellate, in sessile axillary clusters of 3 to 6. Corolla-tube slender, fully 4 lines long, bearded inside at the orifice, the lobes about half as long as the tube. Anthers slightly protruding. Style exerted, with a broad thick peltate stigma. Fruit red, sometimes $\frac{1}{2}$ in. broad, on a pedicel of 2 to 4 lines.

Hab.: Port Denison, *Fitzalan*; Edgecombe and Rockingham Bays, *Dallachy*, *W. Hill* Rockhampton, *Thozet*; Dawson and Brisbane Rivers, *F. v. Mueller*.

Wood dark-yellow, streaked with a brown colour, prettily marked or grained; a useful wood for turnery or cabinet work.—*Bailey's Cat. Ql. Woods No. 252*.

22. IXORA, Linn.

(Said to be named after Iswara, a Malabar deity.)

Calyx-limb small, 4-toothed or lobed (rarely 5-toothed). Corolla-tube slender; lobes 4 (rarely 5), imbricate in the bud, usually contorted. Anthers usually exerted. Ovary 2-celled, with 1 ovule in each cell, peltately attached to the centre of the partition or rarely near the base. Style exerted, entire or divided

at the end into 2 stigmatic lobes. Fruit a small globular berry or drupe, the endocarp not hard, forming 2 1-seeded pyrenes. Seeds broad, with the inner face flat or more frequently very concave.—Shrubs or small trees. Stipules interpetiolar, pointed, their broad bases often connate within the petioles. Flowers in terminal dense or large corymbs or panicles, or, in species not Australian, in smaller axillary or lateral cymes.

A large genus, widely dispersed over tropical Asia and Africa, with a few tropical American species.

SECTION I. **Ixora**.—Flowers 4-merous. Style-lobes usually spreading.

Panicles loose. Corolla-tube 3 to 4 lines long; lobes oblong, nearly as long as the tube. 1. *I. timorensis*.

Corymb rather dense, sessile. Corolla-tube $1\frac{1}{2}$ line long; lobes about the same length 2. *I. Becklerii*.

SECTION II. **Pentadium**.—Flowers 5-merous.

Corymb rather dense, sessile. Corolla-tube about 1 line; lobes about 3 lines long 3. *I. pentamera*.

1. ***I. timorensis*** (of Timor), *Dene. Herb. Tim. Descr.* 90; *Benth. Fl. Austr.* iii. 415. "Goombragne," Cape Grafton, *Mrs. Gribble*. A small tree, quite glabrous, the bark smooth. Leaves shortly petiolate, oval-oblong, or oblong-elliptical, obtuse, acute, or shortly acuminate, or rarely ovate-lanceolate, 4 to 8 in. long, the uppermost floral pair occasionally but rarely sessile and cordate. Stipules shortly connate within the petioles. Flowers white, in large loose terminal panicles more or less pyramidal or rarely almost corymbose, all pedicellate or a few sessile in the last forks. Calyx small, the short limb truncate or obscurely toothed. Corolla-tube 3 to 4 lines long, slender, hairy inside at the orifice; lobes narrow-oblong, nearly or sometimes quite as long as the tube. Fruit black, 2-celled, 2-seeded, globular, 2 to 3 lines diameter. Seeds hemispherical, concave on the inner side, testa wrinkled.—*I. Klanderiana*, F. v. M. *Fragm.* v. 18.

Hab.: Cape York and neighbouring islands, *M. Gillivray*, *W. Hill*; Rockingham Bay, *Dallachy*; Endeavour River, *B. Gulliver*.

Wood of a light colour, close-grained, hard and tough.—*Bailey's Cat. Ql. Woods* No. 253.

2. ***I. Becklerii*** (after Dr. Beckler), *Benth. Fl. Austr.* iii. 415. A tall shrub or small tree with a roughish bark, quite glabrous. Leaves ovate or elliptical, shortly acuminate, narrowed at the base, 3 to 4 in. long, smooth and shining. Stipules connate within the petioles, with fine subulate points. Corymbs rather dense, sessile and much shorter than the leaves. Calyx-limb short, irregularly toothed. Corolla-tube about $1\frac{1}{2}$ line long; lobes 4, about as long as the tube, acute. Style-lobes short, linear. Fruit 3 to 4 lines diameter. Seeds oval, the inner face slightly concave, the testa wrinkled, but the albumen not ruminant.

Hab.: Southern scrubs common; Bundaberg, *Rev. B. Scortechini*.

Wood darkish, close-grained and tough.—*Bailey's Cat. Ql. Woods* No. 253a.

3. ***I. pentamera*** (parts of flower in fives), *Benth. Fl. Austr.* iii. 416. A shrub of 8 to 10 ft., the branches and inflorescence minutely hoary-pubescent. Leaves petiolate, oval-elliptical, 4 to 6 in. long, coriaceous, smooth and shining. Stipules broad, slightly connate, within the petioles, deciduous. Flowers small in a nearly sessile rather dense corymb like that of *I. Becklerii*. Calyx pubescent; limb short, with 5 broad rounded short lobes or teeth. Corolla glabrous, the tube about 1 line, the lobes oblong, about 3 lines long. Anthers long-linear, exerted. Style long, slightly thickened towards the end, entire.—Fruit ovoid-globular, crowned by the calyx-limb, about 3 lines diameter. Pyrenes smooth. Seeds hemispherical, the inner face not concave, but the albumen ruminant as in the section *Grumilia* of *Psychotria*.

Hab.: Islands of the Gulf of Carpentaria, *R. Brown*.

In the only flower examined the ovules appeared to be attached near the base, but the aestivation of the corolla is much contorto-imbriated.—*Benth.*

23. PAVETTA, Linn.

(The name of a Malabar species.)

Calyx-tube turbinate or campanulate; limb 4 or very rarely 5-lobed or sub-truncate, persistent or deciduous; lobes short or elongated. Corolla usually salver-shaped; tube cylindrical or funnel-shaped, usually slender; throat bearded or pubescent, sometimes glabrous; limb 4 or very rarely 5-partite, segments oval or oblong, spreading or reflexed, contorted dextrorsely (as seen from inside) in the bud. Stamens 4 or very rarely 5, inserted at the mouth of the corolla, exerted, spreading or reflexed; anthers linear, glabrous, nearly equalling the corolla-lobes, fixed by the back at or near the base, after flowering usually twisted; filaments short or half the length of the anthers. Disk annular, fleshy. Ovary small, 2-celled, very rarely 4-celled, style exerted by at least the length of the corolla-lobes, slender; stigma narrowly fusiform or slightly club-shaped, undivided or bidentate at the tip. Ovules solitary, usually peltately immersed or impressed on the fleshy placentas, amphitropous. Berry pea-shaped, rather fleshy; pyrenes 2, chartaceous. Seeds convex outside, concave or excavated on the inner face; umbilicus ventral; testa membranous; albumen horny, uniform, excavated on the inner face; embryo dorsal, curved, cotyledons foliaceous, radicle terete, inferior.—Shrubs or trees.

Chiefly inhabiting the tropical and subtropical regions of the Old World.

1. **P. indica** (of India), *Linn.*; *W. and Arn. Prod.* 481; *Wight Ic.* 148. A tall shrub or small tree, glabrous or slightly pubescent. Leaves petiolate, oval-oblong or almost lanceolate, acute or acuminate, 3 to 4 in. long, narrowed at the base. Stipules very shortly acuminate, connected at the base within the petioles. Corymb loosely trichotomous, sessile above the last leaves. Calyx about 1 line long; limb loosely campanulate with minute teeth. Corolla-tube 4 or 5 rarely 6 lines long; lobes oblong, much shorter. Fruit black, 2 or 3 lines diameter. Seeds hemispherical, very concave on the inner face.—*Ixora Pavetta*, *Roxb. Fl. Ind. i.* 385; *Fl. Austr. iii.* 414.

Hab.: Common through the coastal scrubs of the colony.

Wood of a light colour, close-grained and firm.—*Bailey's Cat. Ql. Woods No.* 254.

24. COFFEA, Linn.

(Said to derive its name from Coffee, a province of Narea, in Africa.)

Calyx-tube short; limb short, often glandular, persistent. Corolla-tube short or long; lobes 4 to 7, spreading, twisted in bud. Anthers 4 to 7, sessile on the corolla-tube or throat, narrow, often recurved and twisted. Ovary 2-celled, style filiform, smooth, branches linear or subulate; ovule 1, peltately attached to the septum in each cell. Drupe with 2 plano-convex or ventrally concave coriaceous or cartilaginous pyrenes. Seeds plano-convex, concave or grooved ventrally, albumen horny; embryo short, towards the base of the seed curved, cotyledons thin cordate, radicle inferior.—Shrubs or small trees with compressed branchlets. Leaves sometimes in threes; stipules broad. Flowers in axillary fascicles or cymes or solitary, white or yellowish, often scented; bracteoles often connate.

Natives of the tropics of the Old World.

1. **C. bengalensis** (of Bengal), *Roxb.*; *Hook. Fl. Brit. Ind. iii.* 152. Branchlets horizontal, slender. Leaves deciduous, glabrous, sometimes 5 in. long and 3 in. broad, but usually smaller, membranous, green when dry, obtusely acuminate, not shining, nerves beneath somewhat hairy, always shortly contracted into the short petiole. Stipules subulate. Flowers always appearing before the

leaves, 1 to 3-nate, 5-merous, axillary, white, 1 to 1½ in. diameter. Calyx-limb many-toothed, teeth glandular. Corolla-tube ½ to 1½ in. long, lobes obovate-oblong. Fruit ovoid-oblong, ½ in. long, didymous when 2-seeded, black.—Hook. l.c.

Hab.: Sunday Island, *Allan Cunningham* (F. v. M. *Fragm.* viii. 147).

25. MORINDA, Linn.

(From *Morus indica*.)

Flowers usually several together, united at the base into a small head. Calyx-limb short, scarcely toothed. Corolla-tube cylindrical or slightly dilated at the top; lobes 5, rarely 4, valvate in the bud. Anthers included in the tube or rarely exerted. Ovary 2-celled or more or less completely 4-celled, with 1 ovule in each cell, laterally attached at the base or below the middle; style exerted, with 2 stigmatic lobes or rarely entire. Fruits of each flower-head united in a compound succulent berry, including a number of hard 1-seeded pyrenes, usually 2 to 4, proceeding from each flower.—Shrubs or small trees, or sometimes woody climbers. Stipules usually membranous and united within the petioles in a short sheath. Flower-heads on axillary or terminal solitary or clustered peduncles.

A considerable tropical genus, chiefly Asiatic or African, with 2 or 3 American species. Of the 6 Australian species, one is common in tropical Asia, another is widely distributed over the seacoasts of southern Asia and the Pacific, the four others are endemic.—*Benth.*

- | | |
|--|----------------------------|
| Peduncles solitary, apparently leaf-opposed. Leaves very large. | 1. <i>M. citrifolia</i> . |
| Peduncles axillary. Flowers in twos or threes. Leaves acuminate, conspicuously veined, 1½ to 2½ in. long | 2. <i>M. acutifolia</i> . |
| Peduncles 2 together at the ends of the branches | 3. <i>M. jasminoides</i> . |
| Peduncles 4 or more together at the ends of the branches.
Leaves ovate to oblong-lanceolate, not much veined. Flower-heads without prominent bracts | 4. <i>M. umbellata</i> . |
| Leaves broadly ovate or orbicular, coriaceous and prominently reticulate.
One large coloured leafy bract to each flower-head | 5. <i>M. reticulata</i> . |
| Peduncles few or 2 together, seldom solitary. Leaves dark-green above, grey beneath | 6. <i>M. hypotephra</i> . |

1. ***M. citrifolia*** (Orange-leaved), *Linn.*; *DC. Prod.* iv. 446; *Benth. Fl. Austr.* iii. 42B. "Ko-on-je-rung," Morehead River, "To-koon-ja," Cooktown, *Roth*. A tall glabrous shrub, with thick more or less 4-angled branches. Leaves large, ovate, broad or narrow, mostly 6 to 10 in. long, on very short petioles. Stipules large, membranous. Flower-heads on very short peduncles, apparently leaf-opposed from the abortion of the subtending leaf, without prominent bracts. Flowers numerous, the calyx-tubes quite connate. Corolla-tube ½ to ¾ in. long; lobes shorter than the tube. Ovary 2-celled, the ovules ascending, attached below or near the middle. Fruit forming an oval pulpy mass, often over 2 in. long and above 1 in. diameter, the pyrenes orbicular, flattened, about 3 lines diameter.

Hab: Frequent along the tropical coast.

Also on the seacoast of tropical Asia and the Pacific Islands.

Wood of a dark-yellow colour, easy to work. Yields a yellow dye.—*Bailey's Cat. Ql. Woods* No. 255.

2. ***M. acutifolia*** (leaves acute), *F. v. M. Fragm.* ix. 179. A climber, almost glabrous. Leaves ovate, acutely acuminate, narrowed into a very short petiole, 1½ to 2½ in. long, very coriaceous and shining, but the numerous veins and reticulations very conspicuous on both sides. Stipules lanceolate, deltoid, carducous. Flowers (male) small, sessile, in pairs or threes, on very short peduncles, clustered in the axils. Corolla about 1½ line long; lobes valvate, longer than the tube. Filaments included or shortly exerted. Anthers oblong-linear. Ovary rudimentary, without any cavity or style. Fruit orange-coloured

at length blackish, if simple globose the size of a peppercorn, if geminate ovate or renate-didymous. Pyrenes cartilaginous, about 8 in the syncarp.—? *Coprosma acutifolia*, F. v. M. in Fl. Austr. iii. 429.

Hab.: Brisbane River to Rockhampton.

3. **M. jasminoides** (Jasmine-like), *A. Cunn.*; *Hook. Bot. Mag. t.* 3351; *Benth. Fl. Austr.* iii. 424. A tall climbing shrub, the main trunk often 6 or more inches in diameter, the branchlets usually weak and straggling. Leaves from nearly ovate to oblong-lanceolate, acuminate, narrowed into the petiole, $1\frac{1}{2}$ to 3 in. long. Stipules connate, deciduous. Peduncles slender, 2 together at the ends of the branches, each with a small head of 6 to 12 or even more white flowers, or the corollas sometimes purple outside, the calyx-tubes quite connate or immersed in the receptacle. Corolla 3 to 4 lines long, the tube straight, usually shorter than the lobes. Ovary 4-celled; style 2-lobed. Drupes yellow, concrete, forming a globular compound berry about $\frac{1}{2}$ to lin. diameter.

Hab.: Common south and north.

The species is very nearly allied to *M. umbellata*, differing chiefly, but apparently constantly, in the peduncles, never more than 2 together and the flowers large.—*Benth.*

Wood yellow, prettily marked.—*Bailey's Cat. Ql. Woods No.* 255a.

4. **M. umbellata** (flowers in umbels), *Linn.*; *W. and Arn. Prod.* i. 420; *Benth. Fl. Austr.* iii. 424. A trailing diffuse or somewhat climbing shrub, glabrous or the young branches slightly pubescent. Leaves from ovate-oblong or obovate to oblong-lanceolate, $1\frac{1}{2}$ to 3 in. long. Peduncles $\frac{1}{4}$ to $\frac{1}{2}$ in. long, 4 to 8 together (usually about 6) at the ends of the branches, each with a small head of about 6 to 12 flowers, the calyx-tubes quite connate or immersed in the receptacle. Corolla scarcely 3 lines long, the tube straight, rather shorter than the lobes. Ovary 4-celled; style 2-lobed. Drupes forming a compound globular berry, 4 to 6 lines in diameter.

Hab.: Rockingham Bay, *Dallachy*, and several other tropical localities.

The species has a wide range over E. India and the Archipelago.

5. **M. reticulata** (netted-veined), *Benth. Fl. Austr.* iii. 424. "Ada-a," Mapoon, *Roth*. A low straggling shrub, quite glabrous. Leaves petiolate, orbicular or broadly ovate, very shortly and acutely acuminate, about 2 to 4 in. long, coriaceous and prominently reticulate like those of *Calospermum reticulatum*. Stipules triangular, acute. Peduncles 4 together at the ends of the branches, bearing each a head of about 6 to 12 flowers, one large orbicular petiolate white bract to each head, adnate to one of the calyces and nearly as large as the stem-leaves, like those of *Mussaenda*. Calyx-tubes partly immersed in the receptacle. Corolla-tube slender, about 6 lines long; lobes about 2 lines long. Anthers exerted. Ovary 4-celled, with 2 collateral ovules in each cell, attached about the middle. Style long, with two short stigmatic lobes. Fruit irregular, lobes much broader than long.

Hab.: Albany Island, *W. Hill*; N.E. coast, *A. Cunningham*; Endeavour River and several other tropical localities.

Colouring matter from roots used for staining apron-belts.—*Roth*.

6. **M. hypotephra** (under side of leaf grey), *F. v. M. Vict. Nat.* vi. 55. A climbing shrub, leaves on short petioles, firmly chartaceous, mostly ovate-lanceolate, acuminate, dark-green above, grey and velvety on the under side, stipules fugacious; peduncles short, few or 2 together, seldom solitary; heads small, with only 2 to 5 flowers perfecting their fruits; involucrel pericarp inside beset with rigidulous pale shining hairs; putamen of individual fruits almost ovate, smooth, comparatively thick, dark outside.—*F. v. M. l.c.*

Hab.: Bellenden Ker, *W. Sayer* (*F. v. M.*)

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26. CÆLOSPERMUM, Blume.

(Hollow-seeded.)

(Pogonolobus, *F. v. M.*)

Calyx-limb truncate or obscurely toothed. Corolla-tube cylindrical or slightly dilated at the top; lobes 4 or 5, valvate in the bud. Anthers exerted, linear. Ovary 2-celled, with 2 ovules in each cell, laterally almost peltately attached on each side of a very prominent placenta; style 2-lobed. Fruit a drupe, with 4 distinct hard 1-seeded pyrenes.—Shrubs with straggling or climbing branches. Stipules interpetiolar, acuminate, separate or shortly connate within the petioles. Flowers in umbels clusters or cymes, terminal and solitary or forming terminal thyrsoid panicles.

The 2 Australian species of this genus are endemic. The chief character consists in the ovules and 1-seeded pyrenes being twice the number of the carpels and style-lobes, as in several species of *Morinda*, from which *Cælospermum* differs in its separate flowers.—*Benth.*

Leaves smooth and shining, the veins not very prominent. Cymes rather dense, in oblong panicles 1. *C. paniculatum*.
Leaves rigid, prominently veined and reticulate. Umbels solitary 2. *C. reticulatum*.

1. **C. paniculatum** (flowers in panicles), *F. v. M. Fragm.* v. 19 and ix. 185; *Benth. Fl. Austr.* iii. 425. "Boorum," Tully River, *J. F. Bailey*. A woody climber, quite glabrous. Leaves petiolate, ovate, ovate-lanceolate, or oblong, shortly acuminate, coriaceous, shining, 2 to 4 in. long, the veins not very prominent. Stipules forming a short truncate ring. Flowers white, in cymes forming a dense oblong terminal panicle. Corolla-tube nearly 2 lines long; lobes 5, rather longer than the tube. Style deeply divided into 2 linear lobes. Fruit purplish, globular, with 4 1-seeded pyrenes. Seeds oblique, ovate, incurved, compressed.

Hab.: Common in coastal scrubs north and south.

2. **C. reticulatum** (veins netted), *Benth. Fl. Austr.* iii. 425. "I-u-luka," Red Island, *Roth*. A scrubby shrub, the branches often flexuose, usually glabrous. Leaves obovate or oval-oblong, very shortly and acutely acuminate, $1\frac{1}{2}$ to $2\frac{1}{2}$ in. long, rigid, the pinnate veins and reticulate veinlets very prominent. Stipules acuminate, not connate. Flowers pedicellate, in umbels or clusters either terminal and sessile, or axillary by the reduction of the flowering branches to leafless peduncles. Corolla-tube nearly 3 lines long; lobes 4 or 5, shorter than the tube, villous inside. Style with 2 linear stigmatic lobes. Fruit blackish, globular, about 4 lines diameter, containing 4 bony pyrenes.—*Pogonolobus reticulatus*, *F. v. M. Fragm.* i. 56, and *Rep. Burdek. Exped.* 11.

Hab.: Bay of Inlets, *Banks and Solander*; Dayman's Island, *W. Hill*; Port Molle and Port Denison, *Fitzalan*; Rockingham Bay, *Dallachy*; Rockhampton, *Thozet*; Belyando River, *Mitchell*.

Wood of a grey colour; the bark, which is often very thick, produces an excellent dye.—*Bailey's Cat. Ql. Woods* No. 256.

27. PSYCHOTRIA, Linn.

(From *Psyche*, life; in allusion to the powerful medical properties of some species.)

(Grumilia, *Gærtn.*)

Calyx-limb short, truncate, toothed or lobed. Corolla-tube short; lobes 5 or rarely 4, valvate in the bud. Anthers included in the tube or shortly exerted. Ovary 2-celled, with 1 ovule in each cell, erect from the base. Style short, with 2 stigmatic lobes. Fruit a drupe, with 2 hemispherical pyrenes, smooth or with longitudinal ribs and furrows. Seed hemispherical, with furrows corresponding to those of the endocarp, or ruminant, or smooth.—Shrubs or small trees,

Stipules interpetiolar, 1 on each side, membranous, and often connate within the petioles, and very deciduous in the Australian species, small, persistent, and 1 or 2 on each side, in many American ones. Flowers usually small, in terminal cymes, or, in species not Australian, axillary.

A large genus, ranging over the tropical regions both of the New and the Old World. The Australian species appear to be all endemic. The limits of the genus are not well defined. The above character includes *Grumilia*, usually but vaguely distinguished by the seed, and excludes *Chasalia*, *Palicourea*, and others scarcely differing but by the length of the corolla-tube, characters requiring confirmation by the study of very numerous little known or undescribed species.—*Benth.*

SECTION I. **Grumilia**.—*Calyx limb (at least in the Australian species) obscurely sinuate-toothed. Pyrenes not furrowed. Seeds ruminata.*

Leaves obtuse. Cymes divaricate. Corolla 2 to 3 lines long. 1. *P. nesophila*.
Leaves acuminate. Cymes paniculate. Corolla 1 line long 2. *P. Dallachiana*.

SECTION II. **Mapourea**.—*Calyx-limb (at least in the Australian species) distinctly toothed Pyrenes and seeds longitudinally furrowed. Stipules membranous, 1 on each side, deciduous.*

Flowers capitate on the branches of the cyme. Leaves usually softly pubescent or tomentose 3. *P. loniceroides*.

Flowers in corymbs, cymose to the last. Leaves usually glabrous.
Corolla about 2 lines long; lobes as long as the cylindrical tube.

Corolla glabrous outside. Fruit ovoid 4. *P. daphnoides*.

Corolla hoary-tomentose. Fruit globular 5. *P. polioctemma*.

Corolla about 3 lines long; lobes shorter than the ovoid tube. Leaves thick and coriaceous 6. *P. Fitzalani*.

Corolla 2 lines long, bearded inside at the base. Leaves almost membranous 7. *P. nematopoda*.

Corolla pubescent outside; the tube rather longer than the lobes.
Leaves 1 to 2in. long 8. *P. Simmondsiana*.

1. **P. nesophila** (an island species), *F. v. M. Fragm.* ii. 135; *Benth. Fl. Austr.* iii. 427. A shrub or tree, quite glabrous. Leaves broadly ovate obovate or almost oblong, obtuse or very shortly and obtusely acuminate, 1 to 3in. long, narrowed into a rather long petiole, thinly coriaceous. Flowers in shortly pedunculate very divaricate terminal cymes. Calyx-limb truncate or obscurely toothed. Corolla glabrous outside, very hairy inside; tube $1\frac{1}{2}$ lines long; lobes as long as the tube, thickened and hood-shaped at the tips. Ovules broad. Fruit globular, smooth, the pyrenes very obscurely ribbed. Seeds hemispherical, very much ruminata-rugose.

Hab.: Albany Island, *F. v. Mueller*.

2. **P. Dallachiana** (after J. Dallachy), *Benth. Fl. Austr.* iii. 427. A straggling shrub of 6 to 8ft., quite glabrous. Leaves elliptical or oblong, acuminate, narrowed into a rather long petiole, mostly 3 to 4in. long, smooth and almost shining. Flowers very small, in an ovate very shortly pedunculate panicle, dense when first coming out. Calyx-limb slightly sinuate-toothed. Corolla glabrous outside, bearded inside at the throat, about 1 line long; anthers exerted. Ovules ovoid. Fruiting panicle loose, divaricately trichotomous. Fruits globular, about 3 lines diameter, the pyrenes not ribbed. Seeds ruminata.

Hab.: Rockingham Bay, *Dallachy*, and other tropical localities.

Wood of a yellowish-grey colour, close-grained, and hard.—*Bailey's Cat. Ql. Woods* No. 257.

3. **P. loniceroides** (Lonicera-like), *Sieb. in DC. Prod.* iv. 523; *Benth. Fl. Austr.* iii. 427. A shrub attaining 12 to 15ft., the branches, foliage, and inflorescence more or less rusty-tomentose or softly pubescent, or rarely the leaves at length glabrous above. Leaves ovate elliptical or oblong, acuminate or almost obtuse, narrowed into a petiole, mostly 2 to 3in. long. Peduncles terminal but often appearing lateral from the elongation of only one branch of the fork, shorter than the leaves, more or less cymosely branched or almost umbellate,

each branch bearing a small dense cyme or head of small sessile flowers. Bracts not exceeding the flowers. Calyx hirsute, the lobes or teeth acute, longer than the tube. Corolla-tube broad, about 2 lines long; lobes shorter than the tube, hirsute outside; anthers exerted. Fruits ovoid, pubescent, crowned by the calyx-limb; pyrenes and seeds longitudinally ribbed and furrowed.

Hab.: Point Danger to Cape York.

Var. *angustifolia*. Leaves narrow, on very short petioles, softly villous. Cymes with very few flower-heads. Rockingham Bay, *J. Dallachy*.

4. **P. daphnoides** (Daphne-like), *A. Cunn.*; *Hook. Bot. Mag. t. 3228*; *Benth. Fl. Austr.* iii. 428. Shrubby, glabrous, except the inflorescence. Leaves obovate or oblong, very obtuse or rarely shortly acuminate, in some specimens under 1in., in others 2in. long or more, narrowed into a petiole, somewhat coriaceous, almost veinless except the midrib. Cymes terminal, pedunculate, trichotomous or the primary branches almost umbellate, 1 to nearly 2in. diameter, rather dense, the flowers all sessile but not capitate, the branches and calyxes hoary-tomentose or glabrous. Calyx-limb 5-toothed. Corolla about 2 lines long, glabrous outside, bearded inside at the throat, the lobes as long as the tube. Fruit ovoid, the pyrenes and seeds prominently ribbed and furrowed.

Hab.: Cape York, *M'Gillivray*; N.E. coast, *A. Cunningham*; Burnett River, *F. v. Mueller* Port Denison, *Fitzalan*; Wide Bay, *Bidwill*; Fitzroy River, *Bowman*; Rockhampton, *Thozet Dallachy*; Brisbane River, Moxton Bay, *A. Cunningham*, *F. v. Mueller*.

Wood of a light colour and close grain.—*Bailey's Cat. Ql. Woods No. 258*.

The tropical specimens have mostly large leaves; the small-leaved specimens (mostly under 1in.) are chiefly subtropical.—*Benth.*

Var. *angustifolia*. Leaves narrow-oblong.

5. **P. poliostemma** (alluding to the little garlands of hoary flowers), *Benth. Fl. Austr.* iii. 428. Nearly allied to the larger forms of *P. daphnoides*, but the leaves are larger, mostly 3 to 4in. long, the flowers numerous, in more pedunculate cymes, the corollas hoary-tomentose outside, and the fruit globular, not ovoid.

Hab.: Cape York, *M'Gillivray*; Edgecombe Bay, *Dallachy*; Mount Elliott, *Fitzalan*.

A. Gray, from a memorandum in Herb. Hook., thinks this may be a variety of his *P. tephrosanthes*, from the Fiji Islands. We have no specimens to compare, but he describes the leaves as acuminate, the pedicels slender, and the calyx truncate, none of which points agree with our plant, and which seem to indicate rather a species of the section *Grumilia*.—*Benth.*

6. **P. Fitzalani** (after E. Fitzalan), *Benth. Fl. Austr.* iii. 428. Quite glabrous. Leaves broadly ovate or obovate, obtuse, narrowed into a petiole, 2 to 3in. long, very thick and coriaceous. Cymes pedunculate, terminal, corymbose, shorter than the leaves, glabrous. Calyx-limb short, distinctly toothed. Corolla nearly 3 lines long, the tube almost ovoid, hairy inside; lobes 5, shorter than the tube. Anthers exerted. Style with 2 short oblong stigmatic lobes. Ovules of *Psychotria*. Fruit not seen.

Hab.: Port Mollé, *Fitzalan* (Burdekin Expedition).

7. **P. nematopoda** (peduncles thread-like), *F. v. M. Fragm.* vii. and ix. 184. A dwarf shrub, or, at times, arborescent; silky-tomentose. Leaves ovate-lanceolate, $1\frac{1}{2}$ to $2\frac{3}{4}$ in. long, pale on under side, shortly petiolate. Stipules lanceolate, 4 lines long, biacuminate, nerves and veins conspicuous. Peduncles axillary, 1 to 2in. long. Bracts subulate, $1\frac{1}{2}$ to 2 lines long. Calyx-teeth 4, deltoid. Corolla bearded inside at the base, 4-lobed; lobes ovate. Anthers roundish, inserted at base of corolla; filaments very short. Style 1 line long, shortly bifid. Drupe globose-ovate, red, about 3 lines long; pyrenes 2, smooth.

Hab.: Mackay River, *J. Dallachy* (F. v. M.)

8. **P. Simmondsiana** (after J. H. Simmonds), *Bail. Bot. Bull.* ii. A spreading more or less hirsute shrub, rooting from the lower branches and extending to 20 or more feet, but the more erect branches seldom attaining more than 2 or 3 feet in height; branches glandular-hirsute. Leaves ovate-lanceolate, 1 to nearly 2 in. long, tapering to a petiole of about 2 or 3 lines; primary veins distant, 4 or 5 pairs, glandular-punctate, especially on the under side. Stipules connate and usually opening out on one side, soon scarious and deciduous, linear-lanceolate, 4 or 5 lines long, glandular-hirsute like the rest of the early foliage. Peduncles slender in the upper axils, $1\frac{1}{2}$ to 2 in. long, bearing a head of few sessile white flowers, or divided into 2 or 3 very short branches, each branch bearing 3 sessile flowers. Calyx-teeth acute; corolla pubescent outside, the tube slightly longer than the lobes; lobes about 1 line long, slightly imbricate with inflexed tips. Stamens 5, about half as long as the corolla-lobes, inserted in a ring of short hairs at the mouth of the corolla-tube, the filaments shorter than the anthers. Style long as the flower, the stigmatic lobes not spreading.

Hab: Tambourine Mountain and Mooloolah scrubs.

Var. *glabrescens*, Bot. Bull. iii. A slender usually erect glabrous shrub, more or less branched, 5 to 7 ft. high. Leaves lanceolate, $1\frac{1}{2}$ to $2\frac{1}{4}$ in. long; petiole about $\frac{1}{2}$ in. long, pale on the under surface; primary veins alone visible, about 5 on each side of midrib, looping near the margin. Stipules brown, more or less hairy, but very deciduous. Flowers small, sessile, or nearly so, few, on very short branches at the end of a slender 4-angled peduncle of 1 to $1\frac{1}{2}$ in. long. Calyx hairy, 5-toothed. Corolla ovoid, velvety outside, bearded within; lobes about as long as the tube. Fruit globose, white, about 3 lines, when dry (and especially when gathered before maturity) showing the prominent ribs of the pyrenes. Hab.: Bellenden Ker Range, *Expedition*, 1889; Eudlo and Yandina scrubs, *Field Naturalists*, 1891. In the tropical plants the panicle is slightly more developed, and the stipules are larger, more hairy, and more persistent.

Var. ? *exigua*, Bot. Bull. iii. A slender slightly branched shrub of 3 or 4 ft., glabrous except the flowers. Leaves narrow-lanceolate, $\frac{3}{4}$ to $1\frac{1}{4}$ in. long. Hab.: Macpherson Range, *H. Schneider* and *H. Tryon*, March, 1891. From this locality Messrs. Schneider and Tryon also gathered specimens of the normal form.

28. GEOPHILA, D. Don.

(Earth-loving plant.)

Calyx-tube small, campanulate, limb 4 to 6-toothed or partite, often irregular, persistent. Corolla membranous, funnel-shaped, longer than the calyx; throat densely bearded; limb usually 5-partite, spreading, lobes ovate, valvate in aestivation. Stamens usually 5, inserted at the throat of the corolla, exserted or included; anthers linear, dorsifixed above the base; filaments slender. Disk elevated, glabrous. Ovary 2-celled; style slender, with 2 branches, included or exserted; ovules solitary, erect; placentas inconspicuous. Fruit fleshy, pisiform, costate or smooth; pyrenes 2, crustaceous, 1-seeded. Seeds with horny albumen; embryo minute, radicle inferior.—Small slender creeping rooting perennial herbs with opposite cordate petiolate leaves, interpetiolar entire or cleft stipules, and small terminal or lateral flowers bracteate at the base or enclosed a few together in cup-shaped or hemispherical involucre.

A genus of a few species scattered over the the tropics.

1. **G. reniformis** (kidney-shaped), *D. Don Prodr. Fl. Nepal* p. 136. Stems glabrous or puberulous. Leaves reniform or nearly orbicular, rounded or nearly so or retuse at the apex, deeply cordate at the base, glabrous or nearly so, more or less chartaceous, $\frac{3}{4}$ to $1\frac{1}{2}$ in. long, rather paler beneath; petiole from 1 to 3 in. long, shortly hairy; stipules ovate, about 1 line long, glabrous. Flowers 2 or few together, lateral ones sessile or subsessile; common peduncle solitary, glabrous or nearly so, terminating short erect leafy branches, 8 to 15 lines long; bracts subulate-setaceous from a broad base, about 3 lines long. Calyx 3 lines long; segments 5, subulate-setaceous. Fruit small, globose, red.

Hab: Common on hillsides in tropical Queensland.

29. LASIANTHUS, Jack.

(Flowers woolly.)

(Mephitidia, Reinw.)

Calyx-limb obscurely toothed or lobed. Corolla-tube usually dilated at the top; lobes 4 to 6, valvate in the bud. Anthers included in the tube or shortly exerted. Ovary 4 to 9-celled, with 1 erect ovule in each cell; style divided at the top into as many linear stigmatic lobes as ovary-cells. Fruit a drupe, crowned by the calyx-limb, with as many 1-seeded pyrenes as ovary-cells, or fewer by abortion.—Shrubs or undershrubs, often smelling disagreeably, the specimens usually drying black. Stipules interpetiolar, pointed, with a broad base. Flowers small, in dense clusters or heads, axillary, or, in some species not Australian, terminal.

The genus extends over tropical Asia, but is chiefly abundant in the Archipelago. One of the Queensland species appears to be the same as one extending from Ceylon over a part at least of the Archipelago, the other is endemic.

Leaves oblong, 3 to 5 in. long. Corolla about 2 lines long. Fruit ovoid-globular, about 3 lines diameter 1. *L. strigosus*.
 Leaves ovate-lanceolate, 4 to 8 in. long. Corolla 2 to 5 lines long. Fruit nearly globose, 5 lines diameter 2. *L. graciliflorus*.

1. ***L. strigosus*** (bearing stiff hairs), *Wight in Calc. Journ. Nat. Hist.* vi. 512; *Benth. Fl. Austr.* iii. 426. An erect shrub, the branches and under side of the leaves more or less hirsute with short rigid hairs. Leaves very shortly petiolate, mostly oblong in the Australian specimens, broader in some others, 3 to 5 in. long, with about 6 or 7 very oblique veins prominent underneath on each side of the midrib, and transverse veinlets. Flowers sessile and clustered, about 3 in each axil. Bracts small. Calyx about 1½ line long, the limb obscurely toothed, longer than the adnate tube. Corolla rather more than 2 lines long; lobes 4 or 5, scarcely so long as the tube. Stamens not exerted. Ovary usually 4-celled, with a very thick fleshy concave epigynous disk. Fruit ovoid-globular, about ¼ in. diameter.—*Mephitidia strigosa*, Thw. Enum. Ceyl. Pl. 146.

Hab.: Rockingham Bay and many other tropical localities.

These specimens quite agree with Cingalese ones. Blume's character of *L. sylvestris*, Bl. Bijdr. 999, agrees also well with our plant, but not the specimens so named by Miquel. *J. chinensis*, Benth. Fl. Hongk. 160, may also possibly prove to be the same, but, as observed by Thwaites, the whole genus requires much further investigation before the extent of variation to which the species are liable can be satisfactorily ascertained.—*Benth.*

2. ***L. graciliflorus*** (flowers slender), *Bail. Bot. Bull.* v. Stems erect, seldom or never branched, 2 to 4 ft. high, more or less hairy. Leaves opposite, nearly sessile, ovate-lanceolate, acuminate, rounded or tapering at the base, 4 to 8 in. long, 2 to 2½ in. broad, softly hairy on the back; primary veins numerous, irregularly looping within the margin, the smaller reticulations prominent on the under side. Stipules uniting within the petioles, broad with a prominent point. Flowers in sessile axillary clusters. Bracts and calyx purplish, about 1 line long, ciliate. Calyx-lobes imbricate. Corolla-tube 4 to 5 lines long, very slender, hairy inside; the lobes acuminate, twisted, imbricate, white, slightly over 2 lines long. Stamens 4, inserted at the top of the tube, the anther-tips alone exerted. Fruit nearly globular, about 5 lines diameter, containing 4 cells or pyrenes.

Hab.: Tringilburra Creek, *Bellenden Ker Expedition*, 1889.

30. HYDNOPHYTUM, Jack.

(So named from its thick tuberous stems.)

Calyx-tube ovoid, limb obscure. Corolla funnel or salver-shaped, tube long or short; lobes 4, short, valvate. Anthers 4, subsessile on the corolla-throat, oblong. Ovary 2-celled; style-branches or arms narrow or broad; ovule 1,

basal, erect in each cell. Drupe small, pyrenes 2, plano-convex. Seeds oblong; testa thin with black lines.—Epiphytic glabrous shrubs, with a deformed fleshy tuberous simple or lobed stock, appearing to be excavated by ants; branches square. Leaves opposite, leathery, obtuse; stipules interpetiolar, deciduous.

The gouty tuberous stems of plants of *Hydnophytum* and *Myrmecodia* are often hollow, and ants take advantage of this feature for housing, but I do not think these busy insects excavate the hollows.

1. **H. formicarium** (ant-house), *Beccari Malesia*. ii. 159. Tuber-like stem large, somewhat smooth; branches often numerous, articulate, cylindrical. Leaves subcoriaceous-fleshy, ovate or obovate or elliptical or obovate-spathulate, rounded at the apex, subsessile or attenuated at the base and distinctly petiolate. Flowers small, axillary, in sessile clusters. Calyx cupular, glabrous or papillose-pilose outside, limb short, entire, truncate, margins glabrous or ciliolate. Corolla tubular, 4-fid, lobes ovate, glabrous inside, the mouth bearded. Filaments short; anthers ovate, included or exerted. Style filiform, longer than the stamens; stigmatic-lobes 2, divergent, thick, obtuse, papillose. Disk fleshy, shorter or as long as the calyx. Fruit ovate, glabrous or papillose-pilose. Pyrenes elliptical, acute or acuminate.

Hab.: On trees in the tropics—Java, Borneo, Singapore, and other tropical countries. There seem to be two or more forms of this species in Queensland.

31. MYRMECODIA, Jack.

(Ant-house.)

Calyx-tube shortened, connate with the ovary, limb various, entire or very minutely toothed. Corolla-tube cylindrical, elongated, rarely somewhat short with a bearded ring below the insertion of the stamens; limb 4-lobed or 4-fid; lobes valvate, thick. Stamens 4, included. Anthers dorsifixed. Discus fleshy. Ovary 4 to 8-celled. Style filiform, thickening towards the apex. Stigmas sub-entire or 3 to 6-lobed. Ovule solitary in each cell. Fruit pomaceous; Pyrenes 4 to 8 or less by abortion, rounded or subtruncate at the apex, acute at the base, triangular or compressed.—Epiphytic undershrubs with tuberous-like stems, often spinous. Flowers sessile, small. Fruit small, whitish or yellow.

Plants of Java, Borneo, Amboyna, New Guinea, besides Queensland and a few other countries.—*Becc. Malesia* ii. 95.

Leaves oblanceolate, narrowed into short half-terete petioles. Ovules 4 . . . 1. *M. Beccarii*.
Leaves obovate-oblong on long triangular petioles. Ovules 4 2. *M. Muellerii*.
Leaves small, ovate-elliptic or oblong on short petioles. Ovules 8 3. *M. Antoinii*.

1. **M. Beccarii** (after Signor Beccari), *Hook. Bot. Mag.* 6833. Tuber unribbed, but lobed and covered with small spines which are short and simple; branches swollen with knots. Leaves oblanceolate or oblong-oblanceolate, subacute, fleshy, and narrowing into short, stout, nearly half-terete petioles; flowers springing from little sockets situate on the branches; stipules very short and uniting to form 2-fid very thin fugacious membranes; bracts wanting; annular limb representing the calyx glabrous; corolla with a cylindrical tube exceeding in length the ovate swollen lobes; stamens small, having their filaments and short anthers equally long; ovary 4-celled; fruit cylindrical-oblong, rounded at the apex; pyrenes 4.

Hab.: Gulf of Carpentaria, *Hook l.c.*

2. **M. Muellerii** (after Baron F. v. Mueller), *Becc. Males.* ii. 102. Tuberous stem sparsely spinous; spines short, simple; branches irregularly cylindrical-angular, not spinous, obscurely clypeolate. Clypeole deformed naked, radiculose-marginate. Leaves obovate-oblong, coriaceous on long acute triangular petioles. Flowers nestling in somewhat large alveoles. Bracts brown,

broad, densely clothed with brown filaments. Calyx glabrous; limb campanulate truncate, minutely irregularly denticulate. Corolla deeply 4-lobed; lobes thick, elongate-triangular, barbate below the insertion of the stamens. Stamens 4; anthers ovate, obtuse, dorsifixed about the middle to short filaments. Ovary 4-celled; style filiform. Stigmas clavate, 4-lobed; lobes thick, papillose, obtuse.—*M. echinata*, F. v. M. Pap. Pl. 90 (not of Gaudich.)

Hab.: Torres Straits.

3. **M. Antoinii** (after F. Antoine), *Becc. Males.* ii. 116, *Tab.* xix. *fig.* 2 to 4. Tuberous stem tuberculate-spinous; spines simple, short, rigidly pungent; branches tetragonous, clypeolate. Clypeole subrotund or transverse, subrectangular; margins densely spinous. Leaves ovate-elliptic or oblong, small, on petioles shorter than the blades. Flowers nestling between clypeoles in rimose alveoles.—*M. echinata*, F. v. M. *Fragm.* vii. 45.

Hab.: Torres Straits.

32. OPERCULARIA, Gærtn.

(Referring to the dehiscence of the fruits.)

Flowers connate by the calyx-tubes in a globular compound or rarely simple and solitary head. Calyx-lobes 3 to 5. Corolla-tube short; lobes 3 to 5, valvate. Stamens inserted at the base of the corolla-tube; filaments long; anthers exserted. Ovary 1-celled, with 1 erect ovule (rarely 2-celled with 1 ovule in each cell, but 1 cell and ovule abortive?); style filiform, divided to the middle or nearly to the base into 2 long usually papillose-hirsute branches, one sometimes abortive. Fruit a 2-valved capsule, the capsules of each compound head distributed into partial heads of 3 to 6, the outer valves in each partial or solitary head united in a persistent cup, the inner valves united in a deciduous operculum. Seeds obovate or oblong, often rugose, the inner face often concave or marked with longitudinal raised ridges. Albumen copious.—Herbs, undershrubs, or rarely twiners, often very foetid when fresh. Stipules usually forming with the base of the petioles a short sheath, with 1 or 2 entire or ciliate-toothed points on each side. Flower-heads usually in the forks of the stem or terminal, either upon an erect peduncle often longer than the head or upon a short recurved peduncle, and then often appearing axillary from the development of only one branch of the fork. Flowers often polygamo-dioecious.

The genus is confined to Australia.

Peduncles recurved, all very short, or those of the primary forks only elongated.

Usually large, glabrous or scabrous-pubescent. Leaves ovate or lanceolate, often above lin. long. Heads many-flowered. Seeds with 2 smooth ribs on the inner face

1. *O. aspera.*

Glabrous. Leaves linear-lanceolate. Flower-heads small, sessile or nearly so. Seeds pitted-rugose, without smooth ribs

2. *O. diphylla.*

Glabrous or nearly so, small and diffuse or wiry and elongated. Leaves and flower-heads small. Seeds broad, slightly rugose, with 2 prominent ribs on the inner face

3. *O. varia.*

1. **O. aspera** (rough), *Gærtn. Fruct.* i. 112 t. 24; *Benth. Fl. Austr.* iii. 434. A rather coarse or slender species, 1 to 2ft. long or more, glabrous or scabrous-pubescent, varying much in foliage. In the original form leaves shortly petiolate, ovate or ovate-lanceolate, very scabrous on the upper side, glabrous or pubescent underneath, mostly ½ to 1½ in. long. Flower-heads globular, compound, on short recurved peduncles. Calyx-lobes linear-lanceolate. Corolla funnel-shaped, about 2 lines long, the lobes varying as in other species from 3 to 5. Stamens as many as corolla-lobes or fewer. Style-branches occasionally reduced to 1. Seeds

ovate, rugose, the inner face much flattened but with 2 longitudinal smooth ribs, one on each side of the prominent rugose centre.—*O. paleata*, Young in Trans. Linn. Soc. iii. 30 t. 5; DC. Prod. iv. 616; *O. ocymifolia*, Juss. in Ann. Mus. Par. iv. 428 t. 71 f. 3; DC. l.c.

Hab.: Burnett River and Moreton Bay, *F. v. Mueller*.

Var. *ligustrifolia*. Leaves lanceolate, acutely acuminate, thinner and less scabrous than in the original form.—*O. ligustrifolia*, Juss. in Ann. Mus. Par. iii. 428 t. 71 f. 2 (from the char. and fig.); DC. Prod. iv. 616; *O. rubioides*, Sieb. Pl. Exs., but scarcely of Jussieu.—Southern localities.

Var. *hyssopifolia*. Leaves smaller, narrow-lanceolate, and thin.—*L. hyssopifolia*, Juss. in Ann. Mus. Par. iii. 428 t. 71 f. 1; DC. Prod. iv. 616.—Coastal. This variety much resembles *O. diphylla* in foliage, but the seeds are those of *O. aspera*.—*Benth.*

2. ***O. diphylla*** (two-leaved), *Gartn. Fruct.* i. 113; *Benth. Fl. Austr.* iii. 434. Slender and nearly glabrous, resembling the weaker forms of *O. aspera*, var. *hyssopifolia*. Leaves linear or linear-lanceolate, attenuate at both ends. Flower-heads nearly sessile at the forks but reflexed, much smaller than in *O. aspera*, and the calyx-lobes much shorter. Seeds very much pitted-rugose on the inner face, without the two smooth ribs of *O. aspera*.—*O. sessiliflora*, Juss. in Ann. Mus. Par. iv. 427 t. 70 f. 2; DC. Prod. iv. 615.

Hab.: Bay of Inlets, Banks and Solander; Brisbane River, Moreton Bay, *F. v. Mueller*; Rockhampton, *Dallachy* and others.

3. ***O. varia*** (habit various), *Hook. f. in Hook. Lond. Journ.* vi. 466 and *Fl. Tasm.* i. 167; *Benth. Fl. Austr.* iii. 435. Either small and diffuse or with wiry stems ascending to nearly 1ft., glabrous, scabrous or hirsute. Leaves very shortly petiolate, oblong lanceolate or almost linear, usually acute, rarely $\frac{3}{4}$ in. long and often much smaller. Flower-heads small, sessile in the forks or nearly so, recurved. Capsules usually only 3 or 4 to each partial head. Seeds broad, not very rugose, the inner face concave with denticulate margins and 2 prominent longitudinal ribs.—*O. eclipoides*, *F. v. M.*; *Miq. in Ned. Kruidk. Arch.* iv. 110.

Hab.: Queensland, without locality, *F. v. Mueller*.

33. POMAX, Soland.

(From *poma*, a lid; covering of fruit.)

Flowers connate by the calyx-tubes in simple heads, of which several are pedicellate in a terminal umbel. Calyx-lobes about 3. Corolla-tube short, lobes 3 to 5, valvate. Stamens 5 or fewer, inserted at the base of the corolla-tube; filaments long; anthers exserted. Ovary 1-celled, with 1 erect ovule; style filiform, deeply divided into 2 long exserted filiform hispid branches, one sometimes abortive. Fruit a 2-valvate capsule, the outer valves of all the capsules united in a persistent cup crowned by the outer calyx-lobes, the inner valves united in a deciduous operculum.—A small shrub or undershrub. Stipules interpetiolar.

The genus is limited to a single species, endemic in Australia, only differing from *Opercularia* in the simple flower-heads forming an umbel, instead of being united in a compound head.—*Benth.*

1. ***P. umbellata*** (flowers in umbels), *Soland. in Gartn. Fruct.* i. 112; *Benth. Fl. Austr.* iii. 437. Much-branched, diffuse or erect, usually not exceeding 1ft. in height, more or less hirsute or rarely glabrous. Leaves petiolate, ovate, elliptical or lanceolate, mostly under $\frac{3}{4}$ in. long or rather more when narrow. Umbel terminal, sessile within the last leaves; rays or peduncles 2 to 3 lines long when in flower, longer when in fruit, each bearing a head usually of about 3 or 4 flowers. Corolla about $1\frac{1}{2}$ line long. Persistent cup (formed by the outer

fruit-valves, but often called an involucre) campanulate, 1 to 1½ line long, bordered by 5 to 8 ovate spreading teeth (the outer calyx-lobes), the inner calyx-lobes much smaller or scarcely conspicuous on the top of the deciduous operculum.—(*Opercularia umbellata*, Gært. Fruct i. 112 t. 24; *Pomar hirta* and *P. glabra*, DC. Prod. iv. 615; *P. rupestris*, F. v. M. in Linnæa, xxv. 395.

Hab.: Suttor, Burdekin, and Burnett Rivers, *F. v. Mueller*; Rockhampton, *Dallachy*; Brisbane River, Moreton Bay, *F. v. Mueller*; on the Maranoa and near Mount Pluto, *Mitchell*. A very common plant in the colony.

31. SPERMACOCE, Linn.

(From the capsule being crowned by the calycine points.)

(*Borreria*, *G. F. W. Mey*; *Bigelowia*, *Spreng.*)

Calyx-limb of 4 or rarely only 2 teeth or small lobes. Corolla-tube short or rarely slender; lobes 4, valvate in the bud. Anthers exerted or rarely included in the tube. Ovary 2-celled, with 1 ovule in each cell, laterally attached or ascending; style entire or with 2 short stigmatic lobes. Capsule small, separating into 2 carpels more or less opening on their inner face, or leaving more or less of the dissepiment free or attached to one of the carpels. Seeds marked on the inner face by a longitudinal furrow, concavity, or broad opaque surface containing the hilum.—Herbs or rarely undershrubs. Stipules shortly sheathing, bordered with bristle-like teeth. Flowers small, clustered in the axils of the leaves or in terminal heads.

A large genus, widely spread over the tropical and subtropical regions both of the New and the Old World, some species being amongst the commonest of the tropical weeds. The whole of the Australian species, as far as known, are endemic.

- Stamens inserted at the base or below the middle of the corolla-tube, the anthers always included. Corolla 1 to 1½ line long.
- Leaves linear, lanceolate or narrow-elliptical. Stems erect, divaricate or scarcely diffuse. Stamens at the base of the tube.
- Corolla-lobes much shorter than the tube 1. *S. brachystema*.
- Corolla-lobes longer than the tube.
- Corolla densely bearded at the throat. Anthers small, ovate 2. *S. pogostoma*.
- Corolla-lobes ovate, patent, nearly glabrous, tube bearded inside. Anthers very small: 3. *S. uniseta*.
- Leaves ovate or broadly lanceolate, rigid, with callous margins. Stamens near the middle of the tube 4. *S. marginata*.
- Stamens inserted at the orifice of the corolla-tube, alternating with its lobes. Calyx usually 4-lobed. Corolla-lobes without internal appendages.
- Annual or perennial herbs.
- Corolla-lobes longer than the short broad tube.
- Leaves linear or linear-lanceolate.
- Corolla about 1 line long. Stamens much shorter than the lobes 5. *S. multicaulis*.
- Corolla about 1½ line long, scaly-hairy outside, glabrous on face, the tube very hairy inside. Stamens long as corolla-lobes 6. *S. Jacobsoni*.
- Corolla about 2 lines long. Stamens as long as or longer than the lobes 7. *S. exserta*.
- Leaves ovate or elliptical, on long petioles. Stamens exceeding the corolla-lobes 8. *S. membranacea*.
- Corolla-lobes shorter than the tube.
- Stems diffuse. Leaves petiolate, ovate or broadly lanceolate. Corolla nearly 2 lines long 9. *S. debilis*.
- Stems erect or ascending. Leaves narrow-linear. Flowers numerous, in heads chiefly terminal.
- Corolla about 3 lines long; lobes nearly as long as the tube 10. *S. stenophylla*.
- Corolla about 4 lines long; lobes a little more than half as long as the slender tube 11. *S. levigata*.
- Calyx usually 4-lobed. Corolla-lobes with 2 oblique prominent laminae or auricles on the inner face. Leaves linear or lanceolate. Annual or perennial herbs. Corolla 2½ to 3 lines long, the lobes about as long as the tube 12. *S. breviflora*.
- Calyx 2-lobed. Corolla-lobes without appendages. Undershrub 13. *S. suffruticosa*.

1. **S. brachystema** (short stamens), *R. Br. Herb.; Benth. Fl. Austr.* iii. 439. An erect or spreading rather rigid annual, attaining 1 or 2ft. and not much branched, or sometimes much smaller, more or less pubescent or hirsute, or sometimes nearly glabrous. Leaves sessile, linear lanceolate or rarely oblong, mostly 1 to $1\frac{1}{2}$ in. long, occasionally clustered in the axils. Bristles of the stipules rather long. Flowers small, in dense terminal or lateral heads or clusters. Calyx-lobes 4, acute, often unequal, the longer ones as long as the tube. Corolla about 1 line long, bearded inside at the orifice of the tube, the lobes very short. Anthers small, ovoid, on very short filaments at the base of the tube. Capsule about $1\frac{1}{2}$ line long, more or less of the dissepiment remaining attached to one of the carpels after dehiscence.—*S. stricta*, F. v. M. *Fragm.* iv. 41, not of Linn.

Hab.: E. coast, *R. Brown*; Port Denison, *Fitzalan*; Burnett River and Brisbane River. Moreton Bay, *F. v. Mueller*; Rockhampton, *Thozet, Dallachy* (the latter with rather broader leaves and more hirsute).

2. **S. pogostoma** (bearded at mouth), *Benth. Fl. Austr.* iii. 440. Annual, erect and quite glabrous. Leaves linear or linear-lanceolate. Stipular bristles rather long. Flowers small, not very numerous, in terminal and lateral heads. Calyx-lobes lanceolate, very acute, almost pungent, longer than the tube, and almost as long as the corolla. Corolla little more than 1 line long, deeply coloured when dry, very densely bearded inside at the orifice of the tube; lobes longer than the tube, inflexed at the tips. Anthers small, ovate, almost sessile at the base of the tube as in *S. brachystema*.

Hab.: Cape York Peninsula.

Var. *hispidula*, *Bail. Bot. Bull.* iv. Plant clothed with short somewhat stiff white hairs. Stems procumbent, with erect branches from 6 to 12in. high. Leaves linear to linear-lanceolate, $\frac{3}{4}$ to $1\frac{1}{2}$ in. long, the short almost pungent point often recurved, margins revolute. Stipular sheath and bristles of medium length. Calyx-lobes lanceolate with bristle-like points. Corolla pubescent, about 2 lines long, white, not becoming much discoloured in drying, the tube and lobes of about equal length, densely bearded at the orifice of the tube, the lobes with inflexed tips. Anthers small, ovate, sessile at the base of the tube. No ripe capsules on the specimens examined. Hab.: Musgrave Telegraph Station, Cape York Peninsula, *Geo. Jacobson*.

3. **S. uniseta** (stipules often reduced to a single bristle), *Bail. Bot. Bull.* iii. An erect slightly branched hispid annual, under 1ft. high. Stems slender, not so hispid as the leaves. Leaves narrow-linear, less than an inch long, with revolute margins. Stipules reduced to a single-branched bristle, closely appressed to the stem and rather long, but often concealed by the scale-like hairs of the leaves. Flowers small, in dense terminal heads. Calyx-lobes acute, often unequal, longer than the tube, bristly. Corolla-lobes ovate, patent, nearly glabrous, under 1 line long; tube about as long as the lobes, bearded inside except at the base. Stamens inserted about the middle of the corolla-tube; filaments very slender. Anthers very small. No mature carpels on the specimens examined.

Hab.: Musgrave Telegraph Station, Cape York Peninsula, *Geo. Jacobson*.

4. **S. marginata** (leaf margined), *Benth. Fl. Austr.* iii. 440. Prostrate, rigid, scabrous and smooth, or the angles of the stem and margins of the leaves scabrous. Leaves sessile, ovate to broadly lanceolate, $\frac{1}{2}$ to $1\frac{1}{2}$ in. long, mucronate-acute, rigid, undulate, with thickened callous margins. Stipular sheath very short, with rigid bristles. Flowers numerous, in dense terminal or lateral heads. Calyx-lobes lanceolate, rigidly acuminate, longer than the tube, and usually exceeding the corolla. Corolla about 1 line long, the tube very broad, glabrous inside; lobes longer than the tube, inflexed and thickened at the end, bearded inside at the base. Stamens inserted about halfway up the tube and included in it. Carpels opening inside to the base.

Hab.: N.E. coast, *Banks and Solander, A. Cunningham*; Howick's Isles, *McGillivray, F. v. Mueller*.

5. **S. multicaulis** (many-stemmed), *Benth. Fl. Austr.* iii. 440. Annual or with a perennial almost woody base and erect rigid stems, glabrous and smooth or minutely scabrous-pubescent. Leaves sessile, linear, with revolute margins. Stipular sheath very short. Flowers in small but dense terminal or at length lateral clusters or heads. Calyx-lobes thick, obtuse, incurved, as long as the tube and nearly as long as the corolla. Corolla not above 1 line long, usually pubescent outside, the tube slightly hairy inside; lobes longer than the tube, thickened towards the end. Stamens inserted at the orifice of the tube; anthers oblong, not exceeding the lobes. Carpels opening nearly to the base.

Hab.: Islands of the Gulf of Carpentaria, *R. Brown* (with rather larger flowerheads); Burnett River, *F. v. Mueller*; Brousdound and Bowen River, *Bowman*; Brisbane River, *A. Cunningham*.

6. **S. Jacobsoni** (after Geo. Jacobson), *Bail. Bot. Bull.* iii. A glandular-hispid annual of 12 to 15in. high. Stems few, erect. Leaves linear-lanceolate, usually under 2in. long, somewhat coriaceous, veins very obscure, upper surface and midrib on the under side covered by light hair-like scales, margins revolute, the two last leaves close under the heads of flowers. Stipular sheath somewhat prominent, bordered by rather long bristles. Flowers small, very numerous, in dense terminal heads, often exceeding $\frac{1}{2}$ in. diameter, the flowers intermixed with long scarious white cilia. Calyx-lobes narrow-linear, hirsute on the back, about $1\frac{1}{2}$ line long, tube slender, of equal length with the lobes. Corolla scarcely exceeding the calyx-lobes, scaly-hairy outside, glabrous on the inner surface, the tube very hairy inside. Stamens inserted at the orifice of the tube and alternating with the lobes of corolla, about as long as the lobes. Anthers large, oblong. No mature carpels on the specimens received.

Hab.: Musgrave Telegraph Station, Cape York Peninsula, *Geo. Jacobson*.

7. **S. exserta** (stamens exserted), *Benth. Fl. Austr.* iii. 441. Apparently annual, erect, more or less hirsute. Leaves long-linear or linear-lanceolate. Stipular bristles rather long and fine. Flowers in dense globular terminal or sometimes lateral heads. Calyx-lobes lanceolate, ciliate, much longer than the tube, and often nearly as long as the corolla, the tube hirsute with almost scale-like bristles. Corolla nearly 3 lines long, the tube short and broad, the lobes much longer, lanceolate. Stamens inserted at the orifice of the tube, as long as or much longer than the lobes. Fruit only seen young.

Hab.: Islands of the Gulf of Carpentaria, *R. Brown*.

8. **S. membranacea** (leaves membranous), *R. Br. Herb.*; *Benth. Fl. Austr.* iii. 441. A slender annual, sprinkled with minute hairs or nearly glabrous. Leaves on rather long petioles, ovate or elliptical, $\frac{3}{4}$ to $1\frac{1}{2}$ in. long, thin and membranous. Stipular sheath very short, with very fine often long bristles. Flowers very small, in small terminal heads. Calyx-lobes lanceolate, shorter than the corolla. Corolla white, scarcely above 1 line long, the lobes longer than the tube. Stamens inserted at the orifice of the tube, exceeding the lobes. Fruit not seen.

Hab.: Islands of the Gulf of Carpentaria, *R. Brown*.

9. **S. debilis** (feeble), *Benth. Fl. Austr.* iii. 441. Slender and diffuse, probably annual, glabrous or minutely scabrous. Leaves petiolate, ovate or oblong-lanceolate, obtuse or scarcely acute, not rigid, under $\frac{3}{4}$ in. and mostly under $\frac{1}{2}$ in. long. Flowers numerous, in dense heads mostly terminal. Calyx-lobes lanceolate-subulate, longer than the tube. Corolla nearly 2 lines long; tube cylindrical, slightly hairy inside but not at the orifice; lobes pubescent outside, very much shorter than the tube. Stamens inserted at the orifice of the tube and shorter than the lobes. Fruit small, the carpels opening to the base.

Hab.: Sir Charles Hardy's Island, *Henne*.

10. **S. stenophylla** (leaves slender), *F. v. M. Fragm.* iv. 43; *Benth. Fl. Austr.* iii. 442. Apparently perennial, with erect scarcely branched stems, glabrous and smooth. Leaves long, narrow-linear. Stipular sheaths scarious, rather long, the bristles usually short. Flowers in dense globular terminal or occasionally lateral heads. Calyx-lobes lanceolate, acute, rigidly ciliate, longer than the very short tube. Corolla funnel-shaped, 3 lines long, slightly bearded at the throat, the lobes nearly as long as the tube. Stamens inserted at the orifice of the tube, nearly as long as the lobes. Capsule a little more than 1 line long, the carpels opening at the top.

Hab.: Sweers Island, Gulf of Carpentaria, *Henne*; Lawn Hill, *Frank H. Hann*.

11. **S. lævigata** (smooth), *F. v. M. Fragm.* iv. 41; *Benth. Fl. Austr.* iii. 442. Apparently perennial, glabrous and smooth, or hispid with a few scattered rigid hairs, the stems erect, slightly branched, slender but rigid. Leaves long, linear. Stipular bristles remarkably long. Flowers in dense terminal heads. Calyx-lobes lanceolate-subulate, acute, more than twice as long as the tube. Corolla nearly 4 lines long, the tube long and slender, slightly dilated upwards; lobes oblong-linear, rather above half as long as the tube. Stamens inserted at the orifice of the tube, and nearly as long as the lobes. Carpels opening upwards.

Hab.: Islands of Torres Straits.

Var. (?) *hispidata*. Whole plant more or less hispid. Leaves very acute, often above 2 in. long.—*S. purpureo-carulea*, *R. Br. Herb.* Gulf of Carpentaria, *R. Brown*.

Var. (?) *dilatata*. Calyx-lobes shorter. Floral leaves much dilated and coloured at the base.—Islands of the Gulf of Carpentaria, *R. Brown*.

12. **S. breviflora** (flowers short), *F. v. M. Herb.*; *Benth. Fl. Austr.* iii. 442. Annual, diffuse, and more or less hirsute. Leaves linear or linear-lanceolate, with recurved margins. Flowers in very dense terminal globular heads, often above $\frac{1}{2}$ in. diameter. Calyx-lobes lanceolate or lanceolate-subulate, much longer than the tube. Corolla from $2\frac{1}{2}$ to about 3 lines long, the lobes about as long as the rather broad tube, with a pair of glandular-toothed appendages oblique and often united into one, at least at the base, occupying altogether one-third of the lobe. Calyx-lobes usually recurved in the fruiting-head.

Hab.: Islands of the Gulf of Carpentaria, *R. Brown*.

13. **S. suffruticosa** (undershrub), *R. Br. Herb.*; *Benth. Fl. Austr.* iii. 443. A rigid glabrous undershrub, with erect stems of about 1 ft. Leaves linear, clustered in the axils. Stipular sheaths short, with about 2 bristles on each side dilated at the base, and sometimes united into a single lanceolate point. Flower-heads terminal and lateral, forming a short forked cyme at the ends of the branches. Calyx-lobes 2 only, short, linear. Corolla $2\frac{1}{2}$ or nearly 3 lines long; the lobes spreading, as long as the tube, with a longitudinal line of hairs inside each. Stamens inserted at the orifice of the tube, and rather longer than the lobes. Fruits obovoid, hard, the carpels separating, the dissepiment remaining attached to one of them.

Hab.: Islands of the Gulf of Carpentaria, *R. Brown*.

35. *RICHARDSONIA, Kunth.

(After Richard Richardson.)

(*Richardia* and *Ricardia*, *Houst.*)

Calyx-tube obovoid; limb deeply 4 to 8-lobed, about as long as the ovary, at length deciduous. Corolla funnel-shaped, throat glabrous; limb spreading, 3 to 5-lobed; lobes ovate, setulose at the back near the apex, valvate in bud. Stamens 3 to 5, shortly exserted, inserted on the throat of the corolla; filaments slender; anthers oblong, glabrous, dorsifixed. Disk inconspicuous. Ovary 3 to 4-celled; style filiform, shortly 3-4-cleft; stigmas 3, exserted, subcapitate, bifid or

expanded; ovules solitary, attached to the septum at or below the middle. Fruit at length 3-coccos; cocci indehiscent, subcrustaceous, obovoid. Seeds obovoid, attached below the middle, radicle inferior.—Herbs, more or less hispid, with opposite subsessile leaves, shortly sheathing, truncate, setose. Stipules adnate to the leaf-base and small sessile hermaphrodite flowers arranged many together in sessile terminal heads.

A genus of few species (with the exception of the one here noticed, which is met with in tropical Africa) confined to America.

1. **R. scabra** (rough), *Linn.* Hirsute-hispid, a few inches high; stems erect; branches spreading. Leaves oval or obovate, obtusely pointed, wedge-shaped at the base, slightly scabrous, $\frac{3}{4}$ to $1\frac{1}{2}$ in. long, veins inconspicuous. Stipular sheath short, terminated by 3 to 5 setæ on each side. Flowers slightly exceeding 2 lines long, many in each head. Calyx-lobes 6, foliaceous, ovate-deltoid, as long as the truncate-obovate, muricate, 3 or 4 carpels. Fruit about $1\frac{1}{2}$ line long.—*Hiern.* in *Oliver's Fl. Trop. Afr.* iii. 242.

Hab.: This West Indian plant has now become naturalised about the Barron River, *E. Cowley*,

36. GALIUM, Linn.

(From one of the species being used in Europe for curdling milk.)

Calyx completely combined with the ovary, without any visible border. Corolla rotate, the tube scarcely perceptible, with 4 spreading lobes valvate in the bud. Anthers exerted. Style deeply 2-cleft. Ovary 2-celled, with 1 ascending or laterally attached ovule in each cell. Fruit small, dry, 2-lobed (when perfect), indehiscent.—Herbs, with weak quadrangular stems. Leaves in whorls of 4 to 8, of which 2 are real leaves and the remainder stipules, although precisely similar in size and shape, in one species reduced to the 2 real leaves. Flowers small, in axillary or terminal trichotomous cymes or panicles, rarely solitary.

An extensive genus, spread over the whole of the temperate regions of the globe, especially abundant in Europe and northern Asia, with very few tropical species, and those chiefly limited to mountain regions. But the proper discrimination and limitation of species in the whole genus is a very difficult and much disputed question.—*Benth.*

Fruit glabrous and smooth or rarely slightly tubercular. Leaves in whorls of four. Flowers white. Leaves narrow or rarely ovate 1. *G. Gaudichaudi*.
Fruit muricate or hispid. Leaves in whorls of four, mostly ovate or lanceolate. Plant scabrous or hispid, with short clinging hairs 2. *G. australe*.

1. **G. Gaudichaudi** (after A. Gaudichaud), *DC. Prod.* iv. 607; *Benth. Fl. Austr.* iii. 446. A very variable plant, usually hispid, more rarely glabrous except minute asperities. Stems usually numerous, short erect and densely tufted, or diffuse and extending to 1 or 2ft. Leaves almost always 4 in a whorl, usually sessile, mostly lanceolate or linear, with recurved margins, 2 to 3 lines long, sometimes, and generally the lower ones, small and ovate, or (when grown in shady places?) thinner, ovate, and much narrowed at the base. Flowers very small, about 3 together, on axillary peduncles, which sometimes grow out irregularly into leafy branches, or the flowers and a few leaves clustered on a very short peduncle. Fruit quite glabrous and smooth when fully ripe, though often appearing rugose when shrivelled in dried specimens.—*G. raganis*, Hook. f. in Hook. Lond. Journ. vi. 461, and *Fl. Tasm.* i. 170; *G. axiflorum*, F. v. M.; *Miq.* in *Ned. Kruidk. Arch.* iv. 118.

Hab.: Southern localities.

The species is closely allied to and may not be really distinct from the New Zealand *G. umbrosum*, Forst.—*Benth.*

Var. *glabrescens*. Stems tufted, erect, glabrous or nearly so. Leaves broad.—Southern localities.

Var. *muriculatum*. Fruit slightly tubercular, connecting the species with *G. australe*.—Southern localities.

2. *G. australe* (Australian), *DC. Prod.* iv. 608; *Benth. Fl. Austr.* iii. 446. Slender and diffuse but perhaps perennial, the stems often elongated and much intricate, more or less rough or hispid, with short rigid clinging hairs. Leaves in whorls of 4, from ovate to lanceolate, sessile or shortly contracted at the base. Pedicels rather long, often 3 together, on a short axillary peduncle, with a whorl of leaves at their base. Flowers of *G. Gaudichaudi*. Fruit small, more or less muricate or echinate, with hooked bristles.—*Hook. f. Fl. Tasm.* i. 171; *G. densum*, *Hook. f. in Hook. Lond. Journ.* vi. 461; *G. erythrorhizum*, *F. v. M.; Miq. in Ned. Kruidk. Arch.* iv. 113.

Hab.: Warwick and other southern inland localities.

37. ASPERULA, Linn.

(Often rough harsh plants.)

Calyx completely combined with the ovary, without any visible border. Corolla funnel-shaped, with a distinct tube and 4 spreading lobes, valvate in the bud. Anthers exserted. Style 2-lobed. Ovary 2-celled, with 1 ascending or laterally attached ovule in each cell. Fruit small, dry, 2-lobed (when perfect), indehiscent.—Herbs with slender quadrangular stems. Leaves in whorls of 4 to 8, of which 2 are real leaves and the remainder stipules, although precisely similar in shape and size, in one species reduced to the 2 real leaves. Flowers small, solitary, or in axillary or terminal cymes or clusters, occasionally more or less unisexual, the females with a much shorter corolla-tube than the males, but always more prominent than in *Galium*.

The genus extends over the cooler temperate and subtropical regions of the Old World, but is unknown in America or southern Africa. The Australian species are all endemic. It differs from *Galium* only in the shape of the corolla.—*Benth.*

Leaves mostly in pairs 1. *A. geminifolia*.

Leaves mostly in sixes, a few whorls sometimes of four only.

Leaves narrow-linear, with fine points. Plant usually scabrous-hispid 2. *A. scoparia*.

Leaves linear, obtuse or acute, minutely pubescent 3. *A. conferta*.

1. *A. geminifolia* (leaves in pairs), *F. v. M. Fragm.* v. 147; *Benth. Fl. Austr.* iii. 443. Stems long, slender, weak and diffuse, quite glabrous. Leaves 2 or very rarely 3 to each whorl, narrow-linear, acute, above 1 lin. long in luxuriant specimens, but usually shorter. Peduncles terminal, elongated, solitary or 3 together, each with about 5 to 7 flowers, almost sessile, in a small cyme. Corolla about $\frac{2}{3}$ line long, the lobes nearly as long as the tube. Fruit small, very rugose, almost fleshy.

Hab.: Burdekin and Brisbane Rivers and Rockhampton.

2. *A. scoparia* (broom-like), *Hook. f. in Hook. Lond. Journ.* vi. 463, and *Fl. Tasm.* i. 169 t. 40A; *Benth. Fl. Austr.* iii. 444. Stems short and densely tufted, erect or decumbent, or in the northern specimens 6 in. long or more and rather rigid, the whole plant more or less scabrous-pubescent. Leaves 6 in a whorl, linear, acute, with a fine point, mostly 3 to 4 lines long. Flowers 3 or 5 together, nearly sessile within the last whorl of leaves, or about 3 together, on short common peduncles, of which 3 to 5 are umbellate within the last whorl. Corolla of the male flowers about 1 line long, with a slender tube, in the females much shorter, the tube scarcely so long as the lobes.—*Rubia syrticola*, *Miq. in Ned. Kruidk. Arch.* iv. 111 and also at 112; *Asperula oligantha*, *F. v. M. Fragm.* ix. 187.

Hab.: Darling Downs, on the Maranoa.

3. *A. conferta* (crowded), *Hook. f. in Hook. Lond. Journ.* vi. 464, and *Fl. Tasm.* i. 169; *Benth. Fl. Austr.* iii. 444. Diffuse, decumbent or nearly erect, sometimes forming dense prostrate tufts of a few inches, sometimes 6 ft. to 1 ft. long, rigid or slender, nearly glabrous or slightly scabrous-pubescent. Leaves in

whorls of 6, linear, almost obtuse or shortly pointed, but without the fine point of *A. scoparia*. Flowers in little terminal cymes or clusters, almost sessile within the last whorl of leaves. Corolla above 1 line long in the males with a slender tube, much shorter with a short broad tube in the females. Fruit smooth or rugose by drying.—*A. obliquantha*, F. v. M. Fragm. ix. 187.

Hab.: Peak Downs, Darling Downs, Warwick, and other southern localities.

Var. *elongata*. Stems long and slender. Leaves $\frac{3}{4}$ to $\frac{1}{2}$ in. long, narrow-linear, obtuse. Flowers very small.—Between Stanthorpe and the border of New South Wales.

ORDER LXV. COMPOSITÆ.

Flowers or *florets* collected together in a head (rarely reduced to a single floret), surrounded by an involucre of several bracts, either in one row or imbricated in several rows, the whole having the appearance of a single flower. Receptacle on which the florets are inserted either naked or bearing chaffy scales or hairs or bristles between the florets. In each floret the calyx is wanting or converted into a *pappus* or ring of hairs or scales on the top of the ovary. Corollas either all hermaphrodite, tubular, and 5 or rarely 4-toothed (heads *discoid*), or all hermaphrodite and *ligulate*, that is with a slender tube and a flat strap-shaped lamina, or those of the centre or *disk* tubular or hermaphrodite or male, and those of the circumference either ligulate and female or neuter, forming a *ray* (heads *radiate*), or filiform and female (heads *discoid* but *heterogamous*). Stamens 5, rarely 4, inserted in the tube of the corolla, the anthers linear and united in a sheath round the style (except in *Xanthium* or where more or less imperfect), 2-celled, opening inwards by longitudinal slits, the connective usually produced at the top into a small erect appendage, the anther obtuse or sagittate at the base, the basal lobes sometimes prolonged into short and acute or long very fine and hair-like points or lobes called *tails*. Ovary inferior, with a single erect ovule. Style filiform, usually divided at the top into two short stigmatic branches. Fruit a small seed-like nut or *achene*, crowned by the pappus or naked. Seed erect, without albumen. Embryo straight or rarely curved. Radicle inferior. Herbs, shrubs or very rarely small trees, with alternate or opposite leaves, without stipules. Flower heads terminal or very rarely axillary, solitary or in panicles usually corymbose, sometimes reduced to clusters or compound heads, the general inflorescence often centrifugal, the inflorescence within the head always centripetal.

The most extensive family amongst flowering plants, and represented in every quarter of the globe and in every variety of station; most abundant in America, in Southern Africa, in Australia, and in the Mediterranean region of the northern hemisphere, the species less numerous in proportion in tropical Asia and Africa.—*Benth.*

Taking the most important of the tribal characters it will be found that—

The leaves are always alternate in *Cynaroideæ*, *Vernoniaceæ*, *Senecionideæ*, and *Cichoriaceæ* and with few exceptions also in *Asteroideæ*, *Ambrosiææ*, *Anthemideæ*, and *Gnaphaliææ*; almost always opposite in *Eupatoriaceæ* and *Heliantheæ*. In *Gnaphaliææ* they are always quite entire, in the other tribes they vary, entire, toothed, lobed, or divided.

The flower-heads are homogamous and discoid in *Cynaroideæ*, *Vernoniaceæ*, and *Eupatoriaceæ*, homogamous and ligulate in *Cichoriaceæ*, strictly unisexual in *Ambrosiææ*, heterogamous, with the florets of the circumference ligulate or filiform in the other tribes, with exceptionally discoid and homogamous species or genera, rare in *Asteroideæ* and *Anthemideæ*, more frequent in *Gnaphaliææ* and *Senecionideæ*.

The scales of the receptacle are characteristic of *Heliantheæ*, and occur only in a few exceptional genera in other tribes.

Tailed anthers characterise with few exceptions the *Cynaroideæ* and *Gnaphaliææ*, and prevail in a portion of *Asteroideæ*. They never occur in *Eupatoriaceæ*, *Helianthoideæ*, *Ambrosiææ*, *Anthemideæ*, or *Senecionideæ*, and are very rare in *Vernoniaceæ*.

The pappus is generally deficient or reduced to a ring or cup in *Anthemideæ*, consists of rigid awns or scales or is wanting in *Helianthoideæ*, and is most frequently capillary in other tribes, but with so little constancy that it is of very little use in tribal distinctions.

TRIBE I. **Vernoniaceæ**.—Heads with the florets all similar and tubular. Anthers cleft at the base. Style-branches subulate, hairy. Leaves alternate.

SUBTRIBE I. **Euvernoniææ**.—Heads distinct, florets many.

- Achenes 4 to 5-angled, broadly truncate at the apex. Pappus none . . . 1. **ETHULIA**.
 Achenes 8 to 10-ribbed. Pappus bristles fugacious, few or copious . . . 2. **CENTRATHERUM**.
 Achenes thick; ribs prominent, 10. Pappus bristles short, 3 to 5,
 caducous . . . 3. **PLEUROCARPÆA**.
 Achenes 10-ribbed. Pappus long, copious . . . 4. **VERNONIA**.

SUBTRIBE II. **Lychnophoreæ**.—Heads of 1 or few florets, crowded into dense masses like single heads.

Corolla usually cleft laterally. Pappus setæ or paleæ, 1 to 2-seriate, rigid . . . 5. **ELEPHANTOPUS**.

TRIBE II. **Eupatoriaceæ**.—Heads with the florets all similar and tubular. Anthers subventre at the base. Style-branches obtuse, papillose. Leaves opposite or alternate. Corolla rarely orange, never yellow. Pappus usually bristly.

SUBTRIBE I. **Piqueriææ**.—Anther-tip truncate.

Achenes 5-angled. Pappus of 3 to 5 short bristles, each tipped by a gland . . . 6. **ADENOSTEMMA**.

SUBTRIBE II. **Agerateæ**.—Anthers appendiculate. Achenes ribbed, 5-angular, the secondary ones fading.

- Pappus paleaceous, the chaffy scales or bristles 5 to 10, dilated at the
 base . . . 7. **AGERATUM**.
 Pappus bristles numerous, thin or somewhat rigid, smooth or scabrous . . . 8. **EUPATORIUM**.

TRIBE III. **Asteroidææ**.—Heads with the florets all similar, or the outer ligulate. Anthers subventre (cells not tailed) at the base. Style-branches flattened or plano-convex, all or those of the disk florets terminated by a cone. Leaves alternate or very rarely opposite. Receptacle almost always naked. Disk-florets yellow; ray-florets yellow, white or purple.

SUBTRIBE I. **Grangeinææ**.—Female florets 1 or many-seriate, not exceeding those of the disk, tubular dentate or with rudimentary ligule or campanulate. Pappus none or rudimentary, or of few very caducous bristles.

Pappus none. Receptacle naked, turbinate or columnar. Achenes
 obtuse, flat, with a thickened border . . . 9. **DICHOCEPHALA**.

SUBTRIBE II. **Bellidææ**.—Female corollas ligulate, ligula spreading, white or various colours, not yellow. Pappus none or very short.

Achenes abruptly contracted at the top into a neck or boss . . . 10. **LAGENOPHORA**.
 Achenes truncate at the top. Pappus none or very short . . . 11. **BRACHYCOME**.

SUBTRIBE III. **Heterochromeææ**.—Corollas of the female florets ligulate, ligula spreading, white or various coloured, never yellow. Disk-florets yellow. Pappus bristles long, copious.

- Achenes of the ray-florets with a capillary pappus, those of the disk
 mostly abortive, with a reduced or scaly pappus . . . 12. **MINURIA**
 Pappus usually of rigid unequal often divaricate awns or spines, some-
 times accompanied by scales . . . 13. **CALOTIS**.
 Achenes terete or slightly flattened. Ray-florets in a single row. Anthers
 obtuse at the base or shortly pointed. Involucral bracts with scariosus
 margins . . . 14. **OLEARIA**.
 Achenes much flattened, all fertile, produced into a slender beak bearing
 a capillary pappus . . . 15. **PODOCOMA**.
 Achenes all fertile, not beaked, the capillary pappus sessile.
 Style-branches with lanceolate or obtuse tips . . . 16. **ERIGERON**.
 Style-branches with subulate tips . . . 17. **VITTADINIA**.

SUBTRIBE IV. **Conyzææ**.—Ray-florets very slender, tubular, or with very short ligules, and disk-florets yellow. Pappus copious or scanty, setose.

Female florets many-seriate. Herbs, undershrubs, or shrubs, not
 glutinous . . . 18. **CONYZA**.

SUBTRIBE V. **Baccharidææ**.—Flower-heads disciform, diœcious, submonoœcious, or rarely androgynous. Corollas of female florets minute or shortly ligulate. Style in the hermaphrodite florets (sterile) undivided or with filiform branches. Pappus bristly.

Heads diœcious, the receptacles in both sexes somewhat smooth, naked,
 or rarely fimbulliferous, subpaleaceous. Female corolla minutely
 toothed. Pappus bristles copious, 1-seriate . . . 19. **BACCHARIS**.

TRIBE IV. **Inuloideæ**.—Heads with the florets all similar, or the outer ligulate. Anthers cells tailed. Style-branches linear, obtuse, or styles of the sterile florets undivided. Leaves usually alternate. Disk and ray-florets usually both yellow.

SUBTRIBE I. **Plucheinæ**.—Heads androgynous. Involucral bracts dry or herbaceous, rarely subscarious. Receptacle naked. Style-branches of hermaphrodite filiform not truncate, or style of sterile florets entire.

- Involucral bracts narrow. Anthers caudate. Pappus bristles slender, copious 20. BLUMEA.
- Involucral bracts dry, usually broad. Pappus bristly, slender, copious 21. PLUCHEA.
- Involucral bracts dry or leafy, coloured at apex. Pappus of 1 or 2 series, rigid, scabrous 22. PTERIGERON.
- Involucral bracts dry, rigid, and acute. Pappus bristles 5 to 12, flat, scale-like 23. THESPIDIUM.
- Involucral bracts broad, dry, the inner ones lacerated at the top. Pappus a jagged tube or cup 24. COLEOCOMA.
- Pappus of female florets none, of sterile disk ones small 25. EPALTES.
- Heads of florets in dense, globose, or ovoid masses. Corolla of female florets filiform. Herbs with winged stems.
- Pappus none 26. SPHERANTHUS.
- Pappus-hairs slender 27. PTEROCAULON.

SUBTRIBE II. **Gnaphalieæ**.—Heads androgynous, disciform, or homogamous and discoid. Involucral bracts scarious, usually hyaline, or the inner ones radiating. Receptacle usually naked. Style-branches of hermaphrodite florets truncate.

SERIES I. **Eugnaphalieæ**.—Involucral bracts rarely radiate. Receptacle epaleaceous.

- Inner involucral bracts with recurved horn-like tips. Pappus none 28. STUARTINA.
- Involucral bracts often coloured, rarely radiate. Pappus bristles not plumose, free or connate in a ring at the base 29. GNAPHALIUM.

SERIES II. **Helichryseæ**.—Involucral bracts scarious or lamina petaloid, radiating or rarely linear, subherbaceous or membranous. Receptacle naked or rarely paleaceous.

- Outer involucral bracts thin and scarious. Achenes more or less distinctly contracted into a beak 30. LEPTOHYNCHUS.
- Involucral bracts scarious or petal-like, or with petal-like lamina. Achenes with slender beaks. Pappus bristles plumose 31. WAITZIA.
- Achenes not beaked. Pappus bristles plumose at the base 32. HELIPTERUM.
- Pappus bristles smooth, scabrous, barbellate or plumose towards the apex, most frequently 1-seriate 33. HELICHRYSUM.
- Receptacle with narrow, flat, or concave scales between the florets. Pappus bristles capillary, distinct 34. CASSINTA.
- Involucral bracts narrow, with short scarious or radiating tips. Achenes not beaked. Pappus simple 35. IXIOLÆNA.
- Involucral bracts nearly equal, narrow. Achenes contracted into a slender beak. Pappus bristles capillary, barbellate or ciliate 36. MILLOTIA.
- Involucral bracts scarious. Pappus scales obtuse, or jagged, or divided into bristle-like branches 37. RUTIDOSIS.
- Involucral bracts petaloid and radiating at the apex. Pappus a scarious cup. Receptacle scales broad, flat or concave 38. AMNOBIUM.
- Involucres globose, enveloped in dense wool, the inner bracts scarious not radiating. Receptacle conical without scales 39. ERIOCHLAMYS.
- Heads homogamous. Involucral bracts 3 or 4-seriate. Anthers hastate at base, ecaudate. Style-branches subulate. Pappus bristles 1-seriate, joined in bundles of from 2 to 4, scabrous 40. PHACELLOTHRIX.
- Involucres broadly hemispherical, with scarious bracts, not radiating. Receptacle without scales 41. ACOMIS.

SUBTRIBE III. **Angiantheæ**.—Flower-heads small, usually numerous, sessile or nearly so on a common receptacle, in a dense cluster or compound head, usually surrounded by scarious or leafy bracts, forming a general involucre. Florets hermaphrodite, a few rarely sterile.

- Receptacles (within the partial heads) with scales between the florets. General involucre of numerous bracts, in several rows, usually with scarious tips or small radiating lamina. General receptacle broad and flat. Pappus none or various 42. MYRIOCEPHALUS.

General involucre none or of few short scarious bracts, with or without a few leafy bracts or floral leaves outside.

Pappus none or of 1 or more awned or jagged scales.

Involucre flattened, with 1 outer flat and 2 rarely 3 lateral conduplicate or concave scarious bracts, with or without 1 or 2 inner flat ones 43. ANGIANTHUS.

Involucre of several bracts, the inner ones broader than the outer ones and very deciduous 44. GNEPHOSIS.

Pappus of several bristles or scales, plumose-ciliate or with terminal plumose tufts. General receptacle small or branched, and the partial heads often rather distinct.

Floral leaves none or few and shorter than the heads. Involucral bracts about as long as the florets, without any or with very short and broad radiating tips. Pappus-bristles usually more than 6 45. CALOCEPHALUS.

Floral leaves several, as long as or longer than the clusters. Pappus-bristles 5, very elastic 46. GNAPHALODES.

Pappus of several plumose-ciliate bristles or scales 47. CRASPEDIA.

Pappus none or of very short scales 48. CHTHONOCEPHALUS.

SUBTRIBE IV. **Athrixieæ.**—Heads heterogamous, radiate or rarely subdisciform. Florets all fertile or the disk ones sterile. Style-branches truncate at the apex.

Involucral bracts all very thin and scarious. Outer female florets usually large and irregular. Achenes sessile 49. PODOLEPIS.

SUBTRIBE V. **Euinuleæ.**—Heads heterogamous, radiate, rarely subdisciform or homogamous. Florets usually all fertile. Receptacle naked. Female florets with linear style-branches, rounded or dilated at the top.

Heads discoid. Achenes slender, striate, beaked. Pappus none 50. CARPESIMUM.

TRIBE V. **Helianthoides.**—Heads heterogamous, radiate or rarely discoid. Ray-florets female, fertile or neuter. Disk-florets hermaphrodite, fertile or sterile, or capitular homogamous, discoid, unisexual, or with all the florets hermaphrodite. Involucral bracts various. Receptacle paleaceous or rarely on the disk, under the sterile florets naked. Corolla of the hermaphrodite florets tubular, regular, 4 to 5-cleft. Anthers appendaged at the apex, at the base entire, obtuse, or scarcely tailed. Style-branches of the hermaphrodite florets truncate or appendaged. Achenes various, usually compressed or angular. Pappus aristate or shortly paleaceous or wanting.

SUBTRIBE I. **Ambrosieæ.**—Heads heterogamous or unisexual. Hermaphrodite florets sterile, with undivided styles; female apetalous. Anthers nearly free, with inflexed appendages.

Male involucre gamophyllous; female 1-flowered, the involucre closed over the achene, usually tuberculous 51. *AMBROSIA.

Male involucre with free bracts, 1-seriate; female 2-flowered, 2-celled, armed with numerous glochidiate prickles 52. *XANTHIUM.

SUBTRIBE II. **Zinnieæ.**—Heads heterogamous. Ray-florets female, fertile, lamina rigid; the disk hermaphrodite florets rarely sterile. Receptacle paleaceous.

Receptacle conical or cylindrical. Disk-florets fertile. Achenes, at least the interior ones, 1 to 3-aristate 53. ZINNIA.

SUBTRIBE III. **Verbesineæ.**—Heads hetero- or homogamous. The hermaphrodite florets all fertile. Achenes of the disk angled, subterete, or laterally compressed, crowned with 2 or 3 bristles or scales or naked.

Inner involucral bracts embracing the achenes.

Outer involucral bracts 5-glandular 54. SIEGESBECKIA.

Outer involucral bracts 4, broad, in opposite pairs 55. ENHYDRA.

Inner involucral bracts not embracing the achenes. Palææ (scales) of receptacle flat, narrow. Outer involucral bracts many 56. ECLIPTA.

Inner involucral bracts not embracing the achenes. Palææ of receptacle concave, embracing the achenes.

Ray-florets with small ligules. Achenes not winged 57. BLAINVILLEA.

Ray-florets with large yellow ligules. Achenes thick 58. WEDELIA.

Ray-florets with yellow or white ligules. Achenes ciliate 59. SPILANTHES.

SUBTRIBE IV. **Coreopsidæ.**—Heads hetero- or homogamous. Hermaphrodite florets all fertile or neuter. Achenes dorsally compressed, 2 to 4-awned or naked.

Outer involucral bracts few, small; inner membranous, connate below.

Style branches with the ends penicillate or truncate, appendages short or obsolete. Achenes flat, margins naked, ciliate, or winged 60. *COREOPSIS.

- Ray-florets sterile, often rose or violet. Achenes more or less beaked 61. *COSMOS.
 Ray-florets sterile or rarely fertile or none. Style branches with short
 appendages. Achenes usually 2 to 4-awned 62. BIDENS.
 Ray-florets fertile. Style branches with long appendages. Achenes
 with 2 bristles 63. GLOSSOGYNE.

SUBTRIBE V. **Galinsogea**.—Heads hetero- or homogamous. The hermaphrodite florets all fertile. Achenes with short bristle-like scales.

- Pappus scales entire or fimbriate 64. *GALINSOGA.

TRIBE VI. **Helenioideæ**.—Heads homogamous and discoid or heterogamous with the ray-florets female and disk ones hermaphrodite. Involucral bracts in 1 or few rows. Receptacle naked. Corolla of the disk-florets tubular, regular, shortly 5-cleft. Anthers appendaged at the apex; base obtuse, not caudate. Style branches obtuse or truncate. Achenes narrowly oblong. Pappus consisting of awn-like scales.

SUBTRIBE I. **Flaveria**.—Involucral bracts 1-seriate, equal, eglandulose. Achenes narrow, 8 to 10-ribbed. Style-branches truncate, penicillate.

- Involucral bracts free. Ray-florets solitary or none, disk ones solitary or few. Pappus none 65. FLAVERIA.

SUBTRIBE II. **Tagetinea**.—Involucral bracts 1-seriate, equal, with scattered oil-glands. Achenes narrow, much striate.

- Heads radiate or rarely homogamous. Involucral bracts united in a tube. Pappus scales awn-like, 5 or 6 66. TAGETES.

TRIBE VII. **Anthemideæ**.—Heads heterogamous, radiate or discoid. Involucral bracts few or many-seriate, imbricate. Receptacle naked or furnished with scales subtending the florets. Outer florets female, ligulate or tubular; inner ones hermaphrodite, tubular. Corollas 4 to 5-lobed. Anthers without tails, obtuse at the base. Style-branches usually truncate. Achenes rather small. Pappus none or obliquely coroniform or consisting of short teeth.

Heads heterogamous, disciform, or very rarely homogamous. Involucral bracts 1 to 2-seriate.

- Heads disciform, pedunculate. Involucral bracts 1 to 2-seriate 67. COTULA.
 Heads disciform, subsessile. Involucral bracts spreading in fruit 68. CENTIPEDA.
 Heads sessile. Achenes flattened, crowned by the hardened style or by 2 prominent divaricate angles 69. SOLIVA.
 Heads nearly sessile. Achenes large, flat, with herbaceous involute wings. Pappus none 70. CERATOGYNE.
 Heads clustered within the radical leaves. Achenes subturbinate, silky-villous. Pappus scales oblong 71. ISOETOPSIS.

TRIBE VIII. **Senecionideæ**.—Heads either heterogamous with the female florets ligulate or rarely filiform, or sometimes homogamous with all the florets hermaphrodite and tubular. Receptacle without scales. Anthers obtuse or scarcely pointed at the base, without tails. Style-branches truncate and penicillate, or rarely with pubescent tips or appendages. Pappus of capillary bristles. Involucral bracts 1 or 2-seriate, with or without a few small outer ones round their base.

- Outer female florets filiform, usually in 2 or 3 rows 72. ERECHTHITES.

Florets all tubular and hermaphrodite, or the outer ones ligulate.

- Style branches with subulate tips 73. GYNURA.
 Involute not calyculate. Style branches with an appendage 74. EMILIA.
 Style branches truncate. Inflorescence terminal. Indumentum cottony or simple 75. SENECIO.

TRIBE IX. **Arctotideæ**.—Heads heterogamous, radiate, or rarely homogamous by deficiency of the ray-florets. Ray-florets female or neuter. Disk-florets hermaphrodite, fertile, or the innermost ones sterile. Involucral bracts in many rows, imbricated, broadly scarious or very acute or spinous at the apex. Corollas of the ray ligulate; those of the disk tubular, regular. Anther-base entire or sagittate; auricles obtuse or acute or mucronate, not tailed. Style of the disk-florets obtuse, short. Achenes usually thick. Pappus paleaceous or coroniform, or wanting.

- Achenes glabrous. Pappus none 76. CYMBONOTUS.
 Achenes densely woolly. Pappus of short scales concealed in the wool 77. *CRYPTOSTEMMA.

TRIBE X. **Cynaroideæ**.—Florets all tubular. Involucral bracts many-seriate, imbricate; tops scarious, spinous or foliaceous. Receptacle densely bristly or paleaceous, rarely simply pitted. Corolla limb slender, deeply 5-fid. Anther-base sagittate; auricles connate, mucronate, or with fimbriate tails. Styles subsentire or branches short-hairy or thickened towards the base. Achenes often hard; pappus various, rarely none.

SUBTRIBE I. Carduineæ.—Heads many-flowered, separate. Achenes glabrous, basal areole horizontal; pappus hairs distinct or connate.

- Filaments papillose-hairy. Pappus-hairs feathery, connate into a deciduous ring 78. *CNICUS.
- Filaments glabrous, connate. Involucral bracts spinous. Receptacle bristly. Pappus simple 79. *SILYBUM.
- Filaments free, glabrous. Leaves unarmed. Pappus-hairs 1-seriate, feathery, with a few outer simple 80. SAUSSUREA.

SUBTRIBE II. Centaureæ.—Heads separate, many-flowered. Achenes glabrous, basal areole oblique or lateral.

- Achenes compressed or 4-angled, 4 or 5-ribbed 81. CENTAUREA.

TRIBE XI. Cichoriaceæ.—Heads homogamous. Corollas all ligulate; ligule truncate, tip 5-toothed. Anther-bases sagittate, rarely tailed. Style-branches slender.

SUBTRIBE I. Hyoserideæ.—Achenes truncate. Pappus of scales, with sometimes alternating hairs or none.

- Involucral bracts herbaceous. Pappus scales 4 to 5 rarely 8 to 10, linear, tapering into plumose bristles 82. MICROSERIS.

SUBTRIBE II. Crepideæ.—Usually leafy herbs, not woolly nor with stellate hairs. Involucre calyculate; inner bracts often thickened. Achenes usually contracted at both ends.

- Receptacle naked.
- Achenes ribbed, rugose; pappus hairs feathery 83. PICRIS.
- Achenes ribbed; pappus hairs simple, free, white 84. CREPIS.

SUBTRIBE III. Hypochæridæ.—Scapigerous herbs, hairs various. Achenes contracted below, usually beaked above. Pappus hairs simple or feathery.

- Receptacle paleaceous. Pappus hairs feathery 85. HYPOCHÆRIS.
- Receptacle naked. Pappus hairs simple 86. *TARAXACUM.

SUBTRIBE IV. Lactuceæ.—Herbs, rarely shrubby below; glabrous or hispid, rarely scapigerous. Achenes usually narrowed below, and beaked or not above. Pappus hairs many, simple.

- Achenes compressed, beaked; ribs smooth 87. *LACTUCA.
- Achenes compressed, not beaked, many ribbed; ribs smooth 88. SONCHUS.

SUBTRIBE V. Scorzonereæ.—Herbs glabrous, woolly or hispid. Achenes with a broad base or curved hollow stipes, above narrowed or beaked.

- Involucral bracts 1-seriate. Achenes long, beaked 89. *TRAGOPOGON.

1. ETHULIA, Linn.

(Derivation doubtful.)

Involucre hemispherical or campanulate; bracts numerous, imbricate. Receptacle convex, naked. Corolla narrowed below, limb campanulate, 5-fid. Anthers linear, base obtuse, apical appendix ovate or lanceolate. Style-branches subulate, hairy. Achene 5 to 4-costate, ribs prominent, truncate above. Pappus none.—Branching herbs. Leaves alternate, simple. Heads homogamous, many-flowered, small in corymbose cymes, purplish.

Plants of the Old World tropics.

1. **E. conyzoides** (Conyza-like), Linn. Erect, more or less branching, 2 to 3ft. or higher. Stem thinly appressed, hirsute or glabrescent, extremities sulcate. Leaves linear-lanceolate to narrowly elliptical or linear narrowed to each end, subdistantly sometimes obscurely serrate or entire, puberulous or thinly appressed, hirsute-tomentose especially beneath or nearly glabrous, more or less glandular-dotted beneath, 1 to 5in. long with petiole, $\frac{1}{4}$ to $1\frac{1}{2}$ in. broad. Head $1\frac{1}{2}$ to 3 lines broad in subdense or diffuse corymbose cymes, or cymes of fewer heads at the extremities of the upper branches and loosely panicled; pedicels 1 to 6 lines long.

Hab.; Thursday Island and several localities on the tropical coast.

2. CENTRATHERUM, Cass.

Involucre imbricate, a few of the outer bracts long and leaf-like, the others not longer than the florets, the inner ones the longest. Receptacle naked. Florets all tubular and equal, regular, with 5 narrow lobes. Anthers obtuse at the base; style-lobes subulate. Achenes oblong, nearly cylindrical, striate. Pappus of a single series of rigid, flattened, hirsute, very deciduous, almost chaff-like bristles.—Herbs or shrubs. Leaves alternate. Flower-heads on terminal or leaf-opposed peduncles. Involucres hemispherical. Florets usually purple.

A small American genus, of which two species, including the Australian one, have spread over several of the warmer regions of the Old World.

1. **C. muticum** (pointless), *Less.: DC. Prod.* v. 70; *Benth. Fl. Austr.* iii. 460. A rigid divaricately branched herb, probably annual although with a hard almost woody base, spreading to 2 or 3ft., glabrous or pubescent. Leaves petiolate, lanceolate-oblong or almost ovate, 1 to 2in. long, coarsely and irregularly toothed. Flower-heads often above $\frac{1}{2}$ in. diameter, the outer leafy bracts $\frac{1}{2}$ to 1in. long, the inner ones numerous, with spreading more or less coloured or scarious denticulate tips. Florets purple, much longer than the involucre. Achenes usually glabrous, with about 10 very obtuse ribs, the pappus falling off even before they are ripe.

Hab: Brisbane River, Moreton Bay, *F. v. Mueller*: Rockhampton, *Dallachy*.

The species is common in tropical America; we have also apparently the same from the Philippine Islands.—*Benth.*

3. PLEUROCARPÆA, Benth.

(Achenes ribbed.)

Involucre ovoid, the bracts few, herbaceous, imbricate, not so long as the florets. Receptacle without scales. Florets all tubular and equal, regular, often incurved, with 5 narrow lobes. Anthers sagittate at the base, the auricles produced into short not fine points. Achenes thick, with prominent ribs. Pappus of 2 to 5 rigid short exceedingly deciduous bristles.—Leaves alternate, entire or toothed. Flower-heads on terminal peduncles.

The genus is limited to a single species endemic in Australia, not nearly allied to any one known to me, unless it be to some anomalous species of *Decaneurum*.—*Benth.*

1. **P. denticulata** (leaves toothed), *Benth. Fl. Austr.* iii. 460. Herbaceous, with hard divaricate or decumbent branches, our specimens above 1ft. long and quite glabrous. Leaves ovate or oval-elliptical, mucronate-acute, contracted into a very short petiole, the larger ones above 2in. long, irregularly bordered by acute teeth, the upper ones smaller and entire. Peduncles terminal, solitary or 2 together, 1 to 2in. long or longer after flowering, slightly thickened under the head. Involucre about 4 lines long, thickened at the base, the bracts broadly lanceolate, acuminate. Florets about 10 to 20, of a bluish purple, the tube exceeding the involucre, often incurved, shortly dilated into a deeply 5-lobed limb.

Hab.: Islands of the Gulf of Carpentaria, *R. Brown*, who had given it the provisional name of *Lipotrix denticulata*, but he afterwards published as *Lipotriche*, a very different African plant.—*Benth.*

4. VERNONIA, Schreb.

(After Wm. Vernon.)

Involucre ovoid-globular or hemispherical, the bracts imbricate, not longer than the florets, the inner bracts the longest, Receptacle without scales. Florets all tubular and equal, regular, with 5 narrow lobes. Anthers obtuse at the base. Style-lobes subulate. Achenes mostly striate or angular, rarely cylindrical.

Pappus of numerous capillary bristles, usually surrounded by an outer row of very short often chaff-like bristles, which are rarely entirely wanting.—Herbs, or in species not Australian, shrubs or climbers. Leaves alternate. Flower-heads terminal or in the upper axils, in cymes or panicles or sometimes solitary. Florets usually purple.

A very numerous genus, widely spread over the warmer regions of the globe, but most abundant in America, where it extends beyond the tropics both to the northward and southward. In Australia it is represented by 2 species, one a weed of tropical Asia, differing slightly from the great mass of the genus in its habit, which is nearly that of a *Conyza*.—*Benth.* (in part).

An erect probably annual, about 12 or 18 in. high, the stems slender, grooved.

Florets purplish 1. *V. cinerea*.
 A climber; leaves ovate to lanceolate, quite entire. Achenes 10-ribbed; pappus red. 2. *V. scandens*.

1. ***V. cinerea*** (grey), *Less.: DC. Prod. v. 24; Benth. Fl. Austr. iii. 459.* Annual or forming a perennial rootstock, erect, 1 to 2 ft. high, nearly glabrous, scabrous-pubescent, hirsute, hoary-tomentose or woolly. Lower leaves petiolate, ovate-oblong or lanceolate, often irregularly toothed or sinuate, the upper ones few and narrow, or occasionally nearly all ovate or nearly all narrow. Flower-heads small, on slender peduncles, forming a terminal leafless cymose panicle. Involucral bracts very acute. Achenes cylindrical, scarcely striate, hairy. Pappus white, the outer row very short, and sometimes reduced to very few bristles.—*V. erigeroides*, DC. *Prod. v. 25; V. cyanopioides*, Walp. in *Linnæa*, xiv. 509, and probably nearly the whole of the section *Tephrodes*, DC.

Hab.: Port Curtis, *M'Gillivray*; Rockingham Bay, Port Denison, Rockhampton, *Dallachy*; Brisbane River, Moreton Bay, and Peak Downs, *F. v. Mueller*; Keppel Bay, *Thozet*.

There are 2 principal varieties in Queensland, one either nearly glabrous or rarely hirsute, with short rigid hairs, the other very hoary-tomentose or woolly, with softer more obtuse leaves, and usually smaller flower-heads, the corolla-lobes also appear shorter. The flowers very purple or white, but almost always purple in the more glabrous form.—*Benth.*

2. ***V. scandens*** (climbing), *DC.; Hook. Fl. Brit. Ind. iii. 241.* A rambling climber; branches slender, woody, glabrous or pubescent. Leaves on slender petioles, ovate, elliptic or lanceolate, acuminate, quite entire, glabrous or pubescent beneath, $2\frac{1}{2}$ to 4 in. long, 1 to $2\frac{1}{2}$ in. broad, rather thin. Heads about $\frac{3}{4}$ in. diameter, 5 to 10-flowered, in long leafy terminal panicles, all pedicellated. Involucral bracts ovate or linear-lanceolate, acute or obtuse. Achenes compressed glabrous, about $1\frac{1}{2}$ line long, deeply 10-ribbed. Pappus red; outer hairs few, short, slender.—*V. vagans*, DC.; *Conyza scandens*, Wall.; *Gymnanthemum scandens* and *vagans*, Steetz; Hook. in *Fl. Brit. Ind. l.c.*

Hab.: Rockingham Bay, *J. Dallachy* (*F. v. M. Fragm. vi. 234*).

5. ELEPHANTOPUS, Linn.

(Elephant's foot.)

Flower-heads of 2 to 5 florets, collected together in compound heads. Involucres compressed, of about 8 bracts, dry, stiff, alternately plain and conduplicate. Receptacle naked. Florets with 4 narrow equal lobes, but deeper cleft on one side, so as to be somewhat palmate. Anthers obtuse at the base. Style-lobes subulate. Pappus of a few stiff bristles, somewhat dilated at the base.—Stiff herbs, usually grey with appressed often silky hairs. Leaves alternate.

A genus of about a dozen American species, one of which is also spread over tropical Africa and Asia, as well as Australia.—*Benth.*

1. ***E. scaber*** (rough), *Linn.; DC. Prod. v. 86; Benth. Fl. Austr. iii. 461.* Stock perennial. Stems stiff, erect, about a foot high, with a few forked spreading branches, more or less covered, as well as the leaves and involucres, with greyish hairs. Radical leaves 2 to 4 in. long, obovate-oblong, more or less

renate, and usually narrowed into a petiole. Stem-leaves few and more sessile. Lower-heads closely clustered into terminal hemispherical compound heads, of early lin. diameter, surrounded by about 4 broadly cordate sessile leafy bracts. Involucral bracts narrow, very pointed, almost prickly.—Wight, Ic. t. 1086; Benth. Fl. Hongk. 170, with the synonyms adduced.

Hab.: Endeavour River, *Banks and Solander*.

Common in the warmer regions of America, Africa, and Asia.

6. ADENOSTEMMA, Forst.

(Pappus gland-bearing.)

Flower-heads, florets, and style of *Eupatorium*. Achenes obovate-oblong, untruncated at the base. Pappus of 3, 4, or 5 short stiff bristles, each tipped by a lobular or club-shaped gland.—Herbs, either glabrous or glandular, pubescent. Leaves opposite. Flower-heads usually hemispherical, small.

A genus of a very few American species, one of which spreads all round the warmer zone of the globe.—Benth.

1. **A. viscosum** (viscid), *Forst.*; *DC. Prod.* v. 111; *Benth. Fl. Austr.* iii. 62. Stem annual, erect or ascending, rooting at the base, and possibly renewed second year by a creeping rhizome or stolons, glabrous or glandular-pubescent, to 2ft. high. Leaves few, opposite, petiolate, from ovate to broadly triangular, usually coarsely toothed, from barely lin. long and rather thick and rough to 3 or 4in. long, thin and glabrous. Flower-heads hemispherical, 3 to 4 lines in diameter, in a loose spreading terminal 2 or 3-chotomous panicle, with very small leaves under the branches. Involucral bracts oblong, in about 2 rows. Florets numerous, often hairy outside. Achenes more or less muriculate or rarely quite smooth.—Wight, Ic. t. 1087, 1088.

Hab.: Endeavour River, *Banks and Solander*; Rockhampton and Rockingham Bay, *Bowman*; Hazard Island, *M'Gillivray*; common on wet land both north and south.

This is a common weed in the warmer regions of the globe, especially in the Old World where it extends northward to Japan. The species should include all those published by DeCandolle and others from the Old World, and at least *A. brasiliense* and *A. triangulare* among the American ones.—Benth.

7. AGERATUM, Linn.

(A name of Dioscorides for the Everlastings.)

Involucre florets and style of *Eupatorium*. Achenes angular. Pappus of 5 or 6 chaffy scales or bristles, dilated at the base.—Herbs with the opposite leaves and habit of *Eupatorium*.

A genus of a small number of American species, one of which is spread all over the warmer regions of the globe.

1. **A. conyzoides** (Conyza-like), *Linn.*; *DC. Prod.* v. 108; *Benth. Fl. Austr.* iii. 462. Billygoat Plant. An erect branching annual, 1 to 2ft. high, more or less hirsute with spreading hairs. Leaves opposite, petiolate, ovate, renate. Flower-heads rather small, in dense terminal corymbs. Involucral bracts striate, acute, in about 2 rows. Florets numerous, pale blue or white. Achenes black. Pappus of 5 lanceolate awned chaffy scales, often serrate in the lower part.—Hook. Exot. Fl. t. 15; F. v. M. Fragm. v. 62.

Hab.: Very common in northern parts.

A common weed all over the warmer regions of the globe.

8. EUPATORIUM, Linn.

(After Eupator, king of Pontus.)

Involucre hemispherical, campanulate or cylindrical, the bracts imbricate, in 2 or more series. Receptacle flat or slightly convex, without scales. Florets numerous or few, all tubular, hermaphrodite, 5-toothed. Anthers obtuse at the base. Style-branches elongated, obtuse. Achenes 5-angled, without intermediate striæ. Pappus of a single series of capillary bristles.—Perennial herbs or shrubs or very rarely annuals. Leaves usually opposite. Flower-heads mostly corymbose. Green parts of the plant often sprinkled with resinous dots.

A vast genus, the great majority of species being American, a few ranging over eastern Asia, and one extending to Europe and Australia.

1. **E. cannabinum** (Hemp-like), *Linn.*; *DC. Prod.* v. 180; *Benth. Fl. Austr.* iii. 462. Hemp Agrimony. A perennial with erect stems of 3 to 4ft., slightly pubescent. Leaves divided to the base into 3 broadly lanceolate coarsely-toothed segments, often 4 or 5in. long, those of the upper leaves smaller and sometimes very narrow, the uppermost leaves rarely undivided. Flower-heads numerous in compact terminal heads. Involucres cylindrical, of few unequal bracts, the inner ones often coloured. Florets usually 5, purple or rarely white.—*E. Lindleyanum*, *F. v. M. Fragm.* v. 62, not of DC.

Hab.: Near border of New South Wales, *F. v. Mueller*.

Very common in the temperate regions of the northern hemisphere in the Old World.

9. DICHROCEPHALA, DC.

(Referring to the two-coloured head of florets.)

Flower-heads heterogamous globose or disciform, many-flowered, outer female florets in numerous series, those of the disk hermaphrodite. Involucre inconspicuous, scales sub-biseriate, subequal, membranous-margined. Receptacle convex columnar or turbinate, naked. Corolla of the female florets rotate-campanulate, 3 to 4-fid or tubular-dentate; of the hermaphrodite florets tubular, dilated above, 4 to 5-toothed, or campanulate, constricted below. Anther 2-toothed at the base. Style-branches flattened with lanceolate or ovate appendix. Achenes compressed, pappus wanting (or of the hermaphrodite florets very minute).—Annual herbs. Leaves alternate, dentate or lyrate-pinnatifid. Flower-heads small with inconspicuous involucres in terminal, often divaricate, panicles. Female florets white; hermaphrodite florets violet or purple.—*H. and B. Gen. Plant.* i. 260.

1. **D. latifolia** (broad-leaved), *DC. Prod.* v. 372; *Oliv. Fl. Trop. Afr.* iii. 303. An erect or ascending herb, $\frac{1}{2}$ to 5ft. high, asperulous or minutely setulose; stem and branches angular. Leaves lyrate-pinnatifid, acute or obtuse, terminal lobe ovate or ovate-rotundate, or lateral lobes wanting, dentate, sessile or attenuate at the base into a late or slender petiole, membranous, $1\frac{1}{2}$ to 3in. long; upper ones smaller. Flower-heads subglobose, many-flowered, $1\frac{1}{2}$ to 3 lines diameter, on unequal pedicels ranging up to 1in. long, in lax terminal divaricate panicles. Scales of involucre sub-biseriate, obovate or broadly elliptical, membranous-margined, fimbriate-ciliate, nearly glabrous. Receptacle depresso-convex, glabrous, papillose-pitted, constricted below, about $\frac{1}{2}$ line broad, corolla of female floret tubular, 2 to 3-dentate, of the hermaphrodite florets campanulate constricted below. Achenes obovate, compressed, glabrous or very nearly so.—*Oliver l.c.*

Hab.: The plant enjoys a wide range, being indigenous to tropical and South Africa, the East Indies, Hongkong, and many other places, including North Queensland.—*F. v. Mueller*.

10. LAGENOPHORA, Cass.

(Achenes flagon-shaped.)

(*Ixauchenus*, Cass.; *Solenogyne*, Cass.; *Emphysopus*, Hook. f.)

Involucre nearly hemispherical, the bracts in about 2 rows, nearly equal, broad or narrow, with dry or scarious margins. Receptacle convex, without scales. Florets of the ray numerous, female, ligulate or short and tubular. Disk-florets numerous, hermaphrodite, tubular, with a more or less dilated limb, 5-toothed. Anthers obtuse at the base. Style-branches in the disk-florets somewhat flattened, but long and slender, papillose outside at least in the upper portion. Achenes compressed, abruptly contracted at the top either very shortly or into a distinct neck. Pappus none.—Small perennial herbs, with a tufted stock, radical leaves and leafless simple scapes, or rarely the scapes growing out into simple stems decumbent and leafy at the base. Flower-heads terminal, the ray white or purplish.

A small genus, chiefly Australian, but extending also to New Zealand and many parts of tropical Asia. Of the 3 Queensland species, one appears to be the same as the Asiatic one, the other two are endemic.

- | | |
|--|----------------------------|
| Ray-florets ligulate, linear, longer than the involucre and spreading. Flower-heads without the ray not above 4 lines diameter. Involucral bracts narrow | 1. <i>L. Billardieri</i> . |
| Ray-florets not exceeding those of the disk. | |
| Scapes slender, mostly much longer than the leaves. Ray-florets all tubular, 3-toothed | 2. <i>L. Solenogyne</i> . |
| Scapes thickened, shorter or rarely longer than the leaves. Ray-florets minute, mostly opening out into a short concave ligula | 3: <i>L. Emphysopus</i> . |

1. **L. Billardieri** (after J. J. Labillardière), *Cass., DC. Prod.* v. 307; *Benth. Fl. Austr.* iii. 507. A perennial with a short thick stock and slender creeping rhizomes, otherwise stemless with radical leaves and scapes, or the stems shortly decumbent and leafy at the base. Leaves from obovate to cuneate-oblong, obtuse, irregularly toothed or shortly lobed, narrowed into a petiole, usually all under 2in. long, rarely above 3in. Scapes slender, simple, from 2 or 3in. to nearly 1ft. long. Involucre from under 3 to nearly 4 lines diameter, the bracts rather numerous, linear or oblong, acute or rather obtuse. Ray-florets blue, ligulate, exceeding the involucre. Achenes at least as long as the involucre, the margins usually glandular-pubescent, contracted at the base and abruptly contracted at the top into a neck sometimes as long as the breadth of the achene, sometimes very short.—Hook. f. *Fl. Tasm.* i. 188; *Bellis stipitata*, Labill. *Pl. Nov. Holl.* ii. 55 t. 205; *Ixauchenus sublyratus*, Cass.; *DC. Prod.* v. 308; *Brachycome pumila*, Walp. *Rep.* ii. 584, according to Steetz in *Pl. Preiss.* i. 428; *Lagenophora gracilis*, Steetz in *Pl. Preiss.* i. 431.

Hab.: Brisbane River, Moreton Bay, and other southern localities.

The species is also in Ceylon, Khasya, the Indian Archipelago, and S. China. There are generally two distinguishable varieties:—1. *microcephala*, glabrous or hirsute, the flower-heads without the rays scarcely 3 lines diameter and the rays short, the most common tropical and subtropical form, and, 2. *normalis*, usually hirsute, the flower-heads without the rays about 4 lines diameter and the rays rather longer; this is most abundant in the southern districts. Labillardière's own specimens are almost intermediate between the two.—*Benth.*

2. **L. Solenogyne** (old generic name), *F. v. M. Fragm.* v. 62; *Benth. Fl. Austr.* iii. 508. Glabrous or hirsute. Radical leaves from obovate to oblong-cuneate, obtuse, 1 to 2in. long, toothed at the end or above the middle, narrowed into a distinct petiole. Scapes filiform, much longer than the leaves, usually with a few distant small narrow-linear leaves. Flower-heads scarcely above 2 lines diameter when in flower, nearly 3 lines when in fruit. Involucral bracts oblong, obtuse, with scarious often denticulate or ciliate margins. Ray-florets numerous, all apparently erect, tubular, and 3-toothed, not longer than the disk.

Achenes narrow, flat, with thickened margins, contracted at the base, terminating in a very short conical but obtuse and callous point.—*Solenogyne bellioides*, Cass.; DC. Prod. v. 367 (from the character given); *S. brachycomoides*, F. v. M. Fragm. v. 62.

Hab.: Southern localities common.

3. **L. Emphysopus** (old generic name), *Hook. f. Fl. Tasm.* i. 189; *Benth. Fl. Austr.* iii. 508. Very hirsute or nearly glabrous. Leaves all radical, densely tufted, oblong, obtuse, narrowed at the base, $1\frac{1}{2}$ to 3 in. long. Scapes very little exceeding the leaves, rather thick and often constricted under the head, leafless or with 1 or 2 very small leafy bracts. Involucre about 2 lines diameter when in flower, 3 lines when in fruit, the bracts oblong, obtuse, with scarios margins. Ray-florets very numerous and short, apparently tubular when in bud, but opening out into a short, concave, 2 or 3-toothed ligula. Achenes of the disk abortive, those of the ray as long as the involucre, narrow, flat, contracted at the base and very shortly so at the top, but without the distinct neck of *L. Billardieri*.—*Emphysopis Gunnii*, Hook. f. in Hook. Lond. Journ. vi. 113; *Solenogyne bellioides*, Sond. in Linnæa, xxv. 480, F. v. M. Pl. Vict. t. 37, but scarcely of *Cassini*.—*Benth.*

Hab.: Southern localities.

11. BRACHYCOME, Cass.

(Short pappus.)

(*Brachystephium*, Less.; *Paquerina*, Cass.; *Steiroglossa*, DC.; *Silphiospermum*, Steetz.)

Involucre usually hemispherical, the bracts in about 2 rows, nearly equal, broad or narrow, with dry or scarios margins. Receptacle convex or conical, without scales. Florets of the ray female, ligulate, numerous, but usually in a single row. Disk-florets numerous, hermaphrodite, tubular, with a more or less dilated limb, 5-toothed. Anthers obtuse at the base. Style-branches in the disk-florets somewhat flattened, with lanceolate or triangular tips or appendages, papillose outside. Achenes usually compressed when young, when ripe either flat with obtuse or acute or winged margins, or thick and obtusely 4-angled. Pappus consisting of a ring of short scale-like bristles, or scarcely perceptible or none at all.—Herbs either tufted with 1-headed scapes, or annuals or perennials with erect or ascending branching stems. Leaves alternate, entire toothed or divided. Flower-heads terminal, the ray white blue or purplish, very rarely yellow.

Besides the Australian species, which are all endemic, there are few others known. The genus is, however, nearly allied to *Bellis*, a group confined to the northern hemisphere. The majority of the Australian species, however, differ in habit; they are all distinguished by the dry or scarios margins of the involucre bracts, and most of them by other more trifling characters.—*Benth.*

SECTION I. **Brachystephium**.—*Ray inconspicuous. Achenes often compressed, especially when young, but with thickened margins, never winged, and sometimes at length as thick as broad. Pappus conspicuous, stellately spreading. Involucral bracts usually broadly scarios.*

- Perennial, with stout erect or ascending stems nearly simple. Lower leaves pinnatifid. Flower-heads large 1. *B. diversifolia*.
 Small erect branching perennial. Leaves cuneate, mostly toothed or lobed. Flower-heads small 2. *B. melanocarpa*.
 Small annuals. Flower-heads small, with few very small ray-florets. Leaves radical, scape simple. Achenes smooth, with 2 thick corky angles, obtuse but bordered by a line of long woolly hairs, and 2 angles narrow and glabrous 3. *B. pachyptera*.

SECTION II. **Paquerina**.—*Ray conspicuous. Achenes often compressed, especially when young, but with thickened margins, never winged, and sometimes at length as thick as broad. Pappus minute or none.*

- Slender, decumbent, glandular-pubescent, branching annual (or rarely perennial?). Leaves mostly obovate, toothed or lobed 4. *B. microcarpa*.

- Perennials, glabrous. Leaves narrow, entire or pinnate.
 Stock tufted. Leaves all radical. Scapes simple, leafless or nearly so.
 Leaves pinnate 5. *B. Stuartii*.
 Leaves linear or lanceolate, entire 6. *B. scapigera*.
 Stems decumbent or creeping at the base. Leaves entire. Achenes rather broad, with thick edges and concave sides. Glabrous. Leaves thin. Pappus none 7. *B. graminea*.
 Stems erect, rigid. Leaves entire, mostly lanceolate 8. *B. basaltica*.
 Stems slender, erect, or slightly decumbent at the base, branched. Leaves narrow, entire or pinnate. Achenes narrow 9. *B. trachycarpa*.

SECTION III. **Brachycome**.—*Ray conspicuous. Achenes flat, the margins obtuse, acute or winged. Pappus conspicuous.*

- Perennials. Leaves all or mostly radical. Scapes leafless or with few leaves, 1-headed.
 Achenes not winged. Leaves all radical, obovate or oblong, entire or crenate 10. *B. decipiens*.
 Achenes winged. Scapes sometimes with a few leaves. Leaves cuneate-oblong, entire or crenate. Glabrous or nearly so 11. *B. scapiformis*.
 Branching perennials with more or less leafy stems. Achenes (at least those of the disk) winged or acutely bordered.
 Leaves mostly pinnate, with linear segments. Stems, the first year, erect and corymbose, afterwards ascending 12. *B. ciliaris*.
 Leaves mostly linear, entire.
 Ray-florets white 13. *B. marginata*.
 Ray-florets yellow 14. *B. chrysoglossa*.
 Branching decumbent perennials, with more or less leafy stems. Achenes very flat, but with obtuse edges, not winged.
 Leaves thick, obovate or oblong, all petiolate, coarsely crenate or pinnatifid 15. *B. discolor*.
 Leaves once or twice pinnatisect or deeply pinnatifid, with narrow or rarely cuneate lobes 16. *B. multifida*.

1. **B. diversifolia** (leaves of various forms), *Fisch. and Mey. Ind.* ii.; *Sem. Hort. Petrop.* 31; *Benth. Fl. Austr.* iii. 511. A tufted perennial, flowering however the first year so as to appear annual, glabrous or hirsute with septate hairs. Stems usually simple, 1 to 2ft. high or rarely reduced to a short scape. Lower leaves often crowded, obovate spatulate or oblong, coarsely toothed or pinnatifid, the lobes broad or narrow, sometimes again divided, the upper leaves smaller and less divided, and the upper part of the stem a long almost leafless peduncle. Flower-heads larger than in any other species. Involucre above $\frac{3}{4}$ in. diameter, the scarious margins of the bracts broad. Ray-florets white, long and numerous. Style-branches with a lanceolate papillose appendage, but without the longer hairs at the base figured by Lessing (*Syn. Comp.* f. 16). Achenes oblong, thickened upwards, marked with longitudinal furrows, the outer ones obliquely incurved at the top, with a dense tuft of short capillary bristles.—*Hook. f. Fl. Tasm.* i. 187; *Pyrethrum diversifolium*, *Grah. in Hook. Exot. Fl.* iii. t. 215; *Bot. Reg.* t. 1025; *Brachystephium leucanthemoides*, *Less. Syn. Comp.* 389; *DC. Prod.* vi. 304.

Hab.: Southern localities.

2. **B. melanocarpa** (achenes black), *Sond. and F. v. M. in Linneæ* xxv. 476; *Benth. Fl. Austr.* iii. 511. A small perennial, but evidently flowering the first year so as to appear annual, erect, slightly branched, rarely much above 6in. high. Leaves mostly oblong-cuneate, obtuse and coarsely toothed at the end or shortly lobed above the middle, narrowed into a rather long petiole. Flower-heads small, on slender peduncles. Involucral bracts broad, scarious at the end. Ray-florets rather numerous. Achenes narrow-obovate, somewhat compressed, the edges obtuse, the sides often tuberculate, usually very black. Pappus of short bristles stellately spreading.

Hab.: Southern downs country.

3. **B. pachyptera** (thick-winged), *Turcz. in Bull. Mosc.* 1851 i. 175; *Benth. Fl. Austr.* iii. 512. A small apparently stemless but densely tufted annual. Leaves radical, linear, 3-lobed or shortly pinnate above the middle, with linear segments. Scapes leafless, 2 to 4 in. high. Involucres 3 to 4 lines diameter, the bracts very obtuse and broadly scarious. Receptacle small. Achenes numerous, slightly compressed, with thick almost corky edges, bordered by a longitudinal line of long woolly hairs, and with a narrow acutely prominent glabrous ridge on each side. Pappus of short scaly bristles.

Hab.: Murray River, *Dallachy*.

4. **B. microcarpa** (small-fruited), *F. v. M. Fragm.* i. 50; *Benth. Fl. Austr.* iii. 513. A more or less pubescent annual, sometimes very small and branched, the ascending or decumbent stems sometimes lengthening out to near a foot. Leaves petiolate, obovate or almost orbicular, obtusely and coarsely toothed or lobed, under 1 in. long, or when luxuriant lyrate and nearly 2 in. Flower-heads small, on long slender peduncles. Achenes obovate, very flat, with thickened margins, sprinkled with a few hairs or tuberculate on the sides. Pappus very small.

Hab.: Burnett River, *F. v. Mueller*; Wide Bay to Moreton Bay, *Leichhardt*; Brisbane River, Moreton Bay, *Fraser, F. v. Mueller*; Cape River, *Bowman*.

5. **B. Stuartii** (after Chas. Stuart), *Benth. Fl. Austr.* iii. 513. A small glabrous perennial, with a thick tufted or shortly creeping rootstock. Leaves radical, pinnate, with narrow, cuneate, entire toothed or lobed segments, the lower ones small and distant. Scapes leafless, slender, 3 to 6 in. high. Flower-head rather small. Involucral bracts broadly oblong. Receptacle very conical. Achenes small, black, rather narrow, slightly flattened, but thick, with obtuse edges, not winged, more or less tuberculate on the sides. Pappus minute.

Hab.: Stanthorpe.

6. **B. scapigera** (scape-bearing), *DC. Prod.* vii. 277; *Benth. Fl. Austr.* iii. 513. A glabrous perennial, with a densely tufted stock. Leaves radical, often surrounded at the base by the fibre-like remains of old leaves, oblong or linear-lanceolate, narrowed into a long petiole of a rather thick texture, quite entire. Scapes leafless or with 1 or 2 small leaves, 3 to 6 in. high or when luxuriant rather more. Flower-head not large. Involucral bracts obtuse and rather broadly scarious. Achenes compressed, but with obtuse edges, not at all winged. Pappus very small.—*Senecio scapiger*, *Sieb. in Spreng. Syst.* iii. 559; *Brachystephium scapigerum*, *DC. Prod.* vi. 304.

Hab.: Southern localities.

7. **B. graminea** (leaves grass-like), *F. v. M. Fragm.* i. 49; *Benth. Fl. Austr.* iii. 514. Slender and usually glabrous; stock perennial, creeping or sometimes tufted. Stems occasionally short and numerous, more frequently elongated, decumbent or erect, leafy at the base only or above the middle. Leaves linear or linear-lanceolate, mostly acute, narrowed into a long petiole. Involucre about 3 lines diameter, the bracts narrow-oblong, obtuse. Ray-florets numerous, narrow. Style-appendages narrow. Achenes as long as the involucre, obovate, compressed, with very thick obtuse callous margins, the somewhat concave sides often tuberculate, and the whole achene sometimes glandular. Pappus none.—*Bellis graminea*, *Labill. Pl. Nov. Holl.* ii. 54 t. 204; *Paquerina graminea*, *Cass.*; *DC. Prod.* v. 307; *Hook. f. Fl. Tasm.* i. 188.

Hab.: Southern downs country.

8. **B. basaltica** (found on basaltic country), *F. v. M. Fragm.* i. 50; *Benth. Fl. Austr.* iii. 515. A glabrous and somewhat glaucous perennial, with rigid erect branching stems of 1½ to 3 ft. Lower leaves petiolate, obovate-oblong, the

others oblong-lanceolate or linear, mostly acute and quite entire, the upper ones few, small and distant. Peduncles long, somewhat corymbose. Involucral bracts narrow, almost acute. Achenes narrow, at first flat with thickened margins, at length thick, tuberculate, not winged. Pappus very minute.

Hab.: ? *Bowman*; basaltic plains from Peak Range to Darling Downs, *F. v. Mueller*.

Var. *gracilis*. More slender, 1 to 2ft. high. Leaves all linear or linear-lanceolate. Hab.: Rockhampton and Keppel Bay, *Thozet*.

9. **B. trachycarpa** (rough achenes), *F. v. M. in Linnæa*, xxv. 339; *Benth. Fl. Austr.* iii. 515. A glabrous perennial, erect and corymbosely branched the first year, afterwards with numerous nearly simple or divaricately branched, slender but rigid stems from a more or less woody base. Leaves linear, the lowest often rather broad, entire, or pinnately lobed, the stem-leaves mostly narrow and entire. Flower-heads small. Involucral bracts cuneate-oblong, rather broadly scarious at the end. Ray short, lilac. Achenes narrow, with thickened margins, the sides more or less tuberculate, and sometimes hirsute with short hooked hairs. Pappus minute or almost none.

Hab.: Broadsound, *R. Brown*; Keppel Bay, *Thozet*.

10. **B. decipiens** (deceiving), *Hook. f. in Hook. Lond. Journ.* vi. 114; *Benth. Fl. Austr.* iii. 516, and *Fl. Tasm.* i. 184 t. 48. An almost stemless perennial, usually glabrous, with precisely the aspect but not the involucre of the European Daisy (*Bellis perennis*). Stock short and tufted. Leaves radical, obovate-oblong, entire or remotely and shortly toothed or crenate, narrowed into a short broad petiole, 1 to 3in. long. Scapes longer than the leaves, simple and leafless, or with a single small leaf. Heads rather large, the scarious margins of the involucre bracts usually but not always dark-coloured. Achenes very flat with a thickened margin, sprinkled with a few short hairs. Pappus very short.

Hab.: Southern downs country.

11. **B. scapiformis** (scape formed), *DC. Prod.* v. 306; *Benth. Fl. Austr.* iii. 517. A perennial with a tufted or slightly creeping stock, glabrous or nearly so. Radical leaves obovate or oblong-cuneate, coarsely toothed towards the end or rarely nearly entire, narrowed into a petiole, of a thicker consistence than in *B. decipiens*. Flowering-stems 6in. to 1½ft. high, sometimes reduced to almost leafless scapes, more frequently leafy below the middle, simple or rarely with a single accessory branch, the leaves smaller and narrower than the radical ones. Flower-heads rather large. Involucral bracts narrow and acute. Achenes flat, the acute edges more or less expanded into a wing. Pappus conspicuous, of short bristles almost dilated into scales.—*Hook. f. Fl. Tasm.* i. 185.

Hab.: Southern downs country.

12. **B. ciliaris** (achenes ciliate or eyelashed), *Less. Syn. Comp.* 172; *Benth. Fl. Austr.* iii. 518. Glabrous or more or less clothed, especially when young, with a white wool, probably always perennial, but often flowering the first year so as to appear annual; stems erect, slender, under 1ft. high, somewhat corymbosely branched. Leaves pinnate, with narrow-linear usually very divaricate segments. Flower-heads rather small. Involucral scales very variable in breadth. Achenes of the disk flattened, bordered by a broad entire denticulate or ciliate wing, the faces smooth or tuberculate, those of the ray often more tuberculate and without any wing. Pappus usually conspicuous.—*DC. Prod.* v. 306; *Hook. f. Fl. Tasm.* i. 187; *Bellis ciliaris*, *Labill. Pl. Nov. Holl.* ii. 56 t. 209; *Brachycome Drummondii*, *Walp. Rep.* ii. 584; *Steetz in Pl. Preiss.* i. 428.

Hab.: Southern downs country.

13. **B. marginata** (margined achenes), *Benth. in Hueg. Enum.* 60; and *Fl. Austr.* iii. 519. A perennial with slender branching glabrous stems, almost woody at the base. Leaves linear or linear-oblong, acute, entire or rarely with 1

or 2 teeth, narrowed at the base. Peduncles very long and slender. Ray-florets white. Involucral bracts rather broadly scarious. Achenes flattened, usually tuberculate, bordered by a rather broad wing, either entire or more frequently broken up into lobes.—*B. chrysoglossa*, F. v. M. in Trans. Phil. Soc. Vict. i. 44, and in Hook. Kew Journ. viii. 148.

Hab.: Burnett River and Peak Downs, *F. v. Mueller*; Bogan River, *Mitchell*.

14. **B. chrysoglossa** (ray-florets yellow), *F. v. M. Trans. Phil. Vic. i. 44*; *Vict. Pl. i. 305*. Plant perennial, glandular-pubescent. Leaves elliptic-cuneate, emarginate, mostly at the lower part of the plant. Achenes compressed, bordered by a fringed wing. Pappus conspicuous.

Hab.: Mount Playfair *F. v. Mueller*; St. George, *J. Wedd*.

15. **B. discolor** (two-colored), *C. Stuart in Herb. Hook.; Benth. Fl. Austr. iii. 520*. A glabrous perennial, stems slightly branched and decumbent at the base, ascending to a foot in length or more. Leaves obovate or cuneate-oblong, obtuse, coarsely crenate or pinnatifid, of a firm texture, purple underneath when fresh (*C. Stuart*), all petiolate. Flower-heads small, on very long peduncles. Involucral bracts narrow. Achenes obovate, flat, often tuberculate, with thickened margins. Pappus conspicuous.

Hab.: Southern downs country.

16. **B. multifida** (leaf much divided), *DC. Prod. v. 306*; *Benth. Fl. Austr. iii. 520*. A branching, erect or diffuse perennial or undershrub, usually glabrous. Leaves pinnate with linear segments, sometimes entire but more frequently lobed or pinnatifid, sometimes long and narrow, sometimes short and slightly dilated. Flower-heads rather small, on long slender peduncles. Achenes black, narrow, slightly compressed, the sides tubercular, the smooth margins often prominent but not winged. Pappus small.—*B. glabra*, *Benth. in Hueg. Enum. 59*.

Hab.: Southern downs country.

12. MINURIA, DC.

(From *minuros*, small.)

(*Therogeron, DC.; Elachothamnus, DC.; Kippistia, F. v. M.*)

Involucre ovoid or hemispherical, the bracts narrow, in few rows, dry or scarious on the margin. Receptacle without scales. Florets of the ray female, numerous, in several rows, ligulate but very narrow and sometimes short. Disk-florets hermaphrodite, but sterile, numerous or few, tubular, dilated upwards, usually 5-toothed. Anthers obtuse at the base. Style-lobes with obtuse acute or somewhat elongated tips, papillose on the back or the style simple and semi-abortive. Achenes of the ray flattened, with thickened margins, obovate or narrow, those of the disk slender and abortive. Pappus of the ray of numerous capillary bristles, that of the disk variously reduced or more paleaceous.—Undershrubs or shrubs, glabrous or the young branches woolly or pubescent. Leaves alternate, narrow, entire or toothed. Flower-heads hemispherical or broadly ovoid, pedunculate, solitary or corymbose. Ray-florets usually white.

The genus is confined to Australia. It is allied to *Erigeron*, differing chiefly in the abortive disk-achenes, with a reduced or altered pappus.—*Benth.*

Involucral bracts oblong-linear with scarious ciliate margins. Ray-achenes very densely silky-hairy	1. <i>M. leptophylla</i> .
Involucral bracts narrow, acute. Ray-achenes glabrous or slightly pubescent.	
Involucre about 3 lines long. Disk pappus of 5 to 10 bristles, with several short ones	2. <i>M. Cunninghamii</i> .
Involucre not 2 lines long. Disk pappus of fewer bristles than the ray, with several or scarcely any short ones.	

Glaucous and glabrous. Leaves lanceolate or linear, very acute . . . 3. *M. integerrima*.
 Young shoots woolly. Leaves linear, obtuse, entire or toothed . . . 4. *M. denticulata*.
 Involucral bracts oblong-linear, ciliate, about 2 lines long. Ray-achenes
 glabrous. Disk pappus united in a tube 5. *M. suædifolia*.

1. **M. leptophylla** (leaves slender), *DC. Prod.* v. 298; *Benth Fl. Austr.* iii. 498. An undershrub or small shrub, with numerous erect or ascending branches, under 1ft. and often under 6in. high, glabrous or pubescent in the upper portion. Leaves narrow-linear, almost filiform, mucronate-acute or almost obtuse, $\frac{1}{4}$ to $\frac{1}{2}$ in. long in some specimens, $\frac{1}{2}$ to 1in. in others, the upper ones small and few. Flower-heads terminal, pedunculate above the last leaves. Involucre hemispherical, the bracts not numerous, in 2 or 3 rows, with scarious ciliate margins, the inner ones 2 to 2½ lines long, a few of the outer ones smaller. Ray-florets 20 to 30, with oblong-linear ligulæ. Disk-florets about as long as the involucre. Achenes of the ray so densely covered with long silky hairs as to conceal their form, with a pappus of numerous nearly equal bristles; achenes of the disk abortive, terete, nearly glabrous, most of the pappus bristles very short and slightly flattened at the base, a few only elongated and usually thickened or plumose at the end.—*M. tenuissima*, *DC. Prod.* v. 298; *M. asteroidea*, *Sond. in. Linnæa*, xxv. 467.

Hab.: Inland localities.

Var. ? *hispida*. The whole plant hirsute with short spreading hairs.—*Rockingham Bay, Dallachy*, a single slender specimen in *Herb. F. Mueller*, with a single flower-head, insufficient for examination, and therefore the determination doubtful.—*Benth.*

2. **M. Cunninghamii** (after Allan Cunningham), *Benth. Fl. Austr.* iii. 498. A bushy shrub or undershrub, with short slender branchlets, quite glabrous. Leaves narrow-linear, entire, the longer ones acute and above $\frac{1}{2}$ in. long, the smaller ones often obtuse, thick and almost fleshy. Peduncles terminal, longer than the leaves. Involucre ovoid or almost hemispherical, about 3 lines long, the bracts narrow, acute. Ray-florets numerous, narrow, longer than the pappus; disk-florets usually few. Achenes of the ray glabrous or slightly pubescent, narrow, but flat, with a pappus of numerous very fine white capillary bristles; achenes of the disk nearly terete and abortive, the bristles all except 5 to 10 very short.—*Elachothamnus Cunninghamii*, *DC. Prod.* v. 398; *F. v. M. Pl. Viet. t.* 34; *Eurybiopsis intricata*, *F. v. M. in Linnæa*, xxv. 396; *Therogeton tenuifolius*, *Sond. in Linnæa*, xxv. 467.

Hab.: Inland southern localities.

3. **M. integerrima** (leaves entire), *Benth. Fl. Austr.* iii. 499. Perfectly glabrous, smooth and somewhat glaucous. Stems from a perennial often woody base, erect, rigid, often corymbosely branched, rarely above 1ft. high. Leaves lanceolate or linear, acute, quite entire, mostly $\frac{1}{2}$ to 1in. or rarely 2in. long, the upper ones few and small. Flower-heads small, terminal. Involucre broadly hemispherical, 2 to 3 lines diameter, with numerous narrow bracts, scarious on the edges. Ray-florets exceedingly numerous, in many rows, small, narrow, white; disk-florets sometimes only 2 or 3, sometimes numerous. Achenes of the ray small, flat, the pappus bristles fine, white and not very numerous; achenes of the disk abortive, with still fewer pappus-bristles, occasionally accompanied by a few short ones.—*Therogeton integerrimus*, *DC. Prod.* v. 283.

Hab.: *Burdekin River, F. v. Mueller; Condamine River, Leichhardt; Cape River, Bowman.*

4. **M. denticulata** (leaves toothed), *Benth. Fl. Austr.* iii. 499. Allied to *M. integerrima*, but more branching, with diffuse or ascending stems, rarely above 8 or 9in. high, the young shoots and sometimes the whole plant clothed with a white woolly tomentum. Leaves linear or linear-oblong, obtuse, entire or remotely

toothed. Flower-heads, florets, and achenes of *M. integerrima*, but the disk-pappus more generally accompanied by a few very short bristles slightly dilated at the base.—*Therogeton denticulatus*, DC. Prod. v. 283.

Hab.: Inland southern localities.

5. **M. suædifolia** (Suæda-leaved), *F. v. M. under* Kippistia; *Benth. Fl. Austr.* iii. 499. A small bushy shrub or undershrub, under 1ff. and often under 6in. high, glabrous and glaucous. Leaves narrow-linear, nearly terete, under $\frac{1}{2}$ in. long, mostly recurved at the end. Flower-heads small, pedunculate. Involucre hemispherical, 2 to 3 lines diameter, the bracts oblong-linear, ciliate, in few rows. Ray-florets yellow (*F. v. M.*), numerous, very little exceeding the involucre; disk-florets numerous, as long as the involucre. Achenes of the ray flat, with a pappus of rather numerous bristles, the outer ones free, the inner ones more or less connate; achenes of the disk abortive, the pappus united in a more or less toothed scarious tube.—*Kippistia suædifolia*, *F. v. M. Rep. Babb. Exped.* 12, and *Pl. Vict.* t. 35 and *Fragm.* x. 56.

Hab.: Inland localities.

13. CALOTIS, R. Br.

(Pappus-scales of some species ear-shaped.)

(*Huenefeldia, Walp.*; *Goniopogon, Turcz.*; *Cheiriloma, F. v. M.*)

Involucre usually hemispherical, the bracts in about 2 rows, nearly equal, broad or narrow, with dry or scarious margins and usually a few inner narrow bracts. Receptacle flat or convex, without scales. Florets of the ray female, ligulate, often numerous, but in a single row. Disk-florets numerous, apparently hermaphrodite but sterile (except in *C. hispidula*), tubular, 5-toothed. Anthers obtuse at the base. Style-branches in the disk-florets somewhat flattened or almost filiform, usually obtuse, papillose outside at the end. Fruiting-heads usually globular. Achenes of the ray flat, obovate or oblong. Pappus of 2 or more barbed bristles, sometimes all short, but more frequently 1, 2 or more growing out into rigid divaricate awns or spines, and accompanied sometimes by 2 or more truncate scales. Disk-achenes usually abortive.—Perennial herbs or rarely annuals, with the habit nearly of *Brachycome*. Leaves alternate, entire, toothed or pinnately divided. Flower-heads pedunculate, the rays white, rarely blue or purple.

The genus is confined to Australia.

SECTION I. **Eucalotis**.—Pappus consisting of rigid barbed awns and flat truncate scales. Perennials with leafy stems.

