RUBIACEAE

16. **CANTHIUM**, Lam.

Calyx-limb short, more or less toothed. Corolla-tube short or cylindrical; lobes 4 or 5, valvate in the bud. Anthers exserted or rarely included in the tube. Ovary 2-celled, with 1 ovule in each cell, laterally attached near or at the top. Style exserted, with a thick ovoid or mitre-shaped entire or 2-lobed stigma. Fruit a globular compressed or didymous drupe, with 1 or 2 one-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 seven Australian species one extends into the Pacific Islands, the others appear to be endemic.

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 1½ 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 thick, deeply 2-lobed. Flowers 2 or 3 together. Lobes of the corolla narrow, rather shorter than the tube. Leaves small	6. *C. vaccinifolium.*
Stigma broad, peltate, entire. Flowers in sessile clusters. Lobes of the corolla much shorter than the tube	7. *C. coprosmoides.*

2. **C. attenuatum,** *R. Br. ms.* A glabrous shrub, very nearly allied to *C. lucidum*. Leaves narrower, from oblong-elliptical and about 2 in. to narrow-lanceolate and 5 or 6 in. 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.

N. Australia. Brunswick Bay, N.W. coast, *A. Cunningham;* Victoria River and Arnhem's Land, *F. Mueller;* N. coast, *R. Brown;* Sweers Island, *Henne.*

Queensland. Burdekin and Burnett rivers, *F. Mueller;* Port Denison, *W. Hill, Bowman;* St. George's Bridge on the Balonne, *Mitchell.*

RUBIACEAE

3. **DENTELLA**, Forst.

(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.

NID

RUBIACEAE

Dentella asperata

NIB

RUBIACEAE

Dentella minutissima

NIB

RUBIACEAE

Dentella misera

1. **D. repens,** *Forst.; DC. Prod.* iv. 419. 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 $\frac{3}{4}$ lines 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 $1\frac{1}{2}$ lines diameter, hispid with long transparent hairs.—W. and Arn. Prod. 405; *Lippaya telephioides*, Endl. Atakta, 13. t. 13.

N. Australia. Islands of the Gulf of Carpentaria, *R. Brown;* Fitzmaurice river and Sturt's Creek, *F. Mueller.*

Queensland. Dawson river, *F. Mueller;* Port Curtis, *M'Gillivray;* Wide Bay, *Bidwill;* Moreton Bay, *C. Stuart.*

N. S. Wales. Blue Mountains, *A. Cunningham.*

S. Australia. Between Stokes Range and Cooper's Creek, *M'Douall Stuart's Expedition.*

The species ranges over East India, the Archipelago, and islands of the S. Pacific.

5. GARDENIA, Linn.

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 non-development 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.

Calyx-limb large, scarcely toothed, but splitting on one side or into 2 lobes. Plant glabrous.
- Leaves under 1 in. long, narrowed at the base. Corolla-tube dilated upwards, longer than the calyx . . . . . 1. *G. edulis.*
- Leaves broadly ovate. Corolla-tube cylindrical, scarcely exceeding the calyx-lobes . . . . . 2. *G. resinosa.*

Calyx-limb with 4 to 6 linear obtuse lobes, rarely cohering. Young shoots pubescent.
- Leaves obovate or oblong, under 1½ in. Fruits under 1 in. long . 3. *G. pyriformis.*
- Leaves broadly ovate or orbicular, 2 to 3 in. long. Fruits 1½ to 2 in. long . . . . . 4. *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. 5. *G. Macgillivræi.*
- Foliage and flowers softly pubescent or villous. Calyx-limb without the teeth not 2 lines long.
  - Tall shrub or tree. Leaves broadly ovate . . . . . 6. *G. ochreata.*
  - Low shrub or undershrub. Leaves narrow, oblong . . . . 7. *G. suffruticosa.*

Calyx-teeth distinct from the base. Fruit large. Plant glabrous.
- Leaves oblong, 1 to 2 in. long . . . . . 8. *G. fucata.*
- Leaves ovate, 3 to 4 in. long . . . . . 9. *G. Jardinei.*

Calyx(villous)-limb campanulate, with short teeth. Corolla-tube short, broad; lobes acute. Pericarp thin . . . . . 10. *G. chartacea.*

We have also a specimen of a distinct large-leaved species, from Mount Bremer, Cape York, *W. Hill*, but insufficient for description.

1. **G. edulis,** *F. Muell. Fragm.* i. 54. A small tree, apparently glabrous, the young shoots resinous. Leaves small, obovate or oblong, narrowed into a short petiole, very obtuse, rarely above 1 in. 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.

