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1.]

[PART 4.

FLORA
OF
TRINIDAD AND TOBAGO.

ROSALES (PARS)

BY

R. O. WILLIAMS.

Price: - - 4s. 6d.



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COHORT 11. ROSALES.

BY

R. O. WILLIAMS.*

Trees, shrubs or herbs, not insectivorous.

Seeds with arils.....1. **Connaraceae.**

Seeds without arils.

Fls. irregular.

Upper petal outside and enclosing the 2. **Leguminosae.**
others in the bud (in *Swartzia* pet. *sub-family*1 or none; stam. very numerous.... 1. **Papilionatae.**Upper petal inside and enclosed by the
others in the bud; sometimes 1 or
none with perfect stamens 10 or
less.....*sub-family*
2. **Caesalpinieae.**

Fls. regular

Sep. and Pet. valvate; (or imbricate in
Pentaclethra).Herbs, shrubs or trees not having *sub-family*
fleshy leaves; carp. 1..... 3. **Mimoseae.**Herbs with fleshy leaves; carp. 4.... 3. **Crassulaceae.**

Sep. and Pet. imbricate.

Lvs. alternate; fruit drupaceous.... 4. **Rosaceae.**Lvs. opposite; fruit capsular..... 5. **Cunoniaceae.**

Insectivorous herbs with rosettes of sticky

glandular leaves 6. **Droseraceae.**FAMILY 1. **CONNARACEAE.**

Trees, shrubs or vines. Lvs. alternate, pinnate with an odd terminal leaflet; lfts. entire. Stip. none. Fls. small, usually perfect, regular or somewhat irregular, in racemes or panicles. Cal. 5-lobed or 5-parted, mostly persistent at the base of the fruit, imbricate or valvate. Pet. 5, linear-oblong, mostly free and imbricate. Stam. 10 (in the Trinidad species); fil. thread-like, often united at the base; anths. 2-celled, longitudinally dehiscent. Disk none or very thin. Ovary of 5, free, hairy, 1-celled carpels;

* The writer is indebted to Mr. N. Y. Sandwith for much assistance in checking the manuscript at Kew.

style thread-like; *ovules* 2 in each cell, ascending from the inner angle. *Fruit* a leathery or woody, sessile or stalked, 1-seeded, rarely 2-seeded follicle, dehiscent within. *Seed* erect; *aril* usually present.

Cal. enlarged after flowering; fruit sessile...1. *Rourea*.

Cal. not enlarged after flowering; fruit stalked.....2. *Connarus*.

1. ROUREA Aubl.

Vines, shrubs or small *trees*; the *twigs* often terminating in a stout hook or coil. *Lvs.* leathery. *Fls.* small, numerous, in axillary or terminal panicles. *Cal.* deeply 5-lobed, large and persistent in fruit. *Pet.* 5. *Stam.* 10, alternately long and short. *Carp.* 5, usually only one maturing. *Follicle* sessile, 1-seeded. *Seed* erect, mostly longer than the aril.

Lfts. usually 7-9, pubescent beneath;
panicles rusty-pubescent.....1. *R. frutescens*.

Lfts. usually 3-5, glabrous beneath;
panicles glabrous.....2. *R. surinamensis*.

1. *R. frutescens* Aubl.

Aubl. Pl. Guiane 1.467 t. 187: Gr. Fl. 229 in part.

Scandent *shrub*, the *twigs* rusty-pubescent; *lfts.* 7-9, ovate, elliptical or oblong, the apex acute or somewhat acuminate, the base rounded or somewhat wedge-shaped, 2.5-15 cm. long, 2-7 cm. broad, the older leaves glabrous above except for the mid-rib, pubescent beneath; *fls.* in axillary, rusty-pubescent panicles; *pedi.* 4-6 mm. long, woolly; *cal.* about 3 mm. long, woolly, the lobes ovate, acute; *pet.* white, oblong, rounded, about 6 mm. long; *follicle* glabrous, oblong-ellipsoid, 1-1.5 cm. long, 4-7 mm. diam., at length incurved.

Maraval, Crueger; Fendler 283 in Herb. Kew without locality; and Tucuche, Trinidad.
Guiana.

2. *R. surinamensis* Mig.

R. glabra Gr. Fl. 228, in part, not H.B.K.

Britt. & Wils. Sc. Surv. Porto Rico 5.340.

Woody *vine*; *lvs.* glabrous, comparatively long-petioled, *lfts.* 3-5, oblong to ovate-elliptical, the apex acute or acuminate, the base rounded, 3-14 cm. long, up to 8 cm. broad, *petiolules* 2-6 mm. long; *panicles* usually clustered, glabrous except for the woolly

bracteoles, shorter than the leaves, up to 18 cm. long in fruit; *pedi.* thread-like, 2-10 mm. long; *cal.* about 3 mm. long, increasing up to 7 mm. on the fruit, glabrous outside, densely pubescent within; *pet.* obovate; *carp.* obliquely oblong-ellipsoid, 10-17 mm. long, 4-6 mm. diam.

Forests in wet or moist districts, Trinidad.
West Indies and Guiana.

DOUBTFUL SPECIES.

Herb. Trin. 3049 recorded by Hart in Herb. Trin. List as *R. glabra* has not been found. It may be *R. surinamensis* Miq.

2. CONNARUS L.

Trees or shrubs, often somewhat scandent. *Lvs.* leathery *Fls.* small, numerous, mostly in axillary panicles. *Cal.* 5-parted not enlarged after flowering, the lobes imbricate, persistent or deciduous. *Pet.* 5, longer than the calyx. *Stam.* 10; *fil.* thread-like, united at the base, alternately long and short; *anths.* 2-celled. *Disk* none or thinly ring-like. *Carp.* 5, usually only one maturing. *Follicle* stalked, obliquely oblong or obovoid, woody or leathery, dehiscent within, 1-seeded. *Seed* erect, longer than the aril.

1. *C. Lamberti* (DC.) Sagot.

C. guianensis Lamb.

N. Amer. Fl. 22. 234-235.

Small, erect tree; *lvs.* of 3 leaflets, the *petiole* stout, up to 13 cm. long, *lfts.* oblong-elliptical to ovate-elliptical, the apex acuminate, the base rounded or somewhat wedge-shaped, up to 18 cm. long and 8 cm. broad, thinly leathery, glabrous; *petiolules* 2-3 mm. long; *panicles* shorter than the leaves, the *rhachis* pubescent; *pedi.* very short; *cal.* about 2.5 mm. long, the lobes oblong-lanceolate, pubescent; *pet.* oblong, about 5 mm. long, the longer stamens about 2.5 mm. long; *follicle* obliquely obovoid, strongly ridged on the back, 1.5-2 cm. long, scarlet and glabrous outside when mature, yellow within, stalked, the *stalk* about 2-3 mm. long; *seed* shining black, 10-13 mm. long, the *aril* yellow, fleshy, warty, extending one-third up the fruit on one side.

General in moist or wet districts, Trinidad.
St. Vincent, Guatemala, Venezuela and Guiana.

FAMILY 2. **LEGUMINOSAE.**

Herbs, shrubs or trees. Lvs. alternate or rarely opposite, variously compound or sometimes simple. *Stip.* usually present. *Pedu.* axillary or terminal. *Fls.* 1-numerous, irregular and usually hermaphrodite, or regular and usually polygamous. *Sep.* more or less united, the irregular flowers usually with 5, one lower than the rest, the regular flowers with 4 or 5. *Pet.* as many as the sepals, one higher than the rest in the irregular flowers. *Stam.* various, usually twice as many as the petals, sometimes similar in number, sometimes indefinite, few or numerous, usually inserted on the margin of the receptacle. *Carp.* solitary, 1-celled; *ovules* numerous, attached at the interior angle. *Fruit* a pod, various, dehiscent or indehiscent, sometimes splitting into 1-seeded joints.

SUB-FAMILY 1. **PAPILIONATAE.**

Lvs. palmately or pinnately compound, sometimes simple. *Fls.* irregular, papilionaceous. *Pet.* imbricate, the upper (the *standard*) outside and enclosing the others in the bud, the two lateral (the *wings*) more or less parallel with each other, the two lower interior and united by their lower margins into a *keel*. *Stam.* 9 or 10, all united into a sheath, or often the uppermost free or more or less free, sometimes all distinct, occasionally numerous and free as in *Swartzia*. *Fruit* dehiscent or indehiscent.

This sub-family is represented in the Colony by many important economic and ornamental plants including edible beans and peas, and beautiful flowering trees and shrubs. It is not rich in first class timber trees either native or introduced; second class timber is obtained from a few native genera.

Of the introduced plants *Cajanus cajan* Millsp. the Pigeon Pea and *Vigna unguiculata* Walp. the Cow Pea are widely planted; *Arachis hypogaea* L. the Pistache or Monkey Nut and *Dolichos Lablab* L. the Bonavist or Lablab Bean all widely cultivated throughout the tropics are commonly grown.

The cultivation of *Dipteryx odorata* Willd. a Venezuelan tree, the dried seeds of which are known commercially as Tonka Beans, has been considerably extended during recent years.

Dolichos Hosei Craib is naturalized at St. Clair and the Government Farm from plants introduced in 1919; it is proving a useful fodder, growing well in association with elephant grass.

Ornamental introductions permanently established in Trinidad include *Erythrina* spp. the Bois Immortelles, commonly used for shading Cacao fields, also *Camoensia maxima* Welw. and *Centrolobium paraense* Tul. which are scarcely seen except in the Botanic Gardens.

Stam. free.

Stam 10.

Pod winged, 1-seeded at the apex..... 1. *Myrospermum*.

Pod not winged.

Shrub..... 2. *Sophora*.

Trees.

Seeds red and black about 1.4 cm. long. 3. *Ormosia*.

Seeds brown, about 4.5-6 cm. long.. 4. *Clathrotropis*.

Stam. numerous..... 5. *Swartzia*.

Stam. united into one to two bundles.

Seed pod jointed.

Lvs. having stipels.

Seed pod flattened. Lvs. mostly with

3 lfts..... 6. *Desmodium*.

Seed pod tubular. Lvs. with one lft.. 7. *Alysicarpus*.

Lvs. without stipels.

Lvs. with 3 leaflets..... 8. *Stylosanthes*.