Leaves linear-lanceolate or oblong, remotely toothed or pinnatifid.
Scales of the pappus usually united in a cup: awns 1 or 2 1. *C. denter*.
Leaves cuneate or spatulate, toothed at the end. Scales of the pappus
2 or 3, alternating with the awns. Plant not glandular 2. *C. cuneifolia*.

SECTION II. **Cymbaria**.—Pappus consisting of 2 or more rigid awns, dilated and united at the base, without scales. Perennials with leafy stems, sometimes appearing annual.

Awns of the pappus 2, almost boat-shaped at the base. Plant usually
pubescent or hirsute 3. *C. cymbacantha*.
Awns of the pappus several, united in a glabrous cup at the base. Stems
elongated, glabrous or nearly so. 4. *C. erinacea*.

SECTION III. **Acantharia**.—Pappus consisting of several unequal awns, all distinct and usually hispid at the base, sometimes all short.

Achenes not winged. Perennials.

Stock emitting stolons or creeping rhizomes and a tuft of radical leaves. Scapes simple or with very few heads.

Radical leaves entire, toothed or lobed.

Rhizome creeping. Plant usually hirsute. Radical and lower leaves mostly toothed. Fruiting heads $\frac{1}{2}$ in. diameter 5. *C. scabiosifolia*,

- Plant stoloniferous, usually glabrous. Leaves radical, narrow.
 Scapes almost leafless. Fruiting heads small 6. *C. scapigera*.
 Stems numerous, erect, several-headed, the radical leaves decayed
 before flowering. Flower-heads small. Involucral bracts narrow.
 Upper leaves linear. Pappus longer than the achenes. Fruiting
 heads nearly 3 lines diameter 7. *C. lappulacea*.
 Upper leaves small, cuneate. Pappus shorter than the achenes.
 Fruiting heads not 2 lines diameter 8. *C. microcephala*.
 Achenes winged. Pappus short or of very fine awns. Perennial with
 slender branching stems 9. *C. breviseta*.
 Small annuals.
 Ray white. Achenes completely covered with long intricate or
 plumose hairs 10. *C. plumulifera*.
 Ray purple. Achenes shortly hirsute with ciliate wings 11. *C. porphyroglossa*.
 Ray white. Achenes nearly glabrous, the wings very shortly ciliate 12. *C. pterosperma*.

SECTION IV. **Cheioloma**.—Ray-florets scarcely exceeding the pappus. Disk-florets fertile. Pappus consisting of several unequal awns, alternating with very short, entire or lobed bristles or scales.

- Annual. Achenes not winged 13. *C. hispidula*.

1. **C. dentex** (leaves toothed), *R. Br. in Bot. Rey. under n. 504*; *Benth. Fl. Austr.* iii. 501. A perennial, with nearly simple or branched erect or decumbent stems, attaining sometimes 2 or 3ft., scabrous-pubescent or hispid. Leaves linear, lanceolate or oblong, usually acute, acutely and remotely toothed or pinnatifid, mostly 1 to 2in. long, often dilated into stem-clasping auricles. Flower-heads pedunculate. Involucre hemispherical, scabrous-pubescent; bracts not numerous, ovate, 3 or 5-nerved, almost membranous, the narrow inner ones very few or none. Achenes of the ray flat, obovate, scabrous or almost muricate. Pappus of 2 or 3 broad truncate scales, almost united into a fringed cup, and 1 or more frequently 2 rigid bristles or awns, barbed at the end only.—*DC. Prod. v. 302*.

Hab.: Burdekin River, *F. v. Mueller*; Brisbane River, Moreton Bay, *Leichhardt, W. Hill*. Abundant on hillsides.

2. **C. cuneifolia** (leaves wedge-shaped), *R. Br. in Bot. Rey. t. 504*; *Benth. Fl. Austr.* iii. 501. An erect or spreading branching perennial, rarely attaining 1ft., more or less hoary, scabrous-pubescent or hirsute. Leaves oblong, cuneate or spatulate, sometimes almost orbicular, coarsely toothed, narrowed into a short or long petiole dilated into stem-clasping auricles. Flower-heads hemispherical, becoming globular when in fruit, on terminal peduncles. Involucral bracts oval, oblong or lanceolate, about 2 lines long. Ray-florets long and narrow. Achenes flat, short, obovate. Pappus of 3 rigid barbed bristles or awns, and 2 broad membranous truncate scales, quite distinct, and sometimes a third smaller one. Disk-achenes abortive. Fruiting-heads forming a globular burr of 3 or 4 lines diameter.—*DC. Prod. v. 302*; *C. dilitata*, *A. Cunn.*; *DC. l.c.*

Hab.: Suttor River, *Thozet*; Burdekin River. Common on inland downs.

3. **C. cymbacantha** (pappus scales boat-shaped), *F. v. M. in Linnæa*, xxv. 400, *Pl. Vict. t. 36*; *Benth. Fl. Austr.* iii. 502. Apparently perennial, with ascending stems of about 1ft., slightly scabrous-pubescent. Lower leaves linear-cuneate or oblong, coarsely toothed, 1 to 2in. long, narrowed into a long petiole; upper ones smaller, sessile, linear or lanceolate, entire. Involucral bracts ovate. Ray-florets numerous, narrow. Achenes flat, obovate, crowned by 2 rigid divaricate scales, broad and concave, almost boat-shaped at the base, tapering into short rigid barbed awns, the summit of the achene convex within the scales.—*Sond. in Linnæa*, xxv. 469.

Hab.: Inland localities.

Var. *pumila*. Under 6in. high and flowering the first year, so as to appear annual, pubescent or hirsute. Flower-heads small. Scales of the pappus not so broad at the base, and tapering into longer, more densely barbed awns.—Near Cooper's Creek.

4. **C. erinacea** (hedgehog-like; pappus scales very rough), *Steetz in Pl. Preiss.* i. 424. A glabrous often glaucous perennial, with erect or ascending rigid branching stems of 1 to 2ft. Leaves not numerous, linear or linear-lanceolate, acute, entire, or the lower ones toothed. Flower-heads of *C. lappulacea*. Involucral bracts oblong or linear, slightly scabrous, 1 to 1½ line long. Ray-florets yellow (*F. v. Mueller.*) Fruiting-heads 3 to 4 lines diameter. Achenes glabrous, smooth or nearly so, with 3 to 5 awns scarcely barbed and united at the base into a broad open almost cartilaginous cup, often as long as the achene, and the border sinuate between the awns; the summit of the achene within the cup conical with a few minute bristles.

Hab.: Near Charleville, *J. Henderson.*

5. **C. scabiosifolia** (Scabiosa-leaved), *Sond. and Muell. in Linnæa* xxv. 471; *Benth. Fl. Austr.* iii. 503. Hirsute, scabrous or nearly glabrous, the stock densely tufted, with creeping rhizomes or stolons. Radical leaves petiolate, obovate or oblong, coarsely toothed or pinnatifid or sometimes lyrate, often 2 to 3in. long. Stems ascending or erect, ½ to 1ft. high, simple or slightly branched, with few smaller more sessile and less divided leaves. Involucral bracts ovate. Ray-florets white or purplish. Achenes softly pubescent. Pappus of about 8 very rigid awns, 3 or 4 larger ones much thickened at the base and divaricate but very unequal, the alternating smaller ones sometimes minute or wanting.—*C. Muelleri*, *Sond. in Linnæa* xxv. 470 (more glabrous with narrower leaves).

Hab.: Rockhampton and Keppel Bay, *Thozet*; Burdekin River and desert on the Suttor, *F. v. Mueller.*

Several varieties are met with on the inland downs. Therefore I have thought it advisable to give all Mr. Bentham's varieties as it will assist identification.

Var. *lasiocarpa*, *F. v. M.* Leaves more rigid, less toothed. Flower-heads and achenes larger.

Var. *pubescens*, *F. v. M.* Softly villous. Leaves cuneate, toothed at the end only. Flower-heads as in the last variety.

Var. *integrifolia*, *F. v. M.* Nearly glabrous. Radical leaves narrow, mostly linear, rigid, entire; stem leaves entire or toothed. Flower-heads large. Involucral bracts broad.

Var. *elongata*. An apparently etiolated form, the radical leaves 6in. long or more, with a few remote teeth or lobes. Stems almost filiform, with 1 or 2 long 1-headed branches.

Var. (?) *cuneata*, *F. v. M.* Radical leaves cuneate-oblong, more or less toothed. Stems elongated with a few oblong leaves and 1 to 3 flower-heads.

6. **C. scapigera** (flower-head on a scape), *Hook. in Mitch. Trop. Austr.* 75; *Benth. Fl. Austr.* iii. 503. A small tufted perennial emitting creeping stolons, glabrous or slightly hairy. Radical leaves linear or linear-lanceolate, entire or rarely remotely toothed, narrowed into a petiole of 1 to 3in. Flower-stems or scapes simple, longer than the leaves, bearing a few small narrow leaves and a single head very much smaller than in *C. scabiosifolia*. Involucral bracts broadly oblong. Ray-florets small, whitish. Fruiting-heads about 4 lines diameter. Achenes flat, tubercular or muricate, with 3 to 5 divaricate straight or hooked awns, obversely hirsute and very hairy at the base, and 2 to 5 small soft erect very hairy awns.

-Hab.: Darling Downs.

7. **C. lappulacea** (Burr-headed), *Benth. in Hueg. Enum.* 60, and *Fl. Austr.* iii. 504. A perennial, sometimes almost woody at the base, with numerous erect or ascending slender branching stems of ½ to 1ft., more or less hirsute especially in the lower part, rarely entirely glabrous. Lower leaves oblong-cuneate and often toothed or lobed, upper ones linear and entire, sometimes all under ½in., sometimes those in the middle of the stems ½in. long. Flower-heads small, when in fruit scarcely 3 lines diameter. Involucral bracts linear-lanceolate or oblong, sometimes slightly cuneate, ciliate and hispid. Ray-florets yellow, small

and narrow. Achenes muricate. Pappus of 1 to 4 rigid barbed awns about 1 line long and 1 or more very short ones, all hirsute at the base, the total number varying from 4 to 8.—Sond. in *Linnea* xxv. 470.

Hab.: Broadsound, *R. Brown*; Condamine River, *Leichhardt*; Burdekin River and Suttor desert, *F. v. Mueller*; Rockhampton, *Dallachy*; Maranoa and Belyando Rivers, *Mitchell*; Moreton Bay, *C. Stuart*. Very abundant.

8. ***C. microcephala*** (small-headed), *Benth. Fl. Austr.* iii. 504. An erect much-branched undershrub not exceeding 6 to 8 in., more or less hoary-hirsute. Leaves oblong-cuneate, obtuse, entire or toothed, under $\frac{1}{2}$ in. long, those of the branchlets much smaller. Flower-heads scarcely $1\frac{1}{2}$ line diameter. Involucral bracts narrow-oblong, obtuse. Fruiting-heads scarcely more than hemispherical and not 2 lines diameter. Achenes hirsute, obovate, flat but not winged. Pappus of 6 to 8 barbed awns, nearly equal, and all shorter than the achene.

Hab.: Inland localities.

9. ***C. breviseta*** (pappus awns short), *Benth. in Hueg. Enum.* 60; and *Fl. Austr.* iii. 505. An erect perennial of $\frac{1}{2}$ to 1 ft., or sometimes more, diffuse with slender stems of 1 to 2 ft. Leaves linear, obtuse, entire, or some of the lower ones linear-cuneate and coarsely toothed. Flower-heads very small, on slender peduncles. Involucral bracts numerous, linear, mostly acute, scarcely 1 line long. Ray-florets white. Achenes ovate, shortly hispid, not 1 line long, bordered by a narrow flat edge almost expanded into a wing. Pappus of 5 to 10 or even more little rigid barbed awns, usually much shorter than the achene.—*C. tropica*, *F. v. M.* in *Trans. Phil. Inst. Vict.* iii. 58.

Hab.: Inland tropics.

10. ***C. plumulifera*** (feathered pappus), *F. v. M. in Trans. Phil. Inst. Vict.* iii. 57; *Benth. Fl. Austr.* iii. 505. An annual with erect or ascending stems, rarely 6 in. high, glabrous or hirsute. Leaves oblong-lanceolate or cuneate, entire or with a few coarse teeth. Involucres 2 to $2\frac{1}{2}$ lines diameter the bracts oblong, obtuse or almost acute. Ray-florets very numerous, white. Fruiting-heads about 3 lines diameter. Achenes bordered by densely ciliate wings, and so covered by long mostly plumose hairs as to conceal their form. Pappus of several fine barbed awns, unequal, but mostly about the length of the achene.—*Goniopogon multicaule*, *Turcz.* in *Bull. Mosc.* 1851 i. 174 t. 2.

Hab.: Cooper's Creek, *A. C. Gregory*; and other inland localities.

11. ***C. porphyroglossa*** (rays purplish), *F. v. M. Herb.*; *Benth. Fl. Austr.* iii. 505. A hispid annual, with erect or ascending stems of about 4 to 5 in. Leaves cuneate or the lower ones petiolate and spatulate, deeply toothed or almost lobed, the upper ones smaller and narrow. Involucres 2 to $2\frac{1}{2}$ lines diameter, the bracts narrow and acute. Ray-florets purple, numerous, very narrow. Fruiting-heads about 4 lines diameter. Achenes shortly hirsute, bordered by rather broad wings, densely ciliate on the edge, but without the long plumose hairs of *C. plumulifera*. Pappus of numerous barbed awns, unequal but all shorter than the achene.

Hab.: Cooper's Creek, Georgina River, and other inland localities.

12. ***C. pterosperma*** (achenes winged), *R. Br. ms.*; *Benth. Fl. Austr.* iii. 505. An erect annual of about 1 ft., pubescent or hirsute when young, at length nearly glabrous. Lower leaves on the young plant obovate or petiolate and spatulate, coarsely toothed, on the older plant all linear and entire or rather broader and toothed at the end. Involucral bracts narrow, acute. Ray-florets numerous, white. Fruiting-heads scarcely 3 lines diameter. Achenes flat, sprinkled with a few short hairs, bordered by a very shortly ciliate wing; pappus of about 8 to 10 very short awns.

Hab.: Islands of the Gulf of Carpentaria, *R. Brown*.

13. **C. hispidula** (plant rough, hairy), *F. v. M. in Trans. Vict. Inst.* 1885, 130; *Benth. Fl. Austr.* iii. 506. A hispid annual with procumbent or rarely erect branching stems of 3 to 6 in. Lower and radical leaves petiolate, obovate spathulate or cuneate, upper ones oblong lanceolate, toothed towards the end or entire. Peduncle short. Involucral bracts ovate-lanceolate or oblong, hispid or almost muricate. Ray-florets few and very small, the ligula scarcely exceeding the pappus; disk-florets numerous, also small and all fertile. Fruiting-heads 3 to 4 lines diameter. Achenes quite similar in the ray and in the disk, flattened with thick obtuse margins, slightly hispid; pappus of about 4 to 6 rigid divaricate more or less barbed unequal bristles, alternating with as many much shorter bristles or scales either subulate and entire or palmately 3-fid or sometimes spathulate, and all hispid.—*Chevoloma hispidulum*, *F. v. M. in Linnæa*, xxv. 401; *Sonder in Linnæa*, xxv. 473.

Hab: Cooper's Creek and other inland localities.

14. OLEARIA, Mœnch.

(Some species supposed to have some resemblance to the Olive.)

(*Eurybia*, *Cass.*; *Steetzia*, *Sond.*)

Involucres from broadly hemispherical to narrow-ovate, the bracts imbricatè in several rows, the margins more or less dry or scarious, without herbaceous tips. Receptacle pitted, the borders of the pits often denticulate, but without scales. Florets of the ray female in a single row or fewer than those of the disk, usually ligulate, spreading, very rarely slender and filiform or deficient. Disk-florets numerous or few, hermaphrodite, tubular, gradually tapering to the base in most species of the first two sections, more abruptly contracted in some others; usually 5-lobed. Anthers often acute at the base or with minute tails, rarely obtuse. Style-lobes flattened with short obtuse or rarely lanceolate appendages, papillose on the back. Achenes striate, terete or slightly compressed. Pappus of numerous, usually unequal, capillary bristles.—Shrubs, undershrubs, or very rarely herbs. Leaves alternate or rarely opposite. Heads solitary, corymbose or paniculate, terminal but sometimes appearing axillary from the shortness of the flowering branches. Ray-florets white or blue. Disk-florets yellow or rarely purplish or even blue. The indumentum of the under side of the leaves is usually more or less present also on the branches and inflorescence.

The genus is limited to Australasia. The Australian species are all endemic. It is, however, very closely allied to the extensive genus *Aster*, widely diffused over the temperate regions of the northern hemisphere, especially in America, not separated indeed from *Olearia* by any one definite character, and *F. v. Mueller* has, in his later works, united the whole and several others to *Aster*. It appears to me, however, that independently of the convenience of retaining *Olearia* for the Australasian species, there is little risk of it being confounded with the northern genus. The habit of most species is very different. Where the achenes are the same or nearly so (as in the North American *Biotias*, which have the achenes as little compressed as in a few Australian species), the foliaceous-tipped involucral bracts of the former are a ready distinction. Some Australian species again are separated from all the American ones by their styles, others by their anthers, and most of them by the indumentum. There appear to be indeed better grounds for maintaining *Olearia* as distinct from *Aster* than for retaining *Erigeron*, which passes so gradually into it, and that again into *Conyza*, and if all these were united into one, we should have a group quite unmanageable without dividing it into sections corresponding to the present genera, which would be in fact retaining the present arrangement, but with all the evils consequent on the nominal change.

That *Olearia* and *Eurybia* are inseparable even as sections has been shown by *J. D. Hooker*, *Archer*, and others, and I follow *J. D. Hooker* in adopting the former as the older name. *Schultz-Bipontinus*, under the idea that the genus is the *Shawia* of *Forster*, adopts the latter name, and accordingly, in the "Pollichia," gives to all published species, good or bad, new names, as *Shawias*. This is, however, a mistake. *Forster* considered the true *Olearias* as *Asters*, and founded *Shawia* on a plant characterised specially by solitary florets. It proved

afterwards that this was not a constant character, and his genus was suppressed, and the circumstance that this abnormal peculiarity occurs on some specimens of one species of *Olearia*, can surely be no reason for now transferring the name founded on it to a large genus where it has not been observed in any other species.

In the subdivision of *Olearia*, I have adopted the main sections proposed by Archer (Journ. Linn. Soc. v. 17, 20), founded on the indumentum, which, with the exception of two or three species where it almost disappears, seems to be the most available in a genus where so many species pass into each other by almost insensible gradations.—*Benth.* (mostly).

SECTION I. **Asterotriche**.—*Indumentum of the under side of the leaves consisting of stellate hairs, sometimes very close and almost mealy.*

Leaves alternate, mostly toothed or sinuate.

Leaves ovate-oblong or lanceolate, smooth or scabrous above. Flower-heads rather small. Involucres broadly turbinate. Achenes hairy . . . 1. *O. stellulata*.

Leaves ovate-lanceolate, acute, rather thin and somewhat glutinous. Flower-heads in pedunculate corymbs . . . 2. *O. Nernstii*.

Leaves alternate or opposite, narrow, quite entire. Leaves alternate, narrow-linear . . . 3. *O. hygrophila*.

SECTION II. **Eriotriche**.—*Indumentum of the under side of the leaves consisting of densely intricate woolly hairs. Leaves alternate, often small.*

Flower-heads (usually small and ovoid) axillary or on very short axillary branchlets, forming long leafy racemes. Ray-florets conspicuously exceeding the style.

Leaves 1 to 4 lines long, obovate to oblong-linear, the upper surface glabrous or scabrous . . . 4. *O. ramulosa*.

Leaves narrow-linear, 3 to 6 lines long. Flower-heads forming short, dense, terminal, leafy racemes . . . 5. *O. subspicata*.

Flower-heads usually hemispherical, terminal, solitary or corymbose. Rays conspicuous.

Leaves mostly reflexed, clustered, about 1 line long. Flower-heads solitary . . . 6. *O. ramosissima*.

Leaves oblong-cuneate, 3 to 4 lines long. Flower-heads solitary, on long branchlets . . . 7. *O. pimeleoides*.

SECTION III. **Adenotriche**.—*Plant glabrous, usually glutinous. Involucre ovoid, turbinate or rarely hemispherical, the bracts usually obtuse, rigid, scarious on the margins and often ciliate.*

Flower-heads very large. Involucre broadly turbinate, above $\frac{1}{2}$ in. long. Leaves narrow, cuneate . . . 8. *O. magniflora*.

Flower-heads small, numerous, in a leafless corymbose panicle. Leaves elliptical-oblong or lanceolate, $1\frac{1}{2}$ to 3 in. long . . . 9. *O. elliptica*.

SECTION IV. **Merismotriche**.—*Glabrous, glandular-pubescent or hirsute, and often glutinous, the hairs simple rigid, white or transparent and septate. Involucre hemispherical, with narrow, usually acute bracts.*

Flower-heads rather large, few, trimmed, or, in the upper axils, on peduncles shorter than or rarely exceeding the leaves. Leaves obovate or oblong-crenate, very viscid. Peduncles longer than the leaves. Involucre scarcely $\frac{1}{2}$ in. diameter . . . 10. *O. xerophila*.

Flower-heads solitary, on peduncles very much longer than the leaves. Leaves mostly oblong, obtuse, coarsely toothed . . . 11. *O. rudis*.

1. **O. stellulata** (hairs in stars), DC. *Prod.* v. 272; *Benth. Fl. Austr.* iii. 473. An erect shrub of 3 to 5ft. Leaves alternate, oblong or lanceolate, obtuse or acute, more or less sinuate-toothed or rarely almost entire, glabrous or scabrous or stellate-hairy above, white or rusty underneath with a dense stellate tomentum, varying in size from all under $\frac{1}{2}$ in. in some specimens to above 2 or even 3 in. in others. Heads in the original form rather small, in leafy panicles. Involucre turbinate. Ray-florets about 8 to 12; disk-florets rather more numerous. Anthers scarcely auriculate. Style-appendages almost acute. Achenes more or less hirsute. Pappus with a distinct external series of short bristles.—*Aster stellulatus*, Labill. *Pl. Nov. Holl.* ii. 50 t. 196; *Eurybia fulvida*, Cass.; Hook. f. *Fl. Tasm.* i. 175; *Diplostephium stellulatum*, Nees, *Gen. et Sp. Ast.* 187; *Aster*

phlogopappus, Labill. Pl. Nov. Holl. ii. 49 t. 195; *A. phlogotrichus*, Spreng. Syst. iii. 525; *Eurybia quercifolia*, Cass. (DC.); *Diplostephium phlogotrichum*, Nees, Gen. et Sp. Ast. 186; *Olearia phlogopappa*, DC. Prod. v. 272; *Eurybia Gunniana*, DC. Prod. v. 268; Hook. f. Fl. Tasm. i. 175; *E. subrepanda*, DC. l.c.

Hab.: Port Bowen, *R. Brown*; Mount Hedlow, near Rockhampton, *Dallachy*.

Var. *canescens*. Leaves narrow-oblong, entire, $\frac{3}{4}$ to 2 in. long, hoary-tomentose on both sides.—Towards Wallangarra.

2. **O. Nernstii** (after J. Nernst), *F. v. M. Fragm.* v. 81; *Benth. Fl. Austr.* iii. 474. A shrub with elongated branches, loosely stellate-tomentose and apparently somewhat glutinous. Leaves alternate, ovate-lanceolate, acute, remotely and often acutely sinuate-toothed or nearly entire, 1 to 3 in. long, rather thin, glabrous and smooth above, loosely stellate-tomentose underneath. Flower-heads not large, in terminal pedunculate corymbs. Involucre almost hemispherical, 4 to 5 lines diameter, the bracts not very equal. Ray-florets 15 to 20; disk-florets numerous, not much exceeding the involucre. Anthers not auriculate. Style-appendages shortly lanceolate. Achenes short, glabrous. Pappus with an external series of very short bristles.—*Aster Nernstii*, *F. v. M.* l.c.

Hab.: Near Ipswich, *Nernst*; towards Moreton Bay, *Leichhardt*.

3. **O. hygrophila** (a lover of water), *Benth. Fl. Austr.* iii. 474. Shrubby, with slender virgate branches, very sparingly stellate-tomentose. Leaves alternate, linear, mostly acute, entire with recurved margins, $\frac{3}{4}$ to 1½ in. long, glabrous above, sparingly and minutely stellate-tomentose underneath. Flower-heads rather large, on slender peduncles, solitary or few in a loose corymb. Involucre scarcely $\frac{1}{2}$ in. diameter, the bracts narrow, somewhat unequal. Ray-florets 12 to 20, rather narrow; disk-florets numerous, scarcely exceeding the involucre. Anthers not auriculate. Style-appendages lanceolate. Achenes glabrous. Pappus-bristles slightly unequal, with very few short external ones or sometimes none at all.—*Eurybia hygrophila*, DC. Prod. v. 269.

Hab.: Islands of Moreton Bay.

4. **O. ramulosa** (much-branched), *Benth. Fl. Austr.* iii. 476. A shrub of 3 to 6 ft., much-branched, more or less scabrous-pubescent and sometimes slightly glutinous. Leaves crowded, usually very small and spreading, sometimes reflexed and clustered in the axils, varying from obovate or almost orbicular, about 1 line long, with a petiole of the same length, to oblong-linear and nearly $\frac{1}{2}$ in. long, usually obtuse, with recurved or revolute margins, glabrous or scabrous-pubescent above, the under surface with more or less of a thin intricate wool, or sometimes the thin loose wool covering the whole plant. Flower-heads small, very numerous, usually sessile or terminating very short lateral leafy peduncles or branchlets, forming long leafy spikes or racemes along the branches. Involucre ovoid, much imbricate, nearly 3 lines long. Ray-florets 6 to 10, the ligula much longer than its style; disk-florets scarcely more numerous. Style branches short, the appendages triangular, almost as in some *Senecionidæ*, but papillose only not hispid. Achenes short, slightly compressed, striate or 4-angled, hairy or rarely glabrous. Pappus with an outer series of short bristles, but sometimes very few only.

Hab.: Towards Wallangarra (both forms).

a. microphylla. Leaves obovate or oblong, 1 to 2 lines long. Flower-heads small.—*Aster microphyllus*, Vent. Jard. Malm. under n. 83; *Diplostephium microphyllum*, Nees, Gen. et Sp. Ast. 191; *Eurybia microphylla*, DC. Prod. v. 270.

b. communis. Leaves narrow, 1 to 6 lines long.—*Aster ramulosus* and *A. aculeatus*, Labill. Pl. Nov. Holl. ii. 51, 52, t. 198, 200; *A. exasperatus*, Link, Enum. Hort. Berol. ii. 328 (erroneously said to be from the Cape); *Diplostephium aculeatum*, Nees, Gen. et Sp. 192, and *D. ramulosum*, Nees, l.c. 193; *Eurybia ramulosa*, DC. Prod. v. 270; Hook. f. Fl. Tasm. i. 178; *E. propinqua*, *E. aculeata*, and *E. epiteia*, DC. l.c.; *E. ericoides*, Steetz in Pl. Preiss. i. 423.



F.C.Wills, Del.

F. Elliott, Lith.

Olearia hygrophila, Benth.

5. **O. subspicata** (flowers nearly in spikes), *Benth. Fl. Austr.* iii. 478. Shrubby, with erect virgate branches, more or less woolly-tomentose. Leaves erect, not clustered, linear, obtuse or nearly so, with revolute margins, rarely exceeding $\frac{3}{4}$ in., glabrous above, woolly-tomentose underneath. Flower-heads ovoid or almost cylindrical, shortly pedunculate or nearly sessile, crowded into short terminal racemes or spikes. Involucre much imbricate, 3 to 4 lines long, the bracts obtuse or nearly so. Ray-florets 3 to 6; the ligula much longer than the style; disk-florets about as many, longer than the involucre. Style-appendages lanceolate. Achenes silky-hairy. Pappus bristles rather unequal, but without any distinct series of short ones.—*Eurybia subspicata*, Hook. in Mitch. Trop. Austr. 293.

Hab.: Maranoa and Belyando Rivers, *Mitchell*; other southern localities.

The species differs from *O. ramulosa* chiefly in its longer leaves and larger flower-heads.

6. **O. ramosissima** (very branchy), *Benth. Fl. Austr.* iii. 479. A shrub of 2 or 3 ft., with numerous rather slender branches, scabrous-pubescent, mixed with a little loose wool. Leaves minute, reflexed, clustered in the axils, lanceolate or linear, entire, with revolute margins, all under 1 line long or rarely the larger ones narrow and nearly 2 lines long, glabrous and smooth or scabrous above, with a thin loose wool underneath. Flower-heads solitary at the ends of the branchlets, forming an oblong or rarely corymbose leafy panicle. Involucre broadly turbinate, about 3 lines long, the bracts often coloured and jagged at the edge. Florets tinged with blue, those of the ray 12 to 15, more numerous in the disk and longer than the involucre. Achenes more or less villous. Pappus white, with a few short outer bristles.—*Eurybia ramosissima*, DC. Prod. v. 270; *Aster cyanodiscus* or *Olearia cyanodiscalis*, F. v. M. Fragm. v. 82.

Hab.: Stanthorpe, *T. Kirkland*.

7. **O. pimeleoides** (like a *Pimelea*), *Benth. Fl. Austr.* iii. 479. A shrub of 4 or 5 ft., more or less hoary or white with a close woolly tomentum, the branches rigid and virgate or sometimes short and almost spinescent. Leaves mostly oblong-cuneate and 3 to 4 lines long, but passing into obovate and much shorter, or into longer and almost linear, obtuse, with recurved margins, glabrous or hoary above, tomentose underneath. Flower-heads solitary, terminal. Involucre broadly ovoid or almost hemispherical, the bracts much imbricate, almost acute. Ray-florets 10 to 15 or even more; disk-florets numerous, longer than the involucre. Style-appendages short, obtuse. Achenes silky-villous. Pappus-bristles unequal, but none very short.—*Eurybia pimeleoides*, DC. Prod. v. 268.

Hab.: Southern localities.

8. **O. magniflora** (flowers large), *F. v. M. Fragm.* v. 80; *Benth. Fl. Austr.* iii. 480. A shrub of 3 or 4 ft., with divaricate branches, the whole plant glabrous and often glutinous. Leaves not numerous, narrow, cuneate, thick, obtuse and often 3-toothed at the end, the larger ones above $\frac{3}{4}$ in. long, but mostly smaller. Flower-heads large, solitary, terminal. Involucre broadly turbinate, $\frac{3}{4}$ in. diameter, the bracts numerous, much imbricate, the inner ones often coloured on the margins. Ray-florets 15 to 20, long and narrow; disk-florets numerous. Style-lobes long, with short obtuse appendages. Achenes long, glabrous. Pappus exceeding the involucre, a few of the outer bristles shorter than the others.—*Aster magniflorus*, F. v. M. l.c.

Hab.: Recorded for Queensland by *F. v. Mueller*.

9. **O. elliptica** (leaves elliptical), *DC. Prod.* v. 271; *Benth. Fl. Austr.* iii. 483. A tall shrub, glabrous and often glutinous, the foliage sprinkled with minute glandular dots. Leaves elliptical, oblong or lanceolate, acute acuminate or almost obtuse, entire or rarely sinuate-toothed, narrowed at the base, $1\frac{1}{2}$ to 3 in. long. Flower-heads small, numerous, in a terminal corymbose leafless panicle.

Involucre broadly ovoid or almost hemispherical, 3. to 4 lines diameter. Ray-florets 6 to 8; disk-florets rather more numerous. Style-appendages rather long. Achenes slightly hairy. Pappus with few or many outer short bristles.—*Eurybia illita*, F. v. M. *Fragm.* i. 16; *Aster illitus* or *Olearia illita*, F. v. M. *Fragm.* v. 76.

Hab.: Near Warwick and Stanthorpe.

10. **O. xerophila** (found on dry land), F. v. M. *Fragm.* v. 76; *Benth. Fl. Austr.* iii. 486. A shrub, very glutinous and hispid with septate hairs. Leaves from obovate to oblong, obtuse, crenately toothed and almost crisped, narrowed into a petiole, $\frac{3}{4}$ to 1 in. long. Flower-heads not very large, on axillary peduncles longer than the leaves, solitary or few in a loose corymb. Involucre hemispherical, the bracts narrow, acute, in several rows, the inner ones about 2 lines long. Ray-florets 12 to 15; disk-florets numerous, much longer than the involucre. Style-appendages lanceolate. Achenes silky-pubescent. Pappus sometimes very unequal, a few outer bristles quite short, more rarely all nearly equal.—*Eurybia xerophila*, F. v. M. *Fragm.* i. 51; *Aster xerophilus*, F. v. M. *Fragm.* v. 76; *A. Heynei*, F. v. M. *Fragm.* v. 86.

Hab.: Sandy knolls, Warrego; barren ridges. Upper Burdekin and Cape Rivers.

11. **O. rudis** (coarse), F. v. M. *Fragm.* v. 75; *Benth. Fl. Austr.* iii. 487. An erect shrub or undershrub, more or less scabrous or hirsute with rigid septate hairs or rarely nearly glabrous. Leaves obovate-oblong, oblong-cuneate or broadly lanceolate, obtuse or rarely acute, coarsely and irregularly toothed or nearly entire, mostly 1 to 2 in. long, usually contracted below the middle, but often broader and stem-clasping at the base. Flower-heads rather larger, solitary or few together in a terminal corymb, the peduncles longer than the leaves, thickened under the head, without any or only a single linear bract. Involucre hemispherical, the bracts narrow, mostly acute, the inner ones about 4 lines long, the outer scarcely shorter. Ray-florets narrow, numerous; disk-florets scarcely so long as the involucre. Style-appendages very short. Achenes glabrous or nearly so, slightly compressed, strongly striate. Pappus-bristles nearly equal.—*Eurybia rudis*, Benth. in *Hueg. Enum.* 58; *Steetz in Pl. Preiss.* i. 418; *Aster exul*, Lindl. *Swan. Riv. App.* 24; F. v. M. *Fragm.* v. 75.

Hab.: Queensland, F. v. *Mueller*.

15. PODOCOMA, Less.; R. Br.

(From the beak of the achene forming a foot to the pappus.)

(*Podopappus*, *Hook. et Arn.*; *Asteropsis*, *Less.?*; *Ixiochlamys*, F. v. M.)

Involucre broadly ovoid or hemispherical, the bracts imbricate in several rows, narrow, acute. Receptacle without scales. Florets of the ray female, numerous, crowded in several rows, ligulate but very narrow. Disk-florets few, hermaphrodite, tubular but slender, usually 5-lobed. Anthers obtuse at the base. Style-lobes somewhat flattened, with narrow tips or appendages sometimes almost subulate. Achenes short, flat, produced into a long or short slender beak. Pappus of numerous capillary bristles.—Perennial herb. Leaves alternate. Flower-heads large, terminal, solitary, or very loosely corymbose.

Besides the Australian species, which is endemic, there are three from extratropical South America. Notwithstanding the confusion arising from Lessing's having described the ray-florets as 1-seriate, there seems little reason to doubt that *Erigeron hieracifolium*, Poir. (or *Podocoma hieracifolia* and *P. primulifolia*, Cass.), is identical with *Podopappus hirsutus*, Hook. et Arn., and *Asteropsis macrocephala*, Less., is most probably the same as *Podopappus tomentosus*, Hook. et Arn. The genus only differs from *Vittadinia* in the beaked achene, the length of the beak varying even in the same species.—*Benth.*

1. **P. cuneifolia** (leaves wedge-shaped), R. Br. *App. Sturt. Exped.* 17; *Benth. Fl. Austr.* iii. 493. Stems much branched and almost woody at the base, with ascending leafy branches rarely above 4 or 5 in. high, without the peduncles.

Leaves crowded, oblong-cuneate or almost linear, acutely toothed or lobed at the end, narrowed into a petiole, mostly above 1 in. long, ciliate as well as the petiole and stem with long rigid white hairs. Peduncles much longer than the leaves. Involucral bracts numerous, linear-lanceolate, acute, the inner ones $\frac{1}{2}$ in. long and coloured at the tips, the outer ones shorter, more or less glandular-pubescent as well as the peduncles. Ray-florets almost filiform, scarcely exceeding the pappus; disk-florets about as long as the involucre. Achenes small, obovate, glabrous or silky-hairy, the filiform beak three or four times as long as the achene itself. Pappus fine and white.—*Ixiochlamys cuneifolia*, F. v. M. and Sond. in Linnæa, xxv. 466.

Hab.: Border of N. S. Wales, inland.

16. ERIGERON, Linn.

(The Greek name for this or a similar genus.)

Involucre from ovoid to hemispherical, the bracts numerous, narrow, nearly equal or imbricate in several rows. Receptacle flat or slightly convex, without scales. Ray-florets female, numerous, in 2 or more rows either all ligulate or very narrow, or the inner ones shorter and filiform; disk-florets few or numerous, hermaphrodite, tubular, 5-toothed. Anthers obtuse at the base. Style-branches narrow, somewhat flattened, with lanceolate tips or appendages papillose outside, achenes flattened, the margins usually thickened. Pappus of copious capillary-nearly equal bristles.—Herbs. Leaves alternate or radical. Flower-heads solitary corymbose or paniculate. Ray-florets white, pink or purplish.

A large genus, ranging over the greater part of the globe, but chiefly in the temperate regions of the northern hemisphere, or in mountainous tropical regions. The genus is very closely allied to *Aster*, differing chiefly in the more numerous and narrower ray-florets, and even passes into it by almost insensible gradations among the American species, and on the other hand some species of the section *Cenotus* might also equally well be placed in *Conyza*.—*Benth.*

SECTION I. **Euerigeron**.—Female ray-florets all ligulate in many rows.

Stems erect, branching, leafy, usually annual.

Flower-heads hemispherical, solitary or corymbose. Leaves oblong or lanceolate. Pappus-bristles numerous, capillary

Flower-heads very small, ovoid in an oblong panicle 1. *E. ambiguus*.

. 2. *E. canadensis*.

SECTION II. **Cenotus**.—Inner rows or nearly all the female ray-florets filiform and tubular.

Plant pubescent or hirsute. Flower-heads in a short panicle. Ray-florets

nearly all filiform, the outer ones with a very minute ligula 3. *E. limifolius*.

1. ***E. ambiguus*** (doubtful), *F. v. M. in Trans. Phil. Inst. Vict.* iii. 58; *Benth. Fl. Austr.* iii. 494. Stems several, erect or ascending, corymbosely branched, shortly pubescent and somewhat glandular, attaining about 1 ft. in height. Leaves oblong or lanceolate, entire or with a few coarse teeth. Flower-heads small, in a loose terminal corymb. Involucral bracts narrow-linear or subulate, acuminate, the inner ones about 2 lines long. Ray-florets very numerous and slender, but ligulate, slightly exceeding the involucre; disk-florets much less numerous, about as long as the involucre. Style and achenes of the genus.

Hab.: Gilbert River; Herberton, *J. F. Bailey*; and several other localities north and south.

2. ***E. canadensis*** (Canadian), *Linn*; *Benth. Fl. Austr.* iii. 495. An erect not much branched annual, of 1 to 3 ft., glabrous or hispid with short spreading hairs. Leaves linear, 1 to 3 in. long, entire or rarely with a few distant teeth. Flower-heads small and very numerous in a large oblong or rarely corymbose terminal panicle, the peduncles very slender. Involucre ovoid, nearly glabrous, the bracts narrow, acute, about 2 lines long. Ray-florets very numerous, slender, but ligulate, scarcely exceeding the involucre, white; disk-florets not so many.

Hab.: Southern localities.

3. ***E. linifolius*** (Flax-leaved), *Willd. Spec. Pl.* iii. 1955; *Benth. Fl. Austr.* iii. 495. A coarse erect annual, 1 to 2ft. high or rather more, clothed with long soft hairs, or more shortly scabrous-pubescent. Radical leaves petiolate, oblong, often coarsely toothed or pinnatifid; stem leaves sessile, linear, entire or occasionally remotely toothed, often above 2in. long. Flower-heads rather small, pedunculate, more or less paniculate. Involucre broadly ovoid or almost hemispherical, the bracts narrow, acute, in 2 or 3 series. Female florets very numerous, filiform, not so long as the pappus, the outer ones usually dilated at the tip into a minute ligula, the others all tubular; disk-florets few. Style-appendages short. Achenes small, flat, pubescent.—*Conyza ambigua*, DC. Prod. v. 381; *Sond. in Linnæa*, xxv. 481; *Erigeron ambiguus*, Sch. Bip. in *Phyt. Canar.* ii. 208.

Hab.: Brisbane River, Moreton Bay, *F. v. Mueller*; Rockhampton, a troublesome weed, *Thozet*. A common tropical weed, found also in Europe.

17. VITTADINIA, A. Rich.

(After C. Vittadini.)

(*Microgyne*, Less.; *Eurybiopsis*, DC.)

Involucre hemispherical or campanulate, the bracts imbricate in several rows, with dry or scarious margins, without herbaceous tips, in the Australian species narrow and mostly acute. Receptacle pitted, without scales. Florets of the ray female numerous and crowded, so as to form more than one row, ligulate and spreading in the Australian species. Disk-florets numerous, but often not so many as those of the ray, hermaphrodite, tubular, dilated upwards, usually 5-lobed. Anthers obtuse at the base. Style-lobes somewhat flattened, with subulate tips or appendages papillose on the back. Achenes narrow, compressed or flat, with or without ribs on the faces. Pappus of numerous often unequal capillary bristles.—Perennial herbs or undershrubs, at length woody at the base, or in species not Australian shrubs. Leaves alternate. Flower-heads terminal, solitary or forming loose leafy corymbs. Ray-florets white or blue. Disk-florets yellow.

The genus extends to New Zealand and extratropical S. America, and (in a slightly modified form) to the Sandwich Islands. Of the 4 Australian species one is also in New Zealand, and very closely allied to the S. American one; the others are endemic. As a genus, the group is nearly allied to *Eurybia*, *Aster*, and especially to *Erigeron*, but, as shown by A. Gray (*Proc. Amer. Acad.* v. 116), it cannot well be united with either. From *Eurybia* it differs in the more numerous ray-florets and the more flattened achenes, from *Erigeron* in habit, and from both in the subulate tips to the styles.—*Benth.*

SECTION I. ***Vittadinia vera***.—*Achenes with 2 or more ribs on each face.*

Involucre imbricate in several rows. Achenes shorter than the involucre, with 2 or 3 ribs on each face. Pappus not so long 1. *V. brachycomoides*.
 Involucre of 2 or 3 rows. Achenes nearly as long as the involucre, many-ribbed or finely striate. Pappus as long again 2. *V. australis*.

SECTION II. ***Eurybiopsis***.—*Achenes very flat, the margins slightly thickened without prominent ribs on the faces.*

Scabrous-pubescent or hirsute. Leaves oblong or cuneate. Ray-florets scarcely exceeding the pappus 3. *V. scabra*.
 Glabrous or scabrous-pubescent. Leaves linear or the lower ones linear-cuneate. Ray-florets longer than the pappus 4. *V. macrorrhiza*.

1. ***V. brachycomoides*** (Brachycome-like), *F. v. M. Fragm.* v. 86, as an *Aster*; *Benth. Fl. Austr.* iii. 490. Stems from a thick woody stock, erect or decumbent, not much branched, $\frac{1}{2}$ to 1½ft. long, with more or less of a loose white woolly deciduous tomentum. Leaves in the original form linear or lanceolate, $\frac{1}{2}$ to 1½in. long, entire or rarely 3-toothed at the end. Flower-heads on long

terminal peduncles. Involucre hemispherical, the bracts in several rows, the inner ones $2\frac{1}{2}$ to 3 lines long, the outer ones gradually shorter. Ray-florets narrow, elongated, spreading. Achenes narrow, much shorter than the involucre, flat, with 2 or 3 prominent ribs on each face. Pappus of fine white rather unequal and not very copious bristles, not so long as the achene.

Hab.: Bustard Bay, *Banks and Solander*; Keppel Bay, *R. Brown*, *Thozet*; Percy Island, *M'Gillivray*; Rockhampton, *Dallachy*; ranges about Brisbane.

Var. (?) *latifolia*. Leaves broader, oblong, entire or toothed. Involucral scales broader and fewer.—Endeavour River and Northumberland Islands, *R. Brown* (the former specimens nearly glabrous, the latter very woolly); Albany Island, Cape York, *M'Gillivray*; Rockingham Bay, *Dallachy*; E. coast, *A. Cunningham*, *Bowman*.

2. V. australis (southern), *A. Rich.*; *DC. Prod.* v. 280; *Benth. Fl. Austr.* iii. 490. Herbaceous, either erect and apparently annual (flowering the first year) or with diffuse or ascending stems from a woody base, rarely above 1ft. high, more or less tomentose, with soft almost silky or woolly hairs, or scabrous-hispid with rigid hairs arising from a tubercle. Leaves in the typical form from obovate or spatulate to linear-cuneate, entire or coarsely 3-toothed or lobed, narrowed into a petiole, under $\frac{1}{2}$ in. long when broad, sometimes above 1in. when narrow. Flower-heads solitary, terminal. Involucre of 2 or 3 rows of narrow bracts 3 to 4 lines long, or the outer row shorter. Ray-florets narrow, about as long as the pappus or rather longer, but usually revolute so as to appear much shorter; disk-florets slender, much longer than the involucre. Achenes narrow, nearly as long as the involucre, tapering at the base, more or less pubescent, striate with 6 to 8 fine ribs on each face. Pappus longer than the achene, of copious rather unequal brownish bristles, a few outer ones much shorter.—*Aster Behrii*, Schlecht. *Linnæa*, xxi. 446; *F. v. M. Fragm.* v. 87; *Vittadinia triloba*, *V. cuneata*, and probably also *V. dentata*, *DC. Prod.* v. 281; *Eurybiopsis scabrata* and *E. gracilis*, Hook f. in *Hook. Lond. Journ.* vi. 110; *E. Hookeri*, *F. v. M.* in *Linnæa* xxv. 453; *Vittadinia scabra* and *V. cuneata*, Hook. f. *Fl. Tasm.* i. 181, 182; *V. triloba*, *V. cuneata*, and *V. scabra*, *A. Gray* in *Proc. Amer. Acad.* v. 118; *Diplopappus australasicus*, *Turcz.* in *Bull. Mosc.* 1851, i. 171.

Hab.: Bustard Bay and Bay of Inlets, *Banks and Solander*; Keppel Bay, *Thozet*; Port Curtis, *M'Gillivray* (the achenes in these specimens not so prominently striate but very different from those of *V. scabra*).—*Benth.*

Var. *dissecta*. Leaves often twice 3-lobed.—Wallangarra.

Var. *tenuissima*. Leaves linear-subulate. Flower-heads small.—Burnett River, *F. v. Mueller* (heads very young, and the identity doubtful).—*Benth.*

3. V. scabra (rough), *DC. Prod.* v. 281; *Benth. Fl. Austr.* iii. 491. A rigid herb of 1 to 2ft. with erect branches, or rarely small, somewhat woody at the base and divaricately branched, scabrous-pubescent or hirsute. Leaves linear-oblong or cuneate, often above 1in. long, and when broad stem-clasping at the base, entire or with a few coarse obtuse teeth. Flower-heads on peduncles longer than the leaves, usually forming a terminal corymb. Involucre almost hemispherical, the bracts numerous, narrow, acute or almost obtuse, the inner ones scarcely 3 lines long, the outer ones shorter. Ray-florets numerous, in some specimens all exceedingly narrow, almost filiform, and scarcely exceeding the pappus, in others rather broader and longer; disk-florets less numerous, at first but little longer than the involucre, but the ripe pappus much exceeding it. Achenes very flat, with thickened margins and no longitudinal ribs on the faces, sprinkled with appressed hairs. Pappus bristles unequal, scabrous.—*V. hispidula*, *F. v. M.*; *A. Gray* in *Proc. Amer. Acad.* v. 118; *Erigeron Vittadinia*, *F. v. M. Fragm.* v. 87.

Hab.: ? *R. Brown*; Bustard Bay and Bay of Inlets, *Banks and Solander*; rocky hills, Cleveland and Rodd's Bays, *A. Cunningham*; Wide Bay, *Leichhardt*; Gilbert River and Peak Downs, *F. v. Mueller*; flats on the Maranoa, *Mitchell*; Curtis Island, *Henne*; ranges about Brisbane.

4. **V. macrorrhiza** (large-rooted), *A. Gray in Proc. Amer. Acad.* v. 118; *Benth. Fl. Austr.* iii. 492. A perennial with a thick woody stock and slender erect not much-branched stems of about 6in., or 1ft. when luxuriant, glabrous or scabrous-pubescent. Leaves linear, or the lower ones linear-cuneate, $\frac{3}{4}$ in. long or less, or rarely nearly 1in., the upper ones small and distant. Flower-heads on long terminal peduncles, solitary or very loosely corymbose. Involucre hemispherical, the bracts narrow and acutely acuminate, the inner ones 3 lines long. Ray-florets not quite so numerous as in *V. scabra*, narrow but longer than the pappus, although usually revolute so as to appear shorter; disk-florets fewer, longer than the involucre. Achenes very flat, with thickened margins, without any or with a single short rib on their faces, sprinkled with appressed hairs. Pappus rather unequal.—*Eurybiopsis macrorrhiza*, DC. *Prod.* v. 260.

Hab.: Islands of the Gulf of Carpentaria, *R. Brown*; Broadsound, *R. Brown* (apparently the same species, although with rather longer leaves).

18. CONYZA, Linn.

(From the Greek name of a gnat; the powdered leaves of some species having been used to drive away gnats and fleas.)

Involucral bracts numerous, narrow, nearly equal or imbricate, in several rows. Receptacle flat or slightly convex, without scales. Ray-florets female, numerous, in several rows, all tubular, filiform, shorter than the involucre; disk-florets few, hermaphrodite, tubular, 5-toothed. Anthers obtuse at the base. Style-branches narrow, somewhat flattened, with lanceolate tips or appendages papillose outside. Achenes small, flattened, the margins usually thickened. Pappus of copious capillary bristles.—Herbs. Leaves alternate, entire, lobed or dissected. Flower-heads usually paniculate.

The genus as above defined, and as understood by De Candolle, comprises a considerable number of species dispersed over the warmer parts of the globe. Two of the Australian species are widely spread over tropical Asia, and one of them is equally abundant in Africa. The genus is closely allied to the section *Cenotus* of *Erigeron*, differing in the total absence of any ligulate expansion of the ray-florets; the softer, more copious pappus, and the larger proportion of female florets to the hermaphrodite ones, give also to the flower-heads a somewhat different aspect. From *Blumea* (to which Schultz-Bipontinus and Miquel propose to transfer the name of *Conyza*) it differs in the want of tails to the anthers.—*Benth.*

A shrub often 8 or 9ft. Leaves lanceolate, 3 to 5in. long, sharply toothed,

young growth and inflorescence tomentose 1. *C. elata*.

Tall branching, nearly glabrous, viscid plant. Leaves lanceolate, mostly entire 2. *C. viscidula*.

Hirsute annuals or biennials. Leaves obovate or oblong, coarsely toothed or pinnatifid 3. *C. ægyptiaca*.

1. **C. elata** (tall), *Bail. Bot. Bull.* viii. A tall rambling shrub, often attaining the height of 9ft. or more. Stems prominently striate. Leaves lanceolate, sharply toothed and acuminate, 3 to 5in. long, the petioles short and slender, the primary veins few and distant, the young growth and inflorescence hoary-tomentose, otherwise nearly glabrous. Flower-heads in small corymbs, terminating in lateral branches, clustered or on elongated peduncles. Involucral bracts narrow-linear, in 2 or 3 series, the inner ones about 3 lines long, the outer ones broader and only 1 or 2 lines long. Receptacle densely hairy. Outer florets female, with very slender tubes, the lobes setaceous, the long exserted style-branches very narrow and glabrous; the disk or central florets few, male (or hermaphrodite) florets with much wider tubes enclosing the anthers, corolla-lobes as in the males, bearing prominent white bristles; style-branches flattened and echinate, but not so far exserted, but much broader than those of the female florets. Pappus slightly exceeding the involucre, 1-seriate, white. Achenes silky, and flattened, angular, or more or less ribbed.

Hab.: Abounding in the scrubs of the Russell River, and attaining the height of 12 or 14ft., *Bellenden Ker Expedition*; Barron River scrubs, *E. Cowley*.

2. **C. viscidula** (viscid), *Wall.*; *DC. Prod.* v. 383; *Benth. Fl. Austr.* iii. 496. A tall, branching erect herb, more or less viscid-pubescent, especially the inflorescence. Lower leaves ovate, acuminate, often 3 to 4 in. long, upper ones smaller, ovate-lanceolate or lanceolate, all narrowed to the base but scarcely petiolate, slightly toothed or entire. Flower-heads numerous, rather small, clustered and corymbose on the lateral branches of a large terminal panicle. Involucral bracts nearly equal, about 2 lines long, the outer ones linear-lanceolate, acute, the inner narrower, more acuminate, and more scarious. Pappus slightly exceeding the involucre. Ray-florets exceedingly numerous, the style about as long as the pappus, the filiform corollas very much shorter; disk-florets about 2 to 6.—*C. Wallichii*, *DC. Prod.* v. 384; *C. polycephala*, *Edgew.* in *Trans. Linn. Soc.* xx. 66.

Hab.: Shoalwater Bay, *R. Brown*.

The species is common in India. It has much the aspect of *Blumea balsamifera*, *DC.*, but differs both in involucre and anthers.

3. **C. ægyptiaca** (Egyptian), *Ait.*; *DC. Prod.* v. 382; *Benth. Fl. Austr.* iii. 497. A coarse, erect, hirsute annual or biennial, sometimes 2 to 3 ft. high and nearly simple, except the terminal panicle, sometimes divaricately branched below the middle. Leaves lanceolate or oblong, obtuse or rarely almost acute, coarsely toothed in their whole length or at the base only, or pinnatifid with ovate oblong or rarely linear lobes. Flower-heads rather large for the genus, shortly pedicellate, in dense cymes or clusters, forming a terminal corymbose panicle. Involucral bracts narrow, subulate-acuminate, the inner ones above 3 lines long. Florets and pappus not exceeding the involucre. Ray-florets exceedingly numerous, all filiform, but not so short as in *C. viscidula*; disk-florets also numerous, but varying in different heads.—*C. lineariloba*, *DC. Prod.* v. 385.

Hab.: Northumberland Islands, Lizard Island, Broadsound, *R. Brown*; Port Mollé, *M'Gilivray*; Burnett and Burdekin Rivers, *F. v. Mueller*; Rockingham Bay and Rockhampton, *Dallachy*; Brisbane River, *Fraser*; Keppel Bay, *Thozet*; also from *Leichhardt's* collection.

The species is common in tropical and subtropical Asia and Africa. Most of the Australian specimens, like some from Amoy (*Hance*), and the majority of the Mauritius ones I have seen, belong to a variety with the leaves more decidedly pinnatifid than they are usually in the Egyptian and Indian specimens; but in some of the Australian specimens the leaves are toothed only as in the Egyptian and Indian ones, and one gathered on the Nile by *Speke* and *Grant* has them precisely like the common Australian form.—*Benth.*

19. *BACCHARIS, Linn.

(From one of the species having been dedicated by the Greeks to Bacchus.)

Heads many-flowered, diœcious; florets all tubular and similar. Involucre somewhat hemispherical or oblong, the bracts imbricate in several rows. Receptacle naked or rarely chaffy. Corolla in the sterile florets somewhat dilated and 5 clefts at the summit; in the fertile filiform, somewhat truncate. Anthers exerted in the sterile florets, entirely absent in the fertile. Style in the fertile florets exerted with glabrous branches, in the sterile florets tipped with an ovate hairy appendage often more or less abortive. Achenes ribbed or grooved. Pappus capillary; of the sterile plant in a single series, often tortuous or somewhat plumose-penicillate, about the length of the involucre; of the fertile plant in one or several series, not thickened or penicillate at the apex, usually much longer than the involucre.—Shrubs or undershrubs. Leaves mostly alternate, entire or toothed, often decurrent on the branches. Florets mostly white, rarely yellow or purple.

All belong to America.

1. **B. halimifolia** (Halimus-leaved), *Linn.* Groundsel-tree. A bushy shrub of from 6 to 12ft., glabrous or somewhat scurfy-glaucous, the branches angular. Leaves 1 to 2½ in. long, obovate, coarsely angulate-toothed above, cuneate at the base and somewhat attenuate into a petiole, the uppermost lanceolate and entire. Flower-heads of the sterile plant subglobose, pedicellated solitary or aggregated; the fertile somewhat loosely paniced, ovate-oblong bracts of the sterile involucre ovate; the inner ones elongated in the fertile. Pappus of the fertile florets very long, white and silky.

Hab.: This American shrub, which has been introduced for garden culture, is becoming naturalised about the towns, and is likely before long to become a pest. The genus contains about 250 species, several of which are supposed to possess medicinal properties in their native countries, others are considered as good fodder for horses. *B. cordifolius*, however (the "Mio-mio" of the Argentine Republic, Banda Oriental, and Uruguay), is said to be poisonous to sheep.

20. BLUMEA, DC.

(After C. L. Blume.)

Involucre ovoid or campanulate, the bracts imbricate in several rows, narrow-linear, herbaceous or soft. Receptacle nearly flat, without scales. Florets all tubular, those of the circumference female, filiform, usually very numerous, those of the disk hermaphrodite, broader, usually few. Anthers with short fine tails or points at the base. Style-branches filiform, papillose outside at the end. Achenes small, usually somewhat compressed, striate or ribbed. Pappus of numerous capillary bristles.—Annual or perennial herbs, usually villous woolly or glandular-pubescent. Leaves alternate, toothed, lobed or rarely entire. Flower-heads in terminal pyramidal or oblong panicles, sometimes contracted into spikes or clusters, or rarely the heads solitary.

A considerable genus, confined to the warmer regions of the Old World, some of them ubiquitous and variable weeds, upon which a large number of spurious species have been fabricated, the real limits of the more distinct forms often very difficult to establish. Of the 8 Australian species, 3 appear to be endemic, the other 5 belong to some of the more common Asiatic forms. The genus is very closely allied to *Conyza* and to *Pluchea*, having very nearly the same florets and achenes, with the involucre and habit of the former and the tailed anthers of the latter.—*Benth.*

Flower-heads all distinctly pedunculate.

Glandular-pubescent, not tomentose.

Leaves all or almost all narrowed into a petiole. Usually above 1ft. high

Stem-leaves sessile and stem-clasping. Radical leaves only petiolate.

Rarely exceeding 1ft. in height

Usually not exceeding 1ft., pubescent or villous, not viscid. Stem-leaves sessile and stem-clasping, mostly lanceolate. Peduncles rather long

Small. Leaves chiefly radical. Stem-leaves few, small, ovate.

Peduncles long and filiform

Flower-heads, at least the upper ones, sessile and clustered.

Leaves lanceolate, oblong or obovate-oblong, the upper ones sessile.

Involucre about 4 lines long

Involucre under 3 lines long

Almost all the leaves petiolate and broadly obovate. Involucre 2 to 3 lines long

Lower leaves large, runcinate-pinnatifid. Heads crowded on very short peduncles or sessile

1. *B. glandulosa*.

2. *B. amplexans*.

3. *B. integrifolia*.

4. *B. diffusa*.

5. *B. hieracifolia*.

6. *B. Cunninghamii*.

7. *B. lacera*.

8. *B. acutata*.

1. **B. glandulosa** (glandular), *DC. Prod.* v. 438; *Benth. Fl. Austr.* iii. 525. An erect annual, often 2 to 3ft. high, more or less covered with a glandular-viscid pubescence, with sometimes a little wool at the base of the leaves. Leaves obovate ovate or lanceolate, acutely or coarsely toothed, green on both sides, the lower ones often 3 to 5in. long and almost lobed at the base, on long stalks, the

upper ones smaller and narrower but all petiolate. Flower-heads about 4 lines long, all pedunculate or perhaps as in some Indian specimens a few of the upper ones almost sessile, forming a large pyramidal panicle.

Hab.: Endeavour River, *Banks and Solander*; Broadsound and Shoalwater Bay, *R. Brown*; Port Molle, *M'Gillivray*.

The species is widely spread over E. India and the Archipelago, extending to S. China.—*Benth.*

Var. *minor*. Not exceeding 1½ ft. in height. Leaves and flower-heads smaller.—Port Molle, *M'Gillivray*; Rockhampton, *Thozet*.

2. **B. amplectens** (leaves clasping the stem), *DC. Prod.* v. 433; *Benth. Fl. Austr.* iii. 525. An annual with erect or ascending stems, usually under 1 ft. high, more or less covered with a glandular-viscid pubescence. Radical leaves obovate and petiolate, the stem leaves all sessile and stem-clasping, from ovate to lanceolate, acutely-toothed and usually small. Flower-heads all pedunculate, not numerous, in a loose panicle, very divaricate in Indian specimens, less so in the Australian ones. Involucre nearly 3 lines long. Style-branches of the disk-florets long and slender.

Hab.: Keppel Bay, *Thozet*; Connor River, *Bowman*.

The species is common in E. India.

3. **B. integrifolia** (leaves usually entire), *DC. Prod.* v. 433; *Benth. Fl. Austr.* iii. 525. A rather slender annual, erect or branching from the base, rarely above 1 ft. high, pubescent or hirsute, and perhaps sometimes viscid, the young shoots occasionally silky-woolly. Leaves oblong-lanceolate or rarely the lower ones almost obovate, acute and bordered by distinct acute teeth, rather rigid and often scabrous, the lower ones 1 to 3 in. long, the upper ones smaller, narrowed towards the base or broad and stem-clasping at the base. Flower-heads not clustered, the peduncles at first short but generally long and slender when the flowers are fully out. Involucre 2 to 3 lines long.

Hab.: Islands of the Gulf of Carpentaria.

4. **B. diffusa** (plant diffuse), *R. Br. Herb.*; *Benth. Fl. Austr.* iii. 525. A small slender and diffuse annual, slightly viscid, with a very little wool at the base of the stems, rarely exceeding 6 in. including the peduncles. Leaves chiefly radical and rosulate, petiolate, obovate-oblong, ½ to 1 or rarely 2 in. long; those on the stem few, small, ovate, stem-clasping. Peduncles long and very slender. Flower-heads small, glabrous or slightly pubescent.

Hab.: Islands of the Gulf of Carpentaria, *R. Brown*; Thursday Island.

5. **B. hieracifolia** (Hieracium-leaved), *DC. Prod.* v. 442; *Benth. Fl. Austr.* iii. 526. An erect stiff almost simple annual, 1 to 2 ft. high, more or less tomentose or densely villous, but not viscid. Leaves oblong, irregularly and sharply toothed, the lowest nearly obovate, 2 to 3 in. long, and petiolate, the others sessile or nearly so but narrowed at the base, the uppermost almost lanceolate. Flower-heads about 4 lines long, mostly sessile and clustered, the lower clusters distant, the upper ones forming a terminal leafy spike, or more rarely branching into an oblong terminal panicle. Involucre always tomentose, the bracts linear, acute and soft as in the rest of the genus, but rather broader than in the following 2 species.—Wight, *Ic. t. 1099* (representing a dwarf form).

Hab.: Broadsound, *R. Brown*; Keppel Bay, *Thozet*; Moreton Bay, *Leichhardt*; Thursday Island.

The species is one of the common ones in tropical Asia from Ceylon and the Peninsula to the Archipelago, and northwards to S. China and Formosa. *R. Brown's* and *F. v. Mueller's* specimens belong to the very villous var. *holosericea*, *Benth. Fl. Hongk. 178*, or *B. holosericea*, *DC. Prod.* v. 442. *Leichhardt's* and *Thozet's* are less villous, the leaves of the former nearly glabrous and on longer petioles.—*Benth.*

6. **B. Cunninghamii** (after Allan Cunningham), *DC. Prod.* v. 435; *Benth. Fl. Austr.* iii. 526. An erect stiff scarcely branched annual, pubescent or silky-villous. Leaves as in *B. hieracifolia*, the lower ones petiolate and nearly obovate, the uppermost lanceolate, often stem-clasping, all irregularly and acutely toothed. Flower-heads 2 to 3 lines long, mostly sessile in small clusters, forming an oblong leafy panicle. Involucres of *B. lacera*.

Hab.: Gulf of Carpentaria, *R. Brown*.

This plant does not appear to be exactly matched in any of our Indian specimens, although closely allied both to the preceding and the following species. It differs from *B. hieracifolia* chiefly in the smaller flower-heads, from *B. lacera* in the more sessile leaves.—*Benth.*

7. **B. lacera** (the leaves torn), *DC. Prod.* v. 436; *Benth. Fl. Austr.* iii. 526. An erect annual, 1 to 2ft. high, simple or branched, not usually so stiff as *B. hieracifolia*, more or less clothed with soft whitish hairs or pubescence. Leaves all petiolate, obovate ovate or rarely oblong, coarsely toothed or almost lyrate. Flower-heads seldom above 3 lines long and often not above 2 lines, very numerous in narrow oblong and dense or looser and more spreading panicles, leafy at the base, the upper heads sessile and clustered on the branches. Involucral bracts usually very narrow.

Hab.: Shoalwater Bay, *R. Brown*; Burdekin Expedition, *F. v. Mueller*; Rockhampton, *Dallachy*; Brisbane River, Moreton Bay, *Fraser, F. v. Mueller*.

This is one of the commonest weeds in tropical Asia, extending from tropical and subtropical Africa to the Archipelago and S. China. It is also extremely variable and sometimes difficult to recognise in the bad specimens often preserved in herbariæ. The Australian ones I have seen belong chiefly to a slender loosely branched variety with long-petioled thin leaves, often distinguished as a species under the name of *B. Wightiana*, *DC. Prod.* v. 435; *Benth. Fl. Hongk.* 178; but which Thwaites appears to be right in reducing to *B. lacera*. The Brisbane River specimens are, on the other hand, nearly as tall and rigid as *B. hieracifolia*, and the flower-heads are rather larger than usual in *B. lacera*, but the leaves are mostly lyrate and all petiolate, and they appear to represent only a luxuriant state of *B. lacera*.—*Benth.*

8. **B. acutata** (lobes of the leaves acute), *DC.; F. v. M. Fragm.* ix. 160. Of tall growth, moderately villous, the lower leaves large, runcinate-pinnate-lobed, lobes broad, irregularly again lobed or toothed; upper leaves sessile, almost lanceolate, acutely toothed or lobed. Heads crowded, very shortly pedunculate or sessile. Involucral bracts acute, the inner ones somewhat broad linear. Corollas very moderately glandular. Receptacle very shortly hairy. Male florets about 12. Achenes slightly pilose. Pappus white.

Hab.: Daintree River, *E. Fitzalan* (*F. v. M. i.c.*)
Also of Asia.

21. PLUCHEA, Less.

(After M. Pluche.)

(*Spiropodium* and *Eyrea*, *F. v. M.*)

Involucre either ovoid with the bracts imbricate in several rows, usually broader, more rigid and less acuminate than in *Blumea*, or hemispherical with narrow bracts. Florets all tubular, those of the circumference female, filiform, usually very numerous, those of the disk broader, hermaphrodite, but usually sterile, few, or the heads almost diœcious. Anthers with short fine tails or points at the base. Style (of the disk-florets) simple, papillose towards the end, or very rarely branched as in *Blumea*. Achenes small, usually somewhat compressed. Pappus of numerous capillary bristles.—Shrubs, undershrubs or perennial herbs (rarely if ever annuals). Leaves alternate, entire toothed or rarely almost pinnatifid. Flower-heads in terminal corymbs, sometimes contracted into clusters or rarely solitary.

The genus comprises several N. and S. American species, a very few from Africa and tropical and subtropical Asia, besides the 6 Australian endemic ones, 4 of which are met with in Queensland. They differ generally from *Blumea*, in habit as well as in the involucre and style,

but none of these characters are quite constant. They have some affinity also with *Pterigeron*, but the female florets are never ligulate, and the style is scarcely or not at all bulbous at the base.—*Benth.* (in the most part).

SECTION I. **Pluchea.**—*Flower-heads ovoid. Involucral bracts lanceolate or the outer ones ovate.*

Shrubs.

- Flower-heads in dense terminal corymbs of 2 to 3in. diameter 1. *P. indica.*
- Flower-heads few together in stalked clusters, in corymbose or globose terminal panicles 2. *P. Dioscoridis.*
- Herbs or undershrubs of 1 to 2ft. Flower-heads in loose leafy corymbose panicles, solitary or in small clusters on the branches.
- Leaves obovate or oblong-lanceolate 3. *P. tetranthera.*
- Leaves linear 4. *P. baccharoides.*

SECTION II. **Eyrea.**—*Flower-heads broad or hemispherical. Involucral bracts narrow.*

- Flower-heads about ½in. diameter, the bracts all dry 5. *P. Eyrea.*
- Flower-heads nearly ½in. diameter, the outer bracts with reflexed tips often leafy. Nearly all the bracts with fine hair-like tips 6. *P. dentex.*

1. **P. indica** (Indian), *Less.*; *DC. Prod.* v. 451; *Benth. Fl. Austr.* iii. 527. An erect branching shrub, attaining 3 to 4ft., glabrous or covered with a minute glandular pubescence. Leaves shortly petiolate, obovate, oblong or rarely ovate, 1 to 2in. long, with a few small acute teeth or almost entire. Flower-heads in dense terminal corymbs of about 3in. diameter and sessile above the last leaves. Involucres ovoid, about 3 lines long, the outer bracts short and obtuse, passing into the innermost acute ones. Female florets very numerous, those of the disk rarely above 6. Anther-tails rather long.—*Wight, Illustr.* t. 131.

Hab.: Islands of the Gulf of Carpentaria.
Extends over E. India and the Archipelago to S. China.

2. **P. Dioscoridis** (after Dioscorides), *DC. Prod.* v. 450; *Oliv. Fl. Trop. Afr.* iii. 329. Shrub of 6ft. or more in height. Branches terete, striate, more or less puberulous or pubescent towards the extremities, rarely glabrous. Leaves oval-oblong, narrowly elliptical or linear-lanceolate, acute or subacute, narrowed towards the sessile or shortly petiolate often auriculate-cordate base, serrate, denticulate, or subentire, puberulous or glabrous, 1 to 2in. long, ¼ to 1in. wide, membranous. Flower-heads campanulate or ovoid, 2 to 3 lines wide, pedicelled or usually sessile, few together in stalked clusters, collected in ample much-branched corymbose or globose terminal panicles. Involucral bracts many-seriate; inner linear or linear-lanceolate, acute or apiculate, sometimes fimbriate-dentate, glabrous or nearly so, caducous; outer shorter, ovate, puberulous or pubescent, acute or obtuse, and apiculate, persistent. Receptacle narrow, naked. Achenes glabrous or nearly so, 4 to 7-ribbed, angles paler. Pappus of 1 series, seriid. — *Baccharis Dioscoridis*, Linn.; *Conyza Dioscoridis*, Rauw.; *Baccharis ægyptiaca*, Forst.; *C. baccharoides*; Schultz; *Blumea baccharoides*, Schultz; *C. modatensis*, Schultz; Oliver and Hiern, l.c.

Hab.: Recorded for Queensland, without locality, *F. v. Mueller.*

3. **P. tetranthera** (four anthers), *F. v. M. Rep. Babb. Exped.* 12; *Benth. Fl. Austr.* iii. 528. A rigid perennial or undershrub, glabrous or glandular-pubescent in the ordinary forms. Leaves petiolate, from small and obovate to oblong-lanceolate and 1in. long or rather more, the upper ones sometimes linear, acutely and irregularly toothed or almost entire, those of the barren shoots usually obovate. Flower heads small, often sessile in clusters of 2 or 3, forming a terminal corymbose panicle. Involucre narrow-ovoid, scarcely 3 lines long, the outer bracts short and obtuse, the inner acute rigid and dry. Florets rather shorter than the involucre, in some heads the female filiform ones very numerous,

with only 2 or 3 disk-florets, in others those of the disk at least as numerous as the female ones. Corollas of the disk 4-toothed. Style with 2 filiform papillose branches.

Hab.: Broadsound, *R. Brown*; heads of Isaacs River, *Bowman*; Rockhampton, *Thozet*.

4. **P. baccharoides** (Baccharis-like), *F. v. M. Herb.*; *Benth. Fl. Austr.* iii. 528. A much-branched erect shrub of a few feet, glabrous and somewhat glutinous. Leaves narrow-linear, mostly acute, $\frac{1}{2}$ to lin. long, rather thick, quite entire. Flower-heads small, sessile or shortly pedunculate in terminal leafy panicles, almost unisexual, the males with ovoid involucre about 2 lines long, the florets chiefly hermaphrodite but sterile, the females narrower and longer, the florets chiefly filiform and shorter than the pappus. Involucral bracts in both dry, much imbricate, minutely ciliolate. Style in the males undivided. Pappus bristles not numerous.—*Spiropodium baccharoides*, *F. v. M. Fragm.* i. 34.

Hab.: Suttor River, *F. v. Mueller*; Belyando River, *Mitchell*.

This species at first sight much resembles some of the common S. American *Baccharises*, allied to *B. paniculata*, DC., but differs in its terete not angular branchlets, in the shorter florets, in the tailed anthers, and in the heads not perfectly dioecious. I have always found a few central hermaphrodite sterile florets in the female heads and a few filiform female florets in the male heads.—*Benth.*

5. **P. Eyrea** (after E. J. Eyre), *F. v. M. Rep. Babb. Exped.* 11 and 12; *Benth. Fl. Austr.* iii. 528. A glabrous perennial or undershrub, often under 1ft. high, with erect virgate branches paniculate at the top. Leaves mostly linear, erect, bordered by a few small teeth, under $\frac{1}{2}$ in. long, more or less decurrent along the stem, a few on the main stem lanceolate and broadly decurrent. Flower-heads small, usually numerous, in little corymbs of 3 to 5 each. Involucre broadly ovoid or hemispherical, the bracts much imbricate, narrower than in the preceding species, the inner ones 2 lines long with subulate points. Female florets very numerous, scarcely thicker than the bristles of the pappus; disk-florets also numerous, with an undivided exerted style. Anther-tails minute. Achenes terete or nearly so.—*Eyrea rubelliflora*, *F. v. M. in Linnæa*, xxv. 403.

Hab.: Islands of the Gulf of Carpentaria, Keppel Bay and Broadsound, *R. Brown*; in the interior, *Mitchell*.

6. **P. dentex** (leaves toothed), *R. Br. Herb.*; *Benth. Fl. Austr.* iii. 529. Erect, much branched, with a hard almost woody base, 1 to 2ft. high, viscid and minutely pubescent. Leaves linear, mostly above lin. long, remotely toothed or pinnatifid with short distant lobes, the upper ones small and entire. Flower-heads larger than in *P. Eyrea*. Involucre hemispherical, the bracts very narrow, the inner ones with a fine hair-like point, a few of the outer ones greener and more recurved. Female florets very numerous, those of the disk usually few. Achenes pubescent.

Hab.: Broadsound and Thirsty Sound, *R. Brown*; sources of Gilbert River, *F. v. Mueller*; Port Denison, *Fitzalan*; Springsure and other inland localities.

22. PTERIGERON, DC.

(Referring to the dry winged pappus.)

(*Streptoglossa*, *Steetz*; *Oliganthemum*, *F. v. M.*)

Involucre hemispherical or ovoid, the bracts imbricate in several rows, usually dry and rigid or the outer ones herbaceous, the innermost narrow, acute, often coloured at the tips. Receptacle without scales. Florets of the circumference numerous or few, female, ligulate or, if tubular, less regularly or more deeply lobed than those of the disk; disk-florets numerous or few, hermaphrodite, fertile or sterile, usually 5-lobed. Anthers with fine tails. Style bulbous at the base,

the lobes subulate or slightly flattened, sometimes united to the top, papillose outside towards the end. Achenes nearly terete, silky-hairy. Pappus of scabrous denticulate or almost plumose capillary bristles.—Herbs, usually rigid and glandular-pubescent or hirsute. Leaves alternate, entire or toothed, sometimes decurrent. Flower-heads large or small, terminal, and usually forming terminal leafy corymbs.

The genus is exclusively Australian. Originally established by De Candolle as a section of *Erigeron*, it has been shown by A. Gray to form a very distinct genus, allied in many respects to *Pluchea*, but differing in the prominently bulbous base of the style, and usually in the irregularity of the ray florets, which connect it with *Dicoma*, amongst *Mutisiaceæ*. It ought perhaps to include *Coleocoma* and *Thespidium*, notwithstanding their anomalous pappus.—*Benth.*

Flower-heads large, almost hemispherical.

- | | |
|--|------------------------------|
| Ray-florets ligulate, fully $\frac{1}{2}$ line broad, exceeding the involucre. Leaves narrow or obovate, not decurrent | 1. <i>P. liatroides</i> . |
| Ray-florets very slender, about as long as the involucre. Leaves oblong, stem-clasping or slightly decurrent | 3. <i>P. macrocephalus</i> . |
| Flower-heads ovoid. | |
| Leaves decurrent. Ray-florets about as long as the involucre | 2. <i>P. odorus</i> . |
| Leaves not decurrent. Ray-florets very slender and shorter than the involucre. | |
| Leaves mostly oblong. Flower-heads broadly ovoid, 6 to 8 lines long | 4. <i>P. microglossus</i> . |
| Leaves mostly linear. Flower-heads numerous, many-flowered, about 4 lines long | 5. <i>P. ascendens</i> . |

1. ***P. liatroides*** (*Liatis*-like), *Benth. Fl. Austr.* iii. 532. Erect, rigid and scabrous-pubescent, hirsute or at length nearly glabrous, attaining sometimes 1½ ft., but often flowering when a few inches high. Lower leaves obovate, narrowed into a rather long petiole, the upper ones oblong-cuneate or linear, obtuse, sinuate-toothed or nearly entire, not decurrent. Flower-heads large, not numerous, in a terminal corymb. Involucre hemispherical, nearly 1 in. diameter, the bracts broadly lanceolate, acute or acuminate, the inner ones 7 to 8 lines long and coloured at the apex. Ray-florets ligulate, exceeding the involucre, the ligula fully $\frac{1}{2}$ line broad and 2 lines long, usually 3-lobed. Style of the disk-florets 2-lobed. Achenes silky-villous. Pappus-bristles not numerous, almost plumose.—*Pluchea ligulata*, F. v. M. Rep. Babb. Exped. 12; *Streptoglossa Stetzii*, F. v. M. in Trans. Bot. Soc. Edinb. vii. 491, partly; *Erigeron liatroides*, Turcz. in Bull. Mosc. 1851 i. 172.

Hab.: Recorded for Queensland by *F. v. Mueller*.

2. ***P. odorus*** (scented), *Benth. Fl. Austr.* iii. 532. Apparently perennial and in the normal form erect, rigid, more or less hirsute, with virgate branches, under 1 ft. high. Leaves sessile and more or less decurrent, the lower ones oblong or lanceolate, obtuse, irregularly toothed, above 1 in. long, the upper ones smaller and linear. Flower-heads mostly terminating very short branches, sessile within 2 or 3 floral leaves. Involucre narrow-ovoid, the bracts imbricate and rigid, the outer ones short, acute or almost obtuse, the inner ones 4 lines long and very acute. Ray-florets about 8 to 10, about as long as the involucre, slender, with 2 or 3, rarely 4 or 5 narrow lobes, more or less distinctly arranged in 2 lips. Style of the disk-florets 2-lobed, the branches slightly flattened and obtuse. Achenes silky-villous. Pappus bristles denticulate, almost plumose.—*Pluchea odora*, F. v. M. Rep. Babb. Exped. 12.

Hab.: Cloncurry, Etheridge, and Tate Rivers.

3. ***P. macrocephalus*** (flower-heads large), *Benth. Fl. Austr.* iii. 532. Glandular-pubescent or hirsute. Leaves oblong or linear-cuneate, irregularly undulate and toothed, stem-clasping, but only rarely and very slightly decurrent. Flower-heads large, almost hemispherical when fully out, $\frac{3}{4}$ in. long. Ray-florets

not numerous, very slender, about as long as the involucre, 2 or 3-lobed at the end, but not usually ligulate; disk-florets very numerous. Achenes densely silky-hairy.—*Pluchea macrocephala*, F. v. M. Rep. Babb. Exped. 12.

Hab.: Gulf of Carpentaria, F. v. Mueller; Georgina River, Whelan; Lake Nash, M. Costello.

4. **P. microglossus** (small-tongued), Benth. *Fl. Austr.* iii. 532. Glabrous or slightly glandular-pubescent, the stems rigid, erect, nearly simple or somewhat corymbose, often under 6in. and probably not above 8in. high. Leaves from cuneate-oblong to linear-cuneate, entire or denticulate, under 1in. long, rather rigid, narrowed towards the base, not decurrent. Flower-heads broadly ovoid, about $\frac{3}{4}$ in. long, the inner involucrel bracts very acute. Florets numerous, not exceeding the involucre, those of the ray scarcely so long, with a small, narrow, entire or bifid concave lamina. Achenes less hairy than in *P. ligulatus*. Pappus almost plumose.

Hab.: Recorded for Queensland by F. v. Mueller.

5. **P. adscendens** (mode of growth), Benth. *Fl. Austr.* iii. 533. A diffuse, ascending or erect, very much branched herb, with a hard almost woody base, glabrous or pubescent. Leaves linear or linear-oblong, narrowed into a petiole, entire or slightly toothed, not decurrent. Flower-heads numerous, rather smaller than in *P. odorus*. Involucre ovoid, the bracts acute, usually but not always surrounded by a few floral leaves. Florets more numerous than in *P. odorus*, those of the ray filiform, scarcely so long as the involucre, with 2 or 3 short linear lobes. Pappus-bristles very minutely denticulate.

Hab.: Flinders River, E. Palmer; Cape River, Bowman; Belyando River (where it is a suspected poison herb), Mitchell.

23. THESPIDIUM, F. v. M.

(Probably from its supposed resemblance to a Thespis.)

Involucre ovoid, the bracts imbricate in several rows, dry, rigid and acute. Florets of the circumference female, filiform, shorter than the involucre, 2 or 3-toothed; disk-florets few or only one, hermaphrodite, fertile, 4-toothed. Anthers with minute tails. Style bulbous at the base, the lobes nearly terete, papillose outside towards the end. Achenes cylindrical, striate. Pappus of 10 to 12 bristles, broad and chaff-like at the base, intermixed with a few small setaceous ones.—Low rigid herb. Leaves alternate, entire or toothed. Flower-heads small, often densely clustered in the axils of the leaves and at the base of the stem.

The genus consists of a single species endemic in Australia. It is closely allied to *Pterigeron*, differing chiefly in habit and in the almost scale-like pappus.—Benth.

1. **T. basiflorum** (flowers at base of stem), F. v. M. *Herb.*; Benth. *Fl. Austr.* iii. 534. A densely-tufted hirsute perennial, with numerous diffuse or ascending stems all under 2ft. long, crowded on the stock with clusters of flower-heads like some species of *Lepidagathis*. Leaves linear or lanceolate, acute, entire or with a few acute teeth, rarely much above 1in. long. Flower-heads sessile, solitary or more frequently clustered in the axils and very densely so at the base of the stem. Involucre narrow, about 3 lines long. Female florets rather numerous, those of the disk few or sometimes only one. Achenes of the ray and of the disk slightly contracted at the top and again expanded into the pappus.—*Pluchea basiflora*, F. v. M. Rep. Babb. Exped. 12; Hook. Ic. Pl. t. 1148.

Hab.: Islands of the Gulf of Carpentaria, R. Brown; Upper Gilbert River, F. v. Mueller.

24. COLEOCOMA, F. v. M.

(Pappus tubular.)

Involucre ovoid, the bracts imbricate in several rows, dry with slightly scarious tips. Receptacle flat, without scales. Florets all tubular, those of the circumference slender, female, 3 to 5-toothed; disk-florets several, hermaphrodite, sterile, 5-toothed. Anthers tailed. Style of the disk-florets usually undivided. Achenes striate, somewhat compressed, those of the disk abortive. Pappus of linear rigid scale-like bristles, those of the female florets united in a long tube, jagged at the end, those of the disk-florets free almost to the base.—Low rigid herb. Leaves alternate, usually toothed. Flower-heads terminal or lateral.

The genus consists but of a single species, endemic in Australia, differing from *Pterigeron* only in the pappus.

1. **C. centaurea** (like a *Centaurea*), *F. v. M. in Hook. Kew Journ.* ix. 19; *Benth. Fl. Austr.* iii. 533. A low, rigid, erect, branching herb, perhaps annual, although almost woody at the base, our specimens quite glabrous. Leaves linear or lanceolate, acute, with a few small acute teeth, contracted at the base, but the upper ones sessile or slightly decurrent. Flower-heads terminal and sessile within the last leaves or at the base of the lateral branches. Involucre 4 to 5 lines long, the bracts very broad, the inner ones with short broad scarious tips, jagged almost as in *Centaurea*. Florets yellow (*F. v. M.*) Achenes rather long, but much shorter than the involucre in our specimens, the tips of the pappus of the sterile florets slightly protruding.—*Hook. Ic. Pl.* t. 1136.

Hab.: St. George, *J. Wedd.*

25. EPALTES, Less.

(*Sphæromorphæa*, DC. (*partly*); *Ethuliopsis*, *F. v. M.*)

Involucre ovoid-globular or hemispherical, the bracts imbricate, usually broad dry and rigid. Receptacle nearly flat, without scales. Florets all tubular, those of the circumference numerous, female, very slender, minutely toothed, those of the disk hermaphrodite, but usually sterile, broader, 3 to 5-toothed, either few or the flower-heads almost diœcious. Anthers with minute tails or points at the base. Style of the disk-flowers undivided or with short obtuse branches, papillose outside. Achenes nearly terete, striate, those of the ray without any pappus, those of the disk usually abortive and with a pappus of 2 or 3 very deciduous bristles.—Herbs, either erect and dichotomous or diffuse. Leaves alternate, entire, toothed or lobed. Flower-heads small in dichotomous cymes or lateral and sessile. Involucral bracts very obtuse in the Australian species, more acute in the Indian *E. divaricata*.

A small genus, comprising, besides the 3 Australian species (2 of which are endemic, and the other found in Formosa), at least one more, a common one in tropical Asia and some parts of Africa. The genus is closely allied to *Pluchea*, differing chiefly in the absence of any pappus to the fertile achenes.—*Benth.*

Erect, dichotomously branched. Flower-heads ovoid-globular, terminal, and loosely clustered, often diœcious 1. *E. Cunninghamii*.
 Diffuse annual. Flower-heads hemispherical, lateral, sessile or nearly so 2. *E. australis*.
 Small weak annual of a few inches. Leaves almost obovate, narrowing to the petiole. Involucre ovate, campanulate. Bracts acute. 3. *E. Harrisii*.

1. **E. Cunninghamii** (after Allan Cunningham), *Benth. Fl. Austr.* iii. 530. Glabrous, erect, $\frac{1}{2}$ to 1½ft. high, dichotomously branched: Leaves sessile and half stem-clasping or sometimes slightly decurrent on the stem, oblong-lanceolate, obtuse, irregularly toothed, the upper ones small, narrow, and sometimes entire. Flower-heads small, clustered at the ends of the branches of loose dichotomous cymes. Involucres ovoid-globular, varying from 1 to 2 lines diameter, the bracts very obtuse. Female florets not exceeding the involucre, in some specimens very

numerous with only 1 or 2 hermaphrodite sterile florets in the disk or none at all, in others the female florets few with rather numerous sterile ones. Style of the disk-florets undivided. Fertile achenes without any pappus, sterile ones with a few long deciduous bristles.—*Epaltes australis*, DC. Prod. v. 462, not of Less.; *Ethulia Cunninghamii*, Hook. in Mitch. Trop. Austr. 62; *Ethulopsis dioica*, F. v. M. Fragm. ii. 155; Pl. Vict. t. 38.

Hab.: Keppel and Shoalwater Bays, *R. Brown*; not uncommon in various wet localities.

2. ***E. australis*** (Australian), *Less. in Linnæa* v. 148, and *Syn. Comp.* 206 *Benth. Fl. Austr.* iii. 530. Annual (or sometimes perennial?), branching at the base and diffuse or prostrate, small or rarely exceeding 1ft., glabrous scabrous or hirsute with transparent hairs. Leaves petiolate, obovate or cuneate-oblong, entire toothed or almost lyrate, $\frac{1}{2}$ to $1\frac{1}{2}$ in. long. Flower-heads lateral, sessile or shortly pedunculate. Involucre depressed-hemispherical, 2 to 3 lines diameter, the bracts orbicular, concave and very obtuse. Female florets not exceeding the involucre, short, and not so slender as in *E. Cunninghamii*, and very numerous; disk-florets fewer, 3 to 5-lobed. Style usually branched with short narrow obtuse lobes. Achenes all without any pappus, those of the disk mostly but not always sterile.—*Sphæromorphæa petiolaris*, DC. Prod. vi. 140.

Hab.: A common weed.

The species has, at first sight, some resemblance with *Centipeda orbicularis*, especially in inflorescence, but besides the distinctly tailed anthers and other floral characters, it is readily distinguished by the involucre.

3. ***E. Harrisii*** (after C. C. Harris), *F. v. M. Fragm.* xi. 101. Annual, $1\frac{1}{2}$ to 3 in., of loose weak habit, root very slender, simple. Leaves 4 to 8 lines long, membranous, not decurrent upon the petiole, somewhat remotely toothed. Heads in pairs or solitary, sessile in the axils of the leaves, $1\frac{1}{2}$ to 2 lines long. Bracts of involucre glabrous, acute, outer ovate, inner ovate-lanceolate. Female florets many-seriate, hermaphrodite ones very few in the centre. Style-branches slender, erect. Achenes glandular-scabrous.

Hab.: Endeavour River, *C. C. Harris* (*F. v. M.* l.c.)

26. SPHÆRANTHUS, Willd.

(Flower-heads in globular clusters.)

Flower-heads small, sessile in dense globular clusters or compound heads, Involucres ovoid, the bracts linear, imbricate in several rows. Florets not numerous, those of the circumference female filiform and minutely 2 or 3-toothed, hardened at the base; disk-florets very few, hermaphrodite but sometimes sterile, tubular, 5-toothed, thickened at the base. Anthers without tails or points at the base. Styles of the disk-florets bulbous at the base, simple or with 2 slender branches, papillose outside towards the end. Achenes oblong, somewhat flattened, without any pappus.—Coarse erect herbs. Leaves alternate, toothed, decurrent on the stem. Compound flower-heads terminal.

The genus comprises very few species, ranging over tropical Asia and Africa, the two Australian ones being the two most common over the whole area.

Pubescent or hirsute. Involucral bracts ending in a subulate ciliate point.

Disk-florets (always?) sterile 1. *S. hirtus*.

Glabrous. Involucral bracts scarious, often jagged at the end. Disk-florets (always?) fertile 2. *S. microcephalus*.

1. ***S. hirtus*** (hairy), *Willd.; DC. Prod.* v. 369; *Benth. Fl. Austr.* iii. 521. Erect with few divaricate branches, more or less hirsute, 1 to 2ft. high. Leaves obovate, oblong or lanceolate, irregularly and acutely toothed, or almost lobed, decurrent along the stem into interrupted toothed wings. Flower-heads

numerous, in globular clusters or compound heads of 4 to 5 lines diameter when in flower, $\frac{3}{4}$ in. when in fruit. Bracts linear, scale-like at the base, tapering into subulate hirsute or ciliate points, those surrounding the partial heads rather broader. Female florets 6 to 8 or rather more, not exceeding the involucre; disk-florets 2 or 3, with simple styles. Achenes of the ray slightly hairy, those of the disk abortive.—Wight, Ic. t. 1094; F. v. M. Fragm. iii. 188.

Hab.: Gulf of Carpentaria, *F. v. Mueller*; Selheim River, *Bowman*; Maranoa and Belyando Rivers, *Mitchell*.

The species is common in tropical Asia, extending into tropical Africa.

2. *S. microcephalus* (small-headed), *Willd.*; *DC. Prod.* v. 369; *Benth. Fl. Austr.* iii. 522. Plant erect, 1 to 2ft. high, quite glabrous or rarely minutely glandular-pubescent. Leaves elliptical, oblong or lanceolate, acute with small acute teeth, decurrent along the stem into continuous entire or slightly-toothed wings. Flower-heads in globular clusters or compound heads, rather smaller than in *S. hirtus*. Involucral bracts oblong-linear or cuneate, often jagged at the end. Florets and achenes of *S. hirtus*, but those of the disk fertile as well as those of the circumference.—*S. glaber*, *DC. Prod.* v. 370; *F. v. M. Fragm.* iii. 138.

Hab.: Islands of the Gulf of Carpentaria, *R. Brown*.

Also in Ceylon and the Indian Archipelago.

27. PTEROCAULON, Ell.

(Stems winged.)

Flower-heads small, sessile, in dense globular clusters or compound heads, interspersed with woolly bracts. Partial involucre ovoid, the bracts linear, usually glabrous and more or less scarious. Florets of the circumference numerous, female, filiform, minutely toothed, not exceeding the disk. Disk-florets solitary or rarely 2 or 3, tubular, hermaphrodite but usually sterile, 4 or 5-toothed. Anthers with more or less prominent tails or points at the base. Style-lobes flattened or almost subulate, papillose outside towards the end. Achenes small, terete or slightly compressed, those of the disk usually abortive. Pappus of capillary simple bristles united in a ring at the base.—Herbs or undershrubs, usually glandular-pubescent and strongly scented, often woolly. Leaves alternate, crenate or toothed, decurrent on the stem. Clusters or compound flower-heads solitary and terminal, or small and numerous in a terminal spike with one bract, usually persistent on the common receptacle under each partial head, the partial involucre often very deciduous.

The species are all Australian, but 2 of them extend also into New Caledonia and the Eastern Archipelago. With the compound inflorescence and decurrent leaves of *Sphæranthus*, the genus is readily distinguished by the pappus and the tailed anthers. The inflorescence is nearly that of the *Angianthea*, but there are numerous female filiform florets, and the style-branches of the disk are not truncate.—*Benth.*

Clusters of flower-heads small but numerous, forming a terminal dense or interrupted spike.

Involucre rigid, about 4 lines long. Leaves ovate or obovate, often above 3in. long, the wool very dense, almost floccose . . . 1. *P. verbascifolium*.

Involucre not 2 lines long. Leaves obovate or oblong, under 2in. long, tomentose or shortly woolly . . . 2. *P. cylindrostachyum*.

Clusters of flower-heads solitary, globular or ovoid-oblong. Plant tomentose or woolly. Decurrent wings entire. Clusters globular . . . 3. *P. sphacelatum*.

Plant glandular-pubescent, not tomentose. Decurrent wings toothed. Clusters ovoid or oblong, large. Disk-florets solitary . . . 4. *P. glandulosum*.

1. *P. verbascifolium* (*Verbascum*-leaved), *Benth. and Hook. Gen. Pl.* A tall erect perennial or undershrub, the foliage densely woolly, often floccose, resembling that of *Verbascum Thapsus*. Leaves ovate or obovate, 2in. long or

more, obtuse, crenulate and sometimes sinuate, very thick and soft, decurrent into entire wings. Clusters of flower-heads numerous, sessile in dense continuous oblong or cylindrical terminal spikes much larger than in *P. cylindrostachyum*. Bracts of the common receptacle short, linear, woolly-hairy as in the other species but less spatulate, those of the partial involucre 3 to 4 lines long, linear, rigidly scarious. Ray-florets very numerous; disk-florets solitary.—*Monenteles verbascofolius*, F. v. M. in Fl. Austr. iii. 523.

Hab.: Northern inland localities.

2. ***P. cylindrostachyum*** (spike cylindric), *C. B. Clarke Comp. Ind.* 98. An erect perennial of 1 to 3ft., softly tomentose, pubescent or woolly all over. Leaves obovate or oblong, obtuse, crenate, 1 to 2in. long or smaller on the flowering branches, soft, rugose, decurrent into narrow entire wings. Clusters of flower-heads small, globular, sessile, forming terminal cylindrical and continuous or interrupted spikes, each cluster rarely above 3 or 4 lines diameter, and containing from 10 to 20 heads. Bracts of the common receptacle linear, acute, woolly, not 2 lines long, those of the partial involucre narrow-linear, acuminate, glabrous. Disk-florets solitary. Achenes sprinkled with a few hairs.—*Monenteles spicatus*, DC. Prod. v. 455 and Labill. Sert. Austr. Caled. 43 t. 43, also Benth. Fl. Austr. iii. 523.

Hab.: Flinders River, *Bowman*; Fitzroy River, *Fitzalan*; Rockhampton, *Dallachy*; Keppel Bay, *Thozet*; Brisbane River, Moreton Bay, *Fraser*, F. v. *Mueller*.

The species is also in New Caledonia, Burmah, and the Philippine Islands.

3. ***P. sphacelatum*** (withered), *Benth. and Hook. Gen. Pl.* A perennial or undershrub of 1 to 2ft., softly tomentose-pubescent or woolly all over. Leaves oblong or lanceolate, obtuse or rarely acute, the larger ones 1 to 2in. long, those on the flowering stems often smaller, entire or crenulate, soft, rugose, decurrent into narrow wings usually entire. Clusters of flower-heads globular or nearly so, solitary, terminal and pedunculate or rarely becoming lateral and sessile by the elongation of the shoot. Bracts of the common receptacle linear with dark spatulate tips and densely clothed with long woolly hairs, those of the partial involucre linear, scarious, acute, glabrous or slightly ciliate. Female florets numerous; disk-florets usually solitary. Style-lobes almost subulate. Achenes glabrous.—DC. Prod. v. 456; *Monenteles globiferus* and *M. intermedius*, DC. l.c. 455; *M. sphacelatus*, Labill. Sert. Austr. Caled. 43 t. 44 in Benth. Fl. Austr. iii. 523; *P. Billardieri*, F. v. M. Pap. Pl. iii. 43; *Gnaphalium cylindrostachyum*, Wall.

Hab.: Gulf of Carpentaria, *Landsborough*; common along the sandy shores and in the adjacent islands, *R. Brown and others*; Brisbane River, Moreton Bay, *A. Cunningham*; Pine River, *Fitzalan*.

The species is also in New Caledonia and New Guinea.

4. ***P. glandulosum*** (glandular), *Benth. and Hook. Gen. Pl.* "Alworm-angka-ina," Palmer River, *Roth*. A tall erect strongly scented perennial or undershrub, more or less glandular-pubescent but not woolly. Leaves ovate-lanceolate or lanceolate, acute and acutely toothed, bullate-rugose, 1 to 2in. long, decurrent into irregularly and acutely-toothed wings. Clusters of flower-heads terminal and solitary, ovoid or oblong, $\frac{1}{2}$ to 1in. long. Bracts of the common receptacle linear or linear-cuneate, ciliate with a few long woolly hairs, but not densely woolly as in the other species, those of the partial involucre about 2 lines long, linear, acute, often ciliate with a few hairs. Female florets numerous; disk-florets solitary.—*Monenteles glandulosus*, F. v. M. Benth. Fl. Austr. iii. 524.

Hab.: Keppel and Shoalwater Bays, Thirsty Sound and Broadsound, *R. Brown*; rocky hills, Cape Cleveland, *A. Cunningham*; Gilbert River, F. v. *Mueller*; Flinders and Fitzroy Rivers, *Bowman*; Rockhampton and Keppel Bay, *Thozet*.

Leaves used for stuffing up and rubbing into spear-wounds in legs or arms.—*Roth l.c.*

Used for medicine in fevers.—*Palmer*.

28. STUARTINA, Sond.

(After C. Stuart.)

Involucre ovoid, the bracts imbricate, appressed without appendages or the inner ones with recurved horn-like tips. Receptacle without scales. Florets few, those of the circumference female filiform, those of the disk very few, hermaphrodite, 4 or 5-toothed. Anthers with small fine tails. Style-branches terete, truncate. Achenes obovoid-oblong. Pappus none.—Annual, with the habit of *Gnaphalium*.

The genus is limited to a single species, endemic in Australia, differing from *Gnaphalium* in the absence of the pappus.

1. **S. Muelleri** (after F. v. Mueller), *Sond. in Linnæa* xxv. 522. A small diffuse or slender annual, rarely 6in. high. Leaves on long petioles, nearly orbicular, about $\frac{1}{2}$ in. diameter, woolly-tomentose or at length glabrous above. Flower-heads very small, in little globular clusters, sessile amongst floral leaves similar to those of the stem, the petioles much longer than the clusters. Involucres narrow, scarcely 1 line long, surrounded by a tuft of long woolly hairs, the bracts appressed but after flowering 1 to 3 of the inner ones are usually produced into recurved horns. Florets from 5 to 7, of which 1 or 2 in the centre hermaphrodite. Achenes glabrous or papillose.

Hab.: St. George, J. Wedd.

29. GNAPHALIUM, Linn.

(From the Greek *gnaphalon*, wool; flower-heads woolly.)

(*Leontopodium*, R. Br.; *Euchiton*, Cass.)

Involucre ovoid or campanulate (rarely hemispherical?), the bracts imbricate in several rows, more or less scarious, with or without small spreading tips. Receptacle without scales. Florets of the circumference female, filiform, in 2 or more rows, often very numerous, those of the disk fewer, often very few, hermaphrodite, tubular, 5-toothed. Anthers with fine tails. Style-branches in the disk-florets nearly terete, truncate. Achenes oblong or obovate, not striate, glabrous or papillose. Pappus of capillary bristles, in a single row.—Herbs, annual or perennial, more or less cottony or woolly. Leaves alternate, entire, usually soft. Flower-heads small, usually clustered, either in the upper axils or in terminal spikes, corymbs or compound heads, rarely solitary.

A considerable genus, distributed over nearly the whole globe.

- | | |
|---|----------------------------|
| Clusters or compact corymbs of flower-heads terminal, leafless, solitary or several in an irregular panicle | 1. <i>G. luteo album</i> . |
| Clusters forming a terminal globular head, usually surrounded by a few floral leaves. | |
| Annual | 2. <i>G. japonicum</i> . |
| Perennial with a tufted or creeping rhizome. Floral leaves narrow, glabrous above | 3. <i>G. collinum</i> . |
| Clusters of flower-heads axillary or forming a terminal spike. | |
| Flower-heads about 2 lines long | 4. <i>G. purpureum</i> . |
| Flower-heads about 1 line long | 5. <i>G. indicum</i> . |
| Flower-heads in little leafy corymbs. Branching annual of 1 to 3in. | 6. <i>G. indutum</i> . |

1. **G. luteo-album** (yellowish-white), *Linn.*; *DC. Prod.* vi. 230; *Benth. Fl. Austr.* iii. 653. "Karkar," Mitchell River, *Palmer*. An annual or perhaps biennial, densely woolly-white, with ascending or erect stems of 1 to 1½ft. when full grown. Lower leaves petiolate, obovate or oblong-spathulate, obtuse; upper ones sessile, linear or lanceolate, acute, all usually soft and retaining the wool on both sides. Flower-heads in loose terminal nearly globose clusters or dense corymbs, without floral leaves, either solitary and terminal or several

of the clusters in the forks or on the branches of an irregular corymbose panicle. Involucres about 2 lines diameter, nearly globose, the bracts scarious, pale-brown or straw-colour, with obtuse scarious tips not spreading. Female florets exceedingly numerous with a few hermaphrodites in the centre.—Hook. f. Fl. Tasm. i. 216; Steetz in Pl. Preiss. i. 478.

Hab.: Cape Upstart, Barnard Isles, Port Curtis, *M'Gillivray*; Suttor River, *Bowman*; Keppel Bay, *Thozet*. A very common weed.

The species is common in almost all the warm and temperate regions of the globe. Used medicinally as a drink for general sickness.—*Palmer*.

2. *G. japonicum* (of Japan), *Thunb. Fl. Jap.* 311; *Benth. Fl. Austr.* iii. 653

An erect annual, usually under 1ft., but when luxuriant 1½ft. high, more or less cottony-white, the base of the stem often hard and almost woody. Leaves from oblong-spathulate and narrowed into a long petiole to linear and sessile, becoming glabrous above, cottony-white underneath. Flower-heads small, in dense globose clusters or compound heads, surrounded by a few floral leaves, either terminal and ½ to ¾in. diameter or axillary and smaller. Involucres oblong, imbedded at the base in a dense white wool; the bracts scarious, brown or straw-colour, erect, obtuse or the inner ones acute, without spreading tips. Female florets 20 or more, hermaphrodite ones in the centre, solitary or very few. Achenes slightly compressed. Pappus-bristles very fine, scarcely cohering at the base.—*Miq. Prolus. Fl. Jap.* 109; *F. v. M. Fragm.* v. 150; *G. involucreatum*, *Forst. Prod.* 55; *DC. Prod.* vi. 235; *Hook. f. Fl. Tasm.* i. 216; *Steetz in Pl. Preiss.* i. 478; *Bot. Mag. t.* 2582; *Euchiton Forsteri* and *E. pulchellus*, *Cass. (DC.)*

Hab.: Northumberland Islands, *R. Brown*; Keppel Bay, *Thozet*; Brisbane River, Moreton Bay, *F. v. Mueller*. A very common garden weed.

The species is also in New Zealand, and extends over some parts of the Eastern Archipelago, and northwards to Japan, from whence we have many specimens, easily recognised by *Thunberg's* description, but first identified by *Miquel*. With regard to the several synonyms quoted by *De Candolle* and copied by *F. v. Mueller*, some must remain doubtful, for *De Candolle* gives the perennial sign to his species, whilst all the perfect specimens I have seen show an annual root, as described by *Thunberg*.—*Benth.*

3. *G. collinum* (on hills), *Labill. Pl. Nor. Holl.* ii. 44 t. 189; *Benth. Fl. Austr.* iii. 654. Very nearly allied to *G. japonicum*, and referred to it as a synonym by *F. v. Mueller*. It appears, however, to be always perennial, forming a tufted stock or emitting underground creeping rhizomes, the stature is usually smaller, the indumentum closer. Leaves more acute, the radical ones more persistent, usually glabrous above, white underneath. Flower-heads not forming so compact a head, and each involucre broader, usually brown. Florets and achenes the same as in *G. japonicum*.—*DC. Prod.* vi. 235; *Hook. f. Fl. Tasm.* i. 216; *Euchiton collinum*, *Cass. (DC.)*

Hab.: Common in southern parts on hillside spots where the ground is hard and bare of other herbage.

4. *G. purpureum* (purplish), *Linn.*; *DC. Prod.* vi. 232; *Benth. Fl. Austr.* iii. 655. An annual or perennial of short duration. Stems simple or branching from the base, ascending or erect, 6in. to 1ft. high. Leaves mostly petiolate and spathulate, or the upper ones rarely linear, cottony-white on both sides as well as the stem. Flower-heads in short dense clusters in the axils of the upper leaves, the lower clusters distant, the upper ones forming a terminal leafy spike. Involucre about 2 lines long, the bracts oblong-linear, scarious but woolly, of a dirty white or pale brown. Female florets very numerous, with 2 or 3 hermaphrodite ones in the centre. Pappus-bristles slightly scabrous, cohering in a ring at the base.

Hab.: Brisbane River, Moreton Bay, *Leichhardt*, *F. v. Mueller*, *Henne*. A common weed.

This appears to be a N. American species, now spread over many parts of the Old World, and probably introduced into Australia since its settlement.

5. **G. indicum** (of India), *Linn.*; *DC. Prod.* vi. 281; *Benth. Fl. Austr.* iii. 655. A decumbent ascending or erect annual, rarely exceeding 6in., covered with a loose cottony wool, sometimes very abundant. Leaves petiolate, spatulate or linear. Flower-heads small, densely clustered in ovate or oblong terminal leafy spikes, with a few in the upper axils. Involucres ovoid, about 1 line long, the bracts densely imbedded in wool, the tips only usually protruding. Female florets very numerous, with 2 or 3 hermaphrodite ones in the centre. Pappus-bristles numerous, cohering in a ring at the base.—*G. niliacum*, Raddi; *DC. l.c.*

Hab.: Upper Roper and Alligator Rivers, *F. v. Mueller.*

The species is common in India, extending westward to the Nile and eastward to the Malayan Peninsula and China. The Australian specimens are small, with very narrow leaves.

6. **G. indutum** (clothed), *Hook. f. in Hook. Lond. Journ.* vi. 121, and in *Fl. Tasm.* i. 217 t. 62 B.; *Benth. Fl. Austr.* iii. 655. A little slender, erect, much-branched annual, rarely above 3in. high and often not above 1in., densely cottony-white. Leaves linear, soft. Flower-heads small, sessile amongst leafy bracts, at first dense but not in globular heads, and at length looser, forming leafy corymbs. Involucre ovoid, about 1 line long or scarcely more, woolly at the base; the bracts oblong, with erect, scarious, brown or straw-coloured tips. Female florets very numerous, with 2 to 4 hermaphrodite ones in the centre. Pappus-bristles quite free.—*G. sericeum*, Turcz. in *Bull. Mosc.* 1861, ii. 83.

Hab.: Southern localities.

30. LEPTORHYNCHUS, Less.

(Referring to the slender beak of achene.)

(*Rhytidanthe*, *Benth.*)

Involucre broadly turbinate, campanulate or hemispherical, the bracts much imbricate in several rows, the short outer ones and the tips or laminæ of the others very thinly scarious and not spreading. Receptacle flat, without scales. Florets all tubular, a few in the circumference usually female, more slender but not longer than the others, 3 or 4-toothed; disk-florets hermaphrodite, 5-toothed. Anthers with fine tails. Style-branches nearly terete, truncate. Achenes small or narrow, somewhat compressed, glabrous or papillose, contracted at the top or produced into a short beak. Pappus of several capillary bristles, scarious, shortly barbellate or almost plumose towards the end.—Annual or perennial herbs or undershrubs, more or less cottony or glandular-pubescent. Leaves alternate, entire. Flower-heads pedunculate, the outer scarious involucre bracts often descending along the peduncle. Florets almost always longer than the involucre.

The genus is limited to Australia. It is scarcely distinct from *Helichrysum*, differing in the involucre bracts with more thinly scarious tips, neither spreading nor petal-like nor opaque, and in the contraction of the achene at the top, which can in some species be only seen at maturity, and then not always very decided. From *Waitzia*, *Leptorhynchus* differs in the involucre and usually in the shorter beak to the achene. The florets, as in *Ixiolena* and *Podolepis*, are usually longer in proportion to the involucre than in *Helichrysum* or *Helipterum*.—*Benth.*

Achenes contracted at the top, but not distinctly beaked. Perennials or undershrubs. Pappus-bristles equally and minutely denticulate. Outer involucre bracts very thinly scarious, passing into the scarious scales of the peduncle. 1. *L. squamatus*.
 Achenes more distinctly though sometimes shortly beaked. Annual. Involucre bracts narrow, acute, small, very numerous, all ciliate with long hairs.
 Flower-heads 2 to 3 lines long. 2. *L. pulchellus*.
 Flower-heads $\frac{1}{2}$ in. broad. Pappus-bristles plumose above the centre. 3. *L. Baileyi*.

1. **L. squamatus** (scaly), *Less. Syn. Comp.* 273; *Benth. Fl. Austr.* iii. 608. A perennial with decumbent or ascending stems from 6in. to 1ft. long, with a little deciduous cottony wool on the young parts and the under side of the leaves. Leaves lanceolate or linear, mucronate-acute, narrowed at the base, flat or with recurved margins, glabrous above, the longest above 1in. long, the lowest much shorter. Peduncles long with distant scarios scales passing into the involucre bracts. Involucre broadly turbinate or almost hemispherical, not $\frac{1}{2}$ in. diameter, the bracts imbricate in numerous rows, oblong-lanceolate, scarios with woolly-ciliate margins and small coloured but not spreading glabrous tips, the innermost narrow and 3 lines long, the others gradually shorter. Florets longer than the involucre, a very few of the outer ones more slender, female 3 or 4-toothed. Achenes very shortly contracted at the top. Pappus-bristles cohering in a ring at the base, shortly barbellate, those of the female florets few.—*DC. Prod.* vi. 160; *Hook. f. Fl. Tasm.* i. 208; *F. v. M. Fragm.* i. 52; *Chrysocoma squamata*, *Labill. Pl. Nov. Holl.* ii. 40 t. 184; *Helichrysum dubium*, *Cass. (DC.)*; *Leptorhynchus hemisphæricus*, *DC. Prod.* vi. 160; *L. gracilis* and *L. Lhotzkyanus*, *Walp. in Linnæa* xiv. 317, and probably also *L. nitidulus*, *DC. Prod.* vi. 160.

Hab.: Southern inland localities.

2. **L. pulchellus** (beautiful), *F. v. M. Fragm.* i. 53; *Benth. Fl. Austr.* iii. 610. An erect corymbosely branched annual, rarely above 6in. high, the lower part of the stem sometimes hard so as to appear woody. Leaves linear, acute. Flower-heads small and rather numerous on filiform peduncles. Involucre broadly turbinate or almost hemispherical, about 3 lines diameter, the bracts imbricate in many rows, with scarios ciliate margins and very small coloured tips, the inner ones stipitate. Florets longer than the involucre, the outer female ones few and slender. Achenes contracted into a short but distinct beak. Pappus-bristles barbellate from the base, 2 or 3 to the achenes of the female florets, 4 or 5 to the others.—*Sond. in Linnæa* xxv. 500; *Doratolepis? tetrachæta*, *Schlecht. in Linnæa*, xx. 593.

Hab.: Southern inland localities.

3. **L. Baileyi** (after *F. M. Bailey*), *F. v. M. Fragm.* x. 101. Plant about 9in. high; stems branching and woolly, leafy. Leaves 3 to 9 lines long, linear, with revolute margins, becoming glabrous on the upper side. Flower-heads solitary, $\frac{1}{2}$ in. broad, hemispherical, on short peduncles. Involucre bracts thin, narrow, lanceolate-acuminate, ciliate, the inner ones on somewhat long stalks, pellucid, the ends yellowish. Corollas glandular-scabrous, $1\frac{1}{2}$ to 2 lines long; outermost ones slender, female; limb toothed. Achenes 1 line long, glabrous, not beaked. Pappus white, scarcely $1\frac{1}{2}$ line long, delicate, plumose, bearded above the middle.

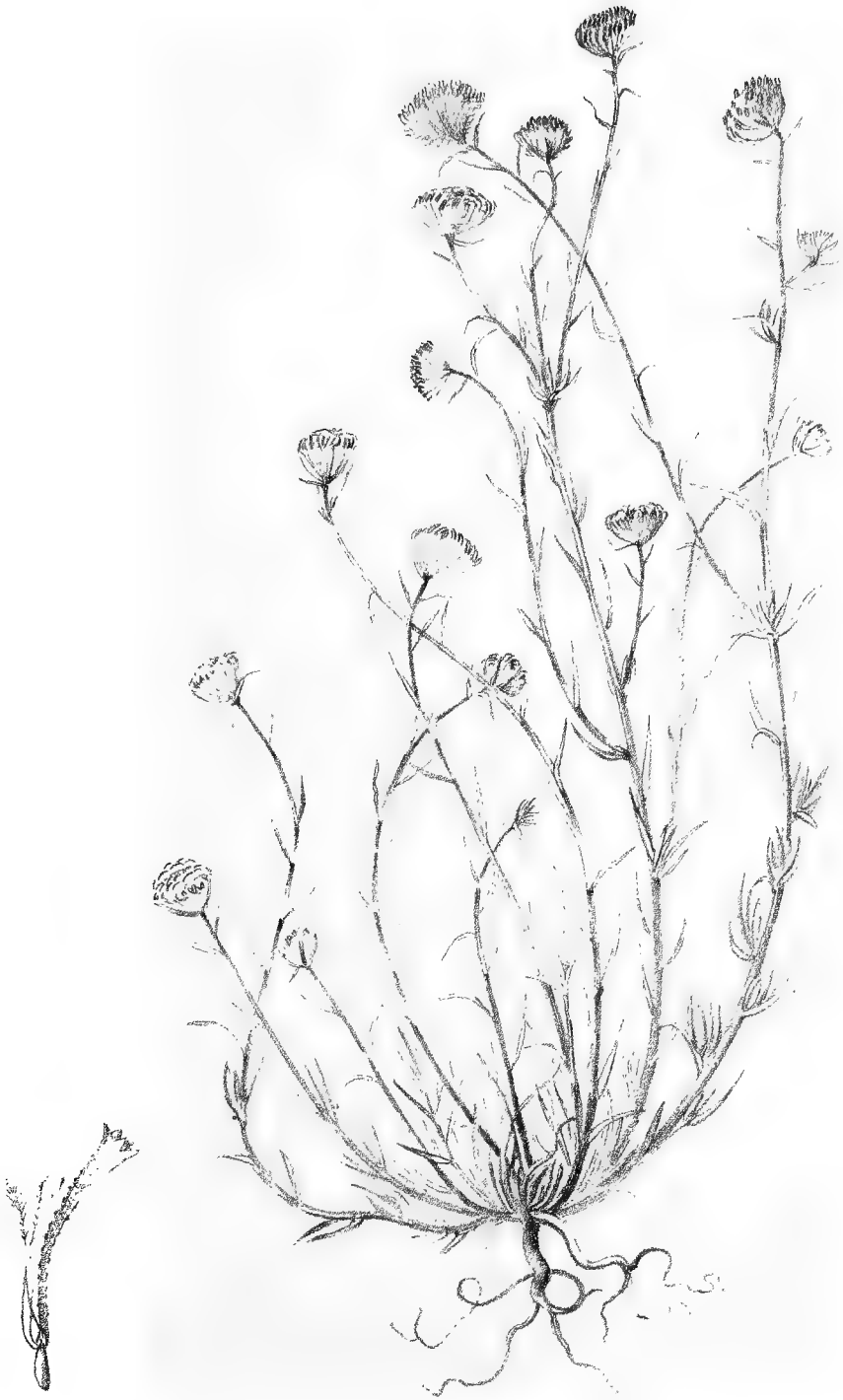
Hab.: Mount Abundance (1876), *F. M. Bailey*.

31. WAITZIA, Wendl.

(After *F. A. C. Waitz*.)

(*Viraya, Gaudich.*; *Morna, Lindl.*; *Pterocæte, Steetz.*)

Involucre broadly turbinate-campanulate, hemispherical or almost globular, the bracts imbricate in many rows, all coloured and petal-like, the inner ones on narrow claws, spreading or appressed, but rarely and only shortly radiating. Receptacle flat, without scales. Florets numerous, all hermaphrodite, tubular, 5-toothed. Anthers with very fine tails. Style-branches nearly terete, truncate or with very short cones, almost capitate. Achenes somewhat compressed, glabrous or papillose, terminating in a slender beak (rarely very short). Pappus



F.C. Wills, Del.

F. Elliott, Lith.

Leptorhynchus Baileyi, F.v.M.

capillary bristles usually cohering at the base, simple barbellate or plumose.—Herbs, usually annual. Leaves alternate, linear. Flower-heads in terminal corymbs, or rarely in oblong leafy racemes. Laminae of the involucre usually serrate-ciliate at the base.

The genus is limited to Australia. It is closely allied to *Leptorhynchus*, *Helichrysum*, and *Helipterum*, differing from the first in the involucre and habit, in the very long beak to the achene in some species, and in the plumose pappus in others; and from *Helichrysum* and *Helipterum* in the beaked achenes. Steetz found no tails to the anthers; I have found exceedingly fine ones in all the species.—*Benth.*

1. **W. corymbosa** (flowers in corymbs), *Wendl. Coll. Pl. ii. 13 t. 42, not of Steetz*; *Benth. Fl. Austr. iii. 635*. An erect annual of 1 to 2ft., scabrous-pubescent; hoary but scarcely woolly. Leaves linear, the lower ones often 2 to 3in. long, the margins revolute, stem-clasping at the base. Flower-heads usually numerous in a dense terminal corymb. Involucres about $\frac{3}{4}$ in. diameter, varying in colour from a pale to a dark yellow, white or bright pink, the intermediate bracts with very slender claw and lanceolate laminae very acutely acuminate, sometimes 3 or 4 lines long, the outer with gradually shorter broader claws and smaller laminae passing gradually into small scales more or less descending on the peduncle, 2 or 3 innermost rows of bracts with linear broader scarious claws without any or with very small laminae. Florets rather shorter than the involucres. Achenes produced into a slender beak several times longer than the achene itself. Pappus-bristles fine and slightly scabrous, slightly united at the base.—*Hook. Bot. Mag. t. 5443*; *W. acuminata*, *Steetz in Pl. Preiss. i. 453*; *Regel. Gartenfl. t. 401*; *W. discolor*, *Turcz. in Bull. Mosc. 1851, i. 194*.

Hab.: Southern inland localities.

Wendland's figure is an excellent representation of the pink variety, *Regel's* of the yellow one. *Hooker's* figure in the "Botanical Magazine" also appears to represent the true *W. corymbosa*, though the erroneous synonymy is copied from *Steetz*. The figure of *Morna nitida*, *Lindl. et. Reg. t. 1941*, perhaps also rather represents this species than *W. aurea*.—*Benth.*

32. HELIPTERUM, DC.

(A contracted expression for a *Helichrysum* with a plumose pappus.)

Pteropogon, *DC.*; *Rhodanthe* and *Xyridanthe*, *Lindl.*; *Anisolepis* and *Hyalosperma*, *Steetz*; *Triptilodiscus*, *Turcz.*; *Acroclinium*, *Monenyanthes* and *Dimorpholepis*, *A. Gray*; *Duttonia* and *Cassiniola*, *F. v. M.*

Involucre from broadly hemispherical to narrow-ovoid or cylindrical, the bracts imbricate in several rows, either entirely or only their laminae scarious or petal-like, more or less spreading or appressed. Receptacle flat, convex or conical, without scales, and in the Australian species without bristles or fringed pits. Florets in the Australian species hermaphrodite tubular and 5 rarely 4-toothed, or very rarely a few in the circumference female, slender but not longer than thethers, 2 to 4-toothed, several in the centre frequently sterile. Anthers with fine tails. Style-branches nearly terete, truncate. Achenes angular terete or somewhat flattened, very rarely contracted at the top but not distinctly beaked, labrous, papillose or more frequently densely silky-villous. Pappus of capillary or very rarely dilated and almost scale-like bristles, finely plumose-ciliate from the base, those of the female florets or of the central sterile ones sometimes fewer or wanting.—Herbs frequently annual, sometimes perennial, or very rarely slender ivaricate shrubs with leafy stems, clothed with cottony wool or nearly glabrous. Leaves alternate or the lower ones very rarely opposite, entire. Florets yellow, the laminae of the involucre usually white, yellow, brown or pink, often varying in all these colours with intermediate shades in the same species.

A considerable genus, but confined to South Africa and Australia, the species of each of the two regions all endemic. It differs from *Helichrysum* solely in the plumose pappus, and, though annual duration, more scarious outer involucre bracts, and some other minor characters are more prevalent in *Helipterum* than in *Helichrysum*, yet there are several species

in each genus closely allied to corresponding ones in the other, and the section *Lawrencella* of *Helichrysum* is an approach, both in habit and in the prominently barbellate pappus-bristles, to *Helipterum*; the species of each genus are, however, numerous both in Australia and South Africa, and the character is not difficult to appreciate, it may therefore be convenient to retain the two as distinct genera.—*Benth.*

SECTION I. **Euhelipterum**.—*Involucre broadly hemispherical, with or without radiating petal-like laminae to the inner or intermediate bracts.*

Achenes villous with long silky hairs.

Receptacle flat. Involucres with radiating laminae. Outer bracts brown, scarious, inner with coloured laminae and broad claws.

Leaves narrow. Pappus equally plumose.

Perennial. Involucral ray white 1. *H. anthemoides*.
Annual. Involucral ray yellow 2. *H. polygalifolium*.

Receptacle conical. Involucres with radiating laminae and broad claws.

Pappus equally plumose. Radiating involucral laminae white 3. *H. floribundum*.

Achenes glabrous or papillose.

Outer bracts few, broad, sessile, intermediate with subulate claws and radiating petal-like laminae 4. *H. incanum*.

Outer bracts brown, scarious or coloured, intermediate with broad claws and radiating petal-like laminae.

Outer bracts wholly scarious or petal-like 5. *H. Cotula*.

Outer bracts with a lanceolate rigid although coloured centre.

Achenes much compressed 6. *H. hyalospermum*.

(See also the section *Lawrencella* of *Helichrysum*, in which the pappus is almost plumose, and *Rutidosis Brownii*, in which the pappus-scales are almost divided into bristles.)

SECTION II. **Pterogon**.—*Involucres ovoid, turbinate-campanulate or cylindrical, the outer bracts appressed, scarious or rigid; the intermediate or inner with or rarely without radiating petal-like laminae or tips. Achenes villous. Florets rarely above 12.*

Flower-heads small with conspicuous rays, in compact terminal corymbs.

Achenes shortly hirsute. Laminae of the inner bracts white, shorter than their claws, those of the outer ones minute or none. Involucre ovoid-turbinate 7. *H. polyphyllum*.

Flower-heads on long peduncles or loosely corymbose, with conspicuous rays. Achenes densely silky-villous. Outer involucral bracts with obtusely scarious tips.

Glabrous. Flower-heads on long peduncles. Involucres ovoid 8. *H. strictum*.

Cottony. Flower-heads loosely corymbose. Involucres broadly turbinate 9. *H. corymbiflorum*.

Flower-heads nearly sessile, in an irregular leafy corymb. Dwarf branching plants, nearly glabrous. Involucres narrow, with very small white laminae. Florets 4 to 6 10. *H. pygmaeum*.

SECTION III. **Monencyanthes**.—*Involucres ovoid, cylindrical or campanulate, the bracts scarious or coloured without any or with very minute scarious radiating tips. Achenes glabrous or papillose. Flower-heads often very small.*

Flower-heads small and numerous, in dense corymbose clusters almost contracted into heads. Erect cottony herb of $\frac{1}{2}$ to $1\frac{1}{2}$ ft. Involucral bracts very woolly inside at the base. Florets 2 to 4 11. *H. moschatum*.

Flower-heads singly sessile within the floral leaves. Small annuals. Florets above 20. Plant of 3 to 6 in. Involucres broadly-ovoid. Pappus-bristles of the perfect florets about 5, dilated and almost scale-like 12. *H. dimorpholepis*.

1. **H. anthemoides** (Chamomile-like), *DC. Prod.* vi. 216; *Benth. Fl. Austr.* iii. 641. Rootstock perennial, with numerous erect simple rather slender stems, rarely much above 1 ft. high and often short, glabrous. Leaves linear, often rather crowded, mostly $\frac{1}{2}$ in. long, rarely linear-lanceolate and longer, glabrous and smooth, or more frequently marked with impressed dots. Flower-heads solitary. Involucre hemispherical, spreading to about $\frac{3}{4}$ to 1 in. diameter, including the ray; the outer bracts short, broad, scarious, tinged with brown, the inner with broad scarcely ciliate claws and radiating petal-like laminae 3 to 4 lines long, of a pure white. Receptacle flat. Florets all hermaphrodite.

chenes densely silky-hairy. Pappus-bristles 15 to 20, equally plumose.—
 ook. f. Fl. Tasm. i. 215 t. 61; *Helichrysum anthemoides*, Sieb. in Spreng.
 yst. iii. 484; *Helipterum punctatum*, DC. Prod. vi. 216.

Hab.: Near Mount Faraday, *Mitchell*; head of the Gwydir, *Leichhardt*.

This plant is often abundant upon the southern downs, and cattle eat it greedily. As the
 rules do not decompose in the stomach, the dung of such cattle is thickly speckled with white.

2. **H. polygalifolium** (Polygala-leaved), DC. Prod. vi. 216; *Benth. Fl. Austr.* iii. 641. A glabrous annual, branching at or near the base, ascending or erect, $\frac{1}{2}$ to 1ft. high. Lower leaves oblong-spathulate or linear-cuneate, the upper ones linear-lanceolate and small. Flower-heads solitary. Involucre hemispherical, above lin. diameter including the ray, the outer short broad scarious bracts tinged with brown, inner ones with a broad slightly woolly-ciliate aw and spreading petal-like lamina, often $\frac{3}{4}$ in. long, of a pale or bright yellow. Receptacle flat. Florets all hermaphrodite. Achenes densely silky-villous. Pappus bristles 15 to 20, equally plumose with long fine cilia, not tufted at the end.—*H. diffusum*, DC. Prod. vi. 216.

Hab.: Southern downs.

3. **H. floribundum** (free flowerer), DC. Prod. vi. 217; *Benth. Fl. Austr.* iii. 42. Stems erect and nearly simple when flowering the first year, at length diffuse, much-branched and woody at the base, the branches ascending from a few inches to above 1ft. high, glabrous or loosely woolly. Leaves linear or rarely near-lanceolate, acute. Flower-heads solitary on each branch, but the upper branches often numerous and paniculate. Involucre hemispherical, rather smaller than in *H. anthemoides*, the bracts all white and petal-like, the outer ones short and sessile, passing into the inner ones with a scarious claw and radiating lanceolate lamina of 3 lines or more. Receptacle hemispherical or conical. Florets all hermaphrodite. Achenes densely silky-villous. Pappus of 7 to 10 rigid equally plumose bristles.—*H. chionolepis*, F. v. M. in Linnæa, xxv. 416.

Hab.: Southern downs.

Var. *Stuartianum*. Rather taller; flower-heads larger, the outer bracts assuming a straw colour.—*H. Stuartianum*, Sond. in Linnæa, xxv. 518. Hab.: Southern downs.

4. **H. incanum** (hoary), DC. Prod. vi. 215; *Benth. Fl. Austr.* iii. 643. A densely tufted perennial with ascending or erect simple stems or branches of 6in. to 1ft., woolly-white as well as the foliage. Leaves crowded at the base of the stems, from narrow-linear to linear-oblong, often 2 to 4in. long, the upper ones smaller and distant. Flower-heads large on leafless peduncles. Involucre hemispherical, spreading to 1 $\frac{1}{2}$ in. diameter, the bracts all petal-like but rigid, the outer ones short and sessile, the inner with linear or subulate claws, glandular or woolly-ciliate, and radiating laminæ 4 to 5 lines long, of a pure white or tinged with pink or brown or passing into a pale or bright yellow. Receptacle flat. Florets numerous, all hermaphrodite. Achenes glabrous. Pappus of 10 to 20 equally plumose bristles.—Hook. Ic. Pl. t. 318; Hook. f. Fl. Tasm. i. 214; *Ellichrysum incanum*, Hook. Bot. Mag. t. 2881; *Helichrysum molle*, DC. Prod. vi. 194; *Ellichrysum albicans*, A. Cunn. in Field, N. S. Wales, 359; *Helipterum albicans*, DC. Prod. vi. 215; *H. bicolorum*, DC. l.c.; *Waitzia brachy-hyncha*, F. v. M. in Linnæa, xxv. 407, and *Helipterum brachyrhynchum*, Sond. in Linnæa, xxv. 517 (with yellow involucres).

Hab.: Southern downs.

5. **H. Cotula** (Cotula-like), DC. Prod. vi. 215; *Benth. Fl. Austr.* iii. 644. A slender erect or ascending simple or branching annual, rarely exceeding 1ft. and often under 6in., flowering when only 1 or 2in., with a few loose woolly hairs or at length glabrous. Leaves linear, very narrow, but not long, the first often opposite. Flower-heads solitary. Involucre hemispherical, spreading to

from $\frac{3}{4}$ to lin. diameter including the ray, the outer bracts short, broad, obtuse and usually tinged with brown, the inner with short, broad, scarious, slightly woolly claws and radiating petal-like laminæ of 3 to 5 lines, varying from pure white to pale or bright yellow, a few of the innermost sometimes small. Receptacle flat. Florets numerous, all hermaphrodite, a few inner ones sometimes sterile. Achenes glabrous or papillose. Pappus of 10 to 15 plumose bristles, the upper cilia forming a yellow tuft.—Steetz in Pl. Preiss. i. 474; Hook. Bot. Mag. t. 5604; *Helichrysum Cotula*, Benth. in Hueg. Enum. 65; *Helipterum simplex*, Steetz in Pl. Preiss. i. 475; *H. citrinum*, Steetz l.c. 474 (with yellow involucre); *H. pusillum*, Turcz. in Bull. Mosc. 1851, ii. 80; *H. præcox*, F. v. M. in Trans. Vict. Inst. 1855, 58; *H. semisterile*, F. v. M. Fragm. ii. 157; *Helichrysum Oldfieldii*, F. v. M. Fragm. iii. 134.

Hab.: Southern downs.

6. **H. hyalospermum** (another genus), *F. v. M. Herb.; Benth. Fl. Austr.* iii. 644. A slender erect glabrous or slightly woolly annual, rarely much above 6in. high and often smaller. Leaves narrow-linear, almost filiform. Flower-heads on long peduncles, leafless except a few small scarious scales passing into the outer involucre bracts. Involucre hemispherical when fully out, 4 to 5 lines diameter without the ray, the outer bracts short, sessile, brown or yellow with a more rigid lanceolate centre, the inner with a broad scarious brown claw and yellow petal-like radiating lamina, about 2 lines long. Receptacle flat. Florets rather numerous, all hermaphrodite. Achenes glabrous or papillose, rather more compressed than in most *Heliptera*. Pappus-bristles 8 to 12, equally plumose, but yellow at the tips.—*Hyalospermum strictum* and *H. glutinosum*, Steetz in Pl. Preiss. i. 477; *Hyalospermum variabile*, Sond. in Linnæa, xxv. 519.

Hab.: Southern localities.

Some of the smaller specimens, where the thickening of the centre of the outer involucre bracts is less marked, are difficult to distinguish from yellow specimens of *H. Cotula*. The achenes appear to be larger than in that species (almost transparent in unripe specimens), and the scales on the peduncles do not occur in *H. Cotula*.—*Benth.*

7. **H. polyphyllum** (leaves numerous), *F. v. M. Fragm.* i. 35; *Benth. Fl. Austr.* iii. 645. An erect annual of about 1 to 1½ft., not much branched and slightly woolly. Leaves narrow-linear, 1 to 2in. long. Flower-heads small, rather numerous, in terminal corymbs. Involucre ovoid or narrow-campanulate, nearly 3 lines long, slightly woolly, the outer bracts appressed without laminæ, the inner with broadly scarious claws and white petal-like radiating laminæ, rather shorter than their claws. Florets about 10 to 12, all hermaphrodite. Achenes shortly silky-hirsute. Pappus of 15 to 20 plumose bristles.

Hab.: Basaltic plains from the Brisbane to Peak Range, *F. v. Mueller*; Kent's Plains, *W. Hill*; plains of the Condamine, *Leichhardt*; Rockhampton, *Thozet*.

8. **H. strictum** (erect), *Benth. Fl. Austr.* iii. 646. An erect glabrous annual, attaining 1 to 2ft., but often under 6in. Leaves oblong-lanceolate or linear, mostly stem-clasping; the lower ones petiolate, the uppermost small and narrow. Flower-heads solitary on long peduncles. Involucre ovoid or at length campanulate, $\frac{1}{2}$ to $\frac{3}{4}$ in. diameter, the bracts rigid, closely imbricate, the inner ones with small oblong white radiating petal-like laminæ. Florets 3 or 4 only in some heads, 8 to 10 in the larger ones, all hermaphrodite. Achenes densely silky-villous. Pappus of 20 or more equally plumose bristles.—*Xyridanthe stricta*, Lindl. Swan Riv. App. 23; *Pteropogon platyphyllus*, F. v. M. in Linnæa, xxv. 413.

Hab.: Southern localities, towards Cooper's Creek.

9. **H. corymbiflorum** (flowers in corymbs), *Schlecht. in Linnæa* xxi. 448; *Benth. Fl. Austr.* iii. 647. An erect woolly-white corymbose-annual of $\frac{1}{2}$ to 1ft. Leaves linear or lanceolate, mostly obtuse, soft, the upper ones few and small.

Flower-heads, in the original form, in a rather loose terminal leafless corymb, with a few small scarious bracts on the branches and peduncles. Involucre turbinate, about 3 lines long without the ray, the outer bracts wholly scarious, broad, obtuse, slightly woolly-ciliate, the inner with linear or cuneate claws, woolly towards the top and radiating petal-like white laminæ, about $2\frac{1}{2}$ lines long. Florets all hermaphrodite, but some of the central ones usually sterile. Achenes densely silky-villous. Pappus of about 15 to 20 plumose bristles.—Sond. in Linnæa, xxv. 519.

Hab.: Southern downs; from thence to the Flinders River.

10. **H. pygmæum** (small), *Benth. Fl. Austr.* iii. 647. An annual, branching from the base, diffuse or erect, 2 to 6 in. high, slightly woolly or at length glabrous. Leaves narrow-linear, almost filiform. Flower-heads not very numerous, sessile in dense terminal leafy corymbs or clusters. Involucre narrow, about 4 lines long, the bracts brown, scarious, obtuse and appressed, the inner ones with small white ovate radiating tips. Florets 4 to 6, all hermaphrodite, but about half in the centre sterile, the corolla very slender. Achenes densely silky-villous. Pappus of numerous plumose bristles.—*Pteropogon pygmæus*, DC. Prod. vi. 245; A. Gray in Hook. Kew Journ. iv. 267; *P. australis*, Nees in Linnæa, xvi. 223.

Hab.: Southern localities.

11. **H. moschatum** (Musk-scented), *Benth. Fl. Austr.* iii. 648. Annual or perhaps sometimes perennial with a creeping rhizome. Stems erect or decumbent at the base, $\frac{1}{2}$ to $1\frac{1}{2}$ ft. high, densely woolly as well as the foliage. Lower leaves petiolate, obovate or spatulate, the upper ones lanceolate or oblanceolate and stem-clasping. Flower-heads small and numerous, nearly sessile in dense corymbose or almost globular clusters. Involucres ovoid, scarcely 2 lines long, the bracts scarious, varying from a rich brown to pale straw-colour, without spreading tips, densely woolly inside at the base. Florets in all the specimens examined 2 or 3, all hermaphrodite and fertile. Achenes narrow-oblong, contracted at the base, smooth and glabrous, but so closely enveloped in the long intricate surrounding wool that it is difficult to extract them.—*Gnaphalium moschatum*, A. Cunn. in DC. Prod. vi. 236; *Calocephalus gnaphalioides*, Hook. in Mitch. Trop. Austr. 378; *Monencyanthes gnaphalioides*, A. Gray in Hook. Kew Journ. iv. 230.

Hab.: Southern downs.

The species has something of the aspect of *Gnaphalium luteo-album*.

12. **H. dimorpholepis** (bracts two-formed), *Benth. Fl. Austr.* iii. 650. An annual with erect or ascending branching stems, green, with a few long hairs, but scarcely any wool. Leaves linear, rather broad, $\frac{1}{2}$ to 1 in. long. Flower-heads small, sessile within a few floral leaves exceeding the head, terminal or sometimes lateral. Involucre broadly ovoid, above 2 lines long, the outer bracts lanceolate, scarious, fringed with long cilia, the inner with rigid glandular claws and small scarious tips not spreading. Receptacle conical. Florets rather numerous, exceeding the involucre, a few of the outer ones female. Achenes glabrous. Pappus of about 3 or 4 plumose-ciliate bristles, more or less flattened and scale-like, the outer achenes, especially those of the female florets, often without any pappus, and the innermost usually abortive.—*Dimorpholepis australis*, A. Gray in Hook. Kew Journ. iv. 227; Hook. Ic. Pl. t. 856; *Triptilodiscus pygmæus*, Turcz. in Bull. Mosc. 1851 ii. 66; *Duttonia sessiliceps*, F. v. M. in Linnæa, xxv. 410.

Hab.: St. George, *J. Wedd*; also on the Darling Downs, *F. v. Mueller*.

33. HELICHRYSUM.

(From the Greek *helios*, the sun, and *chrysos*, gold.)

(*Petalolepis and Faustula, Cass.; Ozothamnus, R. Br.; Swammerdamia, DC.; Lawrencea, Lindl.; Argyrophanes, Schlecht.; Chrysocephalum, Walp.; Conanthodium, A. Gray; Xanthochrysum and Argyroglottis, Turcz.; Acanthocladium, F. v. M.*)

Involucre from broadly hemispherical to narrow-ovoid or cylindrical, the bracts imbricate in several rows, either entirely or their laminae rigidly or opaquely scarious or petal-like, more or less spreading or rarely appressed. Receptacle flat, convex or almost conical, without scales (or very rarely a few in the centre amongst sterile florets). Florets either all hermaphrodite, tubular, and 5 rarely 4-toothed, or a few in the circumference (very rarely 1 or 2 outer rows) female, slender but not longer than the others, 2 or 3-toothed, a few of the central ones sometimes sterile. Anthers with fine tails. Style-branches nearly terete, truncate or rarely with small conical tips. Achenes angular, terete or slightly compressed, not contracted at the top, glabrous papillose or rarely silky-villous. Pappus of capillary bristles simple or more or less barbellate or plumose at the end, not distinctly plumose from the base, those of the female florets often fewer or rarely wanting.—Herbs undershrubs or shrubs, with leafy stems, usually more or less clothed with cottony wool. Leaves alternate or the lower ones very rarely opposite, entire. Florets yellow, the laminae of the involucre usually white, yellow, brown or pink, often varying in all these colours with intermediate shades in the same species.

A large genus represented in most warm and temperate regions of the globe, especially numerous in S. Africa and Australia, but without any cosmopolitan species, the Australian ones being all endemic. The limits to be assigned to the group are very uncertain, as it is connected with so many others by almost insensible gradations. The radiating or irregular female florets which separate *Podolepis* and *Athrixia* are, in *P. Lessoni*, *P. rutidochlamys*, and *A. tenella*, and sometimes in *P. canescens*, but little different from those of *Helichrysum*, *Laiolena* passes into *Helichrysum* through *I. tomentosa* and *H. podolepideum*, *Leptorhynchus* through *L. ambiguus* and *L. tenuifolius*, which are very near the section *Chrysocephalum*, and yet cannot be generically separated from *L. squamatus*. The plumose pappus of *Helipterum* is not very distinct from the strongly barbellate pappus of *Lawrencea*, or the semiplumose one of *Chrysocephalum*. The more numerous female florets of *Chrysocephalum*, and the elastically spreading involucre of *H. collinum* and its allies, connect *Helichrysum* with *Raoulia* and through that genus with the *Eugnaphalieæ*, whilst through *Helipterum* and *Cephalipterum* there is a gradual passage into the *Angiantheæ*. And many other connections with other genera of *Gnaphalieæ* may be traced through South African and northern forms. We are obliged, therefore, as in the case of *Asteroidæ*, to make arbitrary demarcations, in order not to unite the whole tribe into one unmanageable genus. Those here adopted are the best that have suggested themselves after much consideration, although it must be admitted that in some instances they are not altogether satisfactory.—*Note on the genus given by Bentham, Fl. Austr. iii. 612.*

SECTION I. **Lawrencea.**—*Annuals. Involucre hemispherical or campanulate, the outer brown sessile and appressed, the inner ones with coloured radiating laminae. Achenes with erect transparent obtuse hairs (or elongated papillæ), or the centre ones sometimes abortive and glabrous.*

Branches compact. Peduncles very short. Involucre ovoid-campanulate with yellow or white rays 1. *H. semifertile*.

SECTION II. **Xerochloa.**—*Perennials, sometimes almost woody at the base, rarely also annual. Involucre broad, hemispherical, the outer sessile broad bracts passing more or less gradually into the intermediate or inner ones with scarious or linear claws and radiating coloured laminae (scarcely conspicuous in H. rutidolepis). Achenes glabrous, papillose or rarely shortly villous.*

Flower-heads singly terminating the branches on long peduncles. Pappus-bristles simple at the base, barbellate or almost plumose towards the end. Involucral bracts not ciliate, the intermediate (yellow) not twice as long as the florets.

- Stems mostly erect and single headed. Involucre $\frac{3}{4}$ to lin. diameter 2. *H. scorpioides*.
- Stems decumbent, often branched. Involucres not exceeding $\frac{1}{2}$ in. diameter 3. *H. rutidolepis*.

- Flower-heads singly terminating the branches on long peduncles. Pappus-
bristles simple or equally denticulate.
- Radiating involueral bracts rigid, mostly obtuse (yellow, brown, red or
white). Stem tall, usually branched 4. *H. bracteatum*.
- Radiating involueral bracts petal-like, mostly acute (white or pink).
No floral leaves.
- Leaves lanceolate or oblong, cottony underneath or on both sides 5. *H. elatum*.
- Upper leaves linear, glutinous, without cottony wool 6. *H. glutinosum*.
- SECTION III. *Oxylepis*.**—Perennials or undershrubs. Involucres hemispherical or broadly
campanulate, the bracts all with linear claws and radiating laminæ, narrow, acute, and often
revolute. Pappus-bristles simple or shortly barbellate, not thickened nor more barbellate upwards.
- Involucres broadly hemispherical, radiating laminæ subulate-acuminate.
Leaves linear with revolute margins, glabrous or glandular-pubescent 7. *H. oxylepis*.
- Leaves oblong or lanceolate, cottony-white underneath.
Laminæ of the involueral bracts spreading or reflexed, the long ones
longer than their loosely woolly or nearly glabrous claws 8. *H. collinum*.
- Laminæ of the involueral bracts revolute, all shorter than their
densely woolly claws 9. *H. rupicola*.
- Involucres campanulate, laminæ small, narrow, scarious. Leaves obovate
or spatulate, woolly-white on both sides 10. *H. podolepideum*.
- SECTION IV. *Chrysocephalum*.**—Herbs with corymbose flower-heads. Involucre ovoid-
turbinate or almost globose, the bracts coloured in many rows scarcely exceeding the florets,
appressed or squarrose, ciliate. Female florets in 1 or 2 rows, but not so numerous as the her-
maphrodite ones. Achenes glabrous or papillose. Pappus-bristles few, simple at the base;
plumose at the end.
- Leaves usually flat and cottony. Flower-heads often 6 to 8 lines diameter,
loosely corymbose, the bracts scarcely squarrose 11. *H. apiculatum*.
- Leaves very narrow or not cottony. Flower-heads small, densely corym-
bose, the bracts often squarrose 12. *H. semipapposum*.
- SECTION V. *Ozothamnus*.**—Shrubs or rarely undershrubs or herbs. Involucre small,
oblong-ovoid or turbinate campanulate (rarely larger and ovoid-conical), the bracts imbricate, not
exceeding the florets or the inner ones with small coloured radiating tips not much longer than the
florets. Female florets few or none. Achenes glabrous or shortly villous. Pappus-bristles simple,
often thickened or more denticulate towards the end.
- Flower-heads small. Panicles small, compact, terminating the leafy
branches of shrubs (or undershrubs?) Involueral bracts scarious
without spreading tips.
- Leaves ovate on slender petioles. Branches slender, divaricate 13. *H. Bidwillii*.
- Leaves elliptical-oblong or linear, almost sessile. Branches slender,
divaricate 14. *H. Becklerii*.
- Leaves very small, erect with recurved margins, sessile with rounded
auricles. Branches virgate 15. *H. diotophyllum*.
- Flower-heads small, usually numerous, in terminal corymbs. Erect
shrubs. Leaves linear with revolute margins, rarely almost lan-
ceolate and flat.
- Involueral bracts with concave erect or loose but not spreading obtuse
tips, all or the inner ones white or pink. Leaves not decurrent.
Florets above 20 16. *H. diosmifolium*.
- Involucre ovoid-turbinate. Florets above 15. Achenes glabrous or
papillose. Leaves not decurrent 17. *H. cinereum*.
- Involucre narrow. Florets 10 to 15. Achenes glabrous 18. *H. cassinioides*.