N. Australia. Gilbert river and between Flinders and Lynd river, the "Breadfruit-tree" of Leichhardt, *F. Mueller*.

NIB

RUBIACEAE

Gardenia kearlandi

NIB

RUBIACEAE

Gardenia pantonii

F. Muell.

4. **G. megasperma,** *F. Muell. Fragm.* i. 54. 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.

N. Australia. Cambridge Gulf and Vansittart Bay, N.W. coast, *A. Cunningham;* rocky places, Victoria river, *F. Mueller;* islands of the Gulf of Carpentaria, *R. Brown.*

3. **G. pyriformis,** *A. Cunn. Herb.* A shrub or tree, the specimens resembling those of *G. edulis*, but the young foliage and shoots hoary-tomentose or pubescent. Leaves obovate or oblong, $\frac{3}{4}$ to $1\frac{1}{2}$ in. long, obtuse, narrowed into a short petiole, the older ones often glabrous. Flowers terminal, solitary, shortly pedicellate, larger than in *G. edulis*. Calyx-limb very shortly tubular-campanulate, with 4 to 6 linear lobes, very variable in breadth and length, from $\frac{1}{4}$ to $\frac{1}{2}$ in. long, usually nearly equal in the same flower and quite distinct. Corolla-tube exceeding the calyx-lobes, scarcely dilated upwards; lobes broadly oblong, shorter than the tube, varying in number from 5 to 8 and often not of the same number as the calyx-lobes. Placentas 2 or 3. Fruit small, ovoid-globular or almost pear-shaped, crowned by the remains of the calyx-limb.

N. Australia. York Sound, N.W. coast, *A. Cunningham*; Victoria river, *Bynoe*.

NIO

RUBIACEAE

Gardenia resinosa

F. Muell

9. IXORA, Linn.

(Pavetta, *Linn.*)

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 exserted. Ovary 2-celled, with 1 ovule in each cell, peltately attached to the centre of the partition or rarely near the base. Style exserted, 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. Of the seven Australian species three are common in E. India and the Archipelago, another extends at least to Timor, and the remaining three appear to be endemic, and very unlike any Asiatic species. The two Linnæan genera *Ixora* and *Pavetta* have been generally distinguished by the style,—2-lobed in *Ixora*, simple in *Pavetta*,—but owing to there being several species where the lobes rarely spread, and the stigma being really compound in all, Roxburgh, Korthals, Miquel, and others have united the two genera, and, as A. Gray appears to think there are good grounds for the union, I have followed their example. There are great differences in the form of the seeds in different species, but, as far as known, these do not coincide with differences in the style. How far the seeds may be made available for sectional distinction remains to be seen when those of more species shall have been observed.

Section I. **Pavetta.**—*Flowers* 4-*merous*. *Style slender, simple, or the lobes not separating.*

Leaves glabrous, usually narrow . . . . . 1. *I. Pavetta.*
Leaves pubescent, at least underneath, usually broad . . . . . 2. *I. tomentosa.*

Section II. **Ixora.**—*Flowers* 4-*merous*. *Style-lobes usually spreading.*

Cymes dense, sessile. Corolla-tube 1½ in. long; lobes acute, ¼ the length of the tube . . . . . 3. *I. coccinea.*
Panicles loose. Corolla-tube 3 to 4 lines long; lobes oblong, nearly as as long as the tube . . . . . 4. *I. Timorensis.*
Corymb rather dense, sessile. Corolla-tube 1½ lines long; lobes about the same length . . . . . 5. *I. Becklerii.*
Peduncles very short, clustered, each with 3 sessile flowers. Corolla not 2 lines long, the tube very short. Leaves small, coriaceous, and shining . . . . . 6. *I. triflora.*

Section III. **Pentadium.**—*Flowers* 5-*merous.*

Corymb rather dense, sessile. Corolla-tube about 1 line; lobes about 3 lines long . . . . . 7. *I. pentamera.*

SECTION III. PENTADIUM.—Flowers 5-merous. Style undivided.

7. **I. pentamera,** *Benth.* 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, exserted. 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 ruminate as in the section *Grumilia* of *Psychotria*.

N. Australia. Islands of the Gulf of Carpentaria, *R. Brown.*—In the only flower examined, the ovules appeared to be attached near the base, but the æstivation of the corolla is much contorto-imbricated.

2. **I. tomentosa,** *Roxb. Fl. Ind.* i. 386. A tall shrub or tree, closely allied to *I. Pavetta*. Leaves rather broader and more obtuse, softly pubescent on both sides when young, rarely becoming glabrous above when old. Corymbs more dense than in *I. Pavetta*, the whole inflorescence and calyxes tomentose or hoary pubescent. Calyx-limb small, with minute teeth. Corolla fruit and seeds of *I. Pavetta*.—Wight, Ic. t. 186; *Pavetta tomentosa*, Sm.; W. and Arn. Prod. 431.