Lvs. with more than 3 leaflets.

Seed pod flattened..... 9. *Aeschynomene*.

Seed pods cylindrical..... 10. *Chaetocalyx*.

Lvs. with one pair of leaflets..... 11. *Zornia*.

Seed pod dehiscent, not jointed.

Lvs. simple or palmate with 1, 3 or 5 lfts.

Pod enveloped in an inflated mem-

branous bract 12. *Flemingia*.

Pod not so enveloped..... 13. *Crotalaria*.

Lvs. pinnate with an odd terminal lft.

Lvs. with 3 lfts. or sometimes only 1.

Trees 14. *Erythrina*.

Herbs, shrubs or climbing plants.

Style glabrous.

Keel and wings much longer than

the standard..... 15. *Mucuna*.

Keel and wings about as long as

the other petals.

Pod 1 or 2-seeded.

Lvs. sessile or nearly so.... 16. *Eriosema*.

Lvs. long-petioled 17. *Rhynchosia*.

Pod more than 2-seeded.

Pod with a long acuminate

beak..... 18. *Centrosema*.

- Pod blunt at the apex or
very shortly beaked.
Petioles short 2-4 mm. long
(*T. brevipes*).....19. *Tephrosia*.
Petioles much longer.
Nodes of the infl. more or
less swollen.
Cal. conspicuously 2-
lipped, the upper lip
much larger than
the lower.....20. *Canavalia*.
Cal. not conspicuously
2-lipped.
Upper stamen free.
Cal. lobes 4, all
entire.....21. *Galactia*.
Cal. lobes 4, the
upper 2-toothed.. 22. *Calopogonium*.
Upper stamen united
with the others...23. *Dicclea*.
Nodes of the inflorescence
not swollen24. *Teramnus*.
Style bearded along the inner side.
Keel incurved forming a
complete spiral or coil..25. *Phaseolus*.
Keel incurved not forming a
complete spiral or coil
Standard about equal or
a little longer than the
other petals.....26. *Vigna*.
Standard much longer
than the other petals..27. *Clitoria*.
Lvs. with 5 or more leaflets.
Stipels present.
Standard conspicuously larger than
the other petals.....27. *Clitoria*.
Standard not conspicuously larger.
Pod flat, constricted between
the seeds.....28. *Cracca*.
Pod 4-angled or roundish not
constricted between the seeds..29. *Indigofera*.
Stipels none.
Herbs sub-shrubs or shrubs.....19. *Tephrosia*.
Trees30. *Gliricidia*.
Lvs. without an odd terminal leaflet.
Slender-stemmed vine.....31. *Abrus*.

- Herbs, shrubs or trees.
 Style bearded on the inner side.....32. *Coursetia*.
 Style glabrous.....33. *Sesbania*.
 Seed pods indehiscent.
 Fruit drupaceous.
 Cal. truncate or shortly toothed; lfts.
 opposite; fls. pinkish.....34. *Andira*.
 Cal. deeply toothed; lfts. usually
 alternate; fls. yellow.....35. *Geoffraea*.
 Fruit not drupaceous.
 Lfts. alternate (or only one leaflet in
Dalbergia Ecastaphyllum).
 Plant armed with prickles.
 Fruit samara-like with the seed at
 the base.....36. *Macherium*.
 Fruit circular contorted not winged 37. *Drepanocarpus*.
 Plant unarmed.
 Style terminal on the pod.....38. *Dalbergia*.
 Style lateral on the pod.....39. *Pterocarpus*.
 Lfts. opposite.
 Pod longitudinally 4-winged.....40. *Ichthyomethia*.
 Pod flat the margin often membranous
 or wing-like.
 Fls. yellow; wings of the flower free
 from the keel.....41. *Platymiscium*.
 Fls. pink or purplish; wings of the
 flower adhering to the keel.....42. *Lonchocarpus*.
 Pod cylindrical and deeply constricted
 between the seeds.....43. *Muelleria*.

1. MYROSPERMUM Jacq.

Trees. Lvs. pinnate with an odd terminal leaflet; *lfts.* with transparent dots and lines, without *stipels*. *Fls.* large, white, in terminal or axillary racemes. *Cal.* top-shaped, incurved, membranous at the top, truncate or minutely 5-toothed. *Standard* obovate, the other 4 petals nearly alike, free, lanceolate, curved, acute. *Stam.* 10, free; *fil.* thread-like, elongated; *anths.* minute. *Ovary* stalked; *ovules* 2 or more; *style* awl-shaped, slightly curved; *stig.* small. *Pod.* flat, winged, with a single seed at the apex, indehiscent, the wing oblong.

1. *M. frutescens* Jacq. Wattama.

Jacq. Sel. Stirp. Amer. 120 t. 174, f. 34: Gr. Fl. 204.

Shrub or tree up to 20 m.; *lvs.* 1-2 dm. long, pubescent or puberulous when young; *lfts.* 11-17, oblong, ovate-oblong or

elliptical, rounded or shallowly notched at the apex, obtuse or narrowed at the base, 1.5-3.5 cm. long, up to 2 cm. broad, entire, membranous, *petiolules* 1-2 mm. long; *racemes* 7-10 cm. long; *cal.* about 5 mm. long, puberulous; *standard* about 1.5 cm. long, other petals slightly shorter; *stam.* and *pistil* about as long as the petals; *pod* 5-8 cm. long, 1-2 cm. broad, shortly stalked, the *wing* membranous; *seed* about 1-1.5 cm. long.

332 Crueger, Laventille: Lockhart in Herb. Kew: Herb. Trin. 991 and 2238, Trinidad. All the specimens cited are apparently from cultivated trees.

Cont. Trop. America.

2. SOPHORA L.

Shrubs, (i.e., the local sp.). *Lvs.* with an odd terminal leaflet; *lfts.* nearly or quite opposite. *Stipels* none. *Fls.* in terminal racemes or panicles. *Cal.* bell-shaped, subtruncate or with 5, minute teeth. *Standard* obovate or roundish; *wings* obliquely oblong; *keel* oblong. *Stam.* 10, free; *anths.* versatile. *Ovary* shortly stalked; *ovules* numerous; *stig.* minute. *Pod* stalked, many-seeded, much constricted between the seeds, not winged, indehiscent.

1. *S. tomentosa* L.

Gr. Fl. 203: Fawc. & Rendl. Fl. Jam. 4. 86-87: Urb. Symb. Ant. 8. 277.

Shrub 1-3 m., more or less silky-woolly; *lvs.* 1-2 dm. long; *lfts.* 11-17, oblong, obovate-oblong or elliptical, unequal-sided, rounded at the apex, usually somewhat wedge-shaped at the base, 2.5-4.5 cm. long, up to 3 cm. broad, entire, papery, becoming glabrous; *racemes* 1-4 dm. long; *fls.* pale yellow; *cal.* 5-8 mm. long, truncate or nearly so; *standard* elliptical, tapering to the base, 1.5 cm. long or more, and 1 cm. broad; *keel* petals about as long as the standard; *stam.* 15-18 mm. long; *Pods* 5-15 cm. long, containing about 5-10 seeds; *seeds* yellow or brownish, sub-globose, about 6-8 mm. long.

Sandy places, Chacachacare, Monos, La Brea, Irois, Cedros, Trinidad and Tobago.

Tropics and sub-tropics.

3. ORMOSIA Jacks.

Trees. *Lvs.* pinnate with an odd terminal leaflet; *lfts.* opposite. *Stipels* none. *Fls.* in terminal panicles. *Cal.* with the 2 upper teeth partly united. *Standard* suborbicular; *wings*

obliquely obovate-oblong; *keel* petals very similar to the wings. *Stam.* 10, free, unequal; *anths.* versatile. *Ovary* sub-sessile; *ovules* 2-numerous; *style* thread-like with the apex folded in; *stig.* lateral on the inner side. *Pod* compressed, leathery or woody, 2-valved, not winged. *Seeds* shining, red and black.

Lfts. thickly rusty-pubescent beneath....1. *O. coarctata*.

Lfts. minutely pubescent beneath.....2. *O. monosperma*.

1. *O. coarctata* Jacks. Jumbie Bead.

Lfts. oblong-elliptical, the apex acutely acuminate, the base rounded, 4-16 cm. long, 2.5-7 cm. broad, glabrous above, thickly rusty-pubescent beneath, *leaf-rhachis* rusty-pubescent; *fls.* not seen; *fruiting panicle* about 30 cm. long, densely rusty-pubescent; *Pods* 1-seeded, sometimes 2-seeded, roundish, flat, with a short beak on one side, densely rusty-pubescent, 2-2.5 cm. broad, the beak 5-7 mm. long.

Herb. Trin. 1014, no locality, Trinidad.

The type specimen of this species which was collected by Andersen in Guiana was not found in the British Museum.

2. *O. monosperma* (Sw.) Urb. Jumbie Bead.

O. dasycarpa Jacks.

Sophora monosperma Sw.

Urb. Symb. Ant. 1,321: Gr. Fl. 203.

Lfts. 7-9, oblong to obovate-oblong, the apex acutely acuminate, the base obtuse, rounded or wedge-shaped, 4-11.5 cm. long, 2.5-4.5 cm. broad, glabrous above, sometimes with hairs in the groove of the midrib, puberulous to glabrous beneath, the midrib pubescent, *panicles* large, rusty-woolly, spreading; *cal.* densely rusty-woolly, about 1 cm. long, the lobes blunt; *standard* 1.5-2 cm. long; *ovary* woolly; *fruiting panicles* large, much branched; *Pods* 1-seeded, sometimes 2 or 3-seeded, roundish, flat and beaked, about 2-3 cm. broad, densely rusty-woolly.

Herb. Trin. 1007, Irois: Dannouse Arima: 9242, Valencia, Trinidad.

Montserrat, Dominica, St. Lucia, St. Vincent, Grenada.

4. *CLATHROTROPIS* Benth.