1. ***H. semifertile*** (inner florets fertile in part), *F. v. M. Rep. Babb. Exped.* 14; *Benth. Fl. Austr.* iii. 617. An erect much-branched annual of 2 to 6in., very slightly woolly-tomentose or glabrous. Leaves narrow-linear, obtuse. Flower-heads on very short peduncles, forming an irregular leafy corymb. Involucre ovoid-campanulate, about 3 lines long, the outer bracts sessile, obtuse and appressed, brown or pale-coloured, the innermost with oblong whitish or bright yellow radiating laminæ, smaller than in the preceding species. Florets 10 to 15, some of the inner ones frequently sterile. Achenes sprinkled with erect transparent hairs. Pappus-bristles rather numerous, barbellate, especially towards the end.—*Pteropogon ramosissimus*, *F. v. M. in Linnæa*, xxv. 412.

Hab.: Inland southern localities.

2. **H. scorpioides** (scorpion-like), *Labill. Pl. Nov. Holl.* ii. 45 t. 191; *Benth. Fl. Austr.* iii. 618. Stems from a perennial tufted or decumbent and shortly branching base, ascending or erect, usually simple, often exceeding 1ft. and rather weak, but sometimes shorter and more rigid, clothed with a white deciduous cottony wool. Leaves from oblong-spathulate to linear, mostly acute, glabrous or scabrous above, loosely woolly underneath, the upper ones few and small. Involucre broadly hemispherical, from about $\frac{3}{4}$ to 1in. diameter, the bracts very numerous and spreading, not ciliate, the outer ones short, often tinged with brown, passing into the intermediate ones, of a bright yellow, usually narrow, but obtuse and gradually contracted into the claw, the innermost smaller. Florets exceedingly numerous, more than half as long as the involucre. Achenes glabrous. Pappus-bristles not very numerous, slender, shortly and often sparingly barbellate towards the end.—*DC. Prod.* iii. 194; *Hook. f. Fl. Tasm.* i. 211; *Gnaphalium scorpioides*, *Poir. Dict.* ii. 808; *Helichrysum buphthalmoides*, *Sieb. Pl. Exs.*; *H. (Turnii)*, *Hook. f. in Hook. Ic. Pl.* t. 320.

Hab.: Southern localities.

3. **H. rutidolepis** (bracts wrinkled), *DC. Prod.* vi. 194; *Benth. Fl. Austr.* iii. 618. A decumbent or loosely branched perennial, almost woody at the base, with a little loose deciduous wool. Leaves oblong, lanceolate or linear, acute or mucronate, mostly narrowed below the middle, but stem-clasping at the base, $\frac{3}{4}$ to nearly 2in. long. Flower-heads solitary on almost leafless peduncles. Involucre hemispherical, not exceeding $\frac{1}{2}$ in. diameter and often smaller, the bracts spreading in many rows, the outer short ones tinged with brown and passing into the inner or intermediate ones, which have a more distinct obtuse yellow lamina, rather longer than the florets and often transversely wrinkled. Florets very numerous, a few of the outer ones female and almost or quite without pappus, the others hermaphrodite. Achenes glabrous. Pappus-bristles minutely serrulate or simple at the base, more distinctly but sparingly barbellate towards the end.—*H. erosum*, *Schlecht. Linnæa*, xx. 595.

Hab.: Southern localities.

4. **H. bracteatum** (bracts conspicuous), *Willd.*; *DC. Prod.* vi. 188; *Benth. Fl. Austr.* iii. 620. An erect branching or simple perennial, of 1 to 2ft., often flowering the first year so as to be also annual, glabrous scabrous or sprinkled with a few hairs, without cottony wool. Leaves from linear to oblong-lanceolate or the lower ones obovate-oblong, the longer ones often attaining 3 or 4in., green and sometimes somewhat glutinous. Flower-heads large, solitary or few together on separate peduncles. Involucre hemispherical, spreading to from a little more than 1in. to nearly 2in. diameter, in the original form shining yellow or straw-coloured with more or less of a reddish-brown, the outer bracts short ovate and sessile, the inner gradually longer and more lanceolate on a short broad claw, the innermost narrow and rather shorter, all rigid and usually obtuse. Florets very numerous, very much less than half the length of the involucre, the outer ones female and slender. Achenes glabrous or slightly papillose. Pappus-bristles denticulate, not thickened upwards, slightly cohering at the base.—*Hook. f. Fl. Tasm.* i. 210; *Steetz in Pl. Preiss.* i. 471; *Xeranthemum bracteatum*, *Vent. Jard. Malm.* t. 2; *Helichrysum chrysanthum*, *Pers. Syn. Pl.* ii. 414; *Helichrysum lucidum*, *Henckel, Adumbr. (DC.)*; *Helichrysum viscosum*, *Sieb. Pl. Exs.*; *H. (Banksii)*, *A. Cunn. in DC. Prod.* vi. 188 (with rather broad leaves); *H. bicolor*, *Lindl. Bot. Reg.* t. 1844 (with narrow leaves); *H. acuminatum*, *DC. Prod.* vi. 188 (with less obtuse involucre bracts); *H. macrocephalum*, *A. Cunn. in DC. l.c.* (with large flower-heads).

Hab.: Abundant along the whole coast and on coastal ranges.

5. **H. elatum** (tall), *A. Cunn. in DC. Prod.* vi. 193; *Benth. Fl. Austr.* iii. 621. A stout erect herb or undershrub, sometimes under 1ft. high and almost simple, in rich shaded situations branching, attaining 7 or 8ft. and almost woody at the base, clothed with a loose or close cottony wool. Leaves lanceolate or ovate-lanceolate, contracted into a petiole, stem-clasping at its base, the larger ones attaining 2 to 3 or rarely 4in., the upper surface becoming at length glabrous. Flower-heads large, solitary or loosely paniculate. Involucre hemispherical, spreading to from 1 to 1½in. diameter, the bracts narrow, acute, petal-like, white or tinged with pink, the outer ones short and sessile, the intermediate long ones on a narrow claw, the innermost shorter and very narrow. Florets exceedingly numerous, much less than half as long as the involucre, a few of the outer ones slender and female. Achenes glabrous or papillose. Pappus-bristles slender, scarcely denticulate, not thickened upwards, shortly cohering at the base.—*H. lamuginosum*, *A. Cunn. in DC. Prod.* vi. 193; *H. albicans*, *Sieb. Pl. Exs.*

Hab.: Keppel Bay and Northumberland Islands, *R. Brown*; Dawson and Mackenzie Ranges, *F. v. Mueller*; Rodd's Bay, *A. Cunningham*; Port Denison, *Fitzalan* (the leaves quite glabrous); Rockhampton, *Dallachy*; Herberton, *J. F. Bailey*.

Var. Fraseri. More shrubby. Leaves crowded, the wool long and very deciduous or none, and sometimes the branches slightly glutinous.—Rocks of Mount Lindsay, at an elevation of 5000ft., *Fraser, W. Hill*; Port Curtis, *M'Gillivray*.

6. **H. glutinosum** (glutinous), *Hook. as a Helipterum*; *Benth. Fl. Austr.* iii. 621. A tall erect branching herb or undershrub, the lower part of the stem and foliage sometimes woolly-white, the upper portion glutinous and scabrous or pubescent without wool. Lower leaves narrow-lanceolate, sometimes densely woolly underneath, glutinous above, the upper ones crowded, narrow-linear with revolute margins, glutinous on both sides, without wool, not dilated at the base, and passing into a few distant subulate bracts on the peduncle. Flower-heads of *H. elatum* or rather smaller. Florets, achenes and simple pappus-bristles of that species.—*Helipterum glutinosum*, *Hook. in. Mitch. Trop. Austr.* 361.

Hab.: Maranoa, *Mitchell*; ridges of the Suttor, *F. v. Mueller*.

7. **H. oxylepis** (involucral bracts sharp-pointed), *F. v. M. Fragm.* i. 35; *Benth. Fl. Austr.* iii. 623. A perennial, with erect or ascending stems of 1 to 2ft., branching, hard and almost woody at the base, with a little loose wool. Leaves linear, with revolute margins, or very narrow-lanceolate and flat, 1½ to nearly 3in. long, becoming nearly or quite glabrous, the upper ones few and very small. Flower-heads rather large, solitary. Involucre broadly hemispherical, the bracts numerous and narrow, the claws nearly glabrous, the laminæ (brownish-yellow when dry) subulate-pointed and spreading like those of *H. collinum*, but shorter, although longer than the florets. Florets exceedingly numerous, all or nearly all hermaphrodite. Achenes and pappus of *H. collinum*.

Hab.: Bustard Bay, *Banks and Solander*; sandy shore, Moreton Island, *F. v. Mueller*; other islands of the south coast.

8. **H. collinum** (often on hills), *DC. Prod.* vi. 190; *Benth. Fl. Austr.* iii. 623. A herb or undershrub (of 1 to 2ft.?), with the habit of some of the compact varieties of *H. elatum*, dotted with white cottony wool. Leaves oblong-lanceolate, mostly 1 to 2in. long, woolly-white underneath or on both sides. Flower-heads rather large, solitary, the almost leafless peduncles rarely exceeding 2in. and sometimes very short. Involucre broadly hemispherical, spreading to a diameter of 1in. or rather more, the bracts very numerous, all with narrow appressed loosely-woolly or sometimes nearly glabrous claws and very narrow subulate-pointed spreading or reflexed laminæ, pale brown-yellow when dry,

varying in length, but the longest intermediate ones always exceeding the florets. Florets exceedingly numerous, all hermaphrodite or a very few outer ones female. Achenes glabrous. Pappus-bristles numerous, fine, minutely serrulate.

Hab.: Bare ridges of Endeavour River, and around Port Bowen, *A. Cunningham*; Harvey's Bay, Sandy Cape (with smaller flower-heads), *R. Brown*; also inland border of N.S.W.

9. **H. rupicola** (a rock species), *DC. Prod.* vi. 190; *Benth. Fl. Austr.* iii. 623. Apparently an undershrub, with the habit, foliage, and nearly all the characters of *H. collinum*, of which it may be a variety; but the almost leafless woolly peduncles are usually 6 to 9 in. long, the flower-heads rather smaller and flatter, the appressed claws of the involucrel bracts very woolly and their laminae smaller and revolute, the longest intermediate ones, although exceeding the florets, are yet much shorter than their claws. Florets and pappus of *H. collinum*.

Hab.: Cape Grafton, *Banks and Solander*; rocky shores of Cleveland Bay, *A. Cunningham*; Dunk and Gould Islands, *M'Gillivray*; Rockingham Bay, *Dallachy*.

10. **H. podolepideum** (like a *Podolepis*), *F. c. M. Rep. Babb. Exped.* 13; *Benth. Fl. Austr.* iii. 624. An undershrub or perhaps a low shrub, densely clothed with a cottony wool. Leaves petiolate, obovate or oblong, 1 to 2 in. long, soft and thick. Flower-heads on almost leafless peduncles of 2 to 4 in. Involucre broadly campanulate, $\frac{1}{2}$ to nearly $\frac{3}{4}$ in. diameter, the bracts numerous, appressed, narrow, with narrow, acute or slightly jagged scarious laminae, the longest slightly exceeding the florets, of a pale straw-colour or dirty white. Florets exceedingly numerous, all (or nearly all?) hermaphrodite. Achenes glabrous. Pappus-bristles not very numerous, shortly barbellate.

Hab.: Southern inland localities.

The species, as well in habit as in characters, connects the subsection *Oxylepis* with *Ixiolena tomentosa*.—*Benth.*

11. **H. apiculatum** (leaves tipped with a small point), *DC. Prod.* vi. 195; *Benth. Fl. Austr.* iii. 624. A perennial or perhaps annual, usually branching and hard at the base, with several erect stems, attaining 1 to 2 ft., clothed with a soft silvery tomentum, which rarely disappears from the older leaves. Radical and lower leaves oblong-cuneate and petiolate, the upper ones lanceolate or linear, or sometimes all narrow, the larger ones 1 to 2 in. long. Flower-heads in more or less dense terminal corymbs. Involucres in the original form broadly turbinate or nearly globose, about $\frac{1}{2}$ in. diameter, of a bright golden colour, but sometimes much smaller. Bracts small and very numerous, the laminae lanceolate, more or less ciliate, the outer ones sessile, the inner ones on woolly claws, all acute or the innermost obtuse, appressed or more rarely squarrose. Florets often as long as the involucre, those of the circumference in 1 or sometimes 2 rows, female, slender, with a reduced or abortive pappus, those of the disk very numerous. Achenes glabrous. Pappus of the disk of 4 to 10 fine bristles, strongly barbellate or almost plumose towards the end.—*Hook. f. Fl. Tasm.* i. 212; *Gnaphalium apiculatum*, *Labill. Pl. Nov. Holl.* ii. 43 t. 188; *Bot. Reg.* t. 240; *G. flavissimum*, *Sieb. Pl. Exs.*; *Helichrysum flavissimum*, *DC. Prod.* vi. 195; *H. odorum*, *DC. l.c.* 196; *Chrysocephalum helichrysoides*, *Walp. in Linnæa* xiv. 508; *C. apiculatum*, *Steetz in Pl. Preiss.* i. 474; *C. vitellinum*, *Sond. and Muell. in Linnæa* xxv. 514 (the root apparently annual).

Hab.: All parts.

Some plants have broader leaves and larger flower-heads than others, but the smaller forms are also mixed with them.

Var. minor. Leaves narrow but woolly, flower-heads smaller but not numerous, connecting this with *H. semipapposum*.—*H. ramosissimum*, *Hook. in Mitch. Trop. Austr.* 83.—Chiefly in dry barren situations.

12. **H. semipapposum** (part of pappus abortive), *DC. Prod.* vi. 195; *Benth. Fl. Austr.* iii. 625. Very closely allied to *H. apiculatum* and probably a variety, often scarcely to be distinguished from some forms of that species. Stems usually more erect and stiff, though not so stout. Leaves narrow, often entirely deprived of wool, but sometimes quite cottony-white. Flower-heads small, more numerous and corymbose than they usually are in *H. apiculatum*, and the bracts more frequently squarrose, but none of these differences constant.—*Hook. f. Fl. Tasm.* i. 211; *Gnaphalium semipapposum*, *Labill. Pl. Nov. Holl.* ii. 42 t. 187; *Helichrysum ciliatum*, *H. squarrulosum*, and *H. brevicilium*, *DC. Prod.* vi. 195, 196; *Chrysocephalum asperum* and *C. semipapposum*, *Steetz in Pl. Preiss.* i. 473, 474; *C. squarrulosum*, *Sond. in Linnæa* xxv. 515.

Hab.: Southern localities.

13. **H. Bidwillii** (after J. C. Bidwill), *Benth. Fl. Austr.* iii. 627. Stems weak, straggling or flexuose, with more or less of a deciduous cottony wool. Leaves on slender petioles, ovate or ovate-elliptical, mostly acute, $\frac{1}{2}$ to lin. long, flat and thin, glabrous or cottony-white, especially underneath. Flower-heads small, in small rather compact panicles terminating leafy branches. Involucre broadly campanulate, about 2 lines long, glabrous or very thinly woolly, the bracts rather numerous, scarious, appressed, the inner ones with very small slightly spreading acute or jagged tips. Florets about 20 or rather more, a few outer ones female. Achenes glabrous. Pappus-bristles serrulate, but scarcely thickened upwards.

Hab.: Wide Bay, *Bidwill*.

14. **H. Becklerii** (after Dr. Beckler), *F. v. M. Herb.*; *Benth. Fl. Austr.* iii. 627. A shrub or undershrub with slender divaricate branches, tomentose or pubescent when young. Leaves almost sessile, oblong-lanceolate or linear, flat or with recurved margins, about 4 to 8 lines long, glabrous above, hoary or white underneath. Flower-heads small, in small compact panicles terminating leafy branches. Involucre broadly campanulate, nearly 3 lines diameter, the bracts rather numerous, scarious, loosely appressed, without spreading tips. Florets above 20, several of the outer ones female. Achenes papillose-pubescent or glabrous. Pappus-bristles serrulate, but scarcely thickened upwards.—*Ozothamnus Becklerii*, *F. v. M. Fragm.* i. 183.

Hab.: Southern localities.

15. **H. diotophyllum** (leaves with two auricles at base), *F. v. M. Fragm.* v. 150; *Benth. Fl. Austr.* iii. 628. A shrub with virgate rather slender branches, covered with loose cottony wool. Leaves almost scale-like, erect, linear-lanceolate, 1 to 2 lines long, acute, with revolute margins expanded at the base into thick rounded auricles. Flower-heads small, in small very compact panicles terminating leafy branches. Involucre broadly campanulate or almost globular, about 2 lines diameter, slightly woolly at the base, the bracts numerous, scarious, appressed, without spreading tips. Achenes shortly hirsute. Pappus-bristles few, barbellate towards the end.

Hab.: Southern inland downs.

16. **H. diosmifolium** (Diosma-leaved), *Less. in Steud. Nom. Bot. ed.* 2; *Benth. Fl. Austr.* iii. 628. An erect shrub, said to attain sometimes 20ft., the branchlets minutely viscid-pubescent or tomentose. Leaves narrow-linear with minute points or almost obtuse, rarely exceeding $\frac{1}{2}$ in., the margins revolute and not decurrent, glabrous or hoary-tomentose underneath. Flower-heads small and numerous, in dense terminal corymbs. Involucre nearly globular or broadly campanulate, 2 to nearly 3 lines diameter, the bracts broad, obtuse, concave,

loose and very white or tinged with pink but without spreading tips. Florets about 20, a few outer ones sometimes female. Achenes glabrous or papillose. Pappus-bristles serrulate but scarcely thickened upwards.—*Metalasia rosmarinifolia*, Sieb. Pl. Exs.; *Ozothamnus diosmifolius*, DC. Prod. vi. 166.

Hab.: Burnett River, *F. v. Mueller*; Pine River, *Fitzalan*. A common southern shrub.

17. **H. cinereum** (grey), *F. v. M. Herb.*; *Benth. Fl. Austr.* iii. 629. An erect much-branched shrub of several feet, the branches tomentose. Leaves linear, obtuse, rarely exceeding $\frac{1}{2}$ in., with revolute margins, not decurrent, glabrous above, tomentose underneath, sometimes very narrow, sometimes thick and rather broad. Flower-heads small and numerous, in rather dense terminal corymbs. Involucre at first ovoid, at length broadly turbinate, about 3 lines long, the bracts rather numerous, appressed, often almost acute, the innermost without any or with minute scarcely spreading white tips. Florets 15 to 20 or rather more, a very few of the outer ones female. Achenes papillose. Pappus-bristles serrulate, slightly thickened upwards.—*Chrysocoma cinerea*, Labill. Pl. Nov. Holl. ii. 39 t. 182; *Ozothamnus cinereus*, DC. Prod. vi. 165; Hook. f. Fl. Tasm. i. 203; *O. turbinatus*, DC. Prod. vi. 164.

Hab.: Cunningham's Gap, *C. J. Gwyther*.

18. **H. cassinioides** (Cassinia-like), *Benth. Fl. Austr.* iii. 629. An erect, branching, heath-like shrub, the branches rather slender, tomentose. Leaves narrow-linear, obtuse or with minute recurved points, above $\frac{1}{2}$ in. long, the margins much revolute, not decurrent, glabrous and smooth above, tomentose underneath. Flower-heads small and numerous, in small dense terminal corymbs. Involucre narrow, about 2 lines long, the bracts scarious, concave, appressed, without spreading tips. Florets about 12 to 15. Achenes glabrous. Pappus-bristles scarcely thickened upwards.

Hab.: Keppel Bay and Broadsound, *R. Brown*.

34. CASSINIA, R. Br.

(After M. Henri Cassini.)

(*Achromolœna*, *Cass.*; *Apalochlamys* and *Rhynea*, *DC.*)

Involucre narrow-ovoid or oblong, the bracts imbricate, scarious or coloured, without any or, in species not Australian, with small radiating laminae. Receptacle with scarious chaffy scales between the florets. Florets few, all hermaphrodite, tubular, 5-toothed or, in species not Australian, a very few of the outer ones slender and female. Anthers very shortly or obscurely tailed. Style-branches nearly terete, truncate. Achenes short, angular or nearly terete, usually papillose. Pappus of several simple entire or minutely denticulate capillary bristles, in a single row and slightly cohering in a ring at the base.—Shrubs or rarely herbs. Leaves alternate, entire. Flower-heads small, numerous, in terminal corymbs or panicles.

All the Australian species are endemic. The genus is closely allied to the small-headed *Helichrysa*, with precisely the same habit, differing from it in the scales of the receptacle. A few scales may indeed be occasionally found among the central florets of a few species of *Helichrysum*, especially when they are sterile, but in *Cassinia* they subtend the fertile florets.—*Benth.*

Shrubs with small or narrow rigid leaves. Florets under 10.

Corymbs dense, sessile and shorter than the upper leaves. Involucres oblong; bracts thinly scarious, very obtuse, without coloured tips, shorter than the florets. Florets usually 4. Leaves lanceolate, smooth above

1. *C. compacta*.

Corymbs flat or convex, dense, but much exceeding the upper leaves.

- Leaves lanceolate or linear, acute, mostly 1 to 2in. long, glabrous and smooth above. Involucral bracts white or pale straw-colour 2. *C. longifolia*.
 Panicles pyramidal or not longer than broad, loose or rather compact.
 Leaves narrow-linear with small straight or recurved points.
 Branches cottony-white. Leaf-points usually recurved 3. *C. lævis*.
 Branches and leaves glabrous or slightly viscid. Leaf-points usually straight 4. *C. quinquefaria*.
 Panicles long and loose. Leaves obovate or oblong, flat, under 1in. long 5. *C. subtropica*.

1. ***C. compacta*** (compact corymbs), *F. v. M. Fragm.* i. 18; *Benth. Fl. Austr.* iii. 585. A shrub, the branches and under side of the leaves hoary with a very short close tomentum. Leaves lanceolate, scarcely acute, mucronulate, the margins recurved, 1½ to above 2in. long, glabrous and smooth above. Flower-heads small, in a very dense rather flat sessile corymb shorter than the last leaves. Involucre straw-coloured or pale brown, narrow, scarcely above 1½ line long, the bracts obtuse, thinly scarious on the margins, shorter than the florets. Florets 4 or rarely 5 or 6.

Hab.: Mount Lindsay, on the borders of N.S.W., at an elevation of 5000 feet, *W. Hill*.

2. ***C. longifolia*** (long-leaved), *R. Br. in Trans. Linn. Soc.* xii. 127; *Benth. Fl. Austr.* iii. 586. A shrub, the branches and under side of the leaves more or less hoary or white-tomentose or almost glabrous. Leaves linear or lanceolate, acute, narrowed at the base, mostly 1 to 2in. long, the margins more or less recurved, glabrous and smooth on the upper side. Flower-heads numerous, in a broad rather dense flat or convex corymb much exceeding the last leaves. Involucres oblong, about 2 lines long, pure white in the original form, the bracts very obtuse, opaque. Florets usually about 6 to 8.

Hab.: Southern localities.

Var. straminea. Involucral bracts straw-coloured or pale brown.—*C. longifolia*, DC. *Prod.* vi. 156. Hab.: Southern inland localities.

3. ***C. lævis*** (smooth) *R. Br. in Trans. Linn. Soc.* xii. 128; *Benth. Fl. Austr.* iii. 587. Wild Rosemary. A rather slender shrub, the branches and under side of the leaves white-tomentose. Leaves narrow-linear with closely revolute margins, ½ to 1½in. long, smooth above. Flower-heads small, in a shortly pyramidal rather dense panicle of 2 or 3in., rarely condensed into a very convex corymb. Involucre narrow, 1½ line long, of a pure white, the bracts obtuse but narrow. Florets usually about 4 or 5.—DC. *Prod.* vi. 156; *C. rosmarinifolia*, DC. l.c.

Hab.: Dawson River, *Herb. F. Mueller*; Warwick, *Beckler*; various other parts of South Queensland.

Wood dark and beautifully marked, close-grained; would be very valuable on veneers.—*Bailey's Cat. Ql. Woods* No. 258a.

4. ***C. quinquefaria*** (five-rowed), *R. Br. in Trans. Linn. Soc.* xii. 128; *Benth. Fl. Austr.* iii. 587. Wild Rosemary. A shrub, glabrous or nearly so, and sometimes appearing somewhat viscid. Leaves narrow-linear, with revolute margins, without asperities, mostly above 1in. long. Flower-heads numerous, in pyramidal panicles, usually looser and larger than in *C. lævis* but not nearly so long as in the following species. Involucres narrow-oblong, scarcely 2 lines long, of a pale straw-colour, the bracts rather narrow, obtuse, distinctly or sometimes obscurely superposed in 5 rows. Florets about 5.—DC. *Prod.* vi. 157; *C. hygrophila*, A. Cunn. in DC. *Prod.* vi. 156; *Achromolœna viscosa*, Cass.; quoted by DC. l.c.

Hab.: Very common in southern localities.

5. **C. subtropica** (almost tropical), *F. v. M. Fragm.* i. 17; *Benth. Fl. Austr.* iii. 588. A tall slender shrub, the branches tomentose-pubescent. Leaves petiolate, from obovate to elliptical-oblong, obtuse or mucronulate, under lin. long, glabrous and smooth above, white or rusty-tomentose underneath, the margins scarcely recurved. Flower-heads small and numerous, in a long loose terminal panicle. Involucre cylindrical, about 2 lines long, straw-coloured or reddish-brown, the bracts very thin. Florets usually 3, with receptacle scales between them as in the rest of the genus.

Hab.: On the borders of many southern scrubs.
Wood of a grey colour, close grained.—*Bailey's Cat. Ql. Woods* No. 258b.

35. IXIOLÆNA, Benth.

(Involucral bracts of one species viscid.)

Involucre campanulate or hemispherical, the bracts numerous, linear or narrow linear-lanceolate, herbaceous or rigid, the inner ones with small scarious or coloured tips, sometimes radiating. Receptacle flat or convex, without scales. Florets all hermaphrodite, tubular, 5-toothed, or rarely a very few outer ones female and filiform. Anthers with long fine tails. Style-branches slender, capitate or truncate at the end. Achenes angular or terete, not beaked. Pappus of fine capillary bristles, entire or shortly barbellate.—Herbs, either annual or with a perennial base. Leaves alternate, entire. Flower-heads on terminal peduncles.

The genus is limited to Australia. It is nearly allied to *Helichrysum*, differing chiefly in the involucre.

Involucres hemispherical, the bracts very narrow, the inner ones with small scarious tips, not coloured.

Pappus scarcely barbellate, scarcely half as long as the corolla 1. *I. brevicompta*.

Pappus barbellate, nearly or rarely quite as long as the corolla. Leaves mostly lanceolate, acute. Pappus-bristles about 8 to 12 2. *I. leptolepis*.

Involucres campanulate, the bracts linear or linear-lanceolate. Pappus as long as the corolla 3. *I. tomentosa*.

1. **I. brevicompta** (pappus short), *F. v. M. Fragm.* i. 53; *Benth. Fl. Austr.* iii. 597. A branching erect or decumbent annual, or perhaps perennial, with a hard almost woody base, more or less cottony-white. Leaves linear or lanceolate, the larger ones stem-clasping at the base. Peduncles long, leafless or with a few very small linear leafy bracts. Involucre hemispherical, 4 to 5 lines diameter, the bracts numerous, linear, rather rigid, pubescent, the inner ones with small narrow scarious tips. Florets very numerous, longer than the involucre, all hermaphrodite. Achenes glabrous, angular. Pappus of about 10 bristles, much shorter than the corolla, shortly united at the base, simple or scarcely barbellate.

Hab.: Peak Downs, *F. v. Mueller*; Narran, Maranoa, and Balonne Rivers, *Mitchell*.

2. **I. leptolepis** (bracts slender), *Benth. Fl. Austr.* iii. 597. A branching perennial with a hard woody base, with a loose cottony wool which often disappears by the time of flowering. Leaves linear or lanceolate, very acute, usually rigid and scarcely stem-clasping at the base, flat or with revolute margins. Peduncles longer than in *I. tomentosa*, with few smaller leafy bracts. Involucre hemispherical (or, when young, broadly campanulate), with numerous linear rigid bracts, more or less glandular, the inner ones 2 to 2½ lines long, with narrow scarious tips, more prominent than in *I. tomentosa*. Florets very numerous, on a broad flat receptacle, longer than the involucre. Achenes glabrous or very slightly pubescent. Pappus of about 8 to 12 bristles, barbellate from the base, very much shorter than in *I. tomentosa*, although sometimes nearly as long as the corolla.—*Helichrysum leptolepis*, DC. *Prod.* vi. 194; *I. tomentosa*, var. *glabrata*, Sond. in *Linnaea*, xxv. 504.

Hab.: Southern inland localities.



F.C. Wills, Del.

F. Elliott, Lith.

Cassinia subtropica, F.v.M.

3. **I. tomentosa** (cottony), *Sond. and Muell. in Linnæu*, xxv. 504; *Benth. Fl. Austr.* iii. 598. A branching perennial, erect or decumbent at the base, under 1ft. high, covered with a loose cottony wool which it rarely loses. Leaves mostly lanceolate, mucronulate, rather flaccid, with recurved margins, dilated and stem-clasping at the base, or a few of the lower ones narrowed into a petiole. Peduncles short, leafy. Involucre narrow-campanulate, usually about 4 lines long, the bracts linear or narrowly linear-lanceolate, woolly, the inner ones with small narrow scarious tips, not radiating. Florets numerous, scarcely exceeding the involucre. Achenes angular, rather long, glabrous or slightly hirsute. Pappus of 10 to 20 capillary bristles, barbellate from the base, and as long as the corolla.—*Helichrysum Sonderi*, F. v. M. in *Seem. Journ. Bot.* iv. 121.

Hab.: Southern inland localities.

36. MILLOTIA, Cass.

(Origin unknown.)

Involucre cylindrical or almost ovoid, of few nearly equal narrow bracts. Receptacle small, without scales. Florets all hermaphrodite, tubular, 4 or 5-toothed. Anthers with fine, usually ciliate-plumose tails. Style-branches terminating in a very short cone. Achenes cylindrical, contracted into a slender beak. Pappus of fine barbellate or ciliate capillary bristles.—Small annuals. Leaves alternate, linear. Flower-heads small, on terminal peduncles.

The genus is limited to Australia. It differs from *Leptorhynchus* and *Waitzia* in the involucre, from other *Gnaphaliceæ* in the slender beak of the achenes.—*Benth.*

1. **M. Greevesii** (after Dr. A. Greeves), *F. v. M. Fragm.* iii. 18 t. 19; *Benth. Fl. Austr.* iii. 596. A slender erect or diffuse annual, under 6in. high, more or less woolly-white or at length glabrous, except the inflorescence. Leaves filiform. Involucres about $2\frac{1}{2}$ lines long, the bracts about 8 to 10, linear, with fine points, but densely cottony to the end. Florets usually fewer than in *M. tenuifolia*, longer than the involucre. Achenes slender, with long beaks. Pappus shorter than the corolla, the bristles very fine, ciliate-plumose with fine long hairs.

Hab. Southern inland localities.

37. RUTIDOSIS, DC.

(Bracts wrinkled.)

(*Pumilo*, *Schlecht.*; *Actinopappus*, *A. Gray.*)

Involucre hemispherical or ovoid, the bracts loosely imbricate, broad, very scarious, the inner ones with a broad more rigid base. Receptacle convex or small, without scales. Florets all hermaphrodite, tubular, 4 or 5-toothed. Anthers very shortly or not at all tailed. Style-branches truncate. Achenes oblong or obconical, scarcely compressed. Pappus of several chaffy scales entire jagged or divided into bristle-like lobes.—Annual or perennial herbs, usually woolly-tomentose. Leaves alternate, entire. Flower-heads terminal, pedunculate or rarely in small dense cymes.

The genus is limited to Australia. The involucre is much like that of *Podolepis*, in other respects the genus is allied to *Helichrysum*, but differs from both in the scale-like pappus.—*Benth.*

Annuals or perennials, erect, branching, and cottony. Leaves not decurrent. Pappus-scales undivided.

Anthers much exerted. Pappus-scales 5 to 7, spatulate, quite entire.

Flowers yellow

1. *R. helichrysoides.*

Anthers not exerted. Pappus-scales about 10.

Flowers white. Pappus-scales cuneate obtuse, scarcely denticulate

2. *R. leucantha.*

Flowers yellow. Pappus-scales lanceolate, acute, ciliate

3. *R. Murchisonii.*

1. **R. helichrysoides** (Helichrysum-like), *DC. Prod.* vi. 159; *Benth. Fl. Austr.* iii. 594. A perennial with a hard woody stock and erect branching stems of 1 to 2ft., cottony-white as well as the foliage. Leaves linear or the lower ones oblong-spathulate, 1 to 2in. long, or the upper ones smaller, obtuse or with callous points, not decurrent. Flower-heads on terminal peduncles. Involucre broadly hemispherical, in some specimens all under $\frac{1}{2}$ in. diameter, in others larger, the bracts cuneate at the base, with elegantly ciliate scarious transversely wrinkled laminæ, loose but scarcely radiating. Florets yellow, 5-toothed. Anthers exerted. Achenes glandular-papillose. Pappus of 5 to 7 spathulate scales, about as long as the achene.—*R. auricoma*, *F. v. M. in Linnæa*, xxv. 408.

Hab.: Southern downs.

2. **R. leucantha** (flowers white), *F. v. M. Fragm.* i. 35; *Benth. Fl. Austr.* iii. 594. Erect, branching, woolly-tomentose, 1 to 2ft. high and perhaps annual, although with a hard almost woody base. Leaves lanceolate or the upper ones linear, not decurrent, losing the wool on the upper side. Flower-heads on long peduncles, about the size and shape of those of *R. helichrysoides*, but the involucre bracts not ciliate and the florets white and rather more slender. Achenes glandular. Pappus of about 10 cuneate scales, slightly denticulate at the end.

Hab.: Inland tropics.

3. **R. Murchisonii** (after R. Murchison), *F. v. M. Fragm.* i. 34; *Benth. Fl. Austr.* iii. 594. Erect and branching, rather slender, slightly woolly-tomentose, the specimens under 1ft. high. Leaves linear, not decurrent. Flower-heads on long peduncles, smaller than in *R. helichrysoides*. Involucres broadly hemispherical, rarely $\frac{1}{2}$ in. diameter, the laminæ of the bracts ovate, scarcely ciliate. Florets yellow, 5-toothed. Anthers not exerted. Achenes papillose. Pappus of 8 to 12 lanceolate, acute, ciliate scales.

Hab.: Burnett River and Wide Bay.

38. AMMOBIUM, R. Br.

(Found on sandy soil.)

Involucre hemispherical, the bracts either petal-like and spreading or scarious and more appressed. Receptacle more or less convex with flat or slightly concave scales between the florets. Florets all tubular, hermaphrodite, 5-toothed. Anthers with fine tails. Style-lobes truncate. Achenes 4-angled. Pappus a membranous cup, either truncate and entire or more or less produced into 2 or 4 unequal teeth or short awns.—Herbs more or less white-tomentose. Leaves entire. Flower-heads solitary, terminating the stem or branches.

The genus is limited to Australia.

1. **A. alatum** (stems winged), *R. Br. in Bot. Mag. t.* 2459; *Benth. Fl. Austr.* iii. 583. An erect, branching, white-tomentose herb, attaining 2 or 3ft., the stems bordered by wings decurrent from the margins of the leaves. Radical leaves lanceolate, several inches long, narrowed into a long petiole; stem-leaves small and distant. Involucral bracts in many rows, spreading to about $\frac{3}{4}$ in. diameter, the white petal-like laminæ broadly ovate, the inner ones $\frac{1}{4}$ in. long on very short claws, the outer ones shorter and sessile. Florets numerous. Scales of the receptacle rigid, slightly concave, mucronate. Teeth or awns of the pappus-cup very variable, usually very small.—*DC. Prod.* vi. 153; *Gaudich. in Freyc. Voy.* 467 t. 90 (*A. spathulatum* on the plate); *Sweet, Brit. Fl. Gard.* t. 48.

Hab.: Southern Downs.

39. ERIOCHLAMYS, Sond. and F. v. M.

(Coated with wool.)

Involucre broadly ovoid or almost globular, the bracts imbricate, the outer ones herbaceous with revolute margins, the inner ones with broad scarious margins, without coloured laminæ. Receptacle slightly convex, without scales. Florets numerous, all hermaphrodite, tubular, 5-toothed. Anthers with very short points or tails. Style-branches broadly truncate. Achenes oblong, without any pappus.—Small annual. Leaves alternate, small, entire. Flower-heads woolly, sessile, solitary or clustered.

The genus is endemic in Australia. The inflorescence approaches sometimes that of *Angianthea*, but the individual heads are occasionally solitary and always more distinct than in that subtribe.—*Benth.*

1. **E. Behrii** (after Dr. H. Behr), *Sond. and F. v. M. in Linnæa*, xxv. 488; *Benth. Fl. Austr.* iii. 591. Very much branched, woolly-tomentose and usually diffuse and under 6in. high, apparently annual, but sometimes larger with a hard almost woody base. Leaves linear, obtuse, often all under $\frac{1}{2}$ in. long. Flower-heads numerous, small, sessile amongst the last leaves and often crowded at the ends of the branches. Involucre more or less woolly, about $1\frac{1}{2}$ line long. Florets scarcely exceeding the involucre, the corollas often woolly at the base.

Hab.: Southern border.

40. PHACELLOTHRIX, F. v. M.

(Pappus-bristles in bundles.)

Heads homogamous, many-flowered. Involucre almost hemispherical; bracts 3 or 4-seriate, scarious, not radiate. Receptacle naked. Corolla tubular, 5-toothed. Anthers hastate at the base, ecaudate. Style-branches subulate, almost all sides stigmatose. Achenes almost cylindrical, erostrate, sessile, glandular-punctate. Pappus-bristles uniseriate, connate in twos, threes, or fours, slightly scabrous.

1. **P. cladochaeta** (bristles branched), *F. v. M. Fragm.* xi. 49. Annual loosely woolly, from a few inches to 1ft. high. Leaves sessile, oblong or narrow-lanceolate, the upper surface sparsely the under densely woolly, 1 to 2in. long, 2 to 3 lines broad, herbaceous. Peduncles terminal, 2 to 6in. long, thin, downy, bearing a single small head. Involucre 3 lines high, bracts glabrous, scarious, tips straw-coloured, inner ones linear. Achenes brown, oblong-cylindrical. Pappus white, scarcely 1 line long.—*Helichrysum cladochaetum*, F. v. M. *Fragm.* v. 199.—*Rutidosia Brownii*, *Benth. Fl. Austr.* iii. 594.

Hab.: Islands of the Gulf of Carpentaria, *R. Brown*; Endeavour River, *Banks and Solander*; Cape York, *Dæmel*; Thursday Island, *Rev. J. Chalmers* (F. v. M.)

41. ACOMIS, F. v. M.

(Without pappus.)

Involucre broadly hemispherical, the bracts loosely imbricate, scarious, slightly thickened at the base. Receptacle convex, without scales. Florets numerous, all hermaphrodite, tubular, 5-toothed. Anthers with fine tails. Style-branches long, truncate. Achenes oblong or narrow, without any pappus.—Erect slender herbs. Leaves linear, entire. Flower-heads on slender terminal peduncles.

The genus is limited to Australia. It is allied to *Rutidosia*, with nearly the same involucre, differing in the absence of pappus and in the much more distinctly tailed anthers.—*Benth.*

Leaves lanceolate. Corollas not dilated at the base. Usually woolly . . . 1. *A. Rutidosia*.
Leaves linear-subulate. Corollas dilated at the base. Nearly glabrous . . . 2. *A. macra*.

1. **A. Rutidosis** (like a *Rutidosis*), *F. v. M. Fragm.* ii. 89; *Benth. Fl. Austr.* iii. 591. Erect, branching, and apparently annual, 1 to 2ft. high, more or less woolly. Leaves petiolate, lanceolate or almost ovate-lanceolate, acute, narrowed at the base, 1 to 1½ in. long, losing the wool from the upper side. Involucres about 4 lines diameter, the outer bracts ovate, the inner ones oval-oblong. Florets slightly dilated upwards, but not at the base. Achenes narrow.—*Rutidosis acoma*, *F. v. M. l.c.*

Hab.: Mount Perry, *Jas. Keys*.

2. **A. macra** (long), *F. v. M. Fragm.* iv. 145; *Benth. Fl. Austr.* iii. 591. Nearly glabrous, the stems slender, almost filiform. Leaves linear-subulate, acute, under 1 in. long. Involucre about 3 lines diameter, the bracts broadly lanceolate, thickened in the centre but not clawed. Corollas glandular and dilated over the achene at the base as in *Cotula*. Achenes oblong.—*Rutidosis macra*, *F. v. M. l.c.*

Hab.: Cape River, *Bowman*.

42. MYRIOCEPHALUS, Benth.

(The flower-heads numerous.)

(*Hyalolepis*, *DC.*; *Antheidosorus*, *A. Gray*; *Gilberta*, *Turcz.*; *Lamprochlœna*, *Elachopappus*, and *Polycalymma*, *F. v. M.*)

Flower-heads exceedingly numerous and sessile on a broad very flat receptacle, in a dense cluster or compound head, surrounded by a general involucre of numerous narrow bracts in many rows, each usually with a scarios tip or radiating appendage. Partial heads 1 or few-flowered. Involucre of few bracts (the outer ones including one on the general receptacle subtending each head), usually contracted into a stalk-like base and scarios at the tip, the inner ones scarios and transparent from the base or rarely all narrow and rigid. Receptacle without scales. Florets hermaphrodite, tubular, slender, 3 to 5-toothed. Anthers with more or less conspicuous points or tails at the base. Style-branches nearly terete, truncate. Achenes more or less compressed. Pappus none or of 1 or more awns or bristle-like scales, simple or more or less plumose.—Herbs, either annual or with a perennial or woody base, often hoary or white, especially when young, with woolly or cottony hairs. Leaves alternate, entire. Clusters or compound heads terminal, usually globose or hemispherical; the flat receptacle sometimes so broadly dilated that the outer flower-heads are reflexed.

The genus is limited to Australia. It differs from *Angianthus* in the more perfect general involucre and more developed common receptacle, the partial involucres sometimes reduced to 2 bracts with a single floret, so as in some species to bring the compound head of *Myriocephalus* in close analogy to the simple head of *Helichrysum*.—*Benth.*

Appendages of the general involucral bracts under 1 line long or inconspicuous.

Dwarf plant. Leaves much longer than the flower-heads. Partial heads 1-flowered. Pappus of 1 very fine awn or none

1. *M. rhizocephalus*.

Decumbent or ascending plant, under 6 in. Leaves small, mostly cuneate or spatulate. Partial heads 4-flowered. Pappus of 1 to 4 bristle-like scales

2. *M. Rudalii*.

Appendages of the general involucral bracts 1 to 2 lines long, broad and very conspicuous, white. Herbaceous and tall. Partial-heads 5 to 8-flowered. Achenes woolly. Pappus of numerous ciliate bristles

3. *M. Stuartii*.

1. **M. rhizocephalus** (flower-heads near the root), *Benth. Fl. Austr.* iii. 557. A small tufted annual, the stem from ½ to 2 or 3 in. long, covered with the broad sheathing bases of the leaves. Leaves above the broad base linear, grass-like, often 3 to 4 in. long. Clusters of flower-heads globose or hemispherical, ½ to ¾ in. diameter, sessile amidst the upper leaves which form an outer involucre.

General involucre of very numerous bracts in several rows, transparent with short green midribs, ciliate with long woolly hairs, except the small glabrous tips which form a ray round the cluster. General receptacle very broad and flat. Partial heads very numerous, shorter than the general involucre, 1-flowered. Partial involucre of 3 bracts, one subtending and two lateral, all linear, hard more or less concrete at the base, transparent but narrow above. Florets very numerous, 3 or 4-toothed. Achenes narrow, sparingly hairy, especially near the top. Pappus of a single hair-like awn, slightly dilated at the base or occasionally none.—*Hyalolepis rhozcephala*, DC. Prod. vi. 149; *H. occidentalis*, F. v. M. Fragm. iii. 155.

Hab.: Southern localities.

2. **M. Rudallii** (after Dr. J. T. Rudall), *Benth. Fl. Austr.* iii. 559. An annual, branching at the base, with decumbent or ascending stems under 6in. long, loosely woolly. Leaves oblong-linear, cuneate or spatulate, very obtuse, often dilated at the base, not above $\frac{3}{4}$ in. long. Clusters of flower-heads when full-grown about $\frac{1}{2}$ in. diameter. General involucre of very numerous woolly-ciliate bracts, those of the outer rows shorter, with green midribs and no laminæ, those of the inner rows with small white petal-like spreading tips, forming a ray to the cluster. Partial-heads about 4-flowered, the involucre of about 5 very narrow bracts, the subtending and outer ones little more than the midrib dilated and exceedingly thin and transparent at the end, all ciliate with fine long woolly hairs. Achenes with 1 to 4 unequal bristle-like scales.—*Elachopappus Rudallii*, F. v. M. Fragm. iii. 157.

Hab.: Towards Cooper's Creek.

3. **M. Stuartii** (after J. M'D. Stuart), *Benth. Fl. Austr.* iii. 560. Erect, apparently annual, not much branched, 1 to 2ft. high, pubescent or woolly-white. Leaves linear or lanceolate, half stem-clasping, 1 to 2in. long, the smaller distant upper ones often with white scarious tips passing into the involucre bracts. Clusters of flower-heads hemispherical, attaining lin. diameter or even more. General involucre of numerous bracts in several rows, herbaceous at the base, with white ovate spreading laminæ fully 2 lines long, forming a very conspicuous ray to the cluster. Partial heads 5 to 8-flowered or the central one with more numerous florets; the involucre bracts exceedingly thin and transparent, fringed at the end, about 2 of the outermost of each involucre as well as the subtending one contracted into a short rigid midrib, the others transparent from the base and very broad. Achenes densely clothed with very long woolly hairs. Pappus of 15 to 20 unequal bristles, slightly dilated and ciliate or plumose with short hairs.—*Polycalymma Stuartii*, F. v. M. and Sond. in Linnæa, xxv. 494; F. v. M. Pl. Vict. t. 42.

Hab.: The interior, towards Cooper's Creek.

43. ANGIANTHUS, Wendl.

(From the vessel-like form of the flowers.)

(*Siloxerus*, *Iabill.*; *Ogcrostylus*, *Cass.*; *Styloncerus*, *Spreng.*; *Cylindrosorus* and *Phyllocalymma*, *Benth.*; *Skirrophorus*, *DC.*; *Chrysocoryne*, *Endl.*; *Eriocladium*, *Endl.*; *Pogonolepis*, *Steetz*; *Piptostemma*, *Epitriche* and *Gamozygis*, *Turcz.*; *Cephalosorus*, *Hyalochlamys* and *Dithyrostegia*, *A. Gray*; *Pleuropappus*, *F. v. M.*)

Flower-heads numerous and sessile on a cylindrical conical convex or flat receptacle, in a dense cluster spike or compound head, surrounded by a general involucre of large and leaf-like or of small and herbaceous or scarious bracts, or of both in few rows without radiating tips or sometimes very few or none. Partial heads 1 or few-flowered, very rarely many-flowered. Involucre compressed, of few scarious transparent bracts, the subtending one flat, two lateral

ones conduplicate and keeled or concave, and sometimes 2 or more inner ones flat or slightly concave. Receptacle without scales. Florets hermaphrodite, tubular, slender, 4 or 5-toothed, often hardened at the base. Anthers more or less distinctly pointed or tailed at the base. Style-branches nearly terete, truncate. Achenes usually compressed. Pappus none or of 1, 2 or more jagged or awned scales, often united in a ring or cup at the base.—Annual or rarely perennial herbs, or in one species shrubby, glabrous or more or less cottony or woolly-white. Leaves alternate or very rarely irregularly opposite, entire. Clusters or spikes of flower-heads terminal, sessile or pedunculate, cylindrical, oblong-ovoid, globular or hemispherical, the partial involucre usually very deciduous with the achenes, or rarely the subtending bract persistent.

The genus is limited to Australia. The many species are mostly West Australian.

Clusters or spikes of flower-heads cylindrical, oblong-ovoid or rarely globose, the receptacle cylindrical rhachis. Annuals or rarely herbaceous perennials.

Pappus conspicuous. Spikes oblong, often surrounded by floral leaves.

Pappus a short irregularly fringed cup 1. *A. brachypappus*.

Pappus none or a minute ring. Bracts of the general involucre all scarious. Spikes oblong, attenuate at the base 2. *A. pusillus*.

1. ***A. brachypappus*** (pappus short), *F. v. M. in Trans. Phil. Soc. Vic. i. 44, and in Hook. Kew Journ. viii. 149; Benth. Fl. Austr. iii. 563*. An annual clothed with white wool. Leaves linear or linear-cuneate, the uppermost short ones close under the inflorescence. Clusters of flower-heads oblong or cylindrical, attaining $\frac{1}{2}$ to $\frac{3}{4}$ in., closely sessile above the last leaves. Receptacle cylindrical. Partial involucre, $1\frac{1}{2}$ line long, with 2 keeled and 2 or 3 flat bracts. Florets usually 2. Pappus a short irregularly-fringed or ciliate cup, not divided into distinct scales, and without any long bristles.

Hab.: Inland southern localities.

2. ***A. pusillus*** (habit weak), *Benth. Fl. Austr. iii. 564*. A slender erect corymbosely-branched annual of 2 to 6 in., slightly woolly when young but soon becoming glabrous. Leaves thick, linear or linear-cuneate, or the upper ones small and ovate. Clusters of flower-heads oblong-clavate, 3 to 4 lines long, from a pale yellow to a rich brown, shining. Receptacle cylindrical, slender. Subtending bracts very broad and transparent, with an opaque truncate base, very few of the lower ones smaller and empty, and no floral leaves round them. Partial involucre of 2 keeled bracts and 2 or 4 flat ones. Florets 2 or 3 in the upper heads or sometimes only 1 in the lower ones, 5-merous, scarcely thickened at the base. Pappus annular and fringed but usually very minute, adhering to the corolla and falling off with it.—*Crossolepis pusilla*, Benth. in Hueg. Enum. 61; *Chrysocoryne pusilla*, Endl. in Bot. Zeit. 1843, 458; Steetz in Pl. Preiss. i. 441; *C. Huegelii*, A. Gray in Hook. Kew Journ. iii. 151; *C. angianthoides*, F. v. M. in Linnæa, xxv. 404, 488.

Hab.: Inland localities.

44. GNEPHOSIS, Cass.

(*Cephalosorus* (partly); *Nematopus* and *Crossolepis*, A. Gray; *Leptotriche*, Turcz.; *Trichanthodium* and *Cyathopappus*, F. v. M.)

Flower-heads numerous and usually more or less stipitate, on a convex or rarely cylindrical receptacle, in an ovoid or globular dense cluster or compound head, without any general involucre or surrounded by a few leafy or scarious bracts rarely exceeding the florets. Partial heads 1 or few flowered, very rarely many-flowered. Involucre of several bracts, the outer ones like the subtending ones, narrow and often more persistent, the inner ones broader,

transparent and very deciduous. Receptacle without scales. Florets hermaphrodite, tubular, slender, 4 or 5-toothed, sometimes hardened at the base. Anthers more or less distinctly pointed or tailed at the base. Style-branches nearly terete, truncate. Achenes usually compressed. Pappus none or forming a jagged ring or cup, or rarely of several short distinct scales.—Annual or rarely perennial herbs, glabrous or more or less cottony. Leaves alternate, entire. Cluster of flower-heads terminal, sessile or pedunculate.

The genus is limited to Australia. It is closely allied to *Angianthus*, but the general involucre and receptacle are less developed than in that genus and the partial involucres much more so, consisting of much more numerous bracts and not flattened.—*Benth.*

Partial heads 1 or 2-flowered.

Stems ascending. Heads 1 or 2-flowered. Involucral bracts appendiculate. Pappus none. Achenes woolly (glabrous or nearly so in the rest of the genus)

1. *G. eriocarpa.*

Stems erect, corymbose. Heads 2-flowered. Clusters turbinate-globular. Involucral bracts appendiculate. Pappus cup-shaped. Stem hard.

Leaves under $\frac{1}{2}$ in. long

2. *G. cyathopappa.*

Involucral bracts not appendiculate. Pappus none

3. *G. arachnoidea.*

1. ***G. eriocarpa*** (seeds woolly), *Benth. Fl. Austr.* iii. 570. Described by F. v. Mueller from a single fragment, a slender slightly branched stem or branch of about 4 in., with much of white wool about the inflorescence. Leaves linear-cuneate or linear, about $\frac{1}{2}$ in. long. Clusters of flower-heads globose, very young. Bracts narrow, scarious, woolly, with glabrous pink appendages, very numerous but most of them apparently belong to the partial involucres, a very few forming a general involucre to the cluster. Partial heads 1 or 2 flowered. Corolla slender, 5-toothed. Achenes densely covered with long wool, without any pappus.—*Skirrophorus eriocarpus*, F. v. M. Fragm. iii. 156

Hab.: Inland towards Cooper's Creek.

2. ***G. cyathopappa*** (pappus cup-shaped), *Benth. Fl. Austr.* iii. 571. Rigid, erect, and corymbosely branched, some specimens appearing annual and simple at the base, others with a hard and woody base, with numerous stems, but none above 6 in. high, all nearly glabrous or woolly tomentose, especially about the inflorescence. Leaves linear, rather short. Clusters of flower-heads turbinate, very numerous in a dense corymb, surrounded by a few small outer empty bracts like the subtending ones, but without the yellow appendage. Receptacle small, convex or obovoid. Partial heads 2 flowered, very shortly stipitate and usually 2 within the same subtending bract. Bracts scarcely woolly, narrow, with a short broad yellow deciduous appendage, 4 or 5 outer ones of each involucre and the subtending one narrower and more persistent than the 4 or 5 inner very deciduous ones. Pappus cup-shaped, as long as the slender part of the floret, slightly toothed or jagged, falling off with the corolla.—*Cyathopappus gnephosoides* or *Cephalosorus gnephosoides*, F. Muell. Fragm. ii. 158.

Hab.: Southern inland localities.

3. ***G. arachnoidea*** (cobwebby), *Turcz. in Bull. Mosc.* 1851, i. 189; *Benth. Fl. Austr.* iii. 571. A slender, erect, corymbosely-branched annual, usually 6 in. to 1 ft. high, glabrous except the inflorescence or more or less woolly-tomentose. Leaves very narrow, linear or subulate. Clusters of flower-heads nearly globose, about 2 lines diameter, surrounded by a few small empty scarious bracts, without any appendage, the subtending ones within the cluster cuneate-oblong, all except sometimes the lower ones with a small broad deciduous lamina. Partial heads 2-flowered, very shortly stipitate and sometimes 2 or 3 within 1 subtending bract. Involucral bracts oblong-cuneate,

with a short broad deciduous yellow lamina, about 6 outer ones apparently more persistent than the inner ones, which have a rather larger lamina. Pappus none apparent at the time of flowering.—*Nematopus effusus*, A. Gray in Hook. Kew Journ. iii.

H ab.: Southern inland localities.

45. **CALOCEPHALUS**, R. Br.

(Flower-heads beautiful.)

(Leucophyta, R. Br.: *Pachysurus*, Steetz; *Blennospora* and *Achrysum*, A. Gray.)

Flower-heads numerous and usually more or less stipitate on a small and branching or globose or conical receptacle in an ovoid or globular dense cluster or compound head without any general involucre or surrounded by a few leafy or scarious bracts rarely exceeding the florets. Partial heads 2 or more-flowered. Involucre of several bracts, the outer ones like the subtending ones narrow and often more persistent, the inner ones broader transparent and very deciduous. Receptacle without scales. Florets hermaphrodite, tubular, 5-toothed, not at all or scarcely hardened at the base. Anthers more or less distinctly tailed. Style-branches nearly terete, truncate. Achenes usually compressed. Pappus of several narrow linear scales or bristles plumose-ciliate from the base or at the end only, all free or united in a ring at the base.—Annual or perennial herbs or rarely undershrubs or small shrubs, more or less cottony or woolly, white or rarely glabrous. Leaves alternate or in two species opposite, entire. Clusters of flower-heads terminal, sessile or pedunculate.

The genus is limited to Australia. It is very near to *Gnephosis*, differing chiefly in the pappus. The general receptacle is also sometimes broken up or slightly branched, the partial heads are thus more distinct and having often more florets connect the genus through *Cephalipterum* and *Gnaphalodes* with *Helipterum*.—*Benth.*

Partial heads 2 or 3-flowered.

- Leaves alternate. Pappus plumose at the end. Involucral bracts with small petal-like appendages 1. *C. Sonderi*.
- Leaves mostly opposite, mostly acute. Pappus plumose chiefly at the end. Clusters of flower-heads yellow 2. *C. citreus*.

Partial heads 6 or more flowered.

- Clusters of flower-heads dense and globular. Appendages of the involucre radiating round the partial heads. Leaves scattered, linear-obtuse. Pappus of a few laxly-plumose intricate bristles 3. *C. Dittrichii*.
- Clusters of flower-heads loose, terminal, the heads distinctly stipitate. Involucral bracts without any or with very small appendages. Pappus of woolly-plumose hair-like bristles, distinct. Leaves narrow-linear. Perennial or undershrub 4. *C. platycephalus*.

1. **C. Sonderi** (after Dr. O. W. Sonder), *F. v. M. Rep. Babb. Exped.* 13; *Benth. Fl. Austr.* iii. 575. An erect branching loosely woolly annual with a hard stem, attaining sometimes above 1ft. in height. Leaves alternate, linear, the upper ones short and decurrent. Clusters of flower-heads yellow, ovoid or globose, rarely 5 lines long. Receptacle cylindrical, branched. Partial heads stipitate, 2 or 3-flowered. Subtending and outer involucre bracts 2 or 3, in the lateral heads more numerous, in the terminal one narrow but scarious and woolly-ciliate with a small lamina or appendage, a few inner ones broader, less ciliate, with a more prominent yellow lamina. Pappus of several very unequal scales united in a ring or cup at the base, and more or less produced into awns or bristles of which the longer ones are plumose at the end.

Hab.: Inland southern localities.

2. **C. citreus** (Citron-coloured), *Less. Syn. Comp.* 271; *Benth. Fl. Austr.* iii. 575. A perennial with a woody base, erect, 1ft. or more high. Leaves narrow-linear, almost acute. Clusters of flower-heads yellow. Partial heads nearly

sessile, the subtending bracts often very small, the outer involucre bracts woolly at the base, the lamina of the inner ones bright-yellow. Pappus-scales variably plumose, sometimes few only and slender, sometimes 8 to 10 and broader.—DC. Prod. vi. 151; Brongn. Voy. Cog. t. 60.

Hab.: Wallangarra (probably this species, but the specimens very fragmentary).

3. **C. Dittrichii** (after Lieut. Dittrich), *F. v. M. in Uhworm's Bot. Centralbl.* xxvii. 300; *2nd Syst. Cens. Austr. Pl.* 140. Annual, woolly-tomentose, neither tall nor much-branched. Leaves scattered, linear, blunt, nearly flat or somewhat channelled, 4 to 8 lines long, slightly broader at the base. Cluster of flower-heads rather small, terminal, solitary, depressed-globular, the summit of the branchlets forming often a short peduncle. General involucre not exceeding the cluster of flower-heads, constituted of several rows of bracts; the latter green, narrow, woolly and terminated by a minute scarious yellow glabrous ovate or cordate-roundish lamina. General receptacle small, not conspicuous, elevated, bearing numerous flower-heads; bracts constituting the ultimate involucre several, oblong or linear-cuneate, hyaline, 1-nerved, woolly only under the small yellow roundish radiating lamina. Flowers minute, 11 to 24 in each head. Corolla slender, gradually widening upwards. Achenes pale-brown, truncate-ellipsoid, subtle-papillular. Pappus very tender, white, formed of very few laxly-plumose-bearded somewhat intricate bristles, these at the summit slightly tufted, at the very base connate.—*F. v. M. l.c.*

Hab.: Inland, southern border.

On superficial inspection this plant might easily be passed as an *Angianthus* or *Craspedia*, especially as it was found accompanied by a small variety of *C. pleiocephala*.—*F. v. M. l.c.*

4. **C. platycephalus** (heads broad), *Benth Fl. Austr.* iii. 576. A perennial or undershrub, more or less woolly-white, with simple or branched stems of $\frac{1}{2}$ to 1ft. Leaves linear. Clusters of flower-heads globose and about $\frac{1}{2}$ in. diameter or at length larger and irregularly lobed, without outer empty bracts. Receptacle small. Partial heads shortly stipitate, many-flowered. Involucre bracts very numerous, the outer ones narrow and woolly, the inner broader transparent and glabrous, all with a reniform folded lamina, radiating but very small and scarcely conspicuous when the flowers are fully out. Pappus of hair-like woolly-plumose bristles.—*Pachysurus platycephalus*, *F. v. M. Fragm.* iii. 154.

Hab.: Inland, central.

46. GNAPHALODES, A. Gray.

(Gnaphalium-like.)

Flower-heads several, sessile in a dense cluster or compound head, surrounded by a few leafy bracts, each head many-flowered, Involucre ovoid, the bracts scarious, imbricate, very woolly, the inner ones with small radiating tips. Receptacle without scales. Florets all slender, tubular, hermaphrodite, 5-toothed. Anthers with fine tails. Style-branches truncate. Achenes glabrous. Pappus of about 5 elastically-spreading, rather broad, plumose bristles.—Dwarf branching annuals, more or less white-tomentose. Leaves alternate, entire. Clusters of flower-heads terminal.

The genus is limited to Australia. The habit is almost that of *Gnaphalium*, but there are no female florets. It connects the *Angiantheæ* with *Helichryseæ*.—*Benth.*

1. **G. uliginosum** (found in wet places), *A. Gray in Hook. Kew Journ.* iv. 228; *Benth. Fl. Austr.* iii. 578. A dwarf, diffuse, white tomentose annual, the central stems exceedingly short, the lateral ones often 2 to 3 in. long. Leaves small, petiolate, obovate. Clusters of flower-heads nearly $\frac{1}{2}$ in. diameter, sessile

amid broadly ovate or oblong woolly floral-leaves of 2 to 4 lines. Bracts of the involucre closely connected by an intricate wool. Florets numerous. Pappus-bristles plumose from the base, without any terminal tuft, spreading out elastically the moment they are released from the wool of the involucre.—*G. evacinum*, Sond. in Linnæa, xxv. 520.

Hab.: Augathella and other inland localities.

47. CRASPIDIA, Forst.

(From the Greek for fringe.)

(*Richea*, *Labill.*; *Pycnosorus*, *Benth.*)

Flower-heads numerous, sessile or nearly so on a convex oblong or cylindrical receptacle, in a globular or ovoid dense cluster or compound head, surrounded by several more or less scarious bracts, forming a general involucre not exceeding the florets. Partial-heads 3 to 8-flowered. Involucre of several scarious bracts, the tips sometimes coloured by not radiating, and similar bracts or scales on the partial receptacle under each floret. Florets hermaphrodite, tubular, 5-toothed. Anthers more or less distinctly tailed. Style-branches nearly terete, truncate. Achenes usually compressed, silky-hairy. Pappus of several narrow-linear scales or bristles, plumose-ciliate from the base or towards the end only, all free or slightly united at the base.—Herbs, more or less woolly or silvery-silky, or rarely nearly glabrous. Leaves radical or alternate, entire. Clusters of flower-heads terminal, often rather large.

The genus extends to New Zealand. Of the 4 Australian species, 1 is the same as the common New Zealand one, the others are endemic. The genus is nearly allied to *Angianthus* and *Calocephalus*, differing from both in the scales of the receptacle within the partial heads.—*Benth.*

Clusters of flower-heads pale coloured, depressed-globular. Outer bracts ovate, with broad brown margins	1. <i>C. Richea</i> .
Clusters of flower-heads bright-yellow, globular or ovoid. Outer bracts lanceolate, with brown margins	2. <i>C. pleiocephala</i> .
Clusters of flower-heads yellow, globular or slightly ovoid. Outer bracts very small, and concealed by the reflexed partial heads.	
Clusters about $\frac{1}{2}$ in. diameter. Leaves at length glabrous above, loosely woolly underneath	3. <i>C. chrysantha</i> .
Clusters about 1 in. diameter. Leaves silvery-silky on both sides	4. <i>C. globosa</i> .

1. **C. Richea** (old generic name), *Cass.*; *DC. Prod.* vi. 152; *Benth. Fl. Austr.* iii. 579. A perennial, more or less woolly or silky-white, or nearly glabrous, the tufted stock emitting thick fleshy fibrous roots and simple erect stems. Radical leaves from obovate-oblong to lanceolate, often several inches long and narrowed into a long petiole; stem-leaves narrow, stem-clasping, the upper ones small and distant. Cluster of flower-heads solitary, depressed-globular, $\frac{1}{2}$ to 1 in. diameter, surrounded by about 6 to 10 ovate bracts shorter than the heads, with broad brown scarious margins, the subtending bracts within the cluster also ovate, with brown margins, the inner ones smaller and more scarious. Receptacle globular. Partial heads 6 to 8-flowered. Involucral bracts thin and transparent, ovate, or the inner ones oblong, shorter than the florets, passing into the similar scales of the receptacle. Florets with a slender tube and campanulate limb. Pappus of 10 to 15 filiform plumose scales or bristles, as long as the floret.—*Hook. f. Fl. Tasm.* i. 197; *C. uniflora*, *Forst. Prod.* 58; *Richea glauca*, *Labill. Voy.* t. 16, and *Pl. Nov. Holl.* ii. 123; *Podospermum pedunculare*, *Sieb. Pl. Exs.*; *Craspedia glauca* and *C. pilosa*, *Spreng. Syst.* iii. 441; *Lindl. Bot. Reg.* t. 1908; *C. fimbriata*, *DC. Prod.* vi. 152; *C. gracilis*, *Hook. f. in Hook. Lond. Journ.* vi. 118.

Hab.: Southern downs.

2. **C. pleiocephala** (heads many), *F. v. M. in Linnæa*, xxv. 404; *Benth. Fl. Austr.* iii. 580. Apparently annual, but rather robust, branching at the base into erect or ascending stems, mostly simple, of about 1ft., more or less woolly-hairy. Leaves lanceolate or linear, the lower ones petiolate, often 2in. long, the upper ones sessile stem-clasping or decurrent. Cluster of flower-heads either solitary terminal and globular, 4 or 5 lines diameter, or ovoid and $\frac{1}{2}$ to $\frac{3}{4}$ in. long, and then often 2 smaller sessile ones close under it, each surrounded by lanceolate bracts with brown scarious margins, shorter than the florets, with a few inner ones quite scarious, and similar subtending bracts within the cluster. Receptacle cylindrical. Partial heads 3 to 6-flowered. Involucral bracts and scales of the partial receptacle scarious, with bright yellow tips, but scarcely dilated into distinct laminae. Achenes silky-hairy. Pappus of several plumose bristles.

Hab.: Southern downs.

3. **C. chrysantha** (golden-flowered), *Benth. Fl. Austr.* iii. 580. A perennial, branching at the base, with ascending or erect flowering stems, not above 1ft. long, and more slender than in *C. globosa*. Leaves linear, generally becoming glabrous above, woolly-white underneath, the upper ones few, small, and distant. Clusters of flower-heads terminal, globular or ovoid, not above $\frac{1}{2}$ in. diameter, surrounded by few very small outer bracts, the subtending bracts within the clusters narrow, brown but scarcely scarious, shorter than the florets, woolly at the base. Receptacle oblong. Partial heads 4 to 6-flowered. Involucral bracts and scales of the receptacle thin and transparent, obovate-oblong, shorter than the florets. Pappus-bristles much more paleaceous than in *C. globosa*, and often here and there connate, scarcely plumose below the middle, very much so towards the end, and bright yellow.—*Calocephalus* (?) *chrysanthus*, Schlecht. *Linnæa*, xx. 592; *Pycnosorus chrysanthus*, Sond. in *Linnæa*, xxv. 492; *P. globosus*, Mitch. *Trop. Afr.* 323; not of Benth.

Hab.: Southern downs.

4. **C. globosa** (heads globose), *Benth. Fl. Austr.* iii. 580. Apparently perennial, with erect, simple rigid stems of 1 to 3ft., silvery-white with a close wool. Lower leaves oblong, linear, or lanceolate, often several inches long; upper ones few, small, and distant, all silvery-white on both sides. Clusters of flower-heads solitary and terminal, globular, bright yellow, $\frac{3}{4}$ to 1in. diameter, without any general involucre. Receptacle convex, hollow. Subtending bracts within the cluster narrow and short, woolly-ciliate as well as the receptacle. Partial heads 6 to 8-flowered. Involucral bracts and scales of the receptacle ovate or oblong, concave, very thin and transparent, with yellowish tips, but not spreading. Pappus of 12 to 15 plumose bristles.—*Pycnosorus globosus*, Benth. in *Hueg. Enum.* 67; *DC. Prod.* vi. 153.

Hab.: Southern inland localities.

48. CHTHONOCEPHALUS, Steetz.

(So called from the heads of flowers appearing on the earth.)

(*Chamæsphæron*, *A. Gray*; *Gryostephium*, *Turcz.*; *Lachnothalamus*, *F. v. M.*)

Flower-heads numerous and sessile on a small receptacle, in a globular or depressed cluster or compound head, surrounded by a few more or less scarious or leafy bracts, forming an irregular general involucre. Partial heads few or many-flowered. Involucre of several scarious bracts, the outer ones rarely with leafy tips, and similar bracts or scales on the partial receptacle under each floret. Florets hermaphrodite, tubular, 4 or 5-toothed. Anthers more or less distinctly tailed. Style-branches nearly terete, truncate. Achenes usually somewhat

compressed, glabrous. Pappus none or short, annular, fringed and very deciduous.—Very dwarf branching or tufted annuals. Leaves radical or alternate, entire. Clusters of flower-heads sessile.

The genus is endemic in Australia.

1. **C. pseudoevax** (resembling an *Evax*), *Steetz in Pl. Preiss.* i. 445; *Benth. Fl. Austr.* iii. 581. A small annual with scarcely any stem, consisting of numerous sessile flower-heads, forming patches of $\frac{1}{2}$ to 1 in. diameter, surrounded by a few oblong spreading leaves, $\frac{1}{4}$ to $\frac{1}{2}$ in. long, forming as it were a general involucre, with rarely a leaf or two protruding between the heads, there are also immediately under most of the heads or at least the outer ones 2 or 3 linear leafy bracts more or less woolly with scarious tips not exceeding the heads. Heads ovoid-globular, nearly 2 lines diameter, consisting of numerous broad imbricate scarious bracts or scales, very few or even only one of the outer ones empty, each of the others with a floret in its axil not exceeding the bract. Corolla very slender, 4-toothed. Pappus none.—*C. Drummondii*, A. Gray in Hook. Kew Journ. iii. 178.

Hab.: Interior, towards Cooper's Creek.

49. **PODOLEPIS**, Labill.

(Involucral bracts stalked.)

(*Scalia*, *Sims*; *Panætia*, *Cass.*; *Scaliopsis*, *Walp.*; *Siemssenia*, *Steetz*; *Stylolepis*, *Lehm.*; *Rutidochlamys*, *Sond.*)

Involucre hemispherical or rarely ovoid, the bracts imbricate, in several rows, with very thin scarious laminae, not radiating, the outer ones sessile, the inner ones on rigid or scarious stalks or claws. Receptacle flat, without scales. Florets of the circumference few or numerous, in a single row, female, either ligulate or irregular or with fewer lobes than the disk-florets, which are hermaphrodite, tubular, with 5 or rarely 4 narrow lobes, sometimes slightly irregular. Anthers with fine tails, sometimes very short. Style-branches filiform, truncate or capitate. Achenes nearly terete or slightly compressed, not beaked, glabrous or papillose. Pappus of capillary bristles, simple or shortly barbellate, often slightly united at the base.—Annual or perennial herbs, the cottony wool usually very deciduous, leaving the stem and leaves glabrous and smooth. Leaves alternate, lanceolate or linear, very frequently stem-clasping. Flower-heads terminal, pedunculate or rarely sessile, the ray-florets yellow pink or purple, the scarious laminae of the involucral bracts imbricate so as to conceal the claws, in all except *P. longipedata*.

The genus is limited to Australia. It passes almost into *Helichrysum*, differing chiefly in the very thin scarious, not opaque or petal-like laminae of the involucral bracts. A nearly similar involucre occurs in some species of *Helipterum*, but with a plumose pappus.—*Benth.*

- Involucres ovoid, almost sessile in clusters 1. *P. rutidochlamys*.
- Involucres hemispherical, pedunculate or rarely here and there almost sessile, $\frac{1}{2}$ to 1½ in. diameter (or only 4 lines in *P. Lessoni*).
- Laminae of the intermediate involucral bracts much shorter than their claws, obtuse or almost acute 2. *P. longipedata*.
- Laminae of the intermediate involucral bracts as long as or longer than their claws and concealing them.
- Laminae very acute or acuminate. Ray-florets yellow, 3 or 4-lobed.
- Perennial. Flower-heads large 3. *P. acuminata*.
- Annual. Involucres under 1 in. diameter; bracts acute, smooth or slightly rugose 4. *P. canescens*.
- Laminae of the involucral bracts obtuse. Ray-florets pink, small, 3 or 4-lobed. Annual. Involucre under ½ in. diameter; bracts smooth 5. *P. Lessoni*.
- Involucres not 3 lines diameter, turbinate, rather narrow. Slender annual. Ray-florets irregular, not much longer than those of the disk 6. *P. Siemssenia*,

1. **P. rutidochlamys** (involucral bracts wrinkled), *F. v. M. Fragm.* iv. 79; *Benth. Fl. Austr.* iii. 603. An erect branching annual of 2 or 3ft., with more or less of a loose deciduous wool. Leaves lanceolate or ovate-lanceolate, stem-clasping with rounded auricles and often slightly decurrent. Flower-heads nearly sessile and more or less clustered at the ends of the slender branches of a loose panicle. Involucre ovoid, 4 to 5 lines long, the laminæ of the bracts imbricate, lanceolate, acuminate, transversely rugose, decurrent along the claws. Female florets very few, not longer than the others, but more slender and only 3-lobed. Pappus-bristles rather numerous, scabrous or minutely barbellate.—*Rutidosis arachnoidea*, Hook. in Mitch. Trop. Austr. 341; *Rutidochlamys Mitchellii*, Sond. in Linnæa, xxv. 497.

Hab.: Shoalwater Bay, *R. Brown*; Upper Burdekin and Burnett Rivers, *F. v. Mueller*; Port Curtis, *M'Gillivray*; Emu Creek, *Thozet*; near Mount Pluto, *Mitchell*.

2. **P. longipedata** (peduncles long), *A. Cunn. in DC. Prod.* vi. 163; *Benth. Fl. Austr.* iii. 604. Either annual or with a perennial stock and annual stem of 1 to 2ft., simple or divaricately-branched and retaining very little cottony wool. Leaves linear or lanceolate or the radical ones oblong-spathulate. Flower-heads smaller than in *P. acuminata*, pedunculate or rarely 3 or 4 together almost sessile. Involucres hemispherical, about $\frac{3}{4}$ in. or rarely nearly 1in. diameter, the scarios laminæ of the bracts smaller than in all the allied species, ovate, obtuse or acute, not rugose, those of the intermediate bracts much shorter than their rather broad claws, a few of the outer bracts entirely scarios. Ray-florets as in *P. acuminata*, yellow, longer than the others, ligulate or irregular, 3 or 4-lobed. Pappus-bristles numerous, scarcely barbellate.—*P. Mitchellii*, Sond. in Linnæa, xxv. 508; *P. hieracioides*, *F. v. M. Fragm.* i. 112; *Scalesopsis Lucæana*, Walp. in Linnæa, xiv. 318.

Hab.: Shoalwater Bay and Broadsound, *R. Brown*; sandy shores of Moreton Bay, *A. Cunningham*; Maranoa River, *Mitchell*.

3. **P. acuminata** (bracts acuminate), *R. Br. in Ait. Hort. Kew ed. 2. v. 82*; *Benth. Fl. Austr.* iii. 604. Stems from a perennial stock erect, 1 to 2ft. high, simple or corymbosely branched, glabrous or with a few scattered short hairs and sometimes a little deciduous wool about the base. Radical and lower leaves petiolate, oblong or lanceolate, often several inches long, the upper ones few, lanceolate or linear, stem-clasping or rarely slightly decurrent. Flower-heads large, yellow, pedunculate. Involucre hemispherical, 1 to 1½in. diameter, the scarios laminæ of the bracts acute or acuminate, smooth and not rugose, the inner ones on long linear claws. Florets all longer than the involucre, those of the ray longer than the others, the limb ligulate or irregularly tubular, deeply 3 to 5-lobed. Pappus-bristles numerous, white, shortly barbellate, united at the base.—*DC. Prod.* vi. 162; *Hook. f. Fl. Tasm.* i. 209; *Scalia jaceoides*, Sims. *Bot. Mag.* t. 956.

Hab.: Burnett River and Peak Downs, *F. v. Mueller*; Rockhampton, *Dallachy*; Maranoa River and Mantuan Downs, *Mitchell*; common on the southern downs.

4. **P. canescens** (hoary), *A. Cunn. in DC. Prod.* vi. 163; *Benth. Fl. Austr.* iii. 605. An annual with erect or ascending branching stems, rarely much exceeding 1ft. Leaves linear or lanceolate, chiefly at the base of the stem, 1 to 2in. long or even more, stem-clasping and sometimes shortly decurrent, the upper ones small and distant. Flower-heads rather small, on slender peduncles. Involucre hemispherical, 6 to 8 lines diameter, the scarios laminæ of the bracts acute or acuminate, smooth or slightly rugose, their claws with broad scarios margins. Florets yellow, the outer ones slightly exceeding the others, irregularly 3 or 4-lobed, ligulate or almost 2-lipped.—*P. inundata*, *A. Cunn. in DC. Prod.* vi. 163; *P. affinis*, Sond. in Linnæa, xxv. 507.

Hab.: Inland southern localities.

5. **P. Lessoni** (after — Lesson), *Benth. Fl. Austr.* iii. 606. A slender erect branching annual of $\frac{1}{2}$ to 1ft., loosely woolly or at length glabrous. Leaves small, from ovate to lanceolate, stem-clasping and sometimes slightly decurrent. Peduncles filiform. Involucre hemispherical, about 4 lines diameter, the very numerous imbricate thinly scarious bracts broadly ovate, obtuse or almost acute, ciliate, the claws of the inner ones linear, not at all or scarcely glandular. Florets all nearly equal and longer than the involucre with narrow lobes, the outer female ones more slender. Irregularly 3 or 4-lobed. Pappus of few capillary bristles, barbellate towards the end, usually reduced in the achenes of the ray to a single bristle or entirely wanting.—*Panatia Lessonii*, Cass.; DC. Prod. vi. 162; Steetz in Pl. Preiss. i. 461; *Panatia Muelleri*, Sond. in Linnæa, xxv. 505; *Podolepis Gilberti*, Turcz. in Bull. Mosc. 1851, i. 195.

Hab.: Southern interior.

6. **P. Siemssenia** (a former generic name), *F. v. M. Herb.; Benth. Fl. Austr.* iii. 606. A slender glabrous much-branched annual of $\frac{1}{2}$ to 1ft. Leaves linear. Flower-heads small, on filiform peduncles. Involucre turbinate, about 3 lines long, the scarious laminæ of the bracts oblong, imbricate, the outer ones short. Ray-florets 3 or 4-lobed, ligulate or irregular, exceeding the longest involucre bracts; disk-florets with 5 narrow lobes but often slit on one side nearly to the base. Pappus-bristles not numerous, exceedingly fine, not perceptibly barbellate, shorter than the corolla.—*Siemssenia capillaris*, Steetz in Pl. Preiss. i. 467.

Hab.: Towards Cooper's Creek.

50. CARPESIMUM, Linn.

(Involucre bracts resembling bits of straw.)

Involucre hemispheric or subglobose; bracts in few series, inner ones broad-obtuse, dry, outer with herbaceous or foliaceous tips. Receptacle flat, naked. Anther-bases sagittate, tails slender. Style-branches linear, obtuse, connivent till late. Achenes elongate, striate with a (often glandular) beak surmounted by a corona; pappus none.—Erect branched herbs. Leaves alternate. Heads terminal or axillary, sessile or pedunculate, usually drooping, heterogamous, disciform, yellow; outer florets female, many-seriate, fertile, slender, 3 to 5-toothed; disk-florets hermaphrodite, fertile, slender; limb slightly dilated, 5-toothed.

There are but few species, and are met with in southern Europe and temperate and subtropical Asia.

1. **C. cernuum** (heads drooping), *Linn.* Stem and branches pubescent, often more or less cottony. Leaves subsessile, elliptic-lanceolate, obtuse, sinuate-toothed. Heads terminal, drooping, $\frac{3}{4}$ in. diameter, with large leafy spreading bracts at the base.

Hab.: Near Brisbane and a few other southern localities, but decidedly indigenous.

51. *AMBROSIA, Linn:

(Food of the heathen divinities, as nectar was their drink.)

Flower-heads unisexual, of male florets small, spicate or racemose, many-flowered, with a broadly hemispherical, gamophyllous, shortly lobed, herbaceous involucre; receptacle nearly plane, with or nearly without filiform palæ; female heads sessile or clustered in the upper axils, 1-flowered, apetalous. Male corolla white, regular 5-fid; anthers free or nearly so, base entire. Female involucre ovoid or subglobose, closed over the achene, usually with 4 to 6 tubercles or short spines, narrowed above into a short beak.—Herbs or undershrubs, more or less hairy, with alternate (or opposite) bipinnately divided leaves.

1. **A. maritima** (a seacoast plant), *Linn. in Fl. Trop. Afr.* iii. 370. A coarse annual, woody below, 1 to 3ft. high (in Queensland 6 to 8ft.), whole plant usually very hairy and hoary, much-branched. Leaves ovate, bipinnatifid, 1 to 3in. long; segments obtuse, sometimes toothed. Flower-heads sessile, $\frac{1}{2}$ to $\frac{1}{2}$ in. diameter, 15 to 20-flowered, in dense spikes or racemes, male at the top and often female below, arranged in a pyramidal or corymbose terminal panicle, leafy at least below. Male involucre crenate, shortly hemispherical, hispid with upcurved scattered hairs; fruiting involucre somewhat turbinate and angular, with 4 or 5 horns at the top.—*Oliver, l.c.*

Hab.: This tropical African plant, which is widely spread throughout the Mediterranean region and most warm countries, has of late years been introduced in fodder seeds, and, unfortunately, has taken but too kindly to our soil, and doubtless, after years, may become as widespread as its allies, the Bathurst and Noogoora Burrs.

52. *XANTHIUM, Linn.

(From *xanthos*, a yellow dye having been obtained from the plants.)

Flower-heads monœcious; males globular. Involucral bracts small, in a single row. Receptacle cylindrical, with chaffy scales between the florets. Florets numerous, tubular, 5-toothed, without styles. Female-heads ovoid. Involucral bracts in 2 or 3 rows, the outer small, the 2 innermost large, consolidated into a hard ovoid 2-celled mass, very prickly outside, and terminating in 2 tubercles or cones. Florets 2 without corollas. Ovaries each immersed in one of the cells of the involucral mass, the styles protruding with filiform branches. Achenes obovoid, enclosed in the burr-like involucre. Pappus none.—Coarse annuals. Leaves alternate. Flower-heads in axillary or terminal clusters or short racemes.

A genus of 2 or 3 species, natives of the Mediterranean regions and the Levant, or one perhaps of Chilian origin, all now spread as weeds over many parts of the world.—*Benth.*

Plants spiny. Leaves lanceolate, trifid 1. *X. spinosum*.

Plants without spines. Leaves deltoid, 3 to 5-lobed 2. *X. strumarium*.

1. **X. spinosum** (plant spiny), *Linn. DC. Prod.* v. 495; *Benth. Fl. Austr.* iii. 535. Bathurst Burr. A rigid much-branched annual of 1 to 2ft., studded with numerous strong trifid spines usually opposite in pairs or rarely solitary, divaricate, placed at the base of the leaves but rather within the petiole. Leaves lanceolate, trifid, with the central lobe much longer than the lateral ones, slightly scabrous above, white-tomentose underneath. Flower-heads in axillary clusters or almost solitary, the upper ones male, the lower female; these are sessile, forming when in fruit oblong burrs about $\frac{1}{2}$ in. long, covered with hooked prickles, the terminal conical beaks exceedingly short, often both reduced to mere tubercles or one only slightly elongated.

Hab.: Supposed to be of Chilian origin. Abundant in many southern parts.

2. **X. strumarium** (from *struma*, a swelling), *Linn.* Noogoora Burr. A tall wide-spreading annual often attaining a height and breadth of 8ft. Leaves scabrous, deltoid, 3 to 5-lobed, often unequally, coarsely toothed, 3 to 6in. wide, 3-nerved at the base, cordate, sinus wide, cuneate into the petiole of 1 to 5in. Heads nearly sessile, clustered. Fruits (burrs), $\frac{1}{2}$ in. or more long, terminating in erect or somewhat curved beaks.

Hab.: A widespread weed of warm countries. Very abundant in southern parts.

53. ZINNIA, Linn.

(After Joh. Gotter. Zinn.)

Involucre of 3 or more rows of broad imbricate obtuse bracts. Head heterogamous, radiate; ray-florets female, with leathery ligule, persistent on the fruit. Receptacle conical, paleaceous. Disk-florets villous at the lobes. Style-branches with a conical hairy appendage. Achenes of the disk compressed, usually 1 or 2-awned, of the ray-florets subtrigonal.—Herbs. Leaves opposite, entire; heads solitary, terminal.

Previous to the Queensland species being met with early in 1891, this genus was thought to be confined to the New World.

1. **Z. australis** (Australian), *Bail. Bot. Bull.* iii. An erect branching hispid annual, about 1½ ft. high. Stem angular, hairs white and very numerous on the upper part of the plant. Leaves sessile, ovate-acuminate, 5 or 7-nerved, scabrous on both sides, about 2 in. long, 1 in. broad near the base. Flower-heads pedunculate above the last leaves, showy purple-rayed, involucre globose-turbinate, about 4 lines long. Bracts closely imbricate, obtuse, with scarious margins. Ray-florets 8, purple on the inside, nearly 1 in. long, spatulate, 3-toothed; style-branches filiform, obtuse; disk-florets exceeding the involucre, forming a prominent conical centre of the flower-head. Achenes flat, ovate, with a prominent midrib, more or less scabrous with ciliate margins.

Hab.: Walsh River, *T. Barclay-Millar*.

Nearly allied to *Z. pauciflora*.—*Linn.*

Many forms of *Z. pauciflora* and *Z. elegans* are met with near the principal towns as strays from garden culture.

54. SIEGESBECKIA, Linn.

(After George Siegesbeck, M.D.)

Involucral bracts in about 2 rows, the outer ones linear-spathulate, spreading, glandular-hispid, the inner ones ovate or oblong, half enclosing the achenes, glandular-hispid on the back. Receptacle chaffy, the scales half enclosing the achenes. Ray-florets female, shortly ligulate or irregularly 2 or 3-lobed. Disk-florets hermaphrodite, fertile, tubular, 5-toothed. Anthers obtuse at the base. Style-branches short, somewhat flattened, very obtuse or rarely tipped with a small glandular cone. Achenes somewhat turgid, usually curved. Pappus none.—Herbs with opposite leaves. Flower-heads rather small, pedunculate.

A genus of very few species widely dispersed over the warmer regions of the globe, the only Australian one being the most common, especially in the Old World.—*Benth.*

1. **S. orientalis** (eastern), *Linn.*; *DC. Prod.* v. 495; *Benth. Fl. Austr.* iii. 585. A pubescent branching rather stiff annual, 1 to 5 ft. high. Leaves from broadly ovate-triangular to lanceolate, 1½ to 2 in. long or the lower ones larger, the petioles variable in length, usually dilated upwards but not at the base. Flower-heads 3 to 6 lines broad, in a dichotomous leafy panicle. Outer involucral bracts often 4 or 5 lines long and covered with gland-bearing hairs, but sometimes shorter than the inner ones and less glandular. Florets small, the rays very short.—*Wight, Ic. t.* 1103; *S. microcephala* and *S. gracilis*, *DC. Prod.* v. 496.

Hab.: Wide Bay, *Leichhardt*; Rockhampton, *Thozet*; Brisbane River, Moreton Bay, *F. v. Mueller*. A common weed.

55. ENHYDRA, Lour.

(Plants found near water.)

(Tetraotis, *Retnw.*)

Involucre of 4 broad leafy bracts closely enveloping the florets, the two outer ones larger than the inner ones. Receptical conical, chaffy, the scales enclosing the florets and achenes. Ray-florets in several rows, female, with very short

3-toothed ligulas; disk-florets hermaphrodite but usually sterile, tubular 5-toothed. Anthers obtuse at the base. Style-branches flattened, scarcely truncate. Achenes of the ray flattened, with obtuse edges, without any pappus, those of the disk usually abortive.—Herbs with opposite leaves. Flower-heads sessile in the forks of the stem or in the axils of the leaves.

The genus is limited to a very few species from tropical Asia, which may indeed be all varieties of one, and a few others from S. America. The Australian plant is evidently the same as the common Indian one.—*Benth.*

1. ***E. paludosa*** (swamp plant), *DC. Prod.* v. 637; *Benth. Fl. Austr.* iii. 546. Glabrous or slightly scabrous-pubescent. Stems elongated, creeping and rooting in the mud, the flowering branches ascending, simple or forked. Leaves shortly petiolate, oblong or lanceolate, coarsely toothed or nearly entire, narrowed at the base, or sometimes, especially those under the forks, slightly hastate, the petiole often dilated at the base and stem-clasping. Involucral bracts broadly ovate, the 2 outer larger ones 3 to 6 lines long, exceeding the florets.—*Tetraotis paludosa*, Reinw. in Blume, *Bijdr.* 892; *Enhydra longifolia* and *E. Heloncha*, *DC. Prod.* v. 637; *E. Woollsii*, *F. v. M. Fragm.* iii. 139.

Hab.: In marshes, sometimes quite under water; southern localities.

The species is common in E. India and the Archipelago, and may not be really distinct from the original *E. fluctuans*, Lour. The Australian specimens have the leaves more narrowed at the base than is usual in Asia, but precisely the same form occurs also in India.—*Benth.*

56 ECLIPTA, Linn.

(Referring to the pappus being wanting.)

Involucre of about 2 rows of nearly equal herbaceous bracts. Receptacle chaffy. Florets of the ray female, shortly ligulate, narrow; disk-florets hermaphrodite, usually fertile, tubular, 4-toothed. Anthers obtuse at the base. Style-branches linear, flattened, obtuse. Achenes of the ray triangular, those of the disk flattened. Pappus none or reduced to a border of minute teeth.—Herbs with opposite leaves. Flower-heads small, on axillary or terminal peduncles.

Of the Queensland species, one is a cosmopolitan tropical weed, the other is endemic.

Ray white. Involucral bracts ovate 1. *E. alba*.
 Ray yellow. Involucral bracts narrow-lanceolate 2. *E. platyglossa*.

1. ***E. alba*** (white), *Hassk; Miq. Fl. Ned. Ind.* ii. 65; *Benth. Fl. Austr.* iii. 536. A branching annual, usually prostrate or creeping, sometimes ascending or erect, 1ft. long or more, sprinkled with closely appressed short stiff hairs. Leaves shortly petiolate, from nearly ovate to oblong-lanceolate or almost linear, 1 to 2in. long, coarsely toothed or nearly entire. Peduncles in the upper axils solitary or 2 together, very variable in length, bearing a single flower-head about 3 lines diameter. Involucral bracts usually broadly ovate, obtuse. Scales of the receptacle narrow-linear. Ray-florets small, white. Achenes of the disk with thick almost corky margins, the pappus either quite abortive or reduced to a border of 4 minute obtuse teeth, conspicuous chiefly at the time of flowering.—*E. erecta* and *E. prostrata*, Linn., and the whole section *Eueclipta*, *DC. Prod.* v. 490.

Hab.: Burdekin River, *F. v. Mueller*; Brisbane River, Moreton Bay, *C. Stuart, F. v. Mueller*; Rockhampton, *Herb. F. v. Mueller*.

A common weed throughout the warmer regions of the globe.

2. ***E. platyglossa*** (broad-tongued), *F. v. M. Fragm.* ii. 185; *Pl. Vict. t.* 39; *Benth. Fl. Austr.* iii. 536. Very near to *E. alba*, but the flower-heads are smaller, the involucre bracts narrow-lanceolate, and the ray florets yellow. Leaves almost or quite sessile, lanceolate, strigose. Achenes quite those of *E. alba*.—*Wollastonia* or *Wedelia ecliptoides*, *F. v. M. Pl. Vict. t.* 39.

Hab.: From the islands of the Gulf of Carpentaria to Brisbane; common in wet situations.

A specimen from Facing Island, Port Curtis, *R. Brown*, has the involucre bracts nearly as narrow as in *E. platyglossa*, but according to *R. Brown's* notes, the ray-florets are white and it seems almost to connect the two species.—*Benth.*

57. BLAINVILLEA, Cass.

(After H. de Blainville.)

Flower-heads heterogamous, radiate or discoid, outer florets female. Involucre ovoid or hemispherical; bracts slightly unequal, outer herbaceous, inner paleaceous, passing into the plicate scales of the receptacle. Ray or outer florets with a small 2 to 3-toothed ligule or more or less regularly 2 to 3-fid. Anther-base obtuse, entire. Achenes 3-cornered or biconvex. Pappus of 2 or 3 stout bristles without intermediate scales.—Erect or trichotomous scabrid herbs, with opposite or alternate ovate or lanceolate leaves. Heads yellow or whitish, terminal, in loose cymose panicles, often singly in the forks.

The species are all tropical.

1. ***B. latifolia*** (broad-leaved), *DC.; Hook. Fl. Brit. Ind.* iii. An hispidly-hairy annual, 2 to 3ft. high, rigid, with terete branches, the lower ones opposite, upper alternate. Leaves, 2 to 4in. long, opposite or the upper ones alternate, petiolate, ovate crenate-serrate, 3-nerved, cuneate at the base. Heads pedunculate, 4 to 6 lines in diameter. Involucre bracts oblong, obtuse, rigid. Ligules yellow or whitish. Achenes blackish, about 2 lines long, of the ray cuneiform triquetrous curved. Pappus very short.—*Dalz. and Gibs. Bomb. Fl.* 127; *Clarke Comp. Ind.* 185; *B. rhomboidea*, *Cass.; DC. l.c.; B. alba* and *hispida*, *Edgew. in Trans. Linn. Soc. xx.* 70; *Eclipta latifolia*, *Linn. f.; Hook. l.c. and F. v. M. Fragm. viii.* 145; *Verbesina dichotoma*, *Wall. Cat.* 320½, A (in part), B, C, D, E; *V. Lavenia*, *Roxb. Fl. Ind.* iii. 442.

Hab.: Cape York, *Damel.* (*F. v. M.*); Thursday Island and islands of Torres Straits, very abundant.

58. WEDELIA, Jacq.

(After George Wolfgang Wedel.)

(*Wollastonia, DC.*)

Involucre of about 2 rows of herbaceous bracts either all nearly equal or the outer ones larger and more leaf-like. Receptacle chaffy. Florets of the ray female, ligulate; disk-florets hermaphrodite, tubular, 5-toothed, mostly fertile. Anthers obtuse at the base. Style-branches with rather acute tips, usually hirsute. Achenes more or less flattened, or rarely 3-angled, with obtuse or acute rarely winged edges. Pappus none or more frequently consisting of minute scales united in a little cup and occasionally produced into 1 or 2 short bristles.—Herbs with opposite leaves. Flower-heads pedunculate or rarely almost sessile, terminal or in the forks of the branches or axils of the upper leaves. Ray yellow.

A considerable American genus with a few African and Asiatic species.

Five or six of the outer involucre bracts more leaf-like and longer than the others. Pappus cup-shaped.

Leaves oblong or lanceolate, narrowed into a short petiole or nearly sessile

1. *W. calendulacea*.

- Leaves ovate or ovate-lanceolate, distinctly petiolate. Peduncles mostly longer than the leaves 2. *W. urticifolia*.
- Outer involucre bracts not longer than the inner ones.
- Pappus small and cup-shaped in the centre of the achene, and sometimes 1 or 2 teeth or small bristles from the angles. Leaves lanceolate or linear, acuminate. Achenes compressed, not angled 3. *W. spilanthoides*.
- Pappus none or of 1 or 2 deciduous bristles.
- Straggling perennial. Leaves ovate or broadly ovate-lanceolate 4. *W. biflora*.
- Erect coarse annual. Leaves lanceolate. 5. *W. asperima*.

1. **W. calendulacea** (Calendula-like), *Less.*; *DC. Prod.* v. 539; *Benth. Fl. Austr.* iii. 537. A low decumbent prostrate or creeping perennial, attaining sometimes 2ft., sprinkled with short appressed hairs. Leaves oblong-lanceolate, 1 to 3in. long, acute or obtuse, coarsely toothed or nearly entire, narrowed at the base but scarcely petiolate. Flower-heads nearly $\frac{3}{4}$ in. diameter, solitary, on long axillary or terminal peduncles. Outer bracts of the involucre lanceolate or oblong, 4 or 5 lines long, inner ones smaller. Ray-florets about 10 to 12, rather broad, half as long again as the involucre. Achenes flattened, with a small denticulate cup-shaped pappus.—*Wight, Ic. t.* 1107.

Hab.: Islands of Torres Straits.

The species is frequent in India from Ceylon and the Peninsula to the Archipelago and northward to South China.

2. **W. urticifolia** (Urtica-leaved), *DC. in Wight, Contrib.* 18, and *Prod.* v. 539; *Benth. Fl. Austr.* 538. Erect or decumbent at the base, often 2 to 3ft. high, more or less hirsute, the hairs not very rigid. Leaves petiolate, ovate or ovate-lanceolate, acuminate, slightly serrate, rather thin, often 3 to 4in. long, narrowed or rounded at the base, the petiole rather short. Flower-heads small, on rather slender peduncles, the lower ones shorter than the leaves, the upper ones longer but scarcely paniculate. Involucre ovoid, the outer bracts (about 5) acute or acuminate, 3 to 6 lines long, the inner ones shorter. Ray-florets about 8, rather large; disk-florets not very numerous. Achenes somewhat compressed with acute edges, hairy at the top, with a small denticulate cup-shaped pappus, one of the teeth rarely produced into a bristle.—*Wight, Ic. t.* 1106; *W. Cunninghamii*, *DC. Prod.* v. 540.

Hab.: Islands of the Gulf of Carpentaria, *R. Brown*.

The species is frequent in India.

3. **W. spilanthoides** (Spilanthes-like), *F. v. M. Fragm.* v. 64; *Benth. Fl. Austr.* iii. 538. Very scabrous. Leaves very shortly petiolate, from broadly lanceolate to almost linear, mostly acuminate, with a few coarse irregular teeth especially near the base, or linear and entire, 2 to 4in. long. Peduncles rigid, long and solitary or with a second shorter one. Involucres hemispherical, smaller than in *W. biflora*, the bracts rather numerous, nearly equal, the outer ones ovate or ovate-lanceolate, scarcely acuminate, the inner ones narrower, all shorter than the florets. Ray-florets 10 to 12 or even more, rather large. Achenes more or less flattened, often pubescent at the top. Pappus a minute denticulate cup, occasionally emitting a short deciduous bristle, but the whole often inconspicuous when the achene is ripe.

Hab.: Port Curtis, *M. Gillivray*; Rodd's Bay, *A. Cunningham*; Wide Bay, *Bidwill*; Burdekin, Burnett, and Brisbane Rivers and Newcastle Range, *F. v. Mueller*; Rockingham Bay and Rockhampton, *Dallachy*; Fitzroy River, *Bowman*.

In some specimens the leaves are few and all narrow-linear and the flower-heads smaller; these are probably old branches or from plants grown in a dry season or locality. In others from Keppel Bay and Broadsound, *R. Brown*, the petioles are more distinct.—*Benth.*

4. **W. biflora** (two-flowered), *DC. in Wight, Contrib. Bot. Ind.* 18; *Benth. Fl. Austr.* iii. 539. A straggling half-scandent branching perennial, sometimes nearly glabrous, but more frequently slightly hoary or even quite white with closely appressed rigid hairs, especially on the under side of the leaves. Leaves

petiolate, from broadly ovate to ovate-lanceolate, the lowest sometimes 3 or 4 in. long and very broadly cordate, the others usually smaller and often cuneate at the base, all acute or acuminate, slightly toothed, 3-nerved. Flower-heads most frequently 3 on short or long peduncles or sometimes more in a loose corymb. Involucral bracts nearly equal in about 2 rows. Ray-florets 10 to 12 or sometimes more, the ligules oblong, entire or minutely 3-toothed, 2 to 3 lines long. Achenes obtuse at the edges, without any pappus or with 1 to 3 small slender deciduous awns.—*Wollastonia biflora*, DC. Prod. v. 546; Wight, Ic. t. 1108; Benth. Fl. Hongk. 183, with the synonyms there adduced; *W. insularis* and *W. Forsteriana*, DC. Prod. v. 548.

Hab.: Islands of the Gulf of Carpentaria and Torres Straits, Port Curtis and Lizard Islands; Bay of Inlets, *Banks and Solander*; Rockingham Bay, *Dallachy*; Brisbane River, Moreton Bay, *F. v. Mueller*; on the coast generally.

This species is widely spread over East India, extending westward to east tropical Africa, and eastward to the Archipelago and south China.—*Benth.*

5. **W. asperrima** (very rough), *Benth. Fl. Austr.* iii. 539. Coarse and erect, 1 to 2ft. high, but apparently annual, very scabrous, especially the foliage, with rigid appressed hairs. Leaves petiolate, from oblong-lanceolate to linear-lanceolate, mostly acuminate, 2 to 3in. long, irregularly toothed, narrowed at the base. Flower-heads several, in a loose terminal leafy panicle on rigid peduncles longer than the leaves. Involucre nearly hemispherical, the bracts rather numerous, acuminate, the outer ones 4 to 5 lines long, the inner ones scarcely shorter. Scales of the receptacle very acute and rigid. Ray-florets 10 to 12 or even more, oblong. Achenes with obtuse edges, not at all winged or without any pappus.—*Wollastonia asperrima*, Dcne. Herb. Timor, Descr. 86, and DC. Prod. 547 (?), from the character given.

Hab.: Cape York Peninsula.

59. SPILANTHES, Linn.

(Spot-flower; original species having a circumference yellow and the centre dark to the flower-heads.)

Involucral bracts in about two rows nearly equal, usually broad and thin. Receptacle chaffy, very conical. Ray-florets female, ligulate, or sometimes none. Disk-florets small, hermaphrodite, tubular, 5-toothed. Anthers obtuse at the base. Style branches truncate. Achenes of the ray 3-angled, those of the disk flattened, the angles or margins usually ciliate. Pappus of 2 or 3 short fine awns or bristles proceeding from the angles, sometimes wanting.—Herbs with opposite leaves. Flower-heads usually on long peduncles, the ray yellow or white.

The genus is widely dispersed over the tropical regions both of the New and the Old World. The 2 Australian species extend into the Indian Archipelago.—*Benth.*

Flower-heads with yellow rays 1. *S. grandiflora*.
Flower-heads discoid, without rays 2. *S. anactina*.

1. **S. grandiflora** (large flower-heads), *Turcz. in Bull. Mosc.* 1851, i. 185; *Benth. Fl. Austr.* iii. 541. Decumbent, loosely branched, glabrous or strigose-pubescent, attaining 1 to 2ft. in length. Leaves shortly petiolate, ovate-lanceolate, lanceolate, or rarely linear, entire or with a few coarse teeth below the middle, 1 to 2in. long, 3-nerved, glabrous or sprinkled with a few hairs. Involucral bracts ovate or ovate-lanceolate, scarcely 2 lines long. Ray-florets ligulate, yellow, twice as long as the involucre in the normal form but variable

in size. Scales of the receptacle broad and concave, as long as the disk-florets. Bristles of the pappus scarcely thicker and but little longer than the cilia of the angles of the achenes.—*S. macroglossa*, F. v. M. *Fragm.* v. 63.

Hab.: Thirsty Sound and Broadsound, *R. Brown*; Burdekin River, *F. v. Mueller*; Rockhampton, *Dallachy*; Keppel Bay, *Thozet*; Brisbane River, Moreton Bay, *Mossman*, *F. v. Mueller*; Stanthorpe.

Var. *calva*. More glabrous; achenes smaller with few or no cilia on the angles, and the bristles of the pappus very minute or entirely wanting. Hab.: Brisbane River and Moreton Bay.

2. **S. anactina** (ray-florets wanting), *F. v. M. Fragm.* v. 63; *Benth. Fl. Austr.* iii. 441. Stems from a procumbent or decumbent base ascending to about 1ft. high, simple or branched. Leaves linear or oblong-lanceolate, obtuse, entire, rather thick, 1 to 2 or rarely 3in. long. Involucral bracts broad and thin, the margins often scarious and jagged. Scales of the receptacle broad. Ray-florets entirely wanting. Disk-florets short and broad. Style-branches very long, flat, truncate. Achenes acutely edged or winged without cilia, the awns rather long for the genus.

Hab.: Islands of the Gulf of Carpentaria, *R. Brown*, *Henne*.

60. *COREOPSIS, Linn.

(Said to have received its name from the supposed resemblance of the achenes to a bug.)

Heads heterogamous, radiate; ray-florets 1-seriate, conspicuous, female or neuter. Involucre duplex, outer bracts more or less herbaceous, linear or linear-lanceolate; inner membranous, sub-equal, 1 or 2-seriate, broader than the outer; bracts sometimes appearing more or less connate at base. Scales of receptacle plane or slightly concave, membranous, striate. Anther-base entire or bidentate. Style-branches truncate or with an abrupt subulate appendix. Achenes usually much compressed, linear-oblong or obovate; margins sometimes winged, apex with 2 filiform subulate or broad-based aristæ, usually barbellate with setæ directed upwards.—Herbs, or more or less frutescent, with opposite often pinnatisect or deeply divided simple leaves, and pedunculate, solitary, or variously cymose, yellow, conspicuous flower-heads.

Annual or perennial herbs of North America.

1. **C. tinctoria** (dyed), *Nutt; Jl. Ac. Phil.* ii. Annual, stems branching, 1 to 3ft. high, glabrous. Leaves pinnately divided into narrow, linear segments. Peduncles terminal. Ray-florets toothed at the end. Achenes oblong, minutely tuberculate or smooth. A well-known showy garden annual.

Hab.: North America. Met with about towns as a stray from garden culture.

61. *COSMOS, Cav.

(From *kosmos*, an ornament.)

Heads heterogamous, radiate; ray-florets 1-seriate, neutral; disk-florets hermaphrodite, fertile, or rarely wanting, rays homogamous. Involucre sub-hemispherical; bracts 2-seriate, connate at the base, striate. Receptacle flat, scales somewhat flat or concave, hermaphrodite florets subdentate. Ray-florets ligulate, lamina spreading entire or subdentate; hermaphrodite, regular, tubulose, limb cylindric, shortly 5ft. at the apex. Anthers entire at the base or scarcely 2-dentate. Style of hermaphrodite florets with thin branches. Achenes narrow, sub-5-angled; awns 2 to 4-barbed or scabrous-hispid, deciduous. Ray-florets purple, violet, or rose; disk-florets yellow; anthers brown,

Tropical American herbs, chiefly Mexican.

1. **C. bipinnatus** (twice-pinnate), *Var. Ic. t. 14*. Leaves divided into narrow linear, almost filiform lobes. Heads very showy, the rays often more than lin. long. Achenes smooth with abrupt beak; awns 1 to 3, very short or wanting.

Hab.: Often met with as a stray from gardens.

62. BIDENS, Linn.

(The achenes having two or more teeth-like bristles.)

Involucral bracts few, in about 2 or 3 rows, the outer ones herbaceous, the inner ones usually bordered with a thin whitish margin. Receptacle chaffy. Ray-florets neuter, sterile, ligulate or sometimes wanting; disk-florets tubular, hermaphrodite, 5-toothed. Anthers obtuse at the base. Style-branches with an acute or subulate point. Achenes broad and flattened or slender and 4-angled, often produced into a short beak. Pappus of 2 to 4 rigid retrorsely hispid persistent awns.—Herbs with opposite leaves. Flower-heads or terminal peduncles, the ray yellow or white.

Of the 2 sections of the genus, one, *Platycarpæa*, belongs chiefly to the temperate regions of the northern hemisphere, the Australian species being identical with one of the common northern ones; the other, *Psilocarpæa*, is entirely American with the exception of the 2 Australian species, which are common weeds in all warm countries.—*Benth.*

SECTION I. **Platycarpæa**.—*Achenes flat and rather broad.*

Leaves divided into 3 lanceolate serrate segments 1. *B. tripartita*.

SECTION II. **Psilocarpæa**.—*Achenes slender, 4-angled.*

Leaves mostly pinnate, with 3 or 5 segments. Ray white 2. *B. pilosa*.

Leaves mostly bipinnate. Ray yellow 3. *B. bipinnata*.

1. **B. tripartita** (leaves 3-partite), *Linn.; DC. Prod. v. 594; Benth. Fl. Austr. iii: 543*. A rather stout erect glabrous annual 1 to 2ft. high. Leaves deeply cut into 3 lanceolate serrate segments. Flower-heads on terminal peduncles, erect or somewhat drooping. Involucre hemispherical, $\frac{1}{2}$ to lin. diameter, the outer bracts, sometimes nearly lin. long, leaf-like and spreading, the inner ones short, broad, often shining and yellow on their edge. Florets either all tubular without any ray or with a few outer ligulate yellow florets. Achenes flat, crowned by 2 or 3, very rarely 4 awns.—*B. repens*, Don.; *DC. Prod. v. 595*.

Hab.: Southern localities.

The species is widely spread over the temperate regions of the northern hemisphere.—*Benth.*

2. **B. pilosa** (pilose), *Linn.; DC. Prod. v. 597; Benth. Fl. Austr. 543*. An erect glabrous or slightly hairy annual, 1 to 2ft. high. Branches angular. Leaves thin, pinnately divided, or the lower ones sometimes simple; segments 3 or sometimes 5, petiolulate, ovate or ovate-lanceolate, 1 to 2in. long, serrate or rarely lobed. Flower-heads few, terminal, rather small, on slender peduncles. Involucral bracts 2 to 3 lines long. Ray-florets white, few and short or sometimes wholly wanting. Achenes slender, 4-angled, the inner ones often 6 to 7 lines long, the outer ones shorter.—*Benth. Fl. Hongk. 183*, with the synonyms adduced.

Hab.: Brisbane River, Moreton Bay, *F. v. Mueller*. A very common weed.

The species is very common as a weed over most warm countries both in the New and the Old World.

3. **B. bipinnata** (twice-pinnate), *Linn.: DC. Prod.* v. 603; *Benth. Fl. Austr.* iii. 543. A glabrous annual, resembling *B. pilosa*, but the leaf-segments are usually again divided into small deeply toothed or lobed segments, the flower-heads are smaller, the involucre bracts less bordered, and the ray-florets small and yellow.

Hab.: Islands of the Gulf of Carpentaria, *R. Brown*; common on the sandy seacoasts, *R. Brown* and others; islands of Moreton Bay, *F. v. Mueller* and others.

The species is common in most warm countries both in the New and the Old World.

63. **GLOSSOGYNE**, Cass.

(Style-branches tongue-like.)

(*Diodontium*, *F. v. M.*)

Involucre bracts few, in about 2 rows, narrow and nearly equal. Receptacle chaffy. Ray-florets female, ligulate, fertile or sometimes wanting; disk-florets tubular, hermaphrodite, 4 or 5-toothed. Anthers obtuse at the base. Style-branches ending in subulate points. Achenes narrow, usually flattened. Pappus of 2 to 4 rigid retrorsely hispid or smooth persistent awns.—Glabrous perennials, with alternate or opposite, pinnate or undivided narrow leaves. Flower-heads small on long terminal peduncles.

A small genus extending over tropical Asia, to which have also been referred one or two Brazilian species. Of the 3 Queensland species, 1 is also in the Indian Archipelago, the other 2 are endemic. It is very closely allied to *Bidens*, and further investigation of the allied American plants may induce its reduction to a section of that genus.—*Benth.*

Leaves alternate, pinnate. Ray-florets few. Disk-florets 4-toothed.

Style-branches of the disk-florets very long. Achenes longitudinally striate, the awns erect or slightly spreading 1. *G. tenuifolia*.

Style-branches rather short. Achenes transversely rugose, the awns very spreading or reflexed 2. *G. retroflexa*.

Leaves, lower and upper ones simple, centre ones pinnate. The achenes almost concealed by the bracts 3. *G. orthochata*.

1. **G. tenuifolia** (leaves slender), *Cass.; DC. Prod.* v. 632; *Benth. Fl. Austr.* iii. 544. Stock perennial, tufted, sometimes almost woody, with erect dichotomous stems, 6in. to 1ft. high, often almost leafless, or sometimes elongated decumbent and leafy at the base. Leaves chiefly radical or nearly so, the lowest sometimes cuneate and 3-lobed, all the others pinnately divided into 5 or 7 stiff linear segments either entire or 2 or 3-lobed. Flower-heads small, on long slender terminal peduncles. Involucre campanulate not 2 lines long. Ray-florets small, yellow, spreading. Achenes linear, flattened, about 4 lines long, striate, with 3 or more numerous ribs on each face, crowned by 2 erect or slightly diverging awns.—*Bidens tenuifolia*, *Labill. Sert. Austr. Caled.* 44 t. 45; *Glossogyne pedunculosa*, *DC. Prod.* v. 632; *G. bidentifolia*, *F. v. M.* in *Linnæa*, xxv. 402; *Bidens denudata*, *Turcz. in Bull. Mosc.* 1851, i. 183.

Hab.: Northumberland Islands and Shoalwater Bay, *R. Brown*; Cape Cleveland and Rodd's Bay, *A. Cunningham*; Cape York and Port Curtis, *M'Gillivray*; Rockingham Bay, *Dallachy*; Albany Island and Brisbane River, Moreton Bay, *F. v. Mueller*.

The species is also in New Caledonia and in the Indian Archipelago, and differs but very little from the East Indian *G. pinnatifida*.—*Benth.*

2. **G. retroflexa** (awns reflexed), *F. v. M. Fragm.* i. 51; *Benth. Fl. Austr.* iii. 544. A tufted perennial, with precisely the habit and foliage of the ordinary form of *G. tenuifolia*, and the same inflorescence, involucre and florets, but the style-branches although filiform are shorter and glabrous, the achenes are thicker, transversely rugose, and the awns, usually 3, are very spreading or reflexed on the achene.

Hab.: Basaltic plains between Peak Range and Darling Downs, *F. v. Mueller*.

3. **G. orthochaeta** (awns straight), *F. v. M. Vict. Nat.* Nov. 1891. Stems attaining the height of 2ft., somewhat woody at the base, few-branched. Leaves crowded along the lower part of the branches and stem, about 3in. long, the lower often reflexed and some undivided, the others pinnately divided, their segments distant, narrow-linear, much pointed, the uppermost leaves few, remote, undivided, linear. Flower-heads solitary, terminating elongated, simple, peduncle-like branches. Involucral bracts rather numerous, somewhat scarious towards the summit; floral bracts bluntish, receptacle rather ample. (Florets not sent with specimens.) Achenes numerous, 2 or 3 lines long, compressed, narrow, blackish, streaked; awns 2, erect, slightly retrohispidulous, often only barbed at the point. The bracts almost concealing the achenes.—*F. v. M. l.c.*

Hab.: Near the South Coen River, *Stephen Johnson* (*F. v. M.*)

64. ***GALINSOGA**, Cav.

(After *Mar. Ma. Galinsoga*.)

(*Vargasia*, *DC.*)

Involucre of few (about 5) broad nearly equal bracts. Receptacle conical, chaffy, the scales narrow. Ray-florets few, female, ligulate. Disk-florets hermaphrodite, tubular, 5-toothed. Anthers obtuse at the base. Style-branches acute. Achenes angular, slightly flattened. Pappus of several linear or oblong chaffy scales often plumose-ciliate or wanting, especially on the achenes of the ray.—Herbs with opposite leaves. Flower-heads small, pedunculate. Ray white.

A small genus from tropical and subtropical America, of which one species has spread as a weed of cultivation over many warm and temperate districts of the Old World, and has become introduced as such into Australia.—*Benth.*

1. **G. parviflora** (flowers small), *Cav.; DC. Prod.* v. 677; *Benth. Fl. Austr.* iii. 542. An erect annual of 1 to 2ft., glabrous or slightly hairy. Leaves petiolate, ovate or ovate-lanceolate. Peduncles slender. Involucre nearly hemispherical, about 2 lines diameter. Ray-florets about 5, with a small white ligula; disk-florets short. Achenes small, slightly hairy. Pappus of the ray reduced to a few minute bristles or entirely wanting, that of the disk-achenes consisting of from 12 to 20 chaffy scales, more or less plumose-ciliate.

Hab.: A South American species, probably introduced with cultivation.

65. **FLAVERIA**, Juss.

(*Flavus*, yellow; a Chilean species produces a yellow dye.)

Flower-heads collected in dense clusters or compound heads surrounded by a few leafy bracts or floral leaves. Involucres cylindrical or compressed, with few conduplicate dry bracts. Florets few, the female ones often solitary in the involucre with a small ligula, hermaphrodite florets tubular, 5-toothed. Anthers obtuse at the base. Style-branches truncate. Achenes somewhat compressed. Pappus none.—Herbs with opposite leaves. Clusters of flower-heads terminal or sessile in the forks. Florets yellow.

Besides the Australian species, which is endemic, there are a few American ones, one of which, from S. America, is closely allied to the Australian one.—*Benth.*

1. **F. australasica** (Australian), *Hook. in Mitch. Trop. Austr.* 118; *Benth. Fl. Austr.* iii. 546. "Bogabri," Flinders River, *C. F. Plant.* An erect rigid perfectly glabrous pale-green annual, usually about 1ft. but attaining sometimes 2 or 3ft. in height, with opposite or dichotomous divaricate branches. Leaves

linear or linear-lanceolate, 1 to 2 in. long, entire or with small remote teeth, the lower ones narrowed towards the base but stem-clasping, the upper ones much dilated at the base. Flower-heads numerous, in dense globular or hemispherical sessile clusters often $\frac{1}{2}$ in. diameter, surrounded by a few broad ovate-acuminate or lanceolate floral leaves longer than the clusters. Involucres 2 to 3 lines long, the outer ones of each cluster usually consisting of 2 or 3 obtuse narrow bracts and including a single ligulate floret, the others containing 2 to 6 disk-florets, the corollas slightly dilated over the achene and glandular at the base. Achenes prominently ribbed.—F. v. M. Fragm. i. 183.

Hab.: Islands of the Gulf of Carpentaria, *R. Brown*; Balonne River, *Mitchell*.

There is very little to distinguish this from the common S. American *F. Contrayerva*, except the narrow leaves and the more sessile and compact clusters of flower-heads with broader floral leaves.—*Benth.*

66. TAGETES, Linn.

(After Tages, a Tuscan divinity.)

Involucral bracts in a single row, united in a toothed cup or tube. Receptacle flat, without scales. Florets of the ray female, ligulate; disk-florets tubular, 5-toothed. Anthers obtuse at the base. Style-branches flattened, obtuse or truncate, usually hirsute. Achenes linear, flattened. Pappus of several narrow very unequal scales or bristles.—Herbs, usually glabrous, the foliage and involucres bearing oblong or round transparent glands or vesicles filled with a strongly-scented oil. Leaves opposite, entire or pinnate. Flower-heads large and solitary or small and corymbose or paniculate. Ray yellow or orange-red.

1. **T. glandulifera** (gland-bearing), *Schranck*; *DC. Prod.* v. 644; *Benth. Fl. Austr.* iii. 545. Stinking Rodger. A tall glabrous erect annual, attaining sometimes 6 to 8 ft., with numerous erect branches. Leaves pinnate with linear-lanceolate serrate segments. Flower-heads small and numerous in dense terminal panicles. Involucre tubular, about $\frac{1}{2}$ in. long. Florets 6 to 12, scarcely exceeding the involucre, about 3 bearing each a small yellow ligula, the others tubular. Achenes linear, black, with a pappus of 5 or 6 chaffy bristles, one much longer than the rest.

Hab.: Brisbane River, *F. v. Mueller*; Neerkool Creek, *Bowman*.

The species is of S. American origin, perhaps introduced with cultivation into Australia as into several of the warmer districts of the Old World.—*Benth.*

67. COTULA, Linn.

(From the cup-shaped involucre.)

(*Gymnogyne*, *Steetz*; *Strongylopermum*, *Less.*; *Pleioogyne*, *C. Koch*; *Symphomyra* and *Ctenosperma*, *Hook. f.*; *Leptinella*, *Cass.*)

Involucre hemispherical or campanulate, with few nearly equal bracts, in about 2 rows. Receptacle flat, convex or conical, without scales. Florets of the circumference in 1 or several rows, female, without any or with a short broad or conical corolla. Disk-florets numerous, tubular, hermaphrodite, sometimes sterile, 4 or 5-toothed. Anthers obtuse at the base. Style-branches obtuse or truncate, or the style sometimes undivided. Achenes flattened, sometimes winged, without any pappus.—Herbs, usually small or decumbent, with alternate entire lobed or dissected leaves. Flower-heads small, pedunculate.

A considerable genus, dispersed over the warmer and temperate regions of the Old World, with a few American species.

SECTION I. **Strongyloperma**.—*Receptacle flat or convex. Achenes of the female florets numerous, in several rows, sessile or stipitate. Female florets without any corolla.*

Achenes of the female florets with narrow thick wings or obtuse edges. Leaves dissected.

- Stems slender. Peduncles filiform, mostly longer than the leaves 1. *C. australis*.
 Stems short, stout. Peduncles thick, mostly shorter than the leaves 2. *C. alpina*.

SECTION II. **Leptinella**.—*Receptacle conical. Achenes of the ray in several rows, sessile. Female florets with a short corolla.*

- Glabrous or nearly so. Female florets inflated 3. *C. reptans*.

1. ***C. australis*** (southern), *Hook. f. Fl. N.Z. i. 128; Benth. Fl. Austr. iii. 550*. Slender and diffuse, with an apparently perennial creeping rhizome, more or less clothed with long soft hairs or nearly glabrous. Leaves pinnate, with small pinnæ, entire or deeply 3-lobed or pinnatifid, the segments mostly mucronate-acute. Flower-heads small, on slender peduncles. Involucral bracts linear-oblong. Receptacle nearly flat. Female florets numerous, in several rows, without any corollas; disk-florets slightly dilated at the base, 4-toothed, fertile. Achenes of the female florets bordered by a narrow wing, not cordate at the base, on pedicels nearly as long as themselves. Achenes of the disk not winged, on very short pedicels.—*Hook. f. Fl. Tasm. i. 191 t. 50 A; Anacyclus australis, Sieb. Pl. Exs.; Strongylospermum australe, Less. Syn. Comp. 261; DC. Prod. vi. 82; Pleiogyne australis, C. Koch in Bot. Zeit. 1843, 40; Sond. in Linnæa, xxv, 484.*

Hab.: A very common weed in southern localities.

The species is also in New Zealand and in the island of Tristan d'Acunha; it is very near the common Asiatic and African *C. anthemoides*, Linn., but in that species the peduncles are usually much shorter, the achenes less stipitate, and the female florets have almost always a short corolla, which I never find in *C. australis* even on Sieber's specimens, although described by De Caudolle, who copied from Lessing.—*Benth.*

2. ***C. alpina*** (alpine), *Hook. f. Fl. Tasm. i. 192 t. 51 A; Benth. Fl. Austr. iii. 550*. A small but stout glabrous perennial, shortly creeping or tufted. Leaves deeply pinnatifid or pinnate, with oblong-linear acute entire or 2 or 3-toothed segments. Flower-heads, when in fruit, fully 3 lines diameter, on thick hollow peduncles, often shorter than the leaves. Involucral bracts ovate-oblong. Receptacle flat or slightly convex. Female florets in several rows, without any corollas. Achenes of the female florets sessile, bordered by rather thick wings, those of the disk usually abortive.—*Ctenosperma alpinum, Hook. f. in Hook. Lond. Journ. vi. 115.*

Hab.: Logan River.

3. ***C. reptans*** (creeping), *Benth. Fl. Austr. iii. 551*. A slender creeping perennial, glabrous or sprinkled with a few soft hairs, especially on the peduncles. Leaves pinnate, with ovate segments, toothed or pinnately divided into short linear lobes. Flower-heads rarely above 2 lines diameter, on peduncles usually longer than the leaves. Involucral bracts nearly orbicular. Receptacle conical. Female florets in several rows, the corollas very short and broad, inflated, contracted at the orifice, obliquely 2 or 3-toothed, the style shortly exerted. Achenes of the female florets sessile, flattened, with thickened obtuse margins, scarcely forming distinct wings, obtusely notched at the top, those of the disk usually abortive.—*Strongylosperma reptans, Benth. in Hueg. Enum. 60; DC. Prod. vi. 82; Pleiogyne reptans, C. Koch in Bot. Zeit. 1843, 40; Sond. in Linnæa, xxv. 484; Leptinella intricata, Hook. f. in Hook. Lond. Journ. vi. 117, and Fl. Tasm. i. 193 t. 52 B.; Leptinella multifida, Hook. f. in Hook. Lond. Journ. vi. 118; Pleiogyne multifida, Sond. in Linnæa, xxv. 484.*

Hab.: Southern localities.

Var. major. Rather coarser, usually glabrous; petioles and peduncles longer; leaf-segments obovate and almost succulent; flower-heads larger.—*Leptinella longipes, Hook. f. in Hook. Lond. Journ. vi. 117, and Fl. Tasm. i. 193 t. 52 A.*—Nerang Creek,

68. CENTIPEDA, Lour.
(Referring to its creeping habit.)

(*Myriogyne*, Less.; *Sphæromorphæa*, DC. partly.)

Involucral bracts in about 2 rows, nearly equal, scarious at the edges. Receptacle flat or slightly convex, without scales. Florets of the circumference in many rows, female, with short tubular corollas; disk-florets hermaphrodite, fertile, broadly campanulate, 4-lobed. Anthers short, obtuse at the base. Style-lobes very short, obtuse or truncate. Achenes not at all or scarcely compressed, with 3 or 4 very prominent obtuse ribs or angles, without any pappus.—Herbs with alternate usually toothed leaves. Flower-heads small, sessile, lateral or in a short terminal raceme.

A small genus, chiefly S. Asiatic, with one species from extratropical S. America. Of the 4 Australian species, 1 is the common Indian one, the others are endemic.

- | | |
|---|------------------------------|
| Stems prostrate, diffuse. Flower-heads sessile or nearly so. Florets exerted. Achenes slightly hairy, ellipsoid-clavate | 1. <i>C. orbicularis</i> . |
| Stems erect or ascending. | |
| Flower-heads sessile. Achenes not striate at the apex, cylindrical-clavate | 2. <i>C. Cunninghami</i> . |
| Flower-heads nearly semiovate. Achenes cylindrical, the pilose lines almost forming a pappus | 3. <i>C. thespidioides</i> . |
| Flower-heads in short terminal racemes. Achenes 4 or 5-angled, angles ciliate | 4. <i>C. racemosa</i> . |

1. **C. orbicularis** (heads orbicular), *Lour. Fl. Coch.* A prostrate branching annual or perhaps sometimes a perennial of short duration, the slender stems 2 to 3 or rarely 6 in. long in tropical regions, glabrous or clothed with short white woolly intricate hairs, in most of the extratropical Australian specimens more robust, glabrous, attaining sometimes 1 ft. Leaves oblong, $\frac{1}{4}$ to $\frac{1}{2}$ in. long, narrowed at the base or almost petiolate, toothed or almost pinnatifid. Flower-heads $1\frac{1}{2}$ to 2 lines diameter, solitary, at first terminal, but soon becoming leaf-opposed, closely sessile or rarely accompanied by a second pedunculate one (*i.e.* by a short 1-headed flowering-branch with the floral leaf abortive). Florets very minute, the female corollas scarcely above a third of the length of their ovaries. Styles of the disk-florets with very short truncate lobes. Achenes slightly hairy.—*Myriogyne minuta*, Less.; Benth. Fl. Austr. iii. 553.

Of this variable plant, 3 more or less distinct forms are met with in Queensland, viz.:—

Var. *minuta*. A weak, prostrate, nearly glabrous plant, spreading from a few inches to over a foot wide. Leaves oblong, about $\frac{1}{2}$ in. long, the lower ones on longish petioles, the upper end with a few distant teeth; with a slight pungent scent when bruised.—*Myriogyne minuta*, Less. Hab.: Common on the southern coastal lands.

Var. *sternutatoria*. Branches somewhat erect from a procumbent base, stiff, clothed by short rigid hairs. Leaves rather pungently toothed; very pungently scented.—*Artemisia sternutatoria*, Roxb. Hab.: Stanthorpe and many other inland localities.

Var. *lanuginosa*. Whole plant densely woolly-white.—*Myriogyne minuta*, var. *lanuginosa*. Hab.: Generally found in inland tropical parts.

These plants have been supposed to poison stock. Dried and powdered they form a good snuff, and have the reputation of possessing medicinal virtues.

2. **C. Cunninghami** (after Allan Cunningham), *F. v. M. Fragm.* viii. An erect rigid herb here and there procumbent. Leaves cuneate-oblong with distant marginal teeth. Flower-heads sessile, bracts with scarious margins. Florets very numerous, the females in many rows. Achenes cylindrical-clavate, not streaked at the summit.

Hab.: Mount Perry, *Jas. Keys*,

3. **C. thespidioides** (Thespidium-like), *F. v. M. Fragm.* viii. 143. An erect rigid herb somewhat procumbent; leaves dentate. Flower-heads sessile. Involucre semiovate-campanulate, the bracts with scarious margins. Female florets in few rows, all turgid towards the base. Achenes cylindrical, the pilose lines almost forming a pappus.

Hab.: Southern localities, inland.

4. **C. racemosa** (flower-heads in racemes), *Hook. in Mitch. Trop. Austr.* 358; *Benth. Fl. Austr.* iii. 553. Glabrous, with ascending or erect stems, $\frac{1}{2}$ to $1\frac{1}{2}$ ft. high. Leaves linear or linear-lanceolate, acutely toothed, slightly narrowed towards the base or the lower ones petiolate. Flower-heads small, in short terminal leafless racemes. Involucral bracts oblong. Ray-florets minute, almost globular. Styles of the disk-florets with very short obtuse lobes. Achenes very prominently 4 or 5-angled, the angles ciliate.

Hab.: Maranoa River, *Mitchell*; Burdekin and Gilbert Rivers and Newcastle Range, *F. v. Mueller*.

The inflorescence is that of *Dichrocephala*, but the achenes and florets are very differently shaped.—*Benth.*

69. SOLIVA, Ruiz and Pav.

(After Dr. Salvador Soliva.)

(*Gymnostyles*, *Juss.*)

Involucral bracts in about 2 rows nearly equal, with scarious margins. Receptacle flat, without scales. Florets of the circumference in several rows, female without any corolla; disk-florets tubular, tapering at the base, 2 or 3-toothed. Anthers obtuse at the base. Style-lobes short, truncate. Achenes of the female florets flattened, bordered by a thick wing, without any pappus, but the wings tapering into the rigid persistent style or produced into two divaricate points or prominent angles, those of the disk usually abortive.—Small diffuse herbs. Leaves alternate, usually finely dissected. Flower-heads sessile.

A small genus, apparently limited to the warmer regions of America.

1. **S. anthemifolia** (Chamomile-leaved), *R. Br. in Trans. Linn. Soc.* xii. 102; *Benth. Fl. Austr.* iii. 552. Stems very much shorter than the leaves, forming a dense tuft. Leaves petiolate, 2 to 4 in. long, twice or even thrice pinnate with linear or linear-acute, entire or 3-fid segments, the primary ones often distant along the petiole, clothed with long soft hairs or nearly glabrous. Flower-heads closely sessile and clustered on the short stems, nearly globular when in fruit, $\frac{1}{4}$ to $\frac{1}{2}$ in. diameter. Involucral bracts oblong or lanceolate. Achenes numerous, bordered by a thick transversely rugose wing, which tapers into a rigid style longer than the achene itself, without any lateral angles or points.—*DC. Prod.* vi. 142; *Gymnostyles anthemifolia*, *Juss.*, according to *Br. l.c.*

Hab.: A common weed in southern localities.

70. CERATOGYNE, Turcz.

(Alluding to the horn-like style-lobes.)

(*Diotosperma*, *A. Gray.*)

Involucre cylindrical, of few oblong bracts, green with scarious edges. Receptacle without scales. Florets of the circumference few, female, filiform, 2 or 3-toothed or shortly ligulate; disk-florets few, hermaphrodite, sterile, tubular, 3 or 4-toothed. Anthers short, thin (obtuse at the base?). Style-lobes slender, acute, hispid. Achenes of the ray large, flat, bordered by herbaceous wings,

involute on the margins and produced at the top into incurved auricles; those of the disk abortive.—Small annual. Leaves alternate. Flower-heads small, terminal or axillary.

The genus is limited to a single species endemic in Australia.

1. **C. obionides** (Obione-like), *Turcz. in Bull. Mosc.* 1851. ii. 69; *Benth. Fl. Austr.* iii. 555. An annual with erect slender branching stems not exceeding 6 in., and often much smaller, more or less hirsute with soft simple hairs. Leaves petiolate, obovate or oblong, under $\frac{3}{4}$ in. long, the upper ones small, narrow and sessile. Flower-heads nearly sessile or on very short axillary leafy peduncles. Involucre a little more than 1 line long, of 4 to 6 oblong bracts. Florets about as long as the involucre, of which 3 or 4 females and about as many sterile central ones. Achenes of the female florets very soon growing out to at least twice the length of the involucre, remarkable for their broad herbaceous wings, the incurved ciliate auricles at the top as long as the corolla.—*Diotosperma Drummondii*, A. Gray in Hook. Kew Journ. iv. 275.

Hab.: Inland, border of N.S.W.

71. ISOETOPSIS, Turcz.

(Supposed resemblance to an Isoetes.)

Involucres of few broad scarious bracts, the outer ones with linear leaf-like tips. Receptacle small, without scales but with a few long hairs. Florets of the circumference in several rows, female, tubular, slender but broader towards the base, 2 or 3-toothed. Disk-florets hermaphrodite but sterile, the tube exceedingly slender, expanded into a campanulate 4-lobed limb. Anthers short, obtuse at the base. Style undivided. Achenes of the female florets nearly terete, with a pappus of obtuse chaffy scales. Achenes and pappus of the disk entirely abortive or rudimentary.—Dwarf tufted herb, the flower-heads small and densely tufted within the grass-like radical leaves.

The genus is limited to a single species endemic in Australia. Notwithstanding the foliage, the affinity is evident with *Cotula* and *Centipeda*.—*Benth.*

1. **I. graminifolia** (Grass-leaved), *Turcz. in Bull. Mosc.* 1851, i. 175 t. 3; *Benth. Fl. Austr.* iii. 556. A dwarf, almost stemless densely-tufted plant, the numerous small flower-heads sessile and densely crowded within the radical leaves, which are linear, grass-like, 1 to 2 or even 3 in. long, the inner ones dilated and more or less scarious at the base, passing into the outer involucreal bracts, which have short green linear tips, the inner bracts broad and scarious, without tips, about 2 lines long. Florets about as long as the involucre. Achenes of the female florets rather thick, silky-hairy.

Hab.: Inland, towards N.S.W. border.

72. ERECHTHITES, Rafin.

(A name of Dioscorides for a species of *Senecio*, often written *Erechtites*.)

(*Neoccis*, *Cass.*)

Involucre of several nearly equal bracts, apparently in a single row, the margins often scarious and imbricate, with a few small ones round the base. Receptacle without scales. Florets all tubular, those of the circumference in 2 or more rows, female, filiform, 3 or 4-toothed or rarely a few outer ones very slightly dilated at the tips, and deeper cleft on the inner side; disk-florets

hermaphrodite, 5-toothed. Anthers obtuse at the base. Style-branches truncate. Achenes striate or angular. Pappus of numerous simple fine capillary bristles.—Herbs, annual or perennial. Leaves alternate, entire toothed lobed or pinnately divided. Flower-heads in terminal corymbs. Florets small, usually yellow.

The genus is dispersed over New Zealand and South America, and extends into Africa and Asia, but belongs chiefly to the southern hemisphere.—*Benth.*

- Involucres small, mostly of 8 to 10 bracts. Plants without wool, glabrous or nearly so. Perennial. Leaves once, twice, or thrice-pinnatifid, with linear segments 1. *E. Atkinsoniæ*.
- Involucres of about 12 bracts. Plants more or less cottony-woolly or scabrous-hirsute. Leaves mostly toothed, lobed, or divided. Involucres above 3 lines long. Achenes short. Annual, often hard at the base (rarely perennial?) 2. *E. arguta*.
- Leaves linear, mostly entire. Achenes rather long, sometimes contracted into a short beak. Perennial 3. *E. quadridentata*.

1. ***E. Atkinsoniæ*** (after Miss Louisa Atkinson), *F. v. M. Fragm.* v. 88; *Benth. Fl. Austr.* iii. 658. An erect glabrous herb several feet high. Flower-heads small in a large terminal panicle; perennial, the leaves once, twice or three times pinnately divided into narrow linear segments. Involucral bracts are more frequently 10 but sometimes 11 and 12, about 3 lines long, brownish-green. Female florets 12 to 15 or more.

Hab.: Southern localities.

2. ***E. arguta*** (segments of the leaves acute), *DC. Prod.* vi. 296; *Benth. Fl. Austr.* iii. 659. A rather coarse erect herb of 1 to 2ft., when full grown, usually annual but with a hard base, sometimes probably biennial (or perhaps with a more persistent rhizome), more or less scabrous-hirsute with crisped hairs, and occasionally with white cottony wool on the under side of the leaves and about the inflorescences, rarely nearly or even quite glabrous. Leaves lanceolate, oblong or almost linear, irregularly and often acutely toothed, lobed or divided, sessile or petiolate, but almost always clasping the stem with toothed auricles. Flower-heads small, in a terminal corymb much more dense than in *E. quadridentata*. Involucre in the normal form about 3 lines long, of about 12 narrow bracts, often squarrose at the tips and surrounded by a few minute outer ones. Florets rather numerous, the females in 2 or more rows, with about 6 to 10 hermaphrodites in the centre. Achenes short, angular, shortly hirsute or glabrous.—Hook. f. *Fl. Tasm.* i. 219; *Senecio argutus*, A. Rich. *Fl. Nov. Zel.* 258, and *Sert. Astrol.* 104; *S. multicaulis*, A. Rich. *Sert. Astrol.* 105; *Erechtithes lacerata*, F. v. M. in *Linnæa*, xxv. 417; *Senecio Lessoni*, F. v. M. *Cat. Hort. Melb.* 1858, 26.

Hab.: Southern localities.

The species is also in New Zealand.

3. ***E. quadridentata*** (four teeth of corolla), *DC. Prod.* vi. 295; *Benth. Fl. Austr.* iii. 660. An erect herb more or less clothed with a white deciduous cottony wool, from 1 to above 2ft. high, with a perennial rhizome. Leaves linear, linear-lanceolate or very rarely oblong-lanceolate, the radical ones sometimes petiolate, the stem-leaves sessile, entire or with a few small distant teeth, the longer ones attaining 3 or 4in. with or without small stem-clasping auricles. Flower-heads slender in a terminal corymbose panicle usually loose but sometimes more crowded. Involucre narrow, about 4 lines long, of about 12 very narrow bracts. Female filiform florets 30 to 40 or more, the hermaphrodites in the centre few (not above 8). Achenes glabrous or papillose-pubescent, striate, usually slender and contracted at the top but very variable, from scarcely longer than in

E. arguta to nearly twice as long, the terminal contraction amounting to a distinct beak or scarcely perceptible.—Steetz in Pl. Preiss. i. 483; Hook. f. Fl. Tasm. i. 219; *Senecio quadridentatus*, Labill. Pl. Nov. Holl. ii. 48, t. 194; *S. tenuiflorus*, Sieb. Pl. Exs.; *E. tenuiflora*, DC. Prod. vi. 296; *E. incana*, Turcz. in Bull. Mosc. 1851, ii. 85.

Hab.: Moreton Bay to Keppel Bay.

73. GYNURA, Cass.

(Style-branches tailed.)

Involute of nearly equal bracts in a single row with a few small outer ones round their base. Receptacle without scales. Florets all tubular, hermaphrodite, 5-toothed. Anthers obtuse at the base. Style bulbous at the base, the branches ending in long linear hairy points. Achenes striate. Pappus of numerous capillary bristles.—Herbs, often somewhat succulent. Leaves alternate. Flower-heads terminal, solitary or loosely corymbose. Florets yellow.

A small genus, confined to the tropical and subtropical regions of the Old World, the only Australian species being the same as an Indian one.—Benth.

1. **G. pseudochina** (false China), DC. Prod. vi. 299; Benth. Fl. Austr. iii. 661. Rootstock perennial, thick and fleshy. Stems erect or ascending, 1 to 2ft. high, somewhat succulent, leafy in the lower part only, ending in a long almost leafless peduncle bearing either a single flower-head or a loose corymb of 2 to 7 or 8 heads. Leaves petiolate, obovate, ovate-oblong or lanceolate, coarsely toothed, rather thick, pubescent or nearly glabrous, 2 to 3 or even 4in. long, the petiole often expanded at the base into 2 auricles or lobes. Flower-heads about 7 lines long. Involute of about 12 narrow bracts with several short outer ones.—*G. ovalis*, DC. and other synonyms adduced in Benth. Fl. Hongk. 189; *Senecio drymophilus*, F. v. M. in Trans. Phil. Inst. Vict. ii. 69.

Hab.: Through the colony, often on damp coastal rocks.

The Himalayan *G. nepalensis*, DC., ought, however, perhaps to be added to the synonyms as a more pubescent variety, the Australian ones being in this respect intermediate between that and the typical form.—Benth.

74. EMILIA, Cass.

Heads homogamous discoid, florets hermaphrodite, orange or scarlet. Involute cylindrical or campanulate. Bracts 1-seriate, equal, without a calyculus. Receptacle naked. Anther-base unappendaged, style-branches terminating in an acute appendix. Achenes 5-angled or subterete. Pappus of copious fine, white, soft bristles.—Herbs with radical or alternate cauline leaves and loosely cymose or subsolitary pedunculate heads.

A small tropical genus, scarcely distinguishable from *Senecio*.

1. **E. sonchifolia** (Sonchus-leaved), DC. Prod. vi. 302. Glabrous or puberulous, somewhat glaucous annual, 1 to 3ft. high, erect or diffuse, more or less branched. Leaves lyrate or cordate-amplexicaul, more or less toothed, 1 to 4in. long, sessile or the lowest ones petiolate, the upper ones auriculate. Heads cylindrical, about $\frac{1}{2}$ in. long, on slender pedicels ranging up to 2in. long, in a rather lax cyme. Involucral bracts glabrous or puberulous, linear, acute, equalling the purple or orange-purple florets.—*Cacalia sonchifolia*, Linn. Sp. Pl. ed. i. 835; *E. purpurea*, Cass. Dict. xxxiv. p. 393, and F. v. M. Fragm. xii. 21.

Hab.: Thursday Island, Endeavour River, and other localities along the tropical coast.

75. **SENECIO**, Linn.

(From *senax*, an old man; in allusion to the bald receptacle and white hairy pappus.)

(*Centropappus*, Hook. f.)