N. Australia. Careening Bay, N. W. Coast, *A. Cunningham;* Victoria river, *F. Mueller, Bynoe*; N. Coast, *R. Brown*.—Not so common in India as *I. Pavetta*. The Australian specimens quite agree with the ordinary Indian ones, both wild and from the Calcutta Botanic Garden. The Ceylon plant, designated by the same name in Thwaites's Enumeration, differs, as remarked by him, in the long narrow calyx-lobes, and is probably a distinct species.

17. **MORINDA**, Linn.

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 exserted. 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 exserted, 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 4 Australian species, one is common in tropical Asia, another as widely distributed over the seacoasts of southern Asia and the Pacific, the two others are endemic.

Peduncles solitary, apparently leaf-opposed. Leaves very large . . 1. *M. citrifolia.*
Peduncles 2 together at the ends of the branches . . . . . 2. *M. jasminoides.*
Peduncles 4 or more together at the ends of the branches.
  Leaves ovate to oblong-lanceolate, not much veined. Flower-heads without prominent bracts . . . . . 3. *M. umbellata.*
  Leaves broadly ovate or orbicular, coriaceous and prominently reticulate. One large coloured leafy bract to each flower-head . . 4. *M. reticulata.*

1. **M. citrifolia,** *Linn.; DC. Prod.* iv. 446. 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 $\frac{1}{4}$ to $\frac{1}{2}$ in. long; lobes shorter than the tube. Ovary 2-celled, the ovules ascending, attached below or near the middle. Fruit forming a pulpy mass above 1 in. diameter, the pyrenes orbicular, flattened, about 3 lines diameter.

Queensland. Along the coast and adjoining islands, from Albany island and Cape York to Percy islands and Edgecombe Bay, *A. Cunningham, F. Mueller,* and others. Common on the seacoasts of tropical Asia and especially of the Pacific islands. The Australian specimens are in leaf, in fruit, or in very young bud, and the flowers are described from Asiatic specimens. The fruits received from F. Mueller, as those of the "Leichhardt Tree," or *Sarcocephalus Leichhardtii,* Rep. Burdek. Exped. 12, belong to *Morinda citrifolia.*

NIB

RUBIACEAE

Plectronia attenuata

NIB

RUBIACEAE

Plectronia latifolia

6. **RANDIA**, Linn.

(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 exserted. 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.

Often thorny. Flowers solitary, pedicellate. Corolla-tube cylindrical, longer than the lobes . . . . . 1. *R. Moorei.*

Unarmed. Flowers few, in very loose cymes. Corolla-tube oblong, nearly as long as the lobes . . . . . 2. *R. Fitzalani.*

Unarmed. Flowers numerous in dense leaf-opposed cymes. Corolla-tube much shorter than the lobes . . . . . 3. *R. densiflora.*

There are specimens also in R. Brown's collection of a shrub from Torres Straits, apparently allied to *Randia triflora*, but scarcely sufficient for accurate description.

RUBIACEAE

27. SPERMACOCE, Linn.

(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 exserted 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, but none of these, not even the widely-spread Asiatic and African *S. stricta* or *S. hispida*, have as yet been observed in Australia, the whole of the Australian species being as far as known endemic. Varying in the dehiscence of the capsule from that ascribed to *Borreria* to that of *Spermacoce* proper, their inflorescence is that most prevalent in *Borreria*; the heads are terminal, or if axillary only on one side of the stem, showing that they have become lateral only by the elongation of one only of the branches of a normally forked stem. The shape of the corolla and insertion of the stamens appear to be constant characters, and essential to be attended to in the determination of species otherwise similar in aspect. The length of the stamens may vary from dimorphism.

Stamens inserted at the base or below the middle of the corolla-tube, the anthers always included. Corolla 1 to 1½ lines 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 not bearded, the narrow lobes pubescent inside. Anthers oblong . . . . . 3. *S. leptoloba.*
- 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 2 lines long. Stamens as long as or longer than the lobes . . . . . 6. *S. exserta.*
    - Leaves ovate or elliptical, on long petioles. Stamens exceeding the corolla-lobes . . . . . 7. *S. membranacea.*
  - Corolla-lobes shorter than the tube.
    - Stems diffuse. Leaves petiolate, ovate or broadly lanceolate. Corolla nearly 2 lines long . . . . . 8. *S. debilis.*
    - Stems erect or ascending. Leaves narrow-linear.
      - Flowers about 4, in terminal and lateral heads. Corolla about 3 lines long. Cocci almost closed . . . . 9. *S. inaperta.*
      - 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. lævigata.*
- Calyx usually 4-lobed. Corolla-lobes with 2 oblique prominent laminæ 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.*
  - Corolla 5 to 6 lines long, the lobes shorter than the tube . . 13. *S. auriculata.*
- Calyx 2-lobed. Corolla-lobes without appendages. Undershrub . 14. *S. suffruticosa.*

(The common Asiatic *S. stricta*, Linn. f., may possibly have been found in Queensland. It differs from *S. multicaulis* in the funnel-shaped corolla, with lobes much shorter than the tube.)