Trees. *Lvs.* with an odd terminal leaflet, leathery, without stipels. *Stip.* small or none. *Fls.* rose or white, in compound racemes. *Bracts* and *bracteoles* minute. *Cal.* top-shaped at the

base, 5-lobed, the lobes valvate, the 2 upper united nearly to the top. *Wings* and *keel* nearly alike, smaller than the standard, *petals* of the *keel* slightly cohering on the dorsal edge. *Stam.* 10, free; *anths.* ovate or oblong. *Ovary* sessile or shortly stalked; *style* incurved; *stig.* terminal. *Pod* large, oblong, leathery, compressed, not winged, 2-valved, elastically dehiscent, 1 or 2-seeded. *Seeds* brown.

1. *C. brachypetala* (Tul.) Kleinh. Blackheart. Mayaro Poui.

Diploptropis brachypetala Tul.

Gr. Fl. 203; Kleinh. in Rec. Trav. Bot. Néerl. 22.398 (1925).

Tree up to 20 m.; *lfts.* 3-7, oblong, obovate-oblong or elliptical, the apex abruptly and obtusely acute, the base more or less rounded, 13-26 cm. long, 8-18 cm. broad, glabrous, opposite, the pairs distant, *petioles* 9-12 cm. long, much enlarged at the base; *racemes* spreading, about 30 cm. long, silky; *cal.* about 6 mm. long, silky outside; *standard* rose-coloured, roundish, notched at the apex, about 6 mm. long and 8-11 mm. broad, with a claw about 2 mm. long, *wings* and *keel* white, ovate to heart-shaped, 6-8 mm. long, prominently eared at the base and with a claw about 2 mm. long; *stam.* about 8 mm. long; *pod* oblong, narrowed at the base and shortly beaked at the apex, about 17 cm. long by 7.5 cm. broad; *seeds* flat, of irregular shape, 4.5-6 cm. long, 3-5 cm. broad, the *testa* rupturing readily, *cotyledons* green.

The heart wood is hard and black but not very durable; it is used for derrick sills.

Forests in wet or moist districts, Trinidad.
St. Vincent, Guiana.

5. *SWARTZIA* Schreb.

Trees. *Lvs.* pinnate with an odd terminal leaflet or with only one leaflet. *Fls.* solitary or in racemes. *Bracts* caducous, usually small; *bracteoles* small, rarely persistent. *Cal.* globose or obovoid before flowering, then bursting irregularly. *Pet.* 1 (the *standard*), broad, corrugate, the rest wanting or 2 very small, lateral, sometimes petals none. *Stam.* numerous, free, sub-hypogynous. *Ovary* stalked. *Pods* leathery or fleshy, 2-valved.

Lvs. with only 1 leaflet.....1. *S. simplex*.

Lvs. pinnate

Leaf rhachis not winged.....2. *S. pinnata*.

Leaf rhachis winged.....3. *S. trinitensis*.

1. *S. simplex* (Sw.) Spreng.*Possira simplex* Sw.*S. grandiflora* Willd.

Fawc. & Rendl. Fl. Jam. 4. 88: Gr. Fl. 211-212.

Small tree up to 7 m., glabrous; *lvs.* lanceolate to oblong-elliptical, acuminate, acute or obtuse at the apex, more or less narrowed at the base, up to 16 cm. long and 6 cm. broad; *pedi.* 2-4 mm. long; *stip.* linear, about 5 mm. long, deciduous; *fls.* in short, axillary, 2-4-flowered racemes; *cal.* splitting into 2-4 irregular segments, 12-15 mm. long; *standard* yellow, roundish, kidney-shaped, 3-4 cm. broad, with a claw about 5 mm. long; *stams.* numerous, of two kinds, some with long, thick filaments and oblong anthers, the others thinner and with anthers much smaller; *pod* red, 2-5 cm. long, 1-3-seeded, ellipsoidal or oblong, constricted between the seeds, long-beaked, the beak 8-12 mm. long; *seeds* about 2 cm. long, kidney-shaped, with *arils*.

Forests and hillsides in moist districts, Trinidad.
West Indies and Cent. America.

2. *S. pinnata* Willd. Bois pois.

Gr. Fl. 212.

Tall tree; *lfts.* 5, elliptical-oblong, acutely acuminate at the apex, narrowed to somewhat rounded at the base, up to 35 cm. long and 17 cm. broad, glabrous on both sides, somewhat leathery; *petiolules* 4-8 mm. long, the leaf *rhachis* cylindrical, not margined or winged; *fls.* yellowish, in elongated, pubescent racemes arising from cushions on the hard trunk of the tree; *pedi.* 2-2.5 cm. long; *cal.* 5-10 mm. long, pubescent; *standard* yellow, roundish-kidney-shaped, about 15 mm. long and 18 mm. broad; *ovary* thickly pubescent; *pod* 1-7 seeded, up to 18 cm. long, by 2.5 cm. broad, much constricted between the seeds, densely greyish-pubescent; *seeds* 2.5 cm. long.

The wood is good for posts for building purposes.
Forests, Trinidad. Endemic.

3. *S. trinitensis* Urb.*S. triphylla* Gr. not of Willd.

Urb. Symb. Ant. 5.365.

Twigs shortly pubescent; *lfts.* 5-7, oblong or oblong-lanceolate, obtusely acuminate at the apex, obtuse and more or less wedge-shaped at the base, 6-16 cm. long, 2-6 cm. broad, glabrous above or shortly hairy in the channel of the midrib, more or less glabrous beneath, papery, *petiole* 1-1.5 cm. long, not, or slightly margined,

not winged, the *rhachis* prominently winged, the *wings* 2 mm. broad at the apices, often recurved; *fls.* in axillary, rusty-woolly racemes 5-15 cm. long; *pedi.* 5-10 mm. long; *buds* globose, 3.5-4 mm. diam.; *cal.* bursting irregularly into 4, ovate, obtuse lobes, about 4 mm. long, rusty-woolly without, glabrous within; *pet.* none; *ovary* woolly; *pod* ovate or narrowly ovate, acute, 3-4 cm. long, glabrous; *seed* solitary, 1.8 cm. long, 1.5 cm. broad, the *aril* small.

Herb. Trin. 1061 (Crueger 328), Maracas, and 3282, Tucuche, Trinidad. Endemic.

6. DESMODIUM Desv.

Herbs, erect or procumbent, sometimes somewhat shrubby. *Lvs.* pinnately 3-foliolate; rarely with only one leaflet. *Lfts.* having *stipels*. *Stip.* striate. *Fls.* in terminal or sometimes also axillary, simple or paniculate racemes, or rarely as in *D. triflorum*, in few-flowered clusters, axillary or opposite the leaves. *Cal.* tube short, 2 upper teeth more or less united, the 3 lower acute or awl-shaped-acuminate. *Standard* oblong, obovate or roundish, narrowed or rarely clawed at the base. *Wings* obliquely oblong, more or less adhering to the keel. *Keel* nearly straight, obtuse. *Stam.* 10, all united, or one more or less free; *anths.* equal. *Ovules* 2-numerous. *Pod* flat, jointed between the seeds, separating readily, indehiscent or rarely partially dehiscent. *Seeds* usually few.

D. latifolium DC., *D. gangeticum* (L.) DC. and *D. gyrans* (L.) DC., natives of the Old World have been collected in Trinidad from cultivated plants. None of them occur spontaneously.

Infl. with numerous fls.

Fls. crowded in dense terminal racemes. 1. *D. barbatum*.

Fls. in loose racemes or panicles.

Upper margin of the legume straight,
the lower deeply notched.

Lfts. roundish-elliptical, small

(1-3.5 cm. long.)..... 2. *D. adscendens*.

Lfts. ovate or oblong-elliptical,
large (2-7 cm. long).

Lfts. whitish pubescent beneath, PUBESCENT
fls. pink or purplish..... 3. *D. supinum*.

Lfts. puberulous beneath; fls.
white 4. *D. affine*.

Upper margin of the legume slightly
notched.

Plant trailing; pod 1 or 2-jointed.. 5. *D. axillare*.

Plant erect; pod usually 6-jointed. 6. *D. cajanifolium*.

Both margins of the legume equally notched.

Joints of the pod roundish.

Stip. halfheart-shaped at the base.

Fruiting pedicels long

(1-1.5 cm.) 7. *D. purpureum*.

Fruiting pedicels short

(2-3 mm.) 8. *D. asperum*.

Stip. lanceolate-awl-shaped,

broadened at the base 9. *D. procumbens*.

Joints of the pod linear-oblong 10. *D. scorpiurus*.

Infl. few-flowered (2-4) 11. *D. triflorum*.

1. *D. barbatum* (L.) Benth.

Hedysarum barbatum L.

Nicolsonia barbata DC.

Meibomia barbata Kuntze.

Fawc. and Rendl. Fl. Jam. 4. 38 : Urb. Symb. Ant. 8. 292.

Herb, erect, 2-6 dm. high ; *stems* pubescent or shaggy ; *lfts.* 3, oblong-elliptical, the terminal largest, 1.5-5 cm. long, glabrous or puberulous above, appressed pubescent beneath ; *petioles* shorter than the leaves ; *stipels* awl-shaped ; *stip.* narrowly lanceolate, long-acuminate, persistent, about half as long as the petioles ; *fls.* crowded in dense terminal racemes 1.5-3 cm. long ; *bracts* ovate-lanceolate, acuminate, with long hairs ; *pedi.* thread-like ; *cal.* 4 mm. long, covered with long, brown hairs ; *cor.* shorter than the calyx, rosy, blue or whitish ; *pod* 2-4-jointed, 1-1.6 cm. long, the upper margin straight, the lower notched, puberulous.

Savannahs and waste places, Trinidad and Tobago.

West Indies, Cont. Trop. America.

2. *D. adscendens* (Sw.) DC.

Hedysarum adscendens Sw.

Meibomia adscendens Kuntze.

Fawc. and Rendl. Fl. Jam. 4. 33 : Urb. Symb. Ant. 8. 292.

Herb ; *stems* reclining or ascending, about 3-6 dm. high, somewhat woody, more or less hairy, becoming puberulous with age ; *lfts.* 3, mostly roundish-elliptical, round, obtuse or somewhat acute at the apex, 1-3.5 cm. long, glabrous or nearly so above, puberulous with adpressed hairs beneath ; *stipels* awl-shaped ; *stip.* lanceolate-acuminate, persistent ; *fls.* in terminal, loosely-fld. racemes 1-2 dm. long ; *bracts* ovate, the apex long-acuminate, about 7 mm. long,

shaggy, deciduous; *cal.* about 3.5 mm. long, the teeth linear-lanceolate; *cor.* purplish; *standard* about 5 mm. long, *uppermost stamen* free; *pod* 3-6 jointed, up to 2 cm. long, the upper margin straight, the lower notched at the joints, puberulous.