Flower-heads homogamous and discoid or heterogamous and radiate. Involucre of nearly equal bracts apparently in a single row, linear or very rarely ovate, the margins often scarious and imbricate, with or rarely without a few small ones at the base passing into the bracts on the peduncles. Receptacle naked or pitted, the borders of the pits rarely toothed or produced into a few short scales. Florets of the ray when present female or rarely neuter, ligulate. Disk-florets tubular, hermaphrodite, 5-toothed. Anthers obtuse at the base, the upper portion of the filament often thickened. Style-branches truncate, usually bearing a tuft of minute hairs and very rarely a short obtuse appendage. Achenes striate or angular. Pappus of numerous simple scabrous or denticulate bristles. —Herbs or very rarely shrubs, glabrous-pubescent or clothed with cottony wool. Leaves alternate, entire or divided, often rather thick. Flower-heads terminal, solitary, corymbose or paniculate. Florets usually yellow, rarely purple or white.

The largest genus among *Compositæ*, and ranging nearly over the whole world, although the individual species are often very local.—*Benth.*

SERIES I. **Radiati**.—*Flower-heads radiate.*

Erect leafy annuals.

Flower-heads few, large. Involucres broadly campanulate. Ligulæ of the ray longer than the involucre.

Leaves entire. Involucral bracts united above the middle 1. *S. Gregorii*.

Leaves pinnatifid with toothed lobes. Involucral bracts united at the base only 2. *S. platylepis*.

Flower-heads small. Involucres cylindrical. Ligulæ of the ray very small and rolled back. Ray-florets 6 or more, very small, yellow. Disk-florets above 10 7. *S. brachyglossus*.

Flower-heads solitary. Involucral bracts woolly-tomentose 3. *S. Daltoni*.

Flower-heads, including the ray, rarely exceeding lin. diameter. Involucral bracts prominently 2-ribbed 4. *S. lautus*.

Leaves all distinctly petiolate, ovate-lanceolate, toothed but undivided 5. *S. amygdalifolius*.

Leaves stem-clasping, the lower ones toothed at the end, the upper ones entire, broadly cordate-auriculate 6. *S. velleioides*.

SERIES II. **Discoidi**.—*Flower-heads small, discoid. Involucres cylindrical.*

Herbaceous perennials, sometimes woody at the base, or almost shrubby.

Involucral bracts usually 8. Florets under 20.

Leaves oblong or lanceolate, sessile or petiolate, with a dilated stem-clasping base 8. *S. odoratus*.

Leaves linear or lanceolate, narrowed at the base or petiolate, without any or with very small auricles 9. *S. Cunninghamii*.

Leaves once or twice divided into long linear almost filiform segments 10. *S. anethifolius*.

Annuals. Slightly and loosely woolly. Leaves pinnatifid 11.**S. vulgaris*.

1. **S. Gregorii** (after Hon. A. C. Gregory), *F. r. M. in Pl. Greg., quoted Rep. Babb. Exped.* 14; *Benth. Fl. Austr.* iii. 663. Apparently an erect annual, under 1ft. high, slightly branched, glabrous and glaucous. Leaves sessile, linear or linear-lanceolate, entire, 1 to 8in. long. Peduncles dilated under the solitary rather large flower-head. Involucre campanulate, 3 to 4 lines or at length nearly ½in. long, of about 10 to 12 rather broad bracts, concrete nearly to the apex, without any small outer ones. Ray-florets about 10 to 12, the ligulæ long and spreading; disk-florets numerous, exceeding the involucre. Achenes striate, the more perfect ones 2½ lines long and densely hirsute, but some in the same heads often smaller and glabrous. Pappus at first short, but lengthening out to ¾in.

Hab.: Maranoa River, *Leichhardt*; towards Cooper's Creek.

The species differs from all other *Senecios* known to me, in the involucre with the bracts almost as closely connate as in *Werneria* and *Pariops*, but in other respects the characters are entirely those of *Senecio*.—*Benth.*

2. **S. platylepis** (scales broad), *DC. Prod.* vi. 371; *Benth. Fl. Austr.* iii. 664. An erect slightly branched annual of 1 to 2ft., glabrous or with a little loose wool. Leaves narrow, irregularly pinnatifid, with obtuse or acute coarsely-toothed lobes, the petioles often dilated and auriculate at the base. Flower-heads rather large, not numerous, in an irregular terminal leafy corymb, the peduncles dilated at the top. Involucre broadly campanulate, 4 to 5 lines long, the bracts rather broad, united at the base, without any or with 1 or 2 minute outer bracts. Ray-florets 12 to 20, the ligulæ long and spreading; disk-florets numerous. Achenes striate, pubescent or hirsute.

Hab.: Inland southern localities.

3. **S. Daltoni** (after J. D. Dalton), *F. v. M. Fragm.* vi. 27. A small branching or tall herb, slightly pubescent. Leaves not auriculate, lanceolate or linear-lanceolate, entire, the upper ones about 3in. long and $1\frac{1}{2}$ to 6 lines broad. Flower-heads solitary. Hypocephalous bracts $1\frac{1}{2}$ to 4 lines long. Involucre bracts 16 to 20 woolly-tomentose, 7 to 8 lines long, narrow, acute, the tubulose corollas slender, about 5 lines long. Anthers exserted; ligulæ about 12, scarcely 3 lines long and 1 line broad. Achenes glabrous. Pappus of numerous thin hairs.

Hab.: Darling and other southern downs.

4. **S. lautus** (elegant), *Forst. Prod.* 91; *Benth. Fl. Austr.* iii. 667. An erect glabrous perennial, from 1 to 3 or even 4ft. high. Leaves usually linear or linear-lanceolate, entire remotely toothed or deeply pinnatifid, rarely broadly lanceolate, either narrowed into a petiole or, especially when broad, dilated and auriculate or stem-clasping at the base. Flower-heads not very large, several in a loose terminal irregular corymb. Involucre campanulate, the bracts 3 to 4 lines long, more prominently 2-ribbed than in most Australian species, with several very small outer ones. Ray-florets about 10 to 15, the ligulæ spreading to from $\frac{3}{4}$ to 1in. diameter; disk-florets numerous, scarcely exceeding the involucre. Achenes glabrous or pubescent.—*Hook. f. Fl. Tasm.* i. 221; *S. tripartitus*, *A. Rich. Sert. Astrol.* 114; *DC. Prod.* 372; *S. crithmifolius*, *A. Rich. l.c.* 116; *DC. l.c.* 372; *Steetz in Pl. Preiss.* i. 485; *S. pinnatifolius*, *A. Rich. l.c.* 117; *S. cornulentus*, *DC. l.c.* 372; *Steetz in Preiss.* i. 484; *S. rupicola*, *A. Rich. l.c.* 119, t. 37; *DC. l.c.* 372; *S. Macquariensis*, *DC. l.c.* 372.

Hab.: Hervey's Bay, Sandy Cape, *R. Brown*; Suttor River and Moreton Island, *F. v. Mueller*; on the upper Maranoa, *Mitchell*.

5. **S. amygdalifolius** (Peach-leaved), *F. v. M. Fragm.* i. 232; *Benth. Fl. Austr.* iii. 668. A tall, erect, glabrous, branching shrub. Leaves petiolate, ovate-lanceolate to oblong-lanceolate, acute and acutely and coarsely serrate, 2 to 4in. long. Flower-heads large and few in a loose corymb or smaller and more densely corymbose. Involucre narrow-campanulate, the bracts narrow, 4 to 5 lines long, with few small outer ones. Receptacle pitted, with the edges of the pits occasionally produced into short teeth, or very rarely into a small scale. Ray-florets rarely above 6 and often only 3 or 4, rather long and spreading; disk-florets shortly exceeding the involucre. Achenes glabrous.

Hab.: North Coast Railway line.

6. **S. velleioides** (Velleia-like), *A. Cunn. in DC. Prod.* vi. 374; *Benth. Fl. Austr.* iii. 668. An erect glabrous perennial, attaining 3ft. or sometimes more. Leaves ovate-oblong or lanceolate, the lower ones shortly petiolate, the intermediate ones 2 to 4in. long, coarsely serrate, narrowed below the middle but sessile and stem-clasping with broad rounded auricles, the upper ones cordate-ovate or lanceolate, entire, broadly stem-clasping. Flower-heads not large and

often rather numerous, in a terminal corymb. Involucre campanulate, the bracts 3 to nearly 4 lines long, with a very few small outer ones. Ray-florets usually about 10 or rather fewer, spreading and rather long; disk-florets scarcely exceeding the involucre. Achenes glabrous or slightly pubescent.—Hook. f. *Fl. Tasm.* i. 223.

Hab.: Southern localities.

7. **S. brachyglossus** (short-tongued), *F. v. M. in Linnæa*, xxv. 525; *Benth. Fl. Austr.* iii. 669. A slender annual, 6in. to a foot or rarely 1½ft. high, glabrous or sprinkled with a few short white hairs. Leaves linear with a few small distant teeth or irregularly pinnatifid with few distant linear lobes. Flower-heads small, solitary or clustered at the ends of the branches of a loose irregular panicle. Involucre cylindrical, of about 8 bracts, about 2 lines long, with 1 or 2 minute outer ones. Ray-florets about 6, the ligulæ oblong but very short and rolled back. Disk-florets 10 to 12, slender, 5-toothed, scarcely exceeding the involucre. Achenes densely pubescent, those of the ray usually longer than those of the disk.—*Erechthites glossantha*, Sond. in *Linnæa*, xxv. 524.

Hab.: Inland, towards Cooper's Creek.

8. **S. odoratus** (scented), *Hornem.*; *DC. Prod.* vi. 371; *Benth. Fl. Austr.* iii. 671. A stout erect perennial of 2 to 3ft., glabrous or rarely with a loose white deciduous wool on the under side of the leaves. Leaves oblong or lanceolate, irregularly toothed, often narrowed below the middle and sometimes almost petiolate, but dilated and stem-clasping, with toothed auricles at the base, attaining 2 to 4in. in length, the upper ones and those of the side branches sometimes almost linear. Flower-heads small and numerous, in dense corymbs at the ends of the branches, forming usually a large corymbose panicle. Involucre cylindrical, rarely exceeding 2 lines, of about 8 bracts, with 1 or two small outer ones rarely wanting. Florets about 10 to 12, all tubular, considerably longer than the involucre when fully out. Achenes slightly pubescent, the pappus inserted on a callous ring more prominent than in the allied species.—*A. Rich. Sert. Astrol.* 109; Hook. f. *Fl. Tasm.* i. 223; *Cacalia odorata*, Desf. *Hort. Par.* 165 and 400, according to DC.

Hab.: Southern localities.

9. **S. Cunninghamii** (after Allan Cunningham), *DC. Prod.* vi. 371; *Benth. Fl. Austr.* iii. 671. Very near *S. odoratus*, of which it has the flower-heads and florets. It is however smaller and more woody at the base, the stems more branched, ascending or erect, often under 1ft. and rarely above 2ft. high. Leaves linear or lanceolate, entire or coarsely toothed, narrowed into a short petiole without any or only with very minute auricles at the base. Flower-heads usually fewer than in *S. odoratus*, in small corymbs.—*S. brachylæmus*, DC. *Prod.* vi. 370.

Hab.: Southern localities.

10. **S. anethifolius** (Fennel-leaved), *A. Cunn. in DC. Prod.* vi. 371; *Benth. Fl. Austr.* iii. 672. A glabrous branching shrub or undershrub, attaining 4 or 5ft.. Leaves crowded, pinnately divided into long narrow linear or almost filiform segments, either entire or again bearing a few equally narrow lobes. Flower-heads small, numerous, in a very compact corymb. Involucre cylindrical, above 2 to nearly 3 lines long, of about 8 bracts, without any or with 1 or 2 very small outer ones. Florets about 10 to 12, all tubular, longer than the involucre. Achenes glabrous or scabrous-pubescent.—*S. angustilobus*, *F. v. M. in Linnæa*, xxv. 418; *S. angustifolius*, Sond. l.c. 526.

Hab.: Southern localities.

11. ***S. vulgaris** (common), *Linn.*; *DC. Prod.* vi. 341; *Benth. Fl. Austr.* iii. 672. The common European Groundsel. An annual of 6in. to a foot, bearing a little loose cottony wool, with irregularly pinnatifid and toothed leaves, and small flower-heads with the florets all tubular and hermaphrodite, and involucre of about 20 bracts.

Hab.: This European weed has made its appearance in some of our southern gardens, having been introduced and grown for feeding small birds. By repeatedly coming up from self-sown seeds, the constitution of the plants have become changed; thus, in all probability the plant may, in a few years, become as common a garden weed in south Queensland as in Europe.

76. CYMBONOTUS, Cass.

(Book-like form of achenes.)

Involucre campanulate, at length hemispherical, the bracts imbricate in several rows, the inner ones broader. Receptacle pitted, the margins of the pits often produced into rigid points or deciduous scales. Florets of the ray ligulate, female; disk-florets tubular, hermaphrodite, sometimes sterile. Anthers shortly sagittate but scarcely tailed. Style-branches rather broad, less concrete than usual in the tribe but erect or scarcely spreading. Achenes oblong, glabrous, smooth on the inner face, with 3 or 5 prominent ribs on the back and sides. Pappus none.—Perennial with toothed or pinnatifid radical leaves and single-headed leafless scapes.

The genus is limited to a single species endemic in Australia.

1. **C. Lawsonianus** (after — Lawson), *Gaudich. in Freyc. Voy. Bot.* 462 t. 86; *Benth. Fl. Austr.* iii. 674. A perennial either stemless or with very short tufted stems. Leaves radical, spreading, on long petioles, ovate, coarsely toothed and 2 or 3in. long or longer and lyrate pinnatifid, thin, green and somewhat scabrous above, cottony-white underneath. Scapes or peduncles shorter than the leaves and sometimes very short, cottony-white as well as the involucre. Involucre at length about $\frac{1}{2}$ in. diameter. Ray-florets yellow, spreading; disk-florets shorter than the involucre.—*DC. Prod.* vi. 491; *Sond. in Linnæa*, xxv. 528; *Hook, f. Fl. Tasm.* i. 226; *C. Preissianus*, *Stetz in Pl. Preiss.* i. 486.

Hab.: Darling and other southern downs.

77. *CRYPTOSTEMMA, R. Br.

(Pappus-scales concealed in the wool of the achenes.)

Involucre broadly hemispherical, the bracts imbricate in several rows, the innermost row with much longer lanceolate membranous tips. Receptacle pitted, without bristles or scales. Florets of the ray ligulate, neuter; disk-florets short, hermaphrodite, tubular, 5-toothed. Anthers sagittate at the base but scarcely tailed. Style-branches thickened and concrete nearly to the end. Achenes of the ray abortive, of the disk oblong, densely enveloped in an intricate wool. Pappus of about 6 to 8 short lanceolate scales, concealed in the wool.—Perennial with radical or alternate leaves, pinnatifid or pinnately divided. Scapes or peduncles single-headed.

A South African genus. Very closely allied to *Arctotis*, scarcely differing except in the pappus.—*Benth.*

1. **C. calendulacea** (Calendula-like), *R. Br*; *DC. Prod.* vi. 495; *Benth. Fl. Austr.* iii. 675. A perennial usually tufted and almost stemless, the leafy prostrate stems sometimes however lengthening out especially under cultivation. Leaves 3 to 6in. long, deeply pinnatifid or pinnately divided into oblong or lanceolate acutely toothed or lobed segments, glabrous or scabrous above, cottony-white underneath. Scapes or peduncles leafless, 1-headed, glandular, rarely

exceeding the radical leaves and often shorter than them. Involucre 7 to 8 lines diameter, glabrous or slightly cottony. Ray-florets yellow, the ligula narrow, $\frac{1}{2}$ to lin. long. Disk purple.—Harv. and Sond. Fl. Cap. iii. 467; Steetz in Pl. Preiss. i. 487.

Hab.: This plant has made several attempts to establish itself in this colony, but hitherto without much success.

78. *CNICUS, Linn.

(A name applied by early botanists to Thistles.)

Heads homogamous. Florets hermaphrodite or diceious by abortion. Involucre ovoid or globose; bracts many-seriate, base often narrow, ending in sharp spines. Receptacle flat, convex or subconical, densely setose. Corolla slender, limb deeply 5-fid, the segments narrow. Filaments more or less papillose, very rarely glabrous. Anther-base sagittate. Style-branches linear, style below the branches usually bearing a pilose ring. Achenes glabrous, compressed or 4-angled, truncate or umbonate at the apex. Pappus-bristles many-seriate, rigid, plumose, united in a ring at the base.—Herbs with sessile or decurrent leaves, often pinnatifid, with spinose margins.

1. **C. lanceolatus** (leaves lanceolate), *Hoffm.* The common Thistle. Biennial 3 to 4ft. high, with large heads terminating somewhat leafy branchlets; cottony-tomentose when young, becoming green, more or less villose or hirsute. Leaves lanceolate, deeply pinnatifid and with lanceolate lobes, rigidly prickly; upper face strigose-setulose; base decurrent on the stem into interrupted prickly wings. Bracts of involucre arachnoid-tomentose, lanceolate and mostly attenuate into slender and rigid prickly-pointed spreading tips; florets rose-purple, hermaphrodite.—*Carduus lanceolatus*, Linn.; *Cirsium lanceolatum*, Scop.

Hab.: An European weed. One of the Plumed Thistles.

79. *SILYBUM, Gærtn.

(A name used by Greek writers for an unknown plant.)

Involucre subglobose; bracts many-seriate, broad and fimbriated with spines below, above terminating in a spreading rigid spine, inner lanceolate, erect, pungent. Receptacle flat, densely bristly. Filaments glabrous, united in a sheath below; anther-bases sagittate, auricles connate, mucronate or shortly tailed. Style subentire, ring below the hairs not prominent. Achenes glabrous, obovoid-oblong, compressed, basal areole straight; pappus hairs many-seriate, unequal, subpaleaceous, united at the base in a deciduous ring.—A tall spreading plant. Leaves alternate; sinuate-lobed, spinescent, marked with white. Heads large, solitary, terminal, nodding, homogamous. Florets all hermaphrodite, similar and fertile, purple, tube slender; limb dilated below, 5-fid.

1. **S. Marianum** (Virgin Mary's Thistle), *Gærtn.* Stem grooved, not winged. Leaves with strong spines. Heads 2in. diameter, base intruded. Involucral bracts coriaceous, with a spine $\frac{1}{2}$ to $\frac{3}{4}$ in. long, outermost mucronate. Receptacle fleshy; florets rose-purple. Achenes $\frac{1}{4}$ in. long, transversely wrinkled, black or grey; pappus white.—*Carduus Marianus*, Linn.

Hab.: This large showy European and N. African Thistle, which in some of the southern colonies has been troublesome, makes its appearance now and again in the southern parts of this colony, but so far has not spread to any great extent.

80. SAUSSUREA, DC.

(After Horace Benjamin Saussure.)

(*Aplotaxis*, DC.)

Involucre ovoid or campanulate, not longer than the florets, the bracts numerous, imbricate, not prickly, the inner ones the longest. Receptacle bearing bristles between the florets. Florets all tubular, regular with 5 narrow lobes. Anthers tailed. Style-branches linear, slightly thickened at the base. Achenes glabrous. Pappus of several plumose bristles united in a ring at the base, with a few outer simple or short bristles or scales, sometimes on one side only or very small, rarely wholly wanting.—Erect herbs. Leaves toothed or lobed or pinnately divided. Flower-heads rather large and solitary, or smaller and paniculate. Florets purplish.

A considerable genus, spread over the hilly regions of the northern hemisphere, chiefly in the Old World. The only Australian species is also in India and China.—*Benth.*

1. **S. carthamoides** (*Carthamus*-like), *Benth. Fl. Hongk.* 168 and *Fl. Austr.* iii. 456. An annual, with a rigid erect branching stem of 1 to 2ft., or sometimes more, sulcate and slightly cottony. Leaves deeply pinnatifid or lyrate, the lower lobes narrow, the terminal one broad, thin, green above, white and cottony underneath, 3 or 4in. long; the lower leaves sometimes ovate and nearly entire on long petioles, the uppermost few, with narrow lobes. Flower-heads few, on long peduncles. Involucre campanulate, 6 to 8 lines diameter, the numerous bracts linear-lanceolate, often very pointed but not pungent. Achenes striate, slightly curved. Outer pappus usually of several very short scales or bristles united in a minute oblique ring but very variable in size and number, sometimes very deciduous, leaving only the minute oblique ring, or very small from the first or entirely wanting.—*Serratula carthamoides*, Roxb. *Fl. Ind.* iii. 407; *Aplotaxis carthamoides*, Ham. in DC. *Prod.* vi. 540; *A. multicaulis*, DC. l.c., and in Deless. *l.c.* Pl. iv. t. 68; *A. foliosa*, Edgew. in *Trans. Linn. Soc.* xx. 77; *Haplotaxis australasica*, F. v. M. *Fragm.* i. 36.

Hab.: Dawson and Burnett Rivers, *F. v. Mueller*; Keppel Bay, *Thozet*.

81. CENTAUREA, Linn.

(After the Centaur Chiron.)

Involucre globular or ovoid, the bracts imbricate, numerous, usually ending either in a prickle or in a fringed or toothed appendage. Receptacle bearing numerous bristles between the florets. Florets all tubular and 5-lobed, the outer row often larger and neuter. Anthers tailed. Style-branches linear, often cohering, thickened at the base. Achenes glabrous, usually obliquely or laterally attached at the base. Pappus short, of simple bristles or scales, sometimes very short, or rarely wholly wanting.—Erect or prostrate herbs, usually rigid. Leaves alternate, entire or pinnatifid, rarely prickly. Flower-heads large and solitary, or smaller and paniculate. Florets purple-blue or yellow.

The species are very numerous in the Mediterranean and Caucasian regions of the northern hemisphere, with a very few American species, and some of the common ones spread with civilisation over various parts of the globe; one, if not two, are indigenous in Queensland.

- | | |
|---|-----------------------------|
| Involucral bracts, outer ones short with a nearly orbicular appendage, the innermost ones tapering narrow-linear tips | 1. <i>C. australis</i> . |
| Involucral bracts oblong, obtuse, cottony, tips broad with brown scarious toothed margins | 2. <i>C. cyanus</i> . |
| Involucral bracts rigid, the appendages of the outer ones small with short palmate spines, intermediate bracts with a rigid spine and short divaricate ones at the base, inner bracts with a short simple spine | 3. <i>C. melitensis</i> . |
| Involucral bracts with longer spines than the last, the inner ones with jagged scarious appendage without any spine | 4. <i>C. solstitialis</i> . |

1. **C. australis** (Australian), *Benth. and Hook. Gen. Pl.* A rigid erect herb, probably biennial, attaining 2ft. or rather more, simple or scarcely branched, with a little loose cottony wool. Leaves petiolate, oblong-lanceolate, either toothed only, or more or less deeply pinnatifid or pinnately divided, the lower ones 6in. long or more on long petioles, the upper ones few, small, and nearly sessile. Flower-heads solitary on a long terminal peduncle. Involucre ovoid, and 1½ to 2in. long when in flower, more globular when in fruit, the outer bracts short, with a nearly orbicular appendage, the inner ones gradually longer, the innermost as long as the florets, tapering into narrow-linear tips with scarcely any scarious appendage. Style-branches often remaining united to the end. Achenes smooth, slightly striate, crowned by a slightly projecting border under the pappus.—*Leuzea australis*, Gaudich. in Freyc. Voy. 462 t. 92; *Benth. Fl. Austr.* iii. 457.

Hab.: Condamine River and head of the Gwydir, *Leichhardt*; Dawson River, *F. v. Mueller*; common on southern downs.

2. ***C. cyanus** (blue), *Linn.* Cornflower or Corn-cockle. Annual or biennial, erect, slender, cottony. Leaves narrow; radical entire or lyrate-pinnatifid; cauline linear. Heads ovoid. Involucral bracts oblong, obtuse, cottony; tips broad with brown, scarious, toothed margins, which are decurrent on the sides of the bract; teeth triangular. Ray-florets large, spreading, often blue. Achenes grey, silky, longer than the middle row of pappus hairs.—*DC. Prod.* vi. 578; *Clarke Comp. Ind.* 242; *C. lanata*, *Roxb. Fl. Ind.* iii. 644.

Hab.: European. Met with as a stray from garden culture.

3. **C. melitensis** (Maltese), *Linn.*; *DC. Prod.* vi. 593; *Benth. Fl. Austr.* iii. 458. Star Thistle. An erect rigid annual of 1 to 2ft., with a little white cottony wool, or nearly glabrous. Radical leaves pinnately divided; stem-leaves narrow, decurrent, entire or slightly toothed. Flower-heads terminal, sessile above the last leaves, solitary or 2 or 3 in a cluster. Involucre above ½in. long, the bracts rigid, the appendage of the outer ones small with short palmate spines, of the intermediate ones consisting of a rigid spine spreading to from 2 to 4 lines, with short divaricate spines at the base, the inner ones tapering into a very short simple spine. Florets yellow. Pappus of several series of bristles, the outer ones short, the intermediate gradually longer, the innermost row very short.—*C. apula*, *Lam.*; *DC. l.c.*

Hab.: A native of the Mediterranean region, now spread over cultivated and waste places in many of the warmer regions both of the New and the Old World, especially near the sea.

4. ***C. solstitialis** (flowering at midday), *Linn.* An annual with the habit, foliage and yellow florets of *C. melitensis*, but with a much longer and stouter spine to the intermediate involucral bracts, whilst the inner ones have a jagged scarious appendage without any spine.

Hab.: European. Met with now and again on rubbish-heaps in Brisbane.

82. MICROSERIS, Don.

(Greek; small lettuce.)

(*Monermios*, *Hook. f.*; *Phyllopappus*, *Walp.*)

Involucre of several nearly equal bracts in about 2 rows with a few short imbricate ones outside. Receptacle without scales. Florets all ligulate. Achenes cylindrical with smooth longitudinal ribs, not beaked. Pappus of linear

chaffy flat scales into about 2 rows, tapering into simple or shortly plumose bristles.—Herbs with usually pinnatifid leaves. Scapes leafless, single-headed. Florets yellow.

Besides the Australian species, which extends to New Zealand, there is a closely allied one from extratropical S. America.—*Benth.*

1. **M. Forsteri** (after G. Forster), *Hook. f. Fl. Nov. Zel.* i. 151 and *Fl. Tasm.* i. 226 t. 66; *Benth. Fl. Austr.* iii. 676. A glabrous perennial with fleshy roots thickened into tubers and a milky juice. Leaves radical, attaining 8 to 10 in. in luxuriant specimens, but often not half so long, narrow-lanceolate or linear, entire or pinnatifid with short distant lobes. Scapes exceeding the leaves. Involucre 6 to 8 lines long in most Australian specimens. Florets exceeding the involucre. Pappus-bristles or scales in the commonest form not much dilated in the lower part and only very minutely serrulate.—*Scorzonera scapigera*, Forst. *Prod.* 91; *Scorzonera (Monermios) Lawrencii*, Hook. f. in *Hook. Lond. Journ.* vi. 124; *Phyllopappus lanceolatus*, Walp. in *Linnæa*, xiv. 507; *Sond.* in *Linnæa*, xxv. 529.

Hab.: Stanthorpe and a few other southern localities.

The aborigines of South Australia used the tubers for food. In a raw state, these tubers were, I remember, of a nice sweet flavour.

83. PICRIS, Linn.

(Juice bitter.)

Involucre of several nearly equal erect inner bracts, with 2 or 3 rows of smaller outer ones, usually spreading. Receptacle without scales. Florets all ligulate. Achenes transversely striate or muricate, not at all or very shortly beaked. Pappus of whitish fine bristles, of which the inner ones at least are plumose.—Coarse hispid annuals. Leaves alternate, toothed. Flower-heads in a loose irregular corymb. Florets yellow.

A genus containing but few species, natives of the temperate and subtropical regions of the northern hemisphere in the Old World, one of which is also the Australian one, and is found as an introduced plant in other parts of the world.—*Benth.*

1. **P. hieracioides** (Hieracium or Hawkweed-like), *Linn.*; *DC. Prod.* vii. 128; *Benth. Fl. Austr.* iii. 678. A biennial from 1 to 2 or 3 ft. high, covered with short rough hairs, most of which are minutely hooked so as to cling to whatever they come in contact with, but rather less so in some of the Australian than in the northern specimens. Leaves lanceolate or, especially in Australian specimens, linear, the lower ones tapering into a petiole, and often 6 in. long or more, the upper ones few and small. Peduncles rather long and stiff, the upper ones sometimes irregularly umbellate. Involucre from under $\frac{1}{2}$ to nearly $\frac{3}{4}$ in. long. Achenes very strongly transversely striate or muricate, usually contracted under the pappus or tapering into a very short beak. Pappus-bristles usually very plumose, except a few of the outer ones of each achene.—*Hook. f. Fl. Tasm.* i. 227; *P. angustifolia*, *DC. Prod.* vii. 130; *Sond.* in *Linnæa*, xxv. 529; *P. attenuata*, *A. Cunn.* in *Ann. Nat. Hist.* ii. 125; *P. barbarorum*, *Lindl.* in *Mitch. Three Exped.* ii. 149, and in *Bot. Reg.* 1838, Misc. 58; *P. asperrima*, *Lindl.* in *Bot. Reg.* 1838, Misc. 58; *P. hamulosa*, *Wall.*; *DC. Prod.* vii. 129.

Hab.: Shoalwater Bay, *R. Brown*; Moreton Island, *M'Gillivray*; Rockhampton, *Dallachy*; very common in southern localities.

Var. squarrosa. More hispid, with larger flower-heads and more numerous recurved outer involucre bracts.—*P. squarrosa*, *Steetz* in *Pl. Preiss.* i. 488; *Sond.* in *Linnæa*, xxv. 529.

The species is very common in the northern hemisphere in the Old World, and has much spread with cultivation in other countries. This variety is truly indigenous in South Australia, and, from all appearance, also in southern Queensland.

84. **CREPIS**, Linn.

(One of Pliny's names.)

(*Youngia*, DC.)

Involucre of a single row of nearly equal bracts, with a few small outer ones. Receptacle without scales. Florets all ligulate. Achenes oblong, cylindrical or scarcely flattened, striate, tapering at the top, but without a distinct beak. Pappus of numerous fine white soft simple bristles.—Annual or perennial herbs, usually branched. Leaves alternate or radical, mostly toothed or lobed. Flower-heads in loose irregular corymbs or panicles. Florets yellow.

A large genus, widely distributed over the temperate regions of the northern hemisphere, with a few subtropical species, the only Australian one extending into tropical and Eastern Asia.—*Benth.*

1. **C. japonica** (of Japan), *Benth. Fl. Hough.* 194 and *Fl. Austr.* iii. 678. An erect slender annual, 6in. to near 1ft. high, glabrous or slightly pubescent or hairy near the base. Leaves mostly radical, petiolate, varying from obovate, nearly entire and 1 to 2in. long, to lyrate or pinnatifid, 2 to 4in. long, with a large terminal toothed lobe. Stem-leaves few or in the Australian specimens usually none. Panicle slender, loosely corymbose. Flower-heads small, numerous. Involucres about 2½ lines long, containing 10 to 15 small yellow florets.—*Prenanthes japonica*, Linn.; *Youngia japonica*, DC. *Prod.* vii. 194, also *Y. Thunbergiana*, and some others of DC. See A. Gray in *Mem. Amer. Acad.* vi. 396.

Hab.: Shoalwater Bay, *R. Brown*; Dawson River, *F. v. Mueller*; Dunk Island, *M'Gillivray*; Rockhampton, *Thozet, Dallachy*. A common plant of wet land.

The species is common in India, and extends on the one hand to Ceylon and the Mauritius, and on the other to China and Japan.—*Benth.*

85. **HYPOCHERIS**, Linn.

(Plant eaten by pigs.)

(*Cycnosseris*, *Endl.*)

Involucre broad or narrow, often elongated after flowering, the bracts imbricate. Receptacles with a few linear chaffy scales between the florets. Florets all ligulate. Achenes usually striate, all or the inner ones only tapering into a slender beak bearing a pappus of plumose bristles.—Annuals or perennials. Leaves radical. Stems simple or with a few long branches, leafless or nearly so. Florets yellow.

The genus is spread over the northern hemisphere, extending also to extratropical South America. The 2 Australian species are found nearly over the whole range of the genus.—*Benth.*

Plant glabrous	1. <i>H. glabra</i> .
Plant hispid	2. <i>H. radicata</i> .

1. **H. glabra** (smooth), *Linn.*; *DC. Prod.* vii. 90; *Benth. Fl. Austr.* iii. 677. A glabrous annual. Leaves all radical, narrow, spreading, more or less toothed or pinnately lobed. Stems 6in. to 1ft. high, usually divided into a few slender branches, leafless except small scales at the base of the branches. Flower-heads solitary at the ends of the branches. Involucre cylindrical, at first small, but lengthening out to from ½ to ¾in. when in fruit, of a few imbricated bracts, the outer ones short and appressed. Achenes striate and transversely pitted, the pappus of the outer ones sessile, that of the others borne on a long beak terminating the achene.—*Steetz* in *Pl. Preiss.* i. 488; *Cycnosseris australis*, *Endl.* in *Bot. Zeit.* 1843, 459.

Hab.: Common on wet land in the south.

2. **H. radicata** (long-rooted), *Linn.*; *DC. Prod.* vii. 91. A perennial resembling *H. glabra*, but taller, with larger flower-heads, the leaves hispid, and all the achenes terminating in a slender beak bearing the pappus.

Hab.: A common European species, perhaps introduced; southern localities.

86. *TARAXACUM, Hall.

(*Tarasso*, to disturb; from its supposed effect upon the blood.)

Involucre campanulate or oblong; bracts herbaceous, innermost 1-seriate, erect, subequal, sometimes connate below, unchanged after flowering, outer shorter, many-seriate, often recurved; receptacle flat, naked. Achenes oblong, obovoid or narrow, 4 to 5 angled, or the outer dorsally compressed, beaked, glabrous, 10-ribbed, ribs often muricate or echinate above, beak often very long and slender; pappus copious, hairs simple, slender, unequal. Scapigerous milky herbs. Leaves radical, entire, sinuate or runcinate-pinnatifid. Heads solitary on leafless scapes, yellow, homogamous; florets all ligulate.

The plants of this genus are few and found in temperate and cold regions.

1. **T. officinale** (used as a drug), *Wigg.*; *Boiss. Fl. Orient.* iii. 787; *Hook. Fl. Brit. Ind.* iii. 401. The European Dandelion. Plant glabrous or the crown and scape woolly, root vertical. Leaves sessile oblanceolate or linear, entire toothed, pinnatifid or runcinate, lobes acute more or less denticulate. Heads solitary, the inner involucre bracts linear, often thickened or clawed at the tips, outer ones ovate or linear-appressed or the outer ones reflexed. Achenes narrowly obovoid ribbed; ribs muricate or echinate above the middle, suddenly contracted into a very slender beak equalling or exceeding the body.—*T. Densleonis*, *Desf.*

Hab.: Toowoomba swamps; Darling Downs.

The roots of this plant are used in medicine.

87. *LACTUCA, Linn.

(The name is derived from *lac*, milk; referring to its milky juice.)

Heads of numerous yellow florets, all ligulate and fertile. Involucre campanulate; bracts herbaceous, 2 to 3-serial, imbricate. Receptacle flat, naked. Anthers sagittate at the base, not tailed. Style-branches terete. Achenes broad, glabrous, flattened, with a distinct beak and a long pappus of copious, soft, fine, simple hairs.—Herbs, with milky juice, alternate often compound leaves, and numerous heads in loose panicles.

A considerable genus, widely spread over the Old World and North America.

1. ***L. Scariola** (old generic name), *Linn.*; *Boiss. Fl. Orient.* iii. 800. Prickly Lettuce. An erect stiff annual or biennial, 2 to 5ft. high, of a more or less glaucous green, with short but spreading branches, and quite glabrous except a few stiff bristles or small prickles on the edges or on the midrib of the leaves. Leaves more or less spreading, varying from lanceolate to broadly oblong, either bordered only with small teeth or with a few short lobes or coarse teeth usually curved downwards, or deeply pinnatifid with narrow lobes; the upper ones narrow, more entire, and clasping the stem with pointed auricles. Flower-heads in a more or less leafy panicle, sometimes long and narrow, sometimes more branched and spreading. Involucres 4 or 5 lines long, of a few imbricate bracts, the short, broad, outer ones passing gradually into the inner long narrow ones. Florets

6 to 10 or 12, of a pale-yellow. Achenes much flattened, obovate-oblong, striated, varying in colour from white to nearly black, with a slender beak about the length of the achene.—*Benth.* in *British Flora* i. 485.

Hab.: This European weed has become naturalised in cultivated fields, and a few years ago, at Rosewood, was considered injurious to stock.

The milky juice, when inspissated, has been used as a substitute for opium.—*Lindley*.

88. SONCHUS, Linn.

(Stems hollow.)

Involucre ovoid, with imbricate bracts, and usually becoming conical after flowering. Receptacle without scales. Florets all ligulate. Achenes flattened and striate, not beaked. Pappus of numerous fine bristles, usually soft and white.—Herbs either annual or in species not Australian perennial or shrubby. Leaves alternate, usually toothed or lobed. Flower-heads small or large in loose corymbs or panicles. Florets yellow or (in species sometimes separated from the genus) blue.

A considerable genus, ranging over the temperate regions of the northern hemisphere, the Australian species extending over the whole range of the genus, and introduced into almost every part of the world.—*Benth.*

Annual. Leaves usually bordered by irregular acute or prickly teeth . . . 1. *S. oleraceus*.
Perennial. Leaves quite entire, or sparingly toothed 2. *S. maritimus*.

1. ***S. oleraceus*** (an esculent pot herb), *Linn. Spec.* 1116; *Benth. Fl. Austr.* iii. 679. An erect annual, with a hollow stem, 1 to 3 or even 4ft high. Leaves thin, bordered by irregular acute or prickly teeth, otherwise either undivided or pinnatifid with a broad heartshaped or triangular terminal lobe, the upper ones narrow and clasping the stem with short auricles. Flower-heads in a short corymbose terminal panicle, sometimes almost umbellate. Florets of a pale yellow.—*Steetz* in *Pl. Preiss.* i. 489; *S. asper*, *Fuchs.*; *Hook. f. Fl. Tasm.* i. 227; *Steetz* in *Pl. Preiss.* i. 489; *S. ciliatus*, *Lam.*, and *S. fallax*, *Wallr.*, *DC. Prod.* vii. 185.

Hab.: A common weed throughout the colony.

Mr. Bentham correctly mentions, *Fl. Austr.* iii. 680, that there are 2 marked varieties in Australia of this species (those met with in Queensland); in the one (*S. asper*) the ribs of the achenes are perfectly smooth, in the other (for which the name of *S. oleraceus* is more specially retained) they are marked with transverse asperities.

2. ***S. maritimus*** (coastal), *Linn.*; *Boiss. Fl. Orient* iii. 797; *Hook. Fl. Brit. Ind.* iii. 414. A glaucous glabrous perennial with creeping rootstock. Stem-branching above. Leaves linear-oblong, quite entire, or sparingly sinuate-toothed, the stem ones $\frac{1}{2}$ -amplexicaul, with acute auricles. Heads few, peduncled, glabrous. Achenes ellipsoid, subcompressed, margins thickened faces with a thick midrib and 2 more slender lateral ones.—*S. arvensis*, var. in *Clarke Comp. Ind.* 276.

Hab.: Islands of Moreton Bay.

89. *TRAGOPOGON, Linn.

(Goat's beard.)

Involucre cylindric or narrowly campanulate. Bracts 1-seriate, longer or shorter than the florets, herbaceous, acuminate, sometimes connate at the base, no outer ones. Receptacle flat or convex, pitted, margins of the pits often cartilaginous. Achenes slender, terete, 5-angled, 5 to 10-ribbed, ribs smooth or muricate, basal areole broad concave, inner usually with a slender beak. Pappus hairs numerous, 1-seriate, feathery, connate into a basal ring, 5 to 10 longer

than the rest with simple (not feathery) tips; those of the outer achenes often fewer, subpaleaceous, free at the base, simple or feathery below.—Biennial or perennial milky herbs. Leaves alternate, stem-clasping, narrow, quite entire. Heads terminal, long-peduncled, large homogamous, yellow, blue or purple. Florets all ligulate.

Plants of Europe, N. Africa, temperate and subtropical Asia.

1. **T. porrifolium** (Leek-leaved), *Linn.* Salsify. A glabrous biennial or perennial of 1 to 2ft. with a taproot. Radical and lower leaves long and grass-like, entire, shortly dilated and sheathing at the base, the upper ones shorter and broader. Peduncles long, thickened at the summit, each with a single head of purple florets. Involucre of 8 to 12 nearly equal bracts, longer than the florets. Achenes muricate, narrowed into a long beak, bearing a pappus of feathery bristles.

Hab.: Darling Downs; abundant along the railway between Toowoomba and Warwick. An European species.

ORDER LXVI. STYLIDIÆ.

Calyx-tube adnate to the ovary, the limb of 5 divisions, all free or less united in 2 lips, the upper one consisting of 3, the lower of 2. Corolla usually irregular, deeply divided into 5 lobes, of which one (the lowest), called the *labellum*, much smaller or very different from the others, or rarely the corolla as well as the calyx regularly 5 or 6-lobed. Stamens 2, the filaments connate with the style in a column from the corolla; anthers sessile at the top of the column, 2-celled, the cells at length divaricate. Style or stigma terminal, entire or 2-lobed, concealed between the anthers or protruding from them. Ovary 2-celled or 1-celled except quite at the base, with many ovules attached to the centre of the dissepiment, surmounted frequently by 1 or 2 glands at the base of the style. Capsule opening from the top downwards in 2 valves parallel to the dissepiment. Seeds numerous or rarely solitary by abortion, very small, with a minute embryo in a fleshy albumen.—Herbs or rarely undershrubs. Leaves radical or scattered or collected in whorl-like tufts. Flowers hermaphrodite or very rarely unisexual, in terminal racemes or thryoid or corymbose panicles, rarely reduced to spikes or to single flowers, the primary inflorescence usually centripetal, the secondary often or sometimes the whole inflorescence centrifugal.

A small Order, chiefly Australian, a very few species being found in tropical Asia, or in New Zealand and Antarctic America. The Order is very nearly allied to *Campanulacæ*, and some species have quite the habit of some *Lobelias*, but they constantly differ in the close union of the filaments with the style.—*Benth.*

1. STYLIDIUM, Swartz.

(From *stylos*, a column; the filaments and style connate in a column.)

(*Forsteropsis*, *Sond.*)

Calyx-lobes 5, often more or less united in 2 lips. Corolla irregular, 1 of the lobes or labellum much smaller and turned down or rarely nearly as long and curved upwards, the other 4 ascending in pairs. Column elongated and bent down or folded, elastic in most of the species if not in all. Stigma undivided. Ovary 2-celled.—Habit and foliage those of the Order. Flowers in racemes, panicles or corymbose cymes on terminal peduncles or radical scapes.

A genus comprising nearly the whole Order, and almost entirely Australian. The majority of the species form a rosette or spreading tuft of radical leaves, from the midst of which springs the scape. Sometimes the following year the new leaves and scapes are close upon the old ones, forming a dense tufted stock, the bases of the leaves sometimes assuming a bulbous appearance; in others, one or two short stems are formed above the old tuft, each crowned by a new

rosette and scape, and sometimes several successive tufts of leaves, separated by short stems or branches, may be observed ; these are termed *proliferous* stems or branches, and occasionally emit adventitious roots from several of the lower tufts. In a few species the leaves are all, or only the small upper ones, in almost regular whorls ; and in a few others they are alternate or scattered without forming tufts. The inflorescence in different species shows every gradation, from the simple raceme or raceme-like panicle to the corymb or to the dichotomous cyme with sessile or pedicellate flowers in the forks. The precise form of the corolla, the direction of its lobes in the expanded flower, and the small scales or glandular appendages in the throat or at the base of the labellum may be constant in many cases, and might serve for good specific characters ; but these parts are so delicate that there is great uncertainty in describing them from dried specimens. Different botanists have described them differently in the same species, and I have myself found considerable discrepancies in this respect in different flowers even of the same specimens ; the characters founded on them must therefore not be absolutely relied on. The colour of the flower is also said to be constant in some species, and has been made use of as a specific character since the time of Brown ; but it appears to be variable in other species, and in most cases it is either unknown, or only given in vague and often contradictory notes of collectors.—*Benth.*

SECT. I. **Tolypangium.**—*Capsule globular-ovoid, obovoid or oblong.*

SERIES I. **Lineares.**—*Perennials with a tufted or shortly proliferous stock or rarely annuals. Leaves radical, linear or rarely linear-lanceolate. Scapes leafless except a few scattered bracts. Inflorescence racemose, paniculate or corymbose.*

Calyx-lobes united in 2 lips. Inflorescence nearly simple, long and narrow.

Leaves linear or linear-lanceolate, 2 to 9in. long. Fruit ovoid-oblong 1. *S. graminifolium.*

Leaves linear-subulate, under 2in. long. Fruit narrow-oblong.

Flowers small 2. *S. lineare.*

Calyx-lobes free. Inflorescence corymbose-paniculate. Capsule ovoid or oblong, 1 to 1½ line long. Annual. Leaves linear-filiform . . . 3. *S. Floodii.*

SERIES II. **Spathulatæ.**—*Perennials with a tufted or proliferous stock or rarely annuals. Leaves radical or terminal, from linear-spathulate to obovate. Scapes leafless except a few scattered bracts.*

Leaves usually thin.

Stock thick and woolly. Leaves pubescent, with a hair-like point.

Panicle narrow-thyrsoid 4. *S. eriorhizum.*

Annuals or with a slender stem below the terminal tuft of leaves.

Raceme long and simple 5. *S. debile.*

Panicle loose.

Scape with long, spreading, glandless hairs 6. *S. floribundum.*

Scape glabrous or with short, glandular hairs 7. *S. leptorhizum.*

SERIES III. **Sparsifoliæ.**—*Undershrubs or shrubs, with linear spreading leaves scattered along the branches and not collected in radical or terminal tufts.*

Petioles without adnate bases 8. *S. laricifolium.*

SECT. II. **Nitrangium.**—*Capsule linear or very narrow-oblong.*

SERIES IV. **Tenellæ.**—*Slender annuals. Leaves small or thin, alternate or scattered, the lower ones sometimes more crowded but not distinctly tufted or rosulate.*

Leaves linear, chiefly in the lower part of the stem. Bracts very small.

Flowers sessile. Stems very slender or diffuse. Capsule ½in. long, not beaked 9. *S. diffusum.*

Leaves in verticillate clusters at the ends of the branchlets. Terminal umbels sessile. Pedicels capillary. Capsule about ½in. long, filiform-cylindrical 10. *S. trichopodium.*

Leaves scattered along the stem, contracted at the base, the lower ones not larger, the upper ones passing into the bracts. Floral-leaves or bracts opposite. Capsule sessile 11. *S. alsinoides.*

SERIES V. **Gorymbulosæ.**—*Slender annuals or small perennials. Leaves radical, rosulate or tufted. Scapes rarely exceeding 6in. Flowers corymbose or sessile in the forks or along the scape or its branches, or solitary.*

Leaves radical, very small, oblong-linear or spatulate, not forming a bulb. Flowers 1 or 2. Capsule very narrow-linear 12. *S. capillare.*

Leaves radical, not forming a bulb, the lamina thin, obovate-orbicular.

Flowers in a loose, irregularly corymbose panicle. Capsule narrow-linear. Calyx-lips undivided, short and broad. Corolla-lobes nearly equal 13. *S. rotundifolium.*

Flowers sessile along the scape or its branches. Capsule shortly linear 14. *S. uliginosum*.
 Stem shortly developed below the terminal tuft of leaves and peduncles.
 Leaves linear-subulate. Peduncles 1-flowered 15. *S. pedunculatum*.

SERIES VI. **Thyrsoformes**.—Perennials with a tufted or proliferous-branched stock or stem, with radical or terminal tufts of leaves. Flowers in an oblong or elongated thyrsoïd panicle or raceme.

Stock or stem proliferous-branched. Leaves narrow-linear. Inflorescence narrow-racemose. Branches of the stem slender. Leaf-tufts woolly at the base. 16. *S. eglandulosum*.

1. **S. graminifolium** (Grass-leaved), *Swartz.; DC. Prod.* vii. 333; *Benth. Fl. Austr.* iv. 10. Glabrous or nearly so, except the glandular-pubescent inflorescence. Stock tufted or shortly proliferous, rarely lengthening to 4 or 5 in. Leaves linear, rather rigid, acute or obtuse, nearly flat, varying much in breadth, the margins entire or with minute, cartilaginous, dilated and more or less scarious at the base, sometimes not exceeding 2 in., in luxuriant specimens 6 to 9 in. long. Scapes from $\frac{1}{2}$ to 1½ ft., the upper $\frac{1}{4}$ to $\frac{1}{3}$ occupied by a narrow, simple raceme or interrupted spike. Bracts small. Flowers nearly sessile or shortly pedicellate. Calyx 3 or 4 lines long, the lobes broad and obtuse, united nearly to the top into two lips. Corolla-lobes nearly equal, the labellum rather long, obtuse, the appendages variable. Capsule ovoid-oblong, $\frac{1}{4}$ to nearly $\frac{1}{2}$ in. long.—*R. Br. Prod.* 568; *Labill. Pl. Nov. Holl.* ii. 65 t. 215; *Hook. f. Fl. Tasm.* i. 235; *Bot. Reg.* t. 90; *Mag.* t. 1918; *Candollea serrulata*, *Labill. in Ann. Mus. Par.* vi. 454 t. 64; *Stylidium serrulatum*, *Rich. in Pers. Syn.* ii. 210; *Ventenatia major*, *Sm. Exot. Bot.* ii. 13. t. 66; *S. canaliculatum*, *Poir. Dict. Suppl.* v. 412.

Hab.: Very abundant in southern localities.

Var. *album*. Flowers pure white. Hab.: *Cleveland, W. R. Kefferd.*

2. **S. lineare** (leaves linear), *Swartz.; DC. Prod.* vii. 333; *Benth. Fl. Austr.* iv. 11. Glabrous, except the inflorescence, like *S. graminifolium*, and resembles that species in its linear leaves, dilated towards the base, racemose inflorescence and undivided calyx-lips, but it is a smaller species, the leaves very narrow, acute, usually incurved, not exceeding 2 in. and often much shorter. Scapes slender, the raceme 2 to 4 in. long, and much looser than in *S. graminifolium*. Flowers smaller, on pedicels of 1 to 2 lines, the calyx-tube linear, and the ripe capsule much narrower than in that species.—*R. Br. Prod.* 568; *Ventenatia minor*, *Sm. Exot. Bot.* ii. 15. t. 67; *S. planifolium*, *Poir. Dict. Suppl.* v. 412.

Hab.: *Fraser's Island, W. Hill.*

3. **S. Floodii** (after J. Flood), *F. v. M. Fragm.* i. 149; *Benth. Fl. Austr.* iv. 13. A slender annual sometimes shortly proliferous at the base. Leaves all radical or in a second tuft at the end of the short stem, very narrow-linear, almost filiform, obtuse or acute, $\frac{1}{2}$ to 1 in. long, glabrous or sprinkled with a few hairs. Scapes or peduncles usually several, leafless, slender, 3 to 6 in. high, usually sprinkled with a few hairs at the base, the inflorescence glandular-pubescent. Flowers very small, in loose, more or less corymbose panicles, all pedicellate. Calyx a little more than 1 line long, the lobes short and obtuse, free or the 2 lower ones united. Corolla pink, the tube longer than the calyx-lobes, the lobes unequal, the throat with or without small appendages, the labellum without any. Capsule ovoid, 1 to 1½ line long.

Hab.: *Gilbert and Norman Rivers, Thos. Gulliver; sources of Cape River, Bowman; near Croydon, R. C. Burton; Musgrave, Cape York Peninsula, T. Barclay-Millar.*

4. **S. eriorhizum** (woolly at the base), *R. Br. Prod.* 569; *Benth. Fl. Austr.* iv. 15. Stock tufted, the base of the leaves when old enveloped in a short, dense wool. Leaves all radical, from obovate to narrow-spathulate, from 1 to 2 or

rarely near 8in. long, rounded at the end, but with a fine, sometimes hair-like point, edged with a short, woolly pubescence, otherwise glabrous or sprinkled with a few short glandular hairs. Scapes glandular-pubescent, 4 to 8in. high, the greater part occupied by a loose but narrow panicle. Calyx-lobes cohering at the base into 2 lips. Corolla small, pink or nearly white; the labellum convex with very short appendages, the throat without any. Capsule narrow-ovoid.—DC. Prod. vii. 334; F. v. M. Fragm. i. 147.

Hab.: Shoalwater Bay, *R. Brown*; Suttor River, *F. v. Mueller*; Rockingham Bay, *Dallachy*; Broadsound, Connor and Isaac Rivers, *Bowman*; Dogwood Creek, *Leichhardt*; Rockhampton, *P. O'Shanesy*; Aramac, *C. W. de Burgh-Birch*.

5. **S. debile** (weak), *F. v. M. Fragm.* i. 149; *Benth. Fl. Austr.* iv. 15. Glabrous or with a very slight glandular pubescence on the inflorescence, and apparently annual or perhaps with a very slender rootstock. Stems slender, often 4 or 5in. long, bearing a few leaves between the terminal tuft or rosette. Leaves obovate oblanceolate or spatulate, mucronate-acute, $\frac{1}{2}$ to 1in. long, including the petiole, usually thin. Scape filiform, from a few in. to 1 $\frac{1}{4}$ ft. long, the greater part occupied by a slender raceme, quite simple, or the lower peduncles rarely 2-flowered, the pedicels all short, with 1 or 2 bracts. Calyx-lobes short and very obtuse, the 2 lower ones often united. Corolla-lobes unequal, undivided, without appendages to the throat but with small ones to the labellum. Capsule narrow-oblong, about 4 lines long.

Hab.: Brisbane River, Moreton Bay, *F. v. Mueller*; Port Curtis, *M'Gillivray*; Fraser's Island, *Hon. Miss Lovell*; Bundaberg, *J. Keys*; Stanthorpe, *Davidson*.

6. **S. floribundum** (free-flowering), *R. Br. Prod.* 569; *Benth. Fl. Austr.* iv. 15. Apparently annual. Leaves radical, rosulate, petiolate, oblong oblanceolate or spatulate, acute or obtuse, $\frac{3}{4}$ to 1 $\frac{1}{2}$ in. long, thin and glabrous. Scape filiform, $\frac{1}{2}$ to 1ft. long, clothed with long spreading glandless hairs, nearly simple or paniculately branched; leafless except the minute hairs. Flowers small, on slender pedicels. Calyx scarcely 2 lines long, the lobes free, narrow and very small. Corolla scarcely twice as long as the calyx-lobes; the labellum with 2 small appendages, but none to the throat. Capsule oblong-clavate, 2 lines long.—DC. Prod. vii. 334; F. v. M. Fragm. i. 148.

Hab.: Islands of the Gulf of Carpentaria, *R. Brown*.

7. **S. leptorhizum** (slender-rooted), *F. v. M. Fragm.* i. 148; *Benth. Fl. Austr.* iv. 16. Apparently annual, but the slender stem sometimes 1 to 3in. long, bearing a few leaves below the terminal tuft or rosette, quite glabrous as well as the leaves, or sprinkled with a few short glandular hairs. Leaves rosulate, from oblanceolate to obovate or spatulate, obtuse or mucronate-acute, thin and membranous, often almost glaucous, $\frac{1}{2}$ to 1 or nearly 2in. long, including the petiole. Scape slender, leafless, except the minute bracts, from 2 or 3in. to 1 $\frac{1}{4}$ ft. long, glabrous or glandular-hairy. Flowers small, in a slender, very loosely-branched panicle or raceme along its branches, with or without one in the fork, all on rather long slender pedicels without bracteoles. Calyx-lobes free, narrow and small. Corolla-lobes unequal (the two uppermost more united?), the labellum with two appendages, but none to the throat, or, according to *F. v. Mueller*, the appendages to the throat and not to the labellum. Capsule oblong-clavate, 2 lines long.—*S. semipartitum*, *F. v. M. Fragm.* i. 147.

Hab.: Charter's Towers, *C. F. Plant*.

8. **S. laricifolium** (Larch-leaved), *Rich. in Pers. Syn.* ii. 210; *Benth. Fl. Austr.* iv. 21. A leafy shrub of about 2ft., without the inflorescence, quite glabrous or the inflorescence sparingly glandular-pubescent, and sometimes a few hairs sprinkled on the foliage. Leaves scattered but rather crowded along the branches, not collected in terminal tufts, narrow-linear, mucronate, usually

$\frac{1}{2}$ to 1 in. long. Panicle or raceme loose, pedunculate, often above 6 in. long. Pedicels long. Ovary attenuate at both ends. Calyx-lobes free, shorter than the ovary. Corolla with appendages to the labellum, but usually without any to the throat. Capsule oblong-turbinate, 4 to 6 lines long.—DC. Prod. vii. 335; Juss. in Ann. Mus. Parr. xviii. 19. t. 3; Hook. Exot. Fl. t. 32; Bot. Reg. t. 550; *S. tenuifolium*, R. Br. Prod. 570; Link et Otto, Pl. Sel. t. 26; Bot. Mag. t. 2249.

Hab.: Abundant on the rocks about Stanthorpe.

9. **S. diffusum** (plant diffuse), *R. Br. Prod.* 571; *Benth. Fl. Austr.* iv. 23. A very slender, usually branched annual, glabrous or the inflorescence slightly glandular, erect and only 1 to 2 in. high or much longer and diffuse. Leaves very small, the lower ones approximate but not rosulate, linear or oblong, 1 to 2 lines long, the upper ones still smaller and narrow. Flowers lateral and sessile or terminal, the small bracts not opposite. Calyx-tube 4 to 5 lines long, the lobes free, narrow, not 1 line long. Corolla scarcely exceeding the calyx-lobes, the 2 larger lobes bifid. Capsule linear, often incurved, $\frac{1}{2}$ in. long or rather more.—DC. Prod. vii. 336.

Hab.: Shoalwater Bay, *R. Brown*.

10. **S. trichopoda** (hairy-footed), *F. v. M. Fragm.* x. 86. Annual almost glabrous, slightly glandular, 9 in. or less high and slender. Leaves in verticillate clusters at the ends of the branchlets, 3 to 6 lines long, and usually under $\frac{1}{2}$ line broad, umbels terminal, sessile. Pedicels $1\frac{1}{2}$ to 3 in. long, bracteolate at the top. Calyx-lobes 4, ovate-oblong, about a line long, sometimes shortly connate. Corolla yellow, scarcely 3 lines long, lower lip deeply 4-lobed, the upper very shortly 2-lobed, corona with appendages. Column somewhat short and thick. Capsule $\frac{1}{2}$ in. or a little longer, very slender, seeds very minute, glossy brown, glabrous.

Hab.: Etheridge River, *W. E. Armit*.

11. **S. alsinoides** (Alsine-like), *R. Br. Prod.* 572; *Benth. Fl. Austr.* iv. 24. A glabrous and weak but usually erect and branching annual of $\frac{1}{2}$ to nearly 1 ft. Leaves alternate or scattered below the inflorescence, shortly petiolate, broadly ovate, 1 to 4 lines long, obtuse and thin, the upper ones passing gradually into the narrow, acute, sessile floral leaves or bracts, which are almost always opposite. Flowers sessile in one axil of each pair of bracts. Calyx-tube linear, nearly $\frac{1}{2}$ in. long, the lobes narrow, not 1 line long, the 2 lower ones more or less united. Corolla very small, the lobes united at the base in pairs (without appendages?). Capsule linear, 8 to 9 lines long.—DC. Prod. vii. 337; *F. v. M. Fragm.* i. 151.

Hab.: Endeavour River, *Banks and Solander*, *A. Cunningham*; Lizard Island, *M'Gillivray*; Rookingham Bay, *Dallachy*; Mulgrave River.

12. **S. capillare** (leaves hair-like), *R. Br. Prod.* 570; *Benth. Fl. Austr.* iv. 25. A little slender, glabrous annual. Leaves radical, rosulate, spatulate, 2 to 3 lines long. Scapes capillary, 1 to 2 in. high, bearing 1 or 2 pedicellate flowers. Calyx-lobes free, very narrow. Corolla small, the 2 larger lobes more united, with appendages to the throat but none to the labellum (*R. Brown*). Capsule long and linear.—DC. Prod. vii. 335.

Hab.: Endeavour River, *Banks and Solander*; Brisbane River.

13. **S. rotundifolium** (leaves round), *R. Br. Prod.* 571; *Benth. Fl. Austr.* iv. 25. Glabrous, except a few glandular hairs on the inflorescence. Leaves radical, rosulate, obovate or orbicular, shortly petiolate, 2 to 3 lines long. Scapes filiform, 6 to 8 in. high, with a few, minute, scattered, narrow ayes,

loosely corymbose at the top. Flowers small, shortly pedicellate or nearly sessile. Calyx-lobes united in 2 short, broad, entire tips. Corolla-lobes nearly equal, entire or emarginate, without appendages to the throat. Capsule linear, 5 to 8 lines long.—DC. Prod. vii. 335; F. v. M. Fragm. i. 151.

Hab.: Endeavour River, *Banks and Solander*; Shoalwater Bay, *R. Brown*; Einasleigh River, *W. E. Armit*.

The species is very near *S. uliginosum*, but the flowers are not so closely sessile, and the capsule much longer.—*Benth.*

14. ***S. uliginosum*** (found in swamps), *Swartz*; DC. Prod. vii. 336; *Benth. Fl. Austr.* iv. 26. A small, slender annual, glabrous or with a very few small, glandular hairs on the inflorescence. Leaves radical, ovate or orbicular, 2 to 5 lines long. Scape erect, 3 to 5 in. high, simple or slightly branched. Flowers sessile along the scape or its branches, each in the axil of a small bract. Calyx about 8 lines long, the lobes linear, free or shortly united in 2 lips, half as long as the tube. Corolla scarcely longer than the calyx-lobes, the upper lobes rather longer and bifid. Capsule linear, about 3 lines long.—*Benth. Fl. Hongk.* 195; *S. tenellum*, *R. Br. Prod.* 571, not of *Swartz*; *S. tenerum*; *Spreng. Syst.* iii. 749; DC. Prod. vii. 335.

Hab.: Endeavour River, *Banks and Solander*; Shoalwater Bay, *R. Brown*; islands of Torres Straits.

The species is also in Ceylon and South China, and a rather more robust variety in Silhet, Chittagong, and the Malayaz peninsula.—*Benth.*

15. ***S. pedunculatum*** (pedunculate), *R. Br. Prod.* 571; *Benth. Fl. Austr.* iv. 28. A perennial, sprinkled with a few hairs, forming a short, leafy stem of about $\frac{1}{2}$ in. below the terminal tuft. Lower leaves rosulate at the base of the stem but often soon disappearing, oblong-lanceolate or almost ovate, 1 to 3 lines long, narrowed into a short petiole, those of the stem few, scattered and linear, those of the terminal tuft numerous, narrow-linear, terminating in long hair-like points. Scapes or peduncles amongst the terminal leaves numerous, filiform, 1-flowered, 1 to 2 in. long. Calyx-lobes very small, the 2 lower ones united at first, all at length free. Corolla very small, the lobes unequal, without appendages to the throat or labellum (*R. Brown*). Capsule glabrous, linear, 3 to 4 lines long.—DC. Prod. vii. 337; *S. bryoides*, *F. v. M. Fragm.* vi. 91.

Hab.: Endeavour River, *Banks and Solander*, *A. Cunningham*; Rockingham Bay, *Dallachy*.

16. ***S. eglandulosum*** (not glandular), *F. v. M. Fragm.* i. 150; *Benth. Fl. Austr.* iv. 31. Stems rather slender, more or less proliferous-branched, from a few inches to a foot long or more, glabrous, except a dense cottony wool about the old leaf-tufts, scarcely perceptible on the young ones. Leaves narrow-linear, acute or mucronate, usually glabrous, crowded in dense tufts at the base and ends of the branches, with scattered intermediate ones. Racemes from 2 to 4 in. or rarely 5 or 6 in. long, including the very short peduncle, pubescent, but scarcely or not at all glandular, simple or nearly so, the pedicels all short, the lower ones rarely 2 or 3-flowered. Calyx-lobes free, narrow, not half so long as the tube. Corolla small, white with purple spots, the throat without appendages. Capsule oblong-linear, about 3 lines long.

Hab.: Arid hills between the Sutor, Belyando, Mackenzie, and Burnett Rivers, *F. v. Mueller*; Alice River, *Mitchell*; Dogwood Creek, *Leichhardt*; Darling Downs and many other inland localities; Gladstone, *Chas. Hedley*.

ORDER LXVII. GOODENOVIÆ.

Calyx-tube adnate to the ovary or rarely free, the limb of 5 persistent lobes, sometimes very small, or united in a ring, or quite obsolete. Corolla irregular or rarely regular, with 5 lobes, valvate in the bud, their margins usually induplicate and expanding into glabrous wings as the flower opens. Stamens 5,

alternate with the lobes of the corolla and inserted at the junction of the corolla-tube with the ovary or very rarely shortly adnate to the corolla-tube; anthers 2-celled, the cells parallel, opening longitudinally, free or united in a ring round the style. Ovary wholly or partially inferior, at least as to the corolla, or rarely free within the corolla-tube, 1 or 2-celled; ovules 1, 2 or more in each cell, erect or ascending (except in *Catosperma*). Style simple and undivided (except in *Calogyne*), with a cup-shaped or 2-lipped dilatation, called *indusium*, at the top, enclosing the stigma. Fruit an indehiscent nut or drupe, or a capsule opening in 2 or 4 valves or rarely bursting irregularly or almost indehiscent. Seeds with a thin or crustaceous or thick and hard testa; embryo straight in the centre of a somewhat fleshy albumen, which is rarely deficient; radicle next the hilum.—Herbs undershrubs or rarely shrubs, the juice not milky. Leaves alternate or radical, very rarely irregularly opposite, entire, toothed or rarely pinnatifid. Flowers hermaphrodite, axillary or in terminal spikes, racemes or panicles, the primary inflorescence centripetal, the secondary usually cymose and dichotomous. Bracteoles on the 1-flowered peduncles (when present) and bracts at the forks of the dichotomous cymes, opposite. Corolla yellow blue or white, rarely red or purple.

The Order is almost exclusively Australian. It is, no doubt, allied to *Campanulaceæ*, but, besides the differences in the ovules, fruit, and seeds, and the want of the milky juice of that Order, *Goodenovieæ* are readily known by the remarkable indusium, which evidently, together with the peculiar surrounding hairs of the style or of the corolla, acts a considerable part in assisting the proper impregnation of the stigma.—*Benth.*

Ovules 2 or more in each cell of the ovary or on each side of the imperfect or rudimentary dissepiment.

Anthers connate round the style. Capsule linear, 4-valved at least at the base. Leaves narrow-linear, or heath-like, or reduced to scales.

Indusium 2-lipped. Seeds hard, in 2 or 4 rows. Flowers solitary or in leafy corymbs

1. LESCHENAULTIA.

Anthers free (when the flower is expanded). Capsule globular, ovoid or oblong, opening from the top in 2 or 4 valves. Indusium cup-shaped.

Calyx entirely free

2. VELLEIA.

Calyx-tube adnate (sometimes exceedingly short), lobes free or adnate at the base.

Style undivided

3. GOODENIA.

Style 2 or 3-cleft

4. CALOBYNE.

Anthers free. Fruit more or less succulent and indehiscent. Ovules 2 in each cell, *pendulous*

5. CATOSPERMA.

Drupe or nut indehiscent.

Calyx-tube adnate.

Corolla-tube slit, lobes spreading, not auriculate. Ovules 2 (except in *S. fasciculata*, a Western Australian species). Anthers free

6. SÆVOLA.

Corolla-tube slit, upper lobes auriculate. Ovule 1 (except the sect. *Dicalia*, not represented here). Anthers connate

7. DAMPIERA.

Calyx and corolla-tubes almost closed over the ovary but free. Corolla-tube entire, lobes horizontally spreading. Ovule 1

8. BRUNONIA.

1. LESCHENAULTIA, R. Br.

(After M. Leschenault.)

(*Latouria, De Vr.*)

Calyx-tube linear, wholly adnate, lobes linear or lanceolate. Corolla oblique, the tube slit open to the base or rarely closed, the lobes all or partially erect and connivent or spreading. Anthers cohering round the style or rarely free. Ovary inferior, completely 2-celled, with several, sometimes numerous ovules ascending in 2 rows in each cell. Indusium broadly 2-lipped, the upper lip shorter, glandular inside and with a half-ring of short hairs on the outside at the base, the lower lip smooth or hairy inside; stigma obsolete (or adnate to the upper lip?) Capsule linear, either entirely 4-valved, or seedless contracted and entire at the top and sometimes between the seeds. Seeds usually truncate, and more or less

angular; testa thick and hard, sometimes almost bony; embryo from half as long to nearly as long as the albumen.—Herbs undershrubs or shrubs. Leaves narrow-linear, entire, scattered or crowded and heath-like. Flowers either solitary and terminal or leaf-opposed or several in compact, leafy terminal corymbs, blue, white, yellow, red or greenish.

The genus is limited to Australia, and is readily known as well by the habit as by the indusium, ovary, and fruit.—*Benth.*

SECT. I. **Latouria**.—*Capsule ending in a slender seedless indehiscent beak. Leaves or scales distant; flowers solitary and terminal or leaf-opposed.*

Leaves all reduced to small scales. Branches rigid, intricate, divaricate . 1. *L. divaricata*.
Leaves and stems filiform. Capsule pedicellate 2. *L. filiformis*.
Leaves linear, acute, slightly flattened. Stems filiform. Capsule sessile . 3. *L. agrostophylla*.

1. **L. divaricata** (divaricate), *F. v. M. Fragm.* iii. 33, 167; *Benth. Fl. Austr.* iv. 43. Summits of the plant leafless, rigid, flexuose, intricately branched, the leaves replaced by small, oblong-linear, distant scales. Flowers sessile, terminal or opposite the scales. Calyx-tubes 2 to 3 lines long, the lobes narrow, about half as long. Corolla yellow (*F. v. Mueller*), 6 to 8 lines long, the lobes about as long as the tube, all narrow and expanded, the 3 lower ones winged, the two upper ones lanceolate-falcate, not winged. Fruit often above 1 in. long, ripening but very few large, thick seeds, and contracted into a neck at the top, and also between the seeds.

Hab.: Towards Cooper's Creek.

2. **L. filiformis** (stems thread-like), *R. Br. Prod.* 581; *Benth. Fl. Austr.* iv. 44. An annual or perennial, with filiform, slightly branched stems of $\frac{1}{2}$ to 1 ft. Leaves distant, filiform, $\frac{1}{2}$ to 1 in. long. Flowers blue (*R. Br.*), terminal or leaf-opposed, very shortly pedicellate. Calyx-tube long and slender, the lobes short and subulate. Corolla $\frac{1}{2}$ in. long or rather more, the 3 lower lobes as long as the tube, with broadly oblong, erect, almost parallel wings, leaving a deep sinus between them, the margins of the lobes very undulate below the wings, the 2 upper lobes separated much lower down, and winged on one side only. Capsule slender, about 1 in. long when perfect, the upper half consisting of a slender, filiform beak. Seeds cylindrical or angular, truncate, the testa not quite so hard as in other species.—*DC. Prod.* vii. 519; *F. v. M. Fragm.* vi. 9; *Pl.* xlvi.; *Latouria filiformis*, *De Vr. Gooden.* 187.

Hab.: Islands of the Gulf of Carpentaria, Shoalwater Bay passage, *R. Brown*; Rockingham Bay, *Dallachy*.

3. **L. agrostophylla** (Grass-leaved), *F. v. M. Fragm.* vi. 8.; *Pl.* xlvii.; *Benth. Fl. Austr.* iv. 44. An erect annual, very closely allied to *L. filiformis*, and probably only a variety, the leaves are rather broader and flatter, the capsule not so slender, and usually sessile.

Hab.: Gulf of Carpentaria, *F. v. Mueller*.

Without fuller sets of specimens, I have been unwilling to unite this with *L. filiformis*; but *Brown's* Carpentaria Island specimens appear to me to be intermediate between *F. v. Mueller's* and those from Queensland.—*Benth.*

2. VELLEIA, Sm.

(In honor of Major Velley.)

(*Euthales, R. Br.*)

Calyx free from the ovary, consisting of 3 or 5 sepals, either distinct or connate in a campanulate tube at the base. Corolla oblique, the tube adnate to the ovary at the base, with a hollow protuberance sometimes produced into a spur, the upper part split on the upper side nearly or quite to the ovary, the 2 upper lobes separate lower down, unequally winged and auriculate, or rarely all equal and equally winged. Stamens free. Ovary adnate to the corolla at the

base, the summit free within the corolla-tube, nearly 1-celled, divided only at the very base or rarely to the middle into 2 imperfect cells. Style simple; indusium usually large, closed and almost folded when the flower expands. Capsule quite free from the calyx-lobes, equally 4-valved, or rarely 2-valved with entire or 2-cleft valves. Seeds of *Goodenia*, flat with a callous or winged margin.—Herbs, with a short thick stock and radical leaves, or in one species forming a thick, branching, leafy stem. Scapes erect or ascending, dichotomously or trichotomously-branched, many-flowered. Bracts opposite, free or connate. Flowers yellow, like those of *Goodenia*.

The species are all Australian. The genus is very nearly allied to *Goodenia*, but differs constantly in the free calyx and peculiar dichotomous inflorescence.—*Benth.*

- Bracts large, broad, connate. Sepals 5, ovate, connate at the base 1. *V. connata*,
 Bracts distinct or very shortly united at the base.
 Sepals 5, distinct or nearly so, obtuse, 4 to 6 lines long. Flowers rather large. Corolla frequently spurred. Capsule not exceeding the calyx 2. *V. paradoxa*.
 Sepals 3, distinct or nearly so. Upper lobes of the corolla deeply separate. Scapes longer than the leaves.
 Glabrous. Sepals ovate-lanceolate, obliquely cordate and shortly decurrent 3. *V. macrocalyx*.
 Villous. Sepals broadly ovate, not cordate 4. *V. pubescens*.
 Glabrous. Sepals oblong-lanceolate 5. *V. spatulata*.

1. **V. connata** (bracts united), *F. v. M. in Hook. Kew Journ.* viii. 162, and in *Trans. Phil. Soc. Vict.* i. 18; *Benth. Fl. Austr.* iv. 46. Glabrous and glaucous. Radical leaves petiolate, obovate-oblong and toothed (*Herb. Hook.*) or oblong-spathulate and entire (*Herb. F. v. M.*), 2 to 3in. long. Stem tall, dichotomous, with large broad connate entire or toothed bracts at the forks. Sepals 5, ovate or ovate-lanceolate, acuminate, the outer one fully 4 lines long, the others smaller, usually connate at the base. Corolla 7 to 8 lines long, the lower lobes not winged (or the wings destroyed in the specimens seen?), the upper ones winged on one side and slightly ciliate. Capsule about 3 lines diameter. Seeds about 1 line diameter, including the wing.

Hab.: Inland, near border of N.S.W.

2. **V. paradoxa** (contradictory), *R. Br. Prod.* 580; *Benth. Fl. Austr.* iv. 48. Glabrous, pubescent or hirsute. Leaves radical, petiolate, from broadly obovate and under 2in. to narrow-oblong and above 4in. long, coarsely toothed or almost entire, sometimes almost lyrate. Scapes ascending or erect, $\frac{1}{2}$ to 1 $\frac{1}{2}$ ft. high, dichotomously or trichotomously branched. Bracts opposite at the forks, free, the lower ones sometimes ovate and deeply lobed at the base, the upper ones small, linear and entire. Sepals 5, free, oblong-linear or lanceolate or the outer larger one ovate-lanceolate and sometimes 6 lines long, the others smaller. Corolla yellow, pubescent outside, the hollow protuberance of the tube usually produced into a spur, sometimes 4 lines long, sometimes very small or obsolete; lobes all winged, the 2 upper ones separate much lower than the others. Indusium very large. Capsule shorter than the outer sepals. Seeds broadly winged.—*DC. Prod.* vii. 518; *De Vr. Gooden.* 172; *Hook. f. Fl. Tasm.* i. 233; *Bot. Reg. t.* 971.

Hab.: Dawson River, *F. v. Mueller*; Port Curtis, *M'Gillivray*; plains of the Condamine, *Leichhardt*; Ipswich, *Nernst*; Warwick, *Beckler*; Herberton, *J. F. Bailey*.

Var. stenoptera, *F. v. M.* More divaricate; flowers rather smaller; spur very small or none; seeds with a very narrow or scarcely any wing. The spur of the corolla disappears also sometimes on the common southern form, and is always variable in size.—*Benth.* Hab.: Between Stanthorpe and the border of N.S.W.

3. **V. macrocalyx** (long calyx), *De Vr. Gooden.* 176. t. 34; *Benth. Fl. Austr.* iv. 49. Glabrous except a little wool at the base of the leaves and the inflorescence sometimes slightly pubescent. Rootstock often thick and elongated. Leaves radical, petiolate, obovate-oblong or spatulate, often several inches long,

obtuse, entire, sinuate-toothed or rarely almost lyrate. Scapes sometimes short and few-flowered, but when full grown $\frac{1}{2}$ to 1ft. high, dichotomous, with spreading branches and small narrow opposite bracts at the forks. Sepals 3, ovate-lanceolate or almost ovate, mucronate-acute, obliquely cordate at the base, with the margins slightly decurrent; the outer one often 5 lines long, the others smaller. Corolla about 6 lines long, the 2 upper lobes separated lower down than the others and winged on one side only. Capsule rather shorter than the calyx. Seeds flat, brownish orbicular-ovate, nearly a line and a-half long, not winged.—F. v. M. Fragm. xi. 75.

Hab.: Burdekin River, *F. v. Mueller*.

4. **V. pubescens** (hairy), *R. Br. Prod.* 581; *Benth. Fl. Austr.* iv. 49. Softly pubescent or villous. Leaves radicle, petiolate, oblong-spathulate and 2 to 4in. long or shorter and almost obovate, irregularly toothed or lobed towards the base. Scapes ascending, shortly exceeding the leaves, dichotomous, with small opposite lanceolate bracts at the forks. Sepals 3, broadly ovate or the inner ones ovate-lanceolate, sometimes shortly united at the base, not decurrent. Corolla pubescent outside, 6 or 7 lines long, the lobes all broadly winged, but the wings in some specimens soon disappearing, the 2 upper lobes separated almost to the base and auriculate on the outer side below the wing.—DC. Prod. vii. 518.

Hab.: Shoalwater Bay, *R. Brown*; Burdekin River, *Dallachy*.

5. **V. spathulate** (leaves spoon-shaped), *R. Br. Prod.* 580; *Benth. Fl. Austr.* iv. 50. Glabrous except the woolly axils. Leaves radical, mostly oblong-spathulate and 2 to 3in. long, but sometimes shorter and obovate or longer and narrow, entire or with minute distant teeth. Scapes slender, ascending or spreading, rarely above 6in. long, sometimes very much branched and almost filiform, the bracts at the forks small, oblong or linear. Flowers small, yellow. Sepals 3, scarcely 3 lines long, oblong-lanceolate or the outer one almost ovate and slightly cordate. Corolla 4 to 5 lines long, the 2 upper lobes separated low down and winged on one side only. Seeds flat, with a thickish border, not winged or rarely with a very narrow wing.—DC. Prod. vii. 518; De Vr. Gooden. 174.

Hab.: Shoalwater and Keppel Bays, *R. Brown*; Port Arthur, *McGillivray*; Wide Bay, *Bidwill*; Rockingham Bay, *Dallachy*; Rockhampton, *Thozet*; Brisbane River, Moreton Bay, *Leichhardt*, *F. v. Mueller*.

3. GOODENIA, Sm.

(In honor of Dr. Goodenough.)

(Picrophyta, *F. v. M.*; *Stekhovia*, *Tetraphylax* and *Aillya*, *De Vr.*)

Calyx-tube adnate, sometimes exceedingly short, and usually shorter than the ovary; lobes 5, sometimes adnate at the base. Corolla-tube with the adnate part blended with the calyx-tube or produced above it or with a hollow protuberance on the under side between the calyx-lobes, sometimes forming a spur at the base of the calyx, slit on the upper side down to the adnate part, the limb oblique, the 2 upper lobes separated lower down, and often arching over the genitalia or rarely all 5 lobes nearly equal and digitately spreading, all equally winged or the upper lobes with the wing more decurrent on the outer side, and sometimes dilated into a concave, inflexed auricle, which is usually thinner and less coloured than in *Dampiera*. Stamens free. Ovary inferior (at least as to the corolla), except the convex summit more or less prominent within the corolla, more or less 2-celled, the dissepiment from almost rudimentary to reaching nearly to the top of the cavity, always with a curved notch at the top, leaving the summit of the ovary 1-celled. Ovules ascending, rarely solitary in each cell, usually several in 2 rows, sometimes blended into 1 or crowded in

more than 2 rows. Style undivided. Indusium cup-shaped, enclosing the truncate or divaricately 2-lobed stigma. Capsule opening in 2 valves parallel to the dissepiment or rarely splitting into 4 valves. Seeds usually flat, with a callous or winged margin, rarely thicker, and not bordered. Embryo usually about half as long as the albumen or shorter.—Herbs undershrubs or rarely shrubs. Leaves alternate or radical. Peduncles either axillary or in terminal racemes or panicles, 1-flowered, with or without bracteoles or bearing a cyme or cluster of few flowers, which are usually pedicellate above the bracts or rarely sessile between them.

The species are all limited to Australia; a few have the corollas, and some others the habit of *Scævola*, but the majority are different from that genus in both respects, and all are readily known by their dehiscent capsule as well as by the ovules; in all, more than one in each cell or on each side of the dissepiment.—*Benth.*

SECT. I. **Eugoodenia.**—*Corolla with the 2 upper lobes separated much lower than the others, and arching over the genitalia or rarely spreading. Ovules either imbricate in 1 or 2 rows in each cell of the ovary or few and erect from the base of the cavity.*

SERIES I. **Racemosæ.**—*Flowers (yellow, white or blue) in a long, terminal, leafless, interrupted spike raceme or panicle.*

- Peduncles short, the lower ones often several-flowered, the upper 1-flowered. Flowers yellow. Leaves linear, entire, very narrowly decumbent 1. *G. racemosa.*
- Flowers (yellow) in sessile clusters along the common rhachis. Leaves all or chiefly radical.
- Leaves from obovate to narrow oblong-spathulate, mostly toothed 2. *G. bellidifolia.*
- Leaves linear or linear-cuneate, entire 3. *G. stelligera.*

SERIES II. **Bracteolatæ.**—*Peduncles axillary or radical or the upper ones very shortly racemose, bracteolate, 1-flowered, or when several-flowered the bracteoles at the base of the pedicels. Flowers yellow or white.*

- Glabrous, viscid or rarely viscid-villous undershrubs or shrubs. Leaves ovate, obovate, elliptical or lanceolate. Common peduncles very short, at least the lower ones, bearing several flowers. Leaves petiolate. Capsule cylindrical, the dissepiment reaching far above the middle 4. *G. ovata.*
- Glabrous or hoary pubescent viscid-villous herb. Leaves linear. Peduncles 1-flowered. Bracteoles very small. Dissepiment short. Ovules few. Seeds flat, oblong 5. *G. disperma.*
- Villous or rarely glabrous herbs, with tufted or rosulate, radical leaves, and decumbent, prostrate or creeping stems (very rarely nearly erect). Peduncles 1-flowered, radical or axillary, often long.
- Calyx-lobes linear, obtuse. Leaves linear-spathulate or narrow-oblong, entire or sinuate, all radical or stems shortly ascending 6. *G. geniculata.*
- Calyx-lobes subulate or acuminate.
- Bracteoles at a distance from the flowers.
- Pedicels filiform.
- Leaves all petiolate, orbicular obovate or cuneate. Plant glabrous, mealy or shortly pubescent 7. *G. hederacea.*
- Leaves nearly sessile, ovate or lanceolate, deeply toothed 8. *G. heterophylla.*
- Pedicels mostly very short and rather thick. Stems long and flagellate.
- Plant glabrous 9. *G. glabra.*
- Plant very villous 10. *G. stronglyphylla.*
- Bracteoles close to the calyx 11. *G. rotundifolia.*

SERIES III. **Foliosæ.**—*Erect or rarely decumbent herbs or undershrubs, usually glandular-pubescent or hirsute, with leafy stems. Peduncles axillary, 1-flowered, articulate under the flower, without bracteoles (or very rarely a few peduncles have 1 or 2 minute ones). Flowers yellow, white, or purple.*

- Stem-leaves all broad, abruptly petiolate or pinnate. Plant glandular-pubescent or rarely glabrous, not villous.
- Leaves more or less pinnate.
- Protuberance of the corolla-tube produced into a spur 12. *G. calcarata.*
- Protuberance of the corolla-tube decurrent but not spurred. Terminal lobe of the leaves truncate or cordate at the base, lateral ones few or none 13. *G. grandiflora.*

- Leaves without lateral segments on the petioles.
 Leaves broadly ovate or cordate, acute or acuminate. Flowers yellow 13. *G. grandiflora*.
 Leaves orbicular, petioles very short 14. *G. Chambersii*.
- Stem-leaves contracted at the base into a short petiole, or almost sessile.
 Plant villous or silky-hairy.
 Very villous. Corolla-tube minutely spread at the base of the calyx 16. *G. Mitchellii*.
 Calyx-lobes narrow. Upper lobes of the corolla much narrower than the others, and scarcely winged 17. *G. heterochila*.
 (See also 19. *G. mollissima*.)
- Hairs appressed, almost silky. Leaves entire, long-lanceolate, crowded 15. *G. Strangfordii*.
- Stem-leaves sessile or stem-clasping, mostly entire, linear or linear-lanceolate. Annuals, with spreading hairs. Floral-leaves sessile, narrow. Dissepiment of the capsule very short. Calyx-lobes linear-subulate 18. *G. hispida*.
- SERIES V. **Pedicellosæ**.—Herbs with the leaves chiefly radical or tufted, the stem-leaves either few and distant or collected in terminal tufts, rarely scattered and linear or reduced to bracts. Peduncles long, radical or in terminal tufts, or axillary, 1-flowered, without bracteoles.
- Softly tomentose villous or hirsute. Leaves orbicular obovate or broadly oblong, coarsely toothed.
 Leaves hirsute. Dissepiment reaching nearly to the top of the ovary 19. *G. mollissima*.
 Leaves softly villous or tomentose. Dissepiment almost rudimentary.
 Seeds winged 20. *G. cycloptera*.
- Hispid with spreading hairs. Leaves narrow. Stem-leaves linear or linear-lanceolate 18. *G. hispida*.
- Glabrous or with scattered or appressed or silky hairs.
 Radical leaves pinnatifid.
 Flowers small. Leaves and pedicels all radical or in terminal tufts. Dissepiment reaching above the middle of the ovary. Seeds winged 24. *G. heteromera*.
 Flowers rather large. Leaves sometimes scattered. Dissepiment short. Seeds winged 21. *G. pinnatifida*.
 Flowers in erect corymbose panicles. Seeds few, blackish when ripe with a pale broadish margin 22. *G. pusilliflora*.
 Flowers small. Leaves sometimes scattered. Seeds broadly winged 23. *G. coronopifolia*.
- Radical leaves entire, linear or lanceolate.
 Dissepiment reaching far above the middle of the ovary. Leaves and peduncles all radical or in terminal tufts 24. *G. heteromera*.
 Dissepiment short. Leaves and peduncles scattered. Seeds winged. Flowers rather large, yellow. Indusium glabrous 25. *G. glauca*.
 Flowers small. Calyx glandular-pubescent. Indusium silky-hairy. Capsule almost superior 26. *G. Armitiana*.
 Flowers small (purple?) Radical leaves often pinnatifid 23. *G. coronopifolia*.
- SECT. II. **Amphichila**.—Corolla with the 2 upper lobes separated much lower down than the others. Ovules very numerous, closely packed in more than 2 rows in each cell of the ovary. Flowers small, in leafless panicles or on radical scapes.
- Flowering stems $\frac{1}{2}$ to 2ft. high, several times longer than the radical leaves.
 Leaves in the lower part of the stem from obovate to lanceolate, mostly toothed 27. *G. paniculata*.
 Leaves chiefly or entirely radical, linear or linear-lanceolate, entire.
 Flowers purple 28. *G. purpurascens*.
 Flowers yellow.
 Panicle loose and moderately branched. Leaves not conspicuously veined 29. *G. gracilis*.
 Panicle very much branched. Leaves rigid, conspicuously veined 30. *G. lamprosperma*.
- Dwarf creeping or stoloniferous plant. Leaves ovate, in rosulate tufts.
 Scapes or peduncles filiform, mostly 1-flowered 31. *G. pumilio*.

1. ***G. racemosa*** (flowers in racemes), *F. v. M. Fragm.* i. 114; *Benth. Fl. Austr.* iv. 58. A glabrous shrub or undershrub of $1\frac{1}{2}$ to 8ft., the branches angular, with raised lines decurrent from the leaves. Leaves rather crowded, narrow-linear, entire, mostly 1 to $1\frac{1}{2}$ in. long, the floral ones reduced to small linear bracts. Flowers rather small, in a dense terminal raceme, the peduncles short, the lower ones often with a cluster of 2 or 3 flowers, the upper ones

1-flowered. Calyx-lobes subulate. Corolla slightly glandular-pubescent, about $\frac{1}{2}$ in. long, the upper lobes separate lower down than the others. Ovary very prominent within the corolla-tube, the dissepiment short; ovules not numerous, in 2 rows in each cell. Capsule ovoid, about 3 lines long. Seeds rather large, flat,

Hab.: Arid ranges on the Burnett River, *F. v. Mueller*.

2. *G. bellidifolia* (Daisy-leaved); *Sm. in Trans. Linn. Soc.* ii. 349; *Benth. Fl. Austr.* iv. 58. A perennial with a tufted stock, glabrous except the inflorescence, or the base of the leaves also pubescent, the flowering stems leafless or nearly so, 1 to $1\frac{1}{2}$ ft. high. Leaves radical, petiolate, from broadly obovate and 1 to $1\frac{1}{2}$ in. long to narrow oblong-spathulate and 3 to 4 in. long, always broader than in *G. stelligera*, entire or irregularly toothed, rather thick; the stem ones few and very small or none besides the small floral bracts. Flowers rather small, sessile or nearly so in little clusters along the rhachis of a long interrupted spike, the upper ones usually solitary. Bracteoles small. Calyx-lobes linear or subulate. Corolla less villous outside than in *G. stelligera*, rarely $\frac{1}{2}$ in. long, the upper lobes separate low down and unequally winged. Dissepiment of the ovary reaching high up; ovules in 2 rows in each cell. Indusium ciliate. Capsule ovoid, about 2 to $2\frac{1}{2}$ lines long. Seeds flat, with a thickish border.—*R. Br. Prod.* 575; *DC. Prod.* vii. 513; *De Vr. Gooden.* 122.

Hab.: Dawson River, *F. v. Mueller*; near Brisbane, *Leichhardt*; very common in southern localities.

3. *G. stelligera* (pubescence starry), *R. Br. Prod.* 575; *Benth. Fl. Austr.* iv. 59. A perennial, with a tufted stock and erect, almost leafless stems of 1 to $1\frac{1}{2}$ ft., glabrous or the inflorescence pubescent. Radical leaves linear or slightly linear-cuneate, obtuse, rather thick, entire, sometimes 5 or 6 in. long but usually half that size; stem-leaves very few and much shorter, floral ones reduced to linear bracts. Flowers yellow, sessile or nearly so, in distant clusters of 2 or 3, the upper ones solitary, in a long, interrupted spike. Calyx-lobes linear or linear-lanceolate. Corolla densely villous outside, with a glandular pubescence concealed under the longer hairs, 7 to 8 lines long, the upper lobes separated low down, and unequally winged. Dissepiment of the ovary reaching high up; ovules in 2 rows in each cell. Indusium ciliate. Capsule ovoid-oblong, 3 to 4 lines long. Seeds flat, with a thickish border.—*DC. Prod.* vii. 513; *De Vr. Gooden.* 124; *S. armeriaefolia*, *Sieb.*; *DC. Prod.* vii. 513; *De Vr. Gooden.* 129, as to the eastern plant; *G. longifolia*, *De Vr. Gooden.* 127.

Hab.: Moreton Island, *McGillivray, F. v. Mueller*; very common in southern localities.

Some of the more luxuriant specimens proliferous-branched, with tufts of leaves and a secondary flowering-stem.—*Benth.*

4. *G. ovata* (leaves ovate), *Sm. in Trans. Linn. Soc.* ii. 347; *Benth. Fl. Austr.* iv. 59. An erect, glabrous, often somewhat viscid shrub or undershrub of 2 to 4 ft. Leaves petiolate, from ovate to broadly lanceolate or the lower ones sometimes orbicular-cordate, denticulate, 1 to 2 in. long. Peduncles axillary, often 2 together or forked near the base, slender and often several-flowered, but rarely exceeding the leaves. Bracteoles very small, at a distance from the flower. Calyx-lobe linear, lobes subulate. Corolla yellow, glabrous outside, about $\frac{1}{2}$ in. long, the upper lobes deeply separate. Dissepiment reaching high up in the ovary. Indusium strongly ciliate. Capsule narrow, 4 to 6 lines long, slightly tapering at the base. Seeds flat, almost in a single row in each cell.—*Cav. Ic.* vi. t. 506; *Vent. Jard. Cels.* t. 3; *Andr. Bot. Rep.* t. 68; *R. Br. Prod.* 576; *DC. Prod.* vii. 514; *De Vr. Gooden.* 141; *Hook. f. Fl. Tasm.* i. 292; *Maid. and Camp. Fl. Pl. N.S.W.* No. 28.

Hab.: Inland, principally, to Springsure, where it has been suspected of poisoning stock. In Queensland, the leaves are much smaller than on the plants in the southern colonies.

5. ***G. disperma*** (often only maturing two seeds), *F. v. M. Fragm.* i. 113; *Benth. Fl. Austr.* iv. 62. Herbaceous, erect, branching, rather slender, hoary-pubescent or nearly glabrous, generally under 1ft. high. Leaves linear, entire, 1 to 3in. long, without larger radical ones. Peduncles short, axillary, 1-flowered or the flowers almost sessile. Bracts very small, setaceous, at a distance from the flower when pedunculate. Calyx-lobes almost setaceous. Corolla under $\frac{1}{2}$ in. long, pubescent outside, the upper lobes separated almost to the base and shorter than the others, broadly winged on the outer edge, but scarcely auriculate. Dissepiment of the ovary exceedingly short, with about 2 erect ovules. Capsule ovate-oblong, about 3 lines long. Seeds oblong, flat, about 2 lines long, minutely granular, with scarcely any border.—*G. sessiliflora*, *F. v. M. Fragm.* iv. 145.

Hab.: Sandy plains between the Mackenzie, Dawson, and Burnett Rivers, *F. v. Mueller*; Cape River, *Bowman*.

Although only from 2 to 4 of the seeds usually come to maturity, there appear to be always at least 6 ovules.—*Benth.*

6. ***G. geniculata*** (stems bent like the knee-joint), *R. Br. Prod.* 577; *Benth. Fl. Austr.* iv. 62. A perennial, with a tufted and often creeping rootstock, emitting occasionally short, decumbent or ascending leafy stems, rarely more vigorous and 6 to 9in. high. Indumentum in some specimens consisting entirely of simple hairs, in others woolly at the base of the leaves or the whole plant cottony or rarely entirely clothed with a long, dense wool. Leaves chiefly radical, petiolate, from linear to obovate-oblong, obtuse, entire or slightly sinuate-toothed, varying from about 1 to above 3in. long, those on the short stems more sessile. Scapes or peduncles 1-flowered, usually longer than the leaves. Bracteoles linear, at a distance from the flower, the pedicels bent back from the bracteoles after flowering. Calyx-lobes oblong or linear, rather obtuse. Corolla yellow, pubescent outside, $\frac{1}{4}$ to $\frac{1}{2}$ in. or rarely 1in. long, the 2 upper lobes separated low down and unequally winged. Dissepiment of the ovary reaching to above the middle, the conical summit of the ovary free. Ovules varying from 7 or 8 to twice that number in each cell, in 2 rows. Capsule ovoid, 3 to 4 lines long. Seeds broad, flat, with a thick margin.—*DC. Prod.* vii. 514; *De Vr. Gooden.* 136; *Hook. f. Fl. Tasm.* i. 232.

Hab.. Southern inland localities.

7. ***G. hederacea*** (Ground Ivy leaved), *Sm. in Trans. Linn. Soc.* ii. 349; *Benth. Fl. Austr.* iv. 63. A perennial with a thick hard often woody stock and long trailing rather slender stems, often rooting at the nodes, and sometimes ascending or nearly erect to the height of 6in. or more, the whole plant sometimes clothed with a very close white tomentum, which is rarely wanting on the under side of the leaves, the upper side soon becoming glabrous. Leaves petiolate, obovate, or orbicular, usually irregularly toothed, cuneate or cordate at the base, the upper floral ones sometimes narrow-ovate or spatulate and entire. Peduncles slender, axillary, usually exceeding the leaves, 1 to 3-flowered. Bracteoles small and narrow, at a distance from the flower. Calyx-tube very narrow-turbinate, prominently 5-ribbed, the lobes narrow and acute. Corolla slightly tomentose outside, $\frac{1}{2}$ to $\frac{1}{2}$ in. long, the upper lobes separated low down. Dissepiment of the ovary reaching far above the middle. Capsule ovoid.

Hab.: Common in southern localities.

8. ***G. heterophylla*** (various-leaved), *Sm. in Trans. Linn. Soc.* ii. 349; *Benth. Fl. Austr.* iv. 64. A pubescent or hirsute perennial or perhaps sometimes annual, with decumbent ascending or rarely erect rather slender leafy stems of $\frac{1}{2}$ to 1ft. or sometimes much longer and procumbent or flexuose. Leaves ovate-lanceolate or almost linear, truncate or contracted at the base, and often shortly petiolate, coarsely and irregularly toothed or lobed or rarely entire, $\frac{1}{2}$ to 1in. long

or rarely more. Peduncles axillary, filiform, bearing 1 or rarely 2 or 3 rather small flowers; bracteoles setaceous, at a distance from the flower. Calyx-tube turbinate, prominently 5-ribbed, the lobes setaceous. Corolla yellow, scarcely $\frac{1}{2}$ in. long, glabrous or slightly pubescent outside; the upper lobes separated low down, unequally winged, with slightly concave auricles. Dissepiment of the ovary reaching to about the middle. Ovules variable in number, in 2 rows. Capsule ovoid, about 2 lines long.—Cav. Ic. t. 508; R. Br. Prod. 576; DC. Prod. vii. 514; De Vr. Gooden. 144; *G. teucrifolia*, F. v. M. in Trans. Vict. Inst. ii. 70.

Hab.: Glasshouse Mountains and Burnett River, *F. v. Mueller*.

9. ***G. glabra*** (free of hairs), *R. Br. Prod.* 577; *Benth. Fl. Austr.* iv. 64. A glabrous perennial, with a tufted stock, emitting several long simple prostrate stems, like stolons, but not usually rooting. Radical leaves petiolate, from obovate to oblong-spathulate, rather thick, entire or minutely toothed, 1 to 3 in. long, those of the prostrate stems distant, sessile or nearly so, obovate or cuneate, rarely above $\frac{1}{2}$ in. long. Flowers solitary, either radical on long peduncles or axillary on shorter, sometimes very short ones. Bracteoles very small, at a distance from the flower when the peduncle is elongated. Calyx-lobes subulate-acuminate. Corolla yellow, the upper lobes separated low down and unequally winged, with a large inflexed auricle on the outer side. Dissepiment reaching to about the middle of the ovary. Capsule ovoid or oblong. Seeds rather large, flat, granular-tuberculate, with a rather thick smooth border.—DC. Prod. vii. 515; *G. flagellifera*, De Vr. in Mitch. Trop. Austr. 378, and Gooden. 146, t. 25.

Hab.: Shoalwater Bay, *R. Brown*; Port Curtis, *M. Gillivray*; Rockhampton, *Thozet*, *O'Shanesy*; Peak Downs, *F. v. Mueller*; Bokhara Creek, Ottery's Station, &c., *Leichhardt*; Armadilla, *W. Barton*.

10. ***G. strongylophylla*** (round-leaved), *F. v. M. Fragm.* vi. 12; *Benth. Fl. Austr.* iv. 65. The fragments upon which this species is founded appear to be procumbent or prostrate flagellate branches, like those of *G. glabra*, but densely hirsute with rather soft hairs. Leaves nearly sessile, very broadly ovate or orbicular, toothed, not exceeding $\frac{1}{2}$ in. diameter. Flowers axillary. Bracts subulate at the base of the very short pedicels. Calyx very villous, with narrow lobes. Corolla hairy outside, 5 or 6 lines long, the upper lobes separate low down and auriculate. Dissepiment reaching to about the middle of the ovary, with several ovules in 2 rows in each cell. Capsule ovoid, about 3 lines long. Seeds few, large, flat, with a thickish margin, rarely bordered by a narrow wing.

Hab.: Prichester Creek, *Bowman*.

11. ***G. rotundifolia*** (leaves round), *R. Br. Prod.* 576; *Benth. Fl. Austr.* iv. 65. A slightly pubescent or viscid perennial, the stem short and erect or long and trailing. Leaves petiolate, broadly ovate or orbicular, coarsely toothed, rounded or cordate at the base, $\frac{2}{3}$ to 1 in. diameter or sometimes more, those of the smaller branches sometimes obovate and narrowed at the base. Peduncles slender, shorter than or slightly exceeding the leaves, bearing 1 or more frequently a cyme of 3 to 5 flowers. Bracteoles very narrow, close under the flower when solitary. Calyx-tube hispid; lobes subulate, ciliate. Corolla pubescent outside, about $\frac{1}{2}$ in. long, the upper lobes separate low down and unequally winged. Dissepiment of the ovary very short or rarely reaching to the middle. Ovules several in 2 rows in each cell. Capsule broad, about 2 lines long. Seeds several, flat, with a smooth margin, not winged.—DC. Prod. vii. 514; De Vr. Gooden. 145.

Hab.: Shoalwater Bay, *R. Brown*; Brisbane River, Moreton Bay, *F. v. Mueller*, *Leichhardt*; Rockhampton, *Dallachy*; near Wallangarra.

12. ***G. calcarata*** (spurred), *F. v. M. Fragm.* vi. 14; *Benth. Fl. Austr.* iv. 69. An erect, rather stout, glabrous, and often glaucous annual of $\frac{1}{2}$ to 1ft., the stem very angular. Leaves deeply pinnatifid, with ovate-oblong or lanceolate, deeply-toothed segments, the terminal one sometimes large and the others small or all more nearly of a size, the upper floral-leaves reduced to small bracts. Peduncles solitary in the axils, forming a terminal raceme. Bracteoles none or very minute under the flowers. The hollow protuberance of the adnate part of the calyx and corolla produced into a small spur. Capsule ovate, 4 to 5 lines long. Seeds of *G. grandiflora*.—*Picrophyta calcarata*, *F. v. M.* in *Linnæa*, xxv. 422.

Hab.: Southern inland localities.

13. ***G. grandiflora*** (large-flowered), *Sims. Bot. Mag. t.* 890; *Benth. Fl. Austr.* iv. 69. Herbaceous, erect, rather stout, more or less glandular-pubescent attaining sometimes 3 or 4ft. Leaves petiolate, from broadly ovate to ovate-lanceolate, truncate or cordate at the base, toothed, often above 2in. long, with or without the addition of a few small segments along the petiole. Peduncles axillary, shorter than the leaves, 1-flowered, without any or with very minute bracteoles at the base, solitary or the lower ones sometimes 2 or 3 together on a very short, common peduncle. Flowers large, yellow, more or less streaked with purple. Calyx-lobes linear-lanceolate. Corolla glabrous or slightly pubescent outside, usually about 1in. long but sometimes large, the 2 upper lobes more deeply separated, the adnate part of the tube with a hollow protuberance, sometimes scarcely conspicuous, sometimes very prominent and reaching to the base of the calyx. Dissepiment of the ovary reaching far above the middle; ovules in 2 rows in each cell. Capsule ovoid-oblong, sometimes $\frac{1}{2}$ in. long, but often smaller. Seeds broad, flat, with a thickish margin, not winged.—*R. Br. Prod.* 576; *DC. Prod.* vii. 514; *Bonpl. Jard. Malm.* t. 6; *Bot. Reg.* 1845 t. 29; *De Vr. Gooden.* 143; *F. v. M. Fragm.* i. 204; *G. appendiculata*, *Jacq. Fragm.* t. 92.

Hab.: Broadsound, *R. Brown*; Wide Bay, *Bidwill*; Burnett and Burdekin Rivers, *F. v. Mueller*; Rockhampton, *Dallachy* and others; Taylor's Range.

Var. *mollis*. *G. mollis*, *R. Br. Prod.* 577; *DC. Prod.* vii. 515; *De Vr. Gooden.* 151, is ^a variety, or, perhaps, a state of the plant, with rather shorter capsules, and no small leaf-segments along the petiole. To this form belong many, but not all, of the Queensland specimens.

14. ***G. Chambersii*** (after James Chambers), *F. v. M. Fragm.* i. 204; *Benth. Fl. Austr.* iv. 70. A shrub or undershrub, softly but minutely glandular-pubescent, very closely allied to *G. grandiflora*, and, judging from the fragmentary specimens preserved, perhaps a variety. Leaves smaller on shorter petioles, orbicular, coarsely toothed, $\frac{1}{2}$ to $\frac{3}{4}$ in. diameter in our specimens, and without accessory segments. Flowers rather smaller than in *G. grandiflora*, the lobes rather narrower, and the upper ones less deeply separated than in that species, but the structure otherwise the same, and the saccate protuberance prominent.

Hab.: Lawn Hill on sandstone ridges, *Frank Hugh Hann*.

15. ***G. Strangfordii*** (after Count de Strangford), *F. v. M. Fragm.* vi. 11. t. 52; *Benth. Fl. Austr.* iv. 70. A perennial, simple or branching, and almost woody at the base, more or less pubescent or almost silky, with a little wool in the axils of the leaves, the stems erect, leafy, under 1ft. high. Leaves rather crowded, lanceolate, entire, 3 to 4in. long, narrowed into a petiole. Peduncles slender, shorter than the leaves, 1-flowered, without bracteoles or rarely 2 linear bracteoles on the lower ones as represented in the plate, the flower readily disarticulating from the peduncle as in most of the ebracteolate species.

Calyx-lobes linear. Corolla silky, pubescent outside, 7 to 8 lines long in most specimens, the upper lobes deeply separated, rather short, broadly auriculate. Dissepiment of the ovary reaching above the middle; ovules rather numerous. Seeds orbicular, flat, not winged.

Hab.: Gulf country.

Var. *grandiflora*. Flowers much larger, the lower peduncles long, with 2 long, linear bracteoles.—Flinders River, *Kennedy* (Herb. F. v. M.) This is the form figured by *Mueller*.

16. **G. Mitchellii** (after Sir T. Mitchell), *Benth. Fl. Austr.* iv. 71. A densely villous-tomentose, rather coarse perennial, with decumbent or ascending stems, under 1ft. Radical and lower leaves on long petioles, obovate-oblong, coarsely toothed or almost pinnatifid, thick and soft, 2 to 3in. long, the upper ones small, the uppermost floral ones scarcely $\frac{1}{2}$ in. long, but all more or less petiolate. Peduncles 1-flowered, without bracteoles. Calyx-lobes narrow-linear. Corolla about $\frac{3}{4}$ in. long, apparently yellow, hirsute outside, the upper lobes rather shorter, separated almost at the base, with concave auricles, the tube with a small, concave protuberance, forming a minute spur at the base of the calyx. Dissepiment of the ovary exceedingly short; ovules few. Capsule globular, about 3 lines diameter. Seeds usually 1 or 2 only perfect, large, flat, with a broad, thick margin, not winged.

Hab.: In the interior, *Mitchell*.

17. **G. heterochila** (lip-various), *F. v. M. Fragm.* iii. 142; *Benth. Fl. Austr.* iv. 71. Herbaceous, softly pubescent or villous. Leaves oval-oblong or lanceolate, entire or toothed, 1 to 2in. long, contracted at the base, the lower ones not seen. Peduncles 1-flowered, axillary, slender, shorter than the leaves, articulate under the flower. Bracteoles none or very minute. Calyx-lobes linear or setaceous. Corolla under $\frac{1}{2}$ in. long, the 3 lower lobes winged and truncate, the 2 upper ones separate lower down and shorter, narrow-lanceolate, acute, scarcely winged, but with an auricle on the outer side below the middle. Dissepiment of the ovary very short; ovules 4 or 5, large and flat.

Hab.: Northern interior.

18. **G. hispida** (plant hispid), *R. Br. Prod.* 577; *Benth. Fl. Austr.* iv. 72. Apparently annual, hispid with rigid spreading hairs, which almost disappear from the old plants. Stems slender, erect, branching, $\frac{1}{2}$ to 1ft. long or rarely more. Radical leaves sometimes oblong and narrowed into a short petiole, all the others sessile, linear or narrow-lanceolate, 1 to 2in. long, entire or with a very few acute prominent teeth, especially near the base. Peduncles in the upper axils often longer than the leaves, without bracteoles. Calyx-lobes subulate. Corolla hairy outside, about $\frac{1}{2}$ in. long, the 2 upper lobes separated low down. Capsule globular or ovoid. Dissepiment exceedingly short. Seeds flat, not winged.—*DC. Prod.* vii. 515; *De Vr. Gooden.* 133.

Hab.: Islands of the Gulf of Carpentaria, *R. Brown*.

19. **G. mollissima** (plant very soft), *F. v. M. Herb.*; *Benth. Fl. Austr.* iv. 73. A small plant, very villous all over with soft hairs. Radical leaves petiolate, obovate, deeply crenate, 1 to 1 $\frac{1}{2}$ in. long. Stems short, decumbent, with a few small almost sessile orbicular or obovate leaves. Peduncles axillary, rather longer than the leaves, 1-flowered, without bracteoles. Flowers rather large, yellow. Calyx hispid, the lobes narrow and acute. Corolla pubescent outside, 7 to 8 lines long. Dissepiment of the ovary reaching far above the middle. Ovules numerous. Fruit not seen.

Hab.: Near Cooper's Creek, *Bowman*.

Although the specimens are not developed enough to fix the affinities of this plant, it appears to be a very distinct species, differing from *G. lanata* in the absence of bracteoles, from *G. cycloptera* in the ovary.—*Benth.*

20. **G. cycloptera** (round wing of seed), *R. Br. in App. Sturt Exped.* 20; *Benth. Fl. Austr.* iv. 74. Annual or with a perennial tufted or creeping rootstock, tomentose-pubescent or softly villous and often glandular. Radical leaves on long petioles, obovate or oblong, coarsely toothed, 1 to 2 or even 3 in. long. Stems either very short and erect or decumbent, or ascending and from 6 in. to 1 ft. long, with a few leaves usually crowded towards the end or scattered when the stems are much lengthened, all smaller, narrower, and more entire than the radical ones and nearly sessile. Peduncles in the upper axils or terminal tufts, 1-flowered, without bracteoles or rarely with very minute ones. Calyx hirsute, the lobes narrow. Corolla yellow, pubescent outside, 6 to 7 lines long, the tubes sometimes forming a minute spur at the base of the calyx, the two upper lobes deeply separated, unequally winged and auriculate (lobes bilobed, *F. v. M. Fragni.* xi. 56). Dissepiment of the ovary very short or almost rudimentary, with few ovules. Capsule orbicular or shortly ovate. Seeds large, orbicular, flat, usually black with a paler-coloured rather thick marginal wing.

Hab.: Inland localities.

21. **G. pinnatifida** (leaves pinnatifid), *Schlecht. Linnæa*, xxi. 440; *Benth. Fl. Austr.* iv. 75. A perennial, sprinkled with appressed hairs or nearly glabrous. the rootstock tufted or creeping. Radical leaves petiolate, oblong-spathulate or narrow, deeply toothed or pinnatifid or a few of the outermost obovate and crenate, often 2 to 3 in. long. Stems ascending or erect, $\frac{1}{2}$ to 1 ft. long, with narrow entire or pinnatifid leaves, few and distant or sometimes clustered at the ends of the stems. Peduncles very long, axillary, 1-flowered, without bracteoles or rarely with very minute ones at the base. Flowers rather large, yellow. Calyx-lobes linear or linear-lanceolate. Corolla sprinkled with rigid appressed hairs, $\frac{1}{2}$ to $\frac{3}{4}$ in. long in the smaller forms, $\frac{3}{8}$ to 1 in. in the larger ones, the lower lobes often ciliate below the wings, the upper ones deeply separated, with a broad concave auricle on the outer side. Dissepiment of the ovary short, but the ovules rather numerous. Capsules nearly orbicular, 3 to 4 lines long. Seeds few, large, very flat, black with a lighter-coloured border.

Hab.: Southern downs.

22. **G. pusilliflora** (little flowers), *F. v. M. Key to Syst. Vict. Pl.* i. 354. Annual scarcely beset with spreading hairs, the lower leaves crowded, pinnatifid or at times shortly lobed, the stem-leaves only present at the inflorescence and small, from rhomboid-cuneate to lanceolate with few teeth or entire. Flowers in erect corymbose racemes without bracteoles. Calyx-lobes broadish, expansions of the corolla from yellow to white or purplish. Fruit globular-ovate, nearly 1-celled; seeds few, rather large, collateral, blackish when ripe, surrounded by pale broadish margin.—*F. v. M. l.c.*

Hab.: Given as a Queensland plant in *Muell. 2nd. Syst. Cens. Austr. Pl.* 150.

23. **G. coronopifolia** (Wartcress-leaved), *R. Br. Prod.* 577; *Benth. Fl. Austr.* iv. 75. Apparently annual although tufted, glabrous except a few long hairs towards the base of the leaves. Radical leaves linear, pinnatifid with linear lobes or rarely nearly entire, $1\frac{1}{2}$ to 3 in. long. Stems slender, erect or ascending, $\frac{3}{4}$ to nearly 1 ft. high, sometimes almost filiform, with a very few distant linear leaves. Peduncles 1-flowered, long and slender, without bracteoles. Flowers small, yellow (*R. Brown*), but assuming a purplish hue when dry. Calyx-lobes linear, short. Corolla glabrous outside, 3 to 4 lines long, the 2 upper lobes deeply separated and with broad auricles on the outer side. Dissepiment of the ovary short. Capsule orbicular or ovoid. Seeds few, large, flat, broadly winged.—*DC. Prod. vii.* 515; *De Vr. Gooden.* 149 (as to *Brown's* plant, but not *Mitchell's* nor the New Zealand one associated with it).

Hab.: Islands of the Gulf of Carpentaria, *R. Brown*,

24. **G. heteromera** (parts various), *F. v. M. Fragm.* i. 115; *Benth. Fl. Austr.* iv. 76. A glabrous or sparingly pubescent perennial, with a tufted stock emitting stems or stolons at first sometimes erect but usually prostrate, and all leafless except a terminal tuft, which often roots and becomes a new plant. Leaves radical or in the terminal tufts petiolate, linear spathulate or narrow oblong, entire or rarely pinnatifid, often several inches long. Peduncles or scapes 1-flowered, slender, rarely as long as the leaves, without bracteoles or rarely with very minute ones at the base. Calyx-lobes variable, usually unequal. Corolla yellow, glabrous or hairy outside, under $\frac{1}{2}$ in. long. Dissepiment of the ovary reaching above the middle. Capsule obovoid, about 3 lines long. Seeds several, flat, winged.

Hab.: Southern inland localities.

25. **G. glauca** (glaucous), *F. v. M. in Trans. Vict. Inst.* 1855, 40; *Benth. Fl. Austr.* iv. 76. A perennial glabrous and glaucous in the typical form, silky-hairy in a common variety, with a slender creeping rootstock and ascending or erect stems, scarcely exceeding 6 in. in most specimens, sometimes densely tufted. Radical leaves oblong-lanceolate or linear-lanceolate, entire or rarely with a few prominent teeth, 1 to 3 in. long; stem-leaves linear or linear-lanceolate, entire. Peduncles 1-flowered, longer than the leaves, without bracteoles. Flowers rather large, yellow. Calyx-lobes narrow, acute. Corolla nearly glabrous outside, nearly $\frac{3}{4}$ in. long, the 2 upper lobes separate low down, unequally winged and auriculate. Dissepiment of the ovary short. Indusium glabrous. Capsule globular, about 3 lines long. Seeds few, large, flat, with a broad not very thin wing.

Hab.: In the interior, *Mitchell*; plains of the Condamine, *Leichhardt*; Dawson River, *F. v. Mueller*; Armadilla, *W. Barton*.

26. **G. Armitiana** (after W. E. Armit), *F. v. M. Fragm.* x. 110. A perennial 9 to 12 in. high, almost glabrous. Leaves entire, slightly canaliculate, the lower ones $1\frac{1}{2}$ to $2\frac{1}{2}$ in. long, and about 1 line broad, the upper ones shorter and narrower. Peduncles in the axils of the upper leaves, clusters of few in the axils lower down, all filiform, about 1 in. long. Calyx-tube very short, segments linear-subulate about $1\frac{1}{2}$ line long, glandular pubescent outside. Corolla about 3 lines long, the 3 inferior ones minutely winged at the apex, not bearded, the upper segments scarious-auriculate at the top and with bearded margins. Filaments very narrow; anthers ovate-oblong, style somewhat thick, short, and the indusium sericeo-villous. Capsule almost superior, scarcely 3 lines long, sometimes almost round, shortly apiculate, septum very short. Seeds pale-yellow, 8 or fewer, somewhat broadly winged, punctulate.

Hab.: Lind River, *W. E. Armit*.

27. **G. paniculata** (flowers in panicles), *Sm. in Trans. Linn. Soc.* ii. 348; *Benth. Fl. Austr.* iv. 78. A perennial, more or less hirsute or rarely glabrous, with a tufted stock and erect stems of 1 to 2 ft. Radical leaves petiolate, from obovate to narrow-lanceolate, irregularly toothed or rarely entire, 1 to 2 in. long when broad, often twice that length when narrow; stem-leaves few and much smaller, the floral ones reduced to linear bracts. Flowers yellow, in a loose, terminal panicle, the primary branches racemose, the secondary cymose, the flowers all pedicellate within the small, linear bracts. Calyx-lobes subulate, short. Corolla about $\frac{1}{2}$ in. long, glandular-pubescent outside, with longer simple hairs intermixed. Capsule about 2 lines long, the dissepiment reaching nearly to the top. Seeds numerous and very small, but orbicular and flattened.—*R. Br. Prod.* 575; *Cav. Ic. t.* 507; *DC. Prod.* vii. 513; *De Vr. Gooden.* 125; *G. flexuosa*, *De Vr. Gooden.* 126 (from the character given).

Hab.: Dawson, Mackenzie, and Burnett Rivers, *F. v. Mueller*; Rockingham Bay, *Dallachy*; Rockhampton, *O'Shanesy*; common in southern localities.

28. **G. purpurascens** (flowers purplish), *R. Br. Prod.* 578; *Benth. Fl. Austr.* iv. 78. Glabrous, pubescent or the foliage almost woolly. Stock tufted; stems erect, 1 to 2ft. high. Radical leaves linear or lanceolate, attaining sometimes 6in. or more, entire or with a few remote teeth, the broader ones contracted into a long petiole; stem-leaves few and linear or none besides the small bracts. Flowers small, of a purplish blue, usually numerous, in a loose panicle, the primary racemose branches bearing loose, irregular, dichotomous cymes. Calyx-tube very short; lobes linear. Corolla-tube adnate much higher up than the calyx; lobes broadly winged, the 2 upper ones separated low down, and the wings very unequal. Dissepiment of the ovary reaching to the summit or nearly so. Capsule rarely 2 lines long. Seeds exceedingly numerous and small, flat, with a wing-like margin of very variable breadth.—*DC. Prod.* vii. 515; *De Vr. Gooden.* 153; *F. v. M. Fragm.* i. 117.

Hab.: Islands of the Gulf of Carpentaria, *R. Brown*; Rockingham Bay, *Dallachy*; Cleveland Bay, *Bowman*.

29. **G. gracilis** (slender), *R. Br. Prod.* 575; *Benth. Fl. Austr.* iv. 79. A perennial, glabrous or with more or less of wool about the stock. Radical leaves petiolate, linear or linear-lanceolate, varying from 1 to 5 or 6in. long, usually entire. Flowering stems always much longer than the radical leaves, and sometimes above 1ft. with very few, linear leaves. Panicle loose as in *G. paniculata* and *G. purpurascens*. Flowers yellow, and fruit entirely of *G. paniculata*. Seeds very numerous, small, flat, smooth, and shining.—*DC. Prod.* vii. 513.

Hab.: Broadsound, *R. Brown*; Rockhampton and Keppel Bay, *Thozet*.

30. **G. lamprosperma** (seeds shining), *F. v. M. Fragm.* i. 116; *Benth. Fl. Austr.* iv. 79. Very closely allied to *G. gracilis*, and perhaps a variety, more rigid and very much branched, 1 to 1½ft. high, with very few stem-leaves. Radical leaves linear or lanceolate, but thicker and more rigid than in *G. gracilis*, prominently veined, often rather broader and occasionally toothed. Flowers smaller than in some specimens of *G. gracilis*, but quite like those of other specimens, and in other respects quite the same, as well as the capsule and seeds.

Hab.: Norman and Gilbert Rivers, *T. Gulliver* (*F. v. M. Viet. Field Nat.*, May, 1888).

31. **G. pumilio** (small), *R. Br. Prod.* 579; *Benth. Fl. Austr.* iv. 80. A small, shortly creeping or stoloniferous perennial, hoary with an irregularly stellate pubescence. Leaves in rosulate tufts, petiolate, ovate or orbicular, obtuse, entire, 1 to 3 lines long. Peduncles numerous in the tufts, slender ½ to ¾in. long, each with a single, small flower, without bracteoles. Calyx not above 1 line long at the time of flowering, the lobes short. Corolla only seen in bud, and then the 2 upper lobes rather larger than the others. Anthers ovate. Ovary almost completely 2-celled; ovules in about 4 rows in each cell. Capsule oblong or ovoid-oblong, 1½ to nearly 2 lines long. Seeds small, orbicular, flat, not winged.—*DC. Prod.* vii. 516.

Hab.: Endeavour River, *Banks and Solander*.

4. CALOBYNE, R. Br.

(Alluding to the beauty of the indusium.)

(*Distylis*, *Gaudich.*)

Calyx, corolla, stamens, ovary, capsule, and seeds of *Goodenia*. Style deeply divided into 2 incurved and connivent branches, each with a dimidiate indusium open on the inner edge, and enclosing a half-stigmate, with sometimes a third

intermediate shorter branch, with a straight indusium open on both edges, and enclosing the central portion of the stigmatæ.—Erect or diffuse annuals. Leaves alternate. Peduncles axillary, without bracteoles. Flowers yellow.

Besides the 2 Australian species, another has been published from the coasts of China. It is, however, so near to the *C. pilosa* that it may, perhaps, prove to be a variety only. The genus is very closely allied to *Goodenia*, with a precisely similar habit, differing in the single character of the divided style.—*Benth.*

Plant $\frac{1}{2}$ to 1ft. high. Style 3-branched. Dissepiment exceedingly short, almost rudimentary. Corolla about 5 lines long 1. *C. pilosa*.

Plant about 1 $\frac{1}{2}$ in. high. Style 3-branched. Dissepiment exceedingly short. Corolla about 3 lines long, almost unilabiate 2. *C. heteroptera*.

1. **C. pilosa** (pilose), *R. Br. Prod.* 579; *Benth. Fl. Austr.* iv. 81. An erect or branching and diffuse more or less hispid annual of $\frac{1}{2}$ to 1ft. Leaves sessile or the lower ones petiolate, the upper ones often stem-clasping, lanceolate or almost linear, 1 to 2in. long, marked with a few distant teeth, and the floral ones usually with 1 or 2 lobes on each side at the base. Calyx-lobes lanceolate, leafy, hirsute. Corolla slightly hispid outside, scarcely $\frac{1}{2}$ in. long, the tube shortly closed above the ovary, the upper lobes separated very low, unequally winged, with an inflexed concave auricle, lower lobes equally winged. Anthers mucronate-acuminate. Style with 2 branches, and a third shorter intervening one. Ovary almost completely 1-celled, the very short dissepiment dividing the cavity into two, as in *Goodenia*, but sometimes almost rudimentary. Ovules about 6. Capsule nearly globular, 2 to 3 lines diameter. Seeds oval, flat, with a rather broad, thick border.—*DC. Prod.* vii. 517; *De Vr. Gooden.* 180, partly; *Goodenia dubia*, *Spreng. Syst.* i. 721.

Hab.: Islands of the Gulf of Carpentaria, *R. Brown*; Rockingham Bay, *Dallachy*.

C. chinensis, *Hance*, from the coasts of China, is closely allied to this species, and may prove to be a variety only. In outward aspect *Calogyne pilosa* much resembles some specimens of *Goodenia hispida*.

2. **C. heteroptera** (wings various), *F. v. M. Fragm.* x. 43. Plant small, almost stemless, sparsely pilose, the long hairs rigid and glandular, the shorter hairs crisped and glandular. Leaves flat, 4 to 12 lines long, broad-lanceolate, or the lower ones ovate, narrowed to the petiole, entire, or a little denticulate. Pedicels sometimes shorter than the calyx. Calyx-lobes 1 to 1 $\frac{1}{2}$ line long, narrow-lanceolate, of equal length or longer than the tube. Corolla 3 lines long, yellow, the upper lobes very short and unequally winged and broadly auriculate, the lower lobes equal, wings somewhat broad, outside slightly puberulous. Anther very minute, mucronulate. Style 3-partite, slightly puberulous. Capsule scarcely 2 lines long. Septum very short. Seeds flat, about 8.

Hab.: Newcastle Range, *W. E. Armit*.

5. CATOSPERMA, Benth.

(Seeds suspended from top of cell.)

Calyx-tube adnate; lobes 5, free. Corolla-tube slit on the upper side to the ovary, the limb of 5 nearly equal lobes, at length digitately spreading, the margins shortly winged. Stamens free. Ovary wholly inferior, 2-celled, with 2 ovules in each cell suspended from the top. Indusium cup-shaped, enclosing the short stigma, minutely ciliate. (Drupe 10-ribbed, 4-seeded, the cells imperfectly 2-locellate, *F. v. M.*)—Glabrous herb. Leaves toothed. Flowers yellow, in axillary pedunculate cymes.

The genus is limited to a single species, endemic in Australia, with the flowers of some species of *Goodenia* or of *Scævola*, but differing remarkably from the whole Order in the insertion of the ovules.—*Benth.*

1. **C. Muelleri** (after Baron von Mueller), *Benth. in Hook. Ic. Pl. t.* 1028; *Benth. Fl. Austr.* iv. 83. A glabrous perennial, the stems procumbent or ascending, 1 to 1½ ft. long. Leaves petiolate, ovate or obovate, irregularly toothed, the larger ones above 1 in. long without the petiole. Peduncles usually bearing 3 flowers on rather long pedicels, the central one without bracteoles, the lateral ones with two minute bracteoles below the middle. Calyx-tube about 1½ line long; lobes shorter, linear-lanceolate. Corolla about ½ in. long, glabrous outside, slightly pubescent inside. Style glabrous or nearly so. Fruit, according to F. v. Mueller, 3 to 4 lines long.—*Scavola goodeniacea*, F. v. M. *Fragm.* i. 121.

Hab.: Thomson River, *C. W. de Burgh-Birch*.

6. SCÆVOLA, Linn.

(From *scava*, the left hand; form of corolla.)

(*Pogonetes*, *Lindl.*; *Temminckia*, *Kamphusia*, *Crossotoma*, *Molkenberia*, and *Merkus'a*, *De Vr.*)

Calyx-tube adnate, limb usually very short, annular cup-shaped or of 5 distinct segments, sometimes obsolete. Corolla oblique, the tube slit open to the base on the upper side, the lobes nearly equal or the upper ones shorter, usually at length digitately expanding. Stamens free. Ovary wholly inferior or rarely the summit free, 2-celled with 1 erect ovule in each cell or 1-celled with 1 or 2 erect ovules. Style undivided; indusium cup-shaped, enclosing the truncate or divaricately 2-lobed stigma. Fruit indehiscent, with a more or less succulent or thin and membranous exocarp, and a hard woody or bony rarely thin and crustaceous endocarp. Seeds 1 in each cell, erect, albuminous, embryo usually terete and as long as the albumen, or rarely the cotyledons broader than the radicle.—Herbs undershrubs or shrubs. Leaves alternate. Flowers solitary between 2 bracteoles, sessile or pedunculate in the axils of the leaves or subtending bracts or the peduncles dichotomously branched, with a flower in each fork. Indumentum simple or stellate, the hairs outside the corolla usually reversed, the tube of the corolla always more or less villous inside, the lobes at their base sometimes fringed with long teeth or bristles often tipped with a minute white tuft, and continued more or less into the tube down the lines of junction of the petals.

Out of Australia there are several species in the islands of the Pacific, and 2 maritime ones⁸ (one of them Australian) are widely diffused over the warmer seacoasts of the new as well as the Old World; the remaining Australian species are all endemic.—*Benth.*

SECT. I. **Sarcocarpæa**.—*Shrubs. Leaves usually large with woolly axils. Flowers in lateral or axillary dichotomous cymes. Exocarp usually very succulent.*

- | | |
|--|-----------------------------|
| Leaves obovate. Calyx-lobes oblong or linear | 1. <i>S. Kœnigii</i> . |
| Leaves opposite, ovate or lanceolate and remotely denticulate. Calyx-lobes recurved, lanceolate-linear, long as the tube | 2. <i>S. enantophylla</i> . |
| Leaves opposite, ovate, 3 to 4 in. long, remotely denticulate. Calyx-lobes erect, lanceolate | 3. <i>S. scandens</i> . |

SECT. II. **Crossotoma**.—*Shrubs. Flowers solitary on short slender axillary peduncles.*

- | | |
|---|---------------------------|
| Bracteoles very small, free or none. Leaves entire. Leaves linear-cuneate obovate or ovate, crowded or clustered on short branchlets or nodes | 4. <i>S. spinescens</i> . |
|---|---------------------------|

SECT. III. **Pogonanthera**.—*Herbs or undershrubs. Peduncles or pedicels axillary, 1-flowered or the lower ones bearing a dichotomous cyme of 3 or more flowers or rarely flowers sessile on leafless nodes. Anthers in the first species tipped with a minute tuft of hairs.*

- | | |
|--|---------------------------|
| Decumbent diffuse herb. Leaves, at least the lower ones, toothed. Wings of the corolla-lobes veinless. Peduncles mostly as long as or longer than the leaves. Anthers penicillate. Corolla-wings broad | 5. <i>S. hispidia</i> . |
| Plant hirsute erect and much-branched. Leaves narrow, entire, or reduced to scales. Anthers not penicillate | 6. <i>S. parvifolia</i> . |

SECT. IV. **Xerocarpæa**.—*Herbs undershrubs or shrubs. Flowers sessile or nearly so in the axils of floral leaves or bracts, all or the upper ones forming a terminal dense or interrupted and leafy spike.*

SERIES I. Globuliferæ.—Ovary 2-celled. Hairs on the back of the indusium short or few or scattered. Flowers rather large (usually blue), with rows of soft bristles or subulate teeth tipped with minute white tufts descending in the throat from the margins of the lobes.

Glabrous or rarely with long spreading hairs at the base of the stem.

Leaves mostly sessile, ovate oblong or broadly lanceolate, entire . . . 7. *S. angulata*.

Villous with appressed hairs or almost glabrous. Stems decumbent.

Leaves thick, entire, the lower ones obovate . . . 8. *S. suaveolens*.

SERIES II. Macrostachyæ.—Ovary 2-celled. Hairs on the back of the indusium short or few or scattered. Flowers usually smaller than in the Globuliferæ (white?), with very few or no penicillate bristles within the throat. Fruiting spikes usually continuous with small bracts.

Branching tomentose-villous shrub. Leaves small, entire, mostly sessile . . . 9. *S. revoluta*.

Somewhat viscid shrub. Leaves petiolate, broad, toothed, ovate or obovate.

Bracts ovate or elliptical. Fruit ovoid . . . 10. *S. ovalifolia*.

SERIES III. Pogogyneæ.—Ovary 2-celled. Indusium with a dense tuft of hairs at the base on the back as long as the indusium itself.

Leaves mostly petiolate or narrowed at the base.

Lower leaves obovate, toothed. Stem usually decumbent . . . 11. *S. æmula*.

Leaves small, entire, thick. Small erect undershrub . . . 12. *S. amblyanthera*.

SERIES IV. Monospermæ.—Ovary 1-celled, 2-ovulate. Fruit usually 1-seeded.

Flowers in terminal interrupted leafy spikes.

Leaves thick, 6 to 15 lines long, deeply and irregularly lobed, the lobes with gland-like tips . . . 13. *S. laciniata*.

Leaves obovate or oblong, toothed. Indusium glabrous or shortly hairy on the back . . . 14. *S. microcarpa*.

1. **S. Koenigii** (after J. G. Koenig), *Vahl. Symb.* iii. 36; *Benth. Fl. Austr.* iv. 86. An erect shrub, with a thick, almost succulent stem, the branches, leaves, and inflorescence either silky-pubescent or nearly glabrous, but always with a tuft of long, silky or woolly hairs in the axils. Leaves obovate-oblong, 3 to 5 in. long, rounded and very obtuse at the top, entire or rarely broadly crenate, narrowed at the base into a very short petiole. Cymes axillary, very much shorter than the leaves. Bracts small. Calyx-lobes oblong-linear, very variable in length, but usually as long as or longer than the tube. Corolla about $\frac{3}{4}$ in. long, more or less pubescent outside, the wings of the lobes narrow. Ovary 2-celled. Drupe ovoid or nearly globular, the endocarp bony, near 4 lines long, the exocarp succulent.—R. Br. Prod. 583; DC. Prod. vii. 505; Hook. and Thoms, in *Journ. Linn. Soc.* ii. 8; *Bot. Mag.* t. 2732; *S. Taccada*, Roxb.; *Wight, Illustr.* t. 137; *S. sericca*, Forst.; Br. Prod. 583; DC. Prod. vii. 506; *S. Lobelia*, De Vr. in *Kruidk. Arch.* ii. 20 and Gooden. 20; *Benth. Fl. Hongk.* 198; *S. macrocalyx*, De Vr. Gooden. 26 t. 3; *S. chlorantha*, De Vr. l.c. 27; *S. Lambertiana*, De Vr. l.c. 28; *S. montana*, Labill. *Sert. Austr. Calif.* 41 t. 42.

Hab.: Along the tropical seacoast; Palm Island, *Banks and Solander*; Endeavour Strait, Low Island, and Northumberland Islands (the latter with smaller leaves crenate at the end), *R. Brown*; Escape Cliffs, *Hulls*; Port Denison, *Fitzalan*; Edgecombe Bay, *Dallachy*. A common shrub of the tropical coastal sands.

2. **S. enantophylla** (leaves opposite), *F. v. M. Fragm.* viii. 58. A procumbent plant with distant pairs of leaves; branches terete, prominently striate. Leaves ovate or lanceolate, acuminate, 2 to 3 in. long, $\frac{3}{4}$ to 1 $\frac{1}{2}$ in. broad, paler green beneath, the margins with small distant teeth. Petioles from 1 $\frac{1}{2}$ to 3 lines long. Peduncles axillary, 1 $\frac{1}{2}$ to 6 lines long, bearing from 1 to 3 flowers. Pedicels very short or wanting. Calyx-lobes (recurved in my Johnstone River specimens) linear, long as the tube, which is ribbed. Corolla glabrous outside; lobes about 8 lines long, with narrow fimbriated yellow wings, the tube above the middle bearded with white hairs. Filaments about 2 lines long, glabrous. Anthers oblong, about 1 line long. Style 3 lines, glabrous. Indusium bearded on the back with white hairs; border shortly and densely ciliate. Ovary 2-celled; ovules erect from the base of the cells.—*S. oppositifolia*, *F. v. M. Fragm.* vi. 225.

Hab.: Rockingham Bay, *J. Dallachy*; Johnston River, *Dr. T. L. Bancroft*.

3. **S. scandens** (referring to the climbing habit of plant), *Bail. 3rd Suppl. Syn. Ql. Fl.* 43. A large climbing plant, rambling over the surrounding shrubs to the height of 10 or 12ft. Leaves opposite, bordered with sharp, distant small teeth, ovate, 3 or 4in. long, with narrow elongated apex and short petiole. Flowers solitary, or 2 or 3 on a short peduncle. Calyx-tube about 2 lines long, with minute teeth. Corolla $\frac{3}{4}$ in. long, split open on one side to the base, the inside lined with woolly hairs, the outside glabrous and purplish, except the wavy edges, which are bright-yellow. Stamens scarcely exceeding the corolla-tube in length. Style narrowly winged, shortly incurved at the top; indusium hairy on the back, besides the dense ring of silky-white hairs surrounding the cup. Fruit not seen.

Hab.: Bellenden Ker, at about 3000ft.

Although in habit and a few minor distinctions *S. scandens* would seem to differ from *S. enantophylla*, probably when better known they may prove to be identical.

4. **S. spinescens** (branchlets spine-like), *R. Br. Prod.* 586; *Benth. Fl. Austr.* iv. 87. A rigid, scrubby shrub of several feet, glabrous or hoary-tomentose, the short branchlets often but not always converted into short, simple or branched spines. Leaves often clustered on short branchlets or nodes, obovate, spatulate, oblong or linear, obtuse, entire, thick, under $\frac{1}{2}$ in. when broad, sometimes near 1in. long when narrow. Flowers few or solitary in the clusters of leaves, the peduncles slender, but rarely as long as the leaves. Bracteoles small, narrow-linear. Calyx-limb exceedingly short, annular, truncate. Corolla white, 6 to 8 lines long, tomentose or glabrous outside. Indusium ciliate. Ovary 2-celled. Drupe ovoid, rather large, with a bony endocarp, and thick, succulent mesocarp. Seeds with a large embryo and very little albumen.—DC. *Prod.* vii. 512; *S. oleoides* and *S. lycioides*, DC. l.c.; *Pogonetes spinescens*, Lindl. *Introd. Nat. Syst.* ed. 2, 443; *Crossotoma spinescens*, *C. oleoides*, and *C. lycioides*, De Vr. *Gooden.* 36 to 38.

Hab.: Bokhara Creek, *Leichhardt*; between Thomson and Flinders Rivers, *Sutherland*; on the Maranoa, *Mitchell*; Armadilla, *W. Barton*.

5. **S. hispida** (hispid), *Cav. Ic.* vi. 7 t. 510; *Benth. Fl. Austr.* iv. 90. Herbaceous, apparently annual, scabrous-pubescent or hirsute with spreading hairs, the stems erect or branching at the base, 1 to 2ft. high. Leaves linear or lanceolate and sessile or the lower ones narrow-oblong, and contracted into a petiole, entire or the broader ones remotely toothed, the larger ones 2 or 3in. long, the upper ones smaller. Peduncles axillary, as long as or longer than the leaves, 1-flowered or the lower ones bearing 3 or sometimes a cyme of several flowers. Bracteoles leafy, linear. Calyx-lobes linear, much longer than the tube. Corolla $\frac{3}{4}$ to 1in. long, the wings of the lobes broad, but without transverse veins. Anthers tipped with a tuft of minute bristles. Indusium densely hairy on the back at the base, the margin ciliate. Ovary 2-celled. Drupe oblong, about 3 lines long. Seeds oblong, the embryo nearly terete.—*R. Br. Prod.* 586; DC. *Prod.* vii. 511; *Goodenia ramosissima*, Sm. in *Tr. Linn. Soc.* ii. 349, and *Specim. Bot. Nov. Holl.* t. 5; *Merkusia hispida*, De Vr. *Gooden.* 62.

Hab.: Near Brisbane, *W. Hill*; Helidon and other southern localities.

6. **S. parvifolia** (leaves small), *F. v. M. Herb.*; *Benth. Fl. Austr.* iv. 90. An erect, much branched, villous herb or undershrub, the specimens all under 1ft. high. Leaves lanceolate or oblong-linear, obtuse, the longest under $\frac{1}{2}$ in. and mostly reduced to small bracts. Flowers solitary on rigid, axillary peduncles of $\frac{1}{2}$ in. or more. Bracteoles very small. Calyx-lobes lanceolate, shorter than the tube. Corolla about $\frac{1}{2}$ in. long, hairy outside; wings of the lobes narrow. Anthers with a small, glabrous point. Ovary 2-celled. Style hairy; indusium nearly glabrous, ciliate.

Hab.: Thomson River, *C. W. de Burgh-Birch*.

7. **S. angulata** (angular), *R. Br. Prod.* 586; *Benth. Fl. Austr.* iv. 92. Tall, erect and branching, glabrous or hirsute, with long spreading hairs. Lower leaves ovate-lanceolate, acute, entire or with a few coarse teeth, usually contracted at the base, but almost sessile, 1 to 2 in. long, upper ones sessile, from ovate to lanceolate, entire, rounded or cordate at the base, under 1 in. long, the floral ones or bracts almost as long as the flowers. Flowers almost sessile, distant, forming an interrupted leafy spike, the lower ones or nearly all distant. Bracteoles lanceolate, often as long as the bracts. Calyx-limb campanulate, lobes lanceolate. Corolla glabrous outside, about 7 lines long or rather more, with long subulate teeth or soft bristles descending in the throat from the margins of the lobes. Style glabrous or hairy; indusium ciliate. Ovary 2-celled.—DC. *Prod.* vii. 511; *Merkusia angulata*, De Vr. Gooden. 69.

Hab.: Islands of the Gulf of Carpentaria, *R. Brown*.

8. **S. suaveolens** (sweet-scented), *R. Br. Prod.* 585; *Benth. Fl. Austr.* iv. 95. A prostrate or decumbent hard perennial or undershrub, extending sometimes in dense masses for several feet, more or less clothed with appressed silky hairs or rarely glabrous. Leaves petiolate, from obovate to oblong-spathulate, quite entire, thick, the larger ones 2 to 3 in. long, the upper ones smaller or linear when on elongated branches. Flowers blue, sessile in interrupted terminal hirsute spikes, the bracts oblong-linear, shorter than the flowers, the bracteoles still smaller and linear. Calyx-limb broadly cup-shaped, ciliate, otherwise entire or unequally 5-lobed. Corolla 7 to 8 lines long, villous or rarely nearly glabrous outside, with numerous subulate teeth or soft bristles tipped with minute tufts descending in the throat from the margins of the lobes. Ovary 2-celled. Style slightly hairy. Indusium ciliate, but often on one side only. Drupe when dry ovoid, rugose, 3 lines long; when fresh, much larger with a succulent exocarp as in *S. Kanigii*.—DC. *Prod.* vii. 510; *Goodenia calendulacea*, Andr. Bot. Rep. t. 22; *Merkusia suaveolens*, De Vr. Gooden. 62.

Hab.: Near the sea, Sandy Cape, Keppel Bay, Broadsound, &c., *R. Brown*; Curtis Island, *Henne, Thozet*; Burdekin Expedition, *Fitzalan*; Moreton Island, *F. v. Mueller, M'Gillivray*; common on the coastal sands.

9. **S. revoluta** (margins of leaves revolute), *R. Br. Prod.* 586; *Benth. Fl. Austr.* iv. 96. An undershrub or spreading shrub of 2 to 3 ft., softly villous all over, and sometimes silky. Leaves from obovate-oblong to cuneate or lanceolate, mostly obtuse, flat or with revolute margins, entire, thick and soft, rarely exceeding $\frac{1}{2}$ in. and mostly shorter, the upper ones passing gradually into oblong-linear bracts, either as long as or shorter than the flowers. Flowers sessile, in a terminal leafy spike, sometimes short and interrupted at the base, sometimes very much elongated. Calyx-limb obsolete. Corolla nearly $\frac{1}{2}$ in. long, hairy outside. Ovary 2-celled. Style slightly hairy. Indusium ciliate. Fruit small, oblong, rugose, but not seen ripe.—DC. *Prod.* vii. 510; *Merkusia revoluta*, De Vr. Gooden. 64, partly.

Hab.: Islands of the Gulf of Carpentaria, *R. Brown*.

10. **S. ovalifolia** (leaves oval) *R. Br. Prod.* 584; *Benth. Fl. Austr.* iv. 96. An erect branching perennial or undershrub, about 1 ft. high, usually pubescent, sometimes viscid, rarely almost glabrous, of a pale-green. Lower leaves petiolate, ovate or obovate, coarsely toothed or sometimes entire, 1 to 2 in. long besides the petiole, upper ones smaller and more sessile; floral leaves or bracts ovate-lanceolate or elliptical, leafy but mostly under $\frac{1}{2}$ in. long, entire or the lower ones toothed. Flowers sessile, in an interrupted leafy spike. Bracteoles linear or linear-lanceolate. Calyx-lobes exceedingly short, rounded. Corolla pale blue (*F. v. M.*), about $\frac{1}{2}$ in. long, glabrous or pubescent outside. Ovary

2-celled, but one ovule sometimes abortive. Style slightly hairy. Indusium ciliate. Fruit small, ovoid-oblong.—DC. Prod. vii. 509; *Merkusia ovalifolia*, De Vr. Gooden. 50.