13. **S. auriculata,** *F. Muell. Fragm.* iv. 42. Low and diffuse or tall and slightly branched, more or less hispid, and sometimes very rigidly so. Leaves linear or lanceolate. Stipular bristles rather long. Flowers in dense terminal globular heads, often above ½ in. diameter. Calyx-lobes long and subulate. Corolla 6 lines long, the tube long and slender, bearded inside, dilated at the top into a campanulate limb, the lobes shorter than the tube, each with a pair of oblique prominent glandular-toothed appendages on the inner face at about half their length. Stamens inserted at the orifice of the tube, shorter than the lobes. Capsule rather thin, the carpels opening at the top, a portion of the dissepiment remaining attached to one of them.

N. Australia. N. coast, *R. Brown;* Upper Victoria river, *F. Mueller;* Port Essington, *Armstrong* (with long linear glabrous or hirsute leaves).

1. **S. brachystema,** *R. Br. Herb.* An erect or spreading rather rigid annual, attaining 1 or 2 ft. 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 1½ 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 1½ lines long, more or less of the dissepiment remaining attached to one of the carpels after dehiscence.—*S. stricta,* F. Muell. Fragm. iv. 41, not of Linn.

12. **S. breviflora,** *F. Muell. Herb.* 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 the internal appendages of *S. auriculata*, but more oblique and often united into one, at least at the base, occupying altogether $\frac{1}{3}$ of the lobe. Calyx-lobes usually recurved in the fruiting-head.

N. Australia. Victoria river and Depot Creek, *F. Mueller;* Arnhem N. Bay and islands of the Gulf of Carpentaria, *R. Brown;* Attack Creek, *M'Douall Stuart* (with rather larger flowers).

6. **S. exserta,** *Benth.* 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.

N. Australia. Islands of the Gulf of Carpentaria, *R. Brown;* Croker's Island, *A. Cunningham;* Port Essington, *Armstrong.*

11. **S. lævigata,** *F. Muell. Fragm.* iv. 41. 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.

N. Australia. Stony and grassy banks of Victoria river, Wickham's Creek, and Depôt Creek, *F. Mueller.*

Var. (?) *hispida.* Whole plant more or less hispid. Leaves very acute, often above 2 in. long.—*S. purpureo-cærulea,* 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.*

2. **S. pogostoma,** *Benth.* 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 a 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, inflected at the tips. Anthers small, ovate, almost sessile at the base of the tube as in *S. brachystema*.

N. Australia. Sturt's Creek, *F. Mueller;* Amity Creek (*M'Douall Stuart?*) *Herb. F. Muell.*

11. SCYPHIPHORA, Gærtn.

(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.

1. **S. hydrophylacea,** *Gærtn.; DC. Prod.* iv. 577. A shrub of several feet, quite glabrous, the young shoots resinous. Leaves obovate, very obtuse, narrowed into a rather long petiole, 1½ to nearly 3 in. long, coriaceous smooth and shining. Cymes dense, very shortly pedunculate. Corolla-tube 1½ 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.

Queensland. Albany Island, Cape York, *M'Gillivray, W. Hill.*

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.

NID

RUBIACEAE

Synaptantha tillaeacea

10. TIMONIUS, Rumph.

(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 in many rows from the axis. Seeds of *Guettarda*.—Trees or shrubs. Stipules membranous, so deciduous as to be rarely seen. Flowers polygamo-dicœcious, 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. The peculiar seed of this and other *Guettardeæ* has been very accurately described by A. Gray in the above-mentioned notes. I do not find, however, that *Timonius* is so exceptional in the æstivation of the corolla as it appeared to him, but it is difficult to observe. In the bud the lobes adhere so closely as to require much soaking to open them without tearing, and, when open, they are so thick as to convey the idea that they must have been valvate. But, on examining buds just ready to burst, I have found the margins overlapping, both in *T. Rumphii* and *T. Forsteri*.

NIB

RUBIACEAE

Timonius sericeus