Waste places, Trinidad and Tobago.
West Indies, Trop. Cont. America.

ERUTESCENS

3. *D. supinum* (Sw.) DC.

D. incanum DC.
Hedysarum supinum Sw.
Meibomia supina Britt.
Fawc. & Rendl. Fl. Jam. 4. 33.

Herb, running and ascending; *lfsts.* 3, mostly oblong-elliptical, 2-7 cm. long, glabrous or puberulous above, somewhat whitish-pubescent beneath; *stipels* thread-like, about 4 mm. long; *stip.* lanceolate-acuminate, united at the base, 4-8 mm. long, persistent; *fls.* in loose racemes, 1-2 dm. long; *cal.* red, about 3 mm. long, the teeth triangular, acute, puberulous; *cor.* pink, changing to purple on withering; *standard* roundish, about 6 mm. long and broad, notched at the apex; *wings* and *keel* about 6 mm. long; *upper stamen* free; *style* glabrous; *pod* 3-8-jointed, the upper margin straight, the lower deeply notched, *joints* elliptical-oblong, about 4 mm. long, pubescent.

Weed in waste places, Trinidad and Tobago.
West Indies, Cont. Trop. America, Trop. Africa.

4. *D. affine* Schl.

D. albiflorum Salzm.
Britt. & Wils. Sc. Surv. Porto Rico, 5. 401.

Running *herb*, the *flowering stems* ascending; *lfsts.* 3, ovate, 3-7 cm. long, 1.5-5 cm. broad, the apex acute, the base usually rounded, puberulous or glabrous above, more or less pubescent on the veins beneath; *stipels* thread-like, about 3 mm. long; *stip.* broadly ovate, acuminate, 4-8 mm. long; *fls.* white, in loose racemes 5-15 cm. long; *bracts* ovate-lanceolate, acuminate, deciduous, about 4 mm. long; *cal.* about 3 mm. long, puberulous, the teeth triangular with awl-shaped apices; *standard* roundish, about 7 mm. long and broad; *wings* and *keel* about 6 mm. long; *upper stamen* free; *style* glabrous; *pod* sessile, 4-6 jointed, the *joints* divided below almost to the straight upper margin, oblong, about 6 mm. long, densely pubescent.

Weed amongst grass, St. Clair and Gasparee, Trinidad.
West Indies, Cont. Trop. America.

5. **D. axillare** (Sw.) DC.

D. axillare angustatum Urb.

D. axillare acutifolium Urb.

Hedysarum axillare Sw.

Nephromeria axillaris Schindl. Fedde Rep. sp. nov. 20:284:

Fawc. & Rendl. Fl. Jam. 4. 34-35: Urb. Symb. Ant. 4. 291.

Trailing herb, rooting at the joints, more or less pubescent; *lfts.* 3, elliptical, lanceolate or rhomboid, acute or roundish at the apex, 3-10 cm. long, glabrous or nearly so above, pubescent beneath; *stipels* awl-shaped, 3-4 mm. long, deciduous; *stip.* triangular, acuminate, 4-8 mm. long, pubescent; *fls.* deep pink, in loose racemes, 2-3 dm. high, arising from running stems; *cal.* about 2 mm. long, the lobes triangular, acute, puberulous; *standard* roundish, the apex notched, narrowed to the base, not clawed, about 5.5 mm. long; *wings* and *keel* about 5 mm. long; *upper stamen* free; *style* glabrous; *pod* 1 or 2-jointed, when 2 the margin slightly indented between the joints above, the lower margin deeply notched, *joints* oblong-rounded, 6-9 mm. long, densely pubescent.

Waste places and woodlands in moist districts, Trinidad and Tobago.

West Indies, Cont. Trop. America.

6. **D. cajanifolium** (H.B.K.) DC.

Hedysarum cajanifolium H.B.K.

Meibomia cajanifolia Kuntze.

Gr. Fl. 187: Fawc. & Rendl. Fl. Jam. 4. 35.

Erect shrub up to 3 m., puberulous; *lfts.* 3, oblong, narrowly-elliptical to ovate, 3-9 cm. long, glaucous-pubescent beneath; *panicles* many-flowered; *cal.* 3 mm. long; *cor.* blue, 8-9 mm. long; *pod* straight or slightly curved, upper margin slightly notched, the lower indented nearly to the upper margin, usually 6-jointed, (5-8); *joints* roundish-elliptical, 4-6 mm. long, puberulous.

Lockhart and Sieber 82 in Herb. Kew: Herb. Trin. 451, Crueger, Cedros, Trinidad.

St. Vincent, Cent. America, Colombia, Guiana, Bolivia and Peru.

7. **D. purpureum** (Mill.) Fawc. & Rendl.

D. tortuosum DC.

Meibomia purpurea Vail.

Gr. Fl. 188: Fawc. & Rendl. Fl. Jam. 4. 36: Urb. Symb.

Ant. 8. 295.

Erect herb, up to 1.5 m., the stems hairy; *lfts.* 3, ovate-lanceolate to elliptical, the apex mostly obtuse, apiculate, the base narrow, 2-14 cm. long, densely hairy along the margin, sparingly so on both

sides; *stipels* awl-shaped; *stip.* lanceolate-acuminate, half heart-shaped at the base, 6-15 mm. long; *fls.* in loose, terminal and axillary racemes or panicles; *pedi.* in clusters of 2 to 3, 1-1.5 cm. long; *bracts* lanceolate-acuminate, 6-8 mm. long, prominently nerved, the margin fringed with long hairs, deciduous; *cal.* 2-3 mm. long, hairy; *cor.* blue or purplish, 4-5 mm. long; *pod* much twisted, equally notched on both margins, 3-6 jointed, the roundish *joints* 4-5 mm. long, puberulous.

Roadsides, Trinidad and Tobago.

Florida, West Indies and Trop. America.

8. *D. asperum* Desv.

Gr. Fl. 187-188.

Herb; *stems* cylindrical, puberulous, somewhat shining; *lfts.* 1-3, ovate or oblong, the apex obtuse or acute, the base rounded or wedge-shaped, up to 10 cm. long and 7.5 cm. broad, roughish puberulous above, densely pubescent beneath; *stipels* awl-shaped; *stip.* unequal-sided at the base; *fls.* purple, in much-branched panicles, much longer than the leaves; *pedi.* shorter than, or as long as, the flower; *Pods* sub-sessile, equally notched on both margins nearly to the centre, somewhat twisted, at length flattened, *joints* 2-6, roundish, 2-2.5 mm. long, *fruiting pedi.* 2-3 mm. long.

Lockhart Trinidad; *Herb.* Trin. 1278 and 3910, doubtfully native. Tropical South America.

9. *D. procumbens* (Mill.) Hitchc.

D. spirale DC.

Hedysarum procumbens Mill.

Meibomia procumbens Schindl.

Fawc. & Rendl. Fl. Jam. 4. 36.

Herb up to 1 m., the *stem* slender, mostly spreading, puberulous; *lfts.* 3, or on the upper leaf sometimes 1, ovate-lanceolate, oblong or elliptical, acute or obtuse at the apex, 1-5 cm. long, minutely puberulous or glabrous on both sides, *stipels* minute, awl-shaped; *stip.* lanceolate, awl-shaped, broad at the base, 2-4 mm. long; *fls.* in long, loose, slender, terminal racemes or panicles; *pedi.* 2 or 3 together, thread-like, 5-12 mm. long; *bracts* minute, deciduous; *cal.* about 1.5 mm. long; *cor.* about 3 mm. long, pinkish or purplish; *pod* sub-sessile, twisted, 2-8 jointed, the margin notched nearly to the middle on both sides, the *joints* roundish to rhomboid, about 4 mm. long, puberulous.

Banks and hillsides, Gasparillo, Chacachacare, Trinidad and Little Tobago.

West Indies, Cont. Trop. America and Old World Tropics.

10. *D. scorpiurus* (Sw.) Desv.*Hedysarum scorpiurus* Sw.*Meibomia scorpiurus* Kuntze.

Fawc. & Rendl. Fl. Jam. 4. 37.

Britt. & Wils. Sc. Surv. Porto Rico, 5. 403.

Herb; stems procumbent, angular, puberulous or pubescent; *lfts.* 3, roundish, oblong or elliptical, obtuse at the apex and base, 1-4.5 cm. long, with scattered hairs on both sides; *stipels* minute, awl-shaped; *stip.* obliquely ovate, acuminate, half heart-shaped at the base, about 4 mm. long; *fls.* in slender, loose racemes; *pedi.* 1 cm. long or less; *bracts* minute, deciduous, about 2 mm. long; *cal.* 2.5-3 mm. long, teeth linear-lanceolate; *cor.* pinkish or purplish, 3-4.5 mm. long; *pod* sub-sessile, linear, slightly notched on both margins, 2-7 jointed, *joints* linear-oblong, flat, 2 to 3 times as long as broad, puberulous.

Banks and grassy places, Trinidad and Tobago.

West Indies, Cont. Trop. America, East Indies.

11. *D. triflorum* (L.) DC.*Hedysarum triflorum* L.*Meibomia triflorum* Kuntze.

Fawc. & Rendl. Fl. Jam. 4. 38.

Herb; stems slender, prostrate or creeping, more or less pubescent; *lfts.* 3, obovate, or obcordate, the apex more or less notched, 4-8 mm. long, glabrous or nearly so; *stip.* lanceolate or ovate-lanceolate, 2-3 mm. long, persistent; *fls.* in clusters of 2-4, axillary or opposite the leaves; *cal.* 2-3 mm. long, the teeth lanceolate; *cor.* purplish, slightly longer than the calyx; *pod* curved, the upper margin not notched, the lower notched, 3-6 jointed, the *joints* somewhat square, about 3 mm. long, puberulous, net-veined.

Grassy places, Trinidad and Tobago.

Tropics generally.

7. *ALYSICARPUS* Neck.