Hab.: Islands of the Gulf of Carpentaria, *R. Brown*; Sweers Island, *Henne*; Flinders River, *Bowman*, *C. F. Plant*.

11. **S. æmula** (a rival), *R. Br. Prod.* 584; *Benth. Fl. Austr.* iv. 99. Herbaceous, diffuse, ascending or rarely erect, rather coarse, clothed with rigid, mostly appressed hairs or nearly glabrous. Leaves petiolate, obovate or cuneate, coarsely toothed, the lower ones sometimes 2 or 3 in. long, the upper ones smaller, the floral ones sessile, ovate-oblong or almost lanceolate, entire or with a few teeth. Flowers sessile, in a spike often 8 to 10 in. long, and much interrupted. Bracteoles linear or linear-lanceolate. Calyx-lobes exceedingly short. Corolla hairy outside, 8 to 10 lines or sometimes nearly 1 in. long. Ovary 2-celled. Style glabrous or hairy, but always with a dense tuft of rigid, often purple hairs at the top as long as the indusium. Fruit small, ovoid, rugose.—DC. Prod. vii. 509; *S. sinuata*, *R. Br. Prod.* 584; DC. Prod. vii. 509; *Merkusia sinuata*, De Vr. Gooden. 58; *M. ? æmula*, De Vr. l.c. 74.

Hab.: Queensland (without locality), *F. v. Mueller*.

The smaller specimens may sometimes be mistaken for *S. microcarpa*, but may be readily known by the tuft of hairs at the back of the indusium, and by the 2-celled ovary.—*Benth.*

12. **S. amblyanthera** (anthers blunt), *F. v. M. Fragm.* i. 121; *Benth. Fl. Austr.* iv. 100. A small, erect, branching perennial, shortly villous all over like *S. revoluta*. Leaves obovate-cuneate, entire, rather thick and soft, all under $\frac{1}{2}$ in. long in the single specimen seen, the floral ones similar, but smaller. Flowers sessile. Bracteoles very small. Calyx-limb obsolete. Corolla pubescent outside, nearly $\frac{1}{2}$ in. long. Ovary 2-celled. Style with a dense tuft of long, purplish hairs behind the indusium, which is ciliate with long hairs. Fruit small, ovoid-oblong, slightly tuberculate.

Hab.: Queensland (without locality), *F. v. M.*

13. **S. laciniata** (leaves slashed), *Bail.* A rigid, erect, divaricate undershrub, 9 in. or more high; stem and branches pale-coloured, more or less sulcate. Leaves thick, rigid, from $\frac{1}{2}$ to $1\frac{1}{4}$ in. long, tapering to the base but not forming a distinct petiole, the sides variously lobed, the longer lobes linear-falcate, the upper ones broad, lowermost ones very narrow. Flowers axillary, sessile. Bracteoles long, narrow, 3-angular and somewhat strigose, tipped with a coloured gland. Calyx-tube glabrous, the limb obsolete or represented by very short, thick, rounded glabrous lobes. Corolla pubescent outside, the lower part of the lobes below the wings ciliate; the upper part of tube densely pubescent inside. Anthers tipped with a tuft of minute bristles or a membrane. Ovary 1-celled. Style glabrous, except at the top, where it has a tuft of long purplish hairs. Indusium nearly glabrous, ciliate.

Hab.: Between Camooweal and Urandangie, *R. C. Burton*.

14. **S. microcarpa** (fruit small), *Cav. Ic.* vi. 6 t. 509; *Benth. Fl. Austr.* iv. 101. A procumbent, diffuse or ascending, very rarely almost erect perennial, more or less pubescent. Leaves petiolate, obovate ovate or cuneate, coarsely toothed, the lower ones often 1 to $1\frac{1}{2}$ in. long, the upper ones smaller, passing into the sessile, ovate-oblong or lanceolate, entire or toothed floral leaves or bracts, which are mostly shorter than the flowers. Spike usually long and interrupted. Bracteoles linear. Calyx-lobes small, ovate. Corolla hairy outside, 7 to 9 lines long in the typical form, the lobes fringed at the base with a few long cilia, sometimes penicillate, and descending into the throat as in the *Globulifera*. Ovary 1-celled, with 2 ovules. Style more or less hairy. Indusium



F.C. Wills, Del.

F. Elliott, Lith.

aciniata, Bail.

glabrous, ciliate. Fruit small, usually 1-seeded.—R. Br. Prod. 585; DC. Prod. vii. 509; *Goodenia albida*, Sm. in Trans. Linn. Soc. ii. 348; *G. lævigata*, Curt. Bot. Mag. t. 287; *Merkusia microcarpa*, De Vr. Gooden. 55.

Hab.: Tarampa, and other southern localities.

7. DAMPIERA, R. Br.

(After William Dampier.)

(*Linschotenia*, De Vr.)

Calyx-tube adnate to the ovary; lobes 5, very small, often concealed under the indumentum or quite obsolete. Corolla-tube deeply slit on the upper side, but usually entire and persistent at the base, the remainder circumscribed and deciduous, 2 upper lobes deeply separated, unequally winged, erect and connivent, enclosing the summit of the style in 2 thick concave auricles, one on the outer side of each lobe below the wing, the 3 lower lobes broadly winged and spreading. Anthers cohering in a tube round the style. Ovary 1-celled, with 1 erect or ascending straight or recurved ovule, rarely 2-celled with 1 erect ovule in each cell; indusium somewhat 2-lipped, not ciliate. Fruit small and indehiscent. Seeds variously shaped; testa rather thin; embryo in the centre of the albumen.—Herbs undershrubs or shrubs; the indumentum usually stellate or branched, cottony or woolly. Leaves entire or obtusely toothed or sinuate. Flowers purple blue or white, rarely yellow, the margins of the corolla-lobes undulate below the wings and forming prominent lines decurrent inside the tube. Peduncles simple or irregularly (mostly cymosely) branched, solitary or clustered in the upper axils or the nearly sessile flowers forming terminal spikes.

The genus is limited to Australia. It is a natural one, readily known by the peculiar auricles of the upper corolla-lobes and coherent anthers combined with the solitary ovules. Several *Goodenias* have indeed auriculate upper corolla-lobes, but the auricles are never so conspicuously concave and thick as in *Dampiera*, and they have always free anthers and a capsular fruit. One species of *Scavola* has a uniovulate ovary, and in two *Dampiera* it is 2-celled and 2-ovulate, but the two genera are very distinct in their corolla and anthers.—*Benth.*

The indumentum in *Dampiera* is almost always more or less stellate, and in many species normally so. Where the hairs appear long and simple they are usually stellate or with short crowded branches at the base, with one branch long and simple; where they are long and plumose the branches are scattered along the main ones, but yet often more crowded at the base, where the hairs appear strigose and appressed, the branches are few, stellate in principle, but parallel and divaricate in opposite directions or reduced to a single centrally attached (2-branched) hair.—*Benth.*

SECT. I. *Linschotenia*.—Flowers sessile or shortly pedicellate, in terminal, leafless, simple or branched spikes or racemes. Ovary 1-celled, with 1 oblong ovule laterally attached above the base.—Plants tomentose or woolly.

Spikes branched. Leaves oblong or lanceolate 1. *D. Linschotenii*.

SECT. II. *Eudampiera*.—Peduncles axillary or terminal, solitary or clustered, 1-flowered or irregularly cymose. Ovary 1-celled, with 1 linear or oblong ovule, erect from the base.

Leaves flat or with recurved margins, stellate-tomentose underneath or rarely glabrous, orbicular, ovate or ovate-lanceolate. Hairs of the flowers plumose. Erect shrubs or undershrubs.

Bracts ovate, leafy 2. *D. ferruginea*.

Bracts minute 3. *D. Brownii*.

Leaves rigid, flat, sessile, oblong or linear, glabrous when full grown.

Hairs of the flowers rigidly appressed, with parallel branches. Stems angular. Calyx-teeth prominent. Corolla-hairs usually ferruginous 4. *D. stricta*.

Leaves shortly petiolate, ovate or lanceolate. Calyx-teeth prominent 5. *D. adpressa*.

Leaves rigid, acute, flat, or concave. Flowers glabrous. Stems prostrate.

Calyx-teeth prominent 6. *D. diversifolia*.

1. *D. Linschotenii* (after J. H. Linschoten), *F. v. M. Fragm.* vi. 28; *Benth. Fl. Austr.* iv. 108. Probably a tall undershrub, erect, clothed with a soft, white cotton, very dense on the stems and under side of the leaves, disappearing

on their upper surface, mixed on the inflorescence with rather long hairs. Branches terete. Leaves shortly petiolate, oblong or lanceolate, thick, entire, flat or concave, the lower ones above 2 in. long, the upper ones smaller. Flowers nearly sessile, solitary within each bract, forming long spikes, branching at the base into a pyramidal, leafless panicle. Bracts small, linear or lanceolate; bracteoles very small. Calyx-tube densely covered with long hairs, the lobes obsolete. Corolla 4 to 5 lines long, covered outside with a stellate tomentum, mixed with longer hairs. Upper lobes of the corolla shorter than the others. Ovary 1-celled, with 1 oblong ovule, erect, but attached laterally a little above the base.—*Linschotenia discolor*, De Vr. in Mitch. Trop. Austr. 346; Gooden. 120. t. 22.

Hab.: Near Mount Pluto and Mount Faraday, *Mitchell*.

The "paracorollæ cuculliformes," by which De Vriese proposed to distinguish this plant generically from *Dampiera*, are nothing but the auricles of the upper corolla-lobes, one of the principal characters of the whole genus *Dampiera*.—*Benth*.

2. **D. ferruginea** (hairs rust-coloured), *R. Br. Prod.* 588; *Benth. Fl. Austr.* iv. 112. An erect undershrub of 1 to 2 ft., clothed with a loose stellate tomentum intermixed with long hairs shortly plumose at the base; branches terete, sulcate. Leaves very shortly petiole, ovate orbicular or rhomboidal, rather rigid, often 3-nerved, entire or coarsely toothed, $\frac{3}{4}$ to $1\frac{1}{2}$ in. long, becoming glabrous when old, the upper ones sessile and smaller. Peduncles in the upper axils several-flowered, with ovate leaf-like bracts or the peduncles growing out into leafy branches. Flowers blue, almost sessile in the axils of the leafy bracts, densely clothed with loosely stellate hairs and long ones plumose at the base. Calyx-lobes obsolete. Corolla about $\frac{1}{2}$ in. long. Ovary 1-celled, with 1 erect narrow ovule.—*DC. Prod.* vii. 503; De Vr. *Gooden.* 93. t. 14.

Hab.: Shoalwater Bay, *R. Brown*; dry ridges, Burnett River, *F. v. Mueller*; Magnetic Island, *Burdekin Expedition*; Port Denison, *Fitzalan*; Rockingham Bay, *Dallachy*.

3. **D. Brownii** (after Robt. Brown), *F. v. M. Fragm.* vi. 29; *Benth. Fl. Austr.* iv. 112. A tall shrub, more or less scabrous-pubescent hirsute or almost woolly with stellate hairs. Leaves petiolate, orbicular oval or rarely ovate-lanceolate, thick and often undulate or coarsely sinuate-toothed in the broad-leaved forms, usually quite entire in the oval-leaved varieties, usually from $\frac{1}{2}$ to 1 in. long, but twice as much when very luxuriant. Peduncles solitary or clustered in the upper axils, sometimes much shorter than the leaves, sometimes especially in the oval-leaved varieties much elongated, and usually bearing an irregular cyme of 3 or more sessile flowers. Bracts minute. Flowers purple or blue, densely clothed with dark-coloured plumose hairs, sometimes very long and spreading, especially in the broad-leaved forms. Calyx-lobes minute and concealed under the indumentum or quite obsolete. Corolla usually about $\frac{1}{2}$ in. long. Ovary 1-celled, with 1 erect narrow ovule. Fruit oblong, nearly 2 lines long, transversely rugose. Seed nearly terete.—*D. undulata*, *D. rotundifolia*, *D. ovalifolia*, and *D. purpurea*, *R. Br. Prod.* 587, 588; *DC. Prod.* vii. 503; De Vr. *Gooden.* 84 to 86, 93; *D. omissa*, De Vr. in *Ned. Kruidk. Arch.* ii. 10; *D. melanopogon*, De Vr. *Gooden.* 87; *D. nervosa*, De Vr. in *Ned. Kruidk. Arch.* ii. 12, *Gooden.* 92; *D. bicolor*, De Vr. *Gooden.* 89, from the characters in *Ned. Kruidk. Arch.* ii. 11.

Hab.: Southern localities.

4. **D. stricta** (upright), *R. Br. Prod.* 589; *Benth. Fl. Austr.* iv. 115. A rigid perennial, nearly glabrous except the inflorescence, the young shoots rarely stellate-pubescent. Stems broadly angular or compressed, erect or rarely decumbent. Leaves sessile, the lower ones sometimes broadly obovate or cuneate, but mostly oblong or linear, from $\frac{1}{2}$ to $1\frac{1}{2}$ in. long, flat, rigid, entire or

coarsely angular-toothed. Flowers blue, solitary or irregularly clustered in the upper axils, densely covered with appressed usually rust-coloured hairs apparently simple but really branched or stellate at the base, with divaricate and parallel branches. Pedicels usually very short, the bracts and bracteoles rigid, linear or lanceolate. Calyx-lobes ovate or ovate-lanceolate, generally prominent, although covered with the hairs of the tube. Corolla rarely under $\frac{1}{2}$ in. long and sometimes 7 or 8 lines, the persistent base very short. Ovary 1-celled, with 1 straight ovule erect from the base.—DC. Prod. vii. 504; Hook. f. Fl. Tasm. i. 230; De Vr. Gooden. 109 (but in all these only the Eastern plant); *D. fasciculata*, DC. Prod. vii. 504, De Vr. Gooden. 105 (as to the Port Jackson plant); *Goodenia stricta*, Sm. in Trans. Linn. Soc. ii. 349.

Hab.: Glasshouse Mountains, *F. v. Mueller*; other southern localities.

Var. *oblongata*. Leaves usually oblong, entire or nearly so, 1 to 2 in. long. Indumentum of the flowers looser and darker.—*D. oblongata*, R. Br. Prod. 588; DC. Prod. vii. 504; De Vr. Gooden. 106, partly. Hab.: Stanthorpe.

5. **D. adressa** (hairs pressed close to the stem and leaves), *A. Cunn.*: DC. Prod. vii. 503; *Benth. Fl. Austr.* iv. 119. An undershrub, with a thick stock, and several erect, simple or slightly-branched stems of 1 to 2 ft., clothed when young as well as the leaves with a close, white, almost floccose tomentum, which disappears from the adult leaves. Leaves very shortly petiolate, ovate or lanceolate, acute or rarely obtuse, entire or obscurely toothed, coriaceous, rather thick, smooth, and quite flat, $\frac{1}{2}$ to 1 in. long. Peduncles axillary, rarely exceeding the leaves, 2 or 3-flowered. Bracts small, linear. Flowers rather small, clothed with a dense, stellate or woolly tomentum, mixed with long, almost simple hairs. Calyx-lobes oblong-linear, sometimes rather long, but apparently deciduous, and much concealed by the indumentum. Ovary 1-celled, with 1 straight ovule erect from the base.—*D. lanceolata*, De Vr. Gooden. 101 t. 17.

Hab.: Cape River, *Bowman*; Thermometer Creek, *Leichhardt*.

6. **D. diversifolia** (leaves various in form), *De Vr. in Pl. Preiss.* i. 403; *Gooden.* 117; *Benth. Fl. Austr.* iv. 119. A prostrate perennial or undershrub, extending sometimes to a considerable breadth, with numerous short, dense, leafy branches, quite glabrous in every part. Radical-leaves oblong-spathulate or oblanceolate, 1 to $1\frac{1}{2}$ in. long, all the others lanceolate, oblanceolate or linear, rarely above $\frac{1}{2}$ in. long, coriaceous, acute, entire, or minutely toothed, often concave like those of *Epacrideæ*. Flowers blue, differing from all other species in being quite glabrous outside, on short, axillary peduncles or branchlets, with 1 or 2 leaves and a pair of bracteoles close under the flower. Calyx-lobes ovate-triangular, shorter than the persistent base of the corolla. Corolla about $\frac{1}{2}$ in. long. Ovary 1-celled, with 1 straight ovule erect from the base.—*Scævola prostrata*, De Vr. in *Pl. Preiss.* i. 406.

Hab.: Queensland (without locality), *F. v. Mueller*.

8. BRUNONIA, Sm.

(After Robert Brown.)

Calyx-tube free but contracted over the ovary; lobes 5. Corolla nearly regular, inserted at the base of the calyx-tube, the tube cylindrical; lobes 5, valvate, spreading, the 2 upper ones separated rather lower down. Stamens 5, inserted at the base of the corolla-tube, the filaments cohering upwards, the anthers cohering in a ring round the style. Ovary free, but enclosed in the calyx-tube, 1-celled, with a single erect anatropous ovule. Style simple; stigma shortly 2-lobed, enclosed in a cup-shaped indusium. Fruit a small nut enclosed

in the hardened calyx-tube. Seed erect, without albumen. Embryo straight, cotyledons ovate, radicle short, inferior.—Silky-hairy perennial. Leaves radical. Flowers in a dense head, intermixed with bracts, on a leafless scape.

The genus is limited to a single species endemic in Australia. R. Brown appears to me to have been quite right in including it in *Goodenovieæ*, of which it has the remarkable indusium. It has since been raised into an independent Order, on account of the free ovary, regular flowers, and exalbuminous seed, and has even been removed far away from *Goodenovieæ* to the neighbourhood of *Plumbagineæ*. The ovary and fruit are, however, so completely enclosed in the constricted calyx-tube as to be really less free than in *Lobelia xalapensis*, the exceptionally regular flowers are but little more so than in *Diaspasis*, and in some species of *Scevola*, especially *S. spinescens*, I have found the albumen much reduced. The habit of *Brunonia* is also so little different from that of *Dampiera eriocephala*, that I have seen the latter placed in covers of *Brunonia* as a new species.—*Benth.*

1. **B. australis** (Australian), *Sm. in Trans. Linn. Soc. x. 367. t. 28; Benth. Fl. Austr. iv. 121.* A tufted perennial, clothed in every part with long silky hairs closely appressed in some specimens, more frequently more or less spreading. Leaves radical, from obovate to linear-cuneate, quite entire, softly mucronate, contracted into a petiole, mostly 2 to 4 in. long. Scapes 6 in. to above 1 ft. high, bearing a dense globular or hemispherical flower-head of $\frac{1}{2}$ to $\frac{3}{4}$ in. diameter. Flowers numerous, sessile, intermixed with bracts of which a few of the outer ones are broad and leafy though not longer than the flowers, forming a kind of involucre, the inner ones small and narrow, ciliate with long hairs; there are also close around each flower 3 or 4 concave truncate but jagged and ciliate bracts of which at least the 2 innermost are scarious and transparent. Calyx-tube very short, the lobes $1\frac{1}{2}$ to 2 lines long, plumose-ciliate, almost always tipped with a glabrous pedicellate gland. Corolla blue, the tube linear, hirsute, shorter than the calyx-lobes, the lobes oblong, glabrous, about as long as the tube. Fruit small.—R. Br. Prod. 590; A. DC. Prod. xii. 616; Hook. f. Fl. Tasm. i. 229; Bot. Reg. t. 1833; Paxt. Mag. vii. 267, with a fig.; *B. sericea*, *Sm. in Trans. Linn. Soc. x. 367. t. 29; R. Br. Prod. 590; A. DC. Prod. xii. 616; B. simplex*, Lindl. in Mitch. Trop. Austr. 82.

Hab.: Shoalwater Bay, R. Brown; Keppel Islands, *M'Gillivray*; Rockhampton, *Thozet*; Darling Downs, *H. Lau*; Mount Pluto, *Mitchell*; common on sandy knolls.

The two forms commonly distinguished as a species pass into one another very gradually. Where the indumentum is more silky and shorter, the glabrous tips of the calyx-lobes are prominent, and these specimens have usually smaller flower-heads. Where the hairs are longer the tips are concealed amongst them, and perhaps sometimes, but very rarely, disappear altogether; the former state is most common in the northern districts, the latter in the southern ones, but intermediate ones are also very frequent.—*Benth.*

ORDER LXVIII. CAMPANULACEÆ.

Calyx-tube adnate to the ovary, the limb of 3 to 10, usually 5, persistent lobes. Corolla regular or irregular, with 3 to 10, usually 5, lobes, valvate in the bud, the margins often induplicate. Stamens as many as the lobes of the corolla, alternate with them, inserted at the base of the corolla-tube, but free from or very rarely more or less adnate to it. Anthers opening longitudinally, free or united in a ring round the style. Ovary inferior or rarely semisuperior or free except the broad base, 2 or more-celled, with numerous ovules in each cell. Style simple, entire or divided at the top into as many stigmatic lobes or branches as there are cells to the ovary. Fruit usually a capsule, opening either in short valves at the top or in lateral pores or slits, rarely an indehiscent berry. Seeds numerous, small. Embryo straight, often very small, in a fleshy albumen.—Herbs or very rarely shrubs, with a juice usually milky. Leaves alternate or very rarely opposite, usually undivided and toothed, rarely deeply pinnatifid,

without stipules. Flowers hermaphrodite or very rarely unisexual, either axillary solitary or clustered or in terminal spikes racemes or leafy panicles. Corolla frequently blue or white, more rarely purple or red, very rarely yellow.

A considerable Order, most abundant in the temperate regions of the northern hemisphere and in S. Africa, but extending also over the tropics both in the New and the Old World.

TRIBE I. **Lobeliae**.—*Corolla usually irregular. Anthers united round the style. Ovary 2-celled.*

- Corolla-tube slit open to the base, the limb very irregular, 2-lipped.
- Capsule opening between the calyx-lobes in 2 loculicidal valves 1. LOBELIA.
- Fruit, often succulent, either indehiscent or bursting irregularly below the calyx-lobes 2. PRATIA.
- Corolla-tube entire or very shortly slit, the limb spreading, nearly regular or oblique 3. ISOTOMA.

TRIBE II. **Campanuleæ**.—*Corolla regular. Anthers free or imperfectly connate.*
 Corolla regular, campanulate. Anthers free. Ovary 3 to 5-celled 4. WAHLENBERGIA.

1. LOBELIA, Linn.

(After Mathias L'Obel.)

(*Rapuntium and Grammatotheca, Presl; Holostigma, Don.*)

Calyx-tube hemispherical, turbinate ovoid oblong or rarely linear, limb of 5 lobes, open or reduplicate-valvate in the bud. Corolla slit open on the upper side to the base, 5-lobed, the 2 upper lobes usually shorter, more deeply separated and erect or curved upwards, forming a more or less distinct upper lip, the 3 lower spreading in a lower 3-lobed lip. Stamens inserted at the base of the corolla, sometimes very shortly adnate to it, the filaments often united above the middle; anthers united in an oblique or slightly incurved ring round the style. Ovary 2-celled. Stigma broadly 2-lobed and often surrounded by a ring of retractile hairs. Capsule opening loculicidally within the calyx-lobes in 2 valves, rarely splitting also longitudinally below the calyx-lobes when old.—Herbs, often acrid with a milky juice, the Australian ones either annual or creeping and rooting at the base. Pedicels 1-flowered, either axillary or terminal or in terminal racemes, sometimes bearing 2 small bracteoles, which are never constant in the same species. Flowers in a few species diœcious by the abortion or sterility of the anthers in the females, and the imperfection of the undivided stigma and abortion of the ovules in the males.

The genus is numerous in species and widely spread over the greater part of the globe, but chiefly abundant in North America, South Africa, and Australia.

SECT. I. **Holopogon**.—*All the anthers bearded (tipped with a tuft of short rigid hairs or bristles). Flowers terminal or in terminal racemes.*

- Annuals either erect or the lateral stems shortly decumbent at the base.
- Flowers in a one-sided terminal raceme. Capsule gibbous.
- Leaves linear, entire or rarely toothed. Middle lower lobe of the corolla narrow. Seeds not winged 1. *L. gibbosa*.
- Lower leaves ovate, cut. Racemes very loose. Seeds small, not winged.
- Middle lower lobe of the corolla narrow 2. *L. dentata*.
- Middle lower lobe of the corolla broad 3. *L. gracilis*.
- Sem creeping or procumbent at the base; branches as ending. Leaves all petiolate, cordate. Flowers in a loose terminal leafless raceme.
- Capsule globular 4. *L. trigonocaulis*.
- Stem erect, angular. Leaves sessile 5. *L. Douglasiana*.

SECT. II. **Hemipogon**.—*Two lower anthers tipped with tufts of short bristles or with single bristles or points, three upper ones without any. Flowers solitary on axillary pedicels, the uppermost rarely forming a leafy raceme.*

- Flowers hermaphrodite (anthers, stigma, and ovules, all perfect).
- Lower leaves cuneate or obovate, rather thick, entire or obscurely toothed. Upper leaves narrow. Pedicels short. Stems ascending.
- Capsule oblong or linear 6. *L. anceps*.

- Leaves toothed. Pedicels slender, much longer than the leaves.
- Leaves ovate or orbicular, mostly petiolate, thin 7. *L. membranacea*.
 Leaves sessile, linear or linear-lanceolate 8. *L. stenophylla*.
 Leaves sessile, ovate or orbicular, prominently toothed 9. *L. quadrangularis*.
- Flowers more or less dioecious, the males with an entire stigma and very short ovary with abortive ovules; females with rudimentary stamens or abortive anthers.
- Slender annual. Stamens in the female rudimentary 10. *L. dioica*.
 Perennial, decumbent or creeping at the base. Anthers in the female without pollen or quite abortive. Glabrous. Leaves oblong or lanceolate, toothed. Pedicels long 11. *L. purpurascens*.

1. ***L. gibbosa*** (fruit swelled out on one side), *Labill. Pl. Nov. Holl.* i. 50 t. 71; *Benth. Fl. Austr.* iv. 124. An erect glabrous annual, simple, or with a few erect branches, $\frac{1}{2}$ to $1\frac{1}{2}$ ft. high. Leaves not numerous, linear, entire or with a few small teeth, or rarely the lower ones broader and deeply toothed. Flowers of a deep blue, in a terminal one-sided raceme, the pedicels usually short, between 2 short linear bracteoles, the subtending bract often wanting, and sometimes the bracteoles also. Calyx-lobes very narrow, about as long as the short broad tube. Corolla variable in size, often above $\frac{1}{2}$ in. long, the 3 lower lobes oblong, obtuse or acute, the 2 upper ones shorter, incurved, acute, glabrous, or with a few long hairs. Anthers all tipped with a tuft of short bristles. Capsule from $\frac{1}{4}$ to nearly $\frac{1}{2}$ in. long, broadly and very obliquely obovate, gibbous on the upper side. Seeds very numerous, variable in size, always much smaller than in *L. heterophylla*, with 3 more or less prominent angles, but not winged.—R. Br. Prod. 564; A. DC. Prod. vii. 358; Hook. f. Fl. Tasm. i. 238; *L. simplicicaulis*, R. Br. l.c.; A. DC. l.c.; *L. stricta*, R. Br. l.c.; *L. Browniana*, Rœm. et Schult. Syst. v. 71; A. DC. Prod. vii. 359.

This species has been separated into three by Baron von Mueller, but as I consider the distinctions scarcely sufficient to distinguish well-marked varieties, I could not follow him, but have given them as varieties with the Baron's descriptions so that persons differing from me may be enabled to recognise them, and keep them separate, if so inclined.

Stems somewhat turgid and succulent.

1. Var. *microsperma*. Annual, glabrous. Stem usually branchless. Leaves narrow-linear or thread-like, usually entire. Bracts linear, pointed. Pedicels shorter than the flowers. Corolla blue inside; the upper lobes curved, much-pointed, glabrous; lower lobes narrow-lanceolate, and pointed. Fruit much bulged on the upper side. Seeds brown, very minute, almost dust-like.—*Lobelia microsperma*, F. v. M. Fragm. x. 41.

Hab.: Maroochie and Burnett River.

Stems slender, hardly succulent.

2. Var. *Browniana*. Annual, glabrous, hardly branched. Leaves linear, the lower ones broader and denticulate. Corolla blue inside; the upper lobes with minute hairs, pointed; lower lobes rather acute. Fruit much bulging on the upper side. Seeds very minute, almost dust-like.—*Lobelia Browniana*, Rœm. et Schult. (F. v. M. Fragm. x. 41).

Hab.: Maroochie and many other southern localities.

3. Var. *simplicicaulis*. Rather tall. Leaves mostly narrow and indented, the lower ones often lanceolate. Flowers rather large. Corolla blue, rarely pink inside, the upper lobes with minute hairs, all the lobes acute. Fruit slightly bulging on the upper side. Seeds small, ovate-triangular.—*Lobelia simplicicaulis*, R. Br. (F. v. M. Fragm. x. 41).

Hab.: Moreton Bay.

Few plants are as tenacious of life as this species of *Lobelia*. The root is most delicate, and only seems of use to the plant up to the time of the first flower opening, after which it appears to die, and only by being fixed in the ground keeps the plant in an upright position. When preparing herbarium specimens of it, they must be scalded before placing in the papers, otherwise they keep elongating and expanding flowers until the plant is thoroughly exhausted, which takes, frequently, several weeks.

2. ***L. dentata*** (leaves toothed), *Car. Ic.* vi. 14. t. 522; *Benth. Fl. Austr.* iv. 125. Very nearly allied to, and probably a variety of, *L. gibbosa*, but weaker, and not so erect, sometimes very scrambling and almost twining, approaching in foliage and inflorescence the *L. gracilis*. Lower leaves small, ovate, "deeply cut, the others few, narrow, pinnatifid or toothed. Raceme very loose, the flowers

fewer, on longer pedicels than in *L. gibbosa*, but as large as in that species, the middle lower lobe oblong, not obovate as in *L. gracilis*. Capsule obovoid, broad, very oblique, and gibbous on the upper side. Seeds small, ovoid or 3-angled, smooth.—R. Br. Prod. 564; A. DC. Prod. vii. 364.

Hab.: Several southern localities.

3. ***L. gracilis*** (slender), *Andr. Bot. Rep. t. 340*; *Benth. Fl. Austr. iv. 125*. A glabrous annual, erect, or branching and shortly decumbent at the base, more slender than *L. gibbosa*, and usually under 1ft. high. Leaves small, the lowest ones ovate and deeply cut, the others lanceolate and pinnatifid, or linear and toothed or entire, all narrowed at the base. Flowers rather smaller than in *L. gibbosa*, on long pedicels, in a very loose unilateral raceme, the lower subtending bracts often more or less leaf-like. Calyx of *L. gibbosa*. Corolla with the middle lower lobe obovate, the lateral ones oblong or obovate-oblong, the 2 upper ones incurved, hairy or glabrous. Capsule rarely 2 lines diameter, as broad as long, very oblique, gibbous on the upper side. Seeds very small.—R. Br. Prod. 563; A. DC. Prod. vii. 364; *Bot. Mag. t. 741*; *L. dentata*, Sieb. Pl. Exs. not of Cav.

Hab.: Several southern localities.

Var. *major*. Larger and more luxuriant, with larger deeply-toothed leaves, the flowers larger, but with the broad lower corolla-tube of *L. gracilis*.—*L. trigonocaulis*, Hook. Bot. Mag. t. 5088, not of F. v. M.—Crevices of rocks, Mount Lindsay, *W. Hill*.

4. ***L. trigonocaulis*** (stem 3-angled), *F. v. M. Fragm. i. 18*; *Benth. Fl. Austr. iv. 127*. Nearly glabrous or sprinkled with a few, small hairs. Stems (from a perennial rootstock?) creeping at the base, weak, and ascending to 1ft. or more, somewhat 3-angled. Leaves all on rather long petioles, ovate-cordate or the lower ones almost orbicular, coarsely toothed or crenate, $\frac{1}{2}$ to above 1in. diameter. Flowers few and distant in a terminal raceme, on short pedicels, in the axils of very small, linear bracts. Calyx-tube broadly turbinate, the lobes narrow and rather longer. Corolla fully $\frac{3}{4}$ in. long, the lower lobes oblong, rather acute, the 2 upper ones shorter and incurved. Filaments hairy at the base; anthers all tipped with tufts of short bristles. Capsule almost globular or broader than long, scarcely oblique. Seeds ovoid, rather large, minutely foveolate.

Hab.: Shady forests, Brisbane River, Moreton Bay, *F. v. Mueller*; many other localities.

5. ***L. Douglasiana*** (Hcn. J. Douglas), *Bail. Q. Ag. Jl. 1*. Stem erect, 6in., angular. Leaves 6 to 9 lines, sessile, linear, with distant teeth. Flowers violet. Peduncles filiform, 2in. Calyx-tube 10-ribbed, alternate ribs ending in gland-like teeth. Corolla-tube slender, lobes narrow, the 3 lower ones white with 2 green lines, tube glandular inside at the base. Anthers with bristles.

Hab.: On damp land, Thursday and Hammond Islands, Torres Straits.

6. ***L. anceps*** (stem 2-edged), *Thunb.; DC. Prod. vii. 375*; *Benth. Fl. Austr. iv. 128*. A glabrous perennial, the rootstock often shortly creeping; stems decumbent, ascending or erect, from a few inches to 1 $\frac{1}{2}$ ft. long, regular or more or less winged by the decurrent leaves. Lower leaves petiolate, obovate or cuneate, sometimes 2in. long but usually smaller, the larger stem-leaves oblong-spathulate, lanceolate or almost linear, passing gradually into narrow, sessile floral leaves, the uppermost reduced to very small bracts, all entire or sparingly toothed. Flowers small, on very short, axillary pedicels, the upper ones forming a slender raceme. Calyx-lobes broadly lanceolate, acute, not half so long as the linear-cuneate tube. Corolla blue or almost white, the lower lobes forming a broadly obovate, 3-fid lip, the 2 upper ones small, acute, and falcate. Anthers with a few short hairs on the back, the 2 lower ones tipped with a tuft of short bristles. Capsule oblong-linear, 3 to 4 lines or in luxuriant specimens 5 lines long, contracted at the base. Seeds glossy, compressed, brown, smooth, ovate.—

Hook. Fl. Tasm. i. 237; *L. decumbens*, Sims, Bot. Mag. t. 2277; *L. rhizophyta*, Schult.; Sims, Bot. Mag. t. 2519; *L. alata*, Labill. Pl. Nov. Holl. i. 51 t. 72; R. Br. Prod. 562; De Vriese in Pl. Preiss. i. 395; *L. cuneiformis*, Labill. Pl. Nov. Holl. i. 51 t. 73; *L. uncinata* and *L. stricta*, De Vr. in Pl. Preiss. i. 396.

Hab.: Port Curtis, *M'Gillivray*; islands of Moreton Bay and the coast generally.

The species is also in New Zealand, South Africa, and extratropical South America.

7. **L. membranacea** (leaves very thin), *R. Br. Prod.* 563; *Benth. Fl. Austr.* iv. 129. Glabrous, with long procumbent filiform stems, often rooting at the lower nodes. Leaves petiolate, broadly ovate-cordate or orbicular, thin and membranous, mostly sinuate-toothed rarely much exceeding $\frac{1}{2}$ in. diameter, a few of the uppermost more sessile and ovate. Flowers on long filiform axillary pedicels. Calyx-tube turbinate, the lobes small and narrow. Corolla 4 to 5 lines long, the lower lobes oblong, the upper ones narrower, more acute and incurved. Upper anthers hirsute on the back without terminal tufts, lower ones with a single small bristle or point on each. Capsule obovate-turbinate, straight, about 2 lines long. Seeds very small, brown, ovate, very finely punctate.—*A. DC. Prod.* vii. 365.

Hab.: Bustard Bay, *Banks and Solander* (with particularly large and thin leaves); Port Curtis, *M'Gillivray*; Rockingham Bay, *Dallachy*; Moreton Bay, *F. v. Mueller*; Barron and other northern rivers.

8. **L. stenophylla** (slender-leaved), *Benth. Fl. Austr.* iv. 130. Glabrous. Stems from a creeping base very slender, ascending and often above 1 ft. long. Leaves sessile or nearly so, linear or linear-lanceolate, minutely and remotely toothed or entire, often above 1 in. long. Pedicels axillary, usually more than twice as long as the leaves. Calyx-lobes as long as or longer than the turbinate tube. Corolla about 4 lines long, the lobes nearly of an equal length, the 3 lower obovate-oblong, the 2 upper narrower, more acute, and curved upwards. Anthers glabrous, without terminal tufts, but the 2 lower tipped each with a small bristle. Capsule obovate, 2 to $2\frac{1}{2}$ lines long, scarcely oblique.

Hab.: Burnett River, *F. v. Mueller*; Rockhampton, *O'Shanesy*; Broadsound, *Herb. F. v. Mueller*; Brisbane River, Moreton Bay, *Backhouse, F. v. Mueller*; throughout the colony.

9. **L. quadrangularis** (4-angled), *R. Br. Prod.* 563; *Benth. Fl. Austr.* iv. 130. A glabrous or rarely pubescent perennial, the stems much-branched, prostrate (or ascending?), angular. Leaves nearly sessile, ovate or orbicular, prominently toothed, rather thin, rarely exceeding $\frac{1}{2}$ in. Pedicels axillary, long and slender. Calyx-lobes lanceolate, about as long as the narrow turbinate tube. Corolla about 3 lines long, the lower lobes oblong, the 2 upper ones rather shorter, narrower and acute. Anthers glabrous or minutely pubescent on the back, without terminal tufts, but the lower ones tipped with 2 or 3 very small bristles. Capsule obovate-oblong, slightly oblique, about 3 lines long. Seeds very small and numerous, brown, glossy, ovate, compressed.—*A. DC. Prod.* vii. 365; *F. v. M. Fragm.* iv. 182.

Hab.: Barron River and other tropical localities.

10. **L. dioica** (diœcious), *R. Br. Prod.* 565; *Benth. Fl. Austr.* iv. 130. A slender much-branched annual of 3 to 6 in., glabrous or sprinkled with a few short spreading hairs. Leaves sessile, oblong or lanceolate, bordered by a few small teeth or entire, 3 to 6 lines long, the floral ones gradually smaller. Flowers diœcious, on very slender pedicels in the axils of the upper leaves and much longer than them, forming a terminal leafy raceme, numerous and crowded at the ends of the branches in the males, fewer and more distant in the females. Calyx-lobes linear, about $\frac{1}{2}$ line long, the males without any tube, the females with an adnate tube of about $\frac{1}{2}$ line. Corolla about $1\frac{1}{2}$ line long, the



F.C. Wills, Del.

F. Elliott, Lith.

Lobelia stenophylla, F. v. M.

tube slit open on the upper side, the lobes obovate-oblong, nearly equal, but oblique. Anthers in the males slightly pubescent, the upper ones without terminal tufts, the 2 lower tipped by a very few small bristles; the stamens rudimentary in the females. Stigma in the males small and entire, and the ovules abortive, but in the females the stigma is broadly 2-lobed as in other *Lobelias*. Capsule obovoid-oblong, about 2 lines long, scarcely oblique.—*Monopsis dioica*, Presl. Prod. Mon. Lob. 11; *Holostigma dioicum*, G. Don, Gen. Syst. iii. 716, A. DC. Prod. vii. 852.

Hab.: Gulf of Carpentaria, opposite Groote Island, *R. Brown*; Gilbert River, *Thos. Gulliver* (Fragm. x. 43).

11. **L. purpurascens** (often purplish on back of leaf), *R. Br. Prod.* 568; *Benth Fl. Austr.* iv. 131. The white underground running stems are long and numerous. Quite glabrous. Stems, from a perennial rootstock, branched, procumbent or ascending, angular, often above 1ft. long, but sometimes very small and short. Leaves shortly petiolate or almost sessile, from ovate to oblong-lanceolate, toothed, rather firm, usually from $\frac{1}{2}$ to 1in. long. Pedicels axillary, much longer than the leaves, often reflexed after flowering. Flowers diœcious. Calyx-lobes narrow, acute, the tube very short or scarcely any in the males, obconical and rather narrow in the females. Corolla 4 to 5 lines long, the lower lobes oblong, obtuse, the 2 upper ones rather shorter narrower more acute and incurved. Anthers in the males glabrous, without terminal tufts, but the 2 lower tipped with 1 or 2 small bristles, smaller and without pollen or abortive in the females. Stigma small and undivided, and ovules abortive in the males, the stigma broadly 2-lobed in the females. Capsule narrow-ovoid, fully 3 lines long, the conical summit opening in 2 valves as in *Lobelia*; the seeds reticulate, rather large and often flattened as in *Pratia*.—A. DC. Prod. vii. 365; Litho. Pl. Vict. plate 50, according to F. v. M. this species includes *L. ilicifolia*, Sims. Bot. Mag. 1896.

Hab.: A common troublesome weed.

The species has some resemblance with *Patria erecta*, but it is at once known by the long usually recurved pedicels.

Dr. Thos. L. Bancroft found this species to be equally poisonous with the Indian Tobacco, *Lobelia inflata*, Linn.

2. PRATIA, Gaudich.

(After M. Prat-Bernon.)

Calyx of *Lobelia*. Corolla slit open on the upper side, 5-lobed, the lobes nearly equal but very oblique. Stamens of *Lobelia*. Ovary inferior, 2-celled, the summit between the calyx-lobes nearly flat. Style and stigma of *Lobelia*. Fruit ovoid or globular, crowned by the calyx-lobes, indehiscent, the pericarp usually succulent.—Herbs, with the habit of the section *Hemipogon* of *Lobelia*, usually creeping at the base, the branches sometimes ascending. Flowers white (or blue?) on axillary pedicels, and in most of the Australian species more or less diœcious, by the abortion or sterility of the anthers in the females, and of the ovary, ovules, and stigma in the males.

A small genus containing, besides the Australian species which are all endemic, five or six others dispersed over New Zealand, antarctic and extratropical South America.

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| Glabrous. Leaves ovate or oblong, toothed, $\frac{1}{2}$ to 1in. long. Pedicels shorter or scarcely longer than the leaves | 1. <i>P. erecta</i> . |
| Pubescent. Leaves ovate or orbicular. Pedicels shorter or scarcely longer than the leaves. Fruit 2 to 3 lines diameter | 2. <i>P. puberula</i> . |
| Pedicels much longer than the very small leaves. Fruit 1 to $1\frac{1}{2}$ line diameter | 3. <i>P. pedunculata</i> . |

1. **P. erecta** (upright), *Gaudich. in Freyc. Voy. Bot.* 456; *Benth. Fl. Austr.* iv. 133. Glabrous with a perennial rootstock and branching prostrate ascending or erect stems from a few inches to nearly 1ft. long, but usually under 6in. Leaves sessile or nearly so, ovate oblong or lanceolate, serrate, $\frac{1}{2}$ to 1in. long, rather firm. Flowers axillary, the pedicels either very short or rarely as long as the leaves. Calyx-tube in the males very shortly turbinate or scarcely any, ovoid in the females, the lobes lanceolate, $\frac{1}{2}$ to $\frac{3}{4}$ line long. Corolla $2\frac{1}{2}$ to 3 lines long, the lobes lanceolate, nearly equal, but the 2 upper more deeply separate. Anthers in the males glabrous, the 2 lower ones tipped with a tuft of minute bristles, all empty or abortive in the females. Fruit nearly globular, 3 to 4 lines diameter, slightly succulent.—*Lobelia concolor*, R. Br. Prod. 563; *Isolobus concolor* and *L. Cunninghamii*, A. DC. Prod. vii. 354; *Pratia Cunninghamii*, Hook. f. Fl. Antarct. i. 42.

Hab.: Suttor River, *F. v. Mueller*; Rockhampton and Bowen River, *Bowman*; in the interior, *Mitchell*. This herb is poisonous to stock.

2. **P. puberula** (puberulent), *Benth. Fl. Austr.* iv. 133. A small creeping or prostrate perennial, more or less pubescent. Leaves sessile, ovate or almost orbicular, toothed or almost entire, mostly 2 to 4 lines, rarely $\frac{1}{2}$ in. long. Flowers axillary, the pedicels shorter or rarely longer than the leaves. Calyx-tube in the males very short or almost none, in the females ovoid, the lobes lanceolate, acute. Corolla about 3 lines long, the lobes nearly equal, but oblique and almost acute. Anthers in the males glabrous, the 2 lower ones each with a single minute bristle, empty or abortive in the females. Fruit globular, about 3 lines diameter, slightly succulent. Seeds rather large, ovoid or compressed.

Hab.: Inland towards Cooper's Creek.

3. **P. pedunculata** (pedunculate), *Benth. Fl. Austr.* iv. 133. A very slender and slightly pubescent perennial, the intricate filiform creeping or prostrate stems extending to broad patches, with very shortly ascending flowering branches. Leaves almost sessile, ovate or orbicular, with few prominent teeth, 2 to 3 lines diameter. Flowers small, usually white, on slender axillary pedicels considerably longer than the leaves. Calyx-tube very short in the males, obconical in the females, the lobes narrow-lanceolate, obtuse. Corolla 2 to $2\frac{1}{2}$ lines long, the lobes nearly equal but very oblique. Fruit very small, pubescent, globular, not seen quite ripe, but evidently without the conical 2-valved summit of *Lobelia*.—*Lobelia pedunculata*, R. Br. Prod. 563; A. DC. Prod. vii. 367; Hook. f. Fl. Tasm. i. 237 t. 69 B.

Hab.: Southern localities.

3. ISOTOMA, Lindl.

(Sections of flowers equal.)

(*Lobelia*, sect. *Isotoma*, R. Br.; *Enchysia* (partly), Presl; *Laurentia* (partly), A. DC.)

Calyx of *Lobelia*. Corolla-tube cylindrical, entire or rarely very shortly slit on the upper side; lobes 5, nearly equal, spreading, either quite horizontal or very shortly and obliquely campanulate at the base. Stamens inserted near the summit of the corolla-tube. Anthers of *Lobelia*, the upper ones without terminal tufts. Pistil, capsule, and seeds of *Lobelia*.—Herbs, with the habit of various species of *Lobelia*. Flowers axillary or in terminal racemes or solitary, on long scapes or peduncles, hermaphrodite in all the species known.

A small genus, perhaps too artificially distinguished from *Lobelia*, but the entire tube and epicorolline stamens are so exceptional in *Lobelia* that there may be a convenience in keeping it up. It is here characterised from the Australian species alone, which are all endemic.—*Benth.*

Erect and branching. Flowers large, on long, axillary pedicels. Leaves deeply toothed or cut.

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| Leaves linear, pinnatifid | 1. <i>I. axillaris</i> . |
| Leaves ovate or lanceolate, with linear teeth or lobes | 2. <i>I. petræa</i> . |
| Annual. Stems a few inches high. Leaves linear-lanceolate, scattered. Pedicels capillary, 1 to 2in. long | 3. <i>I. Gulliverii</i> . |
| Creeping or prostrate perennial. Leaves ovate. Pedicels axillary | 4. <i>I. fluviatilis</i> . |

1. ***I. axillaris*** (flowers axillary), *Lindl. Bot. Reg. t. 964*; *Benth. Fl. Austr. iv. 135*. A glabrous perennial, flowering the first year so as to appear annual, but forming at length a hard rootstock, erect, with few, spreading branches, $\frac{1}{2}$ to 1ft. high. Leaves linear, irregularly pinnatifid, often 2 to 3in. long, the lobes linear or linear-lanceolate. Pedicels axillary, 2 to 6in. long. Flowers large, of a bluish-purple, very pale or with a yellowish-green tint outside. Calyx-lobes linear, rigid, as long as the oblong tube. Corolla-tube $\frac{3}{4}$ to 1in. long, somewhat incurved and broader upwards; lobes spreading to a diameter of $\frac{3}{4}$ to 1in., narrow, mucronate, slightly unequal, and not quite so flat as in *I. Brownii*. Anthers glabrous, the 2 lower ones with single, rigid bristles. Capsule cylindrical, tapering and slightly oblique at the base, 6 to 8 lines long, 2 to 3 lines broad. Seeds small, very minutely foveolate.—*Gaudich. in. Freyc. Voy. 455 t. 70*; *Lobelia senecioides*, *A. Cunn. in Bot. Mag. t. 2702*; *Isotoma senecioides*, *A. DC. Prod. vii. 412*; *Bot. Mag. t. 5073*.

Hab.: Stanthorpe, and on rocks in similar exposed situations to Rockhampton and Springsure.

2. ***I. petræa*** (on rocks), *F. v. M. in Linnæa, xxv. 420*; *Benth. Fl. Austr. iv. 135*. Very closely allied to *I. axillaris*, and Bentham would have proposed reducing it to a variety of that species but that, among numerous specimens from various localities, he saw no intermediates. Habit, stature, inflorescence, flowers, and fruit the same, but the leaves are all ovate-oblong or elliptical, bordered by irregular linear or lanceolate teeth or lobes, but never longer than the breadth of the entire central part.

Hab.: Inland to Cooper's Creek; Mueller's Range, *C. W. de Burgh-Birch*.

3. ***I. Gulliverii*** (after Thos. Gulliver), *F. v. M. Fragm. x. 39*. A small weak annual of a few inches. Leaves from 2 to 12 lines long, linear-lanceolate, toothed or entire, somewhat pilose, scattered. Pedicels 1 to 2in. long, capillary solitary. Flowers bisexual. Calyx somewhat pilose, lobes scarcely 1 line long, subulate-lanceolate. Corolla tube almost 4 lines long, slender, lobes bluish. Anthers 1 line or less, the back of the upper ones slightly puberulent, lower ones shortly bearded at the apex, bristles very minute. Capsule ovate, about 2 lines long. Seeds pale, very minute, compressed, smooth.

Hab.: Norman and Gilbert Rivers, *Thos. Gulliver*.

4. ***I. fluviatilis*** (near rivers), *F. v. M. Herb.; Benth. Fl. Austr. iv. 136*. A small, prostrate or creeping perennial, usually pubescent, with the habit of some species of *Pratia*. Leaves in a typical form oblong or almost linear, or the lower ones ovate or obovate, mostly 3 to 4 lines long, slightly toothed, shortly petiolate or the upper ones sessile. Flowers on axillary pedicels, varying from the length of the leaves to twice as long. Calyx-tube narrow, turbinate, pubescent; lobes short, lanceolate. Corolla usually 5 to 6 lines long, but sometimes much smaller, the entire tube longer than the calyx-lobes; the lobes oblong, almost acute, nearly equal but oblique, and the 2 upper separated rather lower down. Anthers glabrous, the 2 lower ones tipped each with one rigid broad bristle and several smaller ones. Capsule about 2 lines long. Seeds ovoid, smooth.—*Lobelia fluviatilis*, *R. Br. Prod. 563*; *A. DC. Prod. vii. 366*.

Hab.: Southern localities.

4. WAHLENBERGIA, Schrad.

(After G. Wahlenberg, M.D.)

Calyx 5 or rarely 4-lobed or in abnormal flowers 6 or 7-lobed. Corolla regular, campanulate or more or less tubular at the base, with as many valvate lobes as calyx-lobes. Stamens free. Ovary 3 to 5-celled or rarely 2-celled. Style with as many stigmatic lobes as ovary cells. Capsule opening at the top loculicidally within the calyx-teeth, in as many valves as cells.—Herbs. Leaves alternate or very rarely opposite or whorled. Peduncles terminal or in the upper axils, often forming loose, terminal, dichotomous, leafy panicles. Flowers usually blue.

A considerable genus, dispersed over various parts of the world, most abundant in Southern Africa. The 2 Australian species are both in New Zealand, one the same as a common one in tropical Asia.

Stems leafy, simple or branched. Leaves sometimes crowded but not rosulate 1. *W. gracilis*. Leaves all radical or crowded on very short, tufted stems. Scapes leafless . . . 2. *W. saxicola*.

1. **W. gracilis** (slender) *A. DC. Monogr. Camp.* 142; *Prod.* vii. 433; *Benth. Fl. Austr.* iv. 137. An exceedingly variable plant in stature, duration, and size of the flowers, glabrous or more or less clothed in the lower part with rigid hairs, sometimes a slender, simple or branched annual of 6in. to 1½ft., sometimes forming a perennial, almost woody rootstock, with numerous ascending or erect, simple or slightly branched stems, leafy chiefly in the lower part. Lower leaves from obovate, and under ½in. long, to lanceolate or almost linear, and 1in. long or even much more when very narrow, the upper ones fewer and narrower, and in slender varieties, nearly all linear-subulate or filiform. Flowers solitary, on long terminal peduncles, without bracts, usually 5-merous, sometimes 4-merous, very rarely 6-merous or even 7-merous. Calyx-tube from ovoid to narrow-obconical, the lobes from broadly lanceolate and shorter than the tube to linear-subulate and twice as long. Corolla campanulate, more or less expanded, varying in size from ¼in. to above 1in. diameter. Filaments shortly dilated at the base. Ovary 3-celled or very rarely 2-celled.—Hook. f. *Fl. Tasm.* i. 239; *Campanula gracilis*, Forst.; *Br. Prod.* 561; *Sm. Exot. Bot.* t. 45; *Bot. Mag.* t. 691; *C. vineiflora*, Vent. *Jard. Malm.* t. 12; *C. littoralis*, Labill. *Pl. Nov. Holl.* i. 49 t. 70; *C. capillaris*, Lodd. *Bot. Cab.* t. 1406; *C. quadrifida*, R. *Br. Prod.* 561; *Wahlenbergia quadrifida*, *A. DC. Mon. Camp.* 144; *Prod.* vii. 433; *W. Sieberi*, *A. DC. ll.cc.*; *W. multicaulis*, *Benth. in Hueg. Enum.* 75; *A. DC. Prod.* vii. 433; *W. simplicicaulis*, *De Vr. in Pl. Preiss.* ii. 244.

Hab.: A common weed all over the colony, varying greatly in the size of both plant and flower. Botanists as a rule have not separated the various forms into named varieties, yet, I think, for convenience sake the very small flowered one might bear the distinguishing name of var. *minutiflora*. The flowers are of a dirty white, and often less than ½in. diameter.

2. **W. saxicola** (on rocks), *A. DC. Monogr. Camp.* 144; *Prod.* vii. 433; *Benth. Fl. Austr.* iv. 138. A glabrous perennial, with a tufted or shortly creeping stock, rarely lengthening out into leafy branches of 1in. or rather more. Leaves radical and rosulate or crowded on the short stems, petiolate, from obovate or spatulate to almost linear, entire or obscurely crenate, ½ to 1in. long. Scapes leafless, 1-flowered, 2 to 6in. high. Flowers 5-merous, sometimes like those of *W. gracilis*, but usually more oblique and 1 or 2 of the anthers tipped with a small point. Ovary 2 or 3-celled.—Hook. f. *Fl. Tasm.* i. 239 t. 71; *Handb. N. Zeal. Fl.* 170; *Campanula saxicola*, R. *Br. Prod.* 561; *Wahlenbergia albomarginata*, Hook. *l.c. Pl.* t. 818; *Streleskia montana*, Hook. f. in Hook. *Lond. Journ.* vi. 267.

Hab.: Stanthorpe. I have received from this locality specimens scarcely to be distinguished from Hooker's figure above quoted.



F. C. Wills, Del.

Agapetes Meiniana, F. v. M.

F. Elliott, Lith.

ORDER LXIX. VACCINIACEÆ.

Calyx-tube ovoid, adnate to the ovary; limb 5-fid, usually persistent. Corolla tubular, 5-toothed, or shortly campanulate with 5 long segments, deciduous. Stamens 10, epigynous, free; anthers opening by apical pores, often produced upwards into 2 tubes opening by slits from the apex. Ovary inferior, 5-celled or falsely 10-celled. Style cylindrical, stigma simple; ovules many (rarely few) at the inner angle of each cell. Fruit a berry, rarely dry, 5 or falsely 10-celled. Seeds many, or several (rarely 1) in each cell, small, compressed, albuminous; radicle next the hilum.—Shrubs or small trees; sometimes epiphytes with the stems greatly thickened at the base. Leaves alternate or falsely whorled, entire or serrate. Stipules none. Flowers racemose or axillary and solitary, pedicels 1-bracteate and often 2-bracteolate, often thickened and articulate beneath the ovary.—Clarke in Hook. Fl. Brit. Ind.

Plants of this Order are chiefly natives of cold and temperate regions.

1. AGAPETES, D. Don.

(From *agapetos*, beloved; in reference to the plants being showy.)

Calyx-tube globose; limb 5-fid or 5-partite, persistent. Corolla tubular or campanulate, shortly or deeply 5-lobed, red, often with transverse marks, or the lobes greenish-white. Stamens 10, filaments usually short; anthers elliptic, produced upwards in 2 long beaks opening by apical pores or slits, often spurred behind. Ovary 5-celled or spuriously 10-celled; style cylindric, stigma capitate, ovules very many. Berry globose, succulent or nearly dry, 5-celled or spuriously 10-celled, often opening by 10 pores round the disk within the calyx-teeth. Seeds very many, ellipsoid, outer coat very lax.—Shrubs, often epiphytic; stem often greatly thickened at the base. Leaves alternate, sometimes falsely whorled, from linear to elliptic, entire or toothed, sessile or shortly petiolated, often with glands at the apex of the petiole, usually coriaceous. Flowers axillary, corymbose fascicled or solitary; pedicel often thickened or articulate under the ovary; bracts small.—Fl. Brit. Ind. iii. 443.

Natives of India, Borneo, Fiji, New Guinea and Queensland.

1. **A. Meiniana** (after Dr. G. A. Mein), *F. v. M. Vict. Nat. Mar.* 1887. Tall, somewhat climbing, glabrous throughout. Leaves rather large, scattered, on short stalks, coriaceous, from almost lanceolate to roundish-ovate, acuminate, generally rounded at the base, not denticulate, shining on both sides; dark-green above, pale-green beneath and there dotted with minute scattered glands, strongly 5-nerved from near the base, the veins amply reticulated and partly prominent. Pedicels axillary or lateral, 3 or 2 together or solitary, with 2 minute deltoid bracteoles near the base. Calyx campanular, semi-ovate, separable by articulation from the pedicel, almost truncate, only minutely denticulate. Corolla several times longer than the calyx, dark-red, broadly tubular, terminated by 5 very short almost deltoid lobes. Stamens 10, enclosed; filaments glabrous, hardly half as long as the anthers, flat, semi-connate in pairs and with their dilated portion adherent to the base of the corolla. Anthers erect, free, fixed above their base, fully half as long as the corolla, cylindric-linear, without any appendages, their lower portion subtile-rough and at the blunt base somewhat bent forward, their upper portion paler, smooth, bifid, each division pointed and opening with a longitudinal fissure. Style filiform, glabrous; stigma minute, undivided. Ovary exceeded by the limb of the calyx, depressed and glabrous at the summit. Fruit almost campanulate in outline, rather hard, 5-celled, placentas turgid. Seeds rhomboid or clavate-ovate, pale-brownish, shining, reticulate.—*F. v. M. l.c.*

Hab.: Summit of Mount Bellenden Ker, *Sayer and Davidson*.

ORDER LXX. ERICACEÆ.

Calyx free (or in *Diplycosia* sometimes much adnate to the ovary), 5 (rarely 4 to 6) fid or 5-partite. Corolla hypogynous, often campanulate or urceolate, sometimes deeply lobed or (in *Pyrola*) petals free; lobes 5 to 20. Stamens 10, vary 5, 8, or 20, hypogynous or slightly attached to the base of the corolla (in *Diplycosia* sometimes epigynous); filaments free; anthers oblong, opening by pores or slits at the apex (in *Diplache* by longitudinal slits), the cells often produced upwards into tubes, sometimes dorsally spurred. Ovary 5 or 4 to 16-celled; style cylindrical; stigma simple or shortly lobed; ovules many in the inner angles of the cells, or placenta often pendulous from the upper angle. Fruit capsular, loculicidally or septicidally 5-valved (in *Gaultheria* and *Diplycosia* enclosed by the enlarged succulent calyx), appearing baccate. Seeds many (rarely few) in each cell, albuminous; testa close or loose or produced.—Shrubs, trees, or perennial herbs. Leaves alternate or apparently whorled, entire or serrate, no stipules. Flowers racemed, clustered or solitary, radicles bracteate and often 2-bracteolate. Flowers regular (or in *Rhododendron*, sometimes irregular, sometimes dimorphic).—Clarke in Hook. Fl. Brit. Ind.

The species are met with in all parts of the globe.

1. RHODODENDRON, Linn.

(Rose-tree, in reference to the terminal bunches of often red-coloured flowers.)

Calyx 5-lobed, sometimes small or obsolete, rarely saucer-shaped, persistent. Corolla campanulate, widely funnel-shaped or cylindrical, tube long or short, lobes 5 to 10. Stamens 5 to 18, usually 10. Anthers oblong, dehiscing by terminal pores. Ovary 5 to 20-celled. Style long or short, stigma capitate, ovules very many in each cell. Capsule short, woody, or elongate, thinner, 4 to 20-celled, septicidally 4 to 20-valved from the apex, valves breaking away from the placentas; seeds very many ellipsoid, albuminous; testa close or loose, often shortly crested, or tailed at one or both ends.—Trees or shrubs, sometimes very small, often scaly or aromatic. Leaves alternate, often clustered towards the end of the branches, rarely subopposite or falsely whorled, entire, coriaceous. Flowers fascicled or subcorymbose, terminal, rarely solitary or axillary; bracts broad, generally caducous; bracteoles linear.—Fl. Brit. Ind. iii. 462.

The species are met with upon the mountains of Europe, Asia, Malayan, North America, New Guinea, and Queensland.

1. **R. Lochæ** (after Lady Loch), *F. v. M. Vict. Nat. Mar.* 1887. Aborescent, somewhat scandent. Leaves persistent, mostly whorled, some scattered, conspicuously stalked, flat, nearly ovate, rather blunt, glabrous, well veined, minutely scaly-dotted beneath. Flowers rather large in terminal umbelliform fascicles on very conspicuous stalklets. Bracts cuneate or spatulate-ovate, glabrescent. Calyx rudimentary, oblique-patellar, or sometimes variously short-lobed. Corolla bright-red, glabrous but scaly-dotted outside, slightly hairy inside, the lower portion broadly cylindrical, the upper portion bluntly 5-lobed and conspicuously veined. Stamens 10, slightly emerging from the corolla-tube; filaments short-hairy towards the base. Anthers very small, ellipsoid-cylindrical. Style nearly as long as the filaments, short-hairy to about the middle; indusium truncate, stigma slightly lobed. Capsule narrow-ellipsoid, about as long as the stalklet, or longer, short-hairy, 5-celled. Seed conspicuously appendiculated.—*F. v. M. l.c.*

Hab.: On the mountains about Bellenden Ker, *W. Sayer, A. Davidson*; south peak, Bellenden Ker (altitude 5200ft.), *A. Meston*.



FC. Wills, Del.

F. Elliott, Lith.

Rhododendron Lochæ, F.v. M.

ORDER LXXI. EPACRIDÆ.

Calyx of 5 rarely 4 distinct sepals, much imbricate in the bud. Corolla regular, with a cylindrical, urceolate or campanulate tube, and 5 rarely 4 lobes, valvate or variously imbricate in the bud, more or less spreading or rarely cohering in a calyptra, or rarely the whole corolla separating into distinct petals. Stamens as many as corolla-lobes or rarely fewer, hypogynous, and free or more or less adnate to (inserted in) the corolla-tube; anthers versatile or rarely adnate, 1-celled (more or less perfectly 2-celled before opening), opening by a single longitudinal slit in 2 valves, leaving no longitudinal dissepiment or only a thin and slightly prominent one. Hypogynous disk annular or cup-shaped, entire, 5-lobed or consisting of 5 distinct scales, rarely deficient. Ovary superior, with 5 or sometimes fewer, rarely 6 to 10 cells; ovules solitary in each cell and pendulous, or several in each cell, the placenta proceeding from the axis immediately under the attachment of the style. Style simple and undivided, terminal in the uniovulate genera; inserted in a central, tubular depression of the ovary so as to be lateral (with reference to the carpels) or almost basal in the pluriovulate genera; stigma terminal, small, capitate or peltate, and sometimes slightly lobed. Fruit indehiscent, and more or less drupaceous in the uniovulate genera, capsular, and loculicidally dehiscent in the pluriovulate ones. Seeds with a thin, rarely almost crustaceous testa; embryo straight, much shorter than the albumen, terete or nearly so, the radicle next the hilum.—Shrubs or rarely trees. Leaves alternate or very rarely opposite, often crowded or imbricate, rigid, entire or scarcely denticulate, with several longitudinal, simple or forked nerves, sometimes prominent underneath, sometimes very fine and numerous or very obscure. Flowers axillary or terminal, either solitary and terminating peduncles more or less covered with imbricately scale-like or leaf-like bracts, or in spikes or racemes, each flower between 2 bracteoles in the axil of a subtending bract, the common peduncle usually ending in a small rudimentary flower with its subtending bract, the peduncles or spikes solitary or rarely several in a terminal panicle. Sepals usually finely marked with parallel or diverging veins. Corolla white or of various shades of red, rarely blue, green or yellowish.

The Order is almost confined to Australia, New Caledonia, New Zealand, and the Antarctic Islands, a few species spread over the islands of the Pacific and the Indian Archipelago, and a single one representing it in the mountains of extratropical South America.

TRIBE I. **Styphelieæ**.—Ovules solitary in each cell of the ovary, pendulous from the summit of the cavity. Style terminal. Fruit indehiscent, usually drupaceous.

- Anthers exerted, free. (Corolla-lobes revolute so as completely to expose the erect summits of the filaments and the anthers). Filaments glabrous.
 Corolla-tube long or slender. Fruit a 5-celled drupe 1. STYPHELIA.
 Anthers wholly or partially enclosed in the corolla-tube or in the erect base of the lobes, or rarely recurved with the lobes.
 Corolla-tube short, with 5 glandular scales inside below the middle 2. MELICHERUS.
 Corolla-tube without scales or hairy tufts below the middle, the lobes spreading at least at the end. Filaments terete or nearly so.
 Corolla-lobes more or less imbricate in the bud, glabrous, the throat closed with reflexed hairs or scales 4. BRACHYLOMA.
 Corolla-lobes valvate in the bud, glabrous.
 Corolla-tube cylindrical or urceolate.
 Drupe with a several-celled nucleus, the mesocarp moderately pulpy. Flowers in spikes or racemes, the bracts and bracteoles distinct 5. LISSANTHE.
 Drupe with 10 more or less separable pyrenes. Flowers in spikes or clusters, the bracts and bracteoles distinct 3. TROCHOCARPA.
 Corolla-tube short and campanulate. Flowers very small. Stamens and corolla-lobes 4 or 5. Ovary 1 or 2-celled 8. MONTOCA.
 Corolla-lobes valvate, with a reflexed beard at the tip, and reflexed hairs along the throat 7. ACROTTRICHE.

Corolla-lobes valvate in the bud, bearded inside.

Drupe with a several-celled, rarely 1-celled, hard or thin-nucleus, the mesocarp moderately pulpy or dry. Flowers in spikes or solitary, the bracts and bracteoles distinct 6. LEUCOPOGON.

Drupe with 10 (or fewer by abortion) separable pyrenes. Flowers in spikes or clusters, the bracts and bracteoles distinct 3. TROCHOCARPA.

TRIBE II. **Epacrea**.—Ovules several in each cell of the ovary. Style inserted in a central tubular depression, so as to be lateral or basal. Capsule loculicidally dehiscent.

Leaves petiolate, sessile or stem-clasping, not sheathing. Placentas sessile or nearly so. Bracts imbricate on the calyx, passing into the sepals.

Corolla-lobes quincuncially imbricate 9. EPACRIS.

Corolla-lobes contorted-imbricate 10. LYSINEMA.

Leaves with an adnate, sheathing base, which falls off with the leaf, leaving the denuded branches smooth and scarless. Placentas sessile or nearly so. Stamens hypogynous, free. Corolla scarcely exceeding the calyx. Corolla-tube very short; lobes very spreading, glabrous, more or less imbricate 11. SPRENGELIA.

Leaves with an adnate, sheathing base, which falls off with the leaf, leaving annular scars on the denuded branches. Placentas depending from an ascending, recurved stipes. Corolla not circumsciss, the lobes spreading 12. DRACOPHYLLUM.

1. STYPHELIA, Sm.

(From *stypelos*, rigid.)

(*Soleniscia*, DC.)

Corolla-tube elongated, cylindrical or slightly ventricose, hairy inside at the throat, and with 5 tufts of hairs, sometimes confluent in a ring below the middle or rarely glabrous; lobes linear, bearded inside, much revolute, exposing the stamens. Filaments free from the throat, filiform, glabrous; anthers exerted, free, linear, 1-celled, attached about the middle. Hypogynous scales distinct or united in a cup-shaped disk. Ovary 5-celled, with 1 ovule in each cell. Style filiform, longer than the corolla-tube; stigma small. Fruit a drupe, with a dry or slightly pulpy mesocarp, and a hard, bony endocarp, with 5 cells and seeds or fewer by abortion. Leaves sessile or scarcely petiolate. Flowers axillary, solitary, with the rudiment of a second or very rarely 2 or 3, on a very short peduncle. Bracts several, 1 or 2 of the uppermost more or less enlarged, and embracing the base of the calyx as well as the still larger bracteoles. Calyx usually coloured.

The genus is limited to Australia. The very much revolute corolla-lobes and exerted stamens distinguish it from all its allies except *Coleanthera* (a West Australian genus), which is readily known by the small flowers and connate anthers.—*Benth.*

SECT. I. **Eustypelia**.—Corolla-tube with 5 dense tufts of hairs below the middle, sometimes confluent in a ring.

Branches glabrous or with a minute scarcely visible down. Leaves obovate-oblong to oblong-lanceolate, shortly tapering into a rigid point.

Leaves concave or nearly flat. Sepals obtuse 1. *S. triflora*.

Leaves flat or slightly convex. Sepals acute. Corolla green 2. *S. viridis*.

1. **S. triflora** (three-flowered), *Andr. Bot. Rep. t. 72*; *Benth. Fl. Austr. iv. 147*. A tall shrub, quite glabrous or the branches very minutely pubescent. Leaves from obovate-oblong to oblong-lanceolate, very shortly tapering into a rigid point, flat or more or less concave, rarely exceeding lin., and the broad ones at the base of the shoots often very short. Flowers pale-pink and yellow, very shortly-pedicellate, solitary or very rarely 2 (or 3?) together in the lower axils and often appearing clustered at the base of the shoot, especially when some of the floral leaves are small or abortive. Bracteoles obtuse, about 2 lines long. Sepals obtuse or almost acute, about 5 lines long. Corolla varying in size, but the tube usually about 3/4 in., with 5 dense tufts of hairs inside above the base.

Hypogynous scales more or less cohering in a truncate or shortly lobed cup.—R. Br. Prod. 537; DC. Prod. vii. 735; Bot. Mag. t. 1297; Lodd. Bot. Cab. t. 426; *S. glaucescens*, Sieb. Pl. Exs.

Hab.: Southern localities.

2. *S. viridis* (flowers green), *Andr. Bot. Rep. t. 312*; *Benth. Fl. Austr. iv. 148*. An erect shrub, with spreading branches, quite glabrous or with a minute scarcely perceptible down. Leaves oblong lanceolate or obovate-oblong, abruptly narrowed into a short rigid point, flat or slightly convex, under 1 in. long. Flowers green, solitary in the axils, nearly sessile. Bracteoles broad and obtuse, under 2 lines long. Sepals almost acute, about $\frac{1}{2}$ in. Corolla-tube nearly $\frac{3}{4}$ in. long in the normal form, with 5 dense tufts of hairs inside above the base. Hypogynous scales broad, obtuse, free or slightly cohering.—DC. Prod. vii. 735; *S. viridiflora*, R. Br. Prod. 537; Sweet, *Fl. Austr. t. 50*.

Hab.: Southern localities.

Var. *breviflora*. Leaves narrower. Sepals more obtuse, about 4 lines long. Corolla-tube about $\frac{1}{2}$ in. long. Hab.: Stanthorpe.

2. MELICHRUS, R. Br.

(Flower-glands honey-coloured).

Corolla-tube short and broad, with 5 densely glandular scales inside alternating with the stamens; lobes longer than the tube, valvate in the bud, bearded or glabrous inside, spreading. Stamens inserted in the tube; filaments exceedingly short; anthers oblong, 1-celled. Hypogynous disk short, truncate. Ovary 5-celled, with 1 ovule in each cell; style very short or reduced to a small cone; stigma terminal, small. Fruit a drupe, with a dry or slightly pulpy mesocarp and a hard, bony endocarp, with 5 cells and seeds or fewer by abortion. Leaves sessile, lanceolate. Flowers solitary in the axils, sessile, surrounded by several bracts, of which the 2 innermost are enlarged, and, as well as the still larger bracteoles, embrace the base of the calyx.

The genus is limited to Eastern Australia. It is allied to *Astroloma* and to *Leucopogon*, distinguished from the former by the shape of the corolla, from the latter by its larger flowers and more developed bracts, from both by the glandular-scales inside the corolla-tube.—*Benth.*

Leaves ciliate, sprinkled with long hairs. Calyx (when open) broadly campanulate. Corolla shorter than the calyx, the tube very short 1. *M. rotatus*.

Leaves without long hairs. Calyx ovoid. Corolla exceeding the calyx, the tube nearly as long as the lobes 2. *M. urceolatus*.

1. *M. rotatus* (wheel-shaped flowers), *R. Br. Prod. 539*; *Benth. Fl. Austr. iv. 162*. A low, procumbent shrub, with short, ascending branches. Leaves crowded, sessile, lanceolate, tapering into a long and fine but not pungent point, flat, ciliate with long, soft hairs, and hairy on both sides or at length glabrous and shining above, $\frac{1}{2}$ to $\frac{3}{4}$ or sometimes almost 1 in. long. Bracteoles about 2 lines long. Calyx ovoid in bud, but broadly campanulate when the flower is expanded, softly pubescent, the sepals ovate, acute, ciliate, about 3 lines long. Corolla scarcely so long as the calyx, the tube exceedingly short, with 5 large scales densely covered with prominent glands, alternating with the stamens inside; lobes broadly lanceolate, glabrous except a few long hairs at the tip, expanded into a rotate limb when the flower is open. Hypogynous disk very short, thick, and fleshy.—DC. Prod. vii. 740; *Ventenatia procumbens*, Cav. Ic. iv. 28 t. 349 f. 1 (partly); *Styphelia procumbens*, Pers. Syn. i. 174; *Styphelia rotata*, F. v. M. Fragm. vi. 38.

Hab.: Southern localities.

2. **M. urceolatus** (pitcher-shaped flowers), *R. Br. Prod.* 539; *Benth. Fl. Austr.* iv. 162. An erect shrub of 2 to 3ft. or rarely low and diffuse like *M. rotatus*. Leaves crowded or densely imbricate, or especially the floral ones loosely spreading, lanceolate, rigid, tapering into a fine pungent point, glabrous or rarely pubescent, from under $\frac{1}{2}$ in. to nearly 1 in. long. Bracteoles about $1\frac{1}{2}$ line long. Calyx ovoid, glabrous or pubescent, the sepals rigid, obtuse, nearly 3 lines long, often coloured. Corolla-tube broad, shorter than the calyx, with the same glandular scales inside as in *M. rotatus*; lobes lanceolate, rather longer than the tube and exceeding the calyx, recurved at the end but not rotate, bearded or nearly glabrous inside. Hypogynous disk short, thin, truncate.—DC. *Prod.* vii. 740; *M. medius*, *M. erubescens*, and *M. adpressus*, A. Cunn. in DC. l.c.; *Styphelia urceolata*, F. v. M. *Fragm.* vi. 38.

Hab.: Southern localities.

3. TROCHOCARPA, R. Br.

(Cogwheel-shaped fruit.)

(Decaspora, *R. Br.*)

Corolla-tube cylindrical or campanulate, glabrous or with reflexed hairs inside at the top; lobes usually shorter than the tube, recurved, glabrous or bearded inside. Filaments inserted in the top of the tube, short, filiform; anthers attached at or near the top, partially included in the tube or recurved with the lobes. Hypogynous disk truncate, lobed or separating into distinct scales. Ovary 10-celled, with 1 ovule in each cell; style rather thick, usually short; stigma small. Fruit a globular or depressed drupe, the mesocarp pulpy, the endocarp separating or separable into 10 (or fewer by abortion) distinct pyrenes.—Shrubs. Leaves usually petiolate, flat or convex. Flowers several together in spikes, either terminal or in the axils of the previous year's leaves, or lateral on the old wood, each flower sessile within the small subtending bract and two bracteoles.

The genus is limited to Australia.

1. **T. laurina** (Laurel-like), *R. Br. Prod.* 548; *Benth. Fl. Austr.* iv. 166. A tree of 20 to 30 or even 40ft., quite glabrous. Leaves usually clustered at the ends of each year's shoots, so as to appear almost verticillate, petiolate, broadly oval or elliptical, acuminate, shining, 5 to 7-nerved on both sides, mostly $1\frac{1}{2}$ to 2 in. long. Flowers small, white, in terminal, solitary or clustered, interrupted spikes, $\frac{3}{4}$ to 1 in. long. Bracts small; bracteoles obtuse, not half so long as the calyx. Sepals $\frac{1}{2}$ line long or rather more, obtuse, striate. Corolla-tube about 1 line long; lobes shorter than the tube, bearded in the middle as well as the upper part of the tube with reflexed hairs. Hypogynous disk shortly lobed. Ovary tapering into a short style. Drupe depressed-globular, 3 to 4 lines diameter, the pyrenes less readily separable than in the other species.—DC. *Prod.* vii. 758; *Bot. Mag.* t. 3324; F. v. M. *Fragm.* vi. 57; *Cyathodes laurina*, Rudge in *Trans. Linn. Soc.* viii. 293 t. 9 (*Styphelia cornifolia* on the plate).

Hab.: From the southern border to the summit of Bellenden Ker in the north.

Wood of a pinkish colour, close-grained, hard, and nicely marked.—*Bailey's Cat. Ql. Woods* No. 259.

4. BRACHYLOMA, Sond.

(Corolla-lobes short.)

(Lobopogon, *Schlecht.*)

Corolla-tube short, glabrous inside, but a ring of long hairs descending into it from tufts or fringed scales at the base of each lobe; lobes more or less imbricate in the bud (almost valvate in *B. daphnoides*), spreading, glabrous or slightly



F.C.Wills, Del.

F.Elliott, Lith.

Brachyloma Scortechinii, F.v.M.

bearded. Filaments very short, inserted near the top of the tube; anthers 1-celled, attached above the middle, wholly or partially included in the tube. Hypogynous disk truncate or 5-lobed, readily separating into distinct scales. Ovary 5-celled, with 1 ovule in each cell. Style short; stigma small. Fruit a small depressed or globular drupe, the mesocarp somewhat pulpy.—Shrubs, with the foliage of some species of *Cyathodes* and *Leucopogon*. Flowers small, solitary in the axils. Pedicels short, with very small bracts or none besides the bracteoles.

The genus is limited to Australia.

SECT. I. **Lobopogon**.—*Corolla-lobes obtuse. Bracts several.*

Leaves linear-oblong, spreading, sessile, 4 to 5 lines long, $\frac{2}{3}$ to $1\frac{1}{2}$ line broad; margins rough, a little recurved, shortly mucronate 1. *B. Scortechinii*.

SECT. II. **Lissanthoides**.—*Corolla-lobes acutely acuminate. Bracts none besides the 2 bracteoles.*

Leaves ovate-elliptical or oblong-lanceolate, obtuse, with a minute callous point. Corolla-lobes slightly imbricate at the base 2. *B. daphnoides*.

1. **B. Scortechinii** (after Rev. B. Scortechini), *F. v. M. Fragm.* xi. 121. A small, glabrous, erect shrub. Leaves linear-oblong, spreading, sessile, 4 to 5 lines long, $\frac{2}{3}$ to $1\frac{1}{2}$ line broad; apex recurved, shortly mucronate; margins scabrous, pale on the under side. Peduncles very short. Bracteoles scarcely $\frac{1}{3}$ line long, rhomboid-orbicular. Sepals orbicular, not ciliate, very obtuse. Corolla about 2 lines long, white; lobes rotundate, not bearded, imbricate in the bud. Filaments none. Anthers pale-violet, about $\frac{1}{2}$ line long, attached above the middle, not apiculate, inserted a little below the corolla-limb. Style short, somewhat thick. Hypogynous disk annular, undivided. Ovary 6, rarely 5-celled. Drupe depressed-globular.

Hab.: Swamps about Burleigh Head, *Rev. B. Scortechini*.

2. **B. daphnoides** (Daphne-like), *Benth. Fl. Austr.* iv. 173. An erect bushy shrub, glabrous or the branchlets pubescent. Leaves sessile or shortly petiolate, ovate-elliptical or oblong-lanceolate, obtuse or with a short callous point, flat or slightly concave, 3 to 4 lines long. Flowers solitary in the axils or at the nodes, but often several at the base of the shoots, without subtending leaves. Pedicels very short, without any bracts except the 2 unequal bracteoles embracing the calyx. Sepals $\frac{1}{2}$ to $\frac{3}{4}$ line long, usually ciliate. Corolla-tube $1\frac{1}{2}$ to nearly 2 lines long, with a ring of long hairs inside reflexed from the throat; lobes narrow, much shorter than the tube, acute and nearly valvate, but 2 of them at least slightly dilated and overlapping the intermediate one at the base, glabrous or very shortly bearded inside. Filaments very short; anthers attached above the middle. Hypogynous disk 5-lobed. Ovary 5-celled; style short. Fruit small, globular.—*Styphelia daphnoides*, Sm. Bot. Nov. Holl. 48; *F. v. M. Fragm.* vi. 42; *Lissanthe daphnoides*, R. Br. Prod. 541; DC. Prod. vii. 743; Lodd. Bot. Cab. t. 466; Hook. f. Fl. Tasm. i. 248; *L. Cunninghamii*, DC. Prod. vii. 743; *L. stellata*, Knowles and Weste. Fl. Cab. iii. 79 (from the description given).

Hab.: Sandy Cape, *R. Brown*; Moreton Island, *F. v. Mueller*; Mount Mitchell, *Beckler*; many other southern localities.

5. LISSANTHE, R. Br.

(From *lissos*, smooth, and *anthos*, a flower.)

Corolla-tube longer or shorter than the calyx, glabrous or hairy inside above the middle, without tufts of hairs or scales below the middle; lobes valvate in the bud, spreading or recurved upwards, glabrous inside. Filaments inserted at the top of the tube, short, filiform; anthers wholly or partially enclosed in the tube or erect base of the corolla-lobes. Hypogynous disk cup-shaped, sinuate or 5-

toothed. Ovary 5-celled; style not exceeding the corolla-tube; stigma small. Fruit a baccate drupe, the mesocarp pulpy, the endocarp hard and bony, with 5 cells and seeds or fewer by abortion.—Shrubs with the habit of *Leucopogon*. Flowers small, in small spikes or racemes, the terminal ones several-flowered, the axillary ones reduced to 2 or 3 or even a single one, but always ending with the rudiment of an additional flower, with 1 subtending bract and two bracteoles under each flower.

The genus is limited to Australia.

1. **L. strigosa** (hispid), *R. Br. Prod.* 540; *Benth. Fl. Austr.* iv. 175. A bushy shrub, sometimes low and spreading, but usually erect and attaining about 2ft., the branches glabrous or pubescent. Leaves linear, rigid, tapering into a pungent point, under $\frac{1}{2}$ in. long. Flowers white or more or less pink, crowded in short racemes, 2 or 3 in the axillary ones, more numerous in the terminal one, each flower very shortly pedicellate within the bract and bracteoles. Sepals ovate, obtuse, about 1 line long. Corolla-tube about $1\frac{1}{2}$ line long, more or less hairy inside above the middle; lobes much shorter, glabrous. Anthers attached above the middle. Hypogynous disk shortly 5-lobed; style rather thick, pubescent at the base, shorter than the corolla-tube. Fruit small, globular.—*DC. Prod.* vii. 742; *Hook. f. Fl. Tasm.* i. 247; *Styphelia strigosa*, *Sm. Bot. N. Holl.* 49; *F. v. M. Fragm.* vi. 42; *Lissanthe subulata*, *R. Br. Prod.* 540; *DC. Prod.* vii. 742; *L. intermedia*, *A. Cunn.*; *DC. l.c.*; *L. rigida*, *Benth. in Hueg. Enum.* 76; *DC. l.c.*

Hab.: Not uncommon in southern localities.

6. LEUCOPOGON, R. Br.

(Flowers white-bearded.)

(*Perojoa*, *Cav.*; *Phanerandra*, *Stschegl.*)

Corolla-tube longer or shorter than the calyx, glabrous or hairy inside above the middle, without tufts of hairs or scales below the middle; lobes valvate in the bud, spreading or recurved in the upper portion, the whole inner surface, or rarely the lower portion only, densely bearded. Filaments inserted at the top of the tube, short, filiform; anthers wholly or partially enclosed in the tube or erect base of the corolla-lobes. Hypogynous disk cup-shaped, truncate, 5-toothed, 5-lobed or formed of 5 distinct scales. Ovary usually 2, 3, or 5 or sometimes more-celled; style from very short to longer than the corolla-tube; stigma small, rarely larger and peltate. Fruit a drupe, the mesocarp sometimes pulpy but usually thin, the endocarp crustaceous or hard, with as many cells and seeds as in the ovary or fewer by abortion.—Shrubs of various habit, rarely rising into small trees. Flowers small, rarely $\frac{1}{2}$ in. long, in small spikes (or very rarely racemes), terminal or axillary, sometimes many-flowered, sometimes reduced to few or a single one, but the rhachis always ending in the rudiment of an additional one; each flower sessile or rarely pedicellate within a subtending bract, with 2 bracteoles close under or rarely at a little distance from the calyx.

The genus, chiefly Australian, is represented also by a few species in New Zealand and some islands of the Malayan Archipelago and South Pacific.

SERIES I. *Perojoa*.—Inflorescence chiefly or entirely terminal, rarely all axillary, and then the spikes long, slender and interrupted. Anthers with sterile tips. Style very short.

SERIES I. *Psilostachya*.—Spikes slender, interrupted, axillary or terminal, usually as long as the leaves. Leaves flat or convex.

Leaves lanceolate. Ovary 2-celled. Fruit ovoid, red 1. *L. lanceolatus*.

SERIES II. *Australes*.—Spikes all terminal or also in the upper axils, short and dense, or cylindrical and rather dense. Leaves flat or convex, with recurved or revolute margins. Ovary 5-celled, or rarely 4 or 3-celled.

Spikes cylindrical, rather dense. Leaves oblong or lanceolate, finely

veined. Ovary 5 or rarely 4-celled. Fruit ovoid-globose 2. *L. Richei*.

SERIES III. Collinæ.—Spikes all terminal or also in the uppermost axils, short and dense, or cylindrical and rather dense. Leaves flat or convex with recurved or revolute or thickened margins. Ovary 2-celled.

Spikes short, dense or few-flowered. Bracts small, lower ones leaf-like.

Leaves obtuse. Sepals narrow, acuminate. Corolla shortly exceeding the calyx 3. *L. microphyllus*.

SERIES IV. Virgatæ.—Leaves erect, concave. Ovary 5 or 3-celled (or exceptionally 4-celled).

Spikes short and dense. Leaves (under $\frac{1}{2}$ in.) tapering into a rigid point, finely veined 4. *L. virgatus*.

SECT. II. Heteranthesis.—Spikes or clusters terminal, and sometimes also in the uppermost axils. Anthers obtuse or emarginate, without sterile tips.

Leaves oblong, linear, obtuse, glaucous and striate underneath. Ovary 5-celled 5. *L. Hookeri*.

Leaves oblong-linear, tapering into a pungent point. Flowers sessile within the subtending bract. Ovary 5-celled 6. *L. melaleucoides*.

Flowers pedicellate within the bract and bracteoles. Leaves with revolute margins. Corolla-tube shortly exerted. Ovary 5 to 7-celled 7. *L. pluriloculatus*.

Leaves concave. Corolla-tube twice as long as the calyx, the exerted part campanulate. Ovary 7 to 10-celled 8. *L. pleiospermus*.

SECT. III. Pleuranthus.—Spikes all axillary, few-flowered or reduced to a single flower besides the rudiment, the common peduncle very short or rarely as long as the leaves. Anthers obtuse or emarginate, without sterile tips. Style usually slender and elongated, rarely very short.

SERIES I. Ericoides.—Leaves narrow or rarely ovate, $\frac{1}{2}$ to 1 in., with recurved or revolute margins. Flowers 2 or more together, in sessile or shortly pedunculate clusters. Ovary 5 or 3-celled.

Corolla-tube not exceeding the calyx. Flowers erect, at least at first. Leaves (under $\frac{1}{2}$ in.) very shortly mucronate. Sepals under 1 line 9. *L. ericoides*.

SERIES II. Micranthæ.—Leaves oblong or lanceolate, nearly flat (or with recurved margins). Ovary 2-celled. Flowers small and nearly sessile.

Leaves oblong-linear, $\frac{1}{2}$ to $\frac{1}{2}$ in. long 10. *L. margarodes*.

SERIES III. Planifoliæ.—Leaves flat or slightly convex or concave, rigid, usually shining above, the veins fine or inconspicuous. Ovary 5-celled.

Leaves rigidly mucronate. Flowers nearly sessile or on a short peduncle, erect, or at length spreading.

Leaves obovate to oblong, often imbricate with a very short point. Flowers about 2 lines long 11. *L. ruscifolius*.

Leaves obovate-oblong, imbricate, with a long, rigid point. Flowers about 3 lines long 12. *L. imbricatus*.

Leaves narrow-oblong, abruptly contracted into a long, rigid point. Flowers about 2 lines long 13. *L. cuspidatus*.

Leaves oblong-linear or lanceolate, tapering into a short almost callous point. Flowers about 2 lines long 14. *L. leptospermoides*.

Leaves linear-lanceolate, tapering into a fine point, much twisted 15. *L. flexifolius*.

Leaves narrow, rigidly mucronate. Flowers nearly sessile, pendulous. Sepals rather acute 16. *L. biflorus*.

Leaves oblong-lanceolate, with a rigid point. Sepals (about 2 lines) more than half the corolla-tube 17. *L. Mitchellii*.

Leaves linear, with fine rigid point. Sepals very small. Corolla long and slender 18. *L. juniperinus*.

SERIES IV. Concavæ.—Leaves concave or keeled.

Sepals nearly 2 lines, very acute. Corolla 3 to 4 lines long. Ovary 5-angled, 5-celled 19. *L. neoanglicus*.

1. **L. lanceolatus** (leaves lance-like), *R. Br. Prod.* 541; *Benth. Fl. Austr.* iv. 185. Usually a tall shrub or small tree, quite glabrous, but some varieties low and diffuse and others pubescent, the branchlets rather slender. Leaves erect or spreading, lanceolate, tapering at both ends, obtuse or with a callous

point, flat, with fine nerves, in some specimens rarely exceeding 1 in., in others attaining 2 in. Spikes slender, interrupted, solitary in the upper axils or clustered at the ends of the branches, often exceeding the leaves. Bracts and bracteoles striate, fully half as long as the calyx. Sepals scarcely 1 line long, usually obtuse, but narrower than in *L. australis*, and sometimes almost acute. Corolla-tube not exceeding the calyx; lobes as long as the tube. Anthers attached immediately under the prominent sterile tips. Hypogynous disk truncate, rarely separating into distinct scales. Ovary 2-celled, tapering into the rather short style. Fruit ovate-globose, red, shortly exceeding the calyx.—DC. Prod. vii. 744; F. v. M. Fragm. iv. 124; Sweet, Fl. Austr. t. 47; Bot. Mag. t. 8162; *Styphelia lanceolata*, Sm. Bot. N. Holl. 49 (partly); F. v. M. Fragm. vi. 43; *L. australis*, Sieb. Pl. Exsicc. (not of R. Br.); *L. Cunninghamii*, DC. Prod. vii. 745; *L. affinis*, R. Br. Prod. 541; DC. Prod. vii. 745; *Styphelia affinis*, Spreng. Syst. i. 658.

Hab.: Stradbroke Island, *A. Cunningham*; Port Macquarie, *Backhouse*; Moreton Bay, *Fitzalan*; Mount Lindsay, *W. Hill*; many other southern localities.

Var. *gracilis*. Branches very slender, more or less pubescent. Leaves and flowers small.—*L. pimeleoides*, A. Cunn.; DC. Prod. vii. 744. To this variety belong nearly all the Queensland plants.

2. **L. Richei** (after M. Riché), *R. Br. Prod.* 541, and in *Bot. Mag.* t. 3251; *Benth. Fl. Austr.* iv. 186. A tall shrub or small tree, quite glabrous or the branches slightly pubescent. Leaves oblong lanceolate or oblanceolate, obtuse or with a small callous point, slightly convex or with recurved margins, finely veined, rarely exceeding 1 in. and often all under $\frac{3}{4}$ in. long. Spikes terminal and in the upper axils, cylindrical, often rather long but dense. Bracts and bracteoles striate, about half as long as the calyx. Sepals scarcely 1 line long, obtuse. Corolla-tube rather shorter than the calyx; lobes as long as the tube. Anthers attached above the middle, with more or less prominent sterile tips. Hypogynous disk 5-lobed. Ovary 5 or 4-celled. Style short. Fruit white, ovoid-globose.—DC. Prod. vii. 744; Sond. in Pl. Preiss. i. 305; Hook. f. Fl. Tasm. i. 249; F. v. M. Fragm. iv. 123; *Styphelia Richei*, Labill. Pl. N. Holl. i. 44. t. 60; F. v. M. Fragm. vi. 42; *Styphelia parviflora*, Andr. Bot. Rep. t. 287; *Leucopogon parviflorus*, Lindl. Bot. Reg. t. 1560; DC. Prod. vii. 745; Sond. in Pl. Preiss. i. 305; *Styphelia gnidium*, Vent. Jard. Malm. t. 23; *Leucopogon polystachyus*, Lodd. Bot. Cab. t. 1436, not of R. Br.; *L. lanceolatus*, Sieb. Pl. Exs., not of R. Br.

Hab.: Moreton Island and the southern coast.
The species is also on Chatham Island.

3. **L. microphyllus** (small-leaved), *R. Br. Prod.* 544; *Benth. Fl. Austr.* iv. 192. An erect or straggling shrub with rather slender, often twiggy, branches, more or less pubescent. Leaves ovate-oblong, lanceolate or almost linear, obtuse, flat, erect or recurved, 1 to 2 lines long or sometimes all under 1 line, very rarely a few exceeding 2 lines. Spikes terminal, very short, dense and few-flowered, clustered so as to form little leafy heads at the ends of the branches. Lower bracts leaf-like, acuminate; bracteoles half as long as the calyx. Sepals about 1 line long, narrow, acuminate and acute or rarely almost obtuse. Corolla under $1\frac{1}{2}$ line long, the lobes as long as the tube. Anther attached below the short sterile tips. Hypogynous disk truncate or shortly lobed. Ovary 2-celled, tapering into the style. Fruit small, oblong, usually 1-seeded.—DC. Prod. vii. 749; *Perojoa microphylla*, Cav. Ic. iv. 29 t. 349; *Peroa microphylla*, Pers. Syn. i. 174; *Styphelia microphylla*, Spreng. Syst. i. 656; F. v. M. Fragm. vi. 45; *Leucopogon denudatus*, Sieb.; DC. Prod. vii. 749; *Styphelia denudata*, Spreng. Syst. Cur. Post. 67; *Leucopogon fraternus*, DC. Prod. vii. 749.

Hab.: Southern localities.

4. **L. virgatus** (twiggy), *R. Br. Prod.* 543; *Benth. Fl. Austr.* iv. 201. A low, decumbent or diffuse shrub, with ascending or erect wiry, glabrous branches of $\frac{1}{3}$ to 1ft. or rarely more rigid and bushy. Leaves lanceolate or linear-lanceolate, tapering into a rigid but not pungent point, concave, minutely ciliate, under $\frac{1}{2}$ in. long. Spikes short, dense, terminal or in the uppermost axils, or appearing axillary from the shortness of the flowering branchlets. Bracts small; bracteoles half as long as the calyx. Sepals about 1 line long, obtuse, scarcely coloured. Corolla-tube rather shorter than the calyx; lobes longer than the tube. Anthers attached a little below the the short sterile tips. Hypogynous disk truncate or obtusely lobed. Ovary broad, 5-celled; style short.—*DC. Prod.* vii. 748; *Hook. f. Fl. Tasm.* i. 249; *Styphelia virgata*, *Labill. Pl. Nov. Holl.* i. 46 t. 64; *F. v. M. Fragm.* vi. 42 (but not *L. glaciatis*, *Lindl.*)

Hab.: Point Danger, *H. Schneider.*

5. **L. Hookeri** (after Sir J. D. Hooker), *Sond. in Linnæa*, xxvi. 248; *Benth. Fl. Austr.* iv. 206. A low, diffuse or tall bushy shrub. Leaves oblong-linear, obtuse or with an obscure callous point, shortly petiolate, flat or with recurved margins, few-nerved and glaucous underneath, rarely $\frac{1}{2}$ in. long and often not above $\frac{1}{2}$ in. Flowers few, in short terminal spikes. Bracts and bracteoles broad, about half as long as the calyx. Sepals very obtuse, $\frac{1}{2}$ to $\frac{3}{4}$ line long. Corolla about $1\frac{1}{2}$ line long, the lobes about as long as the tube. Anthers attached above the middle, obtuse, without sterile tips. Hypogynous disk shortly lobed (or entire, *F. v. M.*). Ovary, 5-celled; style very short. Fruit (red, *F. v. M.*) small, nearly globular.—*Hook. f. Fl. Tasm.* i. 251 t. 75 B; *L. obtusatus*, *Hook. f. in Hook. Lond. Journ.* vi. 269, not of *Sond.*; *Styphelia montana*, *F. v. M. Fragm.* iv. 45.

Hab.: Near Wallangarra (I believe this species, but only fragments received).

6. **L. melaleucoides** (Melaleuca-like), *A. Cunn.*; *DC. Prod.* vii. 750; *Benth. Fl. Austr.* iv. 207. An erect, robust shrub of several feet, the branches usually minutely pubescent. Leaves oblong-linear, tapering into a pungent point, flat or nearly so, smooth and shining, rarely exceeding $\frac{1}{2}$ in. Spikes short, terminal, with occasionally a few single flowers in the uppermost axils. Bracts and bracteoles very small. Sepals obtuse or mucronate, rather above 1 line long. Corolla-tube shorter than the calyx; lobes as long as the tube. Anthers attached at the top, very obtuse, without sterile tips. Hypogynous disk 5-lobed. Ovary 5-angled, 5-celled.—*L. linifolius*, *A. Cunn.*; *DC. Prod.* vii. 747; *Styphelia linifolia*, *F. v. M. Fragm.* vi. 36.

Hab.: Moreton Bay, *A. Cunningham*; Mount Lindsay, *Fraser*; Stanthorpe.

Wood of a rather dark colour, nicely marked, hard; and close-grained.—*Bailey's Cat. Ql. Woods No.* 259a.

7. **L. pluriloculatus** (many-celled), *F. v. M. Fragm.* i. 37; *Benth. Fl. Austr.* iv. 207. A small but robust, erect, bushy shrub, the branchlets pubescent. Leaves crowded, linear, rigid, tapering into a pungent point, with revolute margins, mostly about $\frac{1}{2}$ in. long. Flowers in short, terminal spikes or racemes, with a few occasionally in the uppermost axils, each flower shortly pedicellate within the small, subtending bract and bracteoles. Sepals obtuse, $\frac{3}{4}$ to nearly 1 line long. Corolla-tube shortly exceeding the calyx; lobes nearly as long as the tube. Anthers attached near the top, oblong, very obtuse, without sterile tips. Hypogynous disk lobed. Ovary short, hairy, 5 to 7-celled. Fruit small, depressed-globular.—*Styphelia pluriloculata*, *F. v. M. Fragm.* vi. 32.

Hab.: Burnett River, *F. v. Mueller*; in the interior, *Mitchell.*

8. **L. pleiospermus** (many-seeded), *F. v. M. Fragm.* vi. 41; *Benth. Fl. Austr.* iv. 207. An erect, bushy shrub, with pubescent branches. Leaves oblong-linear, rather obtuse, with a short, rigid point, concave, finely veined

underneath, mostly about $\frac{1}{2}$ in. long. Racemes terminal or in the uppermost axils, rather loose, but rarely exceeding the leaves, the flowers small and pedicellate. Bracts and bracteoles small, broad, obtuse, striate, all at the base of pedicels. Sepals about $\frac{1}{2}$ line long, broad, obtuse, striate. Corolla $1\frac{1}{2}$ line long, the tube twice as long as the calyx, with the exerted part campanulate, the lobes short. Anthers attached near the top, obtuse, without sterile tips. Hypogynous disk truncate. Ovary, short, broad, 7 to 10-celled; style short. Fruit depressed-globular, smooth, yellow, about 2 lines diameter.—*Styphelia pleiosperma*, F. v. M. Fragm. vi. 41.

Hab.: Darling Downs and other inland localities.

9. **L. ericoides** (heath-like), *R. Br. Prod.* 543; *Benth. Fl. Austr.* iv. 209. A heath-like shrub, sometimes low and diffuse, sometimes erect and attaining several feet, glabrous or the branches and even the foliage more or less pubescent. Leaves mostly oblong-linear, obtuse, mucronate, $\frac{1}{4}$ to $\frac{1}{2}$ in. long, but sometimes narrow and acute, or, especially the lower ones, small broadly oblong or even ovate, always with recurved or revolute margins. Flowers few together, in close axillary clusters or spikes, rarely exceeding the leaves, but the spikes sometimes so numerous as to form long, dense, leafy racemes. Bracteoles about half as long as the calyx. Sepals scarcely 1 long long and sometimes shorter, narrow, mucronulate. Corolla variable in size, usually about 2 lines long, the lobes rather longer than the tube. Anthers linear, attached near the top, obtuse, without sterile tips. Hypogynous scales free or slightly cohering. Ovary 5-celled, pubescent or hairy, or rarely glabrous; style rather long. Fruit small, ovoid-oblong, often curved when partially abortive.—*DC. Prod.* vii. 747; *Hook. f. Fl. Tasm.* i. 250; *Styphelia ericoides*, *Sm. Pl. N. Holl.* 48; *F. v. M. Fragm.* vi. 45; *Epacris spuria*, *Cav. Ic.* iv. 27 t. 347 (not good); *Styphelia spuria*, *Poir. Dict.* vii. 485; *S. trichocarpa*, *Labill. Pl. Nov. Holl.* i. 47 t. 66 (not good); *Leucopogon trichocarpus*, *R. Br. Prod.* 543; *DC. Prod.* vii. 747.

Hab.: Islands of southern coast, and inland at Stanthorpe.

10. **L. margarodes** (pearl-like), *R. Br. Prod.* 542; *Benth. Fl. Austr.* iv. 212. A weak, straggling shrub, with pubescent branches. Leaves oblong-linear or oblanceolate, obtuse or with a minute callous point, the margins recurved, rarely exceeding $\frac{1}{2}$ in. and mostly under that length. Peduncles axillary, very short, bearing 2 or 3 flowers or sometimes only 1 besides the rudiment. Bracts very small; bracteoles broad, obtuse, scarcely half as long as the calyx. Sepals about 1 line long, acute. Corolla-tube much shorter than the calyx; lobes narrow, twice as long as the tube. Anthers attached near the top, obtuse, without sterile tips. Hypogynous disk rather long. Ovary oblong, compressed, 2-celled, tapering into a rather long style. Fruit oblong, obtuse, nearly 3 lines long, succulent angular and sterile at the base, the remaining seed-bearing portion striate and compressed.—*DC. Prod.* vii. 747; *Styphelia margarodes*, *Spreng. Syst.* i. 657; *F. v. M. Fragm.* vi. 36.

Hab.: Sandy Cape, Harvey Bay, *R. Brown*; Stradbroke Island, *Fraser*; Moreton Island, *F. v. Mueller*.

11. **L. ruscifolius** (Ruscus-leaved), *R. Br. Prod.* 545; *Benth. Fl. Austr.* iv. 215. Erect and bushy, glabrous or nearly so. Leaves from broadly obovate to oblong-elliptical, obtuse or acute, but always with a short, rigid point, contracted at the base, slightly concave, smooth and shining, $\frac{1}{4}$ to $\frac{1}{2}$ in. long. Peduncles axillary, very short, bearing 1 or 2 flowers besides the rudiment. Bracts very small; bracteoles broad, truncate with a minute point, not half so long as the calyx. Sepals nearly $1\frac{1}{2}$ line long, broad but almost acute, striate. Corolla about 2 lines long, the lobes very acute, longer than the tube. Anthers

attached near the top, obtuse, without sterile tips. Hypogynous disk large, truncate. Ovary broad, flat-topped, 5-angled or almost 10-ribbed, 5-celled; style short. Fruit ovoid-oblong, twice as long as the calyx.—DC. Prod. vii. 752; *Styphelia ruscifolia*, Spreng. Syst. i. 656.

Hab.: Cape York and Lizard Island, *M'Gillivray*; Endeavour₂ River, *Banks and Solander*; Port Bowen, Percy Island, *A. Cunningham*.

12. ***L. imbricatus*** (leaves imbricate), *R. Br. Prod.* 545; *Benth. Fl. Austr.* iv. 215. An erect shrub, of about 1½ ft., with divaricate branches, usually glabrous. Leaves crowded, erect and often imbricate, sessile but often contracted at the base, obovate-oblong, obtuse, but with a fine rigid point, slightly concave, under ½ in. long. Peduncles axillary, very short, bearing 1 or 2 flowers besides the rudiment. Bracts very small; bracteoles very broad, obtuse, not half so long as the calyx. Sepals 1½ line long, dry, obtuse. Corolla-tube as long as the calyx; lobes as long as the tube. Anthers attached above the middle, obtuse, without sterile tips. Hypogynous disk crenate. Ovary 5 or sometimes 4-celled.—DC. Prod. vii. 752; *Styphelia imbricata*, Spreng. Syst. i. 656.

Hab.: Northumberland Island, *R. Brown* (Herb. R. Brown).

This species has much larger flowers than *L. ruscifolius* and *L. cuspidatus*, which it otherwise resembles.—*Benth.*

13. ***L. cuspidatus*** (leaves with a point), *R. Br. Prod.* 545; *Benth. Fl. Austr.* iv. 215. An erect or spreading much-branched shrub, from under 1 to 3 or 4 ft. high, glabrous or the branches minutely pubescent. Leaves oblong or oblanceolate, contracted at the base and almost petiolate, shortly tapering into a fine rigid point, shining, 3 to 4 lines long. Peduncles axillary, very short, bearing 1 or 2 small flowers besides the rudiment. Bracts very small; bracteoles broad, obtuse, not half so long as the calyx. Sepals 1 to 1½ lines long, dry, acute or mucronate. Corolla nearly 3 lines long, the tube shorter than the calyx; the lobes longer than the tube. Anthers obtuse, without sterile tips. Ovary 5-celled; style rather long. Fruit ovoid, shortly exceeding the calyx.—DC. Prod. vii. 751; *Styphelia cuspidata*, Spreng. Syst. i. 657; *Acrotriche aristata*, *Benth.* in *Hueg. Enum.* 76; DC. Prod. vii. 757.

Hab.: Northumberland Islands, *R. Brown*; Percy Island, *A. Cunningham*; Rockhampton, *O'Shanesy, Dallachy*; Warwick, *Beckler*.

Near *L. leptospermoides*, but readily known by the long fine point of the leaves and much longer flowers.—*Benth.*

14. ***L. leptospermoides*** (Leptospermum-like), *R. Br. Prod.* 546; *Benth. Fl. Austr.* iv. 216. An erect bushy shrub of 2 or 3 ft., the branches hoary-pubescent or rarely glabrous. Leaves oblong-linear to linear-lanceolate, tapering into a short rigid or callous point, flat or nearly so, shining, mostly about ½ in. long. Peduncles axillary, very short, bearing 1 or 2 flowers besides the rudiment. Bracts small; bracteoles about half as long as the calyx. Sepals about 1½ line long, mucronate but scarcely acute. Corolla scarcely above 2 lines long, the lobes as long as the tube. Anthers attached near the top, obtuse, without sterile tips. Hypogynous disk truncate, readily separable into distinct scales. Ovary 5-angled, 5-celled; style short.—DC. Prod. vii. 751; *Styphelia leptospermoides*, Spreng. Syst. i. 659.

Hab.: Harvey Bay, Sandy Cape, *R. Brown*; Moreton Island, *A. Cunningham, M'Gillivray, F. v. Mueller*; towards Durval, *Leitchhardt*.

Also apparently a variety, with very obtuse sepals, but the specimen in bud only from Rockhampton, *Dallachy*.

The species closely resembles *L. melaleucoides* in foliage, but the inflorescence is axillary, not terminal. *L. pauciflorus*, *R. Br. Prod.* 546; DC. Prod. vii. 752; *Styphelia pauciflora*, Spreng. Syst. i. 658, appears to be a depauperated state of *L. leptospermoides*.—*Benth.*

15. **L. flexifolius** (leaves twisted), *R. Br. Prod.* 546; *Benth. Fl. Austr.* iv. 216. A rigid shrub of 1 to 2ft., with numerous erect branches minutely pubescent. Leaves very crowded, linear or linear-lanceolate, tapering into a fine point, flat or concave, but much twisted when dry as in *L. glacialis*, 2 to 4 lines long. Peduncles axillary, exceedingly short, bearing 1 or 2 very small flowers besides the rudiment. Bracts very small; bracteoles about $\frac{1}{3}$ as long as the calyx, broad, obtuse, minutely ciliate. Sepals scarcely above $\frac{1}{4}$ line long, obtuse, minutely ciliate. Corolla about 1 line long, the lobes as long as the tube. Anthers attached at the top, obtuse, without sterile tips. Hypogynous disk sinuate. Ovary 5-celled.—*DC. Prod.* vii. 754; *Styphelia flexifolia*, *Spreng. Syst.* i. 659.

Hab.: Shoalwater Bay, *R. Brown*.

16. **L. biflorus** (two-flowered), *R. Br. Prod.* 545; *Benth. Fl. Austr.* iv. 217. An erect shrub, with very spreading branches, sometimes very straggling, glabrous or minutely pubescent. Leaves oblong-linear or linear-lanceolate, with a fine and rigid but sometimes very short point, flat or convex, shining above, mostly under $\frac{1}{2}$ in. long. Peduncles axillary, exceedingly short, with two pendulous flowers or rarely only one besides the rudiment. Bracteoles not half so long as the calyx. Sepals about $1\frac{1}{2}$ line long, acute but not narrow. Corolla-tube as long as the calyx; lobes nearly as long as the tube. Anthers attached about the middle, obtuse, without sterile tips. Hypogynous scales acuminate, distinct or slightly connate at the base. Ovary 5-celled; style rather long.—*DC. Prod.* vii. 751; *F. v. M. Fragm.* iv. 104; *Styphelia biflora*, *Spreng. Syst.* i. 659; *L. sparsus*, *A. Cunn.*; *DC. Prod.* vii. 751; *L. similis*, *Sond. in Pl. Preiss.* i. 321.

Hab.: Logan River, *Rev. B. Scortechini*.

17. **L. Mitchellii** (after Sir Thos. Mitchell), *Benth. Fl. Austr.* iv. 220. A glabrous and often glaucous shrub of 2 to 3ft. Leaves sessile, narrow-oblong, abruptly contracted into a short, pungent point, flat or slightly concave, rarely $\frac{1}{2}$ in. long. Peduncles axillary, very short, bearing usually only 1 flower besides the rudiment or rarely 2 perfect flowers, which are larger for the genus. Bracts minute; bracteoles very broad, truncate, not half so long as the calyx. Sepals nearly 2 lines long, dry, obtuse. Corolla-tube 3 to $3\frac{1}{2}$ lines long; lobes nearly 2 lines. Anthers attached about the middle, obtuse, without sterile tips. Hypogynous disk truncate. Ovary 5-angled, 5-celled; style long, the stigma sometimes very small, sometimes broad and peltate.—*L. cuspidatus*, *Mitch. Trop. Austr.* 225, 226, not of *R. Br.*

Hab.: Near Lake Salvator Rosa, *Mitchell*; in the interior, *Leichhardt*; Percy Island, *A. Cunningham*; Mount Hedlow, Rockhampton, *C. E. Porter*.

18. **L. juniperinus** (Juniper-like), *R. Br. Prod.* 546; *Benth. Fl. Austr.* iv. 220. A divaricately branched shrub, with pubescent or hirsute branchlets. Leaves very spreading, linear or oblong-linear, with a fine rigid point and recurved margins, mostly under $\frac{1}{2}$ in. long. Peduncles axillary, very short, bearing usually a single flower, with a single subtending bract or sometimes 2 or 3 empty, very acuminate ones below. Bracteoles about $\frac{1}{3}$ line long, broad, obtuse, minutely mucronate. Sepals $1\frac{1}{2}$ to nearly 2 lines long, mucronate-acute. Corolla-tube slender, 3 to $3\frac{1}{2}$ lines long, the lobes very short. Anthers attached near the top, very obtuse, without sterile tips. Hypogynous scales distinct or slightly cohering. Ovary 5-angled, 5-celled; style elongated. Fruit yellow, oblong, 2 to $2\frac{1}{2}$ lines long —*DC. Prod.* vii. 753; *F. v. M. Fragm.* iv. 104; *Lodd. Bot. Cab. t.* 447; *Styphelia juniperina*, *Spreng. Syst.* i. 658; *F. v. M. Fragm.* vi.

46; *Lissanthe strigosa*, Sieb. Pl. Exs., not of R. Br.; *Leucopogon Sieberi*, DC. Prod. vii. 751; *Epacris villosa*, Cav. Ic. iv. 27. t. 347; DC. Prod. vii. 763 (from the figure and description).

Hab.: Brisbane River, Moreton Bay, *F. v. Mueller*; very common in southern localities.

19. **L. neoanglicus** (of New England), *F. v. M. Herb.*; *Benth. Fl. Austr.* iv. 223. An erect, very rigid shrub of 1 to 2ft. Leaves oblong or lanceolate, acuminate, with a fine pungent point, quite entire, rigid, concave, imbricate or rarely spreading, mostly 3 to 4 lines long. Peduncles axillary, exceedingly short, bearing 1 or rarely 2 or 3 flowers. Bracts minute; bracteoles broad, mucronate, not half so long as the calyx. Sepals 2 lines long, very acute. Corolla-tube as long as or slightly exceeding the calyx; lobes shorter than the tube. Anthers attached about the middle, obtuse, without sterile tips. Hypogynous disk lobed or separating into distinct scales. Ovary 5-angled, 5-celled; style long, usually hairy; stigma peltate.

Hab.: Stradbroke Island, *Fraser*; Stanthorpe to border of N.S.W.

7. ACROTRICHE, R. Br.

(From *akros*, a point, and *thrix*, a hair.)

(*Frœbelia*, *Regel.*)

Corolla-tube equal to the calyx or longer; lobes valvate in the bud, spreading, with a tuft of long hairs inside at the end, at first inflexed, afterwards erect, and a tuft of hairs or a hairy scale at the base closing the orifice of the tube. Filaments short, terete, inserted at the top of the tube; anthers oblong, usually short, attached above the middle, very obtuse. Hypogynous disk cup-shaped, truncate or obtusely lobed. Ovary 2 to 10-celled, with 1 ovule in each cell; style short, with a small stigma. Drupe globular or depressed, the mesocarp slightly pulpy, the endocarp 2 to 10-celled, rather hard, the pyrenes usually less consolidated than in most *Leucopogons*, but much more so than in *Trochocarpa*.—Low rigid shrubs, usually very divaricately branched. Leaves rigid. Flowers small, in little sessile or shortly pedunculate spikes, condensed into heads or clusters, in the axils of the previous year's leaves or on the stem below the leaves, each flower sessile within the small subtending bract and 2 bracteoles.

The genus is limited to Australia. Although the technical characters by which it is distinguished may appear of little importance, yet the genus is a very natural one. The inflorescence is peculiar, although an approach to it may be observed in *Monotoca scoparia*.—*Benth.*

Spikes or clusters mostly in the axils of the previous year's leaves. Leaves mucronate, mucronate-acute, or pungent-pointed, lanceolate or oblong, $\frac{1}{2}$ in. long or more.

Corolla-tube not exceeding the calyx. Ovary usually 5-celled. Leaves scarcely paler underneath

1. *A. divaricata*.

Corolla-tube twice as long as the calyx. Ovary 6 to 10-celled. Leaves pale or glaucous underneath

2. *A. aggregata*.

1. **A. divaricata** (branches spreading), *R. Br. Prod.* 547; *Benth. Fl. Austr.* iv. 26. A shrub, attaining sometimes several feet, but of diffuse or spreading habit, the branches usually shortly hirsute. Leaves spreading, from oblong-elliptical to narrow-lanceolate, mucronate, acute, flat or slightly concave or convex, scarcely paler underneath, $\frac{1}{2}$ in. long or rather more. Flowers very small, green, in very short spikes or clusters, nearly sessile in the lower axils. Bracts very small; bracteoles very broad, about half as long as the calyx. Sepals broad, very obtuse, $\frac{3}{4}$ line long. Corolla nearly $1\frac{1}{2}$ line long, the lobes as long as the tube, the throat closed with dense tufts of hairs. Ovary (always?) 5-celled, not ribbed. Fruit red, nearly globular, $1\frac{1}{2}$ line diameter.—DC. Prod. vii. 756; *Styphelia divaricata*, Spreng. Syst. i. 658; *F. v. M. Fragm.* vi. 44.

Hab.: Towards Moreton Bay and Durval, *Leichhardt*; Stanthorpe; Cooper's Plains (in fruit, May, 1878).

2. **A. aggregata** (flowers aggregated), *R. Br. Prod.* 547; *Benth. Fl. Austr.* iv. 226. A spreading shrub, with the habit of *A. divaricata*, the branches glabrous pubescent or shortly hirsute. Leaves spreading, oblong-lanceolate, mucronate-acute, nearly flat or slightly convex, pale or whitish underneath, $\frac{1}{2}$ to 1 in. long. Flowers in very short axillary spikes or clusters, sessile or shortly pedunculate, mostly on the previous year's shoots. Bracts very small; bracteoles scarcely half so long as the calyx. Sepals almost orbicular, $\frac{3}{4}$ line long. Corolla-tube twice as long as the calyx, the lobes about 1 line, throat closed with dense tufts of hairs. Ovary 7 to 10-celled, not ribbed. Fruit depressed-globular, at least 2 lines diameter when perfect.—*DC. Prod.* vii. 757; *Styphelia aggregata*, Spreng. *Syst.* i. 657; *F. v. M. Fragm.* vi. 44.

Hab.: Port Bowen, *R. Brown*; Wide Bay (with larger flowers than usual), *Bidwill*; Brisbane River, Moreton Island, *F. v. Mueller*; towards Durval, *Leichhardt*; Stanthorpe, *Davidson*; Herberton, *J. F. Bailey*; Rockingham Bay.

8. MONOTOCA, R. Br.

(From *monos*, one, and *tokos*, a birth.)

Corolla-tube small, campanulate or scarcely cylindrical; lobes 5 or rarely 4, valvate in the bud, spreading, glabrous. Filaments inserted at the top of the tube, short, filiform; anthers wholly or partially enclosed in the corolla-tube or spreading with the lobes. Hypogynous disk truncate, lobed or separating into distinct scales. Ovary 1-celled or rarely 2-celled, with 1 ovule in each cell; style short; stigma small. Fruit a small drupe, with a somewhat pulpy mesocarp, and a hard or crustaceous endocarp, with a single seed.—Shrubs or small trees. Leaves with recurved margins or nearly flat. Flowers small, often more or less unisexual, in axillary or terminal spikes or racemes, or sometimes quite solitary, each flower sessile or pedicellate within the subtending bract, with 2 bracteoles close under the calyx.

The genus is limited to Australia. It is closely allied to *Leucopogon*, differing in the small almost campanulate corolla with glabrous lobes, and in most cases also by the 1-celled ovary, from whence the name is derived.—*Benth.*

Ovary 1-celled. Flowers 5-merous.

Flowers pedicellate, in terminal or also axillary racemes, or rarely solitary.

Bracts deciduous or none; bracteoles at the top of the pedicel 1. *M. elliptica*.

Flowers all axillary. Bracts small, persistent.

Flowers in small pedunculate spikes. Leaves mucronate 2. *M. lineata*.

Flowers in almost sessile clusters of 2 to 4. Leaves mucronate. Corolla not very spreading 3. *M. scoparia*

1. **M. elliptica** (leaves elliptical), *R. Br. Prod.* 546; *Benth. Fl. Austr.* iv. 280. A tall shrub or sometimes a tree of 20 to 30ft. Leaves from broadly elliptical-oblong to almost oqlong-linear, mucronate, slightly convex, pale or whitish and finely veined underneath, under $\frac{1}{2}$ in. long in some specimens, from $\frac{1}{2}$ to 1 in. in others. Flowers pedicellate, few or many together, forming short, racemes, either terminal or also axillary, and sometimes exceeding the leaves or growing out into leafy branches, with a few solitary axillary flowers. Subtending bracts membranous, very deciduous; bracteoles not half so long as the calyx, and close under it. Sepals half as long as the corolla, broad, and very obtuse. Corolla from scarcely 1 line to $1\frac{1}{2}$ line long, campanulate, the lobes recurved, shorter than the tube. Hypogynous disk truncate or sinuate-toothed. Ovary 1-celled, tapering into a short style. Fruit ovoid, $1\frac{1}{2}$ to nearly 2 lines long.—*DC. Prod.* vii. 755; *F. v. M. Fragm.* vi. 58; *Styphelia elliptica*, *Sm. Bot. N. Holl.* 49; *M. albens*, *R. Br. Prod.* 547; *DC. Prod.* vii. 755.

Hab.: Moreton Island, *F. v. Mueller*.

2. *M. lineata* (lined), *R. Br. Prod.* 547; *Benth. Fl. Austr.* iv. 230. A tall shrub or small tree, closely resembling *M. elliptica* in foliage, but the peduncles are all short, axillary or lateral and few-flowered, the flowers smaller and sessile or nearly so within the very small subtending bract, which is usually persistent or sometimes very minute, or even quite deficient, when the spike is reduced to a single flower. Corolla more open than in *M. elliptica*, with a very short tube, so as to be almost rotate. Fruit ovoid, or round, or a rich red colour, about 1 or more line diameter.—*DC. Prod.* vii. 755; *Hook. f. Fl. Tasm.* i. 252; *Styphelia glauca*, *Labill. Pl. Nov. Holl.* i. 45. t. 61.

Hab.: Mount Bartle Frere.

J. J. Labillardière, in *Pl. Nov. Holl.* i. 45, is the only one to notice that the fruit of this small tree has 5 cells, which I found to be the case in the specimen I examined from Mount Bartle Frere. I think this is the first time the plant has been found out of Tasmania. The fruit of our plant is roundish, about 2 lines in diameter, and of a rich-red colour. It is strange that neither Dr. Hooker in the *Tasmanian Flora*, nor Mr. Bentham in the *Flora Australiensis*, gives the number of cells in the fruit; and both refer to Labillardière's description and figure in which the 5 cells are mentioned and shown under his name of *Styphelia glauca*. It is probable that in the typical specimen received by Robt. Brown the fruit was 1-celled by abortion, as stated to be sometimes the case by Labillardière.—*Bail. in 3rd Suppl. Syn. Ql. Fl.* 45 (1890).

3. *M. scoparia* (broom-like), *R. Br. Prod.* 547; *Benth. Fl. Austr.* iv. 230. An erect, bushy shrub of 2 or 3ft., glabrous or the branches minutely pubescent. Leaves oblong-linear, mucronate, convex or with revolute margins, pale or glaucous and finely veined underneath, rarely exceeding $\frac{1}{2}$ in. Flowers in little axillary clusters of 2 to 4 or sometimes solitary, usually reflexed, the common peduncle exceedingly short. Bracts very small, broad, membranous, persistent; bracteoles about half as long as the calyx. Sepals a little more than $\frac{1}{2}$ line long, very obtuse. Corolla about 1 line long, the lobes as long as the tube, much less spreading than in *M. elliptica*, and thickened at the end. Hypogynous disk truncate or toothed. Ovary 1-celled. Drupe about 1 line long.—*DC. Prod.* vii. 756; *F. v. M. Fragm.* vi. 58; *Styphelia scoparia*, *Sm. Bot. N. Holl.* 49; *M. patens* and *M. propinqua*, *A. Cunn.*; *DC. Prod.* vii. 756.

Hab.: Many southern localities.

Wood of a pale colour, close-grained, nicely marked, and easily worked.—*Bailey's Cat. Ql. Woods No.* 259b.

9. EPACRIS, Cav.

(From *epi*, upon, and *akris*, a mountain.)

Corolla-tube cylindrical or campanulate; lobes 5, imbricate but not contorted in the bud, more or less spreading, glabrous. Filaments short, adnate to the corolla-tube (inserted in the throat), but often readily detached almost to the base; anthers attached above the middle, wholly or partially included in the corolla-tube. Hypogynous disk consisting of distinct scales, very rarely cohering in a ring or cup. Ovary 5-celled, with several, usually numerous ovules or placentas attached to the axis; style long or short, inserted in a tubular depression, rarely reaching below the middle of the ovary; stigma small or clavate or dilated. Capsule loculicidally dehiscent.—Shrubs. Leaves sessile or petiolate, articulate on the stem, sometimes embracing it above the base but not sheathing. Flowers solitary in the upper axils or along the branches, on peduncles usually short. Bracts numerous, covering the peduncle and imbricate on the calyx, passing gradually into the sepals, and forming an involucre round them.

The genus is limited to Australia and New Zealand, and only 1 or perhaps 2 species are common to the two countries. With all its variations in the foliage and shape of the corolla, it is the most easily recognised in the Order, differing from all except *Lysinema* in foliage and inflorescence, and distinguished from the latter genus by the æstivation of the corolla.—*Benth.*

Stems erect, virgate. Leaves narrow, nearly sessile. Flowers along the branches. Calyx about 3 lines long. Corolla-tube exserted, cylindrical.

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|--|----------------------------|
| Style long | 1. <i>E. obtusifolia</i> . |
| Leaves broad and cordate or very concave at the base, acuminate or acute, with spreading points. | |
| Bracts and sepals obtuse or nearly so. Corolla-tube and style very short. | |
| Leaves mostly under 2 lines | 2. <i>E. microphylla</i> . |
| Bracts and sepals acutely acuminate. Leaves mostly under 3 lines long | 3. <i>E. pulchella</i> . |

1. ***E. obtusifolia*** (leaves obtuse), *Sm. Exot. Bot. i. 77 t. 40*; *Benth. Fl. Austr. iv. 237*. An erect shrub, with virgate, usually pubescent branches, from under 1ft. to about 3ft. high. Leaves oblong-elliptical, obtuse, thick, few-nerved, slightly concave, narrowed into a short petiole, from under $\frac{1}{4}$ in. long when broad to nearly $\frac{1}{2}$ in. when narrow. Flowers white, axillary, usually forming long one-sided leafy racemes, either almost sessile or on peduncles of above 1 line. Bracts and sepals obtuse, ciliate, usually decussate, the sepals about 3 lines long. Corolla sometimes almost campanulate, the tube shortly exceeding the calyx, the lobes broad. Anthers not protruding from the tube. Hypogynous scales distinct, obtuse.—*R. Br. Prod. 551*; *DC. Prod. vii. 762*; *Hook. f. Fl. Tasm. i. 260*; *Lodd. Bot. Cab. t. 292*.

Hab.: Coastal swamps, southern localities, and Stanthorpe.

2. ***E. microphylla*** (leaves small), *R. Br. Prod. 550*; *Benth. Fl. Austr. iv. 240*. An erect shrub with virgate sometimes rather slender branches, often flowering to a considerable length. Leaves cordate, broadly ovate, shortly acuminate or acute in the typical form or sometimes almost obtuse, very concave and broad above the base, erect, spreading, or reflexed, $1\frac{1}{2}$ to nearly 2 lines long. Flowers numerous along the branches, small, almost sessile or on peduncles of 1 or even 2 lines. Bracts and sepals obtuse or rarely the innermost almost acute, the sepals under 1 line long. Corolla-tube shorter than the calyx, the lobes as long as the tube. Anthers wholly included. Hypogynous scales short. Style very short.—*DC. Prod. vii. 760*; *Bot. Mag. t. 3658*; *E. pulchella*, *Sims, Bot. Mag. t. 1170*; *Lodd. Bot. Cab. t. 194*, not of *Cav.*; *E. rivularis*, *Sieb.*; *Spreng. Syst. Cur. Post. 64*; *E. auriculata*, *Benth. in Hueg. Enum. 76*; *DC. Prod. vii. 761*; *E. pedicellata*, *DC. Prod. vii. 761*.

Hab.: In the coastal swamps of southern parts.

3. ***E. pulchella*** (plant pretty), *Cav. Ic. iv. 26 t. 345*; *Benth. Fl. Austr. iv. 241*. An erect shrub with virgate branches minutely pubescent. Leaves spreading, nearly sessile, cordate-ovate, acuminate, tapering into a rigid point, broad and very concave near the base, mostly 2 to nearly 3 lines long. Flowers along the branches on very short peduncles. Inner bracts and sepals acutely acuminate, the sepals about 2 lines long. Corolla-tube broad, as long as the calyx, the lobes rather obtuse, scarcely shorter than the tube. Hypogynous scales short and broad. Style rather long.—*R. Br. Prod. 550*; *DC. Prod. vii. 760*; *E. purpurascens*, *Sieb. Pl. Exs., not of R. Br.*

Hab.: Southern localities.

10. LYSINEMA, R. Br.

(Filaments free.)

Corolla-tube cylindrical, entire or separating at the base or altogether into distinct petal-claws; lobes 5, horizontally spreading, contorted in the bud. Filaments free from the base or more or less adnate to the corolla, especially towards the throat; anthers linear, attached at or above the middle, wholly or partially included in the tube. Hypogynous disk of 5 distinct scales, usually as long as the ovary. Ovary 5-celled, with several usually numerous ovules in

each cell, on a placenta attached to the axis. Style often thickened above the ovary, inserted in a shallow or deep and tubular depression of the ovary. Capsule loculicidally dehiscent.—Erect straggling or virgate shrubs. Leaves persistent. Flowers almost sessile and solitary in the upper axils, forming leafy heads or spikes or rarely more scattered along the branches. Bracts very numerous, imbricate, covering the very short peduncles and calyx, passing gradually into the sepals and forming an involucre round them.

The genus is limited to Australia.

1. **L. pungens** (leaves sharp-pointed), *R. Br. Prod.* 552; *Benth. Fl. Austr.* iv. 248. An erect shrub with long branches, hoary-pubescent when young but almost concealed by the leaves. Leaves ovate, acuminate and tapering into a rigid point, broad, very concave and shortly erect immediately above the base, then very spreading, $\frac{1}{4}$ to nearly $\frac{1}{2}$ in. long. Flowers white or rarely red, sessile in the upper axils. Calyx and bracts forming a narrow involucre tapering to the top, 4 to 5 lines long. Corolla-tube slender, as long as or rather longer than the calyx; lobes broad, mucronulate. Filaments free or more or less adnate to the corolla-tube. Hypogynous scales, narrow, acuminate.—*DC. Prod.* vii. 765; *Epacris pungens*, *Cav. Ic.* iv. 26 t. 346; *Bot. Mag.* t. 1199; *F. v. M. Fragm.* vi. 70; *E. attenuata*, *Lodd. Bot. Cab.* t. 38; *Lysinema attenuatum*, *Link. Enum. Hort. Berol.* i. 211; *Epacris rosea*, *Lodd. Bot. Cab.* t. 863; *E. riparia*, *Sieb. Pl. Exs.*, not of *R. Br.*; *Lysinema Sieberi*, *Benth. in. Hueg. Enum.* 76; *Woolstia pungens*, *F. v. M. Fragm.* viii. 52.

Hab.: Moreton Island, *F. v. Mueller*; Stradbroke Island.

11. SPRENGELIA, Sm.

(After Kurt Sprengel.)

(*Poncelétia*, *R. Br.*)

Corolla-tube very short, sometimes separating into distinct petal-claws; lobes 5, very spreading, more or less imbricate in the bud. Stamens hypogynous, shorter than the corolla; anthers connivent or cohering in a ring round the style. Hypogynous disk none. Ovary 5-celled, with several ovules in each cell, on a nearly sessile placenta attached to the axis; style filiform, inserted in a tubular depression of the ovary. Capsule loculicidally dehiscent.—Shrubs. Leaves with a shortly sheathing often membranous base completely covering the branches, very concave and stem-clasping immediately above the base, acute or acuminate with a spreading point, finely veined or almost veinless, the upper ones passing into floral leaves or bracts, the sheathing base of the stem-leaves deciduous with them, leaving the denuded stem without scars. Flowers solitary and terminal, surrounded by numerous leafy bracts. Sepals not of a very different texture from the last bracts. Corolla as long as or scarcely exceeding the calyx.

The genus is limited to Eastern Australia.

1. **S. Poncelétia** (after M. Poncelet), *F. v. M. Fragm.* i. 39 vi. 60; *Benth. Fl. Austr.* iv. 248. A glabrous erect shrub attaining but few feet. Leaves broad, concave, spreading or incurved, acuminate and pungent-pointed, smooth or finely-veined, 2 to 4 lines long, the uppermost floral ones or leafy bracts like the others or with a broader base and crowded round the flower into a kind of involucre. Sepals leaf-like but more lanceolate, almost obtuse, usually about 3 lines long but very variable in breadth. Corolla about as long as the calyx, the very short broad tube not separating into petal-claws, the lobes much longer, very broad and obtuse, almost cordate at the base, very much imbricate. Filaments

somewhat flattened. Anthers linear or linear-lanceolate, adnate to below the middle, glabrous, connivent round the style, but not cohering. Style rather thick.—*Poncelletia sprengeleioides*, R. Br. Prod. 554; DC. Prod. vii. 767.

Hab.: Islands of Moreton Bay.

12. DRACOPHYLLUM, Labill.

(Leaves resembling a *Dracæna*.)

(*Sphenotoma*, sect. *R. Br.*, gen. Don.)

Corolla-tube cylindrical, oblong or almost campanulate; lobes 5, spreading, imbricate in the bud. Stamens hypogynous or the filaments more or less adnate to the corolla-tube; anthers included in the tube, attached at or above the middle, entire or 2-lobed. Hypogynous disk of 5 distinct scales. Ovary 5-celled, with several ovules in each cell, attached to a placenta suspended from an erect or recurved stipes proceeding from the axis. Style inserted in a shallow or deep and tubular depression of the ovary; stigma small or larger and shortly 5-lobed.—Shrubs or small trees, having then a monocotyledonous aspect. Leaves crowded at the ends of the branches or imbricate along them, very concave above the sheathing bases, which fall off with the leaf, leaving annular scars on the denuded stem or branches. Flowers in terminal compound racemes or panicles or simple spikes or heads.

The genus is spread over Australia, New Caledonia, New Zealand, and the Antarctic Islands. The annular scars of the leaves and peculiar placentation distinguish it from all except *Richea* (a genus confined to Tasmania and Victoria), from which it differs in the expanding corolla-lobes.

1. **D. Sayeri** (after W. Sayer), *F. v. M. Austr. Journ. of Pharm. Mar.* 1887. Stems much elongated, reaching the height of some 20 to 25ft. and a diameter of 10in., the branches intricately spreading, often horizontal, rather elastic, thus forming an almost impenetrable mass. Leaves crowded at and near the upper end of the branchlets, attaining a length of $1\frac{1}{2}$ ft. and $\frac{3}{4}$ in. in width in the lower part, broadly linear, gradually attenuated upwards and much narrowed towards the apex, clasping at the base through longitudinal incurvature, somewhat concave, smooth also along the margin, the floral leaves abbreviated, early deciduous. Panicle terminal, short-stalked, attaining 8in. in length and seldom more than $1\frac{1}{2}$ in. in width. Bracts $\frac{1}{2}$ to 3in. long, white, shaded with deep-rose, narrow, fugacious, attenuated towards both ends; peduncles and pedicels shortly-downy, the latter conspicuous, and scattered or somewhat fasciated. Flowers very numerous, occasionally tetramerous: Sepals lanceolate-ovate, acute, glabrous. Corolla about 4 lines long or 3 or 4 times as long as the calyx, quite white or rosy, divided to near the middle into almost semi-lanceolate bluntish lobes. Stamens emerging, inserted near the summit of the corolla-tube; filaments broadish, hardly longer than the anthers. Style of a much less length than the corolla; hypogynous disk shortly divided into semi-orbicular somewhat truncate lobes. Fruit as long as the calyx or slightly longer, broader than long, depressed; placentas conspicuously stalked, deeply pendent. Seed almost oblique-ovate, testa subtle-reticulate.—*F. v. M. l.c.*, and *Bail. 3rd Suppl. Syn. Ql. Fl.* 45.

Hab.: Mountains of the Bellenden Ker Range, *W. Sayer* and *A. Davidson* (1887), *A. Meston's Expedition* (1889).

There are probably 2 varieties of this species, which may be distinguished by the flowers of the one having a white tube and horizontal rose-coloured lobes, which seem to become somewhat erect in decay. Of the other, the flowers are all white, and the corolla-lobes are closely reflexed, and remain so in decay. I found this distinction on all the plants examined, even when growing beside each other.—*Bail. l.c.*

Wood close-grained, dark and prettily marked.—*Bailey's Cut. Ql. Woods No.* 259c.

ORDER LXXII. PLUMBAGINEÆ.

Calyx tubular, often enlarged and scarious or petal-like at the top, with 5 prominent ribs usually ending in as many teeth. Corolla regular, of 5 petals, free or more or less united, contorted-imbricate in the bud. Stamens 5, inserted at the base of the corolla or petals, opposite to them, and often more or less adnate to them; anthers versatile, 2-celled, the cells opening in longitudinal slits. Ovary 1-celled, with 1 ovule suspended from a filiform placenta erect from the base. Styles 5, distinct or united at the base. Capsule 1-seeded, indehiscent or opening irregularly. Seeds solitary; testa thin; albumen rarely abundant, usually scanty or none; embryo straight, radicle superior.—Herbs or rarely undershrubs or shrubs. Leaves radical or alternate, entire or (in species not Australian) lobed. Flowers in terminal heads spikes or panicles.

The Order, although a small one, is widely dispersed over most parts of the globe, chiefly in maritime districts. Of the 3 Australian genera, one has nearly the range of the Order; the second extends over the New as well as the Old World, but only in the warmer regions; the third is further limited to the tropical seacoasts of the Old World. The Order is allied to *Primulaceæ* in the position of the stamens and the 1-celled ovary, but differs in the compound pistil with a solitary ovule, and in habit.—*Benth.*

TRIBE I. **Staticææ**.—*Styles 5, distinct; stigmas subcapitate. Stamens very shortly united at the base into a tube with the corolla.*

Calyx tubular, smooth. Fruit narrow, elongated, exserted. Shrub, with petiolate leaves 1. ÆGIALITIS.
Calyx dilated at the top. Styles free, stigmatic in the upper part. Fruit enclosed in the calyx. Herb with radical leaves 2. STATICE.

TRIBE II. **Plumbagææ**.—*Style 1, filiform, divided into 5 stigmatose branches.*

Calyx tubular, glandular-muricate. Fruit enclosed in the calyx. Erect or half-climbing, leafy shrub 3. PLUMBAGO.

1. ÆGIALITIS, R. Br.

(From its natural place of growth.)

(*Ægialinites, Presl.*)

Calyx tubular, with 5 prominent ribs ending in short teeth with induplicate margins. Petals slightly cohering at the base. Stamens slightly adhering to the base of the petals. Styles free or scarcely cohering at the base; stigmas small, terminal, capitate. Fruit narrow, elongated. Seed without albumen.—Shrubs. Leaves broad, petiolate. Flowers nearly sessile along the branches of a dichotomous panicle.

The genus is limited to a single species, extending to the seacoasts of some parts of tropical Asia.

1. **Æ. annulata** (ringed), *R. Br. Prod.* 426; *Benth. Fl. Austr.* iv. 266. A glabrous shrub, sometimes tall, the branches marked with annular scars of fallen leaves. Leaves on long, winged, sheathing petioles, broadly ovate or almost orbicular, obtuse, entire, coriaceous, with numerous fine parallel veins diverging from the midrib, 2 to 4 in. long. Panicle with few rigid branches, not much exceeding the leaves. Flowers very shortly pedicellate, solitary within erect, concave bracts, which enclose the calyx and are nearly as long, with two much smaller bracteoles at the base of the calyx. Calyx 3 to 3½ lines long, the ribs smooth. Petals white, narrow, shortly exceeding the calyx. Stamens not exceeding the corolla, the short adnate base of the filaments dilated and thickened. Fruit linear, incurved, 5-angled, 1½ in. long, scarcely above 1 line broad, the pericarp thinly coriaceous. Seed filling the cavity; testa membranous; embryo

divided nearly to the middle into linear cotyledons, enclosing a linear-conical plumula.—Gaud. in Freyc. Voy. t. 51; Boiss. in DC. Prod. xii. 621; *Ægialinites annulata*, Presl, Bot. Bem. 108.

Hab.: Seacoast, amongst the *Rhizophoras*, Prince of Wales Islands, *R. Brown*; Howick's Group, *F. v. Mueller*; Cape York, *Damel*; Port Denison, *Fitzalan*; Fitzroy River, *Thozet*; other northern localities.

It is also found on the coasts of Timor, and of the Malayan Peninsular. The name was altered by Presl, as being preoccupied in zoology,—a reason now generally acknowledged to be insufficient.—*Benth.*

2. STATICE, Linn.

(From *statizo*, to stop; supposed astringent properties.)

(*Taxanthemea*, *R. Br.*)

Calyx more or less expanded at the top into a dry, membranous, coloured and slightly 5-lobed limb, each lobe traversed by a green or dark nerve. Petals slightly united at the base. Styles free, ending in linear-terete stigmas. Fruit included in the calyx. Seed more or less albuminous.—Herbs or rarely under-shrubs. Leaves usually radical. Flowers solitary or 2 or 3 together in little spikelets, forming one-sided spikes, arranged in dichotomous or trichotomous panicles, or rarely in simple spikes.

The largest genus of the Order, ranging chiefly over maritime districts in the northern hemisphere, with very few southern species. The only Queensland one extends northward as far as Japan.

1. ***S. australis*** (southern), *Spreng. Syst.* i. 959; *Benth. Fl. Austr.* iv. 267. Stock short and thick. Leaves all radical, obovate-oblong, $1\frac{1}{2}$ to 3in. long, quite entire, narrowed into a petiole of very variable length. Scape angular, 9 to 18in. high, repeatedly forked so as to form a broad corymbose panicle, with a small green bract under each branch, and in some specimens there are a few entire or forked barren branches, $\frac{1}{2}$ to $1\frac{1}{2}$ in. long, at the base of the panicle. Flowers numerous, in short, dense, unilateral spikes, formed of little clusters or spikelets of 2 or 3 flowers each, or of single flowers. Calyx-lobes pale pink, broad and undulate, the ribs usually hairy outside at the base, produced into short points or almost obtuse. Petals yellow, rather longer than the calyx when first flowering. Seeds oblong; albumen very scanty on one side only of the embryo; cotyledons oblong; radicle superior, very short.—Boiss. in DC. Prod. xii. 642; Hook. f. *Fl. Tasm.* i. 301; *Taxanthemea australis*, *R. Br. Prod.* 426; *Statice taxanthemea*, *Rœm. et Sch. Syst.* vi. 798.

Hab.: Port Curtis, *M. Gillivray*; Port Denison, *Fitzalan*; Fitzroy River, *Thozet*; common on the coastal sands.

3. PLUMBAGO, Linn.

(A species one time used as a remedy for "plumbuma"—disease of the eyes.)

Calyx tubular, with 5 prominent ribs, more or less glandular-muricate, ending in short teeth. Corolla with a cylindrical tube and spreading lobes. Stamens hypogynous. Style filiform, with 5 filiform branches stigmatic from the base. Fruit included in the calyx.—Perennials or shrubs, with leafy branches. Flowers sessile, in simple terminal spikes.

The genus, although comprising but very few species, ranges over the temperate and tropical regions of the New as well as the Old World. The only Queensland species is a common Asiatic one.

1. ***P. zeylanica*** (of Ceylon), *Linn.*; *Boiss. in DC. Prod.* xii. 692; *Benth. Fl. Austr.* iv. 267. A shrub attaining several feet, the long weak branches sometimes half-climbing, glabrous except the short, glandular, viscid bristles on the inflorescence, and especially on the calyx. Leaves petiolate, ovate,

obtuse, acute or acuminate, the larger ones 2 to 3in. long but mostly smaller, the petiole dilated at the base into a stem-clasping ring or sometimes forming prominent auricles. Flowers white or blue, each one sessile within a small broadly ovate acuminate bract and 2 much smaller bracteoles. Calyx 4 to 5 lines long, the ribs strongly glandular-muricate, neither contracted nor expanded at the top. Corolla-tube slender, much longer than the calyx; lobes obovate, about as long as the exerted part of the tube. Stamens included in the tube. Nut much shorter than the calyx, contracted at the top and at the base, 5-angled.—Bot. Reg. 1846 t. 23; Wight, Illustr. t. 179.

Hab.: Keppel and Shoalwater Bays and Thirsty Sound, *R. Brown*; Barnard Isles, *M'Gillivray*; Port Denison, *Fitzalan*; Broadsound, *Bowman*; Rockhampton, *Dallachy*; Moreton Bay, *F. v. Mueller and others*; very abundant on Goode Island, Torres Straits, the flower being quite as pretty a blue as the garden variety *P. capensis*.

The species extends over tropical Africa and Asia and the Pacific Islands to the Sandwich Islands.

ORDER LXXIII. PRIMULACEÆ.

Calyx usually of 5, sometimes 4, 6 or 7 divisions or teeth, free or rarely the tube shortly adnate to the ovary. Corolla regular, more or less divided into as many lobes or teeth as divisions of the calyx, imbricate and often contorted in the bud, rarely wanting. Stamens as many as lobes of the corolla, inserted in the tube or at the base, opposite the lobes. Ovary 1-celled, with 1 or more ovules attached to or immersed in a central placenta, usually quite free, thick and globular, rarely ovoid and connected with the top of the cavity. Style single, with a capitate stigma. Fruit a capsule, usually dehiscent. Seeds albuminous.—Herbs or very rarely undershrubs. Leaves opposite or alternate, undivided except when growing under water, without stipules. Flowers axillary or terminal.

A widely spread Order, inhabiting chiefly the northern hemisphere, and often rising in high mountains to great elevations, with a few southern species, and but very few within the tropics, except in mountain districts. The 2 Queensland genera are both widely spread over the area of the Order. *Myrsineæ*, which generally replace *Primulaceæ* in the warmer regions of the globe, scarcely differ from them, except in their shrubby or arboreous habit.—*Benth.*

- TRIBE I. **Lysimachieæ**.—*Corolla-lobes contorted. Ovary superior.*
 Capsule circumsciss. Corolla rotate or campanulate. Leaves opposite or alternate 1. ANAGALLIS.
 TRIBE II. **Samoleæ**.—*Corolla-lobes imbricate. Ovary half-inferior.*
 Staminodia or scales alternating with the lobes of the corolla. Leaves alternate 2. SAMOLUS.

1. ANAGALLIS, Linn.

(Supposed to possess the power to remove sadness.)

(*Euparea, Gærtn.*; *Micropyxis, Duby.*)

Calyx free, deeply 5-cleft. Corolla rotate or campanulate, deeply 5-lobed. Stamens 5. Capsule opening transversely by a circular fissure across the middle (circumsciss). Placenta globular.—Annuals or perennials, with creeping procumbent or diffuse stems. Leaves opposite or alternate. Flowers pink red or blue, axillary and solitary.

A small genus, widely dispersed over the temperate and warmer regions of the globe, although in some countries only as introduced weeds. Of the 2 following species, one belongs to the latter class, the other may be indigenous, although common to tropical Asia, Africa, and America.—*Benth.*

- Leaves opposite. Corolla quite rotate 1. *A. arvensis*.
 Leaves alternate. Corolla broadly campanulate, almost rotate. Flowers very small 2. *A. pumila*.

1. ***A. arvensis** (inhabiting cultivated ground), *Linn.*; *Duby in DC. Prod.* viii. 69; *Benth. Fl. Austr.* iv. 270. Pimpernel. A much-branched, procumbent, glabrous annual, extending from 6in. to nearly 1ft. Leaves opposite, sessile, broadly ovate, obtuse, $\frac{1}{4}$ to $\frac{1}{2}$ in. long. Flowers dotted, on pedicels considerably longer than the leaves, and rolled back as the capsule ripens. Calyx-segments acute. Corolla rotate, spreading to about 3 lines diameter. Capsule the size of a Sweet Pea seed. Seeds 3-gamous.

Hab.: A common weed of cultivation in Europe, temperate Asia, and the whole Mediterranean region, now spread over a great part of the world. Both the blue and red-flowered varieties are common in southern localities.

2. **A. pumila** (small), *Swartz, Fl. Ind. Occid.* i. 345; *Benth. Fl. Austr.* iv. 270. A slender, glabrous, diffuse, much-branched annual, rarely exceeding 6in. Leaves alternate, nearly sessile, orbicular or broadly ovate, obtuse, rarely above $\frac{1}{2}$ in. long. Flowers very small, on pedicels nearly as long as the leaves. Calyx-segments 5 or sometimes 4, lanceolate, acute. Corolla broadly campanulate, deeply divided into acute lobes, rather longer than the calyx, spreading to about $1\frac{1}{2}$ line diameter. Stamens shorter than the corolla, the filaments slightly dilated at the base, usually contracted at the throat as it withers, and persisting over the capsule. Style filiform, sometimes very short. Calyx small, circumciss. Seeds numerous, slightly compressed.—*Centunculus pentandrus*, R. Br. *Prod.* 427; *Micropyxis pumila*, *Duby in DC. Prod.* viii. 72; *Micropyxis tenella*, *Wight, Ic. t.* 1585; *Centunculus tenellus*, *Duby l.c.*; *Wight, Ic. t.* 2000.

Hab.: Gulf of Carpentaria, *F. v. Mueller*; Shoalwater Bay, *R. Brown*.

The species is widely distributed over S. America, E. India, and W. tropical Africa. Although usually 5-merous, some specimens occur in which all or nearly all the flowers are 4-merous.—*Benth.*

2. SAMOLUS, Linn.

(Pliny's name for a marsh plant.)

Calyx campanulate, the tube partially adhering to the ovary; lobes 5. Corolla-tube short or broad; lobes 5, spreading, with 5 small or filiform scales or staminodia alternating with the lobes. Stamens 5, opposite the lobes. Capsule half-inferior, the free part opening in 5 valves opposite the calyx-lobes. Placenta ovoid, the axis usually produced to the apex of the cavity.—Perennials or annuals. Leaves alternate. Flowers white, in loose terminal racemes.

A small genus, confined to the southern hemisphere with the exception of one species generally diffused over most parts of the world.

Leaves obovate, chiefly radical. Flowers not 2 lines diameter, with a very short tube, in a loose terminal raceme 1. *S. Valerandi*.

Leaves rather thick, the radical ones obovate or oblong, the stem ones lanceolate or oblong. Flowers above $\frac{1}{2}$ in. diameter, the tube as long as the calyx. Flowers axillary or in a short terminal raceme 2. *S. repens*.

1. **S. Valerandi** (after Dourez Valerand), *Linn.*; *Duby in DC. Prod.* viii. 73; *Benth. Fl. Austr.* iv. 271. A glabrous, bright green annual or perennial, with a tuft of obovate, spreading, radical leaves. Flowering stems 3 or 4in. to above 1ft. high, simple or branched, bearing a few obovate or oblong leaves, and loose terminal racemes of small white flowers. Pedicels filiform, with a small bract about the middle. Corolla not 2 lines diameter and sometimes much smaller, the tube very short. Staminodia linear, small. Capsule small, globular, crowned by the small calyx-lobes.

Hab.: Common in the southern swamps.

The species is common in most of the temperate and warmer regions of the globe, especially in maritime districts. The Australian specimens belong to the smallest flowered variety, which has been considered by some as a distinct species, and is a common American but comparatively rare European form.—*Benth.*

2. **S. repens** (creeping), *Pers. Syn.* i. 171; *Benth Fl. Austr.* iv. 271. A perennial, with a more or less tufted stock emitting creeping stolons, but very variable in habit and stature, glabrous or hoary with minute, almost scale-like glands. Stems simple or branched, sometimes prostrate, with most of the pedicels axillary, sometimes erect or ascending, $\frac{1}{2}$ to 1ft. high, leafy, with the flowers chiefly collected in a short terminal raceme. Radical leaves petiolate, obovate or oblong; stem-leaves usually small, either linear or lanceolate and acute, or oblong obtuse and petiolate. Pedicels long or short, without bracts except the subtending one, which is often adnate to the pedicel, so as to appear inserted on it. Flowers variable in size, but usually spreading to 4 or 5 lines diameter. Calyx-tube adnate to about the middle of the ovary; lobes acute, longer than or of the length of the tube. Corolla-tube broad, usually about as long as the calyx-lobes; lobes ovate, obtuse, as long as the tube. Staminodia filiform. Capsule half-inferior; placenta stipitate, ovoid, ending in a long horn-like point connected with the apex of the cavity. Seeds numerous, globular or angular.—*S. littoralis*, R. Br. Prod. 428; Duby in DC. Prod. viii. 73; Hook. f. Fl. Tasm. i. 301; Nees in Pl. Preiss. i. 337; Lodd. Bot. Cab. t. 435; *Sheffieldia incana*, Labill. Pl. Nov. Holl. i. 40 t. 54.

Hab.: Common in coastal swamps of the southern parts.

The species extends to New Zealand and New Caledonia. It is exceedingly variable in stature, foliage, &c.

ORDER LXXIV. MYRSINÆ.

Flowers regular. Calyx of 5 or rarely 4 divisions or teeth, free or rarely the tube adnate to the ovary. Corolla regular, more or less divided into as many lobes or teeth or rarely distinct petals as the divisions of the calyx, imbricate and often contorted in the bud. Stamens as many as divisions of the corolla and opposite to them, inserted in the tube or at the base. Ovary 1-celled, with several ovules, usually peltate, attached to or immersed in a central placenta, usually quite free, thick, and globular. Style single, with a terminal, capitate or small stigma. Fruit an indehiscent berry or drupe, or very rarely splitting lengthwise on one side. Seeds albuminous (except in *Ægiceras*).—Trees or shrubs, the foliage and inflorescence usually marked with resinous dots. Leaves alternate, simple, entire or toothed, without stipules. Flowers small, in axillary clusters, racemes or panicles, or rarely in terminal panicles.

A considerable Order, widely distributed over the tropical and subtropical regions of the globe. Of the 5 Australian genera, three are common to the New and the Old World, the other two limited to the Old World. The Order only differs from *Primulaceæ* in the woody stem and succulent indehiscent fruit. From the *Sapotaceæ*, it is readily distinguished by the 1-celled ovary.—*Benth.*

TRIBE I. **Mæseæ**.—Calyx nearly enclosing the many-seeded berry.

Calyx 2-bracteolate. Flowers racemose 1. MÆSA.

TRIBE II. **Eumyrsinæ**.—Calyx free. Staminodes none. Fruit 1-seeded.

- Flowers in axillary fascicles. Corolla imbricate 2. MYRSINÆ.
- Flowers racemose or paniculate. Corolla imbricate or contorted 3. EMBELIA.
- Corolla-segments twisted to the right. Calyx glabrous. Anther-cells not divided transversely 4. ARDISIA.
- Ovary and fruit acuminate, becoming long and curved. Anther-cells transversely divided into several pits 5. ÆGICERAS.

1. *MÆSA*, Forsk.

(From the Arabic name of one species.)

(Bæobotrys, Forst.)

Calyx-tube adnate to the ovary, the limb 5-lobed. Corolla 5-lobed. Stamens 5, with slender filaments and short anthers. Ovary inferior or half-inferior; style short. Berry crowned by the calyx-lobes or teeth.—Trees or shrubs. Flowers small, in simple or compound racemes, either axillary or rarely terminal. Bracts at the base of the pedicels, and 2 bracteoles under the flower usually very small.

The genus is limited to the tropical regions of the Old World. The 2 Australian species are endemic, both readily distinguished from the Asiatic ones by their long simple racemes.—*Benth.* Woody climber. Leaves cordate or rounded at the base. Ovary almost

entirely inferior 1. *M. dependens*.
Erect tree. Leaves tapering at the base. Ovary half-superior 2. *M. haplobotrys*.

1. ***M. dependens*** (racemes hanging), *F. v. M. Fragm.* v. 107; *Benth. Fl. Austr.* iv. 273. A tall woody climber, the typical form quite glabrous. Leaves shortly petiolate, ovate, very shortly acuminate, irregularly sinuate-toothed or almost entire, cordate or rounded at the base, distantly penniveined, without any or very few intermediate veinlets, usually 3 to 4 in. long, but on barren branches often twice that size. Flowers rather distant, in slender racemes often twice as long as the leaves, these racemes sometimes 2 or 3 together, but usually if not always simple. Pedicels about as long as the calyx or at length rather longer. Calyx-tube ovoid; lobes broad, rounded, entire or minutely ciliolate, about $\frac{1}{2}$ line long. Corolla-tube broad, rather longer than the calyx; lobes spreading, shorter than the tube, imbricate in the bud. Stamens included in the corolla-tube; anthers about as long as the filament. Ovary inferior, except the very short conical summit, which tapers into a very short style; stigma capitate. Fruit ovoid, crowned by the closed calyx-lobes. Seeds immersed in the placenta, but not seen ripe.

Hab.: Rockingham Bay, *Dallachy*.

Var. *pubescens*, *F. v. M.* Branches, foliage, and inflorescence softly pubescent or shortly villous. Pedicels rather shorter, and young fruit more globular than in the glabrous form.—Rockingham Bay, *Dallachy*.

2. ***M. haplobotrys*** (flowers in simple racemes), *F. v. M. Fragm.* v. 161; *Benth. Fl. Austr.* iv. 273. A small erect tree, quite glabrous. Leaves narrow-ovate to elliptical-oblong, acuminate, entire or irregularly sinuate-toothed, narrowed into a petiole, which is usually short, distantly penniveined with but few cross veinlets, 3 to 6 in. long. Flowers in simple racemes, longer or rather shorter than the leaves. Pedicels very short. Calyx-tube very short and adnate to the base of the ovary, but enlarging after flowering; lobes broad, almost acute, about $\frac{1}{2}$ line long. Corolla-tube broad, nearly as long as the calyx, the lobes broad, much imbricate, at least as long as the tube. Anthers ovate, as long as the flattened filaments. Ovary at the time of flowering more than half-superior, tapering into a very short style. Young fruit nearly globular, crowned by the closed calyx-lobes. Seeds not seen perfect.

Hab.: Rockingham Bay, *Dallachy*.

2. *MYRSINE*, Linn.

(The Greek name for Myrrh.)

Calyx free, 4 or 5-lobed. Corolla deeply 4 or 5-lobed. Stamens inserted at the base of the corolla-lobes, with very short filaments; the anthers much longer, erect and lanceolate. Ovary superior; style short, with a capitate or

fringed stigma.—Shrubs or small trees. Leaves coriaceous, entire or rarely toothed. Flowers small, often polygamous, in umbels or clusters, sessile in the axils or at the nodes, usually on the old wood. Bracts minute, deciduous.

A considerable genus, spread over the tropical and subtropical regions of both the New and the Old World. The 5 Australian species appear to be endemic, although 2 of them are very nearly allied to a common south Asiatic one.—*Benth. (in part)*.

- Corolla urceolate, the lobes shorter than the tube 1. *M. urceolata*.
- Corolla scarcely $1\frac{1}{2}$ line long, not constricted at the throat, 5-fid 2. *M. campanulata*.
- Corolla-lobes much longer than the short open tube.
- Leaves nearly sessile or the petiole not 2 lines long 3. *M. crassifolia*.
- Leaves on petioles of $\frac{3}{4}$ to lin. long.
- Calyx not $\frac{1}{2}$ as long as the corolla. Corolla-lobes narrow 4. *M. variabilis*.
- Calyx campanulate, more than half as long as the corolla. Corolla-lobes broad and thick 5. *M. achradifolia*.

1. **M. urceolata** (jug-shaped), *R. Br. Prod.* 534; *Benth. Fl. Austr.* iv. 274. A small tree, quite glabrous. Leaves elliptical-oblong or broadly lanceolate, obtuse, entire, narrowed into a rather long petiole, 2 to 3 in. long. Pedicels slender, 2 to 3 lines long. Calyx very small, with short broad lobes. Corolla narrow-urceolate, about $1\frac{1}{2}$ line long, the lobes (usually 4) scarcely half as long as tube. Anthers nearly sessile, near the base of the corolla-tube and included in it.—*A. DC. Prod.* viii. 96.

Hab.: Endeavour River, *Banks and Solander, A. Cunningham*.

Resembles the narrow-leaved forms of *M. variabilis*, except in the corolla, which is less divided than in almost any species.—*Benth.*

2. **M. campanulata** (corolla bell-shaped), *F. v. M. Fragm.* vi. 285. A glabrous close-branched shrub 3 to 4 ft. high. Leaves 1 to 3 in. long, 3 to 6 lines broad, obovate-oblong, cuneate to a very short petiole, margins entire. Flowers few or many in each cluster, axillary or lateral. Pedicels 2 or 3 times longer than the flowers. Calyx about $\frac{1}{2}$ line long; lobes deltoid-lanceolate. Corolla scarcely $1\frac{1}{2}$ line long, not contracted at the throat, deltoid-lanceolate. Anthers about $\frac{1}{2}$ line long, minutely apiculate, hastate-ellipsoid. Stigma slightly dilated.

Hab.: Basaltic rocks, Fletcher's Creek, *R. Daintree* (F. v. M.); Taylor's Range.

3. **M. crassifolia** (leaves thick), *R. Br. Prod.* 534; *Benth. Fl. Austr.* iv. 275. "Marada," Cape Grafton, *Mrs. Gribble*. A small tree, quite glabrous. Leaves very shortly petiolate or almost sessile, oblong-lanceolate, elliptical or almost obovate, obtuse, quite entire, 3 to 4 in. long or sometimes more, usually but not always more coriaceous than in *M. variabilis*, and much less so than in *M. achradifolia*. Pedicels almost always shorter than the flowers and sometimes not above $\frac{1}{2}$ line long. Calyx small, with acute lobes often longer than in *M. variabilis*. Corolla divided nearly to the base into 4 or 5 narrow lobes a little more than 1 line long when fully out. Anthers obtuse, almost sessile at the base of the lobes and not exceeding them. Fruit small, globular.—*A. DC. Prod.* viii. 96 (as to the Australian plant); *M. subsessilis*, *F. v. M. Fragm.* iv. 81; *M. porosa*, *F. v. M. Fragm.* v. 108.

Hab.: Port Bowen, *R. Brown*; Endeavour River, *A. Cunningham*; Moreton Bay, *Leichhardt*; Mount Lindsay, *W. Hill*; Rockingham Bay, *Dallachy*.

The species is nearly allied to the smaller-leaved forms of the E. Indian *M. capitellata*.—*Benth.*

4. **M. variabilis** (plant variable in foliage), *R. Br. Prod.* 534; *Benth. Fl. Austr.* iv. 275. A glabrous tree, attaining 30 to 40 ft. Leaves mostly obovate-oblong, obtuse or rarely shortly acuminate, entire or irregularly bordered by acute teeth, coriaceous and $1\frac{1}{2}$ to $2\frac{1}{2}$ in. long or in other specimens nearly twice as large and thinner, narrowed into a petiole varying from scarcely $\frac{1}{4}$ to above $\frac{1}{2}$ in. Pedicels usually about 2 lines long. Calyx very small, with broad short lobes. Corolla

when perfect $1\frac{1}{2}$ line long or rather more; divided nearly to the base into 4 or 5 acute narrow lobes, valvate in the bud or nearly so. Anthers nearly sessile at the base of the lobes, rather large, but not exceeding the lobes. Drupe globular, 2 to 3 lines diameter.—A. DC. Prod. viii. 94.

Hab.: Keppel Bay, Broadsound, Shoalwater Bay, *R. Brown*; Rockhampton, *Thozet*; Nerook Creek, *Bowman*; Brisbane, *F. v. Mueller*; Ipswich, *Nernst*.

Wood close-grained, light-coloured, and firm.—*Bailey's Cat. Ql. Woods No. 260.*

5. ***M. achradifolia*** (*Achras*-leaved), *F. v. M. Fragm.* vi. 164; *Benth. Fl. Austr.* iv. 275. A moderate-sized tree. Leaves on rather long petioles ($\frac{3}{4}$ to 1 in.), oblong-elliptical, obtuse, thickly coriaceous, smooth and shining above, 4 to 8 in. long. Pedicels 1 to 2 lines long. Flowers larger and more globular than in most species. Calyx broadly campanulate, about $1\frac{1}{4}$ line long, the lobes broad, not longer than the tube. Corolla not twice as long as the calyx, deeply divided into broad very thick valvate lobes. Anthers nearly sessile at the base of the lobes, shorter than them, ovoid, obtuse.

Hab.: Rockingham Bay, *Dallachy*.

The foliage is that of the largest-leaved forms of *M. capitellata*, Wall., but the flowers are different.—*Benth.*

3. EMBELIA, Burm.

(The Ceylonese name of one species.)

(Samara, *Linn.*)

Flowers small, polygamous, mostly dicæcious, white or greenish yellow. Calyx free, 5 or 4-lobed, persistent. Petals 5-4, free or slightly coherent at the base, elliptic, imbricate in bud. Stamens 5-4; filaments more or less adnate to the petals; anthers ovate-oblong. Ovary ovoid or globose; style cylindrical; stigma capitellate; ovules few. Fruit small, globose, 1 (rarely 2) seeded. Seed globose, base hollowed, albumen pitted subrotate; embryo curved, transverse. Shrubs, mostly climbing, or small trees. Leaves entire or toothed; petiole often margined or glandular. Racemes axillary or terminal, simple or compound, or flowers subscespitate; bracts small; no bracteoles.

A small genus, dispersed over tropical Asia and Africa. The Australian species are endemic. Climber, quite glabrous. Leaves ovate-elliptical, $1\frac{1}{2}$ to 3 in. long. Flowers

in short axillary racemes 1. *E. australiana*.
Laurel-like shrub. Leaves 4 in. long, $1\frac{1}{2}$ in. wide. Panicle densely tomentose 2. *E. Flueckigeri*.

1. ***E. australiana*** (Australian), *Benth. and Hook. Gen. Pl.* A tall woody climber, quite glabrous. Leaves ovate-elliptical or obovate, obtuse or shortly acuminate, narrowed into a petiole, thinly coriaceous, shining above, prominently penniveined, and with intermediate veinlets, $1\frac{1}{2}$ to 3 in. long. Flowers very small, in short, loose, axillary racemes, the rachis rarely above $\frac{1}{2}$ in. long and the pedicels $\frac{1}{2}$ in. Calyx-lobes 4, about $\frac{1}{2}$ line long. Petals 4, about 1 line long, imbricate in the bud. Filaments exceedingly short; anthers ovate. Ovary tapering into a style, sometimes nearly as long as the petals, but usually much shorter; stigma broad. Drupe red, hard, globular, about 3 lines diameter. Seeds embedded in the globular placenta.—*Choripetalum australianum*, *F. v. M. Fragm.* iii. 36; *Samara australiana*, *F. v. M.*; *Benth. Fl. Austr.* iv. 274.

Hab.: Taylor's Range, near Brisbane; Burnett River, *F. v. Mueller*. Fruit ripe about April.

2. ***E. Flueckigeri*** (after Dr. Frederick Flueckiger), *F. v. M. Vict. Nat. Apr.* 1892. A shrub of Laurel-like aspect, though of rambling habit. Leaves on short corrugated petioles, attaining a length of 4 in. and a breadth of $1\frac{1}{2}$ in., shining on both surfaces, texture firm, almost elliptic, blunt at the base, pellucid

dots not plainly visible, margins entire, the veins closely reticulate, glabrescent. Panicle densely tomentose, numerously branched but short; tomentum brownish. Flowers in racemous clusters very shortly pedicellate. Bracts rather large, calyx-segments 5, rather long, narrow-elliptic. Petal about 3 lines long, very perceptibly dotted, much less pubescent than the calyx, membranous. Stamens 5, about as long as the petals, linear-setaceous, hairy; anthers broadly cordate. Ovary and the lower portion of the style woolly. Fruit not seen.—F. v. M. l. c.

Hab.: Russell River, *Stephen Johnson*.

4. **ARDISIA**, Linn.

(Referring to the acute points of corolla-lobes.)

Calyx free, 5 (or 4 ?) lobed. Corolla deeply 5 (or 4 ?) lobed, the lobes spreading, contorted-imbricate in the bud. Stamens inserted at the base of the corolla-lobes; filaments short; anthers erect, lanceolate, the slits of the cells sometimes not reaching the base. Ovary superior. Style subulate, usually long and persistent, the stigma not enlarged. Berry or drupe globular.—Trees or shrubs or, in species not Australian, almost herbaceous. Flowers not so small as in most genera, usually in short umbel-like racemes, axillary or terminal, solitary or several together in branching panicles. Corolla white or pink, frequently spotted.

A large genus, widely dispersed over the tropical and subtropical regions of the New as well as the Old World. The Australian species appear to be endemic.

- Leaves 3 to 6 in. long. Umbels several, in a slender but not large terminal panicle. Corolla induplicate-valvate 1. *A. pseudojambosa*.
- Leaves 3 to 5 in. long. Umbels solitary on short terminal (or axillary ?) peduncles. Corolla contorted-imbricate 2. *A. brevipedata*.
- Leaves 3 to 8 in. long. Peduncles $\frac{3}{4}$ in. long. Rhachis thick, 4 lines long. Corolla contorted, black-dotted 3. *A. pachyrrhachis*.

1. **A. pseudojambosa** (false Jambos), *F. v. M. Fragm.* iv. 81; *Benth. Fl. Austr.* iv. 276. A tree, attaining about 30ft., quite glabrous. Leaves obovate-oblong, acuminate, narrowed into a short petiole, entire or obscurely sinuate, rather thin, the pinnate veins numerous and usually conspicuous, 3 to 5 in. long. Umbels several in a terminal panicle, which is sometimes sessile and shorter than the last leaves, sometimes pedunculate, longer and loose, with slender divaricate branches. Pedicels 3 to 4 lines long. Flowers small. Calyx deeply divided into segments of about $\frac{2}{3}$ line. Corolla almost rotate, the tube short, the lobes about 1 line long, ovate, acute, with membranous margins, induplicate-valvate in the bud. Anthers nearly sessile, lanceolate, acuminate, the points exceeding the corolla-lobes. Style long and slender. Drupe globular, about 4 lines diameter.

Hab.: Rockhampton and Rockingham Bay, *Dallachy*; Rockhampton and Thozet's Creek, *Thozet*; Fitzroy River, *Bowman*; North Coast Railway line.

2. **A. brevipedata** (peduncles very short), *F. v. M. Fragm.* vi. 163; *Benth. Fl. Austr.* iv. 276. A tall glabrous shrub. Leaves oblong-elliptical or broadly lanceolate, acuminate, entire, narrowed into a very short petiole, finely penni-veined, 3 to 5 in. long. Peduncles terminal, very short, bearing usually a single umbel of rather numerous small flowers. Pedicels filiform, $\frac{1}{4}$ to $\frac{1}{2}$ in. long. Calyx open, about 1 line diameter, broadly and shortly 5-lobed. Corolla-tube short and broad; lobes acutely acuminate, about 1 line long, contorted in the bud. Anthers almost sessile, lanceolate, acuminate but shorter than the corolla-lobes. Style slender, about as long as the corolla. Fruit globular, 3 to 4 lines diameter, ripening usually a single seed. Albumen mealy.

Hab.: Rockingham Bay, *Dallachy*.

3. **A. pachyrrhachis** (thick rhachis), *F. v. M. Vict. Nat. Mar.* 1891. An arborescent glabrous shrub of about 15ft. high. Leaves attaining 8in. in length and 1½in. in breadth, of a fine texture, the pellucid streaks or dots scarcely perceptible, elongate-lanceolate, rather blunt, the base cuneate, not glossy, the veins almost concealed; petioles short. Peduncle about ½in. long, bearing small deciduous leaves. Rhachis thick, ⅓in. long, cicatricous. Pedicels about 1in. long, very thin, up to 40 in a fascicle, at first bent downward. Calyx very small, its lobes semi-orbicular-deltoid. Corolla about 2 lines long, deeply 5-cleft, the segments about twice as long as broad, acuminate, copiously spotted by purplish-black dots or short streaks, before expansion distinctly twisted. Filaments extremely short, anthers pointed, somewhat cordate-sagittate, rather more than half as long as the corolla, pale. Style subulate, nearly 1½ line long. Fruit globular, 3 to 4 lines diameter.—*F. v. M. l.c.*

Hab.: In the upper regions of Mount Bartle Frere, *Stephen Johnson* (*F. v. M.*)

5. **ÆGICERAS**, Gærtn.

(Goat's-horn fruit.)

Calyx free, 5-cleft. Corolla with 5 spreading lobes. Stamens with subulate filaments; anthers lanceolate, the cells divided transversely into several pits. Ovary superior; style subulate, acute; stigma terminal, very small. Fruit cylindrical, incurved, opening as the seed grows in one or two longitudinal slits. Seed without albumen; cotyledons thick and fleshy.—Maritime trees or shrubs with the habit of *Rhizophora*, and, as in those trees and in *Ægialitis*, the seed is said to germinate before the fruit falls off. Flowers white, in umbels or in very short umbel-like racemes, axillary or terminal.

The genus is probably limited to a single species spread over the seacoasts of tropical Asia. It has by some been separated from the Order on account of the peculiar anthers and exalbuminous seeds, but the other characters are quite those of *Myrsinæ*.—*Benth.*

1. **Æ. majus** (large), *Gærtn.*; *A. DC. Prod.* viii. 142; *Benth. Fl. Austr.* iv. 277. The river Mangrove. A glabrous shrub or small tree. Leaves obovate, very obtuse, 2 to 3in. long, quite entire, narrowed into a petiole at the base, coriaceous and evergreen. Umbels axillary and terminal, nearly sessile. Pedicels stiff, 3 to 5 lines long. Calyx nearly 3 lines long, with very obtuse, stiff much-imbricate segments, closely covering the tube of the corolla, which is about their length. Corolla-lobes about the same length, spreading or reflexed, stiff and very acute. Stamens shortly exerted. Ovary very acute, growing out into a curved horn-like fruit.—*Wight, Illustr.* t. 146; *Æ. fragrans*, *Koen. R. Br. Prod.* 534.

Hab.: Marshes on the seacoast, Shoalwater Bay, *R. Brown*; from Cape York to Moreton Bay, *F. v. Mueller* and many others; lining the sides of the Brisbane and other rivers.

The species extends from Ceylon and the Indian Peninsula to the Archipelago and South Pacific Islands. The several species distinguished by *Blume*, *A. Richard*, and *Presl*, are probably not really different from the common one.—*Benth.*

Wood of light colour, close-grained, and easily worked.—*Bailey's Cat. Ql. Woods* No. 261.

ORDER LXXV. SAPOTACEÆ.

Flowers regular. Calyx free, of 4 to 8 imbricate segments. Corolla more or less divided into as many or rarely twice as many lobes. Perfect stamens either as many as corolla-lobes (or as the inner ones when the lobes are in several series) and opposite to them, or rarely twice as many, besides which there are frequently small scales (or staminodia?) alternating with the lobes of the corolla, or staminodia alternating with the perfect stamens. Ovary superior, 2 or more

celled, with 1 ovule in each cell, erect pendulous or laterally attached. Style simple, with an entire or very slightly lobed stigma. Fruit a berry or drupe, usually indehiscent. Seeds either with a fleshy albumen and flat cotyledons or without any albumen but with thick fleshy cotyledons. Radicle short, inferior.—Trees or shrubs, with the juice very frequently milky. Leaves alternate, entire, without any (or with small very deciduous?) stipules. Flowers axillary, solitary or clustered. Bracts small or none.

An Order widely distributed over both the New and the Old World within the tropics, and not spreading far beyond them either northward or southward. Of the 5 Australian genera, three are dispersed over the greater part of the area of the Order, the two other small ones are, as far as known, endemic.—*Benth.*

Calyx-segments, stamens and corolla-lobes 5, without scales or staminodia	1. CHRYSOPHYLLUM.
Flowers 4 or 5-merous, staminodia often 5	2. LUCUMA.
Flowers 5 rarely 6-merous, with staminodia	3. SIDEROXYLON.
Flowers 5-merous, with staminodia. Ovary surrounded by an annular hirsute disk	4. HOMOGYNE.
Calyx-segments 6 or 8. Corolla-lobes twice or three times as many. Stamens as many as calyx-lobes, with petal-like staminodia between them. Seeds albuminous	5. MIMUSOPS.

1. CHRYSOPHYLLUM, Linn.

(Under-surface of leaves often golden.)

Calyx-segments, corolla-lobes, stamens and cells of the ovary 5 each or rarely in species not Australian 6 to 8 each. No staminodia, nor any scales to the corolla. Seeds usually one or few; testa hard and smooth; hilum lateral reaching at least halfway up; albumen scanty or none; cotyledons thick and fleshy.—Trees or shrubs. Leaves usually rusty or silvery-tomentose underneath. Flowers small, clustered.

The genus is chiefly tropical American, with a few African and Asiatic species. The only Australian one is endemic.

1. **C. pruniferum** (plum-bearing), *F. v. M. Fragm.* vi. 26; *Benth. Fl. Austr.* iv. 278. A small tree, the branches and under side of the leaves tomentose-villous with rust-coloured stellate hairs. Leaves shortly petiolate, ovate-elliptical or obovate-oblong, shortly and abruptly acuminate, penniveined, reticulate with transverse veinlets, glabrous above, mostly 3 to 4in. long but sometimes larger. Flowers closely sessile in axillary clusters. Calyx hirsute with rusty hairs; lobes 5, oblong, about 1 line long, the inner ones with glabrous membranous margins. Corolla-tube shorter than the calyx; lobes 5, longer than the tube, glabrous, reflexed, much imbricate in the bud. Stamens 5; filaments filiform, longer than the corolla-lobes; anthers ovate-triangular, acute, with the point turned downwards, and the whole anther turned outwards in the bud, inwards when open. Style as long as the corolla. Ovary very villous, 5-celled, with 1 pendulous ovule in each cell. Fruit about 1 to nearly 2in. diameter, plum colour, the exocarp thin and succulent, the endocarp crustaceous and elegantly veined. Seeds 1 or 2, large; albumen none; cotyledons large thick and fleshy; radicle not prominent.

Hab.: From N. S. Wales border to Rockingham Bay. In fruit, November.

Wood of a light-yellow colour, close-grained, hard and tough; might be suitable for bent work.—*Bailey's Cat. Ql. Woods* No. 262.

2. LUCUMA, Juss.

(The Peruvian name of one species.)

Calyx-segments 4 or rarely 7 to 8, broadly imbricate, not 2-seriate, subequal or the interior ones slightly larger than the outer. Corolla urceolate or subcampanulate, tube short; lobes 4 or 5, broadly imbricate. Stamens 4 or 5

affixed to the corolla-tube opposite the lobes; filaments very short and broad. Anthers lanceolate or ovate, cells distinct or confluent at the apex, oftener lateral or introrse dehiscent. Staminodia often 5, small, linear or scale-like. Ovary densely villose, rarely glabrous, 2 to 5-celled; style conical or subulate. Berry globose-oblong, fusiform or narrow-incurved; pericarp fleshy, very thick or thin. Seeds 5 or fewer by abortion, ovoid or oblong, often compressed, hard and glossy; hilum lateral; albumen none; cotyledons thick; radicle short.—Trees or shrubs with a milky sap. Leaves very often coriaceous. Flowers axillary or at the nodes, in clusters, sessile or shortly pedicellate.

The greater number of the species of this genus belong to South America, Brazil, Chili, Mexico, and the West Indies.

Leaves densely hoary on under side. Fruit subpyriform, 4-celled, sessile, 1 to 2in. long, maturing 1 to 3 seeds, covered with dense light-brown short stiff hairs

1. *L. Unmackiana*.

Leaves more or less tomentose, or villous on under side. Fruit nearly sessile, 1in. long, ovoid. Seed solitary; hilum broad-linear

2. *L. sericea*.

Leaves glabrous. Fruit glabrous, ovoid, 1 to 1½in. long, maturing 1 or 2 seeds, contracted at each end. Peduncles ½in. long

3. *L. galactoxylla*.

Leaves tomentose on under side. Fruit 1-seeded, almost globose, 1in. or more in diameter, purple, apex umbonate. Seed more than 1in. in diameter

4. *L. Amorphosperma*.

Leaves glabrous, except when young. Fruit oval-oblong, slightly tapering at the base

5. *L. chartacea*.

1. ***L. Unmackiana*** (after Theodore Unmack). Tree of medium size. Bark hard, dark-coloured, about ¼in. thick, deeply fissured in straight lines about ¼in. apart. Branchlets, young growth and under side of foliage more or less densely clothed with a hairy or rusty tomentum. Leaves coriaceous, broadly ovate, tapering to a petiole of 2 or 3 lines, apex abruptly acuminate, 2 to 3in. long, 1½ to 2in. broad, primary lateral nerves parallel, rather close and regular, and with the smaller reticulations prominent on the upper face. Calyx-segments 4, about 3 lines long, ovate-lanceolate, 2 outer ones silky-hairy on the outer side, 2 inner ones with broad scarious margins, the centre or part exposed in the bud silky like the outer segments, all glabrous on the inner face. Corolla glabrous, urceolate, slightly exceeding the calyx, the 4 blunt lobes shorter than the tube. Stamens 4, attached in the centre of and in a line with the base of the lobes, not exerted; filaments free, scarcely longer than the anthers. Fruit axillary, sessile, oval to pyriform, probably when ripe 2in. long, densely covered with stiff bristle-hairs of a light-brown colour, which are removed by the slightest touch. Cells 4, sometimes only 1, and seldom 3 maturing seed.

Hab.: Musgrave E. T. Station, Cape York Peninsula, *Geo. Jacobson*.

The flowers are described from a few which were found at the base of the fruits, and these latter were also immature; and in all examined the seeds had been destroyed by insects.

Wood of a reddish colour, tough and elastic; the sapwood very scanty; grain close, firm, and easy to work.—*Bailey's Cat. Ql. Woods* No. 263b.

2. ***L. sericea*** (silky), *F. v. M. Fragm.* vii. 112. "Mongo," Mount Cook, *Roth*. A shrub, flowering when only a few feet high; bark grey, smooth. Leaves flat, somewhat thick, coriaceous, ovate or orbicular-ovate, very shortly petiolate, often between 1½ and 2½in. long, the under side densely clothed with a rusty or hairy tomentum. Flowers in axillary fascicles. Calyxes about 2 lines long, silky, rusty outside; segments ovate-lanceolate, inside glabrous, 2 outer 3 inner all incurved. Corolla green; tube long as the calyx, glabrous, cylindrical; lobes imbricate, the outside moderately appressed-pilose, inside glabrous, lanceolate-deltoid, almost acuminate; scales at the throat 5, narrow lanceolate or elliptical, bearded at the top. Anthers sessile at the top of the corolla-tube, ovate-oblong, somewhat acute, ½ line long, extrorse. Ovary silky.



F.C. Wills, Del

F. Elliot, Lit

Lucuma Urmackiana, Bail.



FC Wills, Del

FElliott, Lith

Lucuma chartacea, Bail.

Style $1\frac{1}{2}$ to 2 lines long, the upper portion glabrous. Stigma undivided. Fruit ovate, 1in. long. Pericarp black and glabrous outside. Seed solitary, oblong-ellipsoid, not compressed, about 8 lines long.

Hab.: From Rockhampton to Cape York.

Wood light colour, supposed to resemble the European Birch; close-grained, firm. A useful cabinet wood.—*Bailey's Cat. Ql. Woods No. 263.*

3. **L. galactoxyla** (from the copious flow of milky sap), *F. v. M.; Benth. Fl. Austr.* iv. 279. A tall tree, copiously exuding a milky juice, glabrous except the rusty-pubescent young shoots. Leaves shortly petiolate, narrowly obovate-oblong or oblong-cuneate, very obtuse, thinly coriaceous, penninerved but the veins scarcely conspicuous on the upper side, 3 to 5in. long. Calyx-lobes about 1 line long, orbicular-deltoid, the 3 outer ones almost valvate, herbaceous; 3 interior ones membranous, slightly imbricate and silky on the midrib at the back. Corolla glabrous; tube scarcely $1\frac{1}{2}$ line long; lobes 5, semi-lanceolate, acute, longer than the tube. Staminodia either scales or wanting. Stamens 10, glabrous, 1-seriate. Filaments free. Anthers fixed between the basal lobes. Style filiform, glabrous, about 4 lines long. Fruits on pedicels of about $\frac{1}{2}$ in., ovoid, 1 to $1\frac{1}{2}$ in. long, contracted at both ends, the pericarp apparently thin and succulent. Seeds 1 or 2, with a smooth shining testa, and large broad lateral hilum; no albumen; cotyledons very thick and hard; radicle scarcely prominent.—*Bassia galactoxyla*, *F. v. M. Fragm.* vi. 27.

Hab.: Rockingham Bay, *Dallachy.*

Wood of a "cedary" nature, of a light-red colour; light, firm, straight, and close in grain; does not shrink or warp much in drying; excellent for joinery, cabinet, carving, or fret-work.—*Bailey's Cat. Ql. Woods No. 263a.*

4. **L. Amorphosperma** (a previous generic name), *Benth. and Hook. Gen. Pl.* A tree about 50ft. high, the young branches rusty-tomentose, at length greyish or blackish. Petioles 4 to 8 lines long, rather slender. Leaves lanceolate-ovate, obovate, or orbicular-ovate, or rarely narrow-lanceolate, $1\frac{1}{2}$ to 3in. long, thin coriaceous, finely penninerved, the veinlets scarcely distinct, upper side nearly glabrous or soon glabrous, under side with a very thin sub-sericeous appressed tomentum, at first ferruginous. Flowers small, sessile, crowded in the axils of the leaves. Calyx-segments 5, imbricate, ovate, obtuse, about a line long, thinly brown-silky on the back, interior margins membranous. Corolla 5-lobed; lobes imbricate in the bud, glabrous, tube scarcely 1 line long; lobes nearly 2 lines long, ovate-oblong, at length revolute. Stamens 5, exerted opposite the corolla-lobes, glabrous. Filaments subulate, setaceous, adnate to the corolla-tube, then free. Anthers extrorse, versatile, central dorsifixed, 2-celled, dehiscing longitudinally, cordate-ovate, yellow. Ovary 5-celled, silky. Style about a line long, setaceous. Stigma very minute. Fruit almost globose, drupaceous 1-seeded, purple outside, 1in. or more in diameter. Seed globose. Testa livid, opaque. Hilum short, vertical, verruciform. Chalaza lateral. Cotyledons thick. Radicle rotund, basal, much depressed.—*Amorphospermum antilogum*, *F. v. M. Fragm.* vii. 113.

Hab.: Rockhampton, *P. O'Shanesy*; Mt. Dryander, *Kilner and Bowman.*

5. **L. chartacea** (leaves of thin texture), *Bail.* A small tree, the young growth rusty-pubescent. Leaves lanceolate to obovate-oblong, acuminate, tapering from above the middle to a short petiole, 2 to 4in. long and 9 to 16 lines broad at the widest part; margins entire, undulate; midrib, lateral nerves and reticulate veins prominent; texture thin-coriaceous. Flowers small, sessile in dense axillary or lateral clusters. Calyx-lobes much imbricate, 1 line long, rusty-hairy on the back, the upper part winged. Corolla-lobes recurved, much imbricate, twice as long as the calyx-lobes. Stamens sometimes longer than the

corolla-lobes. Anthers large, cordate. Ovary densely villous, tapering into a glabrous style as long as the filaments. Fruit oval-oblong, slightly tapering at the base, purple, about an inch long. Seed 1.

Hab.: Eumundi.

3. SIDEROXYLON, Linn.

(From the Greek; a species in Africa called Ironwood.)

(*Achras*, *Linn.*)

Calyx funnel-shaped or rotate, deeply 5, rarely 6 or 7-partite, the segments obtuse or subacute, imbricate but not arranged in 2 distinct rows. Corolla little longer than the calyx; segments as many as those of the calyx, entire, longer than the tube. Stamens as many as the corolla-segments and inserted opposite to them at the throat of the tube; filaments subulate; anthers oblong or ovoid, usually extrorse; staminodia as many as the stamens and alternate with them, linear or linear-subulate, entire, small or as long as the filaments. Ovary globose, 5 or more-celled; style subulate. Berry fleshy or coriaceous, ovoid or globose. Seed by abortion sometimes solitary, 2, or few; testa glossy; hilum long; albumen fleshy; cotyledons foliaceous or thickened.—Tree or shrub.

Flowers sessile or on pedicels shorter than the flowers.

- | | |
|---|-------------------------------|
| Leaves broad, on long petioles, softly pubescent on both sides | 1. <i>S. arnhemicum</i> . |
| Leaves narrow, glabrous | 2. <i>S. Pohlmanianum</i> . |
| Pedicels longer than the flowers. | |
| Leaves perfectly glabrous on both sides. | |
| Leaves distinctly acuminate. Hilum linear. | |
| Petioles rather long; minor veinlets scarcely conspicuous | 3. <i>S. zerocarpum</i> . |
| Petioles short. Leaves thin, the minor veinlets conspicuous | 4. <i>S. chartaceum</i> . |
| Leaves scarcely acuminate, reticulate; petioles rather long. Hilum broad | 5. <i>S. laurifolium</i> . |
| Leaves scarcely acuminate, coriaceous, much reticulate; petioles rather short. Hilum linear | 6. <i>S. australis</i> . |
| Leaves 3 to 5in. long, obovate, minutely silky underneath. Calyx-segments orbicular. | |
| Fruit $\frac{1}{2}$ in. long or more. Seed usually 1 | 7. <i>S. argenteum</i> . |
| Fruit somewhat pear-shaped, 2 to $2\frac{1}{2}$ in. long. Seed 1 or 2 | 8. <i>S. eerwah</i> . |
| Leaves glabrous, lanceolate-ovate. Fruit 8 to 16 lines long, almost globose. Seeds 1 to 4 | 9. <i>S. euphlesia</i> . |
| Leaves hoary, thin, 2 to 4in. long | 10. <i>S. Brownlessiana</i> . |
| Leaves glabrous, 3 to 5in. long, lin. wide. Fruit lin. diameter. Seeds 5 | 11. <i>S. dugulla</i> . |
| Leaves mostly 1 to 2in. long, ovate or obovate, pubescent. Calyx-segments ovate | 12. <i>S. myrsinoides</i> . |

1. ***S. arnhemicum*** (from Arnhem's Land), *Benth. and Hook. Gen. Pl.* ii. 655. A tree about 25ft. high, with a well shaped head. Trunk diameter 1ft., the bark greyish and tessellated. Leaves ovate or oval-elliptical, obtuse, contracted at the base, softly silky-pubescent on both sides, 2 to 4in. long, on petioles of above 1in. Flowers in dense clusters in the lower axils or at the old nodes, softly pubescent, the pedicels shorter than the flower. Calyx-segments usually 6, very broad, orbicular, obtuse, concave, the 2 outer ones villous, the others less so and ciliate, all rather above 1 line diameter. Corolla-lobes 6, truncate; filaments in the flowers examined filiform, with abortive anthers. Scales of the corolla-throat small, linear. Ovary surrounded by a very dense ring of hairs, 6-celled; ovules laterally attached. Style short, thick, glabrous. Fruit green, smooth and glabrous; when ripe, oval, about $1\frac{1}{2}$ in. or more long;

the pericarp soft and juicy. Seeds 4 or 5, compressed, the hilum nearly as long as the seed; albumen not very thick; cotyledons oblong, 3-nerved; radicle short.—*Achras arnhemica*, F. v. M.; Benth. Fl. Austr. iv. 280.

Hab.: Musgrave, Cape York Peninsular, *Geo. Jacobsen*, who recommends the tree for planting for shade. He says that cattle and horses are very fond of the foliage, and that in times of scarcity of feed this tree is cut down for fodder. There is no doubt that the foliage is nutritious. We know that the inner bark of another species of this genus was at one time used for food by the natives of the Maroochie district.

Wood white and close-grained.—*Bailey's Cat. Ql. Woods No. 263c.*

2. **S. Pohlmanianum** (after R. W. Pohlman), *Benth. and Hook. Gen. Pl. ii. 655.* "Arlian," Princess Charlotte Bay, *Roth.* An erect tree, the branchlets thick, clothed as well as the petioles with soft appressed hairs. Leaves crowded at the ends of the branches, narrowly obovate-oblong, obtuse, contracted into a rather long petiole, rather thin, green on both sides, the principal veins more or less silky-hairy, otherwise glabrous, 3 to 4 in. long. Flowers in clusters on the old wood below the leaves, almost sessile or the pedicels shorter than the calyx. Calyx-segments 5, very much imbricate, orbicular, obtuse, $1\frac{1}{2}$ line diameter, silky-hairy outside. Corolla about as long as the calyx, the lobes broad, very obtuse; scales of the throat small and entire. Stamens inserted in the broad tube, the anthers imperfect in the flowers examined. Ovary surrounded by a dense ring of long hairs, tapering into a short thick glabrous style, 5-celled; ovules laterally attached. Fruit globular, 5-angled, above 1 in. diameter, the flesh hard. Seeds 5 in the fruit opened, about $\frac{1}{2}$ in. long, ovate somewhat compressed; hilum linear, lateral; albumen not very thick; cotyledons large, flat, thin; radicle very short.—*Sapota Pohlmaniana*, F. v. M. l.c.; *Achras Pohlmaniana*, F. v. M.; Benth. Fl. Austr. iv. 281.

Hab.: Brisbane River, Moreton Bay, *A. Cunningham*, F. v. *Mueller*; Queensland woods, London Exhibition, 1862, n. 98, *W. Hill*; Rockhampton, *Thozet*; Rockingham and Edgecombe Bays, *Dallachy*; Port Denison, *Fitzalan*.

Wood a bright-yellow, hard, and close-grained; the best Queensland species for engraving-wood.—*Bailey's Cat. Ql. Woods No. 264.*

3. **S. xerocarpum** (dry-fruited), *Benth. and Hook. Gen. Pl. ii. 655.* A tree of 20 to 30 ft., the young shoots minutely tomentose. Leaves when full grown quite glabrous, on long petioles, oval-elliptical or oblong, acuminate, penniveined but smooth and shining on both sides, 3 to 5 in. long. Flowers clustered in the axils, on pedicels of 4 to 6 lines. Calyx-segments ovate, almost acute, not so broad as in *S. laurifolium*, and scarcely 2 lines long. Corolla scarcely exceeding the calyx, the lobes broad; scales of the throat oblong or linear. Ovary 5-celled; style rather long but thick. Fruit nearly globular, not very succulent. Seeds usually 2 or more, compressed; hilum linear; albumen copious; cotyledons very broad and flat.—*Achras xerocarpa*, F. v. M.; Benth. Fl. Austr. iv. 281.

Hab.: Rockingham Bay, *Dallachy*.

4. **S. chartaceum** (papery), *Benth. and Hook. Gen. Pl. ii. 655.* "Moiary," Barron River, *J. F. Bailey*. An erect tree, very near *S. xerocarpum*, but perfectly glabrous. Leaves obovate-oblong or elliptical, shortly and obtusely acuminate, much thinner and more acuminate than in *S. xerocarpum*, narrowed into a short petiole, with an intra-marginal vein on each side usually decurrent almost into the petiole. Flowers not seen. Fruit and seeds of *S. xerocarpum*, but the peduncle rather shorter, and the calyx-segments apparently rounder and more obtuse.—*Achras chartacea*, F. v. M.; Benth. Fl. Austr. iv. 284.

Hab.: Tamoshanter Point, *Dallachy*.

5. **S. laurifolium** (Laurel-leaved), *Benth. and Hook. Gen. Pl. ii. 655.* Glabrous or the young shoots slightly pubescent. Leaves oval-oblong or broadly oblong-elliptical, obtuse or scarcely acuminate, narrowed into a short petiole,

thinly coriaceous, shining above, 3 to 5 in. long. Flowers clustered in the axils on pedicels of 4 to 6 lines. Calyx-segments 5, broadly ovate, 2 lines long, usually subtended by a bract like them, but rather shorter and broader. Corolla only seen in bud, but apparently exceeding the calyx, the lobes broad and almost truncate; scales of the throat subulate. Anthers large. Ovary very villous, tapering into a thick glabrous style; ovules laterally attached near their base. Fruit black, ovoid, $\frac{3}{4}$ in. long, the pericarp not thick. Seeds 1 or 2, the hilum very broad, and more than half as long as the seed; albumen copious; cotyledons very broad and flat.—*Sersalisia laurifolia*, A. Rich. Sert. Austral. 84 t. 31; A. DC. Prod. viii. 177; *S. glabra*, A. Gray in Proc. Amer. Acad. Sc. v. 327; *Achras laurifolia*, F. v. M.; Benth. Fl. Austr. iv. 282.

Hab.: Moreton Bay, *Backhouse*, *Fraser*; Rockingham Bay, *Dallachy*; Brisbane River and southern scrubs.

Wood of a light-grey colour towards the outside, brown in the centre; grain close.—*Bailey's Cat. Ql. Woods* No. 264a.

6. **S. australis** (Australian), *Benth. and Hook. Gen. Pl.* ii. 655. A tree attaining sometimes a large size, quite glabrous except a slight appressed pubescence on the very young shoots. Leaves shortly petiolate, from elliptical-oblong and shortly and obtusely acuminate to broadly obovate-oblong and very obtuse, mostly 3 to 4 in. long but sometimes larger, usually much reticulate. Flowers in axillary clusters or almost solitary on pedicels of 2 to 3 lines, more globular than in *S. xerocarpum* and *S. laurifolium*. Calyx-segments 5, broadly orbicular, about 2 lines diameter. Corolla scarcely exceeding the calyx, the lobes short and spreading; scales of the throat slightly dilated upwards. Anthers on very short filaments near the base of the corolla-tube. Ovary densely villous, tapering into a short glabrous style, 5-celled; ovules laterally attached near their base. Fruit 2 in. diameter, almost globose, of a deep plum colour. Seeds few, large, compressed, the hilum on the inner edge more than half as long as the seed, much broader than in *S. xerocarpum*, narrower than in *S. laurifolium*.—*Sapota australis*, A. DC. Prod. viii. 175; *Achras australis*, R. Br. Prod. 530; Benth. Fl. Austr. iv. 282.

Hab.: Rockhampton and Rockingham Bay, *Dallachy*; Brisbane River and southern scrubs.

According to A. J. Hockings, "Panunpin Plum" of the natives.

Wood dark-coloured, close-grained and tough; useful for building purposes.—*Bailey's Cat. Ql. Woods* No. 265.

7. **S. argenteum** (silvery), *Spreng. Syst.* i. 666 (*partly*); *Benth. Fl. Austr.* iv. 283. A small tree attaining about 20 ft., the branches and under side of the leaves minutely and often sparingly silky-pubescent. Leaves obovate or broadly elliptical, obtuse, narrowed into a short petiole, coriaceous, glabrous above, 3 to 5 in. long. Flowers in axillary clusters on pedicels about as long as the flowers, but attaining 3 lines when in fruit. Calyx-segments a little above 1 line diameter, orbicular, ciliate, membranous, the outer ones rather thicker and pubescent. Corolla small, spreading sometimes to nearly 3 lines diameter, the lobes broad and obtuse; scales of the throat ovate-acuminate or linear, sometimes very small, or one or two of them quite deficient. Anthers often shortly exceeding the corolla. Ovary densely hairy, at least round the circumference, tapering into a short thick glabrous style, 5-celled; ovules laterally attached. Fruit obovoid or oblong, $\frac{1}{2}$ in. long or more, usually 1-seeded. Seed obovate, compressed; hilum linear, lateral; albumen not very thick; cotyledons broad, thin, and flat; radicle very short.—*Sersalisia obovata*, R. Br. Prod. 530; A. DC. Prod. viii. 177; *Achras obovata*, F. v. M.; Benth. l.c.

Hab.: Endeavour River, *Banks and Solander*; Albany Island, *W. Hill*; Howick's Group, *F. v. Mueller*.

In establishing the genus *Sersalisia*, Brown had seen the seed only of *S. sericea*, and was not aware that in the present species it was albuminous.—*Benth.*

Wood of a yellow colour, hard, and close in grain.—*Bailey's Cat. Ql. Woods* No. 265a.

8. **S. eerwah** (after Mt. Eerwah), *Bail. Proc. Roy. Soc. of Ql. April 1894*. A medium or large-sized tree. I have only leaves, young fruit (probably not more than two or three weeks old), and fully ripe fruit, scarcely enough to establish a species, only that, these being so very distinct from all the other Australian species, it is better for it to bear a distinctive name, and the description can be filled up at some future time. The leaves closely approach those of *S. argenteum*, being obovate or broadly elliptical, obtuse, decurrent upon the petiole, including the latter about 5in. long, with a breadth of $2\frac{1}{2}$ in. at the broadest part. Pedicels glabrous, 3 or 4 lines long. Calyx-segments obtuse, nearly orbicular, glabrous except for the ragged membranous ciliate margins, about 1 line in diameter. Ovary with a dense ring of glossy brown hairs at the base, the rest glabrous. Ripe fruit of a reddish purple, oval, but often tapering towards the base so as to become somewhat pear-shaped, 2 to $2\frac{1}{2}$ in. long, containing 1 or 2 seeds, the 2-seeded fruits much compressed. Seeds when 2 in a fruit shaped like a cowrie shell, from $\frac{3}{4}$ to $1\frac{1}{4}$ in. long; hilum broad, the length of the seed.

Hab.: Near Mount Eerwah, *Field Naturalists* (24th March, 1894).

9. **S. euphlebica** (veins prominent), *F. v. M. Fragm.* vii. 110. A tree almost glabrous. Leaves 2 to 3in. long, thick-coriaceous, lanceolate-ovate or cuneate-obovate, the reticulate veins dense and prominent, decurrent upon the petiole, glabrous on both sides; petioles about 1in. long. Flowers in axillary clusters, few in each cluster, when on the young leafless branches, the inflorescence appearing spicate. Calyx-lobes orbicular, silky, about 1 line diameter; scales at the throat of corolla narrow, acute. Fruit sessile, 8 to 16 lines long, almost globose. Seeds 1 to 4, red, 8 to 12 lines long, oblique, ellipsoid-ovate, slightly compressed. Testa glossy; hilum lateral, broad-linear; albumen fleshy; cotyledons flat, ovate; radicle cylindrical.

Hab.: Rockingham Bay, *J. Dallachy* (F. v. M. l.e.)

10. **S. Brownlessiana** (after Dr. A. C. Brownless), *F. v. M. Fragm.* vii. 111. A tree of about 40ft. high; the young growth silky. Leaves thin-coriaceous or almost chartaceous, 2 to 4in. long, 8 to 12 lines broad, hoary on the under side, on rather short petioles. Pedicels axillary, solitary, or in twos or threes, 6 to 12 lines long. Sepals 5, somewhat thick, imbricate, 3 outer, 2 inner, about 3 lines long, outside thin, inside densely silky. Corolla yellow; tube cylindrical, glabrous outside; lobes 5, ovate, imbricate; scales at throat spathulate-oblong. Filaments free, from about the middle of the corolla-tube. Anthers oblong-ovate, acute, extrorse, 2-celled, dehiscing longitudinally. Style silky, filiform, 3 lines long. Stigma minute, ovary 5-celled. Mature fruit not seen, young 2-celled, 2-seeded.

Hab.: Rockingham Bay, *J. Dallachy* (F. v. M. l.e.)

11. **S. dugulla** (aboriginal name), *Ql. Journ. of Agr.* i. "Dugulla," Barron River, *E. Cowley*. Tree of about 70ft., trunk diameter 2ft.; bark grey, with numerous shallow longitudinal cracks; the young growth slightly hairy. Leaves oblong-lanceolate, 3 to 5in. long, and seldom exceeding 1in. wide at broadest part, tapering from above the middle to a petiole-like base; the apex usually very blunt, glabrous on both faces, the upper glossy, texture thin. Flowers not seen. Fruit nearly sessile and almost globular, green, 1in. or more in diameter, containing 5 seeds, embedded in a soft pulp. Seeds brown, glossy, $\frac{1}{2}$ in. long.

Hab.: Barron River, *E. Cowley*.

Fruit eaten by natives. The pulp Mr. Cowley describes as of an oily nature.

12. **S. myrsinoides** (Myrsine-like), *Benth. and Hook. Gen. Pl.* ii. 655. A slender twiggy shrub or small tree, the young branches and leaves more or less pubescent or villous, the full-grown leaves glabrous above or sometimes on both sides. Leaves shortly petiolate, mostly ovate or broadly elliptical, but sometimes obovate, obtuse, narrowed at the base, 1 to 2 or rarely 3 in. long, the veins usually prominent. Flowers not numerous, in axillary clusters or almost solitary, on recurved pedicels longer than the flower (usually about 3, sometimes 4 lines), tomentose-pubescent. Calyx-segments 5, the 2 outer tomentose and about 2 lines long. Corolla-tube as long as the calyx; lobes 5, shorter than the tube, broad, truncate; scales of the throat linear. Ovary very villous; ovules laterally attached. Fruit not seen.—*Achras myrsinoides*, A. Cunn.

Hab.: Rodd's Bay, *A. Cunningham*; Brisbane River, Moreton Bay, *Fraser, W. Hill*; Breakfast Creek, *Leichhardt*; Queensland woods, London Exhibition, 1862, n. 49, *W. Hill*; Bundaberg, *B. Scortechini*.

4. HORMOGYNE, A. DC.

(Ovary bearded.)

Calyx-segments, corolla-lobes, stamens, and ovary-cells 5. Scales (or staminodia?) 5, in the throat of the corolla alternating with the corolla-lobes. Ovary surrounded by a hirsute disk; ovules solitary in each cell, laterally attached. Fruit unknown.—Shrub. Leaves small. Flowers axillary, mostly solitary.

The genus is limited to the single species endemic in Australia. The flowers differ from those of *Lucuma*, *Sideroxylon*, and allied genera chiefly in the hypogynous disk surrounding the ovary, which may not in itself be sufficient to constitute a distinct genus, but in the absence of the fruit and seed it is impossible to say to which of them it ought to be referred.—*Benth.*

1. **H. cotinifolia** (Cotinus-like), *A. DC. Prod.* viii. 176. A dwarf thick-stemmed tree, sometimes a straggling or diffuse shrub with slender branches, the young shoots sprinkled with a few hairs, otherwise glabrous. Leaves shortly petiolate, obovate or almost orbicular, very obtuse, under 1 in. long. Flowers solitary in the axils, on recurved pedicels of 1 to 2 lines. Calyx-segments 5, ovate, slightly pubescent or glabrous, about 1 line long. Corolla-tube exceeding the calyx; lobes short, truncate. Scales in the corolla-throat slightly dilated towards the top. Ovary within the disk glabrous as well as the rather long style.—*Deless. Ic. Sel.* v. t. 37; *Sersalisia cotinifolia*, *F. v. M. Fragm.* v. 161.

Hab.: Moreton Bay, *W. Hill*; Rockhampton, *Dallachy, Thozet*; Nerook Creek and Fitzroy River, *Bowman*; Port Denison, *Fitzalan*.

Wood light or darkish-yellow colour, close in grain, and very hard; does not shrink or warp much in drying. A useful cabinet wood.—*Bailey's Cat. Ql. Woods* No. 266 and 266a.

5. MIMUSOPS, Linn.

(Flowers of some species ape-face like.)

Calyx-segments 6 to 8. Corolla-lobes 3 times or rarely twice as many as calyx-segments, in 3 rarely 2 rows, with scales in the throat. Stamens 6 to 8, inserted in the throat of the corolla opposite the inner lobes, without intervening staminodia. Filaments short; anthers lanceolate, turned outwards, but opening laterally. Ovary 6 to 8-celled; ovules laterally attached near the base or almost erect. Seeds more or less compressed; testa hard and shining; hilum either very small ovate and basal, or more or less elongated and lateral.

Albumen copious; cotyledons broad and flat.—Trees or shrubs. Leaves usually with fine parallel veins. Flowers axillary, on recurved pedicels, usually larger than in *Sideroxylon*.

The genus is dispersed over the tropical regions of the New as well as the Old World, extending into extratropical South Africa. Of the 2 Australian species, one extends to the Indian Archipelago, the other is not quite identical with, but closely allied to, a common E. Indian one.—*Benth.*

- Calyx-segments, stamens, and inner corolla-lobes 8. Leaves ovate, not white underneath 1. *M. parvifolia*.
 Calyx-segments, stamens, and inner corolla-lobes 6. Leaves broad, whitish underneath 2. *M. Browniana*.

1. ***M. parvifolia*** (leaves small), *R. Br. Prod.* 531; *Benth. Fl. Austr.* iv. 284. "Ngoru," Batavia River, *Roth*. A stout bushy tree, often very low on the seacoast, attaining in other situations 30 to 40ft., the branchlets, young foliage, and inflorescence clothed with a loose rusty pubescence, which more or less disappears from the full-grown leaves. Leaves on rather long petioles, ovate or elliptical, obtuse or acuminate, finely veined, green on both sides or pale underneath, 2 or rarely 3in. long. Flowers solitary or 2 together in the upper axils, on pedicels of $\frac{1}{2}$ in. or more. Calyx-segments 8 (rarely 7), lanceolate, acuminate, about 3 lines long, the 4 outer ones pubescent, the inner ones thinner and more glabrous. Corolla-tube very short; lobes lanceolate, 16 outer ones in 2 or 3 rows, 8 inner ones broadly lanceolate, very acute and shortly stipitate. Perfect stamens 8. Filaments very short; anthers sagittate, acuminate; staminodia 8, alternating with the stamens, linear-lanceolate, with long awn-like points and a few long cilia near the base. Ovary densely hirsute, 8-celled; ovules erect from the inner angle. Fruit nearly globular. Seed erect, oblong, more or less compressed; hilum small, orbicular, almost basal; albumen copious.—*A. DC. Prod.* viii. 203; *F. v. M. Fragm.* v. 162.

Hab.: Cape York, *W. Hill*; islands of Cape Flinders, *A. Cunningham*; estuary of the Burdekin, *Fitzalan*; Port Denison, Edgcombe and Rockingham Bays, *Dallachy*.

Very nearly allied to the common Indian *M. Elengi*, differing chiefly in the looser, usually rusty pubescence, in the longer peduncles, smaller flowers, and much narrower calycine segments.—*Benth.*

Wood of a pinkish colour, close in grain, and easy to work.—*Bailey's Cat. Ql. Woods No.* 267.

Wood used for womerars, *Roth*.

2. ***M. Browniana*** (after Dr. Robert Brown), *Benth. Fl. Austr.* iv. 285. "Undoor," Princess Charlotte Bay, *Roth*. A tree of irregular growth. Leaves on rather long petioles, obovate, broadly ovate or almost orbicular, very obtuse, thickly coriaceous, finely and almost parallel veined, whitish or almost rusty underneath. Flowers in the upper axils (clustered at the ends of the branches), on recurved pedicels shorter than the petioles. Calyx-segments 6, in 2 rows, ovate-lanceolate, acute, about 3 lines long, reflexed under the fruit but not enlarged. Corolla scarcely longer than the calyx, with 12 outer and 6 inner lobes, all narrow, acute, the inner ones almost stipitate. Stamens 6, opposite the inner lobes; anthers acuminate; staminodia 6, alternating with them, petal-like, as long as the corolla, jagged at the end. Ovary 6-celled; ovules erect from the inner angle. Fruit ovoid or almost globular, at least 1in. long. Seeds 1 or 2, large, more or less compressed; hilum broadly linear, more than half the length of the seed.—*M. Kauki*, *R. Br. Prod.* 531, not of Linn.; *M. Kauki*, var. *Browniana*, *A. DC. Prod.* viii. 203.

Hab.: Islands off Cape Fear, *R. Brown*; Cape Flinders, Rodd's Bay, and Endeavour River, *A. Cunningham*; islands off Cape Bedford, Howick's Group, *F. v. Mueller*.

Also in the Indian Archipelago (*Java*, *Horsfield*), and the Malayan Peninsula (*Griffith*).

Wood red, fine grained, and easily worked.—*Bailey's Cat. Ql. Woods No.* 267a.

ORDER LXXVI. EBENACEÆ.

Flowers regular, usually dioecious. Calyx free, 3 to 5-lobed or rarely with 6 or 7 lobes. Corolla-lobes as many as those of the calyx, imbricate in the bud, usually contorted. Stamens inserted in the base of the corolla or on the torus within it, indefinite, usually from 10 to 20 in the males, fewer and sterile in the females; anthers erect, linear or lanceolate, the cells opening in longitudinal slits. Ovary free, 3 or more-celled, with 1 or 2 pendulous ovules in each cell. Styles as many or half as many as cells, distinct or united into a simple or 2-cleft style, with small terminal stigmas. Fruit a berry, usually indehiscent. Seeds few, albuminous; radicle superior; cotyledons foliaceous.—Trees or shrubs, the juice not milky. Leaves alternate, entire, without stipules. Flowers axillary, the females often solitary, the males usually clustered or in small cymes.

The Order, a small one, is dispersed over the tropical and subtropical regions of the New as well as the Old World, extending northward to the United States and to the Caucasus, and southward to the Cape of Good Hope.

- | | |
|---|---------------|
| Calyx-lobes, corolla-lobes, and ovary-cells 3 each, with 2 ovules in each cell | 1. MABA. |
| Calyx and corolla-lobes 4 to 6 each. Ovary-cells the same number or twice as many, with 1 or 2 ovules in each | 2. DIOSPYROS. |

1. MABA, Forst.

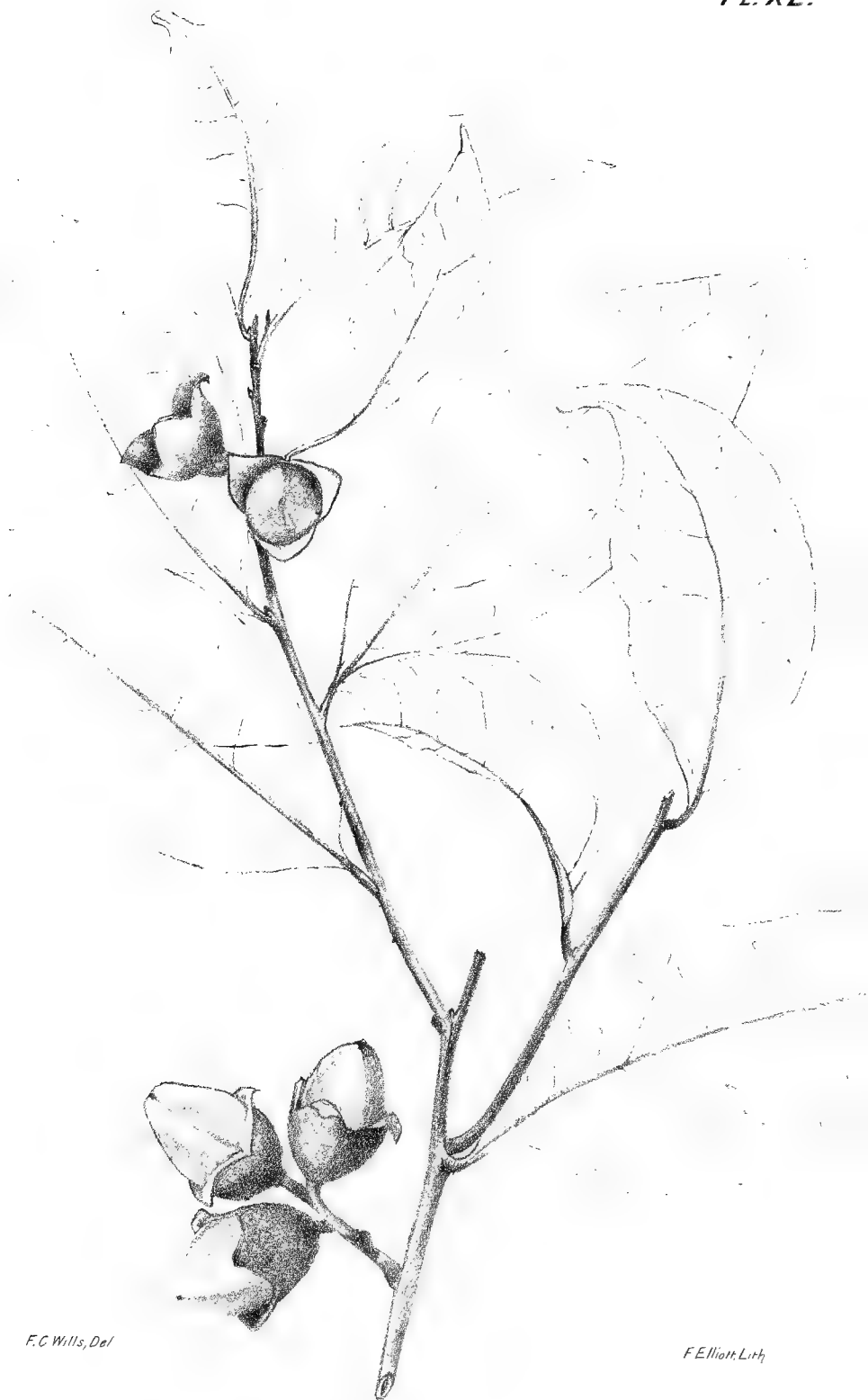
(The aboriginal name of a species in Tonga-Tabu.)

Calyx-lobes usually 3. Corolla-lobes as many. Ovary 3-celled, with 2 ovules in each cell, without any or rarely with an imperfect spurious dessepiment between them. Styles connate. Fruit ovoid or rarely globular.—Trees or shrubs, with the habit and inflorescence of the Order, the leaves and fruits often but not always smaller than in *Diospyros*.

The genus extends over the tropical regions of the Old World, and more especially over the Indian Archipelago and the islands of the South Pacific.

- | | |
|---|------------------------------|
| Leaves (mostly 3 to 4in. long) shortly and obtusely acuminate. Calyx, corolla, and fruit silky-hairy. | |
| Leaves quite glabrous | 1. <i>M. laurina</i> . |
| Leaves with appressed silky hairs, at least underneath. Fruit nearly sessile, globular, 4 to 5 lines diameter | 2. <i>M. sericeocarpa</i> . |
| Young leaves pilose on both sides, at length glabrescent. Fruit ovoid, pedunculate, 5 to 7 lines long, densely covered with red hairs | 3. <i>M. rufa</i> . |
| Leaves (mostly 3 to 4in. long) shortly acuminate, glabrous. Fruit glabrous. Calyx not above 1 line long. Corolla small. | |
| Female flowers solitary, almost sessile | 4. <i>M. hemicycloides</i> . |
| Male flowers in loose dichotomous cymes | 5. <i>M. laxiflora</i> . |
| Calyx at the time of flowering 2 lines long, with broad obtuse lobes. Flowers in dense sessile clusters | 6. <i>M. fasciculosa</i> . |
| Leaves (rarely 3in.) obovate, ovate or oblong, very obtuse. | |
| Leaves (mostly 2 to 3in.) strongly reticulate. Berry globular. | |
| Fruiting calyx very flat and open | 7. <i>M. compacta</i> . |
| Fruiting calyx cup-shaped | 8. <i>M. reticulata</i> . |
| Leaves not much reticulate. Berry ovoid. Fruiting-calyx cup-shaped. | |
| Leaves mostly about 2in., obovate, oval or oblong | 9. <i>M. geminata</i> . |
| Leaves mostly about 1in. or less, orbicular, obovate or oblong-cuneate | 10. <i>M. humilis</i> . |

1. *M. laurina* (Laurel-like), *R. Br. Prod.* 527; *Benth Fl. Austr.* iv. 289. A small tree, the young shoots sprinkled with a few appressed hairs. Leaves shortly petiolate, ovate-oblong, very obtuse or shortly and obtusely acuminate, rigid, coriaceous, shining above, reticulate, 3 to 4in. long. Flowers nearly sessile, the males few together, the females solitary, larger than in any of the following species. Calyx nearly globular, about 3 lines long, silky-villous with rusty hairs; lobes short, rounded. Corolla yellowish-white (*R. Brown*), the tube shortly exerted, the lobes half as long as the tube, all silky-villous outside. Stamens in the males 9, the filaments alternately free and united in pairs, none



F.C. Wills, Del.

F. Elliott, Lith.

Maba rufa, Labill.

in the females. Ovary rudimentary but villous in the males, very villous, 3-celled or rarely 2-celled in the females, with 2 ovules in each cell, without any spurious dissepiment between them. Fruit not seen.

Hab.: Cumberland Islands, *R. Brown* (Herb. R. Brown).

2. **M. sericocarpa** (fruit silky), *F. v. M. Fragm.* v. 164; *Benth. Fl. Austr.* iv. 289. A tree with slender branchlets, silky-pubescent with rust-coloured hairs. Leaves on very short petioles, oval-elliptical or oblong, shortly and obtusely acuminate, coriaceous, covered or sprinkled with appressed hairs, which are more abundant on the under side, becoming nearly glabrous above when old, the reticulate veinlets scarcely conspicuous, 3 to 4 in. long. Male flowers only seen in very young bud, they are then 3 to 5 together on an exceedingly short peduncle, densely silky-villous, the calyx tubular-conical, about 3 lines long, the corolla as yet enclosed in it, and the stamens not numerous. Female flowers not seen. Fruits solitary, nearly sessile. Calyx cup-shaped, appressed, with broad triangular lobes nearly as long as the berry, which is globular, silky-hairy, 4 to 5 lines diameter.

Hab.: Rockingham Bay, *Dallachy*; Eumundi; other localities along the North Coast Railway line.

3. **M. rufa** (hairs red), *Labill. Sert. Austr. Calid.* 33 t. 36; *DC. Prod.* viii. 241. Shrub. Branches fulvous-pilose. Leaves 3 to 4 in. long, 6 to 10 lines broad, on petioles of 3 to 4 lines, lanceolate, obtusely-acuminate, base acute, coriaceous, the young ones pilose on both sides, at length glabrescent. Peduncles axillary, shorter than the calyxes. Calyx 3-fid, pilose, lobes ovate-rotundate. Fruit 5 to 7 lines long, solitary, twice as long as the calyx, ovoid, silky with reddish hairs, 3-celled. Seeds 1 or 2 in each cell.

Hab.: Herbert River, *H. G. Eaton*; Cairns, *E. Cowley*.

4. **M. hemicycloides** (Hemicyclia-like), *F. v. M. Herb.*; *Benth. Fl. Austr.* iv. 290. A small tree, with slender branches, quite glabrous except the fruit. Leaves shortly petiolate, ovate or oval-oblong, shortly and obtusely acuminate, thinly coriaceous, finely veined, 3 to 4 in. long. Flowers not seen. Fruit nearly sessile and solitary. Calyx very small, glabrous, 3-lobed, spreading. Berry ovoid or globular, minutely silky-hairy, about $\frac{1}{2}$ in. long.

Hab.: Rockingham Bay, *Dallachy*.

The foliage and small calyx are nearly those of *M. laxiflora*, of which it may possibly prove to be the female.—*Benth.*

5. **M. laxiflora** (flowers loose), *Benth. Fl. Austr.* iv. 290. A tall shrub, quite glabrous. Leaves shortly petiolate, oval-oblong or elliptical, acuminate, coriaceous, shining but reticulate above, obscurely veined underneath, mostly 3 to 4 in. long. Flowers small, rather numerous, in loose sessile dichotomous cymes longer than the petioles. Calyx short and broad, slightly 3-lobed. Corolla scarcely 2 lines long, with 3 broad very obtuse lobes. Stamens about 20. Ovary rudimentary, quite glabrous as well as the whole flower. Female plant not seen.

Hab.: Rockhampton, *O'Shanesy*.

The foliage is nearly that of *M. fasciculosa*, but the flowers are much smaller, differently shaped, and the inflorescence much looser.—*Benth.*

6. **M. fasciculosa** (flowers in clusters), *F. v. M. Fragm.* v. 163; *Benth. Fl. Austr.* iv. 290. A tall tree, quite glabrous. Leaves petiolate, oval-oblong or elliptical, obtuse or obtusely acuminate, shining above and scarcely opaque underneath, not much reticulate, 3 to 5 in. long. Female flowers often numerous, in axillary clusters or short cymes. Calyx about 2 lines long, the lobes deeper and more spreading at the time of flowering than in other species. Corolla-tube short, the lobes broad. Staminodia none in the female flowers. Ovary

ovoid, 3-celled, tapering into a short thick style. Ovules 2 in each cell, but separated by an incomplete spurious dissepiment. Fruit globular, about $\frac{3}{4}$ in. diameter, the fruiting calyx enlarged, cup-shaped, with short broad recurved lobes.

Hab.: Brisbane River, *F. v. Mueller*; Queensland woods, London Exhibition, 1862, n. 100, *W. Hill*; Rockhampton, *Dallachy*.

Wood of a light colour, with black specks or streaks; close-grained, strong, elastic; suitable for carving wood-stamps.—*Bailey's Cat. Ql. Woods No. 268*.

7. **M. compacta** (habit compact), *R. Br. Prod. 528*; *Benth. Fl. Austr.* iv. 290. An erect shrub of 4 or 5ft., quite glabrous when in fruit. Leaves on rather longer petioles than in the other species, oval or oval-oblong, very obtuse, coriaceous, much reticulate, 2 to 3in. long. Flowers unknown. Fruit closely sessile and solitary, the calyx expanded quite flat under it, with short broad recurved lobes. Berry globular, about $\frac{3}{4}$ in. diameter. "Seeds with a simple testa; embryo fully as long as the albumen; radicle terete; cotyledons shorter than the radicle, ovate, flat, the tips inflected" (*R. Brown, ms.*)—A. DC. Prod. viii. 242.

Hab.: Some imperfect specimens from Low Island, *Henne*, and from Rockingham Bay, *Dallachy*, may belong to this species.—*Benth.*

8. **M. reticulata** (netted veins prominent), *R. Br. Prod. 528*; *Benth. Fl. Austr.* iv. 291. A tree, attaining 20 to 30ft., glabrous except the flowers. Leaves shortly petiolate, obovate to oblong, obtuse, much reticulate on the upper side, 2 to 3in. long. Male flowers several, in short racemes or clusters. Calyx glabrous or nearly so, 1 to $1\frac{1}{4}$ line long, shortly and obtusely 3-lobed. Corolla silky-pubescent, the tube scarcely so long as the calyx, the lobes rather longer. Stamens 9 to 12. Female flowers solitary, without stamens or staminodia. Ovary 3-celled, with 2 ovules in each cell, without any spurious dissepiment between them. Berry globular, in a somewhat enlarged cup-shaped calyx.—A. DC. Prod. viii. 241; *M. interstans*, *F. v. M. Fragm. v. 163*.

Hab.: Prince of Wales and Cumberland Islands, *R. Brown*; Cape York, *M'Gillivray, Demel*; Rockingham Bay, *Dallachy*.

Wood of a light colour, with black specks or streaks near the heart; very close in grain, strong, elastic; useful in making carpenter's bench and hand-screws.—*Bailey's Cat. Ql. Woods No. 268a*.

9. **M. geminata** (fruit often in pairs), *R. Br. Prod. 527*; *Benth. Fl. Austr.* iv. 291. A small tree, with an irregular dense or spreading head, very nearly allied to *M. humilis*, but with larger leaves, usually more ovate than obovate, more coriaceous and shining, but always obtuse, $1\frac{1}{2}$ to 2in. long, the reticulate veinlets scarcely conspicuous. Male flowers densely clustered, rather small. Fruits solitary or 2 together. Berries ovoid, in a cup-shaped appressed calyx, rather larger than in *M. humilis*.—A. DC. Prod. viii. 242.

Hab.: Keppel Bay, *R. Brown*; Brisbane River, Moreton Bay, *A. Cunningham, Fraser, F. v. Mueller*; Queensland woods, London Exhibition, 1862, n. 50, *W. Hill*; Rockhampton and Edgecombe Bay, *Dallachy*; Port Denison, *Fitzalan*; Dawson River, *Bowman*.

Wood light-coloured near the outside, black in the centre; close in grain, hard and tough; the black a good substitute for ebony.—*Bailey's Cat. Ql. Woods No. 296*.

10. **M. humilis** (low; tree small), *R. Br. Prod. 527*; *Benth. Fl. Austr.* iv. 291. "Athea," Batavia River, *Ward*; "Thankoin," Mitchell River, *Palmer*. A bushy shrub or small tree, glabrous except the flowers. Leaves obovate or obovate-oblong, very obtuse, narrowed into a short petiole, not very coriaceous, more or less reticulate, mostly $\frac{1}{2}$ to 1in. but sometimes fully $1\frac{1}{2}$ in. long. Male flowers in small clusters, females usually solitary. Calyx about $1\frac{1}{2}$ line long, nearly glabrous, 3-lobed to about the middle. Corolla very silky, about

2 lines long. Stamens in the males few, in the females none in the flowers examined. Ovary 3-celled, with 2 ovules in each cell, without any spurious dissepiment between them. Berries ovoid or globose and sometimes much under $\frac{1}{2}$ in. long, in a closely appressed cup-shaped calyx.—A. DC. Prod. viii. 242; *M. obovata*, R. Br. Prod. 527; A. DC. Prod. viii. 241.

Hab.: Islands of the Gulf of Carpentaria, *R. Brown*; Sweers Island, *Henne*; Broadsound, *R. Brown*; Dawson, Burnett, and Gilbert Rivers, *F. v. Mueller*; Burdekin River, *Fitzalan*; Rockhampton, *Dallachy*, *O'Shanesy*; Nerook Creek, *Bowman*; main range near Toowoomba, and many other localities.

The fruits of all the species of this genus are eaten by the natives.

Wood, the outer part light, the centre nearly black; hard and very tough; a useful cabinet-wood.—*Bailey's Cat. Ql. Woods No. 269a.*

2. DIOSPYROS, Linn.

(Divine fruit—fruit of Jove.)

Calyx-lobes usually 4, sometimes 5 or 6. Corolla-lobes as many. Ovary with an equal number or twice as many cells as calyx and corolla-lobes, with 1 or 2 ovules in each cell, 2 ovules to each carpel sometimes separated by spurious but complete dissepiments. Styles usually 4, more or less connate at the base and bifid at the summit. Fruit globular or ovoid.—Trees or shrubs, with the habit and inflorescence of the Order.

Leaves glabrous.

Fruit more or less hairy 1. *D. hebecarpa*.

Leaves 4 to 6 in. long or more, obtuse. Fruit nearly 1 in. diameter 2. *D. maritima*.

Leaves slightly hairy underneath, 3 to 4 in. long 3. *D. mabacea*.

Leaves glabrous.

Leaves under 3 in. long 4. *D. australis*.

Leaves under 2 in. long. Flowers mostly 5-merous 5. *D. pentamera*.

1. **D. hebecarpa** (fruit hairy), *A. Cunn.*; *Benth. Fl. Austr.* iv. 286. "Ko-lin," Cooktown, *Roth*. A tree of 25ft., the adult foliage and branches quite glabrous. Leaves from broadly ovate to oval-oblong, very obtuse or shortly and obtusely acuminate, reticulate, not very coriaceous, shortly contracted into a short petiole, 2 to 3 in. long. Flowers not seen. Fruit on a very short pedicel, the calyx forming a thick flat disk of $\frac{1}{2}$ in. diameter, with sharp edges, and 4 short broad reflexed lobes. Berry $\frac{3}{4}$ to 1 in. diameter, covered with short hairs which sometimes wear off at the base. Seeds 8, in pairs, but with perfect dissepiments between them, compressed; albumen cartilaginous; embryo about two-thirds the length of the seed; cotyledons flat, nearly as long as the radicle.

Hab.: Cape York, *W. Hill*; N.E. coast, *A. Cunningham*; common on our tropical coast.

Fruit used for poisoning the water for catching fish, *Roth*.

2. **D. maritima** (seaside), *Blume, Bijdr.* 669; *A. DC. Prod.* viii. 234. A handsome tree attaining 50ft. (*W. Hill*), glabrous except the flowers. Leaves petiolate, from oval-oblong to oblong-elliptical, usually broad, obtuse, coriaceous, shining above, opaque underneath, 4 to 8 in. long or even more, almost always drying black. Flowers sessile, the males clustered. Calyx pubescent, 4-lobed, about $1\frac{1}{2}$ line long. Corolla about twice as long as the calyx, silky-pubescent, 4-lobed. Stamens 16 to 18. Female flowers not seen. Fruiting calyx broadly cup-shaped or opening flat, closely appressed to the fruit. Berry globular, attaining nearly 1 in. diameter. Seeds compressed, with a brown shining testa. Radicle longer than the ovate cotyledons. Albumen cartilaginous.—A. DC. Prod. viii. 243; *Cargillia laxa*, R. Br.; *Benth. Fl. Austr.* iv. 287; *C. maritima*, Hassk.; *Miq. Fl. Ind. Bat.* ii. 1049; *C. megalocarpa*, F. v. M. *Fragm.* v. 163; *Maba megalocarpa*, F. v. M. *Fragm.* v. 163.

Hab.: Cape York, *W. Hill*.

The species is also on the coast of Timor, South Java, and Samoa Islands. Until the female flowers shall have been examined, it is not certain whether this may not be a species of *Diospyros*, but there does not appear to have been any septum between the 2 ovules of each carpel.—*Benth.*

3. **D. mabacea** (Maba-like), *F. v. M. Docum. Intercol. Exhib.* 25 (1866). A tree of about 20ft., the branchlets and veins on the under side of the leaves strigose-pubescent. Leaves elliptical-oblong, shortly acuminate, narrowed into a short petiole, rather thin, drying black, the veins prominent underneath, 3 to 4in. long. Male flowers 4-merous, in small dense sessile cymes or clusters. Calyx $1\frac{1}{2}$ line long, the lobes shorter than the tube, nearly glabrous. Corolla silky-pubescent, nearly twice as long as the calyx. Stamens about 16. Female flowers and fruit not seen, but the fruit, according to C. Moore, a scarlet berry.—*Maba quadridentata*, *F. v. M. Fragm.* v. 162; *Cargillia mabacea*, *F. v. M. Fragm.* v. 163; *Benth. Fl. Austr.* iv. 287.

Hab.: Coastal scrubs.

4. **D. australis** (southern), *Benth. and Hook. Gen. Pl.* ii. A small tree, glabrous or the young parts very minutely mealy-pubescent. Leaves from oblong to oval-elliptical, obtuse, narrowed into a short petiole, coriaceous, penniveined and reticulate, but the veins less conspicuous on the under side, $1\frac{1}{2}$ to nearly 3in. long. Male flowers several together, in little axillary clusters or dense cymes. Calyx about 1 line long, 4-lobed. Corolla about $2\frac{1}{2}$ lines long, the tube as long as the calyx; lobes 4, contorted in the bud. Stamens about 12, slightly cohering to the base of the corolla; anthers acuminate. Female flowers solitary or 2 or 3 together, larger than the males; stamens usually fewer and imperfect. Ovary 4-celled, with 2 ovules in each cell without any trace of dissepiment between them. Fruiting calyx enlarged to nearly $\frac{1}{2}$ in. diameter. Berry globular.—*Diospyros australis*, *A. DC. Prod.* viii. 243; *Bot. Mag.* t. 3274; *Maba Cargillia*, *F. v. M. Fragm.* v. 162; *Cargillia australis*, *R. Br. Prod.* 526; *Benth. Fl. Austr.* iv. 288.

Hab.: Brisbane River, Moreton Bay, *F. v. Mueller and others*; Rockhampton, *Dallachy*; Crocodile Creek, *Bowman*.

5. **D. pentamera** (flowers 5-parted), *F. v. M. and Woolls, Docum. Intercol. Exhib.* 35 (1866). A tree attaining a considerable height, glabrous or the young shoots slightly silky. Leaves oblong-lanceolate or elliptical, slightly acuminate but not acute, contracted into a very short petiole, coriaceous, shining and reticulate above, opaque and less veined underneath, $1\frac{1}{2}$ to $2\frac{1}{2}$ in. long. Male flowers in very shortly pedunculate clusters of 3 to 5. Calyx 1 line long, 5-lobed. Corolla twice as long as the calyx, 5-lobed, the tube short. Stamens 15 to 20. Female flowers not seen. Fruits solitary, sessile, the subtending calyx enlarged, appressed or the lobes slightly spreading. Berry globular, about $\frac{1}{2}$ in. diameter.—*Maba pentamera*, *F. v. M. Fragm.* v. 163; *Cargillia pentamera*, *F. v. M. Fragm.* iv. 82; *Benth. Fl. Austr.* iv. 288.

Hab.: Brisbane River (*Fraser, W. Hill*) to Rockingham Bay.

ORDER LXXVII. STYRACACEÆ.

Flowers regular, hermaphrodite. Calyx-tube usually more or less adnate to the ovary, the limb 5 or rarely 4-lobed. Corolla regular, deeply divided into as many lobes as the calyx or rarely (in species not Australian) twice as many, imbricate or valvate in the bud. Stamens usually indefinite, sometimes only twice as many or equal in number to the corolla-lobes, attached in one or more series to the base or within the tube of the corolla, those of the outer series usually alternating with the corolla-lobes. Ovary more or less inferior or rarely quite superior, 2 to 5-celled, with 2 or more ovules in each cell, either all pendulous or the upper ones erect. Style undivided; stigma capitate, entire or lobed. Fruit more or less succulent and indehiscent or rarely opening in

valves. Seeds usually solitary, the embryo in the axis of a fleshy albumen.—Trees or shrubs. Leaves alternate, entire or toothed, without stipules. Flowers axillary, solitary or in simple or branched racemes.

A small Order, dispersed over the tropical and subtropical regions of Asia and America, with very few African species and only one extending into Europe. The Australian genus is the principal one in Asia and America.—*Benth.*

1. SYMPLOCOS, Linn.

(From the Greek; lobes of corolla connected at the base but appear free.)

Calyx 5-lobed. Corolla-lobes imbricate in the bud, and not contorted, the petals sometimes almost free. Stamens more than twice as many as corolla-lobes. Fruit a berry, crowned by the calyx-lobes. Cotyledons much shorter than the radicle.—Trees or shrubs, the foliage often turning yellowish in drying. Flowers in axillary, simple or branched, spikes or racemes.

The genus ranges over tropical and subtropical Asia and America, but appears to be deficient in Africa. Of the 3 Australian species, one, extending to the islands of the South Pacific, is a slight variety of a common Asiatic one, the others are endemic.

Flowers sessile or nearly so. Petals about $1\frac{1}{2}$ line diameter 1. *S. spicata*.
 Flowers distinctly pedicellate. Petals about 3 lines diameter 2. *S. Thwaitesii*.
 Flowers small, in spikes often under 2in. long. Corolla about 2 lines long. Stamens 15 or fewer 3. *S. paucistamineus*.

1. ***S. spicata*** (flowers in spikes), *Roxb.; A. DC. Prod.* viii. 254, var. *australis*; *Benth. Fl. Austr.* iv. 292. A moderate-sized tree, quite glabrous. Leaves usually oval-elliptical or oblong-elliptical, but varying from obovate to lanceolate, obtuse or shortly acuminate, entire or irregularly toothed, contracted into a petiole, mostly about 4in. long but sometimes much larger, smooth and often shining but scarcely so much so as in *S. Thwaitesii*. Flowers small, sessile or nearly so and often numerous, in axillary spikes sometimes simple but more frequently branched into a panicle of 1 to 2in. Bracts and bracteoles small and very deciduous. Calyx-lobes exceedingly short, broad. Petals about $1\frac{1}{2}$ line long, cohering in a ring with the stamens, which are sometimes obscurely 5-adelphous. Fruit black, in the Australian form ovoid, contracted at the top.—*Seem. Fl. Vit.* 153; *S. Stawellii*, *F. v. M. Fragm.* v. 60.

Hab.: Rockingham Bay, *Dallachy*; not uncommon in southern localities. Fruit ripe in February.

The species is widely spread over E. India and the Indian Archipelago, where the berry is usually quite globular. The southern form, with the longer berry contracted at the top, is precisely the same as that found in the Fiji islands and the New Hebrides. There is, as far as I can perceive, no other difference between the two forms.—*Benth.*

Wood white, close-grained; suitable for any purpose to which Box is applied.—*Bailey's Cat. Ql. Woods No.* 271.

2. ***S. Thwaitesii*** (after G. H. K. Thwaites), *F. v. M. Fragm.* iii. 22 v. 211; *Benth. Fl. Austr.* iv. 293. A shrub or tree, attaining sometimes a considerable size, quite glabrous, closely resembling *S. spicata* in habit and characters, but the leaves are usually firmer and more shining, and the flowers considerably larger and more distinctly pedicellate, forming simple or branched racemes, the pedicels however rarely exceed 1 line. Calyx-lobes broad and obtuse, the innermost much larger than the outer ones. Petals nearly 3 lines long. Fruit when young oblong, contracted at the top but not seen ripe.

Hab.: Rockingham Bay, *Dallachy*; Maroochie.

The species is very closely allied to *S. grandiflora*, Wall., from Silhet, but the leaves are more rigid, less acuminate, and the pedicels shorter.—*Benth.*

Wood light in colour, fine in grain, and tough.—*Bailey's Cat. Ql. Woods No.* 271a.

3. **S. paucistamineus** (stamens few), *F. v. M. and Bail. 3rd Suppl. Syn. Ql. Fl.* 46. A tall shrub, branchlets as well as the petioles, peduncles, and bracts densely beset with spreading brownish hairs. Leaves from 3 to 6in. long, nearly ovate or verging somewhat into a lanceolar form, variously acuminate, remotely or imperfectly serrulated, dark-green above and soon almost glabrous, beneath pale-green and there the keel and main venules bearing copious brownish hairs, chartaceous in texture. Petioles short. Flowering spikes attaining 2in. in length but frequently shorter, terminal, axillary or lateral, solitary fascicular or paniculate. Bracts and bracteoles very small and acute. Flowers quite small. Calyx-lobes semilanceolate or bluntly elliptical, the outside scantily beset with hairs. Corolla only about 2 lines long, pale-coloured, glabrous, the segments hardly connected at the base, about twice as long as the calyx. Stamens 15 or even fewer, mostly shorter than the corolla, inserted near its base. Anthers nearly ovate, yellowish, inserted above the base. Style glabrous, about $1\frac{1}{4}$ line long. Stigma dilated, somewhat 3-lobed. Ovary 3-celled. Fruit not seen.

Hab.: Harvey's Creek, *Bellenden Ker Expedition*, 1889.

ORDER LXXVIII. OLEACEÆ.

Flowers regular. Calyx-free, usually small, the limb of 4 or 5 or rarely more teeth or lobes or rarely truncate and entire. Corolla with a long or short tube, and 4 or 5 or rarely more lobes, or divided to the base into 4 petals or rarely, in genera not Australian, 2-petaled or wanting. Stamens 2, adhering to the base of the corolla, on opposite sides of the ovary, the filaments usually short; anthers 2-celled; the cells opening in longitudinal slits. Ovary 2-celled, with 2 or rarely 1 or 3 ovules in each cell, laterally attached in the young state but becoming pendulous or ascending according to the growth of the ovary. Fruit succulent or capsular, entire or 2-lobed, 2-celled or reduced to a single cell and seed. Seeds with or without albumen. Embryo straight.—Trees or shrubs, sometimes climbing, very rarely reduced to herbs. Leaves opposite or very rarely alternate, entire or pinnate. Flowers in axillary or terminal panicles, sometimes reduced to short simple racemes or sessile clusters.

A small Order, dispersed over the greater part of the warmer or temperate regions of the globe. Of the 5 Australian genera, 4 have a very wide range, 2 in the Old World only, 2 in both the New and the Old, and the fifth is endemic.

TRIBE I. **Jasmineæ**.—*Corolla-lobes 5 or more. Ovules (often solitary) and seeds ascending or erect. No albumen.*

Fruit succulent, indehiscent 1. JASMINUM.

TRIBE II. **Oleinaæ**.—*Corolla-lobes or petals 4. Ovules and seeds pendulous.*

Petals 4, quite distinct or connected in pairs by the stamens. Fruit a drupe.

Seed without albumen. Panicles axillary, rarely reduced to a single sessile cluster 2. LINOCIERA.

Seed albuminous. Racemes axillary, simple 3. NITELIÆA.

Corolla with a short tube and 4 lobes.

Fruit a drupe. Seed albuminous. Panicles axillary or rarely terminal 4. OLEA.

Fruit a berry. Panicles all terminal 5. LIGUSTRUM.

1. JASMINUM, Linn.

(From the Arabian name.)

Corolla-tube cylindrical, the limb spreading, 5 to 8-lobed, the lobes imbricate, often contorted in the bud. Stamens included in the tube. Ovary (at the time of flowering) entire or notched, 2-celled, with 1 ovule (or in species not Australian sometimes 2 or even 3 ovules) in each cell, laterally attached, but becoming erect as the ovary enlarges; style inserted in the notch, minutely 2-lobed at the tip. Berry 2-lobed almost to the base, or entire by the failure of 1 carpel. Seed usually solitary in each lobe, erect, without albumen: cotyledons thick and fleshy, radicle scarcely prominent.—Shrubs or climbers. Leaves opposite or

rarely alternate, either pinnate with 3 (or more in species not Australian) leaflets or apparently simple, being reduced to 1 leaflet, the petiole being then articulate. Flowers white or yellow, in axillary or terminal trichotomous panicles or rarely almost solitary. Bracts very small in all the Australian species.

A considerable genus, dispersed over the warmer regions of the Old World, with one or two S. American species.

- Leaves all or almost all 3-foliolate. Calyx truncate or very shortly and obtusely toothed.
- Leaflets mostly ovate, 2 to 3in. Panicle usually broad 1. *J. didymum*.
 - Leaflets ovate or oblong, $\frac{1}{2}$ to 1 $\frac{1}{2}$ in. Panicles narrowed or reduced to simple racemes 2. *J. racemosum*.
 - Leaflets mostly linear or lanceolate. Panicles short 3. *J. lineare*.
- Leaves simple (unifoliolate), the petiole articulate below the middle.
- Leaves mostly ovate, penniveined. Calyx-teeth much shorter than the tube or obsolete 4. *J. simplicifolium*.
 - Leaves mostly linear, penniveined. Calyx-teeth subulate, much longer than the tube 5. *J. amatum*.
 - Leaves mostly linear, penniveined. Calyx-teeth subulate, longer than the tube 6. *J. suavissimum*.
- Leaves 3-foliolate. Leaflets nearly orbicular, 4 to 6 lines diameter.
- Flowers white, solitary in each axil 7. *J. singuliflorum*.

1. **J. didymum** (twin-seeded), *Forst. Prod.* 3; *Benth. Fl. Austr.* iv. 294. A tall woody climber, usually glabrous or the inflorescence minutely pubescent, but sometimes the foliage and young branches pubescent or villous. Leaves 3-foliolate, with rather long petioles and petiolules or very rarely a few of the lower leaves 1-foliolate; leaflets usually orbicular or broadly ovate and obtuse, but sometimes ovate and acuminate or ovate-lanceolate and acute, mostly 2 to 3in. long, penniveined and more or less distinctly 3 or 5-nerved at the base. Flowers small for the genus and often numerous, in loose trichotomous cymes or panicles, axillary or terminating short axillary branchlets, and often exceeding the leaves. Pedicels short. Calyx under 1 line long, truncate or very shortly toothed. Corolla-tube 3 to 4 lines long; lobes 5 or 6 or rarely 4, less than half as long as the tube. Berry usually globular and 1-seeded, about 5 lines diameter, rarely didymous and 2-seeded. Seed globular, the inner integument formed of an undulated network.—*DC. Prod.* viii. 311; *J. divaricatum*, *Br. Prod.* 521; *DC. Prod.* viii. 311; *Labill. Sert. Austr. Caled.* t. 27; *J. parviflorum*, *Dcne. Herb. Tim.* 77; *DC. Prod.* viii. 310.

Hab.: Islands of the Gulf of Carpentaria, *R. Brown, Henne*; Keppel Bay, *R. Brown*; *Rodd's Bay, A. Cunningham*; Rockhampton, *O'Shanesy*; Moreton Bay, *F. v. Mueller*.

The species is also in the S. Pacific and Society Islands.
Var. pubescens. Branches and foliage pubescent or villous with spreading hairs.—*J. Dallachii*, *F. v. M. Fragm.* iv. 150.—Seaview Range, Rockingham Bay, *Dallachy*. Among the *Taitian* specimens are some almost if not quite as villous as *Dallachy's*; but in both countries the more frequent state appears to be quite or very nearly glabrous.—*Benth.*

2. **J. racemosum** (flowers in racemes), *F. v. M. Fragm.* i. 19; *Benth. Fl. Austr.* iv. 295. A slender glabrous shrub, either erect and bushy or the branches elongated and somewhat twining. Leaves opposite or alternate, 3-foliolate with short petiolules; leaflets from broadly ovate to narrow-oblong or the lateral ones orbicular, all very obtuse, finely and often obscurely penniveined, shining above, the terminal one often above 1in. long, the lateral ones shorter or rarely all similar. Flowers small, in axillary and terminal panicles, sometimes trichotomous, sometimes more simple and almost reduced to slender racemes. Calyx truncate, or with very short teeth. Corolla-tube nearly 3 lines long; lobes 5 to 8, at least half as long as the tube. Berry usually globular and 1-seeded, rarely didymous.

Hab.: Thirsty Sound, *R. Brown*: *Araucaria Ranges*, sources of the Brisbane, *F. v. Mueller*; Broadsound, Suttor River, Nerook Creek, &c., *Bowman*; Rockhampton, *Dallachy and others*; Port Denison, *Fitzalan*.

Very near *J. didymum* (*J. divaricatum*, *Br.*, in which *Brown's* specimens were included in his herbarium) on the one hand, and, on the other hand, sometimes scarcely to be distinguished from the broad-leaved specimens of *J. lineare*.—*Benth.*

3. **J. lineare** (leaflets linear), *R. Br. Prod.* 521; *Benth. Fl. Austr.* iv. 295. "Uroob," Bundaberg, *Keys*. An erect shrub, either quite dwarf or bushy and attaining 6 to 8ft., or with elongated, somewhat twining branches, minutely hoary-pubescent or rarely quite glabrous. Leaves opposite or the upper ones alternate, 3-foliolate, the common petiole short; leaflets usually lanceolate or linear, obtuse or acute, the terminal one 1 to 4in. long, the lateral ones shorter, or rarely all, especially the lateral ones, oblong or elliptical. Flowers in axillary trichotomous panicles, often numerous, but rarely exceeding the leaves. Calyx-teeth exceedingly short. Corolla-tube under 3 lines long; lobes 5 or 6, scarcely shorter than the tube. Ovules solitary in each cell of the ovary. Berry simple and ovoid or rarely didymous.—*DC. Prod.* viii. 311; *Hook. Ic. Pl.* t. 831; *J. Mitchellii*, *Lindl. in Mitch. Trop. Austr.* 365; *J. Bidwillii*, *Vis. Pl. Hort. Patav.* 1858, 6.

Hab.: Dawson and Burdekin Rivers, *F. v. Mueller*; Narran River and near Mount Kennedy, *Mitchell*; head of the Suttor River, *Sutherland*.

4. **J. simplicifolium** (leaves simple), *Forst. Prod.* 3; *Benth. Fl. Austr.* iv. 296. A woody climber or sometimes a tree, glabrous or softly pubescent. Leaves opposite, simple, mostly ovate, shortly acuminate, and $1\frac{1}{2}$ to 2in. long, but varying from broadly ovate-cordate to ovate-lanceolate or oblong-elliptical, very obtuse or acutely acuminate, and from 1 to nearly 3in. long; the petioles rather long or sometimes short, articulate below the middle. Flowers white, in terminal trichotomous cymes, usually loose and many-flowered, but sometimes compact and few-flowered, but the flowers always pedicellate. Calyx-small, the teeth shorter than the tube, and often almost obsolete. Corolla-tube 4 to 5 lines long; lobes acute, rather shorter than the tube. Berry almost globular, about 3 lines diameter, solitary or didymous.—*Bot. Mag.* t. 980; *J. gracile*, *Andr. Bot. Rep.* t. 127; *R. Br. Prod.* 521; *DC. Prod.* viii. 309; *Bot. Reg.* t. 606; *J. geniculatum*, *Vent. Choix.* t. 8; *J. australe*, *Pers. Syn.* i. 8; *DC. Prod.* viii. 306; *J. acuminatum*, *R. Br. Prod.* 521; *DC. Prod.* viii. 307; *J. confusum*, *DC. Prod.* viii. 309; and probably also *J. funale*, *Dcne. Herb. Tim.* 77; *DC. Prod.* viii. 308.

Hab.: Keppel and Shoalwater Bays, *R. Brown*; Wide Bay, *Bidwill*; Port Curtis, *M'Gillivray*; Port Denison, *Fitzalan*; Curtis Island, *Henne, Thozet*; Rockingham Bay, *Dallachy*; Rockhampton, *O'Shanesj*; Ipswich, *Nernst*; Peak Downs, *F. v. Mueller*.

The species is also in the islands of the South Pacific.

Var. *molle*. Branches, foliage, and inflorescence softly pubescent.—*J. molle*, *R. Br. Prod.* 521; *DC. Prod.* viii. 307.—Islands of the Gulf of Carpentaria, *R. Brown, Landsborough*.

5. **J. æmulum** (rivalling), *R. Br. Prod.* 521; *Benth. Fl. Austr.* iv. 296. A woody climber, glabrous or softly pubescent. Leaves opposite, simple, ovate, acute or acutely acuminate or rarely obtuse, penniveined, mostly $1\frac{1}{2}$ to 2in. but sometimes 3in. long, not cordate, on petioles of 2 to 4 lines articulate below the middle. Flowers in compact terminal cymes, but each one on a rigid pedicel of 1 to 3 lines. Calyx-tube nearly 1 line long; lobes subulate, more than twice as long as the tube. Corolla-tube rarely under $\frac{1}{2}$ in. long, and sometimes 7 or 8 lines; lobes 6 to 9, acute, shorter than the tube. Berry obovoid or almost globular, about 4 lines diameter, rarely didymous.—*DC. Prod.* viii. 302.

Hab.: Islands of the Gulf of Carpentaria, *R. Brown*; Cape York, *M'Gillivray, Darnley*; Rockingham Bay, *Dallachy*.

6. **J. suavissimum** (very sweet-scented), *Lindl. in Mitch. Trop. Austr.* 355; *Benth. Fl. Austr.* iv. 297. Stems from a woody branching base erect, about 1ft. high, but occasionally elongated and twining, glabrous as well as the foliage. Leaves on very short petioles, opposite or rarely alternate, simple, linear or linear-lanceolate, acute, 1 to 2in. long. Flowers in terminal cymes

of 8 to 5 or solitary in the upper axils and then on long peduncles. Calyx-teeth subulate; longer than the tube. Corolla-tube 3 to 4 lines long; lobes 5 to 7, very acute, and usually as long as the tube. Berry small, sometimes didymous.—F. v. M. *Fragm.* i. 183; *J. dianthifolium*, Vis. Pl. Hort. Patav. 1858, 7.

Hab.: Burnett River, *F. v. Mueller*; Maranoa River, *Mitchell*; Brisbane River, Moreton Bay, *Bidwill*, *C. Stuart*; Warwick, *Beckler*.

7. **J. singuliflorum** (referring to the flowers being solitary in each axil), *Bail. and F. v. M., 1st Suppl. Syn. Ql. Fl.* 38. A pubescent or villous climber, slender, but often covering the surrounding bushes to the height of 8 or 10ft. Leaves opposite, 3-foliolate; petioles about 3 lines long; lateral leaflets nearly orbicular, 4 to 6 lines diameter, on petiolules of about 1 line; terminal leaflet broadly ovate or nearly orbiculate, about 1 or 1½ in. long and prominently apiculate; veins few, impressed above and prominently raised beneath; petiolule about as long as the petiole. Flowers white, solitary, with very short lobes to corolla, often in each axil. Pedicels slender, about 4 lines long, with 2 minute bracts near the base. Calyx about 1 line long, with small teeth. Corolla-tube cylindrical, 3 lines long, with about 6 triangular imbricate lobes. Berry shiny-black, of 2 distinct carpels from 3 to 4 lines diameter, each containing 2 hemispherical seeds, or 1 carpel smaller with a solitary globose seed.

Hab.: Nerang Creek.

2. LINOCIERA, Swartz.

(After Geoffroi Linocier, M.D.)

(*Chionanthus*, Linn.)

Calyx small, 4-lobed. Corolla of 4 narrow, small or elongated petals, quite distinct or slightly connected at the base, induplicate-valvate in the bud. Ovules 2 in each cell of the ovary, pendulous. Style short. Fruit a drupe. Seed usually solitary, without albumen; cotyledons thick and fleshy, sometimes slightly ruminant.—Trees or shrubs. Leaves opposite, entire. Flowers in axillary panicles rarely reduced to sessile clusters.

The genus is dispersed over the warmer regions of both the New and the Old World. Of the 3 Queensland species, one appears to be the same as a common one in the Indian Archipelago, the two others, closely allied to it, are endemic.

- | | |
|--|-----------------------------|
| Flowers white, more or less pedicellate in loose trichotomous panicles | 1. <i>L. ramiflora</i> . |
| Flowers greenish, sessile or nearly so in clusters arranged in thyrsoid or trichotomous panicles | 2. <i>L. picrophyloia</i> . |
| Flowers yellow, sessile in a single sessile axillary cluster | 3. <i>L. axillaris</i> . |

1. **L. ramiflora** (the flowers upon the branches), *DC. Prod.* viii. 297. A glabrous tree, attaining a considerable size, but flowering when still a shrub. Leaves broadly elliptical-oblong, shortly and obtusely acuminate, narrowed into the petiole, penniveined and studded over with minute dots, 6 to 9 in. long or even more on barren shoots. Panicles axillary or below the leaves, trichotomous, much and divaricately branched but shorter than the leaves, the ultimate pedicels 1 to 2 lines long and often clustered. Calyx about ½ line long. Petals oblong-linear, 1½ line long, connected in pairs by the stamens. Fruit ovoid, often ½ in. long.—Wight. *Ic. t.* 734; *Prod.* viii. 297; *Chionanthus effusiflora*, or *Linoceira effusiflora*, F. v. M. *Fragm.* iv. 83; *Chionanthus ramiflora*, Roxb. *Fl. Ind.* i. 107; *Benth. Fl. Austr.* iv. 301.

Hab.: Cape York, *M'Gillivray*, *W. Hill*; Rockingham Bay and ranges near Rockhampton, *Dallachy*; Crocodile Creek, *Bowman*.

The species was first described from the Molluccas.

2. **L. picrophloia** (bitter bark), *F. v. M. Fragm.* iii. 139 t. 24. A tree of considerable height, quite glabrous. Bark rough, dirty white. Leaves obovate-oblong, elliptical-oblong or broadly lanceolate, obtuse or acuminate, narrowed into a rather long petiole, 3 to 6in. long. Flowers sessile in almost globular clusters, forming thyrsoid panicles shorter than the leaves, and the individual flowers rather larger than in *L. ramiflora*. Fruit ovoid-oblong, attaining lin. in length; *Chionanthus picrophloia*, *F. v. M. Fragm.* iii. 139 t. 24; *Benth. Fl. Austr.* iv. 301.

Hab.: Rockhampton, *Thozet*.

3. **L. axillaris** (flowers axillary), *F. v. M. in Cens. Austr. Pl. as a Mayepea*. A glabrous tree of about 40ft., the branches whitish. Leaves shortly petiolate, oblong-elliptical, shortly acuminate, 3 to 4in. long, distantly penniveined. Flowers small in dense sessile simple axillary spikes not above $\frac{1}{2}$ in. long, the rachis pubescent as well as the minute broad ciliate bracts. Pedicels 1 to 2 lines long. Calyx-lobes minute. Petals glabrous, very narrow, about 1 to 2 lines long. Fruit small, but not seen ripe.—*Chionanthus axillaris*, *R. Br. Prod.* 523; *DC. Prod.* viii. 295; *Benth. Fl. Austr.* iv. 301; *C. acuminigera*, *F. v. M. Fragm.* viii. 42.

Hab.: Endeavour River, *Banks and Solander*.

3. NOTELÆA, Vent.

(From *notos*, the south, and *elaia*, an olive.)

Calyx small, 4-toothed. Corolla small, of 4 petals, quite distinct or connected in pairs by means of the stamens, induplicate-valvate in the bud. Ovules 2 in each cell of the ovary, pendulous. Style short. Fruit a drupe. Seed solitary; albumen copious, fleshy or almost cartilaginous, more or less ruminant.—Trees or shrubs. Leaves opposite, entire. Flowers small, in short simple axillary racemes, sometimes reduced to sessile clusters.

The genus is limited to Australia. The species are all very closely allied to each other, scarcely differing except in the uncertain character derived from the venation of the leaves and the size of the fruit, which is very difficult to judge of from dried specimens.—*Benth.*

Leaves with prominent anastomosing or reticulate veins, at least on the upper side.

Leaves ovate or ovate-lanceolate, rounded or cordate at the base or very shortly tapering into a short petiole 1. *N. ovata*.

Leaves narrowed into a petiole, usually rather long.

Leaves mostly broadly lanceolate.

Leaves reticulate on both sides. Fruit above $\frac{1}{2}$ in. diameter 2. *N. longifolia*.

Leaves scarcely reticulate underneath, but copiously dotted. Fruit small 3. *N. punctata*.

Leaves narrow-lanceolate; veins very oblique and prominent above, scarcely conspicuous underneath. Fruit about $\frac{1}{2}$ in. diameter when ripe 4. *N. microcarpa*.

Leaves thick, smooth, very obscurely or not at all veined, linear or scarcely linear-lanceolate, with thickened nerve-like margins 5. *N. linearis*.

1. **N. ovata** (leaves ovate), *R. Br. Prod.* 524; *Benth. Fl. Austr.* iv. 299. Generally a small shrub but said to attain the height of 15ft. Glabrous or pubescent. Leaves very shortly petiolate, ovate or broadly ovate-lanceolate, obtuse or acute, cordate broadly rounded or very shortly contracted at the base, coriaceous, much reticulate and more regularly so than in *N. longifolia*, $1\frac{1}{2}$ to 2in. long. Racemes short and few-flowered, but usually pedunculate and most frequently inserted rather above the axils. Pedicels short. Flowers and fruit of *N. longifolia*.

Hab.: Eight-mile Plains.

2. **N. longifolia** (long-leaved), *Vent. Choix. t. 25*; *Benth. Fl. Austr. iv. 299*. A tall shrub or small slender tree, the branches and under side of the leaves in the typical form or rarely both sides of the leaves pubescent with short hairs, sometimes soft and dense, sometimes scarcely visible without a lens or the whole plant quite glabrous. Leaves ovate-lanceolate or lanceolate, acute or acuminate, tapering into a petiole often rather long, coriaceous but sometimes thin, prominently and irregularly reticulate on both sides, 2 to 6in. long. Flowers small, in axillary racemes rarely 1in. long, and flowering usually from near the base. Pedicels at first nearly as long as the flowers, much longer when in fruit. Calyx exceedingly small, obscurely toothed, opening flat. Petals scarcely 1 line long, broad, concave. Anthers large, almost sessile. Fruit ovoid or globular, said to be about $\frac{1}{2}$ in. diameter when fresh, of a dark-bluish colour with a very succulent mesocarp and hard endocarp.—*R. Br. Prod. 523*; *DC. Prod. viii. 291*; *N. reticulata*, *DC. l.c.*; *Olea apetala*, *Andr. Bot. Rep. t. 316*, not of *Vahl.*; *N. ovata*, *Endl. Iconogr. t. 55*, not of *R. Br.*; *N. venosa*, *F. v. M. in Trans. Vict. Inst. 1855, 131*; and in *Hook. Kew Journ. viii. 163*; *N. rigida*, *Sieb. Pl. Exs.*

Hab.: Brisbane River, Moreton Bay, *A. Cunningham*, *Fraser*, *F. v. Mueller*; Rockingham Bay, *Dallachy*. A very common tree in the colony.

Wood of a light colour, hard, tough, and close-grained.—*Bailey's Cat. Ql. Woods No. 273.*

3. **N. punctata** (leaves dotted), *R. Br. Prod. 524*; *Benth. Fl. Austr. iv. 300*. Very near the glabrous form of *N. longifolia*. Leaves oblong-lanceolate, 2 to 3in. long, tapering into a rather long petiole, reticulate above as in *N. longifolia*, but the under surface scarcely showing any veins and densely covered with small raised dots. Flowers of *N. longifolia*. Fruit ovoid, much smaller than in that species, and scarcely larger than in *N. microcarpa*.—*DC. Prod. viii. 291*.

Hab.: Shoalwater Bay, *R. Brown*; Rockingham Bay, *Dallachy*.

4. **N. microcarpa** (small-fruited), *R. Br. Prod. 524*; *Benth. Fl. Austr. iv. 300*. A small tree with slender branches, glabrous, but the young parts often whitish. Leaves narrow-lanceolate, acuminate, tapering into a short petiole, 2 to sometimes 7in. long, the veins prominent on the upper side, the primary ones very oblique and some of them nearly parallel to the margin, anastomosing with the irregular netted veinlets, all scarcely conspicuous on the under side. Raceme short and often dense, sessile in the axils. Flowers very small. Fruit usually globular and under $\frac{1}{2}$ in. diameter.

Hab.: Broadsound, *R. Brown*; Wide Bay, woods of the Paris Exhibition, 1855, n. 82, *C. Moore*; Castle Creek, *Bowman*; Rockhampton, *Thozet*; Gilbert River, *R. Daintree*.

Wood of a light colour, dark towards the centre; close-grained and very hard.—*Bailey's Cat. Ql. Woods No. 274.*

5. **N. linearis** (leaves linear), *Benth. Fl. Austr. iv. 300*. An erect bushy shrub of 3 to 5ft., quite glabrous, the young branches not at all white. Leaves linear or very narrowly linear-lanceolate, acute, tapering into a very short petiole, 1 to 2in. long, thick and smooth, with thickened nerve-like margins, the veins quite inconspicuous on both sides. Flowers small in short sessile racemes. Fruit as small as in *N. microcarpa*.

Hab.: Inland southern localities.

4. OLEA, Linn.

(From the Greek name of the Olive.)

Calyx short, 4-toothed. Corolla with a short tube and 4 lobes, slightly imbricate or valvate in the bud, rarely (in species not Australian) wanting. Ovules 2 in each cell of the ovary, pendulous. Style short. Fruit a drupe,

the endocarp usually hard. Seed solitary or rarely 2; albumen copious, fleshy. —Trees or rarely shrubs. Leaves opposite, entire. Flowers small, in axillary panicles or clusters, rarely also terminal.

The genus is widely dispersed over the warmer regions of the Old World, with one North American species. The only Australian species, with the inflorescence less exclusively axillary than in most others, extends only to New Caledonia.—*Benth.*

1. ***O. paniculata*** (flowers in panicles), *R. Br. Prod.* 523; *Benth. Fl. Austr.* iv. 297. A tree of moderate size, quite glabrous. Leaves on rather long petioles, ovate-lanceolate or elliptical, acuminate, 2 to 3 or rarely 4 in. long, pinniveined underneath but not conspicuously reticulate. Flowers small, all pedicellate in loose trichotomous panicles, terminal or more frequently in the upper axils, and sometimes exceeding the leaves. Calyx scarcely 1 line diameter. Corolla-tube short and broad, the lobes rather above 1 line diameter. Anthers as long as the corolla, on very short broad filaments. Style very short; stigma either broad, thick, and shortly 2-lobed, or clavate and unilateral. Drupe ovoid, resembling that of the common olive.—*DC. Prod.* viii. 287.

Hab.: Keppel Bay, *R. Brown*; Brisbane River, Moreton Bay, *Fraser, F. v. Mueller*; Rockhampton, *Thozet*; Rockingham Bay, *Dallachy*; Evelyn, Herberton, *J. F. Bailey*.

The species is also in New Caledonia (*Deplanche, n. 70*). The panicles are often apparently terminal, but even then there are generally two peduncles, with the terminal shoot ultimately growing out between them.—*Benth.*

Wood whitish, darkening towards the centre; prettily figured, hard, close-grained, and when newly cut of a rose-like fragrance.—*Bailey's Cat. Ql. Woods No. 275.*

5. LIGUSTRUM, Linn.

(From *ligare*, to tie; branches of some species flexible.)

Calyx small, 4-toothed. Corolla with a short tube and 4 lobes, valvate or slightly imbricate in the bud. Ovules 2 in each cell of the ovary, pendulous. Style short. Fruit a berry. Seeds 4 or fewer; albumen copious, fleshy or almost cartilaginous.—Shrubs or rarely trees. Leaves opposite, entire. Flowers white, rather small, in terminal trichotomous panicles.

The genus is spread over the temperate and mountain-tropical regions of Asia and Europe. The only Australian species is endemic, but very closely allied to two of the East Asiatic ones. As a genus, *Ligustrum* is only to be distinguished from *Olea* by the endocarp, scarcely or not at all hardened, and generally by the inflorescence.—*Benth.*

1. ***L. australicum*** (Australian), *F. r. M. Fragm.* v. 20; *Benth. Fl. Austr.* iv. 298. A shrub of several feet, glabrous except the minutely pubescent inflorescence. Leaves shortly petiolate, ovate or ovate-lanceolate, obtusely acuminate, evergreen and smooth on both sides, without prominent veins, 1½ to 3 in. long. Flowers small and very numerous, in a broad pyramidal terminal panicle. Pedicels short. Calyx truncate. Corolla-tube exceedingly short; lobes about 1 line long. Filaments about half as long as the corolla. Style short, cylindrical, with a clavate stigma. Fruit unknown.

Hab.: Dalrymple Gap, Rockingham Bay, *Dallachy*.

Very nearly allied to *L. lucidum*, a Chinese species much cultivated in European gardens, but the flowers appear to be considerably smaller. The several evergreen species of *Ligustrum* require, however, a careful revision, and may prove to be nearly all varieties of one species having a wide range in Eastern Asia.—*Benth.*

ORDER LXXIX. APOCYNACEÆ.

Flowers regular. Calyx free, divided nearly or quite to the base into 5 segments or sepals imbricate in the bud, bearing occasionally small glands or scales inside at the base. Corolla regular, with 5 spreading lobes, contorted-imbricate or rarely valvate in the bud, the throat sometimes closed with a corona of scales, and frequently hairy. Stamens 5, inserted in the tube, alternating with the corolla-lobes; anthers erect, turned inwards, 2-celled,

the cells opening in longitudinal slits, either free and enclosed in a part of the tube usually swollen, or sometimes exerted and connate or connivent in a cone or ring round the style; the pollen not collected in masses but the auricles at the base of the anthers or the tips occasionally without pollen. Ovary of 2 carpels usually distinct, sometimes united in a 2-celled ovary with axile placentas or in a 1-celled ovary with 2 parietal placentas; ovules several, few or numerous in 2 or more rows. Style single or styles 2, distinct at the base but united upwards; stigma usually thickened, mitriform membranous or bulbous at the base, terminating in a short entire or bifid point. Fruit either a single drupe or berry, or more frequently each carpel forms a follicle opening along the inner edge or a drupe or berry. Seeds pendulous or rarely ascending or peltately attached, often bearing a coma or tuft of long hairs, usually albuminous; embryo straight, with flat or rarely convolute cotyledons.—Trees, shrubs, or twiners or very rarely perennial herbs, the juice frequently milky. Leaves opposite or whorled, very rarely alternate, entire, without any or with small almost gland-like intrapetiolar or interpetiolar stipules. Flowers usually cymose, on simple or compound and paniculate peduncles, axillary or terminal. Bracts at the base of the branches of the inflorescence and of the pedicels usually very small, rarely larger, coloured and deciduous; bracteoles on the pedicels none or very rare and small.

The Order is abundantly represented in the tropical and subtropical regions of the New and the Old World, with a very few species in the more temperate districts of the northern and southern hemispheres, but does not extend to arctic or high alpine regions. The Order is closely allied to *Asclepiadeæ*, differing chiefly in the indefinite free pollen-granules.—*Benth.*

TRIBE I. Carisseeæ.—*Anthers included, free from the stigma; cells rounded at the base. Ovary of 2 wholly combined carpels, 1 or 2-celled. Fruit large, usually fleshy or pulpy within. Seeds without wing or pencil of hairs. Corolla-lobes overlapping to the left in all.*

- Ovary 1-celled with 2 parietal placentas. Tall woody climbers. Fruit a berry. Seeds albuminous 1. CHILOCARPUS.
 Ovary 2-celled, with axile placentas. Fruit a berry or drupe.
 Throat of the corolla with a corona of scales sometimes united in a ring. Tall woody climbers 2. MELODINUS.
 No corona. Erect trees or shrubs, often spinous 3. CARISSA.

TRIBE II. Plumericeæ.—*Anthers included, free from the stigma; cells rounded at the base. Ovary of 2 distinct carpels united by the style. Fruit various. Seeds peltate. Corolla-lobes overlapping to the left in Ochrosia.*

- Placentas almost dividing each carpel into 2 cells. Leaves long alternate or crowded. Bracts large, deciduous. Flowers large 5. CERBERA.
 Placentas scarcely prominent. Leaves mostly whorled. Bracts small. Drupes small, 1-seeded or of 2 or more 1-seeded articles, the endocarp not thick 4. ALYXIA.
 Drupes rather large, the endocarp of 2 bony longitudinal parallel lobes hollow inside, with 1 or 2 flat seeds between them 6. OCHROSIA.
 Ovules 2-seriate. Disk of 2 scales. Seeds truncate at both ends 7. *VINCA.
 Ovules numerous. Fruit follicular, dehiscent or without any hardened endocarp.
 Follicles long and linear, dehiscent. Seeds bordered by hairs, very long at one or both ends. Erect trees or shrubs. Leaves whorled or opposite 8. ALSTONIA.
 Follicles short, usually pulpy and scarcely dehiscent. Seeds without hairs. Erect trees or shrubs. Leaves opposite 9. TABERNÆMONTANA.

TRIBE III. Echitideæ.—*Anthers included or exerted, conniving in a cone around the top of the style and adherent to it by a point on the connective; cells produced downwards into a subulate empty spur. Ovary of 2 distinct carpels united by the style. Fruit of 2 follicles. Seeds comose at one or both ends.*

- Throat of the corolla with a corona of scales sometimes united in a ring.
 Carpels distinct or nearly so. Coma at the end furthest from the hilum 12. WRIGHTIA.
 No corona. Carpels united in a 2-celled ovary. Coma at the hilum.
 Corolla-lobes valvate in the bud 10. LYONSIA.
 Corolla-lobes imbricate in the bud 11. PARSONSIA.
 Follicles long and linear, dehiscent. Seeds with a coma at the hilum.
 Tall woody climber. Leaves opposite 13. ICHNOCARPUS.

1. CHILOCARPUS, Blume.

(From *chilos*, fodder, and *karpos*, fruit; fruit eaten.)

Calyx without glands. Corolla-tube cylindrical, slightly swollen round the anthers; lobes spreading, without scales at the throat, contorted in the bud. Anthers lanceolate, included in the tube. Ovary single, 1-celled, with 2 parietal placentas and numerous ovules. Style single with a thickened mitriform stigma. Berry ovoid, indehiscent. Seeds numerous, very rugose, without hairs; albumen copious; cotyledons cordate-ovate, flat.—Tall woody climber. Leaves opposite. Flowers small in nearly sessile axillary cymes.

Besides the Australian species, which is endemic, there are two or three from the Indian Archipelago and Malayan Peninsula.

1. **C. australis** (Australian), *F. v. M. Fragm.* ii. 90; *Benth. Fl. Austr.* iv. 303. "Paimara," Tully River, *Roth*; "Wongali," Barron River, *Cowley*. A tall woody climber, quite glabrous. Leaves elliptical-oblong, shortly acuminate, sessile and rounded at the base or narrowed into a short petiole, penniveined, the veins more distant and less regular than in the Javanese species, 2 to 4 in. long. Peduncles axillary, very short, with about 5 flowers, or the flowers more numerous in almost sessile cymes. Bracts minute. Calyx-segments about $\frac{1}{2}$ line long, orbicular, very obtuse, slightly fringed. Corolla yellow, the tube slender, about 2 lines long, the lobes very broad, about 1 line long, oblique or slightly auriculate at the base on the inner angle, the left-hand edge overlapping in the bud. Anthers in the middle of the tube. Fruit about 2 in. long. Seeds enveloped in the pulp, ovate, compressed, about 3 lines long, very rugose; albumen much ruminant; embryo excentric.—*Melodinus chilocarpoides*, *F. v. M. Fragm.* vi. 118.

Hab.: Rockingham Bay, *Dallachy*; Rockhampton, *Thozet*; Crocodile Creek, *Bowman*; not uncommon both north and south. Fruit eaten by natives.

2. MELODINUS, Forst.

(Referring to supposed apple-like fruit and climbing stems.)

Calyx without any or with very few small glands. Corolla-tube cylindrical, slightly swollen round the anthers; lobes spreading, contorted in the bud; throat with 5 or 10 small erect scales, either free or united in a ring or cup. Anthers oblong or lanceolate, included in the corolla-tube. Ovary single, 2-celled; ovules numerous; style filiform, with a thickened conical stigma. Fruit ovoid or globular, succulent, indehiscent. Seeds (where known) without hairs, albuminous.—Tall woody climbers. Leaves opposite. Flowers in terminal or axillary cymes, rarely reduced to very few or single flowers. Bracts very small.

A small genus, extending over tropical Asia and the islands of the South Pacific.

Pubescent. Peduncles solitary, 3-flowered. Corolla-lobes shorter than the tube	1. <i>M. acutiflorus</i> .
Glabrous. Peduncles usually 2 in each axil, 1-flowered. Corolla-lobes as long as the tube	2. <i>M. Guilfoylei</i> .
Pubescent. Fruit 3 in. long	3. <i>M. Murpe</i> .

1. **M. acutiflorus** (acute flowers), *F. v. M. in Trans. Phil. Soc. Vict.* ii. 71; *Benth. Fl. Austr.* iv. 304. Branches and under side of the leaves softly pubescent. Leaves shortly petiolate, broadly lanceolate or the lower ones almost ovate, obtusely acuminate, glabrous above, penniveined with the principal veins rather distant, 3 to 4 in. long. Peduncles axillary, not much longer than the petioles, 3-flowered, pubescent. Calyx-segments acuminate, rather above 1 line long, with a few small glands inside at the base. Corolla-tube nearly

3 lines long; lobes narrow, acute, about 2 lines long, the upper part of the tube villous inside, the throat-scales irregularly united in an undulate or lobed ring. Anthers in the middle of the tube. Ovary glabrous. Fruit ovoid, pulpy inside, about 1in. long.

Hab.: Brisbane River, Moreton Bay, *W. Hill*; common along the southern creeks.

2. **M. Guilfoylei** (after W. R. Guilfoyle), *F. v. M. Fragm.* vi. 118; *Benth. Fl. Austr.* iv. 304. "Byamurra," Tully River, *J. F. Bailey*. A tall woody climber, quite glabrous. Leaves very shortly petiolate or almost sessile, oblong-lanceolate, acuminate but obtuse, rounded at the base, coriaceous, penniveined, somewhat shining, 2 to 3in. long. Peduncles usually 2 in each axil, slender, 3 to 4 lines long, 1-flowered, but with 2 or 3 pairs of minute bracts. Calyx-segments very acute, about 1 line long, without glands. Corolla-tube $2\frac{1}{2}$ lines long, the lobes at least as long, narrow, acute; throat-scales oblong, distinct. Anthers in the middle of the tube, lanceolate. Ovary glabrous. Fruit globose-oval, $2\frac{1}{4}$ in. long, 2in. diameter. Pericarp 3 lines thick, greenish-yellow when ripe. Seeds black, thick, angular, 4 lines long, 2 lines thick; albumen slightly ruminate.

Hab.: Rockingham Bay, *Dallachy*. Fruit from *L. J. Nugent* (Cairns).

3. **M. murpe** (aboriginal name of fruit), *Bail. Bot. Bull.* x. "Murpe," Russell River, *Hancock*. A pubescent climbing plant. Leaves 3 to $4\frac{1}{2}$ in. long, elliptic-oblong, rounded at the base, the apex elongated or somewhat abruptly acuminate; petioles very short; margins somewhat wavy, midrib and veins very hairy. Fruit on a stout curved peduncle, about 1in. long at or near the ends of the branchlets, oblong, 3in. long, diameter about $2\frac{1}{4}$ in.; pericarp thin, burnt-umber colour and glabrous outside when ripe, the interior spuriously divided into four masses. Seeds imbedded in a very sweet pulp, smooth, dark-brown, about 5 lines long, tapering to one end, triangular with the outer side rounded, attached by the centre, the funicle ramifying and forming the divisions of the fruit; albumen scanty; embryo occupying nearly the whole length of the seed, the radicle longer than the oblong cotyledons.

Hab.: Russell River.

Mr. E. J. Hancock, from whom I received the specimens, says that the fruit is eaten.

3. CARISSA, Linn.

(Supposed to be an Indian name.)

Calyx without glands. Corolla-tube cylindrical, slightly swollen round the anthers; lobes spreading, contorted in the bud, the throat without scales. Anthers oblong or lanceolate, included in the corolla-tube. Ovary single, 2-celled; ovules several in each cell, in 2 rows; style filiform, with a more or less thickened or conical stigma. Fruit ovoid or globular, succulent, indehiscent. Seeds usually 1 or 2, without hairs, albuminous.—Shrubs or trees, often armed with opposite axillary spines. Leaves opposite. Flowers in terminal or axillary cymes. Bracts very small.

The genus is dispersed over tropical and southern Africa, East India, and the Indian Archipelago. The Australian species are endemic.

Leaves 2 to 3in. long, acuminate. Pedicels longer than the calyx 1. *C. laxiflora*.

Leaves on the flowering branches under 2in. Flowers sessile or the pedicels shorter than the calyx.

Leaves ovate rhomboidal or orbicular, those of the smaller branches broadly elliptical.

Glabrous or very slightly pubescent 2. *C. ovata*.

Young leaves densely pubescent, adult ones very scabrous 3. *C. scabra*.

Leaves lanceolate or narrow-elliptical 4. *C. lanceolata*.

1. ***C. laxiflora*** (flowers loose), *Benth. Fl. Austr.* iv. 305. A shrub, the branches looser than in the other species, quite glabrous, our specimens without spines. Leaves on very short petioles, broadly ovate to ovate-lanceolate, acute, smooth and shining above, with few distant arcuate primary veins, 2 to 3 in. long. Flowers in rather loose terminal cymes on 2 simple or 1 forked or 3-fid peduncle, the pedicels 2 to 3 lines long. Calyx-segments narrow, acute, not 1 line long but unequal. Corolla-tube about 4 lines long, the lobes very acute, nearly 2 lines long, the right-hand edge overlapping in the bud. Anthers below the top of the tube, oblong, not apiculate. Ovules several in each cell of the ovary. Fruit not seen.

Hab.: Cape York, *M'Gillivray*.

2. ***C. ovata*** (leaves oval), *R. Br. Prod.* 468; *Benth. Fl. Austr.* iv. 305. "Kunkeberry," Cloncurry, *Palmer*; "Karey," Rockhampton, "Ulorin," Cleveland Bay, *Thozet*. An erect, much-branched shrub of 3 or 4 ft., quite glabrous or rarely the young shoots minutely pubescent, more or less armed with opposite horizontally divaricate simple or rarely forked spines, which appear to be abortive peduncles. Leaves ovate rhomboidal or almost orbicular, obtuse or shortly acute, coriaceous, penniveined but the lower veins sometimes very near the base, usually $\frac{1}{2}$ to $\frac{3}{4}$ in. long on the flowering branches, but sometimes twice that size, especially on sterile branches. Flowers in small compact sessile or shortly pedunculate axillary cymes. Calyx-segments lanceolate-subulate, about 1 line long or the inner ones smaller. Corolla-tube nearly 4 lines long, the lobes scarcely $1\frac{1}{2}$ line, obliquely ovate or oblong, obtuse or scarcely acute, the right-hand edges overlapping in the bud. Anthers above the middle of the tube, minutely apiculate. Fruit ovoid, usually 1-seeded, $\frac{1}{2}$ to $\frac{3}{4}$ in. long.—*A. DC. Prod.* viii. 334.

Hab.: Thirsty Sound, *R. Brown*; Brisbane River, Moreton Bay, *A. Cunningham*, *F. v. Mueller*, and many others; Rockhampton, *Dallachy* and others; Port Nelson, *A. Cunningham*; Fitzroy and Bowen Rivers, *Bowman*; Port Denison, *Fitzalan*, *Dallachy*.

Fruit gathered in quantities and eaten raw, *Palmer*.

Wood close-grained, light-coloured.—*Bailey's Cat. Ql. Woods* No. 276.

Var. *stolonifera*, *Bail. Bot. Bull.* ix. Referred to in *Dr. Thos. L. Bancroft's* paper in *Proc. Roy. Soc.*, June, 1894. This form is of a dwarf spreading habit; the branches, bending down, take root when they touch the soil, and form fresh plants; thus one plant will soon cover with a low bushy growth a large space. The stems are more slender and the leaves smaller than in the coastal or normal form. Another and more remarkable distinction is, that while the normal form *Dr. Bancroft* found to contain little or no poisonous properties, the bark of this inland plant he found to possess an exceedingly bitter poisonous principle. Hab.: Near Dalby, *Dr. Thos. L. Bancroft*.

3. ***C. scabra*** (leaves rough), *R. Br. Prod.* 468; *Benth. Fl. Austr.* iv. 305. A spinous shrub, with the habit of *C. ovata*, but the branches and young leaves densely pubescent. Leaves ovate, mucronate, with revolute margins, shining but very scabrous on both sides with minute tubercles the bases of the old hairs, $\frac{1}{2}$ to $\frac{3}{4}$ in. long. Flowers in terminal or rarely axillary sessile clusters. Calyx-segments more subulate and corolla rather longer than in *C. ovata*, but otherwise the same.—*A. DC. Prod.* viii. 334.

Hab.: Prince of Wales Island, *R. Brown*.

4. ***C. lanceolata*** (leaves lance-shaped), *R. Br. Prod.* 468; *Benth. Fl. Austr.* iv. 306. An erect, divaricately-branched glabrous shrub. Leaves lanceolate or elliptical, acute or rarely obtuse, narrowed into a short petiole, very obliquely penniveined, from under lin. to about $1\frac{1}{2}$ in. long. Flowers in small compact sessile or very shortly pedunculate cymes, mostly terminating short leafy

branchlets. Calyx-segments more subulate, and corolla-lobes narrower, longer, and more acute than in *C. orata*, but otherwise the same. Berry ovoid, about 3 lines long, with 1 or 2 smooth or scarcely wrinkled seeds.

Hab.: Islands of the Gulf of Carpentaria, *R. Brown*; Suttor River, *Bowman*; Flinders River, *Sutherland*.

This is used by the natives as a poultice for sores, the leaves being beaten up into a pulp and applied to the part affected.—Flinders River, *C. F. Plant*.

Wood hard, dark-brown colour.—*Bailey's Cat. Ql. Woods No. 276a*.

4. ALYXIA, R. Br.

(Form *alysis*, a chain; form of fruit.)

Calyx without glands. Corolla-tube cylindrical, slightly swollen round the anthers, the lobes spreading, contorted in the bud, the throat without scales. Anthers enclosed in the tube. Ovary of 2 distinct carpels, united by a single style, with a capitate or oblong stigma; ovules few (about 4 to 6) in each carpel, in 2 rows. Fruit of 1 or 2 distinct drupes or berries, either ovoid or oblong and 1-seeded or each consisting of 2 or rarely more ovoid or oblong 1-seeded articles placed end to end. Seeds furrowed or concave on the inner face, albuminous, without hairs.—Shrubs usually glabrous. Leaves in whorls of 3 or 4, or rarely opposite. Flowers in small heads or clusters, or in short spikes or spike-like panicles, terminal or axillary, sessile or shortly pedunculate. Bracts very small.

A small genus, extending over the islands of the Pacific and into southern Asia. The Australian species are all endemic.

Flowers in terminal sessile heads or clusters. Leaves acute, mostly pungent, marked above with parallel veins.

Veins of the leaves oblique and very prominent. Corolla-tube under 3 lines long 1. *A. ruscifolia*.

Veins of the leaves transverse, numerous, and fine. Corolla-tube fully 4 lines long 2. *A. ilicifolia*.

Inflorescence axillary, shortly pedunculate.

Peduncles bearing each a simple head or cyme of 3 to 7 flowers 3. *A. obtusifolia*.

Peduncles simple or branching at the base, the flowers singly sessile along the rhachis. Corolla-tube scarcely exceeding the calyx 4. *A. spicata*.

Peduncles bearing clusters of flowers sessile or pedunculate along the rhachis. Corolla-tube twice or three times as long as the calyx 5. *A. thyrsiflora*.

Peduncles bearing umbels of 3 flowers. Corolla-tube twice or three times as long as the calyx 6. *A. Thozetii*.

1. ***A. ruscifolia*** (Ruscus-leaved), *R. Br. Prod.* 470; *Benth. Fl. Austr.* iv. 308. "Moonya," *Bundaberg, Keys*. A tall, handsome, glabrous shrub. Leaves in whorls of 4 or rarely of 3 only, from broadly ovate-elliptical to narrow-lanceolate, acute with a short pungent point, contracted into a very short petiole, the margins recurved or revolute, coriaceous and shining, obliquely and prominently veined on the upper side, $\frac{3}{4}$ to $1\frac{1}{2}$ in. long. Flowers small, in sessile terminal heads, and the flowers themselves sessile. Calyx-segments lanceolate, ciliolate, nearly 1 line long. Corolla-tube under 3 lines long, the lobes about half as long, the throat scarcely thickened inside. Ovary surrounded by hairs at the base. Fruits orange-coloured, consisting of 1 or 2 carpels, each with 1 or 2 ovoid-globular articles about 4 lines long. Seed with a wrinkled testa and runcate albumen.—*A. DC. Prod.* viii. 347; *Bot. Mag. t.* 3312; *Lodd. Bot. Cab. t.* 1811; *A. Richardsonii*, *Sweet* in *Loud. Hort. Brit.* 67 (according to *A. DC.*).

Hab.: Sandy Cape, *Harvey's Bay, R. Brown*; Cape Cleveland, Endeavour and Brisbane Rivers, *A. Cunningham*; Burdekin River, *F. v. Mueller*; Curtis Island, *Henne*; Port Denison, *Fitzalan*; Rockhampton, *Dallachy*; Ipswich, *Nernst*.

Wood close-grained, whitish.—*Bailey's Cat. Ql. Woods No. 277*.