Herbs. *Lvs.* with one leaflet. *Stip.* dry, free or more or less united, acuminate. *Stipels* 2. *Fls.* small, in short terminal or sometimes axillary racemes. *Cal.* 5-fid; the lobes lanceolate-acuminate, lined, the two upper ones partly united. *Standard* roundish or obovate, clawed; *wings* obliquely oblong, adhering to the keel; *keel* obtuse, incurved. *Stam.* 9 united, and 1 free. *Ovary* sessile or nearly so; *style* thread-like, the apex incurved; *sig.* capitate. *Pod.* cylindrical, jointed, *joints* several, indehiscent.

1. *A. vaginalis* (L.) DC.

Fawc. & Rendl. Fl. Jam. 4.40.

Herb, creeping with ascending branches, 5 cm. to 6 dm. high; *stems* slender, glabrous or nearly so; *lfts.* of different forms, roundish-elliptical or oblong-lanceolate, 0.5-4 cm. long, glabrous above, puberulous with adpressed hairs beneath; *petioles* very slender, 1 cm. long or less; *stipels* minute, about 1 mm. long, ovate or oblong; *stip.* 4-7 mm. long; *fls.* in somewhat crowded racemes 1-3 cm. long; *pedi.* about 1 mm. long, pubescent; *cal.* 5 mm. long, the lobes purplish, linear-lanceolate, puberulous; *standard* mauve, 5 mm. long, 5 mm. broad, claw about 2.5 mm. long; *wings* crimson, slightly shorter than the standard; *keel* glabrous; *ovary* with a tuft of long white hairs at the apex; *style* glabrous; *pod* 1-2 cm. long, glabrous or nearly so, 5-7 jointed; *seeds* about 1 mm. long.

Waste ground, Trinidad and Tobago.

West Indies and Guiana, Old World Tropics.

8. *STYLOSANTHES* Sw.

Herbs. *Lvs.* pinnately 3-foliolate without stipels. *Stip.* joined to the base of the petiole. *Fls.* yellow, in dense, conspicuously bracteate, terminal or axillary spikes or heads, subsessile at the axil of a leaf or 2-lobed bract, sometimes solitary with 2 or 3 bracteoles, sometimes with a bristle-like abortive axis. *Cal.* tube thread-like. *Standard* roundish. *Stam.* 10, all united into a tube, free at the apex; *anths.* alternately unequal. *Pod* compressed with a hooked beak, 1 or 2-jointed.

1. *S. guyanensis* Sw.

Trifolium guianense Aubl. Pl. Guiane t. 309.

Verh. Bot. Brand. 32.25-26.

Procumbent *herb*, with long and short stiff hairs; *stip.* sheath-like, forming the base of the petiole with 1 awl-shaped lobe, 6-10 mm. long, on either side at the apex; *petiole* 3-5 mm. long, with long and short stiff hairs; *lvs.* oblong-lanceolate, sharply pointed at the apex, narrowed to the base, pubescent and bristly on both surfaces, 1-2.5 cm. long, 2-5 mm. broad; *pedu.* 1-5 cm. long; *fl. heads* up to 1.5 cm. long and 2 cm. diam.; *primary bracts* stipule-like; *secondary bracts* and *bracteoles* linear, bristly; *fls.* yellow, sessile, about 4 mm. long; *pod* with the upper developed joint 3 mm. long and 2 mm. broad, glabrous and reticulate veined; *seeds* shining blackish-purple.

Aublet described and figured the pod as hispid, whereas later authors have treated it as glabrous, which is borne out by the specimens. There are two collections of Aublet at the British Museum but fruit cannot be seen on either; one of them agrees with the var. *gracilis* (H.B.K.) Benth., and matches Schomburgk 240, which has glabrous pods; the other is more like the very different series of specimens which were treated by Bentham as typical. Aublet's figure and description do not apply with certainty to either.

Herb. Trin. 9452, Britton, March 1920, Natural Savannah, St. Joseph, Trinidad.
Cont. Trop. America.

9. AESCHYNOMENE L.

Herbs or small *shrubs*, not climbing. *Lvs.* pinnate, with or without an odd terminal leaflet. *Stip.* lanceolate or ovate. *Lfts.* small, numerous, or more than 3, entire, sensitive in some species. *Stipels* none. *Fls.* yellow, often with purple veins, usually in axillary racemes or clusters. *Bracts* usually similar to the stipules. *Bractéoles* adpressed to the calyx. *Cal.* lobes nearly equal, more or less united into 2 lips. *Standard* roundish, shortly clawed; *wings* oblong or obliquely-obovate, nearly as long as the standard; *keel* curved. *Stam* 10, united into a sheath, split on one side, or on both sides; *anths.* equal. *Ovary* stalked; *ovules* 2-numerous. *Pod* flat, jointed.

Lfts. linear.

Lfts. with one prominent vein (the mid-rib) beneath.

Pod smooth.....1. *A. sensitiva*.

Pod pimpled.....2. *A. hispidula*.

Lfts. with 3-5 prominent parallel veins

beneath.....3. *A. americana*.

Lfts. elliptical or obovate-elliptical.....4. *A. biflora*.

1. *A. sensitiva* Sw.

Gr. Fl. 184: Urb. Symb. Ant. 8.289: Britt. & Wils Sc. Surv. Porto Rico, 5.398.

Shrub 1-4 m. high, the *stems* glabrous below and sparingly pubescent above; *stip.* membranous, 10 mm. long or less, semi-arrow-shaped and developed below the point of attachment, early deciduous; *lvs.* 2-8 cm. long with 10-32 pairs of leaflets; *lfts.* linear or linear-oblong, 3-8 mm. long, obtuse and often apiculate at the apex; obliquely obtuse at the base, obscurely pinnately

few veined, these often conspicuously anastomosing near the margin, the mid-rib usually prominent beneath; *fls.* few in simple or branched racemes; *pedu.* slender; *cal.* deeply 2-lipped, 3-4 mm. long; *cor.* yellow, reddish-veined, 7-9 mm. long; *pod* stalked, straight or nearly so with the persistent style at the apex, glabrous or with a few hairs on the margin, up to 5 cm. long and 3.5-5 mm. broad, one margin straight or nearly so, the other distinctly crenate, *joints* 6-10, subquadrate; *seeds* about 3 mm. long.

Wet and moist open ground, Trinidad and Tobago.
Cuba to Trinidad, Cont. Trop. America, Trop. Africa.

2. *A. hispidula* H.B.K.

Sub-shrub, about 1 m., somewhat woody below; *stems* glandular-hairy or glabrescent; *stip.* lanceolate, continued below the point of attachment, the whole up to 1 cm. long, glandular-toothed on the margin; *lvs.* up to 5.5 cm. long with 10 to 30 pairs of *lfts.*; *petiole* and *leaf rhachis* more or less glandular-hairy; *lfts.* linear, 4-6 mm. long, the apex apiculate, usually glandular-toothed or glandular-ciliate on the margin, 1-nerved (the mid-rib) which is prominent beneath; *racemes* laxly few-fl'd.; *fls.* 4-6 mm. long; *pod* stalked, the upper margin not contracted between the joints, the lower distinctly contracted, up to 2.5 cm. long, about 3 mm. broad, glabrous or nearly so, pimpled, and with the persistent style at the apex; *joints* 2-8, nearly quadrate; *seeds* 1.5-2 mm. long.

Herb. Trin. 7288, King, Galfat, Cedros, Trinidad.
St. Lucia and Cont. Trop. America.

3. *A. americana* L.

Gr. Fl. 185: Urb. Symb. Ant. 8,289: Fawc. & Rendl. Fl. Jam. 4,27.

Low *shrub*, somewhat woody below, 0.5-2 m. high, *stems* more or less shaggy with spreading hairs or glandular; *stip.* linear-lanceolate or triangular-lanceolate, and developed below the attachment, membranous, up to 12 mm. long above the union; *lvs.* 3-7 cm. long, with 10-30 pairs of linear leaflets; *lfts.* linear, mucronate and finely toothed near the apex, oblique at the base, 5-13 mm. long, 1-2 mm. broad, glabrous or ciliate, prominently 3-5-parallel-nerved beneath; *racemes* laxly few-fl'd.; *pedu.* slender; *cal.* deeply 2-lipped, about 4 mm. long; *cor.* flesh-coloured tinged with yellow, 6-8 mm. long; *pod* shortly stalked, usually slightly curved, the upper margin not indented, the lower deeply crenate, up to 4 cm. long and 3-4 mm. broad, pimpled, *joints* 4-7, semi-circular; *seeds* about 2 mm. long.

Wayside places, Trinidad and Tobago.
West Indies, Cont. Trop. America.

4. **A. biflora** (Mill.) Fawc. & Rendl.*A. brasiliensis* DC.*Cassia biflora* Mill.

Gr. Fl. 185: Fawc. & Rendl. Fl. Jam. 4. 27-28.

Low *shrub*, erect or diffuse, up to 1 m. high, clothed with long glandular spreading hairs; *stip.* ovate, several-nerved, 3.5 mm. long; *lvs.* 1-3 cm. long with 3-7 pairs of leaflets; *lfts.* elliptical, elliptical-oblong, or obovate-elliptical, 4-10 mm. long, 1-nerved (the mid-rib) and finely pinnately veined, ciliate, finely hairy on both sides, sometimes glabrous above; *panicles* laxly several-fl., 2-8 cm. long; *cal.* 2-lipped, and 5-fid, about 2 mm. long; *cor.* yellowish, 5-6 mm. long; *pod* stalked, up to 1 cm. long, 1-4 jointed, contracted on both margins between the joints, but more deeply so on the lower; *joints* semi-circular-roundish. 2-4 mm. diam., covered with long weak scattered hairs; seeds about 1.5 mm. long.

Natural Savannas. Trinidad.

Cuba, St. Lucia, Cont. Trop. America.

10. **CHAETOCALYX** DC.

Scandent *herbs*. *Lvs* pinnate with an odd terminal leaflet. *Stip.* lanceolate or linear. *Stipels* none. *Fls.* yellow, in axillary fascicles or short racemes; *pedi.* threadlike. *Cal.* 5-fid, the teeth subulate, sub-equal. *Standard* obovate or nearly round, emarginate; *wings* oblong, free; *keel* obtuse, somewhat shorter than the standard. *Stam.* united into a sheath, split on one side, or one *stamen* sometimes free; *anths.* uniform. *Pod* linear, cylindrical, not, or barely constricted between the joints, longitudinally lined, indehiscent.