Var. *pugioniformis*. Branchlets scabrous, with short stiff hairs. Leaves narrow-lanceolate, 1 to $1\frac{1}{2}$ in. long.—Brisbane River.

Var. *ulicina*. Branchlets angular, scabrous, with short stiff hairs. Leaves $\frac{1}{2}$ to $\frac{3}{4}$ in. long, nearly sessile, tapering towards the sharp pungent point, upper side scabrous and scarcely shining; the whorls scabrous, about $\frac{1}{2}$ to $\frac{3}{4}$ in. apart.—Main range.

2. **A. ilicifolia** (Holly-leaved), *F. v. M. Fragm.* iv. 149, v. 212; *Benth. Fl. Austr.* iv. 308. Very near the broad-leaved form of *A. ruscifolia*, but the leaves are larger ($1\frac{1}{2}$ to 3in. long), the veins more numerous, finer, and transverse, and the recurved margins have occasionally a few small teeth or prickles. Flowers rather larger. Corolla-tube slender, fully 4 lines long; the lobes narrow, nearly 3 lines. Articles of the fruit ovoid, about 4 lines long.

Hab.: Rockingham Bay, *Dallachy*.

3. **A. obtusifolia** (leaves obtuse), *R. Br. Prod.* 470; *Benth. Fl. Austr.* iv. 308. A glabrous shrub. Leaves usually in whorls of 3, obovate or oblong, very obtuse, narrowed into a very short petiole, smooth and shining above, the margins slightly recurved, the veins parallel and fine, but very obscure and not so numerous as in *A. spicata*, mostly 1 to 2in. long. Flowers 3 to 7 together, in little axillary heads or cymes, the common peduncle slender, 2 to 4 lines long, with 3 small bracts under the head, the flowers sessile or on short thick pedicels. Calyx-segments ovate, obtuse, about $\frac{1}{2}$ line long. Corolla-tube twice or three times as long as the calyx, the lobes very broad, fully as long as the tube. Anthers mucronate. Articles of the fruit nearly globular, 3 to 4 lines diameter.—*A. DC. Prod.* viii. 346.

Hab.: Shoalwater Bay and Broadsound, *R. Brown*; Cape Cleveland and Endeavour River, *A. Cunningham*; Curtis Island, *Henne*.

4. **A. spicata** (flowers spicate), *R. Br. Prod.* 470; *Benth. Fl. Austr.* iv. 308. A shrub, glabrous except the inflorescence, the branchlets angular. Leaves in whorls of 3 or rarely 4, oval or elliptical, obtuse, narrowed into a short petiole, smooth and shining above, the margins slightly recurved, the veins numerous, almost parallel, visible especially on the under side, $1\frac{1}{2}$ to $2\frac{1}{2}$ in. long. Flowers small and singly sessile along the simple or rarely branched rhachis of axillary shortly pedunculate spikes, scarcely above $\frac{1}{2}$ in. long, and usually minutely pubescent. Calyx about 1 line long, divided to about the middle. Corolla-tube very shortly exceeding the calyx, the lobes narrow, acute, nearly as long as the tube. Anthers almost acute. Ovary pubescent. Fruit exceeding 4 lines long, the articles usually solitary, varying from globular to ovoid.—*A. DC. Prod.* viii. 346.

Hab.: Islands of the Gulf of Carpentaria, *R. Brown, Henne*; Prince of Wales Islands, *R. Brown*; Albany Island, Cape York, *M'Gillivray*; Rockingham Bay, *Dallachy*.

5. **A. thyrsoiflora** (flowers in a thyrsoid panicle), *Benth. Fl. Austr.* iv. 309. A glabrous shrub. Leaves usually in whorls of 3, obovate or oblong, very obtuse, narrowed into a petiole of 2 or 3 lines, the margins slightly recurved, smooth and shining above, the veins parallel but very obscure and not so numerous as in *A. spicata*. Flowers 3 to 7 together in little heads or clusters, pedicellate or nearly sessile along the rhachis of small axillary thyrsoid or spike-like panicles, the upper ones sometimes singly sessile, all rather smaller than in *A. obtusifolia*. Calyx-segments narrow and acute. Corolla-tube slender, 2 or 3 times as long as the calyx, the lobes ovate, much shorter than the tube. Ovary glabrous. Articles of the fruit 4 to 5 lines long.

Hab.: Endeavour River, *R. Brown, A. Cunningham*; Albany Island, *W. Hill*; Burdekin River and Port Denison, *Fitzalan, Dallachy*; Lizard Island, *A. Cunningham*.

6. **A. Thozetii** (after A. Thozet), *F. v. M. Fragm.* x. 103. A milky glabrous shrub of a few feet, with a balsam scent. Leaves opposite, oblong or lanceolate-linear, chartaceous, mostly from 2 to 3in. long, and 3 to 4 lines broad, veins almost hidden; petioles very short. Peduncles axillary, about 6 lines long, bearing 3-flowered umbels; pedicels 1 to $1\frac{1}{2}$ line long. Flowers small, 4-merous. Calyx about 1 line; segments glabrous, acute. Corolla 2 to 3

lines long, the tube pilose about the anthers, lobes almost rotund. Anthers acuminate. Styles very short and with the ovary glabrous; stigma ellipsoid, acute, nearly glabrous. Fruit black, almost 6 lines long, 1-articulate, 1-seeded. Albumen ruminant.

Hab.: Tropical localities, *A. Thozet* (F. v. M. l.c.)

5. CERBERA, Linn.

(After the dog Cerberus; from its poisonous qualities.)

Calyx without glands. Corolla-tube cylindrical, slightly swollen round the anthers, and the throat usually somewhat dilated, without scales; lobes ovate, spreading, contorted in the bud. Anthers included in the corolla-tube. Ovary of 2 distinct carpels, united by a single style, each carpel incompletely divided by a very prominent placenta bearing 2 superposed ovules on each side; stigma conical, often 2-lobed at the tip. Fruit (from the abortion of one carpel) a single nearly globular drupe, flattened on one side, with a woody endocarp, usually 1-seeded. Seeds without hairs.—Shrubs or small trees. Leaves alternate, crowded on the young branches. Flowers rather large, in terminal cymes or panicles. Bracts large, deciduous.

A genus of very few species, extending over tropical Asia and the islands of the South Pacific. The Australian species is one of the most widely spread.

1. **C. Odollam** (old generic name), *Gærtn.*; *A. DC. Prod.* viii. 353; *Benth. Fl. Austr.* iv. 306. A glabrous, erect, tall, bushy shrub or tree, with thick herbaceous branches. Leaves oblong or lanceolate, acuminate, in some specimens 4 to 6 in. long, in others attaining 1 ft., narrowed into a rather long petiole, the primary veins transverse and parallel. Flowers white with a yellowish throat, sweet-scented, in a dense terminal pedunculate cyme. Bracts coloured, $\frac{1}{2}$ to 1 in. long, very deciduous. Calyx-segments oblong or lanceolate, obtuse or acute, about $\frac{1}{2}$ in. long, deciduous with the bracts. Corolla-tube usually above 1 in. long, but variable in length; lobes obtuse or shortly acuminate, from less than half as long to nearly as long as the tube.—Wight. *Ic. t.* 441 (with a short corolla-tube); *C. Manghas*, *Bot. Mag.* t. 1845 (with a long corolla-tube); *Odallam*, *Rheede, Hort. Mal.* i. 39.

Hab.: Cape York, *M'Gillivray, W. Hill*; between the Dawson and Mackenzie Rivers, *F. v. Mueller*; Rockingham Bay, *Dallachy*.

Widely distributed over the maritime districts of E. India, the Archipelago, and the Pacific Islands.

Wood of a dark-yellow, close in the grain, and firm.—*Bailey's Cat. Ql. Woods No.* 278.

Var. *Mugfordi*, *Bail. Ql. Agri. Journ.* iii. 282. A small tree or large shrub. Peduncle terminal, often appearing lateral from growth of shoot, 2 to 5 in. long, then once or twice forked; the branches as long as the peduncle. Flowers rather large, white with a red centre, very fragrant. Fruit roundish-oval, somewhat compressed, $2\frac{1}{2}$ in. long, 2 in. broad, purplish-crimson when fully ripe. Hab.: Mourilyan Harbour, near high-water mark, *Wm. Mugford*. I find nothing to separate this plant from what may be called the normal form besides the colour of the fruit, in which respect it differs from all others of the genus except, judging from pl. 2968, *Bot. Mag.*, of *C. Tanghin*, *Hook.*

6. OCHROSIA, Juss.

(From the pale-yellow colour of flowers and timber.)

(*Bleekeria*, afterwards *Lactaria*, *Hassk.*)

Calyx without glands. Corolla-tube cylindrical, slightly swollen round the anthers, the lobes spreading, contorted in the bud, the throat without scales. Anthers enclosed in the tube. Hypogynous disk of minute glands or none. Ovary of 2 distinct carpels united by the style; stigma conical; ovules few

(4 to 6) in each carpel, in 2 rows. Fruit a drupe, usually single by the abortion of the other carpel, somewhat compressed from front to back, the endocarp very thick and bony, divided longitudinally along the inner face into 2 thick, cylindrical, usually hollow portions, the real cell between them containing 1 or rarely 2 broad flat seeds. Albumen fleshy; cotyledons broad and flat; radicle superior.—Trees, with abundant milky juice. Leaves opposite or whorled, the primary veins transverse. Flowers in pedunculate cymes, terminal or in the uppermost axils. Bracts very small.

A small genus, dispersed over the Mascarene and South Sea Islands. Of the 6 Queensland species, all but one are endemic, that one extends to New Caledonia and the Fiji Islands. The floral characters are nearly those of *Alyxia*, but the fruit is very different.—*Benth. (in part)*.

- | | |
|---|---------------------------|
| Leaves in whorls of 3 or 4, obovate-oblong and obtuse. Drupe acuminate, about 2in. long; endocarp even | 1. <i>O. elliptica</i> . |
| Leaves in whorls of 3, or sometimes opposite, ovate-lanceolate, green on both sides. Drupe orange-yellow, ovoid-oblong, 1in. long, apiculate | 2. <i>O. Newelliana</i> . |
| Leaves opposite, oblong-lanceolate and acuminate, pale on the under side obscuring the nerves. Drupe red, ovoid-oblong, acuminate, 1in. long; endocarp smooth | 3. <i>O. Poweri</i> . |
| Leaves opposite, oblong-lanceolate and acuminate. Drupe oblong, flattened, 2½in. long, 1in. broad; endocarp smooth, but sculptured | 4. <i>O. Moorei</i> . |
| Leaves in whorls of 4 or 5, obovate, cuneate. Drupe obtuse-ovate, 2 to 3in. long; endocarp deeply cut into root-like processes | 5. <i>O. Kilméri</i> . |
| Leaves in whorls of 5. Drupe elliptic-oblong, 3in. long, point recurved; endocarp with root-like processes | 6. <i>O. Cowleyi</i> . |

1. ***O. elliptica*** (leaves elliptic), *Labill. Sert. Austr. Caled.* 25 t. 80; *Benth. Fl. Austr.* iv. 310. A tree with a milky juice, quite glabrous. Leaves in whorls of 3 or 4, rarely here and there opposite, from obovate-oblong to broadly elliptical, very obtuse or shortly acuminate, contracted into a petiole, coriaceous, the transverse veins numerous and parallel, 3 to 6in. long, or even more on luxuriant barren shoots. Flowers sessile, in small dense corymbose cymes shortly pedunculate in the uppermost axils. Calyx-segments ovate-oblong, obtuse, very concave, thickened in the middle, about 1 line long. Corolla-tube slender, about 4 lines long, the lobes linear, about 3 lines. Anthers lanceolate, acute. Hypogynous glands scarcely conspicuous. Drupes scarlet, acuminate, 1 to 2in. long, each of the parallel portions of the endocarp about 4 to 5 lines diameter, with a large cavity more or less filled with pith, the real cell very much compressed. Seeds nearly orbicular, bordered by a narrow wing-like margin.—A. DC. Prod. viii. 357; *O. parviflora*, Hensl. in *Ann. Nat. Hist.* (not *Ann. Bot.*) i. 345; A. DC. l.c.; Seem. *Fl. Vit.* 158; *Bleekeria kalocarpa*, Hassk. *Retzia*, i. 40; *Lactaria calocarpa*, Hassk. in *Ned. Kruidk. Arch.* iv. 9; F. v. M. Rep. Burdek. Exped. 15; *Fragn.* iii. 110.

Hab.: Common among the mangroves all along the coast.

Also in New Caledonia and in the Fiji and other islands of the S. Pacific.

2. ***O. Newelliana*** (after J. Newell, M.L.A.), *Bail. Ql. Agri. Journ.* v. A small slender-stemmed glabrous tree. Leaves in whorls of 3, or sometimes opposite at the ends of the branchlets, ovate-lanceolate, gradually tapering from about the middle to a short rather slender petiole, the apex rounded to a somewhat elongated blunt point or on the young smaller leaves sharp point, 2½ to 4½in. long, and from 1 to 2in. broad above the middle, subcoriaceous; lateral nerves parallel, almost horizontal and numerous, distinct, looping and forming an intramarginal one some distance from the edge of leaf, green on both sides. Flowers not seen. Peduncles terminal, 2 or 3 lines long, often recurved, minutely forked and bearing at the end of each fork a sessile flower. Drupes orange-yellow, slightly exceeding 1in. long, and nearly ½in. diameter, solitary on the specimens received, but the 2 flowers being so close together

as if the two drupes were from one flower, oblong-ovoid with a short incurved apex, the base rounded, endocarp spongy, corky, not hard. Seeds linear with broad flat wings.

Hab.: Near Atherton, *J. F. Riley*.

3. **O. Poweri** (after R. D. Power), *Bail. Bot. Bull.* xii. A glabrous small tree or tall shrub, branchlets dichotomous. Leaves opposite, oblong-lanceolate, acuminate, about 4 or 5 in. long, narrowing to a petiole of 2 or 3 lines; apex blunt but more or less elongated, smooth on both sides, the under somewhat paler in colour, midrib broad, transverse veins only faintly visible, although the texture of the leaf is not thick. Flowers in dichotomous cymes terminating the branchlets; primary peduncle very short, often scarcely exceeding 1 line in length; secondary peduncles about $\frac{1}{2}$ in. long, frequently only 1 of these produced, which are again forked or bear 2 or 3 nearly sessile or shortly pedicellate flowers at the end. Bracts and bracteoles minute with scarios margins. Calyx-segments 5 or 6, obtuse, thickened in the centre, the margins transparent. Corolla-tube slender, $3\frac{1}{2}$ lines long; lobes broad, about $2\frac{1}{2}$ lines long. Ovary glabrous. Carpels 2, drupe-like (or 1 by abortion), bright-red, ovoid-oblong, acuminate, nearly terete, 12 or 13 lines long, endocarp nearly smooth. Seed similar in shape to the fruit, flat, about half the length of the fruit, only 1 in the specimen examined.

Hab.: Eumundi; North Coast Railway.

4. **O. Moorei** (after Charles Moore), *F. v. M.; Benth. Fl. Austr.* iv. 310. A slender tree, quite glabrous. Leaves mostly opposite, narrow-oblong or oblong-lanceolate, acuminate, tapering in a short petiole, the transverse veins not near so close and numerous as in *O. elliptica* and the texture thinner, 3 to 6 in. long. Inflorescence in slender dichotomous cymes usually 3 at the ends of the branchlets, probably all three joined at the base but appearing free from the brevity of the common peduncle, then the secondary peduncles may be given as about 8 lines long, once or twice forked-angular, bearing at their extremities a few sessile (except the one in the fork) flowers. Calyx-segments angular, thick and concave, about $1\frac{1}{2}$ line long. Corolla-tube about 4 lines long, scarcely swollen and hairy round the anthers; lobes about 3 lines long. Anthers small, close under the throat. Drupes scarlet, $2\frac{1}{2}$ in. long and 1 in. broad, obtuse and flattened; endocarp smoothly sculptured in pits or wavy lines.

Hab.: Towards the Tweed River, *Hon. C. F. Marks, M.D., M.L.C.*

5. **O. Kilneri** (after F. Kilner), *F. v. M. Fragm.* vii. 129. A tall shady glabrous tree with a bitter bark. Leaves 4 or 5 in a whorl, $2\frac{1}{2}$ to 5 in. long, obovate, cuneate at the base, under side pale-green, lateral nerves widely spreading, veins very thin; petiole about 1 in. long. Panicle wide, trichotomous; pedicels slender. Calyx 5-partite, eglandulous, scarcely exceeding 1 line long; lobes imbricate, outer ones deltoid-ovate, inner ones broad or orbicular-ovate, not keeled on the back. Corolla deeply 5-fid, deciduous, tube scarcely 1 line long, lobes contort-imbricate, 3 lines long. Stamens 5, inserted at the bearded throat of the corolla-tube; filaments very short. Anthers basifixed introrse, $\frac{1}{2}$ line long, oblong, rounded at the base; apex acute, dehiscing in 2 longitudinal slits. Styles 2, very short, free below, united in the upper part. Ovary glabrous. Disk patelliform, very short and entire. Peduncle bearing the fruit at first about $1\frac{1}{2}$ line long, afterwards about 1 in. Drupes ovate, obtuse, without angles, 2 to $3\frac{1}{2}$ in. long. Pericarp of a pretty red and smooth outside. Sarcocarp pulpy, about 2 lines thick. Endocarp deeply cut up into a spiny tuberculose covering.—*O. McDowalliana*, *Bail. Bot. Bull.* vii.

Hab.: Mount Dryander, *Fitzalan and Kilner*.

6. **O. Cowleyi** (after E. Cowley), *Bail. Ql. Agri. Journ.* i. pt. 3. A large shrub or small tree, branches in whorls of 5, the stem more or less swelled about their insertion. Leaves in whorls of 5, oblong-cuneate, shortly acuminate, from 8 to 12in. long and nearly 5in. broad, parallel transverse veins about 20 on each side of the midrib. Flowers on abortive branches which form elongated panicles on the stem at the branch whorls. Calyx-segments imbricate, unequal. Corolla cream-coloured; tube about 4 lines long; lobes about the same length, narrow-falcately curved, auricled at the base. Anthers attached near the top of the corolla-tube. Stigma enclosed in the corolla-tube. Fruit (those observed not ripe) green, elliptic-oblong, 3in. long, with a short recurved or hooked point, the endocarp developing into erect, closely appressed, rootlike processes.

Hab.: Dalrymple Island, from where Mr. E. Cowley brought the plant growing at the Kamerunga State Nursery. The tree is of handsome habit, and worthy of cultivation.

7. *VINCA, Linn.

(Stems of some species used for bands.)

Calyx 5-partite, cylindrical, eglandular, segments narrow. Corolla salver-shaped; tube cylindrical, with usually reflexed hairs below the stamens; throat constricted, hairy or thickened; lobes broad, overlapping to the left. Stamens above the middle of the tube, included; anthers various. Disk of 2 large glands. Carpels 2, distinct; style filiform, top thick; stigma annulate, viscid, sometimes with a reflected membrane, tip minute penicillate. Ovules 6 or more, 2-seriate in each carpel. Follicles 2, slender, erect or spreading. Seeds subcylindrical, truncate at both ends; hilum lateral; albumen fleshy; cotyledons ovate; radicle long, superior.

The species are met with in Europe, India, America, and Madagascar.

1. **V. rosea** (flowers rose coloured), *Linn.*; *DC. Prod.* viii. 382; *Bot. Mag. t.* 248; *Millar, Ic. t.* 186. Periwinkle, or Old Maid Flower. A small erect puberulent shrub. Leaves on short petioles, obovate, oblong, obtuse, cuneate at the base. Flowers 1 to 3, sessile, axillary. Calyx small with 5 setaceous teeth. Corolla hypocrateriform; tube slender, about 1in. long; lobes oblique, obovate. Stigma bearded at the top and furnished with a cup-shaped membrane below. Follicles 2, cylindrical, vertically-striated, about 1in. long with from 15 to 20 seeds in each.

Hab.: South Florida. There are 3 forms or varieties of this plant, differing only in the colour of flower; these G. Don (under the name *Catharanthus*) recorded, var. *roseus*, var. *albus*, var. *occellatus*. All the varieties are naturalised and especially abundant on the sandy coast land within the tropics.

8. ALSTONIA, R. Br.

(After Dr. Alston.)

(*Blaberopus, A. D. C.*)

Calyx without any or with very minute glands. Corolla-tube cylindrical, more or less swollen round the anthers, the lobes spreading, contorted in the bud, the throat without scales. Anthers enclosed in the tube. No hypogynous scales. Ovary of 2 distinct carpels united by the style; stigma ovoid or conical; ovules numerous, in about 4 rows in each carpel. Fruit of 2 long linear follicles. Seeds oblong, compressed, peltately attached, bordered with hairs of which those at each end are usually very long; albumen scanty.—Trees or tall shrubs

with a milky juice. Leaves in whorls of 3 or more, or in a few species opposite. Flowers in terminal corymbose cymes, usually 1 in the axil of each leaf of the terminal whorl. Bracts small.

The species are not numerous, spread over tropical Asia and the Pacific Islands. Of the 5 Queensland species, one is the commonest of the Asiatic ones, another is also in Java, the other three are all probably endemic.

Corolla-lobes with the left-hand margin overlapping. Leaves whorled, with transverse parallel veins.

Flowers sessile or nearly so in dense cymes, pubescent. Ovary villous . . . 1. *A. scholaris*.
Flowers pedicellate in loose cymes, glabrous as well as the ovary . . . 2. *A. verticillosa*.

Corolla-lobes with the right-hand margin overlapping.

Leaves in whorls of 3 or 4, oval elliptical or oblong, softly villous underneath. Veins distant, more or less arcuate and anastomosing . . . 3. *A. villosa*.

Leaves opposite, quite glabrous or softly pubescent. Veins distant . . . 4. *A. constricta*.

Leaves in whorls of 4, 6 to 9 in. long, 2 to 3 in. broad. Follicles 10 to 15 in. long; ciliate hairs of seed longer than the seed itself 5. *A. somersetensis*.

1. ***A. scholaris*** (wood used for school-boards in Burma), *R. Br.*; *A. DC. Prod.* viii. 408; *Benth. Fl. Austr.* iv. 312. "Birra," Forest Hill, *Macartney*; "Koorool," Barron River, *J. F. Bailey*. A very large tree, usually glabrous except the minutely pubescent inflorescence. Leaves in whorls of 5 to 7, broadly petiolate, obovate-oblong, very obtuse, shortly contracted at the base, coriaceous, with transverse parallel veins, smooth, and shining above, opaque and pale or whitish underneath, 4 to 6 in. long. Peduncles in the axils of the terminal whorls shorter than the leaves, each bearing 1 or 2 whorls of secondary peduncles, and each of these a dense cyme of nearly sessile flowers. Calyx-segments ovate, pubescent, rather above 1 line long. Corolla-tube 3 to 4 lines long; lobes pubescent outside, much shorter than the tube, the left-hand edges overlapping in the bud, the throat closed by a dense ring of hairs. Ovary hirsute at the top. Follicles 1 ft. long or even more. Seeds about 3 lines long, the hairs at each end longer than the seed itself.—*Wight, Ic. t. 422*.

Hab.: Port Denison, *Fitzalan*; Edgecombe and Rockingham Bays, *Dallachy*; Broadsound, *Bowman*.

The species is widely spread over tropical Asia and Africa.

The bark of this tree furnishes the drug "Ditain," considered useful in chronic diarrhoea and dysentery.

Wood soft, close-grained, and of light colour. In some localities, split into palings and shingles, but is better adapted for indoor work.—*Bailey's Cat. Ql. Woods No. 280*.

2. ***A. verticillosa*** (leaves in whorls), *F. v. M. Fragm.* vi. 116; *Benth. Fl. Austr.* iv. 313. "Moranggal," Cooktown, *Roth*. A tree of strong growth, attaining sometimes a considerable height, with abundance of milky juice. Leaves in whorls of 4 to 7, long-lanceolate, rather obtuse, narrowed into a petiole of $\frac{1}{4}$ to $\frac{1}{2}$ in. or sometimes very short, pale underneath, the transverse veins parallel and numerous, mostly 3 to 4 in. long but sometimes only 2 in. Peduncles in the axils of the terminal whorls, each bearing 1 or rarely 2 whorls of secondary peduncles and each of these a loose cyme of flowers on pedicels of 1 to 2 lines, all quite glabrous, Calyx-segments broadly ovate, ciliolate, about $\frac{1}{2}$ line long. Corolla-tube above 1 line long, the lobes about half as long as the tube, the left-hand edges overlapping in the bud, the throat hairy inside. Ovary glabrous; ovules rather numerous in each carpel, but less so than in *A. scholaris*. Follicles about 7 in. long. Seeds about 2 lines long and $\frac{3}{4}$ line broad, brown, velvety, the hairs at each end twice as long as the seed itself.—*Alyria actinophylla*, *A. Cunn.* in *Bot. Mag.* under n. 3313; *A. DC. Prod.* viii. 346.

Hab.: Cape York, *Damel*; Albany Island, *W. Hill*; grassy forest land, south shore of Endeavour River, *A. Cunningham*. A common tree of the tropical scrub.

Timber used for making canoes, *Roth*.

Wood of a light colour, soft, and easy to work.—*Bailey's Cat. Ql. Woods No. 281*.

3. **A. villosa** (hairy), *Blume?*; *F. v. M. Fragm.* vi. 117; *Benth. Fl. Austr.* iv. 313. A tall shrub or tree attaining 30ft., the branches and under side of the leaves softly velvety-pubescent. Leaves in whorls of 3, oval-oblong or elliptical, obtuse or obtusely acuminate, the upper surface at length glabrous or minutely pubescent, the primary veins curved and rather distant, prominent underneath, rounded or acute at the base, 4 to 6in. long, on petioles of $\frac{1}{4}$ to $\frac{1}{2}$ in. Peduncles usually solitary and terminal, bearing an umbel of 4 to 8 rays, each with a loose corymbose cyme, the whole inflorescence shorter or longer than the leaves, minutely hoary-pubescent. Calyx-segments about 1 line long, obtuse, the 2 outer ones ovate, the 3 inner usually narrower. Corolla-tube about 2 lines long, the lobes rather shorter, papillose inside as well as the throat but not hairy, the right-hand edges overlapping in the bud. Ovary glabrous. Follicles $\frac{1}{2}$ to 1ft. long. Seeds about 3 lines long, with a short beak at the upper end, the hairs at the two ends about as long as the seed itself.

Hab.: Rockingham Bay and other tropical localities.

Wood of a light colour, close in grain, firm, and would probably suit for staves.—*Bailey's Cat. Ql. Woods* No. 281a.

4. **A. constricta** (top of corolla-tube constricted), *F. v. M. Fragm.* i. 57 iv. 170; *Benth. Fl. Austr.* iv. 314. Quinine-tree; Bitter Bark. "Binert," St. George, *Wedd.* A tall shrub or tree attaining sometimes 40ft., quite glabrous. Leaves opposite, on long petioles, mostly oblong-lanceolate, but varying from almost ovate to narrow-lanceolate, acute or acuminate, the primary veins distant, oblique, and not very prominent, 3 to 5in. long. Flowers numerous, in corymbose cymes, either solitary and terminal or 2 together in the forks of the branches and shorter than the leaves. Calyx-segments ovate, almost acute, about $\frac{1}{2}$ line long, with a few minute and irregular glands at the base inside. Corolla-tube about 1 line long, the lobes about 2 lines long, glabrous or slightly bearded inside at the base, the right-hand edges overlapping in the bud. Follicles from 3 to 4in. to twice that length. Seeds linear, flat or concave, pubescent, 4 to 6 lines long, ciliate with long hairs at the upper end and shorter ones at the lower end.

Hab.: Between the Burnett and Burdekin Rivers, *F. v. Mueller*; Rockhampton, *Dallachy*, *Thozet*; Nerook and Castle Creeks, *Bowman*; Natal Downs, *Fitzalan*; near Mount Pluto, *Mitchell*.

Wood of a pale-yellow; close in grain; warps much in drying.—*Bailey's Cat. Ql. Woods* No. 282.

Var. *mollis*. Whole plant softly tomentose-pubescent; sometimes forming a tree of considerable size.—There is a tall shrub on Mount Maria, Warrego, with narrow leaves, which may be a form of this variety.—Wood white, close-grained, suitable for cabinet-work. *Bailey's Cat. Ql. Woods* No. 282a.

The bark of these trees is a valuable tonic, and largely used in cases of fever. It was first brought into use by the late Dr. Joseph Bancroft.

5. **A. somersetensis** (found at Somerset), *Bail. Ql. Agri. Journ.* i. pt. 3 and pt. 5. A rather large tree. Leaves 6 to 9in. long, 2 to 3in. broad above the middle, in whorls of 4, obovate-lanceolate, shortly acuminate, tapering from above the middle to rather thin petioles of from $\frac{1}{2}$ to 1in., with about 20 parallel transverse veins on either side of a prominent midrib. Flowers white in pedunculate cymes, generally from 6 to 8 at extremities of the branchlets. Peduncles from 1 to 2in. long, angular and hoary pubescent. Cymes trichotomous. Bracts minute, ovate-lanceolate, ciliate. Calyx-segments thick, much imbricate, obtuse, pubescent, the keel prominent, about 1 line long and nearly as broad, without glands inside at the base. Corolla-tube twice as long as the calyx, longitudinally corrugated, tomentose except at the base; lobes rather broad, not quite as long as the tube, densely covered on the face with

white curly hairs, no ring of hairs at the orifice, but a rather broad band of short hairs below where the anthers are attached to the tube. Ovary glabrous. Follicles 10 to 15 in. long. Seeds flat, oblong, covered on both faces with short brown hairs, and ciliate with long bright-brown hairs, which at each end exceed in length that of the seed itself.

Hab.: Near Mr. Jardine's house, Somerset.

This species is probably nearly allied to *A. macrophylla*, Wall., in Hook. Fl. of Brit. Ind.

It is probable this tree might yield a rubber, this material being obtained from other species of the genus, and the present one gives a good flow of milky sap.

9. TABERNÆMONTANA, Linn.

(After James Theodore Tabernamontanus.)

Calyx with a ring of small linear glands inside at the base. Corolla-tube cylindrical, slightly swollen round the anthers, the lobes spreading, contorted in the bud, the throat without scales. Anthers enclosed in the tube. No hypogynous glands or scales. Ovary of 2 distinct carpels, united by the style; stigma thickened, usually with a membranous ring round the base; ovules numerous in each cell, in 3 or 4 rows. Fruit of 2 (or 1 by abortion) obliquely oblong or nearly globular carpels, distinct or rarely united at the base, more or less fleshy or pulpy, either indehiscent or tardily opening along the inner face. Seeds without hairs; albumen fleshy.—Trees or shrubs, the branches often dichotomous. Leaves opposite, one of each pair often smaller than the other. Flowers in axillary cymes, usually 2 at the ends of the branches (in the axils of the terminal pair of leaves) or only in the axil of the smaller leaf. Bracts usually very small.

A considerable genus, spread over the tropical regions of the New as well as the Old World. Of the 2 Australian species, one extends to Timor and to the S. Pacific Islands, the other, if really distinct, appears to be endemic.—*Benth.*

Quite glabrous. Calyx-segments scarcely obtuse 1. *T. orientalis*
Foliage pubescent. Calyx-segments very obtuse 2. *T. pubescens*.

1. ***T. orientalis*** (eastern), *R. Br. Prod.* 468; *Benth. Fl. Austr.* iv. 311. A dichotomously-branched shrub or small tree, quite glabrous. Leaves elliptical-oblong, obtusely acuminate, narrowed into a petiole sometimes very short, more frequently $\frac{1}{4}$ to $\frac{1}{2}$ in. long, distantly penniveined, 2 to 4 in. long or sometimes longer (on the normal or northern plants the leaves are often much larger). Cymes pedunculate, 2 together at the ends or in the forks of the branches, or becoming lateral by the development of only one fork, loose and several-flowered but shorter than the leaves. Pedicels as long as or longer than the calyx. Calyx-segments acuminate or almost obtuse in the northern specimens, about 1 line long, with 2 to 4 minute glands inside at the base of each. Corolla-tube usually 5 to 6 lines long, the lobes at least half as long as the tube, obliquely oval-oblong. Ovary glabrous, on a thick torus. Carpels of the fruit ovoid-falcate, usually about $\frac{1}{2}$ in. long, but variable in size, and more or less prominently 3-angled. Seeds 3 or 4 in each carpel, ovate, deeply furrowed or concave on the inner face.—*A. DC. Prod.* viii. 371.

Hab.: Cape York, *M. Gillivray, Dæmel*; Brisbane River, Moreton Bay, *A. Cunningham and others*. In fruit, September to December.

Wood of a uniform yellow, close-grained.—*Bailey's Cat. Ql. Woods* No. 283.

Leaves sometimes infested with the fungus-blight *Æcidium apocyni*, Sch.

Var. *angustisekala*. Calyx-segments lanceolate, acuminate. Hab.: Towards the Tweed River.

Var. *angustifolia*. Leaves oblong-lanceolate. Calyx-segments very narrow, acuminate. Fruits acuminate, about 1 in. long.—The common form in southern localities,

2. **T. pubescens** (plant pubescent), *R. Br. Prod.* 468; *Benth. Fl. Austr.* iv. 311. A shrub or tree very near to *T. orientalis*, and perhaps a variety only, the branches and both sides of the young leaves softly pubescent, the older leaves becoming glabrous or nearly so on the upper side, the leaves otherwise as in *T. orientalis* or rather larger. Inflorescence of *T. orientalis*, but more or less hairy. Flowers larger. Calyx-lobes about 1 line long, very obtuse, hirsute. Corolla-tube fully $\frac{1}{2}$ in. long, and the lobes more than half the length of the tube. Fruit like that of *T. orientalis* and as variable in size, from $\frac{1}{2}$ to lin. long.—A. DC. *Prod.* viii. 376.

Hab.: Cape York. *M'Gillivray, Dæmel*; Port Denison, *Fitzalan*; Rockingham and Edgcombe Bays, *Dallachy*.

T. ebracteata, *R. Br. Prod.* 468, A. DC. *Prod.* viii. 376, from Groote Island, Gulf of Carpentaria, appears to be a less luxuriant form of the same species, with the leaves more obtuse and from 2 to 4 in. long.—*Benth.*

10. LYONSIA, R. Br.

(After Israel Lyons.)

Calyx with an irregular ring of minute glands inside at the base or with few or none. Corolla-tube cylindrical, often very short; lobes linear or lanceolate, valvate in the bud, bearded inside at the base or along the surface. Stamens inserted at or below the middle of the tube, the filaments short, not twisted or very rarely slightly so; anthers oblong or linear, exserted, cohering in a cone or ring round the stigma, each with 2 rigid basal lobes usually devoid of pollen. Hypogynous scales 5, as long as the ovary, free or more or less connate. Ovary 2-celled, with numerous ovules in each cell; stigma surrounded by a ring or membranous expansion at the base, usually 2-lobed. Fruit elongated, nearly terete, separating more or less completely into 2 follicles, leaving the placentas free, either 1 in each follicle or the two united into one between the open follicles. Seeds with a coma or tuft of long silky hairs at the hilum.—Tall woody or slender climbers. Leaves opposite. Flowers in terminal or axillary corymbose cymes. Bracts small.

The genus is limited to Australia. It is closely allied to *Parsonsia*. Mr. Bentham considered the best distinguishing character was that of the valvate corolla-lobes of *Lyonsia*, more especially pointed out by A. Gray, and almost, if not quite exceptional in *Apocynaceæ*. But even this character he thought deceptive, and must be observed in the bud, for the overlapping in some species of *Parsonsia* is so slight that, from the appearance of the expanded flower, the æstivation has been described as valvate.

- | | |
|---|-------------------------------|
| Corolla-lobes flat, shorter than or scarcely longer than the tube. Slender nearly glabrous plants. Cymes loose, few-flowered, mostly terminal | 1. <i>L. lilacina</i> . |
| Corolla-lobes lanceolate, not above twice as long as the tube. | |
| Glabrous or minutely pubescent. Cymes mostly in terminal panicles. | |
| Leaves lanceolate-elliptical or almost ovate. | |
| Leaves smooth above. Corolla-lobes bearded at the base only. | |
| Follicles thin, 2 to 3 in. long, placentas connate | 2. <i>L. straminea</i> . |
| Leaves reticulate above. Corolla-lobes bearded above the middle. | |
| Follicles hard, 6 to 8 in. long, placentas usually separate | 3. <i>L. reticulata</i> . |
| Rusty-pubescent or villous. Cymes mostly axillary and opposite. | |
| Cymes divaricately-branched, the flowers not crowded. Calyx-segments broad and short | 4. <i>L. Langiana</i> . |
| Flowers crowded in small clusters on the loosely-branched cymes. | |
| Calyx-segments narrow-acute | 5. <i>L. largiflorens</i> . |
| Corolla-lobes linear, 4 or 5 times as long as the tube. Cymes corymbose with numerous flowers. | |
| Inflorescence all terminal. Leaves ovate, membranous | 6. <i>L. latifolia</i> . |
| Inflorescence axillary and terminal. Leaves coriaceous, on long petioles, broadly oblong, obtuse | 7. <i>L. oblongifolia</i> . |
| Inflorescence in one axil. Leaves long-lanceolate, acuminate, on short petioles | 8. <i>L. eucalyptifolia</i> . |

1. **L. lilacina** (flowers lilac), *F. v. M.*; *Benth. Fl. Austr.* iv. 321. A slender twiner, the branches almost filiform, pubescent as well as the inflorescence and often the nerves of the leaves underneath, the foliage otherwise glabrous. Leaves on very short petioles, oval-oblong or lanceolate, usually mucronate, cordate at the base, membranous, the margins often undulate or crisped, 1 to 1½ in. long. Flowers few, in loose terminal almost filiform cymes. Pedicels mostly longer than the calyx. Calyx-segments lanceolate, acute, about $\frac{3}{4}$ line long. Corolla glabrous inside, the tube above 1 line long, the lobes acute, as long as the tube, valvate in the bud. Anthers united in a half-exserted cone. Hypogynous scales lanceolate, as long as the ovary. Fruit separating into membranous follicles of 3 or 4 in., with a placenta in each.—*Parsons's Lilacina*, *F. v. M. Fragm.* vi. 127.

Hab.: Rockhampton, *Dallachy*; Scrubby Creek, *Leichhardt*.

2. **L. straminea** (straw-coloured), *R. Br. Prod.* 466; *Benth. Fl. Austr.* iv. 321. A woody climber, scaling trees to a great height, the pendulous branches rooting when they reach the ground. Leaves shortly petiolate, ovate-lanceolate or lanceolate, often acuminate, glabrous, smooth and shining above, paler underneath, the primary veins oblique and usually prominent underneath, 2 to 3 or sometimes 4 in. long, in loose pedunculate trichotomous cymes or panicles, terminal on the young shoots or axillary on the older ones, minutely pubescent. Calyx-segments narrow, acute, about $\frac{3}{4}$ line long. Corolla-tube about as long as the calyx; lobes lanceolate, acute, about twice as long as the tube, bearded inside at the base with reflexed hairs. Stamens inserted at the base of the corolla-tube; anthers linear, connivent in an exserted cone or cylinder, the basal lobes long and linear. Hypogynous scales large, obtuse. Ovary pubescent. Fruit 2 to 3 in. long, tardily dividing into rather thin follicles, the 2 placentas closely connate by the backs and separating from the follicles in a single plate.—*A. DC. Prod.* viii. 401 (partly); *Hook. f. Fl. Tasm.* i. 270; *F. v. M. Pl. Vict.* t. 58.

Hab.: Mount Perry, *Jas. Keys*.

3. **L. reticulata** (leaves netted-veined), *F. v. M. Rep. Burdek. Exped.* 16; *Benth. Fl. Austr.* iv. 321. An immense woody climber. Leaves petiolate, oblong-elliptical or broadly lanceolate, obtuse acute or acuminate, shining above and pale underneath as in *L. straminea*, but much more prominently veined and reticulate, and usually 3 to 4 in. long. Flowers in terminal corymbose pedunculate cymes or panicles, minutely pubescent as in *L. straminea*. Calyx-segments nearly 1 line long. Corolla about 3 lines long, the lobes scarcely longer than the tube, bearded inside almost to the end. Stamens inserted higher up the tube than in *L. straminea*; anthers united in an exserted cone or cylinder. Hypogynous scales united in a 5-lobed cup. Fruit hard, 6 to 8 in. long, tardily separating into 2 follicles, each one (in some fruits at least) carrying off its own placenta.

Hab.: Keppel Bay, *R. Brown*; Moreton Bay and Port Denison, *Fitzalan*; Rockhampton, *Dallachy*; common on open country throughout the colony.

4. **L. Langiana** (after Thomas Lang), *F. v. M. Fragm.* vi. 128; *Benth. Fl. Austr.* iv. 322. A very tall woody climber, the branches, under side of the leaves, and inflorescence rusty-pubescent. Leaves shortly petiolate, ovate or ovate-lanceolate, acuminate, rounded or somewhat cordate at the base, shining and sprinkled with a few hairs on the upper side, penniveined with transverse reticulations usually conspicuous on the upper surface, mostly 3 to 4 in. long. Flowers small, yellow, pubescent, in very loose divaricately-branched cymes, on axillary peduncles often as long as the leaves. Pedicels rather thick, 1 to 2 lines long. Calyx-segments broad, about $\frac{1}{2}$ line long. Corolla-tube broad,

about 1 line long; lobes about as long as the tube, with a ring of reflexed hairs inside at the base. Anthers nearly as long as the lobes, united in a cone, with short spreading basal lobes. Hypogynous scales truncate. Ovary glabrous. Fruit unknown.—*Parsonsia Langiana*, F. v. M. Fragm. vi. 128.

Hab.: Rockingham Bay, *Dallachy*.

5. ***L. largiflorens*** (flowers large), F. v. M. *Herb.*; *Benth. Fl. Austr.* iv. 322. A tall woody climber, the young shoots and inflorescence minutely rufous-pubescent, the adult leaves nearly glabrous. Leaves petiolate, broadly ovate, acuminate, truncate or cordate at the base, thinly coriaceous, 3 to 5 in. long. Flowers in compact cymes on the branches of loose cymes or umbels, on axillary peduncles, the whole inflorescence sometimes longer than the leaves. Pedicels mostly longer than the calyx. Calyx-segments pubescent, narrow, acuminate, about 1 line long. Corolla pubescent, about 2½ lines long, the lobes lanceolate, not twice as long as the tube, bearded inside at the base. Anthers wholly exerted. Hypogynous scales slightly united at the base. Ovary glabrous. Fruit unknown.

Hab.: Towards the Tweed River, *C. Moore*; Rockingham Bay, *Dallachy*; Barron and other northern localities.

6. ***L. latifolia*** (broad-leaved), *Benth. Fl. Austr.* iv. 323. A tall climber, glabrous except the minutely pubescent inflorescence. Leaves on long petioles, broadly ovate, acuminate, truncate or cordate at the base, membranous, 2½ to 3½ in. long. Flowers numerous, in dense terminal pedunculate cymes, often several inches broad. Calyx-segments short. Corolla-tube exceedingly short; lobes narrow-linear, densely bearded at the base, about 2 lines long. Stamens, hypogynous scales and ovary of *L. eucalyptifolia*. Fruit unknown.

Hab.: Wide Bay, *Bidwill*; Rockingham Bay, *Dallachy*; Brisbane River.

The flowers are those of *L. eucalyptifolia* or rather smaller, but the inflorescence appears to be constantly terminal, and the leaves very different in shape and consistence.—*Benth.*

7. ***L. oblongifolia*** (leaves oblong), *Benth. Fl. Austr.* iv. 323. This is considered by F. v. Mueller as a variety of *L. eucalyptifolia*, of which it has the numerous flowers in broad cymes, with the same very short corolla-tube and long linear lobes, but the inflorescences are generally terminal as well as axillary, and the leaves are very differently shaped, being broadly oblong, very obtuse, 3 to 4 in. long and 1 to 1½ in. broad, on long petioles, and much thicker and more coriaceous than in *L. latifolia*. Fruits (unripe) hard, rather thick, and 2 to 3 in. long, probably twice that size when full grown.

Hab.: Rockhampton, *O'Shanesy*; Scrubby Creek, *Bowman*.

8. ***L. eucalyptifolia*** (Eucalyptus-leaved), F. v. M.; *Benth. Fl. Austr.* iv. 323. "Wedeeley," St. George, *Wedd.* A tall woody climber, minutely pubescent or glabrous. Leaves petiolate, lanceolate or linear-lanceolate, acuminate, often rather thick, the veins scarcely prominent or impressed above, the under surface pale, with rather distant prominent primary veins, 4 to 8 in. long or even more. Cymes axillary, but only in one axil of the pair of leaves, often several inches broad but shorter than the leaves, the flowers numerous. Calyx-segments lanceolate, acute, above 1 line long, but often cohering or united to more than half their length, the tips spreading. Corolla-tube exceedingly short; lobes linear, 2½ to 3 lines long, shortly bearded inside at the base, revolute when open. Filaments slender, pubescent and slightly twisted under the anthers; anthers mucronate-acute, forming a cylinder nearly as long as the corolla, the basal lobes very short. Hypogynous scales narrow. Ovary glabrous. Fruit 2½ in. long, 5 lines broad above the base, tapering to a blunt point; epicarp hard,

thick and irregularly ribbed; separating freely from the endocarp. Seeds 3 lines long, tapering towards each end and wrinkled on the sides. Coma light-brown, hairs about lin. long.—*Parsonsia eucalyptifolia*, F. v. M. Fragm. ii. 159.

Hab.: Brigalow scrub on the Suttor and between the Dawson and Mackenzie Rivers, *F. v. Mueller*; Nercool Creek and Flinders River, *Bowman*; Warwick, *Beckler*.

11. PARSONSIA, R. Br.

(After James Parsons, M.D.)

(Heligme, *Blume*.)

Calyx with an irregular ring of minute glands inside at the base or with few or none. Corolla-tube cylindrical or nearly globular; lobes spreading, contorted in the bud, the edges slightly overlapping, the throat without scales. Stamens inserted at or below the middle of the tube, the filaments often twisted together under the anthers; anthers oblong-lanceolate or linear, wholly or partially exserted, cohering in a cone or ring round the stigma, each with 2 rigid basal lobes usually devoid of pollen. Hypogynous scales 5, as long as the ovary, free or united in a plicate ring. Ovary 2-celled, with numerous ovules in each cell. Stigma surrounded by a ring or membranous expansion at the base, usually 2-lobed. Fruit elongated, nearly terete, separating more or less completely into 2 follicles. Seeds with a coma or tuft of long silky hairs at the hilum.—Tall and woody or slender climbers. Leaves opposite. Flowers in terminal or axillary corymbose cymes. Bracts small.

A small genus, extending over E. India, the Archipelago, the South Pacific Islands, and New Zealand. The Australian species appear all to be endemic. The overlapping of the corolla-lobes is sometimes slight, but is easily observed on the unexpanded bud.—*Benth*.

Corolla-tube cylindrical or ovoid. Anthers without appendages on the back.

Anthers wholly exserted from the corolla-tube.

Cymes terminal or on short axillary branches. Leaves narrow or broad, not cordate, glabrous or tomentose

1. *P. lanceolata*.

Cymes on long axillary peduncles. Leaves broad, usually cordate.

2. *P. velutina*.

Plant usually rusty-pubescent

3. *P. nesophila*.

Anthers nearly as long as the corolla, the basal lobes prominent

4. *P. Leichhardtii*.

Anthers with the tips only protruding. Cymes terminal or on short axillary branches. Plant glabrous or nearly so

5. *P. ventricosa*.

Corolla-tube nearly globular. Anthers with a prominent longitudinal appendage or wing on the back

1. ***P. lanceolata*** (leaves lanceolate), *R. Br. Prod.* 466; *Benth. Fl. Austr.* iv. 318. A tall woody climber, glabrous or the young branches under side of the leaves and inflorescence shortly pubescent or rarely tomentose-pubescent all over, often but not always glaucous and not rust-coloured. Leaves shortly petiolate, elliptical-oblong or lanceolate, more rarely oval or almost orbicular, obtuse mucronate or shortly acuminate, not cordate, the margins usually recurved, the veins scarcely conspicuous on the upper side, pale or light-brown and penniveined underneath, mostly 2 to 3 in. long. Cymes usually compact, terminal or on short axillary branches. Calyx-segments unequal, from under 1 line to above 1½ line long. Corolla-tube shorter than the calyx, slightly constricted at the attachment of the stamens; lobes about 2 lines long. Filaments spirally twisted under the anthers; anthers wholly exserted, linear, without dorsal appendages. Fruit 3 to 5 in. long, dividing into rather thin follicles. Seeds attenuate into a short beak at the hilum, with a silky tuft of ½ to ¾ in.—*A. DC. Prod.* viii. 402; *Echites lanceolata*, *Spreng. Syst.* i. 634; *Parsonsia glaucescens*, *F. v. M. Fragm.* vi. 126.

Hab.: E. coast, *R. Brown*; Araucaria Ranges, *Burnett River*, *F. v. Mueller*; Port Denison, *Fitzalan*; Edgecombe and Rockingham Bays and Rockhampton, *Dallachy and others*; heads of the Isaac River, *Bowman*; Peak Downs, *F. v. Mueller*.

2. ***P. velutina*** (velvety), *R. Br. Prod.* 466; *Benth. Fl. Austr.* iv. 318. A tall woody climber, softly pubescent or villous, the hairs usually rusty or rarely nearly glabrous. Leaves on rather long petioles, from broadly ovate to ovate-oblong, truncate or cordate at the base, the primary veins distant and prominent underneath, 2 to 5 in. long. Cymes rather small and dense, solitary or few on opposite axillary peduncles. Calyx-segments lanceolate, nearly 1 line long, the tips usually spreading. Corolla scarcely 2 lines long, the tube shorter than the calyx, the lobes broad, rather longer than the tube, bearded inside below the middle. Hypogynous scales truncate, usually convolute. Stamens inserted near the base of the corolla; filaments flattened, not twisted, hirsute under the anthers; anthers wholly exerted, the basal lobes rather short. Ovary crowned by 4 small glands. Fruit hard, 3 to 6 in. long, tomentose or glabrous, tardily separating more or less completely into 2 follicles.—*A. DC. Prod.* viii. 401; *Echites velutina*, *Spreng. Syst.* i. 634.

Hab.: Endeavour River, *Banks and Solander*; Keppel Bay, *R. Brown*; Port Denison and Edgecombe Bay, *Dallachy*; Rockhampton, *O'Shanesy*; Broadsound, *Bowman*.
 Var. ? *glabrescens*. Foliage at length nearly glabrous.—Cape York, *Dæmel*.

3. ***P. nesophila*** (an island species), *Bail. Ql. Agri. Journ.* i. pt. iii. A tall climber, the young growth and inflorescence clothed with rust-coloured hairs. Leaves oblong-cordate, 4 to 5 in. long, 2 to 3 in. broad, on petioles of about 1 in. Peduncles 3½ in. long, very shortly forked at the end, each branch bearing a few closely crowded flowers. Calyx-segments 1 line long, recurved. Corolla-lobes slightly overlapping, yellow, orifice of short tube hairy. Hypogynous scales 2-lobed. Stamens inserted near the base of the corolla; filaments not twisted, hairy, flat. Anthers nearly as long as the corolla, basal lobes prominent. Fruit 5 or 6 in. long, narrow, hard and tardily separating.

Hab.: Thursday Island.
 Nearly allied to *P. velutina*, *R. Br.*

4. ***P. Leichhardtii*** (after Dr. L. Leichhardt), *F. v. M. Fragm.* vi. 128; *Benth. Fl. Austr.* iv. 319. A rather slender twiner, glabrous or the branches and inflorescence minutely pubescent. Leaves petiolate, ovate, acuminate, rounded or cordate at the base, 2 to 4 in. long. Flowers in rather small loose dichotomous cymes, terminal or on short axillary branchlets, the pedicels short. Calyx-segments about 1 line long, lanceolate, with spreading tips. Corolla-tube rather broad, about 1 line long, the lobes acute, as long as the tube, densely bearded inside at the base, the edges slightly overlapping in the bud. Filaments very short, inserted in the base of the corolla-tube; anthers united in a cone, of which the point only protrudes from the tube. Hypogynous scales broad, emarginate. Fruit unknown.—*Lyonsia Leichhardtii*, *F. v. M.* l.c.

Hab.: Wide Bay, *Leichhardt*.

5. ***P. ventricosa*** (corolla-tube inflated), *F. v. M. in Trans. Phil. Inst. Vict.* ii. 71, *Fragm.* vi. 130; *Benth. Fl. Austr.* iv. 319. A glabrous twiner with slender branches. Leaves petiolate, ovate-lanceolate, acuminate, with the point often long and acute, truncate or cordate at the base, almost membranous, penniveined, 1½ to 2½ in. long. Cymes small, almost umbellate, on slender opposite axillary peduncles much shorter than the leaves. Calyx-segments rather broad, acute, about 1 line long, very spreading, without basal glands. Corolla-tube inflated, nearly globular, contracted at the throat, nearly 2 lines diameter; lobes acute, about as long as the tube, bearded inside at the throat, the edges narrowly overlapping in the bud. Stamens inserted in the middle of the tube; filaments short, not twisted; anthers exerted, connivent in a cone, the basal lobes short broad and spreading, each anther with a longitudinal prominent rather thick wing-like appendage on the back, giving the staminal body the appearance of the

winged gynostegia of some *Asclepiadeæ*. Hypogynous scales united in an undulate plicate cup as long as the ovary. Ovary 2-celled. Fruit 4in. long, 5 lines broad, tapering at both ends. Seeds rather thin, 5 lines long, pitted. Coma brown, hairs about 8 lines long.

Hab.: Brisbane River, Moreton Bay, *W. Hill, F. v. Mueller*. In flower October to February.

12. WRIGHTIA, R. Br.

(After William Wright, M.D.).

(*Balfouria, R. Br.*)

Calyx with 5 to 10 broad scales inside at the base. Corolla-tube cylindrical, usually short; lobes spreading, contorted in the bud, the throat with a corona of 5 or 10 erect scales, either distinct or united in a ring. Stamens inserted in the throat; filaments very short and broad; anthers sagittate, exserted, united or connivent in a cone round the stigma. No hypogynous disk or scales. Ovary of 2 carpels, distinct or connate, but readily separable; ovules numerous. Fruit long, terete, at length separating into 2 follicles. Seeds oblong, with a tuft of hairs at the end furthest from the hilum.—Trees or shrubs, the branches often slender but not twining. Leaves opposite. Flowers in terminal corymbose cymes, appearing sometimes axillary after the development of one branch only of the fork. Bracts small.

A small genus, dispersed over tropical Asia. The Queensland species are endemic.

Shrub or small tree. Leaves linear-lanceolate, 4 to 6in. long. Flowers yellow. Fruit hard, nearly terete, 6 to 8in. long 1. *W. saligna*.
Tree, about 80ft. high. Leaves ovate to ovate-lanceolate, 2 to 4in. long, 1½in. broad. Flowers pale-yellow. Fruit 10in. long, rough with tubercles 2. *W. millgar*.
Habit not recorded. Leaves subcordate to lanceolate-ovate, coriaceous, 4 to 5in. long, 2in. broad. Flowers red. Fruit unknown 3. *W. Baccelliana*.

1. ***W. saligna*** (Willow-like), *F. v. M. Herb.*; *Benth. Fl. Austr.* iv. 316. Milkbush. A tall shrub or small tree, quite glabrous. Leaves linear or linear-lanceolate, acutely acuminate, contracted into a short petiole, almost veinless except the midrib, 3 to 5in. long. Flowers yellow, in short cymes either terminal or apparently axillary from the development of a side branch. Calyx-segments nearly orbicular, $\frac{3}{4}$ line diameter, with 1 or 2 broad scales at the base of each more than half as long as the calyx. Corolla-tube broad, not twice as long as the calyx, contracted at the throat; lobes narrow, fully twice as long as the tube, the left-hand edges overlapping in the bud; corona-scales united in a truncate or sinuate-toothed ring round the anthers. Anthers in a cone of about 2 lines. Carpels of the ovary coherent but separable. Stigma dilated at the base, 2-lobed. Fruit hard, acuminate, nearly terete, 6 to 8in. long, the follicles not separating till maturity.—*Balfouria saligna*, R. Br. Prod. 467; Endl. Iconogr. t. 75; A. DC. Prod. viii. 403.

Hab.: Islands of the Gulf of Carpentaria, *R. Brown*; Port Denison, *Fitzalan, Dallachy*; Elliott and Suttor River, *Bowman*; other tropical inland localities.

Wood of a uniform pale-yellow colour, the grain close; might be useful for cabinet-work, carving and engraving; thought to resemble English Elder.—*Bailey's Cat. Ql. Woods* No. 284a.

2. ***W. millgar*** (native name), *Bail. Bot. Bull.* vii. "Millgar," Cairns, *E. Cowley*. A tree about 80ft. high, glabrous except the inflorescence, with a smooth thin grey bark, thickly dotted with raised lenticels, exuding a quantity of milky sap which inspissates into a substance resembling gutta-percha. Branchlets opposite. Leaves on petioles of from $\frac{1}{4}$ to $\frac{1}{2}$ in. long, ovate to ovate-lanceolate, with a more or less acuminate point, 2 to 4in. long, $1\frac{1}{4}$ to $1\frac{1}{2}$ in. broad, venation prominent, the primary veins distant and looping near the margin. Flowers pedicellate, of a pale-yellow colour, in terminal puberulent cymes, shorter than the leaves. Calyx-teeth short and rather blunt. Corolla-tube

slightly exceeding the calyx and with a slight contraction at the throat; lobes ovate, 3 or 4 lines long. Corona of numerous filiform scales like that of a Passion-flower and three-quarters the length of the corolla-lobes. Anthers white, pubescent on the back, forming an elongated cone. Follicles 10in. long, and very rough with tubercles, and showing several longitudinal lines. Seeds angular, tapering towards each end, often exceeding $\frac{3}{4}$ in. long, glabrous and pale-coloured. Coma silky-white, exceeding 2in. in length, and beautifully curved.

Hab.: Barron River, *E. Cowley*.

This species in many respects approaches *W. tomentosa*, differing in the want of indumentum and form of corona, &c. The follicles closely resemble Wight's figures of *W. coccinea*, and the corona that of *W. tinctoria*.

Wood of a yellowish colour, close-grained, soft, and bends well; considered suitable for rum-casks, &c. A useful timber for cabinet-work, carving, and joinery.—*Bailey's Cat. Ql. Woods* No. 284.

3. **W. Baccelliana** (after Professor Baccelli), *F. v. M. Vict. Nat. Mar.* 1892. Branches rather stout, somewhat loosely spreading, densely clothed with spreading greyish hairs. Leaves of a firm texture, from subcordate to lanceolate-ovate, seldom quite lanceolate, attaining 5in. in length and 2in. in breadth, above scantily but beneath more copiously hairy; primary veins prominent on the under side. Cymes axillary or terminal, the axillary ones usually in pairs, seldom above 1in. long, hairy. Bracteoles narrow and pointed. Flowers rather small. Calyx-segments lanceolate, pointed, without conspicuous inner appendages, about 3 lines long. Corolla red, the tube pubescent outside, about the length of the calyx, much narrowed downwards, and constricted at its termination; lobes amply overlapping each other, glabrous, about equal in length to the tube, orbicular or cordate-rhomboid; corona divided into numerous linear or spatula-elliptic glabrous segments. Stamens fixed about the middle of the corolla-tube, perfectly enclosed; filaments very short. Anthers free, yellowish, glabrous, gradually pointed, minutely 2-lobed at the base, a little over 1 line long. Style glabrous; stigma nearly as long as the style, ovate-conical, annular-turgid at the base, bimucronulate at the apex. Fruit not yet collected.

Hab.: Russell River, *Stephen Johnson* (*F. v. M. l.c.*)

13. ICHNOCARPUS, R. Br.

(From *ichnos*, a vestige, and *karpos*, a fruit; in reference to the slender follicles.)

Calyx without any or with very minute glands inside at the base. Corolla-tube cylindrical, swollen round the anthers, the lobes spreading, contorted in the bud, the throat without scales. Anthers enclosed in the tube. Hypogynous scales 5, linear-clavate, as long as the ovary. Ovary of 2 distinct carpels united by the style; stigma thickened, acuminate; ovules numerous, in 3 or 4 rows in each carpel. Fruit of 2 long linear follicles. Seeds linear, with a long tuft of hairs at the hilum, albuminous.—Tall woody climbers. Leaves opposite. Flowers small, in compact cymes arranged in axillary and terminal thyrsoid panicles. Bracts very small.

A small genus, dispersed over tropical Asia and extending probably into Africa, the only Queensland species being the commonest on the whole range.

1. **I. frutescens** (shrubby), *R. Br.*; *A. D.C. Prod.* viii. 435; *Benth. Fl. Austr.* iv. 315. A tall climber with a milky juice, the young parts and inflorescence minutely rusty-pubescent, the adult leaves glabrous or more or less pubescent underneath, especially the principal nerves. Leaves petiolate, ovate, acuminate, rather thin, shining above, midrib at back of leaf clothed with white hairs, the primary veins prominent underneath, the veinlets elegantly reticulate

but not prominent, 2 to 5 in. long. Cymes small and compact, often numerous, forming loose leafy panicles at the ends of the branches. Calyx-segments scarcely 1 line long, pubescent, narrow. Corolla-tube $1\frac{1}{2}$ line long; the lobes narrow, tapering into a long point, much contorted in the bud, the right-hand edges overlapping, glabrous inside or with a few hairs in the throat. Ovaries hirsute at the top. Follicles slender, 2, or 1 by the abortion of the other, widely divaricate, 4 to 5 in. long and about 2 lines broad, straight or very slightly curved, somewhat moniliform. Seeds dark, 6 lines long, scarcely $\frac{1}{2}$ line broad. Coma white, silky hairs lin. long.—Wight, Ic. t. 430; Brand. For. Fl. ii. 185; *I. dasycalyx*, Miq. Fl. Ind. Bat. ii. 449; *I. leptodictyus*, F. v. M. Fragm. vi. 118.

Hab.: Rockingham Bay, *Dallachy*.

Common in E. India and in the Archipelago. The Indian specimens have usually rather narrower leaves, more hirsute underneath, but some are quite similar to the Australian ones.—*Benth.*

ORDER LXXX. ASCLEPIADEÆ.

Flowers regular. Calyx free, divided nearly or quite to the base into 5 segments or sepals, imbricate in the bud, bearing frequently 5 or more small glands at the base inside. Corolla regular, with 5 teeth or lobes, contorted or valvate in the bud, with or without scales or appendages in the throat alternating with the lobes. Stamens 5, inserted at the base or near the base of the corolla, the filaments short, connate or rarely free, the anthers always connate in a tube (called *gynostegium*) enclosing the style; anthers 2-celled, or by the subdivision of the cells more or less completely 4-celled; the cells opening inwards, the connectivum produced into a short, truncate or rarely acute appendage, or more frequently terminating in an inflexed membrane; corona consisting of variously shaped glandular membranous or fleshy appendages attached to the back of the filaments or anthers, sometimes united in a cup or ring, quite deficient in a few genera; pollen consolidated into 1 or 2 masses in each cell of the ovary, attached (when the anther opens) in pairs or in fours (1 or 2 from each of the adjoining anthers) to small processes of the stigma placed between the anthers, and ultimately detached from the stigma and carrying off the pollen-masses. Ovary of 2 distinct carpels, with several usually numerous ovules attached to the inner angle; styles united immediately above the ovary, and thickened within the anthers into an angular body, usually called the stigma, although not wholly stigmatic; the summit in the centre either truncate or more or less protruding in a conical or elongated, beak-like, entire or 2-lobed process. Fruit of 2 follicles, or frequently 1 only from the abortion of the other carpel. Seeds usually pendulous, with a long silky tuft of hairs or coma at the hilum, compressed, often bordered; testa usually brown, smooth or rough; albumen thin; embryo straight; cotyledons foliaceous; radicle short, superior.—Herbs, with a perennial, sometimes tuberous rootstock, or more or less woody stock, or shrubs or very rarely trees. Stems or branches frequently twining; juice usually milky. Leaves almost always opposite, entire; stipules none or very obscure. Flowers often small, in racemes of cymes often reduced to umbels, axillary or more frequently on one side of the branch between the petioles. Bracts small, at the base of the branches and pedicels; bracteoles on the pedicels none or very rare and small.

Like *Apocynaceæ*, the Order is abundantly dispersed over the tropical regions of both the New and the Old World, and represented by a few extratropical species in the southern as well as the northern hemisphere, but does not extend to arctic or high alpine regions. The Order is nearly allied to *Apocynaceæ*, but, with a somewhat different habit, it is neatly distinguished by the definite pollen-masses, and their peculiar adherence to bodies detached from the style. In determining the species of this Order, it is absolutely necessary that the number and position

(pendulous horizontal or erect) of these pollen-masses should be carefully studied, and secondly that the configuration of the corona be attended to, for whilst there is a great general resemblance in the majority of species belonging to very different genera, the genera themselves are better defined than might have been expected from characters apparently so artificial.—*Benth.*

SUBORDER I. PERIPLOCEÆ.

Filaments usually free; anthers acuminate or with a terminal appendage; pollen-masses granular, in pairs in each cell.

TRIBE I. **Periploceæ**.—*Characters of the Suborder.*

Corolla-tube cylindrical; limb spreading. Corona of 5 scales inserted in the tube behind the filaments 1. GYMNANTHERA.

SUBORDER II. EUASCLEPIADEÆ.

Filaments connate; pollen-masses waxy.

TRIBE II. **Secamonæ**.—*Anthers with a membranous inflexed tip. Pollen-masses in pairs in each cell (20 in all), sessile in fours (2 pairs) on the corpuscle (the gland on the stigma to which the pollen-masses are attached).*

Corolla rotate; lobes overlapping to the right 2. SECAMONE.

TRIBE III. **Gynancheæ**.—*Anthers with a membranous inflexed tip; pollen-masses solitary in each cell (10 in all), sessile or pedicellate in pairs on the corpuscle, pendulous.*

- Corolla-tube broad often constricted above, the limb spreading or campanulate, 5-fid. Corona-scales or segments 5. Stigma umbonate or 2-rostrate 3. *ARAUJIA.
- Corolla rotate, broadly campanulate, at length reflexed, 5-fid, valvate or very slightly imbricate. Corona-segments without internal appendages . 4. *GOMPHOCARPUS.
- Corolla rotate at length reflexed, 5-fid, valvate or very slightly imbricate. Corona-segments each with an internal appendage 5. *ASCLEPIAS.
- Corolla nearly rotate. Corona membranous, the segments either distinct but not saccate or united in a lobed cup round the gynostegium. 6. VINCETOXICUM.
- Corona of 5 segments, quite distinct 7. CYNANCHUM.
- Corona with 5 or 10 marginal lobes and 5 or 10 additional protruberances or lobes inside the margin 7. CYNANCHUM.
- Corona of 5 distinct saccate or inflated segments at the back of the anthers, with an exterior corona below them consisting of 5 protruberances or a slightly prominent ring. 8. SARCOSTEMMA.
- Outer corona very prominent 8. SARCOSTEMMA.
- Outer corona scarcely prominent 9. PENTATROPIS.

TRIBE IV. **Marsdeniæ**.—*Anthers with a membranous inflexed tip; pollen-masses solitary in each cell (10 in all), sessile, or pedicellate in pairs on the corpuscle, erect (rarely horizontal or pendulous in Tylophora).*

- Corolla-lobes overlapping, short. Corona on the corolla-tube 10. GYMNEMA.
- Corolla urceolate. Corona-processes minute or none, stigma included . . . 11. GONGRONEMA.
- Corolla rotate. Column minute. Corona-processes fleshy 12. TYLOPHORA.
- Corolla urceolate or salver-shaped. Corona of 5 segments, usually fleshy or saccate and adnate at the base with a short erect free or adnate point . 13. MARSDENIA.
- Corolla rotate. Corona-segments 5, erect, membranous, peltately attached to the back of the anthers 14. THOZETIA.
- Corolla rotate. Corona-segments expanding into horizontal spreading laminae or disks 15. HOYA.
- Corolla urceolate. Corona of 5 linear 2-cleft segments 16. DISCHIDIA.

TRIBE V. **Ceropegieæ**.—*Anthers incumbent on the stigma, without a membranous tip; pollen-masses 1 in each cell (10 in all), sessile in pairs on the corpuscle, erect or horizontal. Corolla-lobes valvate.*

- Corolla rotate. Corona a scarcely conspicuous undulate ring 17. MICROSTEMMA.
- Corolla-tube elongate, lobes connivent at the tips. Corona membranous, cup-shaped, with 5, 10, or 15 lobes 18. CEROPEGIA.

1. GYMNANTHERA, R. Br.

(Anthers naked.)

Corolla with a cylindrical tube and spreading lobes, contorted in the bud, the right-hand edges overlapping. Filaments distinct, inserted in the throat. Corona of 5 scales, inserted in the corolla-throat behind the filaments. Pollen-masses 4 to each anther, granular, attached in fours (2 from each adjoining anther) to filiform appendages of the style.—Twiner with milky juice. Leaves herbaceous. Cymes loose, or interpetiolar or almost axillary peduncles.

The genus is limited to a single species endemic in Australia. It is the only Australian *Asclepiadæa* with granular pollen-masses.

1. **G. nitida** (shining), *R. Br. Prod.* 464; *Benth. Fl. Austr.* iv. 326. A tall glabrous twiner, woody at the base. Leaves opposite, on rather long petioles, from ovate to oblong-elliptical, obtuse acute or mucronate, 2 to 3 or rarely 4 in. long, of a rather firm consistence. Flowers of a greenish-white, the cymes shortly pedunculate, with rather elongated branches and numerous small bracts. Pedicels 3 to 4 lines long. Calyx-segments ovate, $\frac{3}{4}$ line long, with an irregular broken ring of small glands inside at the base, often united into small lobed scales alternating with the segments. Corolla-tube about 3 lines long, the lobes nearly as long, broadly ovate. Corona-scales broad, mucronate or denticulate. Filaments broad and flat, connivent but not connate. Anthers acuminate, glabrous, the cells subdivided by vertical partitions between the pollen-masses. Stigma very shortly 2-lobed. Follicles divaricate, rather slender, 2 to 3 in. long.—Dene. in DC. *Prod.* viii. 493.

Hab.: Islands of the Gulf of Carpentaria, *R. Brown*; Sweers Island, *Henne*; Port Curtis, *M^cGillivray*; Nerkool Creek, Suttor River, and Mount Wyatt, *Bowman*.

2. SECAMONE, R. Br.

(Arabic name of one species.)

Corolla rotate, deeply 5-lobed, the lobes contorted in the bud, the right-hand edges overlapping. Corona of 5 laterally compressed segments, vertically adnate to the gynostegium at the base, with free falcate or ligulate points, usually shorter than the gynostegium. Filaments connate. Pollen-masses 4 to each anther, nearly smooth, erect, attached in fours, 2 from each adjoining anther, to small appendages of the styles (as in the genera with 2 masses to each anther). Stigma very short and obtuse.—Stems from a woody base, straggling or trailing or twining. Leaves herbaceous, often pellucid-dotted. Flowers very small in loose axillary or interpetiolar solitary cymes.

The genus extends over tropical Asia, southern Africa, and the Mascarene Islands, the Australian species both endemic, unless one proves really to be the same as a Philippine Island one.—*Benth.*

Leaves ovate-acuminate or lanceolate 1. *S. elliptica*.
Leaves ovate, obtuse or scarcely acute 2. *S. ovata*.

1. **S. elliptica** (leaves elliptical), *R. Br. Prod.* 464; *Benth. Fl. Austr.* iv. 327. A rather slender twiner or low straggling shrub, quite glabrous or the inflorescence slightly pubescent. Leaves petiolate, ovate to lanceolate, acuminate, rounded or acute at the base, the veins scarcely conspicuous, 1 to $1\frac{1}{2}$ or rarely 2 in. long. Cymes shortly pedunculate, several-flowered, but shorter than the leaves, the peduncles and pedicels glabrous or scarcely pubescent. Calyx-segments membranous, orbicular, ciliolate, about $\frac{1}{2}$ line long. Corolla yellow, with a very short tube, nearly rotate, deeply lobed, spreading to about 2 lines diameter, with small introrse auricles or appendages at the base of the lobes. Corona of 5 small laterally compressed segments, adnate to the gynostegium

at the base, with free incurved falcate points considerably shorter than the gynostegium. Follicles divaricate, 2 to $2\frac{1}{2}$ in. long, tapering into a long point.—Dene. in DC. Prod. viii. 504; *S. emetica*, F. v. M. Fragm. v. 161, not of R. Br.

Hab.: Islands of the Gulf of Carpentaria, *R. Brown*; Port Curtis, *M. Gillivray*; Port Denison *Fitzalan*; Fitzroy River, *Bowman*; Rockingham Bay, *Dallachy*; Rockhampton, *O'Shanesy*; Moreton Bay, *F. v. Mueller*, *C. Stuart*; Peak Downs, *F. v. Mueller*; Mackenzie River, *Leichhardt*.

2? *S. ovata* (leaves ovate), *R. Br. Prod.* 464; *Benth. Fl. Austr.* iv. 328. Of this Mr. Bentham only saw a single specimen in R. Brown's herbarium, of which the flowers were absent. It appears to be distinct in its broader more ovate and obtuse or scarcely acute leaves, which are shortly petiolate, 1 to $1\frac{1}{2}$ in. long.—Dene. in DC. Prod. viii. 504.

Hab.: Islands of the Gulf of Carpentaria, *R. Brown*.

The species must remain very doubtful until it shall be again observed.—*Benth.*

3. **ARAUJIA*, Brot.

(After Antonio de Araujo, a great promoter of botany in Portugal.)

Calyx 5-parted, eglandulous inside, segments foliaceous; corolla hypocrateriform or almost infundibuliform, with 5 swellings outside at the base and a corresponding number of cavities inside; limb slightly spreading and 5-lobed. Corona adnate to the base of the corolla; anthers terminated by a membrane; pollen-masses pendulous, fixed by their tapering tops. Stigma ovate, 2-horned at the apex. Follicles ovate, ventricose, bent downwards, semi-bilocular, thick, coriaceous, smooth or at length tuberculose-muricate. Seeds comose, adhering to the lamellæ of the dessepiment.—Twining plants, hoary or hirsute. Leaves opposite. Cymes few-flowered. Flowers whitish or rose-coloured.

1. *A. albens* (plant whitish), *G. Don. (Physianthus albens, Mart.)* A twiner, with ovate or lanceolate leaves 2 or 3 in. long, truncate or cordate at the base, and acute at the apex, white underneath as well as the young shoots. Flowers in subdichotomously branched cymes; pedicels about 7 lines long, calyx-segments broad, leafy. Corolla with a broad tube and a 5-lobed limb. Corona of 5 fleshy segments attached to the corolla-tube at the base, the upper portion hood-shaped or convex with revolute margins. Pollen-masses pendulous. Follicle glaucous, thick, oval, $2\frac{1}{2}$ to 3 in. long, and 2 in. in diameter.

Hab.: A native of South Brazil, naturalised about the Brisbane River and Darling Downs.

4. **GOMPHOCARPUS*, R. Br.

(From the club-shaped fruit.)

Calyx 5-parted. Corolla rotate, 5-parted, mostly reflexed. Corona 5-parted, erect or suberect, as long as the gynostegium or much longer, complicate-cucullate, laterally compressed, the margins strongly inflexed, the inflexion greatest above, where the angles are often salient, directed towards the stigma; apex either truncate or variously twisted. Anthers membrane-tipped. Pollinia compressed, pendulous, taper-pointed or truncate. Stigma pointless. Follicles ventricose, bearing soft shred-like processes. Seeds comose.—Erect shrubs or undershrubs with opposite leaves.

Mostly belonging to Africa.

1. *G. brasiliensis* (of Brazil), *Fournier. Mart. Fl. Bras.* vi. 208 t. 53. An erect herbaceous shrub from 4 to 6 ft. high, at first hoary, afterwards glabrous. Leaves linear-lanceolate, 3 to 5 in. long and about $\frac{1}{2}$ in. broad,

Peduncles axillary, 1 to 1½ in. long, bearing an umbel of from 4 to 8 rather large white flowers on long hoary-pubescent pedicels. Sepals linear. Corolla reflexed; segments elliptic. Cuculli 5, teeth extrorse, reflexed. Stigma 5-angled. Follicles large, obovate, pointless, papery, echinate.

Hab.: Brazil. Naturalised in many parts of the colony. It very closely resembles *G. fruticosus*, and I think it is only a form of that African species. *G. brasiliensis* stands our climate well, whereas South African plants soon die out in Queensland.

5. *ASCLEPIAS, Linn.

(The Greek name of the Æsculapius of the Latins.)

Sepals glandular within. Corolla rotate, lobes often reflexed, naked, valvate. Corona-scales 5, erect, adnate to the column, spoon-shaped. Anther-tips membranous, inflexed. Pollen-masses 1 in each cell, pendulous, flattened, waxy. Stigma depressed, 5-angled. Follicles turgid, beaked, smooth. Seeds comose.—Perennial erect herbs. Leaves opposite, alternate or whorled. Cymes umbelliform. Flowers medium-sized or small.

Species mostly American.

1. **A. curassavica** (Curassavian), *Linn.; DC. Prod.* viii. 566. Redhead, Wallflower Cotton-bush, Madagascar Cotton-bush, or Milky Cotton-bush. An erect, few-branched, soft-wooded plant, with a milky sap. Leaves opposite, lanceolate or oblong-lanceolate, acute, narrowed into a short petiole, glabrous. Umbels many-flowered, shortly pedunculate. Corolla rotate, orange-red; lobes reflexed, column stipitate. Follicles glabrous, 4 to 5 in. long.

Hab.: West Indies. Naturalised in many localities.

6. VINCETOXICUM, Mœnch.

(An antidote to poison.)

Corolla nearly rotate, deeply divided into 5 lobes, contorted in the bud, the right-hand edges usually overlapping. Corona simple, of 5 membranous erect segments, either distinct from the base or (in species not Australian) united in a lobed cup encircling the gynostegium. Anthers terminating in a membrane. Pollen-masses 2 to each anther, pendulous, but sometimes laterally attached below the top. Stigma short, obtuse, truncate or minutely 2-lobed.—Herbs, with twining trailing or rarely erect stems. Leaves herbaceous or rarely somewhat fleshy. Peduncles interpetiolar, bearing 2 or more umbels or an irregular cyme, or rarely a single umbel.

The genus is widely dispersed over the temperate as well as the warmer regions of the globe, but the Australian species are all endemic. The whole genus is very closely allied to *Cynoctonum* and *Cynanchum*, being distinguished from the latter by the want of any inner lobes to the corona, and from both by the more deeply lobed or 5-partite corona.—*Benth.* Sir J. D. Hooker suppresses the genus in his Fl. Brit. Ind. iv.

- | | |
|--|--------------------------|
| Corona-segments nearly as long as the gynostegium, truncate, obtuse or scarcely acuminate. Leaves ovate or ovate-lanceolate, sometimes cordate, membranous | 1. <i>V. ovatum.</i> |
| Corona-segments abruptly acuminate, the point short, curved over the gynostegium. Corolla-lobes ovate-lanceolate. Leaves ovate, slightly fleshy | 2. <i>V. elegans.</i> |
| Corona-segments tapering into erect points shortly exceeding the gynostegium. Corolla-lobes narrow-acuminate. Leaves oblong or linear, slightly fleshy | 3. <i>V. carnosum.</i> |
| Corona-segments with slender points more than twice as long as the gynostegium. Leaves cordate-ovate, acuminate, membranous | 4. <i>V. leptolepis.</i> |
| Corona composed of oblong, apiculate, glossy, thick scales. Leaves rotund-ovate, cordate at the base | 5. <i>V. pachylepis.</i> |

1. **V. ovatum** (ovate leaves), *Benth. Fl. Austr.* iv. 330. A rather slender twiner, glabrous or the inflorescence minutely pubescent. Leaves on slender petioles, ovate, obtuse, acute or shortly acuminate, rounded or cordate at the base, 1 to 2 or rarely 3 in. long. Umbels usually 2 at some distance from each other on a slender peduncle, the flowers often exceeding the leaves. Pedicels 3 to 6 lines long. Calyx-segments about 1 line long, ovate, thin. Corolla spreading to about 3 lines diameter, deeply divided into narrow ovate lobes. Corona-segments very broad, almost orbicular, obtuse or very shortly acuminate, rather shorter than the anthers, shortly adnate at the base along the centre. Pollen-masses small, obovoid.

Hab.: Brisbane River, *F. v. Mueller*; Rockhampton, *O'Shanesy, Thozet*; Table Mountain, *Bowman*; Mogill scrub, *C. Stuart*.

2. **V. elegans** (elegant), *Benth. Fl. Austr.* iv. 330. A tall glabrous twiner. Leaves on slender petioles, ovate, acute or mucronate, not cordate, rather fleshy, penniveined, 1 to 2 in. long, the upper ones sometimes narrow. Flowers few, in clusters or umbels on forked or dichotomous peduncles often longer than the leaves. Pedicels $\frac{1}{2}$ in. long or more. Calyx-segments ovate, very small. Corolla pure white (*Woolfs*), spreading to 5 or 6 lines diameter, very deeply divided into oblong-lanceolate lobes, slightly pubescent inside. Corona-segments broad, nearly the length of or rather longer than the anthers, abruptly acuminate, the point incurved over the gynostegium. Pollen-masses oblong, pendulous but attached below the top.

Hab.: Recorded for Queensland by *F. v. Mueller*.

3. **V. carnosum** (fleshy leaves), *Benth. Fl. Austr.* iv. 331. Quite glabrous, trailing or twining and rather slender. Leaves oblong oblanceolate lanceolate or linear, obtuse mucronate or acute, rather thick and almost veinless, 1 to 2 in. long, narrowed into a short petiole. Flowers yellowish-green, in simple umbels or very short racemes, on peduncles usually under $\frac{1}{2}$ in. long, the pedicels rather longer. Calyx-segments narrow, acute, about $1\frac{1}{2}$ line long. Corolla deeply divided into narrow acuminate lobes of 3 to $3\frac{1}{2}$ lines. Corona-segments lanceolate, acuminate, longer than the anthers. Pollen-masses oblong, small. Follicles rather broad, acuminate, 2 to 3 in. long.—*Oxytelma carnosum*, R. Br. Prod. 462; Dcne. in DC. Prod. viii. 543.

Hab.: Islands of the Gulf of Carpentaria, *R. Brown*; Port Curtis and Moreton Island, *M'Gillivray*; Rockingham Bay, *Dallachy*.

4. **V. leptolepis** (slender scales), *Benth. Fl. Austr.* iv. 331. A twiner, quite glabrous or the inflorescence minutely pubescent. Leaves on long petioles, broadly cordate-ovate, acutely acuminate, $1\frac{1}{2}$ to $2\frac{1}{2}$ in. long. Flowers small, in irregular loose cymes or peduncles usually exceeding at least the upper leaves. Calyx-segments about 1 line long, oblong, ciliolate. Corolla spreading to rather above 2 lines diameter, divided to below the middle. Corona-segments lanceolate, tapering into a subulate-acuminate ligula, more than twice as long as the anther.

Hab.: Mount Elliott, *Fitzalan*; Elliott River, *Bowman*.
The foliage is like that of several *Cynancha*.—*Benth.*

5. **V. pachylepis** (corona-scales thick), *Bail. Bot. Bull.* viii. A stout ferruginous climber. Leaves rotund-ovate, apiculate, the base prominently cordate, 3 to 5 in. long, $2\frac{1}{2}$ to 4 in. broad; petioles slender, 1 to $1\frac{1}{2}$ in. long, clothed as well as the principal veins with short brown hairs, the lamina nearly or quite glabrous on both sides. Flowers cream-coloured, fragrant, in pubescent, axillary umbels; peduncle about 1 in. long, the pedicels not exceeding 3 lines. Calyx-segments much overlapping, very broad, nearly orbicular, $2\frac{1}{2}$ lines long,

glabrous inside, margins ciliate. Corolla 4 or 5 lines long, contorted in the bud, the lobes twice as long as the tube, thick, and more or less hairy on the inside. Corona composed of 5 free, oblong, apiculate, glossy, thick scales, about 1½ line long; anthers somewhat shorter, but the terminal membrane held in the little point of the corona scale at its back. Pollen-masses oblong, glossy. Stigma minutely 2-lobed. Fruit not seen.

Hab.: Kamerunga, E. Cowley.

7. CYNANCHUM, Linn.

(Alluding to its poisonous qualities—i.e., would strangle a dog.)

Corolla nearly rotate, deeply divided into 5 lobes contorted in the bud, the right-hand edges usually overlapping. Corona membranous, forming a loose cup or tube round the anthers, the margin 10-lobed with the addition of 5 or 10 inner lobes (reduced in *C. erubescens* to prominent ribs). Anthers terminating in a membrane. Pollen-masses 2 to each anther, pendulous. Stigma short, obtuse, truncate or minutely 2-lobed.—Herbs with twining, trailing or rarely erect stems. Leaves herbaceous, cordate, usually several-nerved at the base. Flowers in the Australian species in loose irregular cymes rarely contracted into umbels (in other species usually umbellate), on solitary interpetiolar peduncles.

The genus, as limited by Decaisne, is confined to the Old World, extending as far as the Mediterranean region of Europe. The Australian species are all endemic.

- Corona-lobes 10, truncate or crenulate, not exceeding the anthers, and 10 inner scarcely prominent keels 1. *C. erubescens*.
- Corona-lobes 20, subulate-acuminate, much exceeding the anthers. No stipule-like leaves 2. *C. floribundum*.
- Corona-lobes 20, 10 short obtuse denticulate or partially acuminate, and 10 inner rather longer acuminate keels. A pair of stipule-like leaves usually at the base of the petioles. Glabrous or the inflorescence minutely pubescent 3. *C. pedunculatum*.

1. **C. erubescens** (flowers reddish), *R. Br. Prod.* 463; *Benth. Fl. Austr.* iv. 332. A twiner, slightly pubescent, especially the young shoots and inflorescence, the adult foliage usually glabrous. Leaves petiolate, ovate, deeply cordate with broad rounded auricles, acute, 1 to 3in. long. Flowers having sometimes, but not always, a slight reddish tint, in rather loose cymes, the peduncles not much exceeding the petioles. Calyx pubescent, the segments ovate, almost acute, scarcely 1 line long. Corolla pubescent outside, glabrous inside, shortly exceeding the calyx, very deeply divided into ovate lobes. Corona loosely plicate, not exceeding the anthers, the margins shortly 10-lobed, 5 lobes alternating with the anthers rather longer than the others, thin, truncate or crenulate, each lined with 2 slightly prominent inner keels, 5 opposite the anthers thickened inside, but scarcely or shortly produced into distinct laminæ. Follicles rather broad, acuminate, with prominent almost winged angles, about 2in. long.—*Cynoctonum erubescens*, Dene. in DC. *Prod.* viii. 529.

Hab.: Endeavour River, Banks and Solander, *R. Brown*; Rockingham Bay, *Dallachy*.

2. **C. floribundum** (flowers numerous), *R. Br. Prod.* 463; *Benth. Fl. Austr.* iv. 332. "Theoromia," Cloncurry, *Palmer*. Erect or the branches sometimes slightly flexuose or twining, the inflorescence and sometimes the foliage hoary-pubescent, the older leaves usually glabrous. Leaves on rather long petioles, cordate, ovate or lanceolate, acuminate, 1 to 2in. long. Cymes rather dense, rarely contracted to umbels. Calyx-segments ovate-lanceolate, acute, ciliate, about 1 line long. Corolla deeply divided into lobes of 2 to 3 lines. Corona deeply divided into 20 subulate-acuminate lobes exceeding the anthers, of which 10 outer ones parallel to the gynostegium, and 10 inner at right angles

to them forming prominent keels. Pollen-masses oblong. Follicles fusiform, acuminate, more or less winged, 1 to 2 in. long.—*Cynoctonum floribundum*, Dcne. in DC. Prod. viii. 529.

Hab.: Wentworth and Gilbert Rivers, *F. v. Mueller*; Suttor River and Broadsound, *Bowman*. Pods and leaves full of milk, eaten raw when young. Said to fatten the natives.—*Palmer*.

The species is very variable in the breadth of the leaves, the size of the flowers, and the pubescence of the inflorescence, but readily recognised by the prominent subulate points of the corona-lobes.—*Benth.*

3. *C. pedunculatum* (peduncles prominent), *R. Br. Prod.* 463; *Benth. Fl. Austr.* iv. 333. A twiner, either glabrous or the inflorescence minutely pubescent. Leaves on rather long petioles, deeply cordate, ovate, acuminate, $1\frac{1}{2}$ to $2\frac{1}{2}$ in. long, usually with 2 small accessory stipule-like leaves at their base on the side opposite to the peduncle. Cymes several-flowered, on peduncles often as long as the leaves or even longer. Calyx-segments narrow, acute, about half as long as the corolla. Corolla deeply divided into narrow rather acute lobes of 2 to 3 lines. Corona shortly 20-lobed, 10 outer lobes short obtuse or denticulate or some of them shortly acuminate, the 10 inner keels in pairs one on each side of the lobes opposed to those of the corolla, more or less acuminate and usually longer than the outer. Fruit not seen.—*Cynoctonum pedunculata*, Dcne. in DC. Prod. viii. 529.

Hab.: Islands of the Gulf of Carpentaria, *R. Brown*.

8. SARCOSTEMMA, R. Br.

(Corona fleshy.)

Corolla rotate or nearly so, the lobes contorted in the bud, the right-hand edge overlapping. Corona double, the outer one annular or cup-shaped, usually at the base of the gynostegium, the inner one of 5 segments at the back of the anthers, fleshy or saccate at the base, with a free erect point. Anthers terminating in a membrane. Pollen-masses 2 to each anther, oblong or clavate, pendulous. Stigma short, obscurely notched.—Stems in the Australian typical section leafless and somewhat fleshy. Flowers in sessile lateral umbels.

The genus in its typical form is spread over tropical Asia and southern and eastern Africa, the Australian species is endemic, but nearly allied to a widely spread Asiatic one. The other sections, in which the stems are leafy, are limited to South America.—*Benth.*

1. *S. australe* (southern), *R. Br. Prod.* 463; *Benth. Fl. Austr.* iv. 328. Caustic Vine. A glabrous leafless somewhat fleshy twiner, woody at the base, the branches terete, often articulate at the nodes, the leaves replaced by minute opposite scales. Umbels sessile on one side of the nodes between the scales. Pedicels about $\frac{1}{4}$ in. long. Calyx-segments ovate, obtuse, scarcely $\frac{1}{2}$ line long. Corolla deeply divided into ovate obtuse lobes of about 2 lines. Outer corona adnate to the base of the gynostegium and about half its length, much undulate and sinuate but not lobed; segments of the inner corona saccate, nearly as long as the anthers. Follicles rather narrow, 2 to 3 in. long.—*Endl. Iconogr.* t. 64.

Hab.: Albany Island, *W. Hill*; E. coast, *R. Brown*; Curtis Island, *Henne*; Howick's Group, *F. v. Mueller*; Port Denison, *Fitzalan*; dry ridges near Rockhampton, *Dallachy*, *O'Shanesy*; common in the colony and often extending inland.

Considered poisonous to sheep.

9. PENTATROPIS, R. Br.

(Referring to the 5-anther spurs.)

(*Rhyncharrhena*, *F. v. M.*)

Corolla nearly rotate, the lobes contorted in the bud (the right-hand edge usually overlapping). Corona double, the outer one of a slightly prominent ring or 5 scarcely conspicuous obtuse lobes at the base of the gynostegium or

near the top of the filaments, the inner (or upper) one of 5 adnate segments more or less saccate or inflated at the base, the erect points adnate and sometimes produced beyond the anthers. Anthers terminating in a small membrane. Pollen-masses 2 to each anther, oblong or clavate, pendulous. Stigma short.—Twining. Leaves herbaceous, linear in the Australian species. Flowers in simple umbels on solitary interpetiolar peduncles.

The genus is spread over tropical Asia and Africa. The Queensland species is endemic.

1. **P. atropurpurea** (dark-purple flowers), *Benth. Fl. Austr.* iv. 329. A slender glabrous twiner. Leaves linear with revolute margins, tapering into a short petiole, 1 to 2in. long. Flowers dark-purple, in simple or irregularly compound umbels on short peduncles, the pedicels about $\frac{3}{4}$ in. long. Calyx-segments narrow, about 1 line long. Corolla almost rotate, divided to about the middle into broad acute lobes, spreading to about 4 lines diameter. Outer corona a scarcely prominent undulate ring at the top of the very short filaments; inner corona of 5 segments adnate to the back of the anthers, inflated but scarcely saccate at the lower end, the upper end an adnate point shortly produced beyond the anthers. Follicles 2 to 3in. long, not acuminate.—*Rhyncharrhena atropurpurea*, F. v. M. *Fragm.* i. 128.

Hab.: Suttor desert, *F. v. Mueller.*

10. GYMNEMA, R. Br.

(Filaments naked.)

(*Bidaria*, *Endl.*)

Corolla with a short broad tube, the limb spreading, divided into 5 lobes, contorted in the bud. Corona none or reduced to 5 scarcely prominent protuberances at the base of the gynostegium. Anthers terminating in a membrane. Pollen-masses 2 to each anther, obovoid or oblong erect. Stigma short and obtuse or conical, or rarely elongated.—Stems erect or twining. Leaves herbaceous. Flowers small, umbellate, the umbels either solitary or 2 together on short interpetiolar peduncles or axillary and opposite.

The genus is dispersed over the tropical and subtropical regions of the Old World. Of the 4 Australian species, one is a common East Indian one, the others are endemic.

SECT. I. **Gymnema**.—*Corolla with small scales in the throat alternating with the lobes. No corona.*

- Leaves ovate to ovate-lanceolate. Umbels mostly in pairs 1. *G. sylvestre*.
- Leaves ovate, shortly acuminate, with many superficial glands at the base.
- Umbels mostly solitary 2. *G. pleiadenium*.

SECT. II. **Bidaria**.—*Corolla without scales in the throat. Corona none or of very obscure glands at the base of the gynostegium.*

- Leaves ovate, $\frac{1}{2}$ to lin. long 3. *G. brevifolium*.
- Leaves oval-oblong or lanceolate, 1 to 2in. long, the veins very oblique . . . 4. *G. trinerve*.

1. **G. sylvestre** (forest plant), *R. Br. in Trans. Wern. Soc.* i. 33; *Benth. Fl. Austr.* iv. 342. A twiner, either softly-pubescent all over or the upper side of the leaves nearly or quite glabrous. Leaves petiolate, from broadly ovate to ovate-lanceolate, shortly acuminate, rounded or rarely contracted, or almost cordate at the base, obliquely penniveined, 1 to 2in. long. Umbels usually 2 together on very short peduncles. Pedicels 1 to 2 lines long. Calyx-segments broad, very obtuse, under 1 line long. Corolla very shortly exceeding the calyx, divided to about the middle into ovate lobes, with scales in the throat alternating with the lobes and decurrent halfway down the tube. No corona. Stigma

broadly and obtusely conical or almost globular, shortly exceeding the anthers. Follicles narrow, acuminate, 2 to 3 in. long.—Dene. in DC. Prod. viii. 621; Wight, Ic. t. 349; *G. geminatum*, R. Br. Prod. 462; Dene. in DC. Prod. viii. 623.

Hab.: Islands of the Gulf of Carpentaria, *R. Brown*.

The species is also in Ceylon and the Indian Peninsula, and has probably a much wider range in tropical Asia. *R. Brown* indicated the close resemblance of the Australian to the Indian plant; and, after a careful analysis of the flowers of both, I can detect no character to separate them unless the scales of the corolla may be slightly more decurrent in the former than in the latter.—*Benth.*

2. ***G. pleiadenium*** (from the cluster of small glands at base of leaf), *F. v. M. Fragm.* xi. 77. A tall twiner; branches glabrescent. Leaves with a thin pubescence, herbaceous, ovate, 2 to 3 in. long, rounded at the base, the apex obtusely acuminate, nerves somewhat distant, veinlets very fine, with a cluster (about 10) of small glands just above the petiole. Petiole thin, about $\frac{3}{4}$ in. long. Peduncles interpetiolar, often solitary, bearing many-flowered umbels. Pedicels about 2 lines long. Calyx scarcely 1 line long, lobes lanceolate, the upper part reflexed. Corolla yellow, about 3 lines long; lobes glabrous inside, the outside thinly pubescent, the tube crested inside about the middle, anther membrane broad. No corona. Column about 1 line high. Pollen-masses 2, erect. Stigma white, 1 line diameter. Ovary almost 4 lines long and $\frac{3}{4}$ line broad in the lower part. Fruit narrow-elliptic at the lower part, tapering upwards to subulate-tetere. Seeds brown, ovate, 3 to 4 lines long. Coma-hairs about 1 in. long.

Hab.: Described from a plant, at one time (1879) growing in the Brisbane Botanical Garden, which had been brought by Mr. W. Hill from Pine River.

3. ***G. brevifolium*** (leaves short), *Benth. Fl. Austr.* iv. 343. Apparently erect, pubescent. Leaves on very short petioles, ovate, obtuse, with recurved margins, becoming at length glabrous above, $\frac{1}{2}$ to 1 in. long. Umbels usually opposite, on very short peduncles. Pedicels 1 to 2 lines long. Sepals herbaceous, pubescent, obtuse, about $\frac{3}{4}$ line long. Corolla-tube broad, about as long as the calyx, slightly contracted at the throat; lobes very obtuse, shorter than the tube, all as well as the throat and tube glabrous inside, without scales. No corona. Follicles pubescent, not thick, acuminate, about 2 in. long.

Hab.: Rockhampton, *Thozet*; Princhester Creek, *Bowman*.

4. ***G. trinerve*** (leaves 3-nerved), *R. Br. Prod.* 462; *Benth. Fl. Austr.* iv. 343. Nearly erect or shortly twining, pubescent all over but the hairs few on the upper side of the leaves. Leaves shortly petiolate, oval-oblong to oblong-lanceolate, obtuse, very obliquely penniveined or 3-nerved at the base, 1 to 2 in. long. Umbels solitary, sessile. Pedicels 1 to 2 lines long. Calyx-segments herbaceous, pubescent, obtuse but not broad, above 1 line long. Corolla shortly exceeding the calyx; the tube short and broad; lobes obtuse, longer than the tube, the throat without scales, but half-closed with tufts of hairs alternating with the lobes and sometimes forming a complete ring. Corona none except very obscure glands or protuberances at the base of the gynostegium. Stigma not prominent.—*Bidaria trinervis*, Dene. in DC. Prod. viii. 624.

Hab.: Islands of the Gulf of Carpentaria, *R. Brown*.

11. GONGRONEMA, Dene.

(Filaments knotted.)

Calyx 5-partite. Corolla urceolate, subrotate or broadly campanulate, lobes narrowly overlapping to the right. Column short; corona scales adnate to the base of the anthers or none. Anther-tips inflexed, concealing the stigma.

Pollen-masses solitary in each cell, ovoid, waxy, erect. Stigma convex, clavate, or conical. Follicles acuminate. Seeds comose.—Glabrous twining shrubs or undershrubs. Leaves opposite. Cymes various, axillary. Flowers small.

The species are not numerous, and are met with in Asia, Africa, and Australia (Queensland), the latter endemic.

1. **G. micradenia** (glands small), *Benth. Fl. Austr.* iv. 344. A rather slender but tall twiner, minutely but softly pubescent. Leaves obovate-oblong or elliptical, abruptly and shortly acuminate, mostly rounded at the base, becoming glabrous above when full grown, with 2 or 3 minute glands on the upper surface immediately above the petiole, 1 to 1½ in. long. Umbels small, sometimes shortly developed into cymes, on short interpetiolar peduncles, solitary or rarely opposite and axillary. Calyx-segments ovate, obtuse, not ½ line long. Corolla-tube broad, as long as the calyx, slightly contracted at the throat but without scales or hairs inside; lobes short, obtuse. Corona of 5 scarcely prominent small glands or protuberances at the base of the gynostegium. Stigma shortly and obtusely conical. Follicles acuminate, about 1 line long.

Hab.: Brisbane River, *F. v. Mueller*; Ugly Creek, *C. Stuart*; Rockhampton, *O'Shanesy*.

12. TYLOPHORA, R. Br.

(Alluding to the swelled pollen-masses.)

Corolla rotate or nearly so, deeply divided into 5 lobes contorted in the bud, the right-hand edge usually overlapping. Corona of 5 segments, adnate to the back of the anthers, usually prominent and thick or slightly inflated at the base, with short erect adnate or recurved tips. Anthers terminating in a small membrane. Pollen-masses 2 to each anther, small, nearly globular, horizontal or slightly ascending. Stigma short, obtuse or minutely 2-lobed.—Stems erect or more frequently twining. Leaves herbaceous. Flowers in one or more clusters or umbels, along a small or branched interpetiolar peduncle.

The genus is spread over tropical Asia and Africa and southern Africa, but the Australian species appear to be all endemic. It comes very near to those species of *Marsdenia* which have rotate corollas, and is most readily distinguished by the small globular pollen-masses.—*Benth.*

Stems erect, pubescent. Leaves narrow-lanceolate 1. *T. erecta*.

Twiners.

Flowers (nearly lin. diameter) solitary or very few in a simple umbel.

Corona-segments horizontal 2. *T. grandiflora*.

Flowers (4 to 5 lines diameter) in 1, 2 or several umbels. Leaves broad, cordate. Corona-segments vertical.

Calyx hirsute. Corona-segments slightly saccate, not spurred 3. *T. floribunda*.

Calyx glabrous. Corona-segments spurred at the base 4. *T. calcarata*.

Flowers (2 to 3 lines diameter) in several umbels or clusters in a divaricate almost filiform cyme. Corolla-lobes tapering into a long linear point 5. *T. paniculata*.

Flowers (scarcely 1½ line diameter) in several umbels, sessile along slender simple peduncles 6. *T. acruosa*.

1. **T. erecta** (stems erect), *F. v. M. Herb.*; *Benth. Fl. Austr.* iv. 334. Stems erect, simple, 1 to 2ft. high, the whole plant softly tomentose-pubescent or the upper surface of the leaves at length nearly glabrous. Leaves shortly petiolate, lanceolate, rather acute, 3 to 6in. long. Flowers in few clusters or sessile umbels forming a rather compact cyme or in a single umbel on interpetiolar peduncles shorter than the leaves. Pedicels 2 to 6 lines long. Sepals narrow, acute, above 1 line long. Corolla spreading to about 3 lines diameter. Corona-segments thick fleshy and very prominent, slightly compressed laterally and tapering upwards into an adnate point. Fruit not seen.

Hab.: Burdekin River, *F. v. Mueller*; Sellheim and Bowen Rivers, *Bowman*; Einasleigh River, *W. E. Armit*.

2. **T. grandiflora** (large-flowered), *R. Br. Prod.* 460; *Benth. Fl. Austr.* iv. 334. A rather slender twiner, the stems and foliage pubescent. Leaves on slender petioles, ovate to ovate-lanceolate, shortly and acutely acuminate, more or less cordate, 1 to 2 in. long. Flowers large for the genus, purple, on filiform pedicels of $\frac{1}{2}$ to 1 in., usually only 1 or 2 rarely 3 on a short interpetiolar peduncle. Calyx-segments ovate, about 1 line long. Corolla spreading to about 1 in. diameter, the lobes ovate-oblong, obtuse. Gynostegium small. Corona-segments thick, rounded, horizontally spreading and united in a ring at the base. Follicles acuminate, about 3 in. long. Seeds broad.—Dene. in DC. *Prod.* viii. 612; *Hoya grandiflora*, Spreng. *Syst.* i. 848.

Hab.: Scrubs of the Brisbane River; near Wallangarra.

3. **T. floribunda** (free-flowerer), *Benth. Fl. Austr.* iv. 335. A slender twiner, slightly pubescent. Leaves petiolate, broadly ovate-cordate, shortly acuminate, 3 to 4 in. long. Flowers of a deep purple, rather large and numerous, in several umbels, forming corymbose cymes on interpetiolar peduncles shorter than the leaves. Calyx-segments narrow, hirsute, about 1 line long. Corolla spreading to about 5 lines diameter; lobes ovate-lanceolate, almost acute. Corona-segments very prominent, almost saccate, slightly compressed laterally tapering into a short adnate point, forming 5 thick radiating wings to the gynostegium.

Hab.: Towards the Tweed River; southern scrubs.

4. **T. calcarata** (spurred), *Benth. Fl. Austr.* iv. 335. A glabrous twiner. Leaves on rather short petioles, broadly cordate-ovate, shortly acuminate, membranous, about 4 in. long, with 3 or 4 small glands at the base of the limb on the upper side. Flowers apparently dark-green, in 1 or 2 umbels on a short peduncle, the pedicels $\frac{1}{2}$ in. long or more. Calyx-segments lanceolate, glabrous, scarcely above $\frac{1}{2}$ line long. Corolla spreading to fully 4 lines diameter, the lobes almost acute and only very slightly overlapping in the bud so as to appear almost valvate. Corona-segments very prominent, laterally compressed, forming 5 vertical radiating wings to the gynostegium, the lower outer angle produced into a short spur, the upper one shortly turned up into an obtuse point.

Hab.: Rockhampton, *Thozet*.

Evidently very near *T. floribunda*, differing, however, in the colour of the flowers, in the corona-segments, &c.—*Benth.*

5. **T. paniculata** (paniculate), *R. Br. Prod.* 460; *Benth. Fl. Austr.* iv. 336. A tall slender twiner, glabrous or slightly pubescent. Leaves deep-green, the nerves and veins prominent on slender petioles, ovate or ovate-lanceolate, acutely acuminate, 1 to 2 in. long on the flowering branches. Umbels few-flowered, in loose slender cymes exceeding the leaves. Pedicels filiform, 4 to 6 lines long. Flower-bud rostrate. Calyx-segments lanceolate, thin, nearly $\frac{1}{2}$ line long. Corolla-lobes from a short broad base tapering into long linear almost filiform points, spreading to nearly 5 lines diameter. Corona-segments adnate at the base, broadly ovate, obtuse, the tips prominent and somewhat spreading, shorter than the gynostegium.—Dene. in DC. *Prod.* viii. 612; *Hoya paniculata*, Spreng. *Syst.* i. 848.

Hab.: Southern creek sides.

6. **T. flexuosa** (flexuose), *R. Br. Prod.* 460; *Benth. Fl. Austr.* iv. 336. A rather slender twiner, glabrous or the inflorescence pubescent. Leaves ovate-lanceolate to linear-lanceolate, acutely acuminate, cordate when broad, the larger ones 2 to 3 in. long or even more, the upper ones small and narrow. Flowers very small, in little clusters or sessile umbels along a slender flexuose peduncle,

often longer than the leaves. Pedicels filiform, 1 to 2 lines long. Calyx-segments about $\frac{3}{4}$ line long. Corolla scarcely $1\frac{1}{2}$ line diameter. Corona-segments rather thick, but not very prominent, acuminate, the adnate points reaching to about half the length of the anthers.—Dene. in DC. Prod. viii. 612; *Hoya flexuosa*, Spreng. Syst. i. 843.

Hab.: Islands of the Gulf of Carpentaria, *R. Brown*.

13. MARSDENIA, R. Br.

(After William Marsden.)

(*Leichhardtia*, *R. Br.*)

Corolla with a short broad tube or nearly rotate, the limb spreading, divided into 5 lobes contorted in the bud, the right-hand edge usually overlapping. Corona of 5 segments adnate to the gynostegium at the base, sometimes with free basal auricles or almost peltate, the upper end erect and free, shorter than the anthers or scarcely exceeding them. Anthers terminating in a membrane. Pollen-masses 2 to each anther, oblong or rarely obovoid, erect. Stigma (or summit of the style) obtuse or terminating in a cone or in a long beak.—Stems twining or rarely erect. Leaves herbaceous. Flowers in an irregular cyme or panicle or more frequently in a simple umbel on an interpetiolar peduncle.

The genus, as at present constituted, is dispersed over the tropical regions of the New as well as the Old World, with one species extending to the East Mediterranean region. The Australian species are, however, as far as hitherto ascertained, all endemic.—*Benth.*

Flowers small in compound cymes. Corolla rotate. Leaves broad or narrow, not cordate.

Stigma short and very obtuse.

Erect or scarcely twining.

Leaves usually broad. Corolla-lobes shortly bearded 1. *M. cinerascens*.

Leaves oval or narrow-lanceolate. Corolla-lobes narrow, oblong-lanceolate 2. *M. rhyncholepis*.

Twining. Leaves usually narrow. Corolla lobes glabrous 3. *M. flavescens*.

Stigma narrow-conical or rostrate. Leaves narrow. Corolla-lobes bearded at the base 4. *M. cymulosa*.

Flowers often rather large, in cymes or in simple umbels. Corolla more or less urceolate. Leaves large, cordate. Flowers in cymes. Stigma short 5. *M. velutina*.

Flowers in simple umbels. Stigma narrow-conical or rostrate. Corolla $\frac{3}{4}$ lin. long 6. *M. araujacea*.

Flowers in simple umbels. Corolla more or less urceolate (except in *M. longiloba*). Leaves broad or narrow, not cordate.

Stigma long and rostrate. Leaves ovate, shortly and obtusely acuminate. Corolla-lobes shortly bearded below the middle 7. *M. rostrata*.

Leaves lanceolate, acute. Corolla-throat densely bearded 8. *M. Fraseri*.

Stigma narrow-conical, not much exceeding the anthers. Leaves oval oblong or lanceolate. Corolla glabrous inside, the lobes twice as long as the tube 9. *M. longiloba*.

Leaves linear. Corolla-lobes shorter than the tube or not longer. Corolla-lobes not 1 line long; tube pubescent inside 10. *M. leptophylla*.

Corolla glabrous inside, the lobes nearly 2 lines long 11. *M. Leichhardtiana*.

Stigma very short and obtuse. Glabrous or nearly so. Leaves mostly lanceolate, acute. Corolla-throat with a prominent ring inside and more or less bearded 12. *M. viridiflora*.

Glabrous or nearly so. Leaves lanceolate, acute. Corolla glabrous inside with an inflexed scale at the throat at each sinus 13. *M. coronata*.

Pubescent. Leaves ovate to broadly lanceolate. Corolla glabrous inside 14. *M. microlepis*.

1. ***M. cinerascens*** (plant ashy-grey), *R. Br. Prod.* 461; *Benth. Fl. Austr.* iv. 337. Shrubby, diffuse, suberect or shortly twining, the young shoots and inflorescence usually hoary-pubescent, the adult foliage glabrous. Leaves on rather long petioles, in some specimens broadly ovate or almost orbicular, in

others oval-oblong or oblong-lanceolate, obtuse or shortly acuminate, $1\frac{1}{2}$ to 2in. long or rarely longer. Flowers small, in compound cymes shorter than the leaves, on axillary or interpetiolar peduncles or in much longer irregular terminal panicles, consisting of several umbels as in *M. flavescens*. Calyx-segments broad, obtuse, hirsute, about $\frac{1}{2}$ line long. Corolla nearly rotate, spreading to about $1\frac{1}{2}$ lines diameter, the lobes ovate-oblong, obtuse, shortly bearded inside. Corona-segments short, broad, obtuse, spreading at the tips. Pollen-masses obovoid, smaller than in most species. Stigma very obtuse, truncate. Follicles tomentose, 2in. long, acuminate from a rather broad base.—Dcne. in DC. Prod. viii. 614.

Hab.: Islands of the Gulf of Carpentaria, *R. Brown*.

2. ***M. rhyncholepis*** (corona-segments beaked), *F. v. M. Fragm.* xi. 78. Habit of *M. cinerascens*, tomentello-pubescent. Leaves ovate or narrow-lanceolate, $2\frac{1}{2}$ to 4in. long, $\frac{1}{2}$ to 1in. broad, pale beneath, the lateral nerves very slender. Petioles $\frac{1}{2}$ to 1in. long. Panicles umbelliferous, axillary, about 2in. long. Pedicels 2 to 3 lines long. Calyx scarcely 1 line, deeply divided into ovate or lanceolate-oblong lobes, with minute glands at the base. Corolla about 2 lines long, glabrous outside; lobes narrow, oblong-lanceolate, bearded below inside. Corona-divisions long, acuminate. Pollen-masses ovate, somewhat erect. Stigma almost cylindrical, about 1 line long.

Hab.: Palmer River, *T. Gulliver* (*F. v. M.*)

3. ***M. flavescens*** (yellowish flowers), *A. Cunn. in Bot. Mag.* t. 3289; *Benth. Fl. Austr.* iv. 337. A rather tall twiner, more or less tomentose-pubescent all over, except the upper surface of the leaves. Leaves shortly petiolate, oval-oblong to oblong-lanceolate, obtuse acute or acuminate, rounded truncate or rarely contracted at the base, the larger ones 2in. long when broad or 3in. when narrow. Flowers small, of a pale greenish-yellow, rather numerous, in pedunculate corymbose cymes, shorter than the leaves, opposite and axillary or solitary and more or less lateral, consisting of several umbels, the pedicels very short. Calyx-segments oval-oblong, obtuse, scarcely above $\frac{1}{2}$ line long. Corolla nearly rotate, spreading to a diameter of $1\frac{1}{2}$ line, the lobes oblong, obtuse, glabrous inside. Corona-segments broad, with 2 obtusely prominent auricles at the base, the free summit obtuse and much shorter than the anthers. Pollen-masses oblong. Stigma short, obtuse. Follicles narrow, acuminate, about 2in. long.—Dcne. in DC. Prod. viii. 614.

Hab.: Southern localities.

4. ***M. cymulosa*** (flowers in cymes), *Benth. Fl. Austr.* iv. 338. Softly but shortly tomentose-pubescent. Leaves oblong-lanceolate, acute or rather obtuse, rounded or narrowed at the base, 2 to 4in. long, on petioles of $\frac{1}{4}$ to $\frac{1}{2}$ in. Flowers small, in little umbels or clusters arranged in dichotomous or trichotomous cymes, pedunculate in the upper axils, often forming leafy panicles but scarcely exceeding the leaves. Pedicels short. Calyx-segments obtuse, about $\frac{1}{2}$ line long. Corolla nearly rotate, deeply divided into narrow obtuse lobes of about 1 line, bearded inside at the base as well as the very short tube. Corona-segments with the adnate base not prominent, the erect part broad, obtuse, membranous, nearly as long as the anthers. Stigma narrow-conical, tapering into a short beak. Fruit not seen.

Hab.: Chin-Chin Creek, *Bowman*.

5. ***M. velutina*** (velvety), *R. Br. Prod.* 461; *Benth. Fl. Austr.* iv. 338. A tall climber, shortly but softly pubescent. Leaves on long petioles, broadly ovate-cordate, shortly acuminate, 3 to 4in. long. Flowers in compact cymes, either almost sessile or on dichotomous interpetiolar peduncles nearly as long as

the petioles. Pedicels 1 to 3 lines long. Calyx-segments broad, obtuse, the margins more or less scarious, about $1\frac{1}{2}$ line long. Corolla pubescent outside, the broad tube as long as the calyx, thickened inside at the throat into a prominent glabrous ring; lobes spreading, obtuse, rather longer than the tube. Corona-segments vertically adnate, laterally compressed, with 2 prominent angles or keels on the back, more or less confluent at the base with those of the adjoining segments, tapering at the top into free incurved points as long as or rather longer than the anthers. Pollen-masses linear-oblong. Stigma thick, obtuse or shortly 2-lobed, not exceeding the anthers. Fruit not seen.—Dcne. in DC. Prod. viii. 614.

Hab.: Islands of the Gulf of Carpentaria, *R. Brown*.

In foliage this plant resembles *Parsonsia velutina*, but the flowers are very different.—*Benth*.

6. *M. araujacea* (Araujia-like), *F. v. M. Fragm.* vi. 135; *Benth. Fl. Austr.* iv. 339. A large twiner, the branches and foliage sprinkled with appressed hairs. Leaves on rather long petioles, cordate-ovate, shortly acuminate, membranous, 4 to 5 in. long. Flowers large, in dense simple umbels, on lateral peduncles shorter than the petioles, the pedicels, bracts, and calyx shortly pubescent. Calyx-segments nearly orbicular, very obtuse, 3 lines long. Corolla about $\frac{1}{2}$ in. long, the tube very broad, slightly contracted at the throat, the lobes rather longer, bearded inside with long hairs up the centre and round the base. Corona-segments broadly-oblong, peltately adnate, almost cartilaginous, the margins free, the upper end exceeding the anthers and abruptly contracted into a short point. Pollen-masses linear-oblong. Stigma with a narrow conical beak not exceeding the corona.

Hab.: Rockingham Bay, *Dallachy*.

7. *M. rostrata* (stigma-beaked). *R. Br. Prod.* 461; *Benth. Fl. Austr.* iv. 339. A rather stout twiner, either glabrous or the young shoots and inflorescence or the whole plant tomentose-pubescent. Leaves on rather long petioles, ovate to almost orbicular, shortly and obtusely but usually abruptly acuminate, not cordate or very slightly so when very broad. Flowers sweet-scented, of a greenish-yellow or nearly white, numerous, in simple dense globular umbels, on interpetiolar peduncles shorter than the petioles. Pedicels 2 to 3 lines long. Calyx-segments broad, obtuse, about 1 line long. Corolla glabrous outside, the broad tube not contracted at the throat, nearly as long as the calyx, glabrous inside; lobes rather longer, spreading, obtuse, very shortly bearded below the middle. Corona-segments with an adnate, scarcely prominent base, the free part erect, incurved, nearly as long as or rarely longer than the anthers. Stigma produced into a flexuose beak, already as long as the corolla before it opens. Pollen-masses oblong. Follicles broad, acuminate, not above 2 in. long.—Dcne. in DC. Prod. viii. 616.

Hab.: Keppel Bay, *R. Brown*; Brisbane River.

8. *M. Fraseri* (after Chas. Fraser), *Benth. Fl. Austr.* iv. 339. A rather slender twiner, quite glabrous. Leaves shortly petiolate, lanceolate, acute, rounded at the base, 2 to 3 in. long. Umbels simple and solitary, rather dense, on interpetiolar peduncles of $\frac{1}{2}$ to 1 in. Pedicels 2 to 3 lines long. Calyx-segments very broadly ovate, very obtuse, about 1 line long. Corolla-tube broad, as long as the calyx, slightly contracted at the throat, which is closed by a dense ring of long inflexed hairs, the tube also slightly hairy inside; lobes ovate, obtuse, shorter than the tube. Corona-segments with the adnate part scarcely conspicuous, the free erect part lanceolate, acute, about as long as the anthers. Stigma rostrate as in *M. rostrata*. Fruit not seen.

Hab.: Moreton Bay, *C. Fraser*, *A. Cunningham*.

9. **M. longiloba** (corolla-lobes oblong), *Benth. Fl. Austr.* iv. 340. A glabrous twiner. Leaves petiolate, ovate-lanceolate or lanceolate, acuminate, rounded or truncate at the base, $1\frac{1}{2}$ to $2\frac{1}{2}$ in. long. Umbels simple and solitary, on peduncles rarely exceeding the petioles. Pedicels 3 to 4 lines long. Calyx-segments ovate-lanceolate, rather obtuse, about 1 line long, glandular. Corolla with a very broad and short tube, glabrous inside, the limb spreading to 4 or 5 lines diameter, the lobes twice as long as the tube, rather narrow, obtuse or almost acute, with 5 prominent scales in the throat alternating with the lobes. Corona-segments each with 2 very prominent vertical auricles on the adnate base, the free part erect, narrow, short or nearly as long as the anthers. Pollen-masses narrow-oblong. Stigma narrow-conical, about as long as the anther-membranes.

Hab.: Towards the Tweed River.

10. **M. leptophylla** (leaves slender), *F. v. M. in Herb. Hook.; Benth. Fl. Austr.* iv. 340. A slender, slightly pubescent twiner. Leaves narrow-linear, contracted into a short petiole, 1 to 2 in. long. Umbels simple and solitary, rather dense, on short interpetiolar peduncles. Pedicels short. Calyx-segments oblong, rather obtuse, nearly 1 line long. Corolla-tube nearly $1\frac{1}{2}$ line long, contracted upwards, the upper part pubescent inside, with raised lines decurrent from the sinus of the lobes to about halfway; lobes much shorter than the tube, broad, obtuse. Corona-segments small, peltate, shortly auriculate at the base, the free erect part very short. Pollen-masses short but erect. Stigma narrow-conical, almost rostrate.

Hab.: Burdekin River, *F. v. Mueller*.

A single specimen in Herb. Hook.—*Benth.*

11. **M. Leichhardtiana** (after L. Leichhardt), *F. v. M. Fragm.* v. 160; *Benth. Fl. Austr.* iv. 341. Stems woody at the base, with long twining branches, the young parts glaucous or white-tomentose. Leaves linear, obtuse, contracted into a very short petiole, rather thick, $1\frac{1}{2}$ to 3 or even 4 in. long. Flowers large for the genus, in simple and solitary dense umbels, on short interpetiolar peduncles. Pedicels short. Calyx-segments ovate, obtuse, about 2 lines long. Corolla-tube 2 lines long, contracted at the throat with a thickened ring prominent inside, but less so than in *M. viridiflora* and quite glabrous; lobes rather shorter than the tube, obtuse. Corona-segments small, the adnate part broad and slightly auriculate at the base, the free erect part very short. Stigma conical, obtuse, shorter than the anthers. Pollen-masses oblong. Follicles thick, ovoid or ovoid-oblong, scarcely acuminate, $1\frac{1}{2}$ to 3 in. long.—*Leichhardtia australis*, R. Br. in *App. Sturt. Voy.* 18.

Hab.: Narran River, the pods eaten by the natives under the name of "Doubah", *Mitchell*.

12. **M. viridiflora** (flowers green), *R. Br. Prod.* 461; *Benth. Fl. Austr.* iv. 341. A twiner, quite glabrous or with a rusty pubescence on the young shoots and inflorescence. Leaves either long-lanceolate with a broad sometimes almost hastate base with rounded auricles, or all linear-lanceolate, rarely almost ovate, acute or rarely obtuse, 2 to 4 in. long. Flowers green, in simple umbels, solitary or rarely 2 together on short interpetiolar peduncles. Pedicels slender, 3 to 4 lines long. Calyx-lobes ovate, very obtuse, about 1 line long. Corolla-tube broad, rather shorter than the calyx, half-closed at the throat by a prominent ring and bearded inside, the hairs either in tufts opposite each sinus or forming a complete ring; lobes ovate, obtuse, spreading to nearly 3 lines diameter. Corona-segments auriculate at the base, the free erect part obtuse, much shorter than the anthers. Stigma very short, obtuse. Follicles about 3 in. long, above 1 in. broad, scarcely acuminate.—*Dcne.* in *DC. Prod.* viii. 615.

Hab.: Keppel Bay and Broadsound, *R. Brown*; Brigalow scrub, from the Dawson and Burdekin to the Burnett Rivers, *F. v. Mueller*; Rockhampton, *Dallachy and others*; Suttro River and Nerkoool Creek, *Bowman*.

13. **M. coronata** (corona prominent), *Benth. Fl. Austr. iv. 341.* A rather slender twiner, glabrous or slightly pubescent. Leaves petiolate, lanceolate, acute, narrowed or rounded at the base, 1 to 2 in. long. Umbels few-flowered, simple and solitary on short interpetiolar peduncles. Pedicels 4 to 6 lines long. Calyx-lobes ovate-oblong, obtuse, rather exceeding 1 line. Corolla-tube broad, as long as the calyx, slightly contracted at the throat with a small inflexed scale opposite each sinus; lobes as long as or rather shorter than the tube, broad and very obtuse, all quite glabrous inside. Corona-segments broad, thick, and horizontally prominent at the base, the erect free part acute, nearly as long as the anthers. Pollen-masses oblong-clavate. Stigma very short and obtuse.

Hab.: Brisbane River, Moreton Bay, *F. v. Mueller.*

14. **M. microlepis** (corona-segments very small), *Benth. Fl. Austr. iv. 342.* A twiner, softly pubescent or the foliage at length glabrous. Leaves petiolate, ovate oblong or broadly lanceolate, obtuse or mucronate, truncate or almost cordate at the base, 1 to 1½ in. long. Umbels many-flowered, simple, solitary and nearly sessile. Calyx-segments pubescent, nearly 1 line long. Corolla-tube nearly as long as the calyx, slightly contracted and thickened inside at the throat, but quite glabrous; lobes shorter than the tube, and apparently less spreading than in *M. viridiflora*, sometimes slightly pubescent outside. Corona-segments peltate, the free erect part obtuse and very short. Stigma short and obtuse.

Hab.: Port Curtis, *M'Gillivray*; Burdekin River, *F. v. Mueller*; head of Boyd River *Leichhardt*; Nercool Creek, *Bowman* (all pubescent); Rockhampton, *Dallachy* (nearly glabrous).

14. THOZETIA, F. v. M.

(After M. Antheline Thozet.)

Corolla nearly rotate, deeply divided into 5 lobes induplicate-valvate in the bud. Corona of 5 erect membranous segments, peltately attached to the back of the anthers, the upper end free. Anthers terminating in a membrane. Pollen-masses 2 to each anther, obovate-oblong, erect. Stigma conical.—Tall twiner. Leaves herbaceous. Flowers in reflexed interpetiolar racemes, the persistent rhachis much lengthened and covered with the scars of fallen pedicels.

The genus is limited to a single Australian species, allied to *Hoya* in its flowers, with the corona of *Marsdenia*.—*Benth.*

1. **T. racemosa** (flowers in racemes), *F. v. M. Herb.; Benth. Fl. Austr. iv. 347.* Apparently a tall woody twiner, the branches and petioles hirsute with spreading hairs. Leaves cordate-ovate, rather narrow, 4 to 5 in. long, glabrous above, more or less hirsute underneath. Flowers rather large, dark coloured, in reflexed interpetiolar nearly sessile racemes, the rhachis lengthening to 2 in. or more and densely covered with the prominent scars of the fallen pedicels, interspersed with small persistent bracts. Pedicels 3 to 5 lines long. Calyx slightly hirsute, the segments lanceolate, about 2 lines long. Corolla-lobes narrow-lanceolate, about 5 lines long. Corona-segments peltate, the lower free portion broad, the upper free portion oblong, truncate or sinuate, rather longer than the anthers. Stigma narrow-conical. Follicles glabrous, acuminate.

Hab.: Near Rockhampton, *Thozet.*

The corollas I have seen are already expanded, but they have every appearance of having been induplicate-valvate in the bud, as described in *F. v. Mueller's* notes.—*Benth.*

15. HOYA, R. Br.

(After Thomas Hoy.)

Corolla rotate, the lobes flat or with reflexed margins, valvate in the bud. Corona of 5 rather thick fleshy segments attached to the gynostegium, horizontally spreading or expanded into variously-shaped disks. Anthers terminated by a membrane; pollen-masses 2 to each anther, erect. Stigma obtuse or scarcely prominent.—Stems twining or trailing. Leaves thick and fleshy or in a few species not Australian membranous. Flowers often fleshy or waxy, in pedunculate interpetiolar simple umbels.

The genus is widely spread over tropical Asia, and more sparingly represented in Africa on the one hand, and the South Pacific Islands on the other.

Flowers white.

Leaves oblong, pubescent beneath. Corona-segments expanding into concave ovate horizontally spreading laminæ, with points at base.

Keels almost winged

Plant softly pubescent. Leaves ovate-cordate. Flowers like *H. australis*

Flowers white or pink. Corona-segments expanded into a concave disk, the outer margin very obtuse, the inner acuminate

Flowers yellow. Corona-segments expanded into slightly concave ovate almost acute disks, the inner margin very short and obtuse

1. *H. Sana.*2. *H. Keysii.*3. *H. australis.*4. *H. Nicholsonia.*

1. **H. Sana** (after Mrs. F. L. Jardine), *Bail. Ql. Agri. Journ.* i. A slender climber, on open country found climbing over shrubs to the height of 6 or more feet. Leaves oblong to oblong-lanceolate, from $1\frac{1}{2}$ to $3\frac{1}{2}$ in. long, thick, pale in colour, only showing a rather broad midrib, more or less covered on the under side with white hairs, often apiculate, petioles seldom exceeding $\frac{1}{2}$ in. Peduncles hairy, about 10 lines long, bearing an umbel of about 10 or 12 more or less pubescent, white flowers. Pedicels hairy, 9 lines long. Calyx-lobes 5, hairy, rather narrow. Corolla spreading to about 5 lines diameter; lobes 5, hairy on the back, the hairs much shorter on the face. Corona-segments expanding into concave, ovate, horizontally spreading laminæ, the base ending in a rather long point; the 2 keels almost wing-like.

Hab.: Polo Creek, Somerset, Mrs. F. L. Jardine.

There does not seem sufficient authority for giving *H. carnosa*, R. Br., as a Queensland species. The specimen in Mueller's herbarium, referred to by Benth. Fl. Austr. iv. 346, must, in my opinion, have been placed there in mistake; or, it might have belonged to *H. Sana*, which in a dry state somewhat resembles *H. carnosa*.

2. **H. Keysii** (after J. Keys, F.L.S.), *Bail. Proc. Roy. Soc. Ql.* i. A succulent pubescent climber. Leaves ovate-cordate when small, the larger ones more ovate, 1 to 2 in. long, $\frac{3}{4}$ to over 1 in. wide, thick, fleshy, but prominently pinnerved, the principal veins conspicuously anastomosing within the margin. Inflorescence pubescent. Peduncles 6 to 9 lines long, bearing an umbel of 12 or more flowers, on pedicels of 6 to 9 lines. Calyx-segments about 1 line long. Corolla spreading to about $\frac{1}{2}$ in. wide, the segments acuminate, inflexed after flowering. Corona-segments with horizontally spreading laminæ, very obtuse on the outer margin, the inner margin acuminate and the back with 2 sharp keels as in *H. australis*.

Hab.: On rocks, Mount Perry, Jas. Keys; Lizard Island, Lord Lamington.

3. **H. australis** (Australian), R. Br.; *Trail in Trans. Hort. Soc.* vii. 28; *Benth. Fl. Austr.* iv. 346. A succulent glabrous twiner or epiphyte. Leaves on short petioles, ovate obovate or nearly orbicular, obtuse or shortly acuminate, rounded or rarely almost cordate at the base, thick and fleshy, 2 to 3 in. long or rarely more. Flowers white tinged with pink in the centre, in simple umbels on interpetiolar peduncles rarely exceeding the petioles, the pedicels slender, $\frac{1}{2}$ to 1 in. long or even more. Calyx-segments about 1 line long. Corolla

spreading to $\frac{1}{2}$ in. diameter, broadly 5-lobed, the upper surface nearly smooth and glabrous except towards the edges which are slightly papillose and not reflexed. Corona-segments expanded into concave (at first almost cup-shaped) horizontally spreading laminae, very obtuse on the outer margin, the inner margin acuminate and incurved, the back prominently 2-keeled.—*H. carnosa*?, R. Br. Prod. 460 (as to the Australian plant); *H. bicarinata*, A. Gray in Proc. Amer. Acad. Sc. v. 335; *H. Dalrympleana*, F. v. M. Rep. Burdek. Exped. 16; Bot. Mag. 5820.

Hab.: Endeavour River, Banks and Solander, R. Brown; Port Denison, Fitzalan; Rockhampton, Rockingham and Edgecombe Bays, Dallachy; Brisbane River, Moreton Bay, Backhouse, F. v. Mueller; Ugly Creek, C. Stuart.

Considered very poisonous to sheep.

4. **H. Nicholsoniæ** (after Lady Nicholson), F. v. M. Fragm. v. 159; Benth. Fl. Austr. iv. 347. A glabrous succulent epiphyte clinging to the trunks of trees, the branches often twining and emitting fibres not confined to the nodes. Leaves ovate or elliptical, acuminate, contracted into a rather short petiole, thick and fleshy, very obliquely penniveined and 3-nerved at the base or almost quintuplinerved, 2 to 3 in. long or when luxuriant above 4 in. Flowers yellow, rather numerous in the umbel, the pedicels $\frac{1}{2}$ to $\frac{3}{4}$ in. long. Corolla if spread open nearly $\frac{1}{2}$ in. diameter, deeply lobed, quite glabrous, the lobes acute and curved over the gynostegium. Corona-segments expanded into ovate slightly concave disks, the outer margin almost acute, the inner margin very broad short and obtuse, the back with 2 broadly-prominent involute keels.

Hab.: Rockingham Bay, Dallachy; not uncommon in the tropics.

16. DISCHIDIA, R. Br.

(Corona-segments bifid.)

Corolla urceolate; lobes 5, spreading, valvate in the bud. Corona of 5 segments attached to the base of the gynostegium, erect, linear, and bifid at the end. Anthers terminated by a membrane. Pollen-masses 2 to each anther, oblong, erect. Stigma obtuse.—Herbs usually creeping over the stems of trees and rooting at the nodes. Leaves fleshy, some of them often converted into pitchers. Flowers small, in axillary or interpetiolar umbels or clusters.

The genus is spread over East India, and more especially the Indian Archipelago, where the Australian species are also found.

Without pitchers.

Leaves thick, nearly orbicular, mealy-white, about $\frac{1}{2}$ in. diameter . . . 1. *D. nummularia*.

Leaves fleshy, ovate, apiculate, more or less variegated on the upper side . . . 2. *D. ovata*.

Bearing pitchers. Leaves ovate or orbicular, fleshy, upper side convex, under side somewhat concave . . . 3. *D. timorensis*.

Bearing pitchers in great quantities. Leaves orbicular, 1 in. diameter . . . 4. *D. Rafflesiana*.

1. **D. nummularia** (shape of a piece of coin), R. Br. Prod. 461; Benth. Fl. Austr. iv. 345. A succulent milky-juiced epiphyte more or less mealy-white, the slender stems creeping over the trunks and branches of trees, rooting at the nodes, and apparently attaching themselves by means of disk-like expansions of the fibres, the upper branches loose and hanging. Leaves on very short petioles, nearly orbicular, thick and fleshy, not exceeding $\frac{1}{2}$ in. diameter. Flowers very small, in little sessile axillary or interpetiolar clusters, the pedicels very short. Calyx-segments minute. Corolla under $1\frac{1}{2}$ line long, the tube inflated, the lobes narrow, longer than the tube. Corona-segments as long as the gynostegium, at first erect, incurved, with short subulate inflected lobes, at length

spreading with recurved lobes. Follicles membranous, about 1 in. long, acuminate, recurved at the end. Seeds very small, with a very copious silky coma.—*Dene*. in DC. Prod. viii. 632.

Hab.: Cape York, *M'Gillivray*, *Damel*; Endeavour River, *Banks and Solander*; Rockingham Bay, *Dallachy*.

2. **D. ovata** (leaves ovate), *Benth. in Hook. Lond. Journ. of Bot.* 1843, p. 226. An epiphytal plant, the stems creeping and rooting at the nodes. Leaves on erect slender petioles of about 3 lines, fleshy and broadly ovate, apiculate, about 1 in. long, $\frac{3}{4}$ in. broad, glabrous, the 3 or 5 primary veins marked on the upper surface by light-coloured lines, giving to the leaf a variegated appearance. Peduncles axillary, about $\frac{3}{4}$ in. long with a thickened short fork at the end bearing from 5 to 8 flowers. Calyx-segments minute. Corolla about 3 lines long, the tube much inflated, stained with red; lobes short, erect, thick, and dotted with white, glabrous except for the dense ring of erect silky white hairs in the throat, immediately at the base of the corolla-lobes; segments of the corolla deeply bifid and incurved.—2nd Suppl. Syn. Ql. Fl. 41; *D. picta*, Bl.

Hab.: Johnston River and other localities in the tropical parts.

3. **D. timorensis** (of Timor), *Dene. in Nouv. Ann. der Mus.* iii. 377 t. 17. An epiphytal plant, creeping and rooting into the loose bark of trees. Leaves shortly petiolate, subrotund-ovate or orbicular, fleshy, upper side convex, under side somewhat concave. Ascidia nearly sessile, oblong, slightly arched, flattened, pendulous at the base of the branches.

Hab.: Recorded for Queensland by F. v. M. Cens. of Austr. Pl.

4. **D. Rafflesiana** (after Sir Stamford Raffles), *Wall. Plant. As. Rar.* ii. 35 t. 142. An epiphytal creeping plant, found running over and rooting into the loose bark of trees. Stem and branches stout. Leaves glaucous, roundish, orbicular, 1 in. diameter, subsessile. Ascidia pendulous, 3 or 5 in. long and over 1 in. broad, irregularly compressed, obtuse, fleshy, base gibbous. On opening these pitchers or reservoirs, they will usually be found full of the roots of the plant. Flowers pale-yellow, in axillary umbels. Sepals obtuse. Corolla fleshy; lobes 3-gonous, the throat thickened. Corona-lobes oblong, obtuse, incurved. Follicles smooth, 2 to 3 in. long, curved, 4 lines broad about the middle, tapering to both ends, pericarp thin. Seeds linear-oblong, over 1 line long.

Hab.: Islands of Torres Straits.

17. MICROSTEMMA, R. Br.

(Corona small.)

Corolla rotate, deeply divided into 5 acuminate lobes, valvate in the bud. Corona an undulate ring round the gynostegium below the anthers, and more prominent between the anthers than opposite to them. Anthers without terminal membranes. Pollen-masses 2 to each anther, ovoid, erect, laterally attached below the middle. Stigma short, obtuse.—Herbs, with tuberous rhizomes and erect stems. Leaves linear or none. Flowers in sessile umbels.

The genus is limited to Australia.

1. **M. tuberosum** (root a tuber), *R. Br. Prod.* 459; *Benth. Fl. Austr.* iv. 315. "Warabooga," Bloomfield River, "Antir," Princess Charlotte Bay, "Akala," Palmer River, *Roth*. Stems from a tuberous rhizome, erect, slender,

simple or slightly branched, glabrous. Leaves either all replaced by minute scales or a few in the upper part of the plant long and narrow-linear. Umbels sessile or very shortly pedunculate at the upper nodes, consisting of few dark-purple flowers, on filiform pedicels of 3 to 4 lines. Calyx-segments small. Corolla spreading to about 4 lines diameter, bearded inside with long purple hairs, the lobes acuminate. Gynostegium very short, the anther-cells prominent. Corona not very conspicuous. Follicles narrow-linear, acuminate, fully 3in. long.—Endl. Iconogr. t. 60; F. v. M. Fragm. i. 58.

Hab.: Islands of the Gulf of Carpentaria, *R. Brown*; Burdekin River, *F. v. Mueller*; Bloomfield and Palmer Rivers, Princess Charlotte Bay, *Roth*.

Tuber eaten roasted or raw, *Roth*.

18. CEROPEGIA, Linn.

(Literally a fountain of wax.)

Corolla with a distinct often elongated tube usually swollen at the base; lobes acute or acuminate, incurved and connivent or cohering at the tips, valvate in the bud. Corona inserted on the gynostegium, campanulate or rotate at the base, with 10 or 15 lobes in 2 rows (or rarely only 5), the inner ones usually longer acuminate and connivent over the gynostegium. Anthers without any terminal membrane. Pollen-masses 2 to each anther, erect or incurved. Stigma obtuse.—Stems usually twining from a tuberous rhizome. Leaves membranous or fleshy. Flowers often few and rather large, in axillary or interpetiolar cymes or umbels.

A considerable genus, widely spread over tropical Asia and Africa, although rare in the Indian Archipelago. The only Australian species is one of the few from the latter region.—*Benth*.

1. **C. Cumingiana** (after Hugh Cuming), *Dcne. in DC. Prod.* viii. 643; *Benth. Fl. Austr.* iv. 348. A glabrous twiner. Leaves ovate or ovate-oblong, always cordate at the base, shortly and acutely acuminate, thin and membranous when dry, penniveined, 3 to 4in. long, on petioles of $\frac{1}{2}$ to $1\frac{1}{2}$ in. Flowers rather numerous in the typical specimen, few in the Australian one, in a shortly-branched cyme sometimes contracted into an umbel, the common peduncle usually longer than the petiole, the pedicels from $\frac{1}{2}$ to 1in. long. Calyx-segments subulate-acuminate, 1 to $1\frac{1}{2}$ line long. Corolla-tube 1in. long, including the campanulate throat, which spreads to $\frac{1}{2}$ in. diameter; lobes shorter than that diameter, broad, acute, erect, arcuate and cohering at the tips. Corona loosely campanulate at the base, with 10 short lanceolate or oblong outer lobes in pairs usually sprinkled with a few long hairs, and 5 inner linear ones, twice as long as the outer ones and connivent over the gynostegium or cohering at the tips. Follicles (in the Philippine Island plant) very long and linear.—*F. v. M. Fragm.* v. 159.

Hab.: Near Somerset, Cape York, *Jardine*, a single specimen in Herb. *F. v. Mueller*.

Also in the Philippine Islands. The glabrous stems, cordate leaves, and small calyx-segments, readily distinguish this species from all others in the Kew collections. On comparing the gynostegium and corona of the Australian and Philippine specimens, I find no difference; the outer corona-lobes are very slightly hairy in both, although the hairs are sometimes reduced to 1 or 2 to each lobe. The Javanese plant figured as *C. Cumingiana* in *Bot. Mag.* t. 4349, differs in the corolla-tube densely hairy inside, the lobes much longer and acuminate, and in the much more clavate inner corona-segments, and appears to be the *C. curviflora*, Hassk., altered to *C. Horsfieldiana*, by Miquel, *Fl. Brit. Ind. Bat.* ii. 528, the only species hitherto found in Java.—*Benth*.

ORDER LXXXI. LOGANIACEÆ.

Flowers regular. Calyx free, with 4 or 5 teeth lobes or segments, very rarely reduced to 2 or in a very few species 6 or 7. Corolla with 4, 5, or (in genera not Australian) more than 5 lobes, valvate contorted or otherwise imbricate in the bud. Stamens as many as corolla-lobes, alternate with them, inserted in the tube or very rarely (in a genus not Australian) reduced to 1; anthers 2-celled, the cells opening longitudinally. Ovary free, 2-celled or very rarely 3 to 5-celled or imperfectly divided; style single or separating into 2 at the base, with an entire or 2-lobed stigmatic summit; ovules 1 or more in each cell of the ovary or to each placenta. Fruit a berry or capsule. Seeds albuminous. Embryo straight, often oblique, with leafy or small cotyledons.—Trees shrubs climbers or rarely herbs. Leaves opposite, usually connected by interpetiolar stipules or at any rate by a raised line.

A small Order, ranging over the tropical regions of the New as well as the Old World, with a few extratropical species in the southern hemisphere and in North America. The Order is a somewhat heterogeneous group of genera, differing from *Rubiaceæ* in the free ovary and less developed stipules, and closely connecting that Order with *Apocynaceæ*, *Gentianeæ*, and *Scrophularineæ*.—*Benth*

TRIBE I. **Euloganiææ**.—*Ovary with many ovules in each cell.*

- Herbs. Corolla-lobes valvate. Capsules 2-lobed or truncate. Flowers 4-merous, on simple solitary or clustered pedicels 1. MITRASACME.
- Herbs undershrubs or shrubs. Corolla-lobes imbricate, not contorted. Flowers usually 5-merous. Capsule septically dehiscent 2. LOGANIA.
- Shrubs or trees. Corolla-lobes imbricate-contorted.
Fruit a capsule. Flowers small in axillary clusters or cymes 3. GENIOSTOMA.
- Fruit a berry. Flowers usually large in terminal cymes or panicles 4. FAGRÆA.
- Shrubs trees or woody climbers. Corolla-lobes valvate. Fruit a berry. Leaves 3 or 5-nerved 5. STRYCHNOS.

1. MITRASACME, Labill.

(Capsule mitriform.)

Calyx campanulate, 4-lobed or rarely 2-lobed. Corolla-tube short and broad or elongated and cylindrical; lobes 4, spreading, valvate and sometimes reduplicate in the bud. Stamens 4, inserted in the tube; anthers included or rarely exserted. Ovary 2-celled, with several ovules in each cell; style usually simple at first but splitting at the base as the flowering advances; stigma capitate or minutely 2-lobed. Capsule globular or ovoid or compressed, usually truncate or 2-lobed at the top, opening along the inner margins of the lobes or carpels. Seeds small, ovoid or globular.—Herbs usually small or slender. Leaves opposite, without stipules. Flowers small, usually white, often yellowish at the throat, rarely all yellow, either solitary in the upper axils or the upper pedicels crowded into a terminal cluster or irregular umbel without bracteoles.

The genus is chiefly Australian.

SECT. I. **Mitragyne**.—*Calyx 4-lobed.*

Perennials (sometimes flowering the first year?)

- Stems leafy, much-branched, prostrate diffuse or tufted. Flowers axillary or the upper ones in a sessile umbel. Calyx divided to the middle. Corolla-lobes much longer than the tube. Anthers more or less exserted. Leaves linear-lanceolate or oblong-linear 1. *M. paludosa*.
- Stems leafy, erect or ascending. Corolla-lobes as long as the tube.
Flowers (small) in the upper axils or the uppermost in an almost sessile umbel.
Nearly glabrous. Leaves small ovate or ovate-lanceolate 2. *M. alsinoides*.
Pubescent or hirsute. Leaves narrow 1. *M. paludosa*.
- Flowers on long filiform pedicels, mostly forming loose umbels on long terminal peduncles 3. *M. polymorpha*.