1. **C. brasiliensis** (Vogel) Benth.*Rhadinocarpus brasiliensis* Vogel.

Fl. Bras. 15.1.75.

Stems with spreading bristles or becoming glabrescent; *lfts.* usually 9, oblong-elliptic to obovate-oblong, broadly rounded or truncate and mucronate at the apex, rounded to broadly wedge-shaped at the base, 1.5-3.5 cm. long, 1-2 cm. broad, membranous, pubescent on both surfaces; *fls.* yellow, 1-2 in the axils; *pedi.* 6-15 mm. long, slender, bristly; *cal.* tubular, bristly, tube 5-6 mm. long, 2-3 mm. broad, *teeth* 1-1.5 mm. long, tipped with a bristle; *cor.* up to 2 cm. long; *pod* up to 15 cm. long and up to 3 mm. diam. when ripe, glabrous or hispidulous when young; *joints* 8-10 mm. long.

Herb. Trin. 1017, Crueger, Maracas: Crueger 171 in Herb. Kew Trinidad.

Cont. Trop. America.

11. ZORNIA Gmel.

Herbs. *Lvs.* digitately 2 or 4-foliolate (2 in the local sp.) usually with transparent dots and without *stipels*. *Stip.* somewhat leaflike with a basilar-appendage. *Fls.* distant, in spikes (in the local sp.) each enclosed by two bracts. *Cal.* membranous, the two upper lobes united, forming a broad, notched upper lip, the two lateral much smaller, and the lower about equal to the upper lip. *Standard* roundish, clawed; *wings* obliquely obovate or oblong; *keel* incurved. *Stam.* 10, all united into a closed sheath; *anths.* alternately longer and shorter. *Pod* jointed, compressed, the *joints* indehiscent.

1. Z. diphylla Pers.

Herb, spreading or ascending; *stems* 1.5-4 dm. long; *lfts.* 2, oblong-lanceolate, 1.5-4 cm. long, glabrous or pubescent; *stip.* lanceolate-acuminate, tapering below the joints to the base, 8-20 mm. long; *fls.* pale yellow, the spikes elongated; *bracts* elliptical to lanceolate, stipule-like, 6-12 mm. long, strongly parallel-veined; *cal.* about 3 mm. long; *cor.* yellow; *standard* about 1 cm. long; *pod* 2-6-jointed, as long as, or about twice as long as, the persistent bracts, the upper margin straight or nearly so, the lower deeply notched, pubescent and spiny, *joints* rounded, 2-3 mm. long.

(Specimens collected at Toco have practically glabrous leaves and bracteoles whilst those on the Icacos specimens are densely pubescent.)

Toco and Icacos, Trinidad.
Tropics.

12. FLEMINGIA Roxb.

Erect shrubs. *Lfts.* 1, with prominent veins and glandular dots beneath. *Stip.* caducous. *Fls.* in small cymes, arranged in 2 rows in axillary racemes, each cyme enveloped in a large inflated membranous bract. *Cal.* tube short; *lobes* narrow, acuminate, the lowest longer than the others. *Standard* eared at the base on both sides. *Stam.* the upper free, the rest united; *Stig.* small; *ovules* 2. *Pods* short, enclosed within the bract, swollen, 2-valved.

1. F. strobilifera R. Br.

Wild Hops.

Gr. Fl. 191: Fawc. & Rendl. Fl. Jam. 4.75.

Shrub, 1 to 1.5 m.; *lfts.* ovate or elliptical, acute or obtuse at the apex, rounded at the base, 6-20 cm. long, 2.5-9 cm. broad; *petiole* 1-2 cm. long; *petiolule* 2-5 mm. long; *infl.* 5-15 cm. long;

bracts persistent, broadly heart-shaped or kidney-shaped, folded, 1-2.5 cm. long, broader than long, pubescent; *cal.* 4-6 mm. long, pubescent, the *lobes* linear; *cor.* 5-6 mm. long, the *wings* slightly shorter than the standard; *style* thread-like, pubescent below, thickened above; *pod* 7-12 mm. long, pubescent; *seeds* 1 or 2, black, roundish or roundish-oblong, about 3 mm. long.

Naturalized generally in waste places, Trinidad and Tobago. East Indies. Naturalized in West Indies.

13. CROTALARIA L.

Herbs or shrubs. *Lvs.* simple or palmately 3-5-foliolate. *Fls.* yellow or rarely blue, the *racemes* usually terminal or opposite the leaves. *Cal.* 5-toothed, slightly 2-lipped. *Standard* roundish, ovate or heart-shaped; *wings* oblong or obovate; *keel* curved, beaked. *Stam.* 10, all united into a sheath, the sheath split on the upper side; *anths.* of 2 forms, alternately small and larger, the small versatile, the larger basifixed. *Pod* oblong, inflated, 2-valved, many-seeded.

C. juncea L. the Sunn Hemp, native of the Old World tropics, and other species are grown for green dressing purposes, also sometimes as ornamental garden plants.

Lvs. simple.

Fls. blue.....1. *C. verrucosa.*

Fls. yellow.

Stip. conspicuous, decurrent on the stem.

Decurrent stipules linear throughout. 2. *C. pterocaula.*

Decurrent stipules much broader above the middle, the apex free and incurved.....3. *C. stipularis.*

Stip. minute, not decurrent.....4. *C. retusa.*

Lvs. compound.

Lvs. with 3 lfts.

Lfts. ovate-lanceolate.....5. *C. anagyroides.*

Lfts. obovate or elliptical.....6. *C. incana.*

Lvs. with 5 lfts.....7. *C. quinquefolia.*

1. *C. verrucosa* L.

Fawc. & Rendl. Fl. Jam. 4.8: Britt. & Wils. Sc. Surv. Porto Rico, 5.386-387.

Annual .5-1 m. high, *stems* 4-angled, finely appressed-pubescent; *lvs.* simple, broadly ovate or ovate-elliptical, the

apex usually obtuse, rounded or acute, apiculate, the base wedge-shaped or rounded, up to 17 cm. long and 8.5 cm. broad, often smaller, glabrous or nearly so above, finely appressed-pubescent beneath, *petioles* stout, 6 mm. long or less; *stip.* leafy, somewhat half-moon-shaped, deflexed; *racemes* many-fl'd.; *fls.* and *buds* pendent; *cal.* lobes narrowly-triangular, acuminate, half as long as the corolla, pubescent; *cor.* blue or purplish, with deeper coloured lines; *standard* roundish, 12 mm. long, 16 mm. broad; *wings* obovate-oblong; *keel* glabrous on the upper margin, pubescent on the dorsal line; *pod* oblong, beaked, 3-3.5 cm. long, appressed-pubescent.

Waste and cultivated places, Trinidad and Tobago.
Tropics.

2. *C. pterocaula* Desv.

Fawc. & Rendl. Fl. Jam. 4.11.

Shrubby annual up to 6 dm. high, appressed-pubescent with brownish-yellow hairs; *lvs.* linear or linear-lanceolate, acuminate, up to 12 cm. long and 8 mm. broad, sessile, densely hairy on both sides; *stip.* linear, decurrent, the apex variable, acute, acuminate or obtuse; *racemes* few-fl'd.; *bracts* and *bracteoles* lanceolate; *cal.* 11-12 mm. long, the segments lanceolate, densely pubescent; *standard* about as long as the calyx, the *wings* shorter; *pods* oblong, beaked, 3-4 cm. long, glabrous.

Savannahs and at Guanapo and Cedros, Trinidad,
Jamaica, Panama, Trop. S. America.

3. *C. stipularis* Desv.

Gr. Fl. 178: Britt. & Wils. Sc. Surv. Porto Rico, 5.387.

Annual, erect, 6-9 dm. high, densely covered with rather long hairs; *lvs.* simple, sessile, ovate, oblong or lanceolate, the apex obtuse and apiculate, up to 7 cm. long; *stip.* decurrent, up to 5 cm. long, much broader above the middle, the apex free and incurved; *racemes* few-fl'd.; *fls.* yellow; *bracteoles* awl-shaped; *cal.* about 9 mm. long, deeply 5-lobed, the lobes lanceolate, densely hairy; *cor.* about as long as the calyx; *standard* yellow with dark lines at the base, obovate-oblong, deeply notched at the apex; *wings* oblong; *keel* hairy on the upper margin and dorsal line; *pod* oblong, glabrous, 2-3 cm. long.

Natural savannahs and waste places, Trinidad and Tobago.
Cuba to Trinidad, Cont. Trop. America.

4. *C. retusa* L.

Shrubby annual, up to 1 m., more or less pubescent; *lvs.* simple, oblanceolate to oblanceolate-oblong, the apex rounded or shallowly notched, the base wedge-shaped, 3-8 cm. long, 1-2.5 cm. broad, glabrous above, appressed-pubescent beneath, pellucid dotted; *petioles* 2-4 mm. long; *stip.* about 1 mm. long, awl-shaped; *racemes* up to 3 dm. long, many and loosely-fl'd.; *fls.* and *buds* pendent; *cal.* 2-lipped, about 12 mm. long, puberulous, segments triangular-lanceolate, 2 much larger than the others; *standard* yellow within with blackish lines at the base, yellow with brown blotches and dark lines outside, roundish, 2 cm. long, 24 mm. broad; *wings* pure yellow, oblong, 16 mm. long, 13 mm. broad; *keel* beaked, glabrous on the upper margin, pubescent on the dorsal line; *Pods* oblong, spreading, 2.5-3.5 cm. long, beaked, glabrous.

Roadsides. Waste and cultivated places, Trinidad and Tobago. Tropical and sub-tropical regions.

5. *C. anagyroides* Kunth.

Gr. Fl. 180.

Erect shrub up to 1-2 m.; *stems* more or less pubescent; *lvs.* of 3 leaflets; *petioles* about 10 cm. long; *lfts.* ovate-lanceolate, the apex acuminate, the base wedge-shaped, up to 13 cm. long and 3.5 cm. broad, minutely pubescent beneath; *stip.* thread-like, up to 11 mm. long; *racemes* many-flowered; *fls.* and *buds* erect, *bracteoles* 2 or 3 to each flower, thread-like, exceeding the buds; *cal.* minutely silky, 5-lobed, the lobes triangular, awl-shaped, 5 mm. long; *standard* yellow with a few blackish short lines near the base, kidney-shaped, 13 mm. long, 22 mm. broad; *wings* oblong, truncate and broadest at the apex, 12 mm. long, 5 mm. broad, *keel* about as long as the wings, bearded on the margin and with a short beak; *style* hairy; *Pods* oblong, about 3-3.5 cm. long, puberulous, with long appressed hairs, stalked.

Waste places, Trinidad.

West Indies, Cont. and Trop. S. America.

6. *C. incana* L.

Fawc. & Rendl. Fl. Jam. 4.11.

Shrubby, erect annual, up to 1.3 m., pubescent; *lvs.* of 3 leaflets; *petioles* about 4-6 cm. long; *lfts.* broadly elliptical or obovate, the apex obtuse or acute and often apiculate, the base obtuse or rounded, up to 5 cm. long and 2.5 cm. broad, pubescent or glabrescent beneath; glabrescent above; *stip.*

awl-shaped, hairy, early deciduous; *racemes* long stalked; *fls.* and *buds* pendent; *cal.* lobes lanceolate-acuminate, about 8 mm. long, pubescent; *standard* pure yellow, obovate, 12 mm. long, 9 mm. broad; *wings* linear-oblong, 12 mm. long, 3 mm. broad; *keel* bearded on the margin, beaked; *Pods* oblong, about 3 cm. long, pendent, thickly hairy with long spreading hairs.

Roadsides. Waste and cultivated places, Trinidad and Tobago. Tropical and sub-tropical regions.

7. *C. quinquefolia* L.

Erect, annual herb up to 6 dm. high, puberulous or glabrous; *lvs.* palmate with 5 lfts., *petiole* 2-8 cm. long, puberulous; *lfts.* subsessile, lanceolate, the apex obtuse and apiculate, the base tapered, up to 9 cm. long and 22 cm. broad, glabrous above, pubescent beneath with appressed hairs, pellucid dotted; *stip.* minute, awl-shaped; *racemes* many-fl'd.; *bracts* linear-lanceolate, reflexed; *cal.* 5-lobed, 13-15 mm. long, 5-lobed, the lobes triangular, acute, glabrous except for the puberulous lobes; *standard* yellow with dark lines, roundish, 2 cm. long, 17 mm. broad; *wings* yellow, oblong, 22 mm. long, including the claw, 1 cm. broad; *keel* glabrous on the upper margin except at the base where it is pubescent, pubescent on the dorsal line; *pod* oblong, stalked and beaked, about 6 cm. long, glabrous.

Naturalized. Herb. Trin. 12051, Skinner, Cedar Hill Savannah, Trinidad.

East Indies to Philippines.

14. *ERYTHRINA* L.

Trees often with prickly stems and branches. *Lvs.* pinnately 3-foliolate with glandular stipels. *Stip.* small. *Fls.* large and showy, red, yellow, pink or orange-scarlet, usually in pairs or clusters at the joints of the raceme. *Bracts* and *bracteoles* small or none. *Cal.* truncate, spathaceous or toothed. *Standard* large, broad or elongated, sessile or clawed, without appendages, much larger than the wings or keel. *Stam.* 10, the uppermost free or united at the base, the others united at about the middle; *anths.* uniform. *Ovary* linear, stalked; *style* curved, not bearded; *stig.* small and terminal. *Pod* linear, stalked, curved, constricted between the seeds, 2-valved or opening only along the upper margin.

E. Crista-galli L. a small S. American tree and *E. variegata* L. var. *orientalis* (L.) Merrill. are grown in the Botanic Gardens for ornament; *E. velutina* Willd. with woolly under surfaces

of the leaves and red seeds is represented in Herb. Trin. by a cultivated specimen from Cedros and in Herb. Kew from Tobago by Broadway, 3800. *E. indica* Lam. a species with scarlet flowers and spathaceous calyx divided nearly to the base is represented in Herb. Trin. by specimens from River Estate, and in Herb. Kew by Broadway, 3502, from Tobago.

Corolla, the standard narrowly oblong.

Fls. rose pink.....1. *E. pallida*.

Fls. coral red.....2. *E. corallodendrum*.

Corolla the standard oblong to elliptical.

Lfts. ovate to elliptical, obtuse.....3. *E. glauca*.

Lfts. broadly rhomboid-ovate, acute or acuminate.....4. *E. micropteryx*. ✓

1. *E. pallida* Britt. & Rose. Sword Flower. Coral Bean. Jumbie Bead.

Bull. Torr. Bot. Club. 48. 332.

Small tree about 4 m., young growth puberulent, older growth glabrate with shining grey bark, spines at the base of the leaves stout, reflexed, 6-8 mm. long; lfts. broadly ovate, sometimes obliquely so, the apex acuminate, 12-15 cm. long, green above, grey beneath, glabrous on both sides, at least when mature; lf. rhachis 2 cm. long or more, glabrous; inf. sessile, 1-2 dm. long; pedi. stout, about 1 cm. long; cal. tubular, 1.5 cm. long, nearly truncate, except for a small protuberance on the lower side; cor. rose, narrow, 7 cm. long; pod 5-10-seeded, much constricted between the seeds, tipped with a rigid persistent style, stalk about 3 cm. long, pod 8 or more cm. long, persistent style 2 cm. long; seed scarlet with a black spot, 8 mm. long and 6 mm. broad.

Hillsides and planted for hedges, Trinidad, mixed with *E. corallodendrum* L. of which it may be merely a variety.

2. *E. corallodendrum* L. Coral Bean. Jumbie Bead.

Griseb Fl. 199: Fawc. and Rendl. Fl. Jam. 450: Britt. & Wils. Sc. Surv. Porto Rico, 5. 427.

Tree up to 8 m. the trunk and branches armed with stout prickles 6-20 mm. long; lfts. broadly ovate-rhomboid to rhomboid-orbicular, 5-15 cm. long, sometimes broader than long, acute, acuminate or obtuse at the apex, obtuse or rounded at the base, glabrous, petioles slender, prickly, 3-15 cm. long; acemes 1-3 dm. long; pedi. very short; cal. tubular, 10-16 mm. long, truncate or nearly so with a protuberance on one side; cor. coral-red, 5-7 cm. long, narrow; wings a little longer than the calyx, the keel slightly

shorter; *pod* stalked, 10-15 cm. long, constricted between the seeds, the apex long-beaked; *seed* scarlet with a black spot, about 1 cm. long.

Hillsides and planted for hedges, Trinidad and Tobago.
West Indies, Central and South America.

3. ***E. glauca* Willd.** Bois Immortelle. Bocare. Water Immortelle.

E. velutina of Herb. Trin. list not of Willd.
Britt. and Wils. Sc. Surv. Porto Rico, 5. 428.

Tree up to 20 m. the *trunk* and *branches* armed with stout prickles; *lfts.* ovate to ovate-elliptical, 6-16 cm. or more long, obtuse or rounded at the apex, rounded or very broadly wedge-shaped at the base, leathery, glabrous, grey beneath; *racemes* puberulous, 1-2 dm. long; *pedi.* stout, up to 1 cm. long; *cal.* broadly bell-shaped, oblique, about 1 cm. long, puberulous; *standard* orange, rhomboid-suborbicular, folded, narrowed into a claw, 5-6 cm. long, 3.5-4 cm. broad; *wings* oblong, brown, with crimson tips, about 2.5 cm. long; *keel* brown, slightly longer than the wings; *stam.* and *style* nearly twice as long as the keel; *pod* flattened, up to 3 dm. long and 18 mm. broad; *seeds* brown with black margins, oblong, 15-18 mm. long, about 6 mm. broad, subcylindrical.

Used largely as a shade tree for cacao in low moist lands.
Naturalized after planting. Trinidad and Tobago.

West Indies, Central America and Venezuela.

4. ***E. micropteryx* Poepp.** Bois Immortelle. Anauca. Mountain Immortelle.

Micropteryx Poeppigiana Walp. *E. Amasisa* Spruce.

E. umbrosa of Herb. Trin. List.

Urb. Symb. Ant. 1. 327: Britt. & Wils. Sc. Surv. Porto Rico, 5. 428.

Tree up to 20 m., the branches and trunk armed with stout prickles; *lfts.* broadly rhomboid-ovate, 7-23 cm. long, sometimes broader than long; acute or shortly acuminate at the apex, broadly wedge-shaped to truncate at the base, papery, glabrous; *racemes* 1-2 dm. long, pubescent; *pedi.* 5-9 mm. long; *cal.* top-shaped, 5-7 mm. long, truncate, pubescent; *cor.* orange-scarlet; *standard* ovate to elliptical, tapering to the apex, 3-4 cm. long; *wings* about 1 cm. long; *keel* nearly as long as the standard; *stam.*

and *style* longer than the keel; *pod* up to 13 cm. long, 1-1.5 cm. wide, with a slender beak, opening on one side; *seeds* brown, usually 2, about 1 cm. long.

Largely used as a permanent shade tree for cacao especially in the higher lands. When in flower it is one of the conspicuous features of the vegetation and can be seen for miles.

A pale yellow flowered variety has been detected near Sangre Grande, Herb. Trin. 11947, Field (1928).

Naturalized after planting Trinidad and Tobago.

Widely planted in the West Indies. Native of Peru.

15. MUCUNA Adans.

Vines, mostly woody. *Lvs.* pinnately 3-foliolate, the *lfts.* unequal-sided, mostly with *stipels*. *Stip.* deciduous. *Fls.* large, in axillary, long-stalked clusters. *Cal.* bell-shaped, the two upper teeth united. *Standard* folded, eared at the base, much shorter than the wings; *wings* incurved; *keel* as long as the wings or longer. *Stam.* 10, 9 united into a sheath, and 1, the uppermost free; *anths.* alternately longer and shorter, the latter bearded; *style* glabrous. *Pod* thick, leathery, linear or oblong, 2-valved, usually covered with stinging or irritating hairs. *Seeds* few, large, rounded or oblong.

Lfts. hairy beneath.