- Annuals. Leaves all radical, rosulate, usually withering as the flowering advances. Corolla-tube cylindrical.
- Corolla-tube about $\frac{1}{2}$ in. long. Anthers included.
- Calyx-lobes short and broad. Capsule nearly globular 4. *M. longiflora*.
- Calyx-lobes long narrow and acute. Capsule twice as long as broad 5. *M. elata*.
- Corolla-tube under $\frac{1}{2}$ in. long, 2 or 3 times as long as the calyx. Calyx-lobes very short, obtuse, broad and thick. Anthers included 6. *M. ambigua*.
- Annuals. Stems erect, leafy at least at the base. Pedicels long and slender, the upper ones usually forming an umbel.
- Corolla-tube cylindrical, 4 to 5 lines long, lobes rather shorter 7. *M. connata*.
- Corolla-tube broad, about 1 line long, scarcely exceeding the calyx; lobes as long as or longer than the tube. Glabrous or pubescent, not twining 8. *M. indica*.
- Corolla-tube ovoid or cylindrical, the lobes much shorter than the tube. Umbels dense and many-flowered.
- Flowers not 2 lines long. Anthers included 9. *M. stellata*.
- Flowers 3 lines long. Anthers exerted 10. *M. Cunninghamii*.
- Umbels loose and few-flowered, or pedicels long and solitary.
- Leaves ovate, obtuse or scarcely acute. Corolla (white), under 2 lines long 11. *M. pygmaea*.
- Leaves and calyx-lobes subulate-acute. Plants under 3 in. high.
- Stem branching. Capsule ovoid 12. *M. multicaulis*.
- Stem usually simple. Capsule globular 13. *M. laricifolia*.
- Annuals. Stems leafy, densely branched, under 2 in. high, the flowers shorter than or scarcely exceeding the leaves.
- Calyx very angular, with short divaricate very acute lobes 14. *M. prolifera*.
- Calyx with long linear very hispid lobes and a very short tube. Plant not exceeding $\frac{1}{2}$ in. 15. *M. phascoides*.

1. **M. paludosa** (swamp plant), *R. Br. Prod.* 453; *Benth. Fl. Austr.* iv. 352. A perennial with creeping prostrate or ascending branched stems of 3 to 6 in., more or less pubescent or hirsute. Leaves oblong-linear or linear-lanceolate, acute or obtuse, 3 to 4 lines long. Flowers in the upper axils on short pedicels or the uppermost pedicels longer in a small terminal leafy umbel. Calyx about 1 line long, divided to about the middle. Corolla-tube broadly campanulate, scarcely above $\frac{1}{2}$ line long; lobes spreading to nearly 2 lines diameter. Anthers shortly exerted. Capsule nearly globular, shorter than the calyx.—A. DC. *Prod.* ix. 11; *M. diffusa*, *Benth.* in *Journ. Linn. Soc.* i. 93; *M. pilosula*, *F. v. M. Fragm.* i. 134.

Hab.: Burnett River, *F. v. Muller*; Rockingham Bay, *Dallachy*; Stradbroke Island, *Fraser*; not uncommon in the colony.

2. **M. alsinoides** (Alsine-like), *R. Br. Prod.* 453; *Benth. Fl. Austr.* iv. 353. Apparently perennial, erect, 3 to 4 in. high, glabrous or very slightly scabrous-pubescent. Leaves almost sessile, ovate or ovate-lanceolate acute, or obtuse, mostly 1 to 2 lines long. Flowers very small, on slender pedicels of 3 to 4 lines, in the upper axils. Calyx broad, very open, about 1 line long, divided to the middle. Corolla-tube very broad, shorter than the calyx; lobes longer than the tube; the throat not bearded inside. Anthers broad, with a small inflexed tip, not exerted. Style split at the base. Capsule small, globular.—A. DC. *Prod.* ix. 11.

Hab.: In southern localities very common.

3. **M. polymorpha** (form of plant various), *R. Br. Prod.* 452; *Benth. Fl. Austr.* iv. 353. A perennial but flowering sometimes the first year so as to appear annual, glabrous scabrous-pubescent or hirsute, usually much branched near the base, 6 in. to 1 ft. high. Leaves rather crowded on the lower part, linear-lanceolate or oblong, mostly obtuse, with recurved margins, about $\frac{1}{2}$ in. long or rarely attaining 5 lines. Peduncles terminal, slender, simple or sparingly branched, terminating in a loose irregular umbel of 3 to 5 flowers, the pedicels long and filiform. Calyx broadly campanulate, from scarcely more than 1 line

to nearly 2 lines long, the lobes acute, as long as the tube. Corolla-tube broad, about as long as the calyx; lobes spreading, at least as long as the tube, the throat bearded inside. Anthers ovate, with minute tips. Style splitting at the base. Capsule small, globular.—A. DC. Prod. ix. 10; *M. squarrosa*, *M. cinerascens*, and *M. canescens* R. Br. Prod. 452, 453; A. DC. Prod. ix. 10; *M. prolifera*, Sieb. Pl. Ex., not of R. Br.; *M. Sieberi*, A. DC. Prod. ix. 10; *M. hirsuta*, Presl. Bot. Bem. 104.

Hab.: Endeavour River, *Banks and Solander*; not uncommon north and south.

M. polymorpha, Br., is nearly glabrous, with narrow leaves; *M. squarrosa* is more pubescent, with shorter broader often recurved leaves; *M. cinerascens*, with the leaves of *M. polymorpha*, has the stems hirsute; and *M. canescens* is hirsute all over. But the degree of hairiness is not always in correspondence with the breadth of the leaves, and both characters are very variable. The tuft of a few hairs at the tip of the calyx-lobes occurs occasionally in the glabrous as well as in the hirsute forms.—*Benth.*

4. ***M. longiflora*** (long flowered), *F. v. M. in Herb. Hook.*; *Benth. Fl. Austr.* iv. 358. A slender erect annual, resembling *M. elata* in the small rosulate radical leaves, in the elongated stems, leafless except small scales, in the irregularly umbellate inflorescence, and in the long flowers, but the calyx is much shorter (1 to $1\frac{1}{4}$ line long), with very short obtuse or scarcely acuminate lobes, and the capsule is globular. Stigmatic lobes rather long, linear, somewhat dilated and flattened.—*M. elata*, *F. v. M. Fragm.* i. 132, not of R. Br.

Hab.: Inland (northern) species.

5. ***M. elata*** (tall), *R. Br. Prod.* 453; *Benth. Fl. Austr.* iv. 354. A slender erect glabrous annual of 1 to $1\frac{1}{2}$ ft., simple or slightly branched. Leaves radical, rosulate, obovate-oblong, mostly 3-nerved, $\frac{1}{2}$ to 1 in. long, those of the stem reduced to few distant pairs of minute scales. Flowers large, few, in simple umbels at the ends of the stem or branches. Calyx narrow, about 2 lines long, the lobes as long as the tube. Corolla-tube 6 to 8 lines long; lobes rather more than half that length. Stamens inserted near the base; anthers linear, included. Stigmatic lobes linear. Capsule ovoid-oblong, acuminate, shortly exceeding the calyx.—A. DC. Prod. ix. 11.

Hab.: Islands of the Gulf of Carpentaria, *R. Brown*; Burdekin River, *Bowman*; tableland of south Alligator River, *Leichhardt*.

6. ***M. ambigua*** (ambiguous), *R. Br. Prod.* 454; *Benth. Fl. Austr.* iv. 354. A slender annual. Leaves radical, rosulate, oblong, 2 to 3 lines long. Stems filiform, erect, usually forked, leafless except minute broad obtuse bracts at the branching and sometimes a pair lower down. Flowers very small, in simple or double loose umbels. Calyx nearly $\frac{3}{4}$ line long, the lobes very short, broad, obtuse, thick and somewhat concave. Corolla-tube cylindrical, twice as long as the calyx, the lobes very short and obtuse.—A. DC. Prod. ix. 12.

Hab.: Endeavour River, *Banks and Solander*; other tropical parts.

7. ***M. connata*** (leaves connate), *R. Br. Prod.* 454; *Benth. Fl. Austr.* iv. 355. An erect annual, usually 1 to 2 ft. high, simple or scarcely branched, the foliage and base of the stem more or less hirsute, the inflorescence glabrous. Leaves in few pairs near the base of the stem, oblong-lanceolate or linear-lanceolate, obtuse or mucronate-acute, more or less prominently 3-nerved, often above 1 in. long, the upper ones few, very remote, not 2 lines long. Flowers few, on long unequal pedicels, forming 1 or 2 irregular umbels. Calyx tubular-campanulate, about 2 lines long, the lobes shorter than the tube. Corolla-tube 4 to 6 lines long; lobes oblong or oblong-linear, shorter than the tube. Stamens

inserted below the middle of the tube, which is there bearded inside; anthers narrow, included in the tube. Stigma included, clavate. Capsule nearly globular, scarcely exceeding the calyx.—A. DC. Prod. ix. 11; *M. constricta*, F. v. M. Fragm. i. 131.

Hab.: Cape York, *Dæmel*; Endeavour River, *Banks and Solander*; Cape River, *Bowman*.

The length of the corolla-lobes appears to be variable, but always, when fully opened out, more than half that of the tube. F. v. Mueller describes the stigmatic-lobes as at length divergent. I have always found the stigmatic end of the style clavate and undivided in the open flower as well as in the bud; there may, therefore, be perhaps some degree of unisexuality of dimorphism.—*Benth.*

8. **M. indica** (also in India), *Wight, Ic. t.* 1601; *Benth. Fl. Austr.* iv. 356. A weak, slender, glabrous or scabrous-pubescent annual, branching from the base, often only 2 or 3 in. high, but sometimes 6 to 8 in. or even more, and almost trailing. Leaves ovate ovate-lanceolate or rarely oblong, 2 to 4 lines long. Pedicels filiform, variable in length but usually about $\frac{1}{2}$ in., all in the upper axils or sometimes the 2 uppermost pairs forming a terminal umbel. Calyx 1 to $1\frac{1}{2}$ line long, the lobes acute, at least as long as the tube, with the points often very divergent. Corolla-tube broad, scarcely exceeding the calyx, the throat shortly bearded, the lobes broad, very obtuse or retuse, at least as long as the tube. Stamens inserted below the middle of the tube; anthers ovate, included. Styles separating at the base very early; stigmatic lobes short and broad. Capsule small, globular, the persistent styles parallel or connivent at the tips.—*Benth.* in *Journ. Linn. Soc.* i. 92, with the synonyms there adduced.

Hab.: In most swamps throughout the colony.

9. **M. stellata** (starred), *R. Br. Prod.* 454; *Benth. Fl. Austr.* iv. 356. An annual or sometimes lasting a second year, scarcely branched, often exceeding 1 ft., but sometimes not above 2 or 3 in. high, glabrous or the leafy portion scabrous-pubescent. Leaves lanceolate or linear-lanceolate, with rather long sheathing bases, the midrib very prominent underneath, $\frac{1}{2}$ to 1 in. long, usually occupying about half the stem, the other half a long peduncle bearing 1 or several compound compact umbels of small flowers. Calyx-lobes acute, about as long as the tube. Corolla almost campanulate, not 2 lines long, the throat not contracted, bearded inside; lobes very short. Stamens inserted below the middle of the tube, with tufts of hairs at their insertion; anthers small, ovate, included. Capsule nearly globular, but with a rather long point.—A. DC. Prod. ix. 11.

Hab.: Endeavour River, *Banks and Solander*, *A. Cunningham*; Moonlight Creek (dwarf specimens), *Bowman*.

10. **M. Cunninghamii** (after Allan Cunningham), *Benth. Fl. Austr.* iv. 357. An annual with ascending or erect stems, the leafy portion pubescent or hirsute. Leaves narrow-lanceolate, acute, 1-nerved, $\frac{1}{2}$ to 1 in. long, the sheathing base short. Peduncles long, glabrous, bearing a compact umbel of several flowers. Calyx broad, above 1 line long, the lobes acute, as long as the tube. Corolla-tube broad, slightly contracted above the ovary, about 3 lines long, the throat slightly bearded inside; lobes less than half as long as the tube. Stamens inserted at the contraction of the tube, with tufts of hairs at their insertion; anthers ovate, shortly exserted. Stigmatic lobes rather long, the style not split at the base. Young capsule nearly globose, acuminate.

Hab.: Endeavour River, *A. Cunningham*.

Allied to *M. stellata*, but the flowers much larger, with exserted anthers.—*Benth.*

11. **M. pygmæa** (small), *R. Br. Prod.* 453; *Benth. Fl. Austr.* iv. 357. A slender annual, usually pubescent, the leafy portion of the stem very short. Leaves few, not rosulate at the base but often stellate a little above the base, obovate ovate or oblong, most under $\frac{1}{2}$ in. long. Flowering stems or peduncles above the stellate leaves, 2 to 6 in. high, leafless except small scale-like bracts

under the umbel and quite glabrous, bearing a terminal umbel of few small flowers on filiform pedicels. Calyx scarcely $\frac{3}{4}$ line long, with acute lobes not so long as the tube. Corolla almost campanulate, the tube $1\frac{1}{2}$ line long, the lobes short and broad. Stamens inserted at or below the middle of the tube, with tufts of hairs at their insertion; anthers oblong, included in the tube. Style not split at the base, the stigmatic lobes shortly oblong. Capsule globular, very small.—A. DC. Prod. ix. 11.

Hab.: Bay of Inlets and Bustard Bay, *Banks and Solander*; Pine Port, *R. Brown*; Wide Bay, *Bidwill*; Cape River, *Bowman*; Rockhampton, *O'Shanesy*; Brisbane River, Moreton Bay, *F. v. Mueller*.

12. **M. multicaulis** (many-stemmed), *R. Br. Prod.* 453; *Benth. Fl. Austr.* iv. 357. An erect annual of 2 or 3 in., nearly simple or branching from the base, pubescent at least at the base. Leaves linear-subulate, acute, 2 to 4 lines long. Pedicels slender, often above $\frac{1}{2}$ in. long, scarcely umbellate. Flowers small. Calyx narrow, the lobes subulate or very acute, as long as the tube. Corolla-tube cylindrical, longer than the calyx, the throat not contracted; lobes much shorter than the tube. Anthers small, oblong, included in the tube. Capsule ovoid, shorter than the calyx.—A. DC. Prod. ix. 10; *M. ramosa*, *R. Br. Prod.* 453; A. DC. l.c.

Hab.: Islands of the Gulf of Carpentaria, *R. Brown*; Endeavour River, *Banks and Solander*.

13. **M. laricifolia** (Larch-leaved), *R. Br. Prod.* 453; *Benth. Fl. Austr.* iv. 358. A slender but rigid, glabrous, or slightly pubescent annual, usually 1 to 2 in. high. Leaves linear-subulate, very acute, 2 to 4 lines long, the upper ones usually crowded. Pedicels filiform in the upper axils, often longer than the rest of the plant. Calyx about $\frac{3}{4}$ line long, the lobes very acute. Corolla about 2 lines long, the tube cylindrical, bearded at the mouth, the lobes very obtuse, about half as long as the tube. Anthers linear-sagittate, included. Stigmatic lobes oblong. Capsule small, globular.—A. DC. Prod. ix. 10.

Hab.: Endeavour River, *Banks and Solander*.

14. **M. prolifera** (proliferous), *R. Br. Prod.* 453; *Benth. Fl. Austr.* iv. 358. A little densely branched erect or diffuse annual of $\frac{1}{2}$ to 1 in., minutely scabrous-pubescent. Leaves lanceolate or oblong-lanceolate, $1\frac{1}{2}$ to 3 lines long. Pedicels clustered, scarcely as long as the leaves. Calyx very prominently 4-angled, about 1 line long, the lobes divaricate, mucronate or almost aristate, shorter than the tube. Corolla-tube about as long as the calyx, the throat bearded inside; lobes rather shorter than the tube. Stamens inserted below the middle of the tube; anthers ovate, included. Style split at the base from the time of flowering; stigmatic lobes oblong. Capsule nearly globular, shorter than the calyx. Seeds very small.—A. DC. Prod. ix. 10.

Hab.: Shoalwater Bay, *R. Brown*.

Var. ? *major*. More erect, less branched, attaining 2 in.; leaves also rather larger.—Endeavour River, *Banks and Solander*.

15. **M. phascoides** (Phascum-like), *R. Br. Prod.* 454; *Benth. Fl. Austr.* iv. 359. A minute plant, forming sessile stemless tufts of leaves and flowers, not above $\frac{1}{2}$ in. high. Leaves linear, hispid with rather long hairs. Flowers nearly sessile in the axils. Calyx-tube very short, the lobes linear and hispid like the leaves. Corolla not seen. Capsule globular, but the summit widely gaping, the 2 short styles connivent at the tips.—A. DC. Prod. ix. 11.

Hab.: Endeavour River, *Banks and Solander*.

2. LOGANIA, R. Br.

(After J. Logan.)

(Euosma, Andr. not of Willd.)

Calyx 5-cleft, rarely 4-cleft. Corolla campanulate or with a cylindrical tube; lobes 5, rarely 4, imbricate in the bud. Stamens 5, rarely 4, inserted in the tube; anthers linear or ovate, included or exerted but shorter than the corolla. Ovary 2-celled, with several ovules or rarely only a single one in each cell; style simple, with a capitate or oblong undivided stigma. Capsule ovoid oblong or globular, septically dehiscent, the carpels almost separating, opening inwards by a longitudinal slit, leaving the placentas at length free without any pulp. Seeds ovoid or more or less peltate.—Herbs undershrubs or shrubs. Leaves opposite, connected by a raised stipular line or short sheath or rarely with small setaceous stipules. Flowers white or rarely flesh-coloured, usually small, in terminal or rarely axillary cymes or panicles, or sometimes solitary, often more or less unisexual. Bracts small.

The genus is almost limited to Australia.

SECT. I. **Eulogania**.—*Calyx-segments obtuse. Stamens inserted in the middle of the tube; anthers included. Stems shrubby, at least at the base. Flowers more or less diœcious.*

Leaves linear or lanceolate. Cymes axillary 1. *L. floribunda*.
Leaves sessile, deeply cordate. Cymes axillary and terminal, in a long narrow
thyrsoid leafy panicle 2. *L. cordifolia*.

SECT. II. **Stomandra**.—*Calyx-segments acute or rarely rather obtuse. Stamens inserted in the throat; anthers exerted (but not exceeding the corolla-lobes). Herbs or undershrubs. Flowers hermaphrodite.*

Low, branching, slender, erect or diffuse, leafy herb. Leaves small, ovate-
oblong or lanceolate. Flowers all solitary in the axils 3. *L. pusilla*.

1. ***L. floribunda*** (free-flowerer), *R. Br. Prod.* 456; *Benth. Fl. Austr.* iv. 364. An erect shrub, attaining several feet, glabrous or slightly pubescent, the branches more or less angular. Leaves lanceolate or linear, acute acuminate or rather obtuse, narrowed into a short petiole, flat or with revolute margins, pale underneath, with a prominent midrib, otherwise almost veinless, $1\frac{1}{2}$ to 3 in. long. Flowers small, usually 5-merous but occasionally 4-merous, in axillary trichotomous cymes or panicles much shorter than the leaves, rarely reduced to almost simple racemes. Calyx-segments broad and obtuse, shorter than the corolla-tube, minutely ciliolate. Corolla 1 to $1\frac{1}{2}$ line long, the lobes very broad and obtuse, shorter than the tube, the throat often slightly thickened inside and glabrous or slightly pubescent or bearded. Anthers included in the tube, ovate. Female flowers usually rather smaller than the males. Capsule rather narrow, about 2 lines long.—*DC. Prod.* ix. 25; *Endl. Iconogr.* t. 57; *Lodd. Bot. Cab.* t. 1118; *Euosma albiflora*, *Andr. Bot. Rep.* t. 520; *Logania angustifolia*, *Sieb. in Spreng. Syst. Cur. Post.* 59; *DC. Prod.* ix. 25.

Hab.: Southern localities.

This species is usually distinguished from most others by "lateral setaceous distinct stipules." The short, sometimes scarcely prominent, sheath or raised line connecting the leaves, appears to me to be nearly the same in all the species, although in *L. floribunda* it is more decidedly pubescent-ciliate. The truly axillary inflorescence appears, however, to be a constant distinctive character. The flowers are frequently, but perhaps not quite so constantly, diœcious as in the other species.—*Benth.*

2. ***L. cordifolia*** (leaves heart-shaped), *Hook. in Mitch. Trop. Austr.* 341; *Benth. Fl. Austr.* iv. 364. A tall glabrous and glaucous erect perennial or undershrub, the branches smooth and terete. Leaves sessile, deeply cordate with rounded auricles, ovate or lanceolate, acute, 3 or 5-nerved at the base, 1 to 2 in. long. Flowers small, in little compact trichotomous cymes forming numerous thyrsoid panicles, terminal or in the upper axils, sessile and compact

or looser on long peduncles. Calyx-segments broad and obtuse, scarcely ciliate, not $\frac{1}{2}$ line long. Corolla about 1 line long, the lobes very broad, obtuse, shorter than the broad tube, quite glabrous inside. Anthers in the males ovate, included; stigma ovoid; ovary abortive. Female flowers usually rather smaller than the males, in more compact inflorescence, the calyx-segments less obtuse; anthers quite abortive and the filaments minute; ovary prominent, with a thick stigma on a very short style. Capsule about 2 lines long, somewhat compressed. Seeds oblong, much flattened, the testa minutely reticulate.

Hab.: Among rocks near Mount Pluto, *Mitchell*.

8. ***L. pusilla*** (diminutive), *R. Br. Prod.* 456; *Benth. Fl. Austr.* iv. 366. A small glabrous or pubescent, procumbent or diffuse herb or undershrub, the branches ascending to a few inches. Leaves from obovate to elliptical or oblong, obtuse, with recurved or revolute margins, narrowed into a short petiole, $\frac{1}{4}$ to nearly $\frac{1}{2}$ in. long. Flowers solitary in one axil of the pair of leaves, sessile or shortly pedicellate. Calyx-segments lanceolate-subulate or linear, acute, with almost scarious edges, longer than the corolla-tube. Corolla about 3 lines long, prominently veined, slightly hairy inside, the lobes about as long as the tube. Stamens inserted under the sinus of the lobes; anthers oblong. Ovary tapering into the style; stigma ovoid. Capsule rather acute, about as long as the calyx.—*DC. Prod.* ix. 26; *Endl. Iconogr.* t. 58.

Hab.: Brisbane River and other southern localities.

8. GENIOSTOMA, Forst.

(Referring to the beard in the mouth of the corolla-tube.)

Calyx 5-lobed. Corolla-tube shortly cylindrical, hairy inside at the throat; lobes 5, spreading, imbricate, usually contorted in the bud. Stamens 5; anthers exerted. Ovary 2-celled; ovules several in each cell; style simple, with a thick capitate or oblong stigma. Capsule opening in 2 broad spreading valves, leaving the erect placentas consolidated with the axis in a pulpy mass enclosing the seeds. Embryo cylindrical, nearly as long as the albumen.—Shrubs. Flowers small, in opposite axillary sessile cymes or clusters. Bracts small.

The genus extends from the Mascarene Islands to the Indian Archipelago, the islands of the South Pacific, and New Zealand.

1. ***G. australianum*** (Australian), *F. v. M. Fragm.* v. 19; *Benth. Fl. Austr.* iv. 367. A tall shrub or small tree; quite glabrous. Leaves shortly petiolate, oblong-lanceolate, acuminate, contracted at the base, under 2 in. long in some specimens, 3 to 4 in. long in others; stipule a short truncate sheath. Flowers white, in sessile dichotomous cymes shortly exceeding the petioles, the pedicels scarcely 1 line long, each with a pair of minute bracteoles at or below the middle. Calyx under 1 line long, the lobes acuminate. Corolla-tube broad, about as long as the calyx, the lobes rather longer, more or less bearded inside, at least at the throat, contorted in the bud, the left-hand edges overlapping. Filaments very short and flat; anthers opening rather broad, nearly as long as the corolla-lobes. Capsule ovoid or almost globular, but rather acute, about $\frac{1}{2}$ in. diameter, the valves when open rather thick, concave, recurved, the placentas remaining long persistent, enveloping the seeds in a thin pellicle, which when soaked swells into a pulpy mass.

Hab.: Rockingham Bay, *Dallachy*.

Very closely allied to the narrow-leaved forms of *G. rupestre*, Forst., and probably a variety only, with rather larger flowers, the inflorescence usually more compact, and the fruits less obtuse.—*Benth.*

4. FAGRÆA, Thunb.

(After Dr. J. T. Fagréus.)

Calyx 5-cleft. Corolla-tube usually expanded at the top into a campanulate throat, the limb spreading, often oblique; lobes 5, rather unequal, imbricate in the bud. Stamens 5, usually shortly exserted. Ovary more or less completely 2 or rarely 3-celled, the placentas often not meeting in the centre, at least at an early stage; ovules several to each cell or placenta; style single, with a peltate stigma. Fruit succulent, indehiscent. Seeds immersed in pulp; albumen copious; embryo very small.—Trees or shrubs. Leaves coriaceous. Flowers usually rather large, in terminal raceme-like or corymbose panicles, rarely reduced to a single flower. Bracts small, with 2 bracteoles under the calyx.

The genus extends over East India, Ceylon, and the Indian Archipelago. Of the 2 Australian species, one appears to be common in the eastern portion of that area, the other, as far as known, is endemic.

Leaves broad, rounded at the base. Flowers in clusters or cymes along a simple elongated terminal rhachis	1. <i>F. racemosa</i> .
Leaves narrow, contracted at the base. Flowers in a short sessile terminal cyme	2. <i>F. Muelleri</i> .

1. **F. racemosa** (panicles raceme-like), *Jack in Roxb. Fl. Ind. ed. Wall. ii. 35; Benth. Fl. Austr. iv. 367*. A tall shrub or small tree, quite glabrous. Leaves oval-oblong or rarely ovate, shortly acuminate, rounded at the base, mostly 8 in. to 1 ft. long, on petioles of from $\frac{1}{2}$ to 1 in., the stipules forming a short interpetiolar sheath or ring. Flowers of a dirty yellowish-white, in clusters or cymes along the simple rhachis of a raceme-like terminal nodding panicle, which is pedunculate between the last pair of leaves, and varies from 2 or 3 in. to above 1 ft. in length. Pedicels thick, 2 to 3 lines long. Calyx-lobes broad, 1 to $1\frac{1}{2}$ line long. Corolla-tube about $\frac{3}{4}$ in. long, the throat broadly campanulate, the lobes broad, 3 to 4 lines long. Ovary with 2 or rarely 3 parietal placentas, often short in the bud, but meeting in the centre and completely dividing the ovary into 2 or 3 cells after the flowering is over.—A. DC. Prod. ix. 29; *F. morindifolia*, Blume in Rumphia ii. 32. t. 79, and (analysis only) t. 73. f. 2; Mus. Bot. i. 169; A. DC. Prod. ix. 29, and probably also several of those described as allied species by Blume, Mus. Bot. i. 169, 170; *F. Thwaitesii*, F. v. M. Fragm. ii. 137.

Hab.: Not uncommon in most of the tropical scrubs.

Extends over the Indian Archipelago to the Malayan Peninsula and the Philippine Islands.

Wood of a yellow colour, close-grained, and hard.—*Bailey's Cat. Ql. Woods No. 284b* (given as *F. Muelleri*, Benth., in mistake).

2. **F. Muelleri** (after Baron Mueller), *Benth. Fl. Austr. iv. 368*. A glabrous tree or shrub. Leaves opposite, crowded at the ends of the branches, elliptical-oblong or lanceolate, shortly acuminate, contracted into a petiole, thick, obscurely veined except the prominent midrib, 3 to 6 in long. Peduncles terminal, short, few-flowered. Pedicels slender, 7 lines long. Calyx-lobes orbicular, thick, rather above 1 line diameter. Corolla yellow, the tube about 6 lines long, expanding upwards; lobes broad, obtuse, 3 to 4 lines long. Fruit red, under $\frac{1}{2}$ in. diameter, ripening 1 or 2 seeds but with 6 to 8 unenlarged ovules to each cell or placenta.—*Gardneria fagræacea*, F. v. M. Fragm. vi. 180.

Hab.: Rockingham Bay, *Dallachy*; Evelyn, near Herberston, *J. F. Bailey*.

5. STRYCHNOS, Linn.

(A Greek name for the *Solanum*.)

Calyx 4 or 5-lobed. Corolla with a short or cylindrical tube and 4 or 5 spreading lobes, valvate in the bud. Stamens 5, inserted in the tube; the anthers usually exserted, Ovary 2-celled, with several ovules in each cell. Style

simple, with a capitate or obscurely 2-lobed stigma. Fruit a globular indehiscent berry, with the rind usually hard. Seeds imbedded in pulp, more or less compressed, and often reduced to one or two in each fruit.—Shrubs trees or woody climbers. Leaves opposite, 3-nerved or 5-nerved at the base, with transverse reticulate veinlets, often smooth and shining. In the climbing species there are usually spirally recurved hooks in one of the axils (not observed in any Australian specimens), in which case the subtending leaf is usually reduced to a small bract, whilst the opposite leaf remains normal. Flowers in axillary or terminal cymes clusters or panicles.

The genus is dispersed over the tropical regions of the New and the Old World. The Australian species are endemic, unless one of them proves to be really a variety only of a widely spread south Asiatic one.

Flowers in corymbose cymes. Corolla-tube narrow, twice as long as the lobes	1. <i>S. lucida</i> .
Flowers in thyrsoid panicles. Corolla-tube exceedingly short, the lobes longer	2. <i>S. psilosperma</i> .
A large climber, furnished with curved tendrils. Flowers in racemose panicles. Fruit globose, 1in. diameter	3. <i>S. Bancroftiana</i> .

1. ***S. lucida*** (upper side of leaf glossy), *H. Br. Prod.* 469; *Benth. Fl. Austr.* iv. 369. An erect, divaricately-branched shrub, often tall, glabrous except the minutely pubescent inflorescence. Leaves ovate, obtuse, obtusely acuminate or almost acute, 3 or 5-nerved, thinly coriaceous; shining above, more or less glaucous underneath, $1\frac{1}{2}$ to 3in. long, contracted into a very short petiole. Flowers 5-merous, in corymbose trichotomous cymes, shortly pedunculate above the last pair of leaves. Calyx-lobes scarcely above $\frac{1}{2}$ line long, ciliolate. Corolla-tube cylindrical, about 3 lines long, very slightly hairy inside; lobes narrow, about $1\frac{1}{2}$ line long. Anthers almost sessile in the throat. Ovary glabrous, with numerous ovules in each cell; style either much shorter than the corolla-tube with a peltate stigma or nearly as long as the whole corolla with a smaller stigma. Berry globular, orange-brown, 1 to $1\frac{1}{2}$ in. diameter. Seeds few, flat, orbicular, about 5 lines diameter; testa membranous, densely silky-hairy; albumen cartilaginous, splitting into 2 halves; cotyledons broadly ovate, about 1 line long; radicle short, at one edge of the seed.—*DC. Prod.* ix. 16.

Hab.—Islands of the Gulf of Carpentaria, *R. Brown*; Walsh Range, *R. C. Burton*; Thursday Island, *E. Cowley*.

The species is also in Timor, if *S. ligustrina*, Blume, *Rumphia*, i. 68 t. 25, from that island be really the same.—*Benth.*

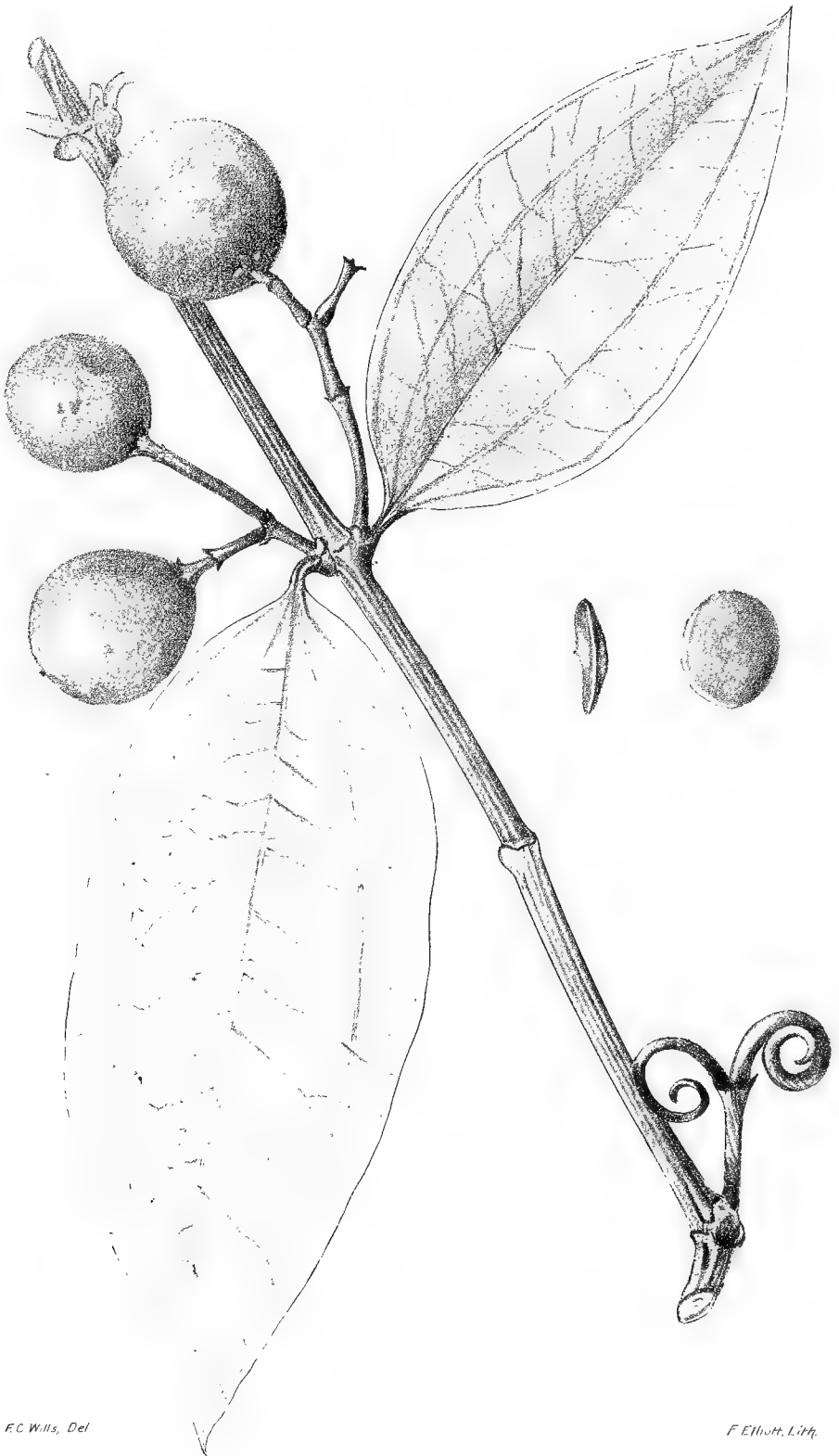
The Thursday Island specimens, and some of the inland ones, closely resemble *S. ligustrina*, Bl., but other inland ones have much narrower leaves of thicker texture.

Wood of a dark-grey colour, very tough and elastic; useful as hoops for casks.—*Bailey's Cat. Qt. Woods No.* 285.

2. ***S. psilosperma*** (seeds not hairy), *F. v. M. Fragm.* iv. 44; *Benth. Fl. Austr.* iv. 369. A glabrous shrub, with weak but scarcely climbing branches, or in the Brisbane district an erect tree 60 or more feet high, armed with slender spines 1in. long. Leaves broadly ovate, shortly acuminate, smooth and shining when old, 3 or 5-nerved, contracted into a very short petiole, $1\frac{1}{2}$ to 2in. long. Flowers 5-merous, in small thyrsoid or short panicles, axillary and terminal, rarely exceeding the leaves. Calyx minute. Corolla not 2 lines long, the tube very short; lobes rather longer than the tube, broad and thick, bearded inside at the base. Anthers nearly sessile in the throat. Berry globular, about $\frac{1}{2}$ in. or less in diameter. Seeds usually solitary, orbicular, glabrous, not shining.

Hab.: Percy Island, *A. Cunningham*; Edgecombe Bay, Mount Archer and Mount Elliott, *Dallachy*; Brisbane River, Rockhampton, Eumundi, and Bundaberg.

Wood light-yellow, with numerous white longitudinal streaks: the centre black or dark; the grain close; hard and tough.—*Bailey's Cat. Qt. Woods No.* 286.



F.C. Wills, Del.

F. Elliott, Lith.

Strychnos Bancroftiana, Bail.

3. **S. Bancroftiana** (after Dr. Joseph Bancroft), *Bail. 3rd Suppl. Syn. Ql. Fl.* 47. Snake-wood. Stems climbing, terete, often reaching the height of 40 or 50ft., diameter of lower part 2in. In the upper portion, especially near the inflorescence, furnished with curved tendrils, which are curved like rams' horns, sometimes in pairs. Leaves opposite, glabrous, ovate-acuminate, 4 to 7in. long, 1½ to 3in. broad, triplinerved with often another lower pair forming an intramarginal nerve, and prominently reticulated; texture thin, cartilaginous, petioles scarcely ½in. long. Inflorescence axillary, racemose, or in racemose panicles 3 or 4in. long. Flowers not seen. The persistent calyx under the fruit of 5 blunt lobes about a line long and broad. Fruit a globular brown berry, ½ to 1in. diameter, bearing the erect style. Seeds flat, orbicular, from 1 to 4 in a fruit embedded in a mealy pulp.

Hab.: Tringilburra Creek and Mulgrave River, *Bellenden Ker Exped.* (1889).

I gave a few seeds of this plant to Dr. Thos. L. Bancroft for examination for active properties, and the following is his note:—"The seeds of the new *Strychnos*, like those of the other two Queensland species, are bitter; but they do not contain strychnine or, indeed, any poisonous substance."

ORDER LXXXII. GENTIANEÆ.

Calyx of 4 or 5, rarely more, lobes or segments. Corolla usually regular, with 4 or 5, rarely more, lobes, contorted or otherwise imbricate or induplicate in the bud. Stamens as many as corolla-lobes and alternate with them, inserted in the tube. Anthers versatile, with 2 parallel cells opening longitudinally or in terminal pores. Ovary 1-celled, but with 2 parietal placentas often projecting into the cavity so as partially to divide it into 2 or 4 cells, or rarely completely 2-celled; ovules numerous; style single, entire or with 2 short stigmatic lobes. Fruit a capsule, opening septically in 2 valves or rarely indehiscent or succulent. Seeds small, with a fleshy albumen. Embryo small, straight, with short cotyledons.—Herbs, very rarely in species not Australian, shrubs, usually glabrous and bitter. Leaves opposite and entire in the principal tribe, alternate or clustered in the *Menyantheæ*. Stipules none. Flowers usually in cymes or corymbose panicles, rarely clustered or solitary.

The Order is chiefly abundant in the temperate or mountainous regions of the northern hemisphere, with a few tropical or southern species.

TRIBE I. **Eugentianæ**.—*Terrestrial plants. Leaves opposite. Corolla-lobes contorted or otherwise imbricate in the bud. Testa of the seeds membranous.*

Corolla-tube cylindrical or short; lobes spreading, contorted in the bud.

Style deciduous.

Calyx divided nearly to the base. Anthers at length recurved at the tips.

Ovary completely 2-celled 1. **SEBÆA.**

Calyx shortly lobed. Anthers straight or at length twisted. Ovary

1-celled with parietal placentas 2. **ERYTHRÆA.**

Corolla-tube cylindrical; lobes spreading, imbricate in the bud. Calyx

narrow-tubular, shortly 4-toothed 3. **CANSCORA.**

TRIBE II. **Menyantheæ**.—*Aquatic or marsh plants. Leaves radical or alternate, sometimes floating. Corolla-lobes with broad margins, induplicate in the bud. Testa of the seeds crustaceous.*

Capsule opening at the top in 4 valves. Marsh plants. Flowers in loose cymose panicles 4. **VILLARSIA.**

Capsule indehiscent, usually ovoid. Plants usually aquatic. Leaves with a broad lamina. Pedicels clustered or rarely solitary 5. **LIMNANTHUM.**

1. **SEBÆA**, R. Br.

(After Albert Seba.)

Calyx deeply 5 rarely 4-cleft. Corolla tube cylindrical; lobes 5, rarely 4, spreading, contorted in the bud. Stamens inserted in the throat; anthers opening in longitudinal slits, at length recurved at the tips. Ovary completely 2-celled; style deciduous; stigma clavate or capitate, often shortly 2-lobed. Capsule septically 2-valved, the margins introflexed, separating from the central placenta, which remains entire or splits. Seeds small and numerous.—Annuals. Leaves opposite. Flowers yellow or white, in terminal dichotomous cymes. Bracts usually small.

The genus, as now limited, extends over southern Africa, and is also in New Zealand, but ought perhaps to include the South American *Schuebleria*.

1. **S. ovata** (leaves ovate), *R. Br. Prod.* 452; *Benth. Fl. Austr.* iv. 371. A glabrous, erect, simple or slightly branched annual, rarely exceeding 6 to 8 in. and sometimes not above half that height. Leaves in distant pairs, sessile, ovate or orbicular-cordate, rarely above $\frac{1}{2}$ in. long. Flowers small, pale yellow, in a rather loose terminal dichotomous cyme, those in the forks very shortly pedicellate. Bracts narrow, acute. Calyx-segments about 2 lines long, lanceolate, acute, prominently keeled or almost winged. Corolla as long as the calyx, the lobes much shorter than the tube. Anthers linear, tipped with a gland, recurved after fading. Style usually short. Capsule oblong.—Griseb. in DC. *Prod.* ix. 53; Hook. f. *Fl. Tasm.* i. 270; *Exacum ovatum*, Labill. *Pl. Nov. Holl.* i. 38. t. 52; *Erythræa chlorafolia*, Lehm. *Pl. Preiss.* ii. 239.

Hab.: Ipswich, *Dr. Chas. Prentice*.

2. **ERYTHRÆA**, Pers.(From *erythros*, red; colour of flowers.)

Calyx more or less 5 or 4-lobed. Corolla-tube cylindrical; lobes 5 or 4, spreading, contorted in the bud. Stamens inserted in the tube; anthers opening in longitudinal slits, at length spirally twisted. Ovary 1-celled, with 2 parietal placentas; style deciduous; stigma capitate or 2-lobed. Capsule 2-valved, the margins of the valves involute and bearing the placentas. Seeds numerous, small.—Annuals. Leaves opposite. Flowers red pink white or yellow, in dichotomous terminal cymes, either corymbose with small bracts, or with few elongated leafy branches.

The genus is widely spread over the temperate regions of the globe, and occurs also within the tropics. The only Australian species is also in some of the Pacific Islands, and is scarcely distinct from a common Mediterranean one.

2. **E. australis** (southern), *R. Br. Prod.* 451; *Benth. Fl. Austr.* iv. 371. An erect glabrous annual, from under 6 in. to 1½ ft. high, the branches few and not very spreading. Leaves sessile, ovate-oblong elliptical or lanceolate, mostly obtuse, the lower ones stem-clasping, rarely 1 in. long. Flowers nearly sessile along the more or less elongated branches of the once-forked or dichotomous cyme, with a leafy bract under each flower, thus forming one-sided interrupted leafy spikes. Calyx narrow, 3 to 4 lines long, with 4 rarely 5 angles and acute teeth or lobes. Corolla-tube usually exceeding the calyx, but sometimes shorter; lobes ovate or oblong, much shorter than the tube. Capsule oblong, shorter than the calyx. Seeds small, reticulate-striate.—Griseb. in DC. *Prod.* ix. 60; Hook. f. *Fl. Tasm.* i. 271.

Hab.: Islands of the Gulf of Carpentaria and common on the coast, *R. Brown*; Rockingham Bay, *Dallachy*; Rockhampton, *Thozet*; on the Maranoa, *Mitchell*; throughout the colony.

The species is also in New Caledonia and in the Loochoo Islands. As far as I can ascertain, it only differs from *E. spicata* (a species common in the Mediterranean region, and eastward at least as far as Afghanistan) in the flowers, usually but not constantly 4-merous. I find, however, occasionally 5-merous flowers in Australian specimens (e.g., in Mitchell's and in some of Gunn's), and, on the other hand, 4-merous flowers have been observed in some East Mediterranean specimens. Indeed, *E. babylonica*, Griseb., distinguished by that character, is probably a variety only of *E. spicata*, to which *E. australis* may be eventually referred.—*Benth.*

Baron von Mueller, in Cens. Austr. Pl., places it under *E. spicata*, Pers. I consider it well, however, to retain Brown's name as better known in Australia, the plant being largely used in domestic medicine.

3. CANSCORA, Lam.

(A Malabar name.)

(*Orthostemon*, R. Br.)

Calyx narrow, shortly 4-toothed. Corolla-tube cylindrical; lobes 4, slightly unequal, imbricate in the bud. Stamens inserted in the tube, usually unequal; anthers opening in longitudinal slits. Ovary 1-celled, with 2 parietal placentas; style deciduous; stigmatic lobes broad. Capsule 2-valved, the margins of the valves involute and bearing the placentas. Seeds numerous, small.—Annuals. Leaves opposite. Flowers pink, on filiform pedicels, terminal or in the upper parts of the branches.

The genus consists of very few tropical Asiatic species, the commonest of which is the same as the Australian one.

1. **C. diffusa** (diffuse), R. Br.; *Griseb. in DC. Prod.* ix. 64; *Benth. Fl. Austr.* iv. 372. A glabrous, erect, dichotomous annual of 6in. to 1ft., with very numerous divaricate almost filiform branches, slightly 4-angled. Leaves ovate, acute, 3-nerved, the lower ones sometimes contracted into a petiole and $\frac{1}{2}$ to 1in. long, the upper ones sessile with a broad base and under $\frac{1}{2}$ in. Flowers small, pink, on filiform pedicels, terminal or in the upper forks. Calyx 2 to nearly 3 lines long. Corolla-tube shorter than the calyx; lobes small, the 2 inner ones rather smaller and less deeply separated than the outer ones, with the filament of the intervening stamen rather shorter than the three others. Capsule rather shorter than the calyx.—*Pladera virgata*, Roxb.; Hook. Bot. Misc. iii. t. suppl. 25, and other synonyms given by Griseb. l.c.; *Canscora tenella*, Wight. Ic. t. 1827; *Orthostemon erectus*, R. Br. *Prod.* 451; Griseb. in DC. *Prod.* ix. 63.

Hab.: Endeavour River, Banks and Solander, A. Cunningham; many other tropical localities.

The species is common in tropical Asia, extending on the one hand to tropical Africa, on the other to the Archipelago and New Caledonia. The irregularity of the corolla is very slight, but quite as much in the Australian specimens as in many of the Indian ones.—*Benth.*

4. VILLARSIA, Vent.

(After Dominique Villars.)

Calyx 5-cleft nearly to the base. Corolla broadly campanulate, almost rotate, the tube short and broad; lobes 5, with broad entire or fringed margins, induplicate in the bud. Ovary surrounded by 5 minute hypogynous glands, 1-celled, with 2 parietal placentas; stigmatic lobes usually broad. Capsule 1-celled, opening at the top in 4 valves. Seeds few or numerous, with a crustaceous testa.—Herbs, usually growing in marshes. Radicle leaves on long petioles. Flowering stems erect, paniculate and leafless besides small bracts, or branching with few alternate leaves (rarely, in a species not Australian and perhaps not a congener, reduced to a 1-flowered scape). Flowers yellow or white.

1. **V. reniformis** (leaves kidney-shaped), R. Br. *Prod.* 457; *Benth. Fl. Austr.* iv. 376. An erect plant, varying in stature from 6in. to 3ft. Leaves usually all radical, in a dense tuft, on long petioles from ovate to orbicular

or reniform, more or less cordate at the base, entire or slightly sinuate-toothed, rather thick, obscurely several-nerved, mostly 1 to 2in. long. Flowering stems paniculately branched, leafless except small linear or lanceolate bracts, or rarely bearing a single petiole leaf at the first branching. Calyx-lobes lanceolate, usually acute, 3 to 4 lines long. Corolla yellow, spreading to from $\frac{3}{4}$ to 1in. diameter; lobes broad with entire or slightly denticulate margins, copiously bearded or fringed inside at the base. Anthers linear. Stigmatic lobes ovate, rather thick. Capsule opening at the top in 4 valves. Seeds smooth or granular-tuberculate.—*F. v. M. Fragm. vi. 139*; *V. parnassifolia*, R. Br.; Griseb. in DC. Prod. ix. 136; Hook. f. Fl. Tasm. i. 272 (all as to the eastern plant only); *Menyanthes exaltata*, Sims, Bot. Mag. t. 1029; *V. exaltata*, F. v. M. Fragm. vi. 140.

Hab.: Southern localities.

Menyanthes sarmentosa, Sims, Bot. Mag. t. 1328, referred by Grisebach, through some mistake, to *Limnanthemum geminatum*, appears to me to be a stoloniferous specimen of *V. reniformis*. *V. reniformis*, Lindl. Bot. Reg. t. 1533, seems rather to represent the true *V. parnassifolia*.—*Benth.*

5. LIMNANTHEMUM, Gmel.

(Plants inhabiting lakes and marshes.)

Calyx 5-cleft nearly to the base. Corolla almost rotate, the tube short and broad; lobes 5, with broad entire or fringed margins induplicate in the bud. Ovary surrounded by 5 minute hypogynous glands, 1-celled with 2 parietal placentas; stigmatic lobes broad, sometimes petal-like. Capsule ovoid or oblong, indehiscent or bursting irregularly. Seeds few or numerous, with a crustaceous testa.—Herbs either aquatic and floating or creeping in swamps. Leaves ovate or broad. Pedicels 1-flowered, either in the tufts of leaves or 2 together or clustered at the nodes of the weak stems or close to an almost terminal sessile leaf, so as to appear to be inserted on the petiole. Flowers yellow or white.

The genus, although with very few extra-Australian species, is widely dispersed over the temperate and warmer regions of the globe.

Leaves almost sessile under the cluster of pedicels which appear as if inserted on the petiole. Flowers white.

Leaves 2 to 8in. diameter. Calyx 3 to 4 lines long 1. *L. indicum*.

Leaves about 1in. diameter. Stems not rooting at the nodes. Calyx-lobes about 1 line long, oblong 2. *L. parvifolium*, var: *Moonii*.

Leaves all on long petioles. Pedicels usually 2 together at the nodes of almost leafless stems. Flowers yellow.

Leaves mostly crenate. Corolla-lobes with a longitudinal central wing inside 3. *L. crenatum*.

Leaves entire. Corolla-lobes without any longitudinal wing.

Calyx-segments above 2 lines long. Corolla much larger. Leaves usually with a deep narrow sinus. Seeds smooth or tuberculate, glabrous 4. *L. geminatum*.

Leaves usually truncate or with a broad open sinus at the base. Seeds densely velvety pubescent 5. *L. hydrocharoides*.

Calyx-segments under $1\frac{1}{2}$ line long. Corolla small. Stems filiform. Leaves ovate orbicular or with a broad open sinus. Flowering stems elongated, many-flowered 6. *L. exiliflorum*.

1. **L. indicum** (Indian), *Thw. Enum. Pl. Ceyl. 205*, not of Griseb.; *Benth. Fl. Austr. iv. 378*. Stems from a submerged tuft formed the preceding year, simple, resembling a petiole, bearing a single terminal floating leaf, nearly sessile, and just below the real exceedingly short petiole an unilateral tuft of pedicels and young stems, which tuft ultimately sinks, the old tuft and stem dying away. Leaves orbicular or broadly oval, deeply cordate, usually entire, with a close or open sinus, of a thick consistence, palmately veined and reticulate,

but the veins not prominent and often very obscure, not above 2in. diameter in some specimens, above 8in. in others. Pedicels usually numerous in the clusters, 1 to 2in. long. Calyx-segments lanceolate, membranous, 3 to 4 lines long. Corolla white, varying from 6 to 10 lines diameter, the margins fringed, the inner surface more or less bearded at the base with pedicellate glands, but without any longitudinal wing. Anthers linear-sagittate, on short flat filaments. Style short or long, with two broad lobed and spreading stigmatic laminae. Ovules on 2 broad parietal placentas. Seeds smooth tubercular or muricate.—*Menyanthes indica*, Linn. Spec. 207; *Villarsia indica*, Vent. Choix. t. 9; Wight in Hook. Bot. Misc. iii. t. Suppl. 30 (*V. macrophylla* in the text); *Limnanthemum Kleinianum*, Griseb. Gent. 344, and in DC. Prod. ix. 139; Seem. Fl. Vit. t. 33; *L. Wightianum*, Griseb. Il.cc.; *Villarsia nymphaefolia*, Fras. in Hook. Bot. Misc. i. 257; *Limnanthemum Fraserianum*, Griseb. Gent. 346, and in DC. Prod. ix. 140; *Villarsia trachysperma*, F. v. M. Fragm. vi. 136.

Hab.: Logan River, *Fraser*; Wide Bay, *Bidwill*; Moreton Bay, *F. v. Mueller*; Rockhampton, *O'Shanesy*; Rockingham Bay, *Dallachy*; Broadsound and Fitzroy River, *Bowman*.

The species appears to inhabit the pools and lakes of all tropical countries.

2. **L. parvifolium** (leaves small), *Griseb. in DC. Prod. ix. 141*; *C. B. Clarke in Hook. Fl. Brit. Ind. iv. 132*. Stems long, floating, not rooting at the nodes. Leaves small, radical spatulate-orbicular, cuneate at the base on the broad petiole; cauline deeply cordate, subsessile. Pedicels 3 to 10, at each node, 3 to 6 lines long. Calyx-lobes about $\frac{3}{4}$ line long, oblong. Corolla white; lobes 5—4, fimbriate, about 2 lines long. Capsule oblong, narrowed below, about 2 lines long, 1 line broad. Seeds minutely puberulous.—*Clarke l.c.*

Var. *Moonii*. Flowers 4-merous. Capsule 2 lines long and broad, subglobose. Seeds smooth; testa thick, closely minutely reticulate.—*L. Moonii*, Thwaites, Enum. 205; *Menyanthes campestris*, Moon. Cat. Pl. Ceyl. 13.

Hab.: About Gainsford, *E. Bowman* (F. v. M. Fragm. ix. 163). The variety only as yet met with in Australia.

3. **L. crenatum** (leaves crenate), *F. v. M. in Trans. Phil. Soc. Vict. i. 17*, and in *Hook. Kew Journ. viii. 164*; *Benth. Fl. Austr. iv. 379*. Stems floating or creeping, emitting at the nodes tufts of leaves, or a single leaf and a cluster of pedicels, or a short flowering-branch, as in *L. geminatum*, which this species closely resembles. Leaves broadly orbicular-cordate or reniform, irregularly crenate, 1 to 3in. diameter, usually thick. Pedicels 1 to 2in. long. Calyx-lobes narrower and more acute than in *L. geminatum* and more united at the base. Corolla yellow, above 1in. diameter, the lobes fringed on the margin, bearded inside at the base with a few long cilia, and bearing a prominent longitudinal wing along their centre. Style conical, the stigmas erect, much dilated, the margins reduplicate and deeply fringed, assuming the appearance of 4 longitudinal wings to a conical stigma. Capsule membranous, 4 to 5 lines long. Seeds smooth.—*Villarsia crenata*, F. v. M. Fragm. iv. 127.

Hab.: Rockhampton, *O'Shanesy*; Burdekin and Condamine Rivers, *Bowman*.

Tubers roasted for food by natives of Cloncurry, *Palmer*.

4. **L. geminatum** (pedicels in pairs), *Griseb. Gent. 346*, and in *DC. Prod. ix. 140* (as to *Brown's plant*); *Benth. Fl. Austr. iv. 380*. Stems floating in water or creeping in mud, emitting at the nodes either a tuft of leaves without flowers or a single leaf with a more or less elongated flowering branch, along which the pedicels are in pairs or rarely 3 together with a pair of lanceolate bracts at the base, but not paniculately branched as in *Villarsia*. Leaves broadly ovate-orbicular or almost reniform, deeply cordate with a close or open sinus, quite entire or very obscurely sinuate, digitately veined, rather thick, from under 1 to about 4in. diameter, but usually rather small. Pedicels 1 to 2in. long. Calyx-segments obtuse, much shorter than the corolla. Corolla yellow, $\frac{1}{2}$ to

lin. diameter, the lobes scarcely fringed on the margin, sparingly bearded at the base, and without the longitudinal wing of *L. crenatum*. Ovules spreading over the greater part of the inner surface of the ovary. Lobes large, petal-like, spreading, crenulate or fringed. Capsule membranous. Seeds numerous, slightly compressed, smooth tubercular or muricate, $\frac{1}{4}$ to fully $\frac{1}{2}$ line diameter.—*Villarsia geminata*, R. Br. Prod. 457; F. v. M. Fragm. vi. 137.

Hab.: Shoalwater Bay, *R. Brown*; Brisbane River, *F. v. Mueller*; Moreton Bay, *O'Shanassy*.

The seeds seem to be as variable in this as in other species as to their size, and the smooth or muricate surface. I have not seen the seeds, however, of *Brown's* or other tropical specimens, which may possibly belong to the following species or variety.—*Benth.*

5. ***L. hydrocharoides*** (Hydrocharis-like), *F. v. M. Herb.; Benth. Fl. Austr.* iv. 380. A creeping plant, closely resembling the smaller and less developed specimens of *L. geminatum*. Leaves in dense tufts, on long petioles, broader and less deeply cordate than in *L. geminatum*, and often only truncate at the base. Corolla yellow, rather smaller than in that species and the seeds larger, densely and minutely velvety-pubescent.—*Villarsia hydrocharoides*, F. v. M. Fragm. vi. 139.

Hab.: Rockingham Bay, *Dallachy*.

6. ***L. exiliflorum*** (flowers small), *F. v. M. Fragm. v. 46; Benth. Fl. Austr.* iv. 381. A slender plant with creeping stolons. Leaves tufted on long petioles, ovate-orbicular or reniform, truncate or cordate at the base, from under $\frac{1}{2}$ in. to about $\frac{3}{4}$ in. long. Flowering stems very slender, decumbent or ascending, simple and leafless, or once or rarely twice branched with a small petiolate leaf at the branch, $\frac{1}{2}$ to 1 ft. long. Pedicels filiform, usually 2 together or clustered at the nodes. Flowers very small, yellow. Calyx-segments ovate, membranous, scarcely $1\frac{1}{2}$ line long. Corolla shortly exceeding the calyx, the lobes slightly fringed on the margin (or entire?), bearded with a few cilia inside towards the base. Capsule ovoid, not exceeding the calyx. Seeds globular, with minute reticulations or glands, giving them a pubescent aspect when dry.—*Villarsia exiliflora*, F. v. M. Fragm. v. 46, vi. 137.

Hab.: Stagnant waters, Rockingham Bay, *Dallachy*; Fraser's Island (some specimens collected by Miss Lovell seem to belong to this species, but they were in bad condition).

INDEX OF GENERA AND SPECIES.

The synonyms and species incidentally mentioned are printed in italics.

	Page		Page		Page
Abbottia	751	Ambrosia	856	<i>Asteropsis</i>	
<i>singularis</i> , <i>F. v. M.</i> ..	751	<i>maritima</i> , <i>Linn.</i> ..	857	<i>macrocephala</i> , <i>Less.</i> ..	808
<i>Achras</i>		Ammobium	844	<i>Baccharis</i> ..	813
<i>Arnheimica</i> , <i>F. v. M.</i> ..	957	<i>alatum</i> , <i>R. Br.</i> ..	844	<i>egyptiaca</i> , <i>Forst.</i> ..	817
<i>australis</i> , <i>R. Br.</i> ..	958	<i>spathulatum</i> , <i>Gaud.</i> ..	844	<i>Dioscoridis</i> , <i>Linn.</i> ..	817
<i>chartacea</i> , <i>F. v. M.</i> ..	957	<i>Anacyclus</i>		<i>halimifolia</i> , <i>Linn.</i> ..	814
<i>laurifolia</i> , <i>F. v. M.</i> ..	958	<i>australis</i> , <i>Sieb.</i> ..	868	<i>Balfouria</i>	
<i>myrsinoides</i> , <i>A. Cunn.</i> ..	960	Anagallis	945	<i>saligna</i> , <i>R. Br.</i> ..	993
<i>obovata</i> , <i>F. v. M.</i> ..	958	<i>arvensis</i> , <i>Linn.</i> ..	946	<i>Bassia</i>	
<i>Pohmanniana</i> , <i>F. v. M.</i> ..	957	<i>pumila</i> , <i>Swartz</i> ..	946	<i>galactoxylya</i> , <i>F. v. M.</i> ..	955
<i>xerocarpa</i> , <i>F. v. M.</i> ..	957	Angianthus	847	<i>Bellis</i>	
<i>Achromolena</i>		<i>brachypappus</i> , <i>F. v. M.</i> ..	848	<i>ciliaris</i> , <i>Labill.</i> ..	797
<i>viscosa</i> , <i>Cass.</i> ..	841	<i>pusillus</i> , <i>Benth.</i> ..	848	<i>graminea</i> , <i>Labill.</i> ..	796
<i>Acomis</i> ..	845	<i>Antirrhea</i> ..	759	<i>stipitata</i> , <i>Labill.</i> ..	793
<i>macra</i> , <i>F. v. M.</i> ..	846	<i>myrtoides</i> , <i>F. v. M.</i> ..	760	<i>Bidens</i> ..	864
<i>Rutidosis</i> , <i>F. v. M.</i> ..	846	<i>putaminosa</i> , <i>Benth.</i> ..	760	<i>bipinnata</i> , <i>Linn.</i> ..	865
<i>Acrotriche</i> ..	937	<i>tenuiflora</i> , <i>F. v. M.</i> ..	760	<i>denudata</i> , <i>Turcz.</i> ..	865
<i>aggregata</i> , <i>R. Br.</i> ..	938	<i>Aplotaxis</i>		<i>repens</i> , <i>Linn.</i> ..	864
<i>aristata</i> , <i>Benth.</i> ..	935	<i>carthamoides</i> , <i>Ham</i> ..	879	<i>repens</i> , <i>Don</i> ..	864
<i>divaricata</i> , <i>R. Br.</i> ..	937	<i>foliosa</i> , <i>Edgew.</i> ..	879	<i>tenuifolia</i> , <i>Labill.</i> ..	865
<i>Adenostemma</i> ..	791	<i>multicaulis</i> , <i>DC.</i> ..	879	<i>tripartita</i> , <i>Linn.</i> ..	864
<i>brasiliense</i> , <i>DC.</i> ..	791	<i>Araujia</i> ..	998	<i>Blainvillea</i> ..	860
<i>triangularis</i> , <i>DC.</i> ..	791	<i>albens</i> , <i>G. Don</i> ..	998	<i>alba</i> , <i>Edgew.</i> ..	860
<i>viscosum</i> , <i>Forst.</i> ..	791	<i>Ardisia</i> ..	951	<i>hispidia</i> , <i>Edgew.</i> ..	860
<i>Ægialinites</i>		<i>brevipedata</i> , <i>F. v. M.</i> ..	951	<i>latifolia</i> , <i>DC.</i> ..	860
<i>annulata</i> , <i>Presl</i> ..	944	<i>pachyrrhachis</i> , <i>F. v. M.</i> ..	952	<i>rhomboidea</i> , <i>Cass.</i> ..	860
<i>Ægialitis</i> ..	943	<i>pseudojambosa</i> , <i>F. v. M.</i> ..	951	<i>Bleekeria</i>	
<i>annulata</i> , <i>R. Br.</i> ..	943	<i>Artemisia</i>		<i>kalocarpa</i> , <i>Hassk.</i> ..	982
<i>Ægiceras</i> ..	952	<i>sternutatoria</i> , <i>Roxb.</i> ..	869	<i>Blumea</i> ..	814
<i>fragrans</i> , <i>Koen.</i> ..	952	<i>Asclepias</i> ..	999	<i>acutata</i> , <i>DC.</i> ..	816
<i>majus</i> , <i>Gærtn.</i> ..	952	<i>curassavica</i> , <i>Linn.</i> ..	999	<i>amplectens</i> , <i>DC.</i> ..	815
<i>Agapetes</i> ..	923	<i>Asperula</i>		<i>baccharoides</i> , <i>Sch.</i> ..	817
<i>Meiniana</i> , <i>F. v. M.</i> ..	923	<i>conferta</i> , <i>Hook. f.</i> ..	782	<i>Cunninghamii</i> , <i>DC.</i> ..	816
<i>Ageratum</i> ..	791	<i>geminifolia</i> , <i>F. v. M.</i> ..	782	<i>diffusa</i> , <i>R. Br.</i> ..	815
<i>conyzoides</i> , <i>Linn.</i> ..	791	<i>oligantha</i> , <i>F. v. M.</i> ..	782, 783	<i>glandulosa</i> , <i>DC.</i> ..	814
<i>Alstonia</i> ..	934	<i>scoparia</i> , <i>Hook. f.</i> ..	782	<i>hieracifolia</i> , <i>DC.</i> ..	815
<i>constricta</i> , <i>F. v. M.</i> ..	986	<i>Aster</i>		<i>holosericea</i> , <i>DC.</i> ..	815
<i>scholaris</i> , <i>R. Br.</i> ..	985	<i>aculeatus</i> , <i>Labill.</i> ..	806	<i>integrifolia</i> , <i>DC.</i> ..	815
<i>somersensis</i> , <i>Bail.</i> ..	986	<i>Behrii</i> , <i>Schlecht.</i> ..	811	<i>lacera</i> , <i>DC.</i> ..	816
<i>verticilliosa</i> , <i>F. v. M.</i> ..	985	<i>cyanodiscus</i> , <i>F. v. M.</i> ..	807	<i>Wightiana</i> , <i>DC.</i> ..	816
<i>villosa</i> , <i>Blume.</i> ..	986	<i>exasperatus</i> , <i>Link.</i> ..	806	<i>Bobea</i>	
<i>Alyxia</i> ..	979	<i>exul</i> , <i>Lindl.</i> ..	808	<i>putaminosa</i> , <i>F. v. M.</i> ..	760
<i>actinophylla</i> , <i>A. Cunn.</i> ..	985	<i>Heynei</i> , <i>F. v. M.</i> ..	808	<i>Brachycome</i> ..	794
<i>ilicifolia</i> , <i>F. v. M.</i> ..	980	<i>illitus</i> , <i>F. v. M.</i> ..	808	<i>basaltica</i> , <i>F. v. M.</i> ..	796
<i>obtusifolia</i> , <i>R. Br.</i> ..	980	<i>magniflorus</i> , <i>F. v. M.</i> ..	807	<i>chrysoglossa</i> , <i>F. v. M.</i> ..	798
<i>Richardsonii</i> , <i>Sweet</i> ..	979	<i>microphyllus</i> , <i>Vent.</i> ..	806	<i>ciliaris</i> , <i>Less.</i> ..	797
<i>ruscifolia</i> , <i>R. Br.</i> ..	979	<i>Nernstii</i> , <i>F. v. M.</i> ..	806	<i>decipiens</i> , <i>Hook. f.</i> ..	797
<i>spicata</i> , <i>R. Br.</i> ..	980	<i>phlogopappus</i> , <i>Labill.</i> ..	806	<i>discolor</i> , <i>C. Stuart</i> ..	793
<i>Thozetii</i> , <i>F. v. M.</i> ..	980	<i>phlogotrichus</i> , <i>Spreng.</i> ..	806	<i>diversifolia</i> , <i>Fisch. and</i>	
<i>thyrsoiflora</i> , <i>Benth.</i> ..	980	<i>ramulosus</i> , <i>Labill.</i> ..	806	<i>Mey.</i> ..	795
		<i>stellulatus</i> , <i>Labill.</i> ..	805	<i>Drummondii</i> , <i>Walp.</i> ..	797
		<i>xerophilus</i> , <i>F. v. M.</i> ..	808	<i>glabra</i> , <i>Benth.</i> ..	798

	Page		Page		Page
<i>graminea, F. v. M.</i> ...	796	<i>didymum, Roxb.</i> ..	764	<i>Chionanthus</i>	
<i>marginata, Benth.</i> ..	797	<i>lamprophyllum, F. v. M.</i>	763	<i>acuminigera, F. v. M.</i>	972
<i>melanocarpa, Sond. and</i>		<i>latifolium, F. v. M.</i> ..	763	<i>axillaris, R. Br.</i> ..	972
<i>F. v. M.</i> ..	795	<i>lucidum, Hook & Arn.</i>	763	<i>effusiflora, F. v. M.</i> ..	971
<i>microcarpa, F. v. M.</i> ...	796	<i>microphyllum, F. v. M.</i>	764	<i>picrophloia, F. v. M.</i> ..	972
<i>multifida, DC.</i> ..	798	<i>oleifolium, Hook</i> ..	763	<i>ramiflora, Roxb.</i> ..	971
<i>pachyptera, Turcz.</i> ..	796	<i>vaciniifolium, F. v. M.</i>	764	<i>Choripetalum</i>	
<i>pumila, Walp.</i> ..	798	<i>Carduus</i>		<i>australianum, F. v. M.</i>	950
<i>scapiformis, DC.</i> ..	797	<i>lanceolatus, Linn.</i> ..	878	<i>Chrysocephalum</i>	
<i>scapigera, DC.</i> ..	796	<i>marianus, Linn.</i> ...	878	<i>apiculatum, Steetz</i> ..	838
<i>Stuartii, Benth.</i> ..	796	<i>Cargillia</i>		<i>asperum, Steetz</i> ..	839
<i>trachycarpa, F. v. M.</i> ...	797	<i>australis, R. Br.</i> ..	966	<i>helichrysoides, Walp.</i> ...	838
<i>Brachyloma</i> ..	928	<i>laxa, R. Br.</i> ..	965	<i>semipapposum, Steetz</i> ..	839
<i>daphnoides, Benth.</i> ..	929	<i>mabacea, F. v. M.</i> ..	966	<i>squarulosum, Sond.</i> ..	839
<i>Scortechinii, F. v. M.</i>	929	<i>maritima, Hassk.</i> ..	965	<i>vitellinum, Sond.</i> ..	838
<i>Brachystephium</i>		<i>megalocarpa, F. v. M.</i>	965	<i>Cinerosoma</i>	
<i>leucanthemoides, Less.</i>	795	<i>pentamera, F. v. M.</i> ..	966	<i>cinerea, Labill.</i> ..	840
<i>scapigerum, DC.</i> ..	796	<i>Carissa</i> ..	977	<i>squamata, Labill.</i> ..	828
<i>Brunonia</i> ..	913	<i>lanceolata, R. Br.</i> ..	978	<i>Chrysocoryne</i>	
<i>australis, Sm.</i> ..	914	<i>laxiflora, Benth.</i> ..	978	<i>angianthoides, F. v. M.</i>	848
<i>sericea, Sm.</i> ..	914	<i>ovata, R. Br.</i> ..	978	<i>Huegelii, A. Gray.</i> ..	848
<i>simplex, Lindl.</i> ..	914	<i>scabra, R. Br.</i> ..	978	<i>pusilla, Endl.</i> ..	848
<i>Cacalia</i>		<i>Carpesium</i> ..	856	<i>Chrysophyllum</i> ..	953
<i>odorata, Desf.</i> ..	876	<i>cernuum, Linn.</i> ..	856	<i>pruniferum, F. v. M.</i> ...	953
<i>sonchifolia, Linn.</i> ...	873	<i>Cassinia</i> ..	840	<i>Chthonocephalus</i> ..	853
<i>Calocephalus</i> ..	850	<i>compacta, F. v. M.</i> ...	841	<i>Drummondii, A. Gray</i>	854
<i>citreus, Less.</i> ..	850	<i>hygrophila, A. Cunn.</i> ...	841	<i>pseudoevax, Steetz</i> ..	854
<i>Dittrichii, F. v. M.</i> ..	851	<i>lævis, R. Br.</i> ..	841	<i>Cirsium</i>	
<i>gnaphaloides, Hook.</i> ...	833	<i>longifolia, R. Br.</i> ..	841	<i>lanceolatum, Scop.</i> ..	878
<i>platycephalus, Benth.</i>	851	<i>quinquefaria, R. Br.</i> ..	841	<i>Cnicus</i> ..	878
<i>Sonderi, F. v. M.</i> ..	850	<i>rosmarinifolia, DC.</i> ..	841	<i>lanceolatus, Hoffm.</i> ..	878
<i>Calogyne</i> ..	904	<i>subtropica, F. v. M.</i> ..	842	<i>Cœlospermum</i> ..	769
<i>distylis, F. v. M.</i> ..	905	<i>Catosperma</i> ..	905	<i>paniculatum, F. v. M.</i>	769
<i>heteroptera, F. v. M.</i> ...	905	<i>Muelleri, Benth.</i> ..	906	<i>reticulatum, Benth</i> ..	769
<i>Calotis</i> ..	800	<i>Centaurea</i> ..	879	<i>Coffea</i> ..	766
<i>brevistata, Benth.</i> ..	803	<i>apula, Lam.</i> ..	880	<i>bengalensis, Roxb.</i> ..	767
<i>cuneifolia, R. Br.</i> ..	801	<i>australis, B. & H.</i> ...	880	<i>Coleocoma</i> ..	821
<i>cymbacantha, F. v. M.</i>	801	<i>cyanus, Linn.</i> ..	880	<i>centaurea, F. v. M.</i> ..	821
<i>dentex, R. Br.</i> ..	801	<i>lanata, Roxb.</i> ..	880	<i>Conyza</i> ..	812
<i>dilatata, A. Cunn.</i> ..	801	<i>melitensis, Linn.</i> ..	880	<i>egyptiaca, Ait.</i> ..	813
<i>erinacea, Steetz</i> ..	802	<i>melitensis, Linn.</i> ..	880	<i>ambigua, DC.</i> ..	810
<i>hispidula, F. v. M.</i> ..	804	<i>Centipedia</i> ..	869	<i>baccharoides, Sch.</i> ..	817
<i>lappulacea, Benth.</i> ..	802	<i>Cunninghamii, F. v. M.</i>	869	<i>Dioscoridis, Ranw.</i> ...	817
<i>microcephala, Benth.</i> ..	803	<i>orbicularis, Lour.</i> ..	869	<i>elata, Bail.</i> ..	812
<i>Muelleri, Sond.</i> ..	802	<i>racemosa, Hook.</i> ..	870	<i>lineariloba, DC.</i> ..	813
<i>plumulifera, F. v. M.</i> ..	803	<i>thespidioides, F. v. M.</i>	870	<i>modatensis, Sch.</i> ...	817
<i>porphyroglossa, F. v. M.</i>	803	<i>Centratherum</i> ..	789	<i>polycephala, Edgew.</i> ..	813
<i>pterosperma, R. Br.</i> ..	803	<i>muticum, Less.</i> ..	789	<i>scandens, Wall.</i> ..	790
<i>scabiosifolia, Sond. and</i>		<i>Centumculus</i>		<i>viscidula, Wall.</i> ..	813
<i>F. v. M.</i> ..	802	<i>pentandrus, R. Br.</i> ..	946	<i>Walkichii, DC.</i> ..	813
<i>scapigera, Hook.</i> ..	802	<i>tenellus, Duby</i> ..	946	<i>Coprosma</i>	
<i>tropica, F. v. M.</i> ..	803	<i>Cephalosorus</i>		<i>acutifolia, F. v. M.</i> ..	765
<i>Campanula</i>		<i>gnephsioides, F. v. M.</i>	849	<i>Coreopsis</i> ..	863
<i>capillaris, Lodd.</i> ..	922	<i>Ceratogyne</i> ..	870	<i>tinctoria, Nutt.</i> ..	863
<i>gracilis, Forst.</i> ..	922	<i>obionoides, Turcz.</i> ..	871	<i>Cosmos</i> ..	863
<i>littoralis, Labill.</i> ..	922	<i>Cerbera</i> ..	981	<i>bipinnatus, Cav.</i> ..	864
<i>quadrifida, R. Br.</i> ..	922	<i>Manghas, Bot. Mag.</i>	981	<i>Cotula</i> ..	867
<i>saxicola, R. Br.</i> ..	922	<i>Odollam, Gærtn.</i> ..	981	<i>alpina, Hook. f.</i> ..	868
<i>vincaeflora, Vent.</i> ...	922	<i>Cerpegia</i> ..	1015	<i>australis, Hook. f.</i> ..	868
<i>Candollea</i>		<i>Cumingiana, Dene.</i> ..	1015	<i>reptans, Benth.</i> ..	868
<i>serrulata, Labill.</i> ..	887	<i>curviflora, Hassk.</i> ..	1015	<i>Craspedia</i> ..	852
<i>Canscora</i> ..	1027	<i>Horsfieldiana, Miq.</i> ...	1015	<i>chrysantha, Benth.</i> ...	853
<i>diffusa, R. Br.</i> ..	1027	<i>Cheiroloma</i>		<i>fimbriata, DC.</i> ..	852
<i>tenella, Wight...</i>	1027	<i>hispidum, F. v. M.</i> ..	804	<i>glauca, Spreng.</i> ..	852
<i>Canthium</i> ..	762	<i>Chilocarpus</i> ..	976	<i>globosa, Benth.</i> ..	853
<i>attenuatum, R. Br.</i> ...	763	<i>australis, F. v. M.</i> ..	976	<i>gracilis, Hook. f.</i> ..	852
<i>buxifolium, Benth.</i> ..	763			<i>pilosa, Spreng.</i> ..	852
<i>coprosmoides, F. v. M.</i>	764			<i>pleiocephala, F. v. M.</i>	853

INDEX OF GENERA AND SPECIES.

iii

	Page		Page		Page
<i>Richea, Cass.</i> ..	852	<i>Diplospora</i> ...	577	<i>Cunninghamii, Benth.</i>	821
<i>uniflora, Forst.</i> ..	852	<i>australis, Benth.</i> ..	758	<i>Harrisii, F. v. M.</i> ..	822
<i>Crepis</i>	882	<i>ixoroides, F. v. M.</i> ...	758	<i>Epithimia</i>	
<i>japonica, Benth.</i> ..	882	<i>Diplostephium</i>		<i>Malayana, Jack.</i> ..	759
<i>Crossolepis</i>		<i>aculeatum, Nees</i> ..	806	<i>Erechthites</i> ..	871
<i>pusilla, Benth.</i> ..	848	<i>microphyllum, Nees</i> ...	806	<i>arguta, DC.</i> ..	872
<i>Crossotoma</i>		<i>phlogotrichum, Nees</i> ...	806	<i>Atkinsonæ, F. v. M.</i> ..	872
<i>lycioides, De Vr.</i> ...	908	<i>stellulatum, Nees</i> ..	805	<i>glossantha, Sond.</i> ..	876
<i>oleoides, De Vr.</i> ...	908	<i>Dischidia</i> ..	1013	<i>incana, Turcz.</i> ..	873
<i>spinescens, De Vr.</i> ...	908	<i>nummularia, R. Br.</i> ...	1013	<i>lacerata, F. v. M.</i> ..	872
<i>Cryptostemma</i> ..	877	<i>ovata, Benth.</i> ..	1014	<i>quadridentata, DC.</i> ..	872
<i>calendulacea, R. Br.</i> ...	877	<i>picta, Bl.</i> ...	1014	<i>tenuiflora, DC.</i> ..	873
<i>Ctenosperma</i>		<i>Rafflesiana, Wall.</i> ..	1014	<i>Erigeron</i> ..	809
<i>alpinum, Hook.</i> ..	868	<i>timorensis, Dcne.</i> ...	1014	<i>ambiguus, F. v. M.</i> ..	809
<i>Cupia</i>		<i>Doratotepis</i>		<i>canadensis, Linn.</i> ..	809
<i>densiflora, DC.</i> ..	754	<i>tetracheta, Sch.</i> ..	828	<i>hieracifolium, Poir.</i> ..	808
<i>Cyathodes</i>		<i>Dracophyllum</i> ...	942	<i>liatroides, Tur.</i> ..	819
<i>laurina, Rudge</i> ..	928	<i>Sayeri, F. v. M.</i> ..	942	<i>linifolius, Willd.</i> ..	810
<i>Cyathopappus</i>		<i>Duttonia</i>		<i>Vittadinia, F. v. M.</i> ..	811
<i>gnephosoides, F. v. M.</i> ..	849	<i>sessiliceps, F. v. M.</i> ..	833	<i>Eriochlamys</i> ..	845
<i>Cynoseris</i>		<i>Echites</i>		<i>Behrii, Sond. & F. v. M.</i> ..	845
<i>australis, Endl.</i> ..	882	<i>lanceolata, Spreng.</i> ...	991	<i>Erythraea</i> ..	1026
<i>Cymbonotus</i> ..	877	<i>velutina, Spreng.</i> ...	992	<i>australis, R. Br.</i> ..	1026
<i>Lawsonianus, Gaudich.</i> ..	877	<i>Eclipta</i> ...	859	<i>chlorafolia, Lehm.</i> ..	1026
<i>Preissianus, Steetz</i> ..	877	<i>alba, Hassk.</i> ...	859	<i>Ethulia</i> ..	788
<i>Cynanchum</i> ..	1001	<i>erecta, Linn.</i> ...	859	<i>conyzoides, Linn.</i> ..	788
<i>erubescens, R. Br.</i> ..	1001	<i>latifolia, Linn.</i> ..	860	<i>Cunninghamii, Hook.</i> ..	822
<i>floribundum, R. Br.</i> ..	1001	<i>platyglossa, F. v. M.</i> ...	860	<i>Ethullopsis</i>	
<i>pedunculatum, R. Br.</i> ..	1002	<i>prostrata, Linn.</i> ..	859	<i>diocia, F. v. M.</i> ..	842
<i>Cynoctonum</i>		<i>Elachopappus</i>		<i>Euchiton</i>	
<i>erubescens, Dcne.</i> ..	1001	<i>Rudallii, F. v. M.</i> ...	847	<i>collinum, Cass.</i> ..	826
<i>floribundum, Dcne.</i> ..	1002	<i>Elachothamnus</i>		<i>Forsteri, Cass.</i> ...	826
<i>pedunculatum, Dcne.</i> ..	1002	<i>Cunninghamii, DC.</i> ...	799	<i>pulchellus, Cass.</i> ...	826
<i>Dampiera</i> ..	911	<i>Elephantopus</i> ..	790	<i>Euosma</i>	
<i>adpressa, A. Cunn.</i> ..	913	<i>scaber, Linn.</i> ...	790	<i>albiflora, Andr.</i> ..	1021
<i>bicolor, De Vr.</i> ..	912	<i>Elichrysium</i>		<i>Eupatorium</i> ..	792
<i>Brownii, F. v. M.</i> ..	912	<i>albicans, A. Cunn.</i> ...	881	<i>cannabinum, Linn.</i> ..	792
<i>diversifolia, De Vr.</i> ..	913	<i>incanum, Hook.</i> ..	881	<i>Lindleyanum, F. v. M.</i> ..	792
<i>fasciculata, DC.</i> ..	913	<i>lucidum, Henckl.</i> ..	836	<i>Eurybia</i>	
<i>ferruginea, R. Br.</i> ...	912	<i>Embelia</i> ...	950	<i>aculeata, DC.</i> ...	806
<i>lanceolata, De Vr.</i> ..	913	<i>australiana, B. & H.</i> ...	950	<i>epilala, DC.</i> ...	806
<i>Linschotenii, F. v. M.</i> ..	911	<i>Flueckigeri, F. v. M.</i> ...	950	<i>ericoides, Steetz</i> ..	806
<i>melanopogon, De Vr.</i> ..	912	<i>Emilia</i> ..	873	<i>fulvida, Cass.</i> ..	805
<i>nervosa, De Vr.</i> ..	912	<i>purpurea, Cass.</i> ..	873	<i>Gumriana, DC.</i> ..	806
<i>oblongata, R. Br.</i> ..	913	<i>sonchifolia, DC.</i> ...	873	<i>hygrophylla, DC.</i> ..	806
<i>omissa, De Vr.</i> ..	912	<i>Emphyssopus</i>		<i>illita, F. v. M.</i> ..	808
<i>ovalifolia, R. Br.</i> ..	912	<i>Gunnii, Hook.</i> ...	794	<i>microphylla, DC.</i> ..	806
<i>purpurea, R. Br.</i> ..	912	<i>Enhydra</i> ...	858	<i>phlogopappa, DC.</i> ..	806
<i>rotundifolia, R. Br.</i> ...	912	<i>Heloncha, DC.</i> ..	859	<i>pimeleoides, DC.</i> ..	807
<i>stricta, R. Br.</i> ..	912	<i>longifolia, DC.</i> ..	859	<i>propinqua, DC.</i> ..	806
<i>undulata, R. Br.</i> ..	912	<i>paludosa, DC.</i> ..	859	<i>quercifolia, Cass.</i> ..	806
<i>Dentella</i> ..	747	<i>Woollsi, F. v. M.</i> ..	859	<i>ramosissima, DC.</i> ..	807
<i>repens, Forst.</i> ...	747	<i>Epaoris</i> ...	939	<i>rudis, Benth.</i> ...	808
<i>Dichrocephala</i> ...	792	<i>attenuata, Lodd.</i> ...	941	<i>subrepanda, DC.</i> ..	806
<i>latifolia, DC.</i> ...	792	<i>auriculata, Benth.</i> ..	940	<i>subspicata, Hook.</i> ..	807
<i>Dimorpholepis</i>		<i>microphylla, R. Br.</i> ...	940	<i>xerophila, F. v. M.</i> ..	808
<i>australis, A. Gray</i> ...	833	<i>obtusifolia, Sm.</i> ..	940	<i>Eurybiopsis</i>	
<i>Diospyros</i> ..	965	<i>pedicellata, DC.</i> ..	940	<i>gracilis, Hook.</i> ..	811
<i>australis, B. & H.</i> ..	966	<i>pulchella, Cav.</i> ..	940	<i>intricata, F. v. M.</i> ...	799
<i>hebecarpa, A. Cunn.</i> ...	965	<i>pulchella, Sims</i> ...	940	<i>macrorrhiza, DC.</i> ..	812
<i>mabacea, F. v. M.</i> ..	966	<i>pungens, Cav.</i> ...	941	<i>scabrata, Hook.</i> ..	811
<i>maritima, Blume</i> ..	965	<i>purpurascens, Sieb.</i> ..	940	<i>Exacum</i>	
<i>pentamera, F. v. M. & Woolls</i> ..	966	<i>rivularis, Sieb.</i> ..	940	<i>ovatum, Labill.</i> ..	1026
<i>Diotosperma</i>		<i>spuria, Cav.</i> ...	934	<i>Eyrea</i>	
<i>Drummondii, A. Gray</i> ..	871	<i>villosa, Cav.</i> ..	937	<i>rubelliflora, F. v. M.</i> ..	818
		<i>Epaltes</i> ..	821	<i>Fagraea</i> ..	1023
		<i>australis, DC.</i> ..	822	<i>morindifolia, Blume</i> ..	1023
		<i>australis, Less.</i> ..	822	<i>Muelleri, Benth.</i> ..	1023

	Page		Page		Page
<i>racemosa</i> , Jack ..	1023	<i>Goodenia</i> ..	894	<i>Hedyotis</i> ..	747
<i>Thwaitesii</i> , F. v. M. ..	1023	<i>albida</i> , Sm. ..	911	<i>auricularia</i> , Linn. ..	748
<i>Flaveria</i> ..	866	<i>appendiculata</i> , Jacq. ..	900	<i>Burmanniana</i> , F. v. M. ..	749
<i>australasica</i> , Hook. ..	866	<i>armataefolia</i> , Sieb. ..	897	<i>cerulescens</i> , F. v. M. ..	750
<i>Galinsoga</i> ..	866	<i>Armitiana</i> , F. v. M. ..	903	<i>galioides</i> , F. v. M. ..	748
<i>parviflora</i> , Cav. ..	866	<i>bellidifolia</i> , Sm. ..	897	<i>geniculata</i> , Roxb. ..	748
<i>Galium</i> ..	781	<i>calcarata</i> , F. v. M. ..	900	<i>mitrasacmoides</i> , F. v. M. ..	748
<i>australe</i> , DC. ..	781	<i>calendulacea</i> , Andr. ..	909	<i>racemosa</i> , F. v. M. ..	750
<i>axilliflorum</i> , F. v. M. ..	781	<i>Chambersii</i> , F. v. M. ..	900	<i>tillacea</i> , F. v. M. ..	750
<i>densum</i> , Hook. ..	782	<i>coronopifolia</i> , R. Br. ...	902	<i>trachynioides</i> , F. v. M. ..	748
<i>erythrorhizum</i> , F. v. M. ..	782	<i>cycloptera</i> , R. Br. ..	902	<i>Helichrysum</i> ..	834
<i>Gaudichaudi</i> , DC. ..	781	<i>disperma</i> , F. v. M. ..	898	<i>acuminatum</i> , DC. ..	836
<i>vagans</i> , Hook. ..	781	<i>dubia</i> , Spreng. ..	905	<i>albicans</i> , A. Cunn. ..	837
<i>Gardenia</i> ..	755	<i>flagellifera</i> , De Vr. ..	899	<i>anthemoides</i> , Sieb. ..	831
<i>chartacea</i> , F. v. M. ..	753	<i>flecusosa</i> , De Vr. ..	903	<i>apiculatum</i> , DC. ..	838
<i>edulifolia</i> , F. v. M. ..	755	<i>geniculata</i> , R. Br. ..	898	<i>Banksii</i> , A. Cunn. ..	836
<i>Fitzalanii</i> , F. v. M. ..	754	<i>glabra</i> , R. Br. ...	899	<i>Beckerii</i> , F. v. M. ..	839
<i>fucata</i> , R. Br. ...	757	<i>glauca</i> , F. v. M. ..	903	<i>bicolor</i> , Lindl. ...	836
<i>hirta</i> , F. v. M. ..	753	<i>gracilis</i> , R. Br. ..	904	<i>Bidwillii</i> , Benth. ..	839
<i>Jardinei</i> , F. v. M. ..	757	<i>grandiflora</i> , Sims ..	900	<i>bracteatum</i> , Willd. ..	836
<i>Macgillivraei</i> , Benth. ..	756	<i>hederacea</i> , Sm. ..	898	<i>brevicitium</i> , DC. ..	839
<i>megasperma</i> , F. v. M. ..	756	<i>heterochila</i> , F. v. M. ...	901	<i>bupththalmoides</i> , Sieb. ...	836
<i>ochreatea</i> , F. v. M. ..	755	<i>heteromera</i> , F. v. M. ...	903	<i>cassinoides</i> , Benth. ..	840
<i>ovularis</i> , Bail. ..	757	<i>heterophylla</i> , Sm. ..	898	<i>chrysanthum</i> , Pers. ..	836
<i>suffruticosa</i> , R. Br. ..	756	<i>hispidata</i> , R. Br. ..	901	<i>ciliatum</i> , DC. ..	839
<i>Gardneria</i>		<i>levigata</i> , Curt. ..	911	<i>cinereum</i> , F. v. M. ..	840
<i>fagraea</i> , F. v. M. ..	1023	<i>lamprosperma</i> , F. v. M. ..	904	<i>cladochaetum</i> , F. v. M. ..	845
<i>Geniostoma</i> ..	1022	<i>longifolia</i> , De Vr. ..	897	<i>collinum</i> , DC. ...	837
<i>australianum</i> , F. v. M. ..	1022	<i>Mitchellii</i> , Benth. ..	901	<i>Cotula</i> , Benth. ..	832
<i>Geophila</i> ..	772	<i>mollissima</i> , F. v. M. ...	901	<i>diosmifolium</i> , Less. ..	839
<i>reniformis</i> , D. Don ..	772	<i>ovata</i> , Sm. ..	897	<i>diotophyllum</i> , F. v. M. ..	839
<i>Glossogyne</i> ..	865	<i>paniculata</i> , Sm. ..	903	<i>dubium</i> , Cass. ...	828
<i>bidentidea</i> , F. v. M. ..	865	<i>pinnatifida</i> , Schlecht. ...	902	<i>elatum</i> , A. Cunn. ..	837
<i>orthochaeta</i> , F. v. M. ..	866	<i>pumilio</i> , R. Br. ..	904	<i>erosum</i> , Schlecht. ..	836
<i>pedunculosa</i> , DC. ..	865	<i>purpurascens</i> , R. Br. ...	904	<i>flavissimum</i> , DC. ..	838
<i>retroflexa</i> , F. v. M. ..	865	<i>pusilliflora</i> , F. v. M. ...	902	<i>glutinosum</i> , Hook. ..	837
<i>tenuifolia</i> , Cass. ..	865	<i>racemosa</i> , F. v. M. ..	896	<i>Gunnii</i> , Hook. f. ..	836
<i>Gnaphalium</i> ..	825	<i>ramosissima</i> , Sm. ..	908	<i>lanuginosum</i> , A. Cunn. ..	837
<i>apiculatum</i> , Labill. ..	838	<i>rotundifolia</i> , R. Br. ..	899	<i>leptolepis</i> , DC. ..	842
<i>collinum</i> , Labill. ..	826	<i>sessiliflora</i> , F. v. M. ...	898	<i>macrocephalum</i> , A. Cunn. ..	836
<i>cylindrostachyum</i> , Wall. ..	824	<i>stelligera</i> , R. Br. ..	898	<i>molle</i> , DC. ..	831
<i>flavissimum</i> , Steb. ..	838	<i>Strangfordii</i> , F. v. M. ..	900	<i>odorum</i> , DC. ..	838
<i>indicum</i> , Linn. ..	826	<i>stricta</i> , Sm. ..	913	<i>Oldfieldii</i> , F. v. M. ..	832
<i>indutum</i> , Hook. f. ..	826	<i>strongylophylla</i> , F. v. M. ..	899	<i>oxylepis</i> , F. v. M. ..	837
<i>involutratum</i> , Forst. ..	826	<i>teucrifolia</i> , F. v. M. ...	899	<i>podolepideum</i> , F. v. M. ..	838
<i>japonicum</i> , Thunb. ..	826	<i>Guettarda</i> ..	759	<i>ramosissimum</i> , Hook. ...	838
<i>luteo-album</i> , Linn. ..	825	<i>polyphragmoides</i> , F. v. M. ..	761	<i>rupicola</i> , DC. ..	838
<i>moschatum</i> , A. Cunn. ..	833	<i>speciosa</i> , Linn. ..	759	<i>rutidolepis</i> , DC. ..	836
<i>niliacum</i> , Raddi ..	826	<i>Guettardella</i>		<i>scorpioides</i> , Labill. ..	836
<i>purpureum</i> , Linn. ..	826	<i>putaminosa</i> , Benth. ..	760	<i>semifertile</i> , F. v. M. ..	835
<i>scorpioides</i> , Poir. ..	836	<i>Gymnanthemum</i>		<i>semipapposum</i> , DC. ...	839
<i>semipapposum</i> , Labill. ..	839	<i>scandens</i> , Steetz ..	790	<i>Sonderi</i> , F. v. M. ..	843
<i>sericeum</i> , Turcz. ..	826	<i>vagans</i> , Steetz. ..	790	<i>squarrulosum</i> , DC. ..	839
<i>Gnaphalodes</i> ..	851	<i>Gymnanthera</i> ..	997	<i>viscosum</i> , Sieb. ..	836
<i>evacinum</i> , Sond. ..	852	<i>nitida</i> ..	997	<i>Helipterum</i> ..	829
<i>uliginosum</i> , A. Gray ..	851	<i>Gymnema</i> ..	1003	<i>albicans</i> , DC. ..	831
<i>Gnephosis</i> ..	848	<i>brevifolium</i> , Benth. ...	1004	<i>anthemoides</i> , DC. ..	830
<i>arachnoidea</i> , Turcz. ..	849	<i>geminatum</i> , R. Br. ...	1004	<i>bicolorum</i> , DC. ..	831
<i>cyathopappa</i> , Benth. ..	849	<i>pleiadenium</i> , F. v. M. ..	1004	<i>brachyrhynchum</i> , Sond. ..	831
<i>erlocarpa</i> , Benth. ..	849	<i>sylvestre</i> , R. Br. ..	1003	<i>chionolepis</i> , F. v. M. ...	831
<i>Gomphocarpus</i> ..	998	<i>trinerve</i> , R. Br. ..	1004	<i>citrinum</i> , Steetz ..	832
<i>brasiliensis</i> , Fourn. ..	998	<i>Gymnostyles</i>		<i>corymbiflorum</i> , Schl. ...	832
<i>Gongronema</i> ..	1004	<i>anthemifolia</i> , Juss. ..	870	<i>Cotula</i> , DC. ..	831
<i>micradenia</i> , Benth. ..	1005	<i>Gynura</i> ..	873	<i>diffusum</i> , DC. ..	831
<i>Gontopogon</i>		<i>ovalis</i> , DC. ..	873	<i>dimorpholepis</i> , Benth. ..	833
<i>multicaule</i> , Turcz. ..	803	<i>pseudochina</i> , DC. ..	873	<i>floribundum</i> , DC. ..	831
		<i>Haplotaaxis</i>		<i>glutinosum</i> , Hook. ..	837
		<i>australasica</i> , F. v. M. ...	879	<i>hyalospermum</i> , F. v. M. ..	832

INDEX OF GENERA AND SPECIES.

v

	Page		Page		Page
<i>incanum</i> , DC.	831	<i>Thozetiana</i> , F. v. M.	754	<i>denuclatus</i> , Sieb.	932
<i>moschatum</i> , Benth.	833	<i>timorensis</i> , Dene.	765	<i>ericoides</i> , R. Br.	934
<i>polygalifolium</i> , DC.	831	<i>triflora</i> , R. Br.	758	<i>flexifolius</i> , R. Br.	936
<i>polyphyllum</i> , F. v. M.	832	<i>Jasminum</i>	968	<i>fraternum</i> , DC.	932
<i>præcox</i> , F. v. M.	832	<i>acuminatum</i> , R. Br.	970	<i>glacialis</i> , Lindl.	933
<i>punctatum</i> , DC.	831	<i>æmulum</i> , R. Br.	970	<i>Hookeri</i> , Sond.	933
<i>pusillum</i> , Turcz.	832	<i>æstrale</i> , Pers.	970	<i>imbricatus</i> , R. Br.	935
<i>pygmæum</i> , Benth.	833	<i>Bidwillii</i> , Vis.	970	<i>juniperinus</i> , R. Br.	936
<i>semisterile</i> , F. v. M.	832	<i>confusum</i> , DC.	970	<i>lanceolatus</i> , R. Br.	931
<i>simplex</i> , Steetz	832	<i>Dallachii</i> , F. v. M.	969	<i>lanceolatus</i> , Sieb.	932
<i>strictum</i> , Benth.	832	<i>dianthifolium</i> , Vis.	971	<i>leptospermoides</i> , R. Br.	935
<i>Stuartianum</i> , Sond.	831	<i>didymum</i> , Forst.	969	<i>linifolius</i> , A. Cunn.	933
<i>Hodgkinsonia</i>	762	<i>divaricatum</i> , R. Br.	969	<i>margarodes</i> , R. Br.	934
<i>ovatiflora</i> , F. v. M.	762	<i>funale</i> , Dene.	970	<i>melaleucoides</i> , A. Cunn.	933
<i>Holostigma</i>		<i>geniculatum</i> , Vent.	970	<i>microphyllus</i> , R. Br.	932
<i>åboicum</i> , G. Don	919	<i>gracile</i> , Andr.	970	<i>Mitchellii</i> , Benth.	936
<i>Hormogyne</i>	960	<i>lineare</i> , R. Br.	970	<i>neanglicus</i> , F. v. M.	937
<i>cotinifolia</i> , A. DC.	960	<i>Mitchellii</i> , Lindl.	970	<i>obtusus</i> , Hook. f.	933
<i>Hoya</i>	1012	<i>molle</i> , R. Br.	970	<i>parviflorus</i> , Lindl.	932
<i>australis</i> , R. Br.	1012	<i>parviflorum</i> , Dene.	969	<i>pleiospermus</i> , F. v. M.	933
<i>bicarinata</i> , A. Gray	1013	<i>racemosum</i> , F. v. M.	969	<i>puriloculatus</i> , F. v. M.	933
<i>Dalrympliana</i> , F. v. M.	1013	<i>simplicifolium</i> , Forst.	970	<i>polystachyus</i> , Lodd.	932
<i>flexuosa</i> , Spreng.	1007	<i>singuliflorum</i> , Bail. c		<i>Richei</i> , R. Br.	932
<i>grandiflora</i> , Spreng.	1006	<i>F. v. M.</i>	971	<i>ruscifolius</i> , R. Br.	934
<i>Keysii</i> , Bail.	1012	<i>suavissimum</i> , Lindl.	970	<i>Sieberi</i> , DC.	937
<i>Nicholsoniæ</i> , F. v. M.	1013	<i>Kippistia</i>		<i>smithii</i> , Sond.	936
<i>paniculata</i> , Spreng.	1006	<i>suecifolia</i> , F. v. M.	800	<i>sparsus</i> , A. Cunn.	936
<i>Sana</i> , Bail.	1012	<i>Knoxia</i>	761	<i>trichocarpus</i> , R. Br.	934
<i>Hyalolepis</i>		<i>corymbosa</i> , Willd.	761	<i>virgatus</i> , R. Br.	933
<i>occidentalis</i> , F. v. M.	847	<i>Lactaria</i>		<i>Leuzea</i>	
<i>rhizocephala</i> , DC.	847	<i>calocarpa</i> , Hassk.	982	<i>australis</i> , Gaud.	880
<i>Hyalospermum</i>		<i>Lactuca</i>	883	<i>Ligustrum</i>	974
<i>glutiniosum</i> , Steetz	832	<i>Scariola</i> , Linn.	883	<i>australianum</i> , F. v. M.	974
<i>strictum</i> , Steetz	832	<i>Lagenophora</i>		<i>Limnanthemum</i>	1028
<i>variabile</i> , Sond.	832	<i>Billardieri</i> , Cass.	793	<i>crenatum</i> , F. v. M.	1029
<i>Hydnophytum</i>	773	<i>Emphysopus</i> , Hook.	794	<i>exiliflorum</i> , F. v. M.	1030
<i>fornicarium</i> , Becc.	774	<i>gracilis</i> , Steetz	793	<i>Fraserianum</i> , Griseb.	1029
<i>Hypocharis</i>	882	<i>Solenogyne</i> , F. v. M.	798	<i>geminatum</i> , Griseb.	1029
<i>glabra</i> , Linn.	882	<i>Lasianthus</i>	773	<i>hydrocharoides</i> , F. v. M.	1030
<i>radicata</i> , Linn.	883	<i>graciliflorus</i> , Bail.	773	<i>indicum</i> , Thw.	1028
<i>Ichnocarpus</i>	994	<i>strigosus</i> , Wight.	773	<i>Kleinianum</i> , Griseb.	1029
<i>dasycalyx</i> , Miq.	995	<i>Latouria</i>		<i>Moonii</i> , Thw.	1029
<i>frutescens</i> , R. Br.	994	<i>filiformis</i> , De Vr.	892	<i>parvifolium</i> , Griseb.	1029
<i>leptodictyus</i> , F. v. M.	995	<i>Leptocarpus</i>		<i>Linociera</i>	971
<i>Isoetopsis</i>	871	<i>intricata</i> , Hook.	868	<i>axillaris</i> , F. v. M.	972
<i>graminifolia</i> , Turcz.	871	<i>longipes</i> , Hook.	868	<i>effusiflora</i> , F. v. M.	971
<i>Isolobus</i>		<i>multifida</i> , Hook.	868	<i>picnophloia</i> , F. v. M.	972
<i>concolor</i> , A. DC.	920	<i>Leptorhynchus</i>	827	<i>ramiflora</i> , DC.	971
<i>Cunninghamii</i> , A. DC.	920	<i>Baileyi</i> , F. v. M.	828	<i>Linschotenia</i>	
<i>Isotoma</i>	920	<i>gracilis</i> , Walp.	828	<i>discolor</i> , De Vr.	912
<i>axillaris</i> , Lindl.	921	<i>hemisphæricus</i> , DC.	828	<i>Lippaya</i>	
<i>fluviatilis</i> , F. v. M.	921	<i>Lhotzkyanus</i> , Walp.	828	<i>telephioides</i> , Endl.	747
<i>Gulliverii</i> , F. v. M.	921	<i>nitidulus</i> , DC.	828	<i>Lissanthe</i>	929
<i>petraea</i> , F. v. M.	921	<i>pulchellus</i> , F. v. M.	828	<i>Cunninghamii</i> , DC.	929
<i>senecioides</i> , A. DC.	921	<i>squamatus</i> , Less.	828	<i>daphnoides</i> , R. Br.	929
<i>Isauchenus</i>		<i>Leschenaultia</i>	891	<i>intermedia</i> , A. Cunn.	930
<i>sublyratus</i> , Cass.	793	<i>agrostophylla</i> , F. v. M.	891	<i>rigida</i> , Benth.	930
<i>Isochlamys</i>		<i>divaricata</i> , F. v. M.	891	<i>stellata</i> , Knowl. & W.	929
<i>cuneifolia</i> , F. v. M.	809	<i>filiformis</i> , R. Br.	891	<i>strigosa</i> , R. Br.	930
<i>Ixiolena</i>	842	<i>Leucopogon</i>	930	<i>strigosa</i> , Sieb.	937
<i>brevicompta</i> , F. v. M.	842	<i>affinis</i> , R. Br.	932	<i>subulata</i> , R. Br.	930
<i>leptolepis</i> , Benth.	842	<i>australis</i> , Sieb.	932	<i>Lobelia</i>	915
<i>tomentosa</i> , Sond.	843	<i>biflorus</i> , R. Br.	936	<i>alata</i> , Labill.	918
<i>Ixora</i>	764	<i>Cunninghamii</i> , DC.	932	<i>anceps</i> , Thunb.	917
<i>Beckleri</i> , Benth.	765	<i>cuspidatus</i> , R. Br.	935	<i>Browniana</i> , R. et S.	916
<i>Pavetta</i> , Roxb.	766	<i>cuspidatus</i> , Mitch.	936	<i>Browniana</i> , F. v. M.	916
<i>pentamera</i> , Benth.	765			<i>concolor</i> , R. Br.	920
				<i>cuneiformis</i> , Labill.	918

	Page		Page		Page
<i>decumbens</i> , Sm.	918	<i>Marsdenia</i>	1007	<i>canescens</i> , R. Br.	1018
<i>dentata</i> , Cav.	916	<i>araujacea</i> , F. v. M.	1009	<i>cinerascens</i> , R. Br.	1018
<i>dentata</i> , Sieb.	917	<i>cinerascens</i> , R. Br.	1007	<i>connata</i> , R. Br.	1018
<i>dioica</i> , R. Br.	918	<i>coronata</i> , Benth.	1011	<i>constricta</i> , F. v. M.	1019
Douglasiana, Bail.	917	<i>cymulosa</i> , Benth.	1008	Cunninghamii, Benth.	1019
<i>fluvialis</i> , R. Br.	921	<i>flavescens</i> , A. Cunn.	1008	<i>diffusa</i> , Benth.	1017
<i>gibbosa</i> , Labill.	916	<i>Fraseri</i> , Benth.	1009	<i>elata</i> , R. Br.	1018
<i>gracilis</i> , Andr.	917	<i>Leichhardtiana</i> , F. v. M.	1010	<i>elata</i> , F. v. M.	1018
<i>membranacea</i> , R. Br.	918	<i>leptophylla</i> , F. v. M.	1010	<i>hirsuta</i> , Presl	1018
<i>microsperma</i> , F. v. M.	916	<i>longiloba</i> , Benth.	1010	<i>indica</i> , Wight	1019
<i>pedunculata</i> , R. Br.	920	<i>microlepis</i> , Benth.	1011	<i>laricifolia</i> , R. Br.	1020
<i>purpurascens</i> , R. Br.	919	<i>rhyncholepis</i> , F. v. M.	1008	<i>longiflora</i> , F. v. M.	1018
<i>quadrangularis</i> , R. Br.	918	<i>rostrata</i> , R. Br.	1009	<i>multicaulis</i> , R. Br.	1020
<i>rhizophyta</i> , Schult.	918	<i>velutina</i> , R. Br.	1008	<i>paludosa</i> , R. Br.	1017
<i>senecioides</i> , A. Cunn.	921	<i>viridiflora</i> , R. Br.	1001	<i>phascoides</i> , R. Br.	1020
<i>simplicicaulis</i> , R. Br.	916	<i>Melichrus</i>	927	<i>pilosula</i> , F. v. M.	1017
<i>stenophylla</i> , Benth.	918	<i>adpressus</i> , A. Cunn.	928	<i>polymorpha</i> , R. Br.	1017
<i>stricta</i> , R. Br.	916	<i>erubescens</i> , A. Cunn.	928	<i>prolifera</i> , R. Br.	1020
<i>stricta</i> , De Vr.	918	<i>medius</i> , A. Cunn.	928	<i>prolifera</i> , Sieb.	1018
<i>trigonocaulis</i> , F. v. M.	917	<i>rotatus</i> , R. Br.	927	<i>pygmaea</i> , R. Br.	1019
<i>trigonocaulis</i> , Hook.	917	<i>urceolatus</i> , R. Br.	928	<i>ramosa</i> , R. Br.	1020
<i>uncinata</i> , De Vr.	918	<i>Melodinus</i>	976	<i>Sieberi</i> , A. DC.	1018
Logania	1021	<i>acutiflorus</i> , F. v. M.	976	<i>squarrosa</i> , R. Br.	1018
<i>angustifolia</i> , Sieb.	1021	<i>chilocarpoides</i> , F. v. M.	976	<i>stellata</i> , R. Br.	1019
<i>cordifolia</i> , Hook.	1021	<i>Guilfoylei</i> , F. v. M.	977	<i>Monenyanthes</i>	
<i>floribunda</i> , R. Br.	1021	<i>murpe</i> , Bail.	977	<i>gnaphalioides</i> , A. Gray	833
<i>pusilla</i> , R. Br.	1022	<i>Menyanthes</i>		<i>Monenteles</i>	
Lucuma	953	<i>campestris</i> , Moon.	1029	<i>glandulosus</i> , F. v. M.	824
<i>Amorphosperma</i> , B. & H.	955	<i>exaltata</i> , Sims.	1028	<i>globiferus</i> , DC.	824
<i>chartacea</i> , Bail.	955	<i>indica</i> , Linn.	1029	<i>intermedius</i> , DC.	824
<i>galactoxyloa</i> , F. v. M.	955	<i>sarmentosa</i> , Sims	1028	<i>sphacelatus</i> , Labill.	824
<i>sericea</i> , F. v. M.	954	<i>Merkusia</i>		<i>spicatus</i> , Labill.	824
<i>Unmackiana</i> , Bail.	954	<i>æmula</i> , De Vr.	910	<i>verbascifoliis</i> , F. v. M.	824
Lyonsia	988	<i>angulata</i> , De Vr.	909	<i>Monopsis</i>	
<i>eucalyptifolia</i> , F. v. M.	990	<i>hispidata</i> , De Vr.	908	<i>dioica</i> , Presl	919
<i>Langiana</i> , F. v. M.	989	<i>microcarpa</i> , De Vr.	911	Monotoca	938
<i>largiflorens</i> , F. v. M.	990	<i>ovalifolia</i> , De Vr.	910	<i>albens</i> , R. Br.	938
<i>latifolia</i> , Benth.	990	<i>revoluta</i> , De Vr.	909	<i>elliptica</i> , R. Br.	938
<i>Leichhardtii</i> , F. v. M.	992	<i>sinuata</i> , De Vr.	910	<i>lineata</i> , R. Br.	939
<i>hilaicina</i> , F. v. M.	989	<i>suaevoleans</i> , De Vr.	909	<i>patens</i> , A. Cunn.	939
<i>oblongifolia</i> , Benth.	990	<i>Metabolos</i>		<i>propinqua</i> , A. Cunn.	939
<i>reticulata</i> , F. v. M.	989	<i>venosus</i> , Bl.	748	<i>scoparia</i> , R. Br.	939
<i>straminea</i> , R. Br.	989	<i>Metalasia</i>		Morinda	767
Lysinema	940	<i>rosmarinifolia</i> , Sieb.	840	<i>acutifolia</i> , F. v. M.	767
<i>attematum</i> , Link.	941	<i>Micropycis</i>		<i>citrifolia</i> , Linn.	767
<i>pungens</i> , R. Br.	941	<i>pumila</i> , Duby	946	<i>hypotephra</i> , F. v. M.	768
<i>Sieberi</i> , Benth.	941	<i>tenella</i> , Wight.	946	<i>jasmuinoides</i> , A. Cunn.	768
Maba	962	<i>Microseris</i>	880	<i>reticulata</i> , Benth.	768
<i>Cargillia</i> , F. v. M.	966	<i>Forsteri</i> , Hook.	881	<i>umbellata</i> , Linn.	768
<i>compacta</i> , R. Br.	964	<i>Microstemma</i>	1014	<i>Morna</i>	
<i>fasciculosa</i> , F. v. M.	963	<i>tuberosum</i> , R. Br.	1014	<i>nitida</i> , Lindl.	829
<i>geminata</i> , R. Br.	964	<i>Millottia</i>	843	<i>Myriocephalus</i>	846
<i>hemicycloides</i> , F. v. M.	963	<i>Greevesii</i> , F. v. M.	843	<i>rhizocephalus</i> , Benth.	846
<i>humilis</i> , R. Br.	964	<i>Mimusops</i>	960	<i>Ruddallii</i> , Benth.	847
<i>interstans</i> , F. v. M.	964	<i>Browniana</i> , Benth.	961	<i>Stuartii</i> , Benth.	847
<i>laurina</i> , R. Br.	962	<i>Kauki</i> , R. Br.	961	<i>Myriogyne</i>	
<i>laxiflora</i> , Benth.	963	<i>parvifolia</i> , R. Br.	961	<i>minuta</i> , Less.	869
<i>megalocarpa</i> , F. v. M.	965	<i>Minuria</i>	798	<i>Myrmecodia</i>	774
<i>obovata</i> , R. Br.	965	<i>asteroides</i> , Sond.	799	<i>Antoinii</i> , Becc.	775
<i>pentamera</i> , F. v. M.	966	<i>Cunninghamii</i> , Benth.	799	<i>Beccarii</i> , Hook.	774
<i>quadridentata</i> , F. v. M.	966	<i>denticulata</i> , Benth.	799	<i>echinata</i> , F. v. M.	775
<i>reticulata</i> , R. Br.	964	<i>integerrima</i> , Benth.	799	<i>Muelleri</i> , Becc.	774
<i>rufa</i> , Labill.	963	<i>leptophylla</i> , DC.	799	<i>Myrsine</i>	
<i>seriocarpa</i> , F. v. M.	963	<i>susædifolia</i> , F. v. M.	800	<i>achradifolia</i> , F. v. M.	950
Mæssa	948	<i>tenuissima</i> , DC.	799	<i>campanulata</i> , F. v. M.	949
<i>dependens</i> , F. v. M.	948	<i>Mitrasacme</i>	1016	<i>crassifolia</i> , R. Br.	949
<i>haplobotrys</i> , F. v. M.	948	<i>alsinoides</i> , R. Br.	1017	<i>porosa</i> , F. v. M.	949
		<i>ambigua</i> , R. Br.	1018	<i>subsessilis</i> , F. v. M.	949

	Page		Page		Page
urceolata, R. Br.	949	<i>Oxystelma</i>		Podocoma	808
variabilis, R. Br.	949	<i>carnosum</i> , R. Br.	1000	<i>cuneifolia</i> , R. Br.	808
<i>Nauclea</i>	745	<i>Ozothamnus</i>		<i>hieracifolia</i> , Cass.	808
<i>coadana</i> , DC.	744	<i>Becklerii</i> , F. v. M.	839	<i>primulifolia</i> , Cass.	808
<i>cordata</i> , Roxb.	744	<i>cinereus</i> , DC.	840	<i>Podolepis</i>	854
<i>Gordonia</i> , Bail.	745	<i>diosmifolius</i> , DC.	840	<i>acuminata</i> , R. Br.	855
<i>undulata</i> , Roxb.	744	<i>turbatus</i> , DC.	840	<i>affinis</i> , Sond.	855
<i>Nematopus</i>		<i>Pachysurus</i>		<i>canescens</i> , A. Cunn.	855
<i>effusus</i> , A. Gray	850	<i>platycephalus</i> , F. v. M.	851	<i>Gilbertii</i> , Turcz.	856
<i>Notelæa</i>	972	<i>Panatia</i>		<i>heiractifolia</i> , Cass.	808
<i>linearis</i> , Benth.	973	<i>Lessoni</i> , Cass.	856	<i>hieracioides</i> , F. v. M.	855
<i>longifolia</i> , Vent.	973	<i>Muelleri</i> , Sond.	856	<i>inundata</i> , A. Cunn.	855
<i>microcarpa</i> , R. Br.	973	<i>Paquerina</i>		<i>Lessoni</i> , Benth.	856
<i>ovata</i> , R. Br.	972	<i>graminea</i> , Cass.	796	<i>longipedata</i> , A. Cunn.	855
<i>ovata</i> , Endl.	973	<i>Parsonsia</i>	991	<i>Mitchelli</i> , Sond.	855
<i>punctata</i> , R. Br.	973	<i>eucalyptifolia</i> , F. v. M.	991	<i>rutidochlamys</i> , F. v. M.	855
<i>reticulata</i> , DC.	973	<i>glaucescens</i> , F. v. M.	991	<i>Siemsenia</i> , F. v. M.	856
<i>rigida</i> , Sieb.	973	<i>lanceolata</i> , R. Br.	991	<i>Podopappus</i>	
<i>venosa</i> , F. v. M.	973	<i>Langiana</i> , F. v. M.	990	<i>hirsutus</i> , Hook. & Arn.	808
<i>Ochrosia</i>	981	<i>Leichhardtii</i> , F. v. M.	992	<i>tomentosus</i> , Hook. & Arn.	808
<i>Cowleyi</i> , Bail.	984	<i>lilacina</i> , F. v. M.	989	<i>Podospermum</i>	
<i>elliptica</i> , Labill.	982	<i>nesophila</i> , Bail.	992	<i>pedunculare</i> , Sieb.	852
<i>Kilneri</i> , F. v. M.	983	<i>velutina</i> , R. Br.	992	<i>Pogonetes</i>	
<i>McDowalliana</i> , Bail.	983	<i>ventricosa</i> , F. v. M.	992	<i>spinescens</i> , Lindl.	908
<i>Moorei</i> , F. v. M.	983	<i>Pavetta</i>	766	<i>Pogonolobus</i>	
<i>Newelliana</i> , Bail.	982	<i>indica</i> , Linn.	766	<i>reticulatus</i> , F. v. M.	769
<i>parviflora</i> , Hensl.	982	<i>Pentatropis</i>	1002	<i>Polycalymma</i>	
<i>Poweri</i> , Bail.	983	<i>atropurpurea</i> , Benth.	1003	<i>Stuartii</i> , F. v. M.	847
<i>Odallam</i> , Rheede	981	<i>Peroa</i>		<i>Polyphragmon</i>	
<i>Oldenlandia</i>	749	<i>microphylla</i> , Pers.	932	<i>sericeum</i> , Desf.	761
<i>cœrulescens</i> , F. v. M.	750	<i>Perojoa</i>		<i>Pomax</i>	776
<i>corymbosa</i> , Linn.	749	<i>microphylla</i> , Cav.	932	<i>glabra</i> , DC.	777
<i>paniculata</i> , Linn.	749	<i>Phacellothrix</i>		<i>hirta</i> , DC.	777
<i>polyclada</i> , F. v. M.	750	<i>cladochæta</i> , F. v. M.	845	<i>rupetris</i> , F. v. M.	777
<i>psychotrioides</i> , F. v. M.	747	<i>Phyllopappus</i>		<i>umbellata</i> , Soland.	776
<i>Olea</i>	973	<i>lanceolatus</i> , Walp.	881	<i>Poncleletia</i>	
<i>apetala</i> , Andr.	973	<i>Picris</i>	881	<i>sprengeioides</i> , R. Br.	942
<i>paniculata</i> , R. Br.	974	<i>angustifolia</i> , DC.	881	<i>Pratia</i>	919
<i>Olearia</i>	804	<i>aspermica</i> , Lindl.	881	<i>Cunninghamii</i> , Hook. f.	920
<i>cyanodiscalis</i> , F. v. M.	807	<i>attenuata</i> , A. Cunn.	881	<i>erecta</i> , Gaudich	920
<i>elliptica</i> , DC.	807	<i>barbarorum</i> , Lindl.	881	<i>pedunculata</i> , Benth.	920
<i>hygrophila</i> , Benth.	806	<i>hanulosa</i> , Wall.	881	<i>puberula</i> , Benth.	920
<i>illita</i> , F. v. M.	808	<i>hieracioides</i> , Linn.	881	<i>Prenanthes</i>	
<i>magniflora</i> , F. v. M.	807	<i>squarrosa</i> , Steetz	881	<i>japonica</i> , Lindl.	882
<i>Nernstii</i> , F. v. M.	806	<i>Picrophyta</i>		<i>Psychotria</i>	769
<i>phlogopappa</i> , DC.	806	<i>calcarata</i> , F. v. M.	900	<i>Dallachiana</i> , Benth.	770
<i>pimeleoides</i> , Benth.	807	<i>Pladera</i>		<i>daphnoides</i> , A. Cunn.	771
<i>ramosissima</i> , Benth.	807	<i>virgata</i> , Roxb.	1027	<i>Fitzalani</i> , Benth.	771
<i>ramulosa</i> , Benth.	806	<i>Pleiogyne</i>		<i>loniceroides</i> , Sieb.	770
<i>rudis</i> , F. v. M.	808	<i>australis</i> , C. Koch	868	<i>nematopoda</i> , F. v. M.	771
<i>stellulata</i> , DC.	805	<i>multifida</i> , Sond.	868	<i>nesophila</i> , F. v. M.	770
<i>subspicata</i> , Benth.	807	<i>reptans</i> , C. Koch	868	<i>poliostemma</i> , Benth.	771
<i>xerophila</i> , F. v. M.	808	<i>Pleurocarpæa</i>		<i>Simmondiana</i> , Bail.	772
<i>Opercularia</i>	775	<i>denticulata</i> , Benth.	789	<i>Pterigeron</i>	818
<i>aspera</i> , Gærtn.	775	<i>Pluchea</i>	816	<i>adscendens</i> , Benth.	820
<i>diphylla</i> , Gærtn.	776	<i>baecharoides</i> , F. v. M.	818	<i>liatroides</i> , Benth.	819
<i>eclyptoides</i> , F. v. M.	776	<i>basiflora</i> , F. v. M.	820	<i>macrocephalus</i> , Benth.	819
<i>hyssopifolia</i> , Juss.	778	<i>dentex</i> , R. Br.	818	<i>microglossus</i> , Benth.	820
<i>ligustrifolia</i> , Juss.	776	<i>Dioscoridis</i> , DC.	817	<i>odoris</i> , Benth.	819
<i>ocymifolia</i> , Juss.	776	<i>Eyrea</i> , F. v. M.	818	<i>Pterocaulon</i>	823
<i>paleata</i> , Young	776	<i>indica</i> , Less.	817	<i>cylindrostachyum</i> ,	
<i>rubioides</i> , Sieb.	776	<i>ligulata</i> , F. v. M.	819	<i>C.B.C.</i>	824
<i>umbellata</i> , Gærtn.	777	<i>macrocephala</i> , F. v. M.	820	<i>glandulosum</i> , B. & H.	824
<i>varia</i> , Hook. f.	776	<i>odora</i> , F. v. M.	819	<i>sphacelatum</i> , B. & H.	824
<i>Ophiorrhiza</i>	751	<i>tetranthera</i> , F. v. M.	817	<i>verbascifolium</i> , B. & H.	824
<i>australiana</i> , Benth.	751	<i>Plumbago</i>	944	<i>Pteropogon</i>	
<i>Orthostemon</i>		<i>zeylanica</i> , Linn.	944	<i>australis</i> , Nees	833
<i>erectus</i> , R. Br.	1027			<i>platyphyllus</i> , F. v. M.	832

	Page		Page		Page
<i>pygmaeus</i> , DC.	833	<i>laciniata</i> , Bail.	910	<i>Sheffieldia</i>	
<i>ramosissimus</i> , F. v. M.	835	<i>Lambertiana</i> , De Vr.	907	<i>incana</i> , Labill.	747
<i>Pycnosorus</i>		<i>Lobelia</i> , De Vr.	907	<i>Sideroxylon</i>	956
<i>chrysanthus</i> , Sond.	853	<i>lycoioides</i> , DC.	908	<i>argenteum</i> , Spreng.	958
<i>globosus</i> , Benth.	853	<i>macrocalyx</i> , De Vr.	907	<i>arnhemium</i> , B. & H.	956
<i>globosus</i> , Mitch.	853	<i>microcarpa</i> , Cav.	910	<i>australis</i> , B. & H.	958
<i>Pyrethrum</i>		<i>montana</i> , Labill.	907	<i>chartacea</i> , B. & H.	957
<i>diversifolium</i> , Grah.	795	<i>oleoides</i> , DC.	908	<i>dugulla</i> , Bail.	959
<i>Randia</i>	752	<i>oppositifolia</i> , F. v. M.	907	<i>eerwah</i> , Bail.	959
<i>Benthamiana</i> , F. v. M.	753	<i>ovalifolia</i> , R. Br.	909	<i>euphlebia</i> , F. v. M.	959
<i>chartacea</i> , F. v. M.	753	<i>parviflora</i> , F. v. M.	908	<i>laurifolium</i> , B. & H.	957
<i>densiflora</i> , Benth.	754	<i>prostrata</i> , De Vr.	913	<i>mysrinoïdes</i> , B. & H.	960
<i>Fitzalani</i> , F. v. M.	753	<i>revoluta</i> , R. Br.	909	<i>Pohlmanianum</i> , B. & H.	957
<i>hirta</i> , F. v. M.	753	<i>scandens</i> , Bail.	908	<i>xerocarpum</i> , B. & H.	957
<i>Moorei</i> , F. v. M.	754	<i>sericea</i> , Forst.	907	<i>Siegesbeckia</i>	858
<i>sessilis</i> , F. v. M.	754	<i>sinuata</i> , R. Br.	910	<i>gracilis</i> , DC.	858
<i>spinuligera</i> , F. v. M.	755	<i>spinescens</i> , R. Br.	908	<i>microcephala</i> , DC.	858
<i>tuberculosa</i> , Bail.	755	<i>suaveolens</i> , R. Br.	909	<i>orientalis</i> , Linn.	858
<i>Rhododendron</i> M	924	<i>Taccada</i> , Roxb.	907	<i>Siemssenia</i>	
<i>Loehæ</i> , F. v. M.	924	<i>Scalopsis</i>		<i>capillaris</i> , Steetz	856
<i>Rhynchanthera</i>		<i>Luceana</i> , Walp.	855	<i>Silybum</i>	878
<i>atropurpurea</i> , F. v. M.	1003	<i>Scalia</i>		<i>Marianum</i> , Gært.	878
<i>Richardsonia</i>	780	<i>jaceoides</i> , Sims	855	<i>Skirrophorus</i>	
<i>scabra</i> , Linn.	781	<i>Scorzovera</i>		<i>eriocarpus</i> , F. v. M.	849
<i>Richea</i>		<i>Lawrencii</i> , Hook. f.	881	<i>Solenogyne</i>	
<i>glauca</i> , Labill.	852	<i>scapigera</i> , Forst.	881	<i>bellkoides</i> , Cass.	794
<i>Rubia</i>		<i>Scyphophora</i>	758	<i>bellkoides</i> , Sond.	794
<i>syrticola</i> , Miq.	782	<i>hydraphylacea</i> , Gært.	758	<i>brachycomoides</i> , F. v. M.	794
<i>Rutidochlamys</i>		<i>Sebæa</i>	1026	<i>Soliva</i>	870
<i>Mitchelli</i> , Sond.	855	<i>ovata</i> , R. Br.	1026	<i>anthemifolia</i> , R. Br.	870
<i>Rutidosis</i>	843	<i>Secamone</i>	997	<i>Sonchus</i>	884
<i>acoma</i> , F. v. M.	846	<i>elliptica</i> , R. Br.	997	<i>arvensis</i> , Cl. var.	884
<i>arachnoidea</i> , Hook.	855	<i>emetica</i> , F. v. M.	998	<i>asper</i> , Vill.	884
<i>auricoma</i> , F. v. M.	844	<i>ovata</i> , R. Br.	998	<i>ciliatus</i> , Lam.	884
<i>Brownii</i> , Benth.	845	<i>Senecio</i>	874	<i>fallax</i> , Wallr.	884
<i>helichrysoïdes</i> , DC.	844	<i>amygdalifolius</i> , F. v. M.	875	<i>maritimus</i> , Linn.	884
<i>leucantha</i> , F. v. M.	844	<i>anethifolius</i> , A. Cunn.	876	<i>oleraceus</i> , Linn.	884
<i>macra</i> , F. v. M.	846	<i>angustifolius</i> , Sond.	876	<i>Spermaceo</i>	777
<i>Murchisonii</i> , F. v. M.	844	<i>angustilobus</i> , F. v. M.	876	<i>brachystema</i> , R. Br.	778
<i>Samara</i>		<i>argutus</i> , A. Rich.	872	<i>breviviflora</i> , F. v. M.	780
<i>australiana</i> , F. v. M.	950	<i>brachyglossus</i> , F. v. M.	876	<i>debilis</i> , Benth.	779
<i>Sambucus</i>	741	<i>brachylænus</i> , DC.	876	<i>exserta</i> , Benth.	779
<i>Gaudichaudiana</i> , DC.	741	<i>cornulentus</i> , DC.	875	<i>Jacobsoni</i> , Bail.	779
<i>xanthocarpa</i> , F. v. M.	741	<i>crithmifolius</i> , A. Rich.	875	<i>lævigata</i> , F. v. M.	780
<i>Samolus</i>	946	<i>Cunninghamii</i> , DC.	876	<i>marginata</i> , Benth.	778
<i>littoralis</i> , R. Br.	947	<i>Daltoni</i> , F. v. M.	875	<i>membranacea</i> , R. Br.	779
<i>repens</i> , Pers.	947	<i>drymophilus</i> , F. v. M.	873	<i>multicaulis</i> , Benth.	779
<i>Valerandi</i> , Linn.	946	<i>Gregorii</i> , F. v. M.	874	<i>pogostoma</i> , Benth.	778
<i>Sapota</i>		<i>lautus</i> , Forst.	875	<i>purpureo-cerulea</i> , R. Br.	780
<i>australis</i> , A. DC.	958	<i>Macquariensis</i> , DC.	875	<i>stenophylla</i> , F. v. M.	780
<i>Pohlmanniana</i> , F. v. M.	957	<i>multicaulis</i> , A. Rich.	872	<i>stricta</i> , F. v. M.	778
<i>Sarcocephalus</i>	744	<i>odoratus</i> , Hornem.	876	<i>suffruticosa</i> , R. Br.	780
<i>Bartlingii</i> , Miq.	745	<i>pinmatifolius</i> , A. Rich.	875	<i>uniseta</i> , Bail.	778
<i>cordatus</i> , Miq.	744	<i>platylepis</i> , DC.	875	<i>Sphæranthus</i>	822
<i>undulatus</i> , Miq.	744	<i>quadridentatus</i> , Labill.	873	<i>glaber</i> , DC.	823
<i>Sarcostemma</i>	1002	<i>rupicola</i> , A. Rich.	875	<i>hirtus</i> , Willd.	822
<i>australe</i> , R. Br.	1002	<i>scapiger</i> , Sieb.	796	<i>microcephalus</i> , Willd.	823
<i>Saussurea</i>	879	<i>tenuiflorus</i> , Sieb.	873	<i>Sphaeromorpha</i>	
<i>carthamoides</i> , Benth.	879	<i>tripartitus</i> , A. Rich.	873	<i>petiolaris</i> , DC.	822
<i>Scævola</i>	906	<i>velleioides</i> , A. Cunn.	875	<i>Spilanthes</i>	862
<i>æmula</i> , R. Br.	910	<i>vulgaris</i> , Linn.	877	<i>anactina</i> , F. v. M.	863
<i>amblyanthera</i> , F. v. M.	910	<i>Serratula</i>		<i>grandiflora</i> , Turcz.	862
<i>angulata</i> , R. Br.	909	<i>carthamoides</i> , Roxb.	879	<i>macroglossa</i> , F. v. M.	863
<i>chlorantha</i> , De Vr.	907	<i>Sersalisia</i>		<i>Spiropodium</i>	
<i>enantophylla</i> , F. v. M.	907	<i>cotnifolia</i> , F. v. M.	960	<i>baccharoides</i> , F. v. M.	818
<i>goodeniacea</i> , F. v. M.	906	<i>glabra</i> , A. Gray	958	<i>Sprengelia</i>	941
<i>hispidâ</i> , Cav.	908	<i>laurifolia</i> , A. Rich.	958	<i>Ponceletia</i> , F. v. M.	941
<i>Kœnigii</i> , Vahl.	907	<i>obovata</i> , R. Br.	958		

INDEX OF GENERA AND SPECIES.

ix

	Page		Page		Page
<i>Stactis</i>	944	<i>pleiosperma</i> , F. v. M. . .	984	<i>Uncaria</i>	745
<i>australis</i> , Spreng. . .	944	<i>pluriloculata</i> , F. v. M. .	933	<i>ferrea</i> , DC.	746
<i>taxanthema</i> , R. et S. . .	944	<i>procumbens</i> , Pers.	927	<i>Gambier</i> , Roxb.	746
<i>Streleskia</i>		<i>Richei</i> , Labill.	932	<i>Velleia</i>	892
<i>montana</i> , Hook. f. . . .	922	<i>rotata</i> , F. v. M.	927	<i>connata</i> , F. v. M.	893
<i>Streptoglossa</i>		<i>ruscifolia</i> , Spreng. . . .	935	<i>macrocalyx</i> , De Vr. . . .	893
<i>Steetzii</i> , F. v. M. . . .	819	<i>scoparia</i> , Sm.	939	<i>paradoxa</i> , Hook. f. . . .	893
<i>Strongylopermum</i>		<i>spuria</i> , Poir.	934	<i>pubescens</i> , R. Br.	894
<i>australe</i> , Less.	868	<i>strigosa</i> , Sm.	980	<i>spatulata</i> , R. Br.	894
<i>reptans</i> , Benth.	868	<i>trichocarpa</i> , Labill. . . .	934	<i>Ventenatia</i>	
<i>Strychnos</i>	1023	<i>triflora</i> , Andr.	926	<i>major</i> , Sm.	887
<i>Bancroftiana</i> , Bail. . . .	1025	<i>virceolata</i> , F. v. M. . . .	928	<i>minor</i> , Sm.	887
<i>lucida</i> , R. Br.	1024	<i>virgata</i> , Labill.	933	<i>procumbens</i> , Cav.	927
<i>pisilloperma</i> , F. v. M. . .	1024	<i>viridiflora</i> , R. Br.	927	<i>Verbesina</i>	
<i>Stuartina</i>	825	<i>viridis</i> , Andr.	927	<i>dichotoma</i> , Wall.	860
<i>Muelleri</i> , Sond.	825	<i>Symplocos</i>	967	<i>Lavenia</i> , Roxb.	860
<i>Stylidium</i>	885	<i>paucistamineus</i> , F. v. M.		<i>Vernonia</i>	789
<i>alsinoides</i> , R. Br.	889	<i>and</i> Bail.	968	<i>cinerea</i> , Less.	790
<i>bryoides</i> , F. v. M.	890	<i>spicata</i> , Roxb.	967	<i>cyaniopoides</i> , Walp. . . .	790
<i>canaliculatum</i> , Poir. . . .	887	<i>Stawellia</i> , F. v. M.	967	<i>erigeroides</i> , DC.	790
<i>capillare</i> , R. Br.	889	<i>Thwaitesii</i> , F. v. M. . . .	967	<i>scandens</i> , DC.	790
<i>debile</i> , F. v. M.	888	<i>Synaptantha</i>	750	<i>Villarsia</i>	1027
<i>diffusum</i> , R. Br.	889	<i>tillæacea</i> , Hook.	750	<i>crenata</i> , F. v. M.	1029
<i>eglandulosum</i> , F. v. M. .	890	<i>Tabernaemontana</i> .. .	987	<i>ecallata</i> , F. v. M.	1028
<i>eriorhizum</i> , R. Br.	887	<i>ebracteata</i> , R. Br.	988	<i>exiliflora</i> , F. v. M.	1030
<i>Floodii</i> , F. v. M.	887	<i>orientalis</i> , R. Br.	987	<i>geminata</i> , R. Br.	1030
<i>floribundum</i> , R. Br. . . .	888	<i>pubescens</i> , R. Br.	988	<i>hydrocharoides</i> , F. v. M. .	1030
<i>graminifolium</i> , Sw.	887	<i>Tagetes</i>	867	<i>indica</i> , Vent.	1029
<i>laricifolium</i> , Rich.	888	<i>glandulifera</i> , Sch.	867	<i>macrophylla</i> , Wight. . . .	1029
<i>leptorhizum</i> , F. v. M. . . .	888	<i>Taraxacum</i>	883	<i>nymphaeifolia</i> , Fras.	1029
<i>lineare</i> , Sw.	887	<i>Dens-leonis</i> , Desf.	883	<i>parnassifolia</i> , R. Br.	1028
<i>pedunculatum</i> , R. Br. . . .	890	<i>officinale</i> , Wigg.	883	<i>reniformis</i> , R. Br.	1027
<i>planifolium</i> , Poir.	887	<i>Taxanthema</i>		<i>reniformis</i> , Lindl.	1028
<i>rotundifolium</i> , R. Br. . . .	889	<i>australis</i> , R. Br.	944	<i>trachysperma</i> , F. v. M. . .	1029
<i>semipartitum</i> , F. v. M. . .	888	<i>Tetraotis</i>		<i>Vinca</i>	984
<i>serrulatum</i> , Rich.	887	<i>paludosa</i> , Reinw.	859	<i>rosea</i> , Linn.	984
<i>tenellum</i> , R. Br.	890	<i>Therogeron</i>		<i>Vincetoxicum</i> .. .	999
<i>tenerum</i> , Spreng	890	<i>denticulatus</i> , DC.	800	<i>carnosum</i> , Benth.	1000
<i>tenusifolium</i> , R. Br.	889	<i>integerrimus</i> , DC.	799	<i>elegans</i> , Benth.	1000
<i>trichopoda</i> , F. v. M.	889	<i>tenusifolius</i> , Sond.	799	<i>leptolepis</i> , Benth.	1000
<i>uliginosum</i> , Sw.	890	<i>Thespidium</i>	820	<i>ovatum</i> , Benth.	1000
<i>Styphelia</i>	926	<i>basiflorum</i> , F. v. M. . . .	820	<i>pachylepis</i> , Bail.	1000
<i>affinis</i> , Spreng.	932	<i>Thozetia</i>	1011	<i>Vittadinia</i>	810
<i>aggregata</i> , Spreng.	938	<i>racemosa</i> , F. v. M.	1011	<i>australis</i> , A. Rich.	811
<i>biflora</i> , Spreng.	936	<i>Timonius</i>	760	<i>brachycomoides</i> , F. v. M. .	810
<i>cornifolia</i> , Rudge	928	<i>putaminosus</i> , F. v. M. . . .	760	<i>cuneata</i> , DC.	811
<i>cuspidata</i> , Spreng.	935	<i>Rumphii</i> , DC.	761	<i>dentata</i> , DC.	811
<i>daphnoides</i> , Sm.	929	<i>Trapopogon</i>	884	<i>hispidula</i> , F. v. M.	811
<i>denudata</i> , Spreng.	932	<i>porrifolium</i> , Linn.	885	<i>macrorrhiza</i> , A. Gray. . . .	812
<i>divaricata</i> , Spreng.	937	<i>Tripetelus</i>		<i>scabra</i> , DC.	811
<i>elliptica</i> , Sm.	938	<i>australasicus</i> , Lindl. . . .	741	<i>scabra</i> , Hook. f.	811
<i>ericoides</i> , Sm.	934	<i>Triptilodiscus</i>		<i>triloba</i> , DC.	811
<i>flexifolia</i> , Spreng.	936	<i>pygmaeus</i> , Turcz.	833	<i>Wahlenbergia</i> .. .	922
<i>glauca</i> , Labill.	939	<i>Trochocarpa</i>	928	<i>albomarginata</i> , Hook. . . .	922
<i>glaucescens</i> , Sieb.	927	<i>laurina</i> , R. Br.	928	<i>gracilis</i> , A. DC.	922
<i>Gnidium</i> , Vent.	932	<i>Tylophora</i>	1005	<i>multicaulis</i> , Benth.	922
<i>imbriata</i> , Spreng.	935	<i>calcarata</i> , Benth.	1006	<i>quadrifida</i> , A. DC.	922
<i>juniperina</i> , Spreng.	936	<i>erecta</i> , F. v. M.	1005	<i>saxicola</i> , A. DC.	922
<i>lanceolata</i> , Sm.	936	<i>flexuosa</i> , R. Br.	1006	<i>Stieberi</i> , A. DC.	922
<i>leptospermoides</i> , Spr. . . .	935	<i>floribunda</i> , Benth.	1006	<i>stipiticaulis</i> , De Vr.	922
<i>linifolia</i> , F. v. M.	933	<i>grandiflora</i> , R. Br.	1006	<i>Waitzia</i>	828
<i>margarodes</i> , Spreng. . . .	934	<i>paniculata</i> , R. Br.	1006	<i>acuminata</i> , Steetz	829
<i>microphylla</i> , Spreng. . . .	932			<i>corymbosa</i> , Wendl.	829
<i>montana</i> , F. v. M.	933			<i>discolor</i> , Turcz.	829
<i>parviflora</i> , Andr.	932				

INDEX OF GENERA AND SPECIES.

	Page		Page		Page
Webera	752	<i>Wollastonia</i>		<i>Xanthium</i>	857
Dallachiana, <i>F. v. M.</i>	752	<i>asperrima</i> , Dene. ..	862	<i>spinosum</i> , <i>Linn.</i> ..	857
Wedelia	860	<i>biflora</i> , DC. ...	862	<i>strumarium</i> , <i>Linn.</i> ..	857
<i>asperrima</i> , <i>Benth.</i> ..	862	<i>ecliptoides</i> , <i>F. v. M.</i> ..	860	<i>Xeranthemum</i>	
<i>biflora</i> , <i>DC.</i> .. .	861	<i>Forsteriana</i> , DC. ..	862	<i>bracteatum</i> , <i>Vent.</i> ..	836
<i>calendulacea</i> , <i>Less.</i> ...	861	<i>insularis</i> , DC. ...	862	<i>Xyridanthe</i>	
<i>Cunninghamii</i> , DC. ..	861			<i>stricta</i> , <i>Lindl.</i> ..	832
<i>ecliptoides</i> , <i>F. v. M.</i> ..	860	<i>Woolisia</i>		<i>Youngia</i>	
<i>spilanthoides</i> , <i>F. v. M.</i> ..	861	<i>pungens</i> , <i>F. v. M.</i> ..	941	<i>japonica</i> , DC. ..	882
<i>urticifolia</i> , <i>DC.</i> ..	861			<i>Thunbergiana</i> , DC. ...	882
Wendlandia	746	Wrightia	993	Zinnia	858
<i>basistaminea</i> , <i>F. v. M.</i> ..	746	<i>Baccelliana</i> , <i>F. v. M.</i> ...	994	<i>australis</i> , <i>Bail.</i> ..	858
<i>psychotrioides</i> , <i>F. v. M.</i> ..	747	Millgar, <i>Bail.</i> ..	993	<i>elegans</i>	858
		<i>saligna</i> , <i>F. v. M.</i> ..	993	<i>pauciflora</i>	858

VERNACULAR NAMES.

	Page		Page		Page
Ada-a	768	Hemp Agrimony	792	Panunpin Plum	958
Akala	1014	I-am-boto	763	Papajarin	753
Alworm-angka-ina ..	824	I-u-luka	769	Periwinkle	984
Antir	1014	Karey	978	Pimpernel	946
Arlian	957	Karkar	825	Poan-ja	741
Athea	964	Ko-lin	965	Pun-oi	761
Bathurst Burr	857	Kooni	764	Quinine-tree	986
Bil-loo-bal	764	Ko-on-jé-rung	767	Redhead	999
Billygoat-plant	791	Koorool	985	Rosemary (Wild) ..	841
Binert	986	Kunkerberry	978	Salsify	885
Birra	985	Leichhardt Tree ..	741	Snakewood	1025
Bitter Bark	986	Lettuce (Prickly) ..	883	Stinking Rodger ..	867
Bogabri	866	Mangrove (River) ..	952	Taberol	741
Boorgoolbean	763	Marada	949	Thankoin	964
Boorum	769	Mar-ko	764	Thistle (Common) ..	878
Byamura	977	Milkbush	993	Thistle (Star)	880
Canary Wood	741	Millgar	993	Thistle (Virgin Mary's) ..	878
Caustic Vine	1002	Moiary	957	Theoromia	1001
Coobiaby	741	Mongo	954	Toka	741
Corn-cockle	880	Moonya	979	To-koon-ja	767
Cornflower	880	Moranggal	985	Ulorin	978
Cotton-bush (Madagascar)	999	Murpe	977	Undour	961
Cotton-bush (Milky) ..	999	Ngoru	961	Urooh	970
Cotton-bush (Wallflower)	999	Noogooru Burr	857	Warabooga	1014
Dandelion (European) ..	883	Nyam-mal	763	Wedeeley	990
Ditain	985	Old Maid Flower ..	984	Wongali	976
Dugulla	959	Oolpanje	741	Yar-ro-kal	758
Dun-jo	763	Paiamara	976		
Goombragne	765				
Groundsel (European) ..	877				
Groundsel-tree	814				