- | | |
|--|-------------------------|
| <i>Fls.</i> yellow | 1. <i>M. Sloanei</i> . |
| <i>Fls.</i> orange-scarlet..... | 2. <i>M. rostrata</i> . |
| <i>Fls.</i> blue or purplish..... | 3. <i>M. pruriens</i> . |
| <i>Lfts.</i> glabrous beneath ; <i>fls.</i> bluish-purple. | 4. <i>M. urens</i> . |

1. *M. Sloanei* Fawc. & Rendl. Cowitch. Donkey Eye.

M. urens DC. quoad descr.

Fawc. & Rendl. Fl. Jam. 4. 35: Urb. Symb. Ant. 8. 305.

Strong woody *climber*, climbing over tall trees; *lfts.* elliptical or ovate, acute or shortly acuminate at the apex, up to 18 cm. long and 10 cm. broad, thinly pubescent or glabrous above, densely covered with adpressed, silky and silver-coloured hairs beneath, *petioles* 7-17 cm. long; *petu.* of similar length or somewhat longer, pendulous with several flowers clustered at the apex; *pedi.* about 1 cm. long or less; *fls.* yellow; *cal.* about 2 cm. long including the teeth, the teeth unequal, the upper broad, the lateral smaller, the lowest longer; *standard* 3-3.5 cm. long; *wings* 5-6 cm. long, shortly clawed; *keel* slightly longer than the wings; *pod* woody,

winged transversely and along the margin, 10-15 cm. long, 4-5 cm. wide, hispid with bristly and irritating hairs and pubescent; seeds 2-4, round, compressed, 2-3 cm. diam.

Forests in moist districts, Trinidad and Tobago.

West Indies. Trop. Cont. America, Trop. West Africa.

2. *M. rostrata* Benth.

Lfts. ovate, elliptical or rhomboid, the apex abruptly acuminate, up to 16 cm. long and 8 cm. broad, puberulous to glabrous above, minutely pubescent beneath; *petioles* up to 11 cm. long; *fls.* orange-scarlet, in pendent racemes; *cal.* 2.5-3 cm. long, including the teeth; *standard* 4.5-5 cm. long; *wings* 6-6.5 cm. long, curved at the apex, woolly and eared below; *keel* curved, about 12 mm. longer than the wings; *pod* not seen.

Thickets in wet or moist districts. Trinidad.

Panama and Northern South America.

3. *M. pruriens* DC. Common Cowitch.* Cowage.

Fawc. & Rendl. Fl. Jam. 4. 54-55.

Lfts. rhomboid or triangular, the apex obtusely acute, 7-15 cm. long, 6-9 cm. broad, with long adpressed somewhat silvery hairs beneath, *petioles* 1-3 dm. long, the *pedu.* of similar length or longer; *fls.* numerous, on long racemes; *cal.* about 12 mm. long, including the teeth, the upper teeth triangular, acute, the lowest narrower; *standard* about 1.8 cm. long; *wings* about 3.4 cm.; *keel* slightly longer than the wings; *Pods* narrowly oblong, 4-8 cm. long, and about 1.5 cm., broad, ribbed along each margin, densely covered with brownish-yellow irritating hairs; *seeds* 2-6, about 1 cm. long.

Thickets in moist districts. Trinidad and Tobago.

Tropics.

4. *M. urens* (L.) DC. *emend.* Fawc. & Rendl. Journ. Bot.

55. 36 (1917).

Ox Eye Bean.

M. altissima DC.

Dolichos urens L.

Fawc. & Rendl. Fl. Jam. 4. 52.

Stems glabrous; *lfts.* elliptical, abruptly and shortly acuminate at the apex, rounded or truncate at the base, 8-16 cm. long, 5-7.5 cm. broad, glabrous on both sides, *petiole* 5-13 cm. long; *fls.* in pendulous, slender racemes up to 1.5 cm. long, with 1 to several flowers at the apex; *cal.* 1-1.5 cm. long, shortly toothed; *standard* bluish-purple, 3-4 cm. long; *wings* purple, long-clawed, longer than the standard, the claw woolly on both edges; *keel*

yellowish, slightly longer than the wings; *pod* woody, up to 20 cm. long and 5 cm. wide, narrowly winged along the margin and with transverse ribs, hispid with stinging hairs and finely pubescent; *seeds* compressed, rounded, 3-4 cm. diam.

Herb. Trin. 5079, Caroni and Carenage, Trinidad.
West Indies, Panama and Brazil.

NOTE.

Mucuna pruritina (Wight) Piper as represented by Herb. Trin. 10965 is from a garden plant.

16. **ERIOSEMA** DC.

Herbs or *shrubs*, erect, prostrate or rarely climbing. *Lfts.* 3 or sometimes only 1, subsessile. *Stip.* lanceolate, in pairs opposite the leaves, united nearly to the top, at least when young, becoming free. *Fls.* yellow, in axillary racemes. *Cal.* 5-fid. *Standard* obovate, or roundish, eared on both sides near the base, usually villous. *Stam.* the upper free, the rest united; *anths.* uniform. *Ovary* sessile; *ovules* 2; *style* thread-like or somewhat thickened above, glabrous; *stig.* small. *Pod* compressed, broadly oblong to somewhat roundish, 2-valved, not divided within; *seeds* 2 or sometimes 1, compressed, transversely oblong.

Lfts. three 1. *E. violaceum*.

Lfts. one 2. *E. simplicifolium*.

1. **E. violaceum** (Aubl.) E. Mey.

Cytisus violaceus Aubl. Pl. Guiane 2. 766. t. 306.

Gr. Fl. 191.

Sub-shrub, stems erect, rusty-pubescent; *lfts.* 3, rarely only 1, linear-lanceolate, obtuse or acute at the apex, obtuse at the base, 3.5-8.5 cm. long, 5-15 cm. broad, minutely pubescent above, conspicuously hairy and veiny beneath; *petiolules* 2-4 mm. long about as long as the petiole; *stip.* acuminate, about 1 cm. long, strongly parallel-veined, pubescent; *fls.* rather crowded on a short raceme, about 5 cm. long including the *peduncle* which is about 2 cm. long; *cal.* pubescent, with long and short hairs, lobes acuminate, as long as the tube; *cor.* 8-10 mm. long; *pod* broadly oblong or ovoid, 1-1.5 cm. long, thickly covered with long rusty-hairs; *seeds* ovoid or ovoid-oblong, shining black, about 4 mm. long and 2.5 mm. broad.

Natural Savannahs, St. Joseph, Arima, Piarcó, O'Meara, Trinidad.
Cuba and Northern South America.

2. *E. simplicifolium* (H.B.K.) Walp.*Glycine simplicifolia* H.B.K.

Gr. Fl. 191.

Sub-shrub, woody at the base, semi-scandent; *stems* with long, spreading or adpressed rust-coloured hairs; *lfts.* 1, oblong-lanceolate, linear-oblong or ovate, acute or obtuse at the apex, somewhat heart-shaped at the base, up to 8 cm. long and 3.5 cm. broad, prominently veined especially beneath, glabrous, or with a few long scattered hairs above, slightly shaggy beneath; *stip.* acuminate, 8-12 cm. long, much longer than the petiole, strongly parallel-nerved, puberulous with long scattered hairs; *racemes* few-flowered; *pedu.* 2-5 cm. long with long spreading hairs; *cal.* shaggy, about 7 mm. long, the lobes long-acuminate, longer than the tube; *cor.* 10-13 mm. long; *pod* ovoid-oblong, pilose, about 15 mm. long and 8 mm. broad.

Natural savannahs, Arima, O'Meara and Piarco, Trinidad.
Northern S. America.

17. *RHYNCHOSIA* Lour.

Perennial, twining or trailing herbs or undershrubs. *Lvs.* pinnately 3-foliolate with resinous dots beneath; *stipels* minute; *petioles* long. *Fls.* yellow, usually in axillary racemes. *Cal.* 4-5-lobed, the 2 upper lobes more or less united. *Cor.*: standard obovate or roundish, eared at the base; wings narrow; keel incurved at the apex. *Stam.* 10, the upper free, the rest united. *Ovary* subsessile; *ovules* 2 or rarely one; *style* threadlike, glabrous; *stig.* small, terminal. *Pod* compressed, oblong, shortly beaked, 2-valved. *Seeds* 1 or 2.

Pods constricted between the seeds...1. *R. phaseoloides*.

Pods not constricted between the seeds 2. *R. minima*.

1. *R. phaseoloides* (Sw.) DC.*Glycine phaseoloides* Sw.*Dolicholus phaseoloides* Kuntze.

Gr. Fl. 190: Fawc. & Rendl. Fl. Jam. 4. 74-75: Urb. Symb.
Ant. 8. 310.

Stem trailing or twining, not angled, woolly at least when young; *lfts.* broadly ovate to rhomboid, the apex acute or acuminate, the base rounded to truncate, 3-13 cm. long, 2-10 cm. broad, sparsely pubescent above, densely pubescent beneath, terminal leaflet long-stalked; *petioles* up to 7.5 cm. long; *racemes* 5-15 cm. long, many-fl'd.; *pedi.* 1-2 mm. long; *cal.* 3-4 mm. long, woolly, the lobes acuminate, unequal; *cor.* brownish-yellow; *standard* 8-10 mm. long, puberulous outside; *wings* and *keel* shorter than the standard; *ovary* woolly, the *style* glabrous above; *pod*

oblong, 2-seeded, constricted between the seeds, 18-20 mm. long, woolly or becoming glabrate; *seeds* ellipsoidal, black and scarlet, about 6 mm. diam.

Thickets in dry and moist districts, Trinidad and Tobago.
West Indies, Cont. Trop. America.

2. **R. minima** (L.) DC.

Dolichos minimus L.; *Dolicholus minimus* Medic.

Gr. Fl. 190: Fawc. & Rendl. Fl. Jam. 4. 73-74: Urb. Symb. Ant. 8. 310-311.

Stem slender, trailing or twining, angled, pubescent or puberulous; *lfts.* small, ovate-rhomboid, acute or obtuse at the apex, wedge-shaped to truncate at the base, 1-3 cm. long, up to 2.8 cm. broad, woolly to puberulous on both sides, the lateral pair shorter-stalked than the terminal; *petioles* slender, 1-4 cm. long; *stip.* awl-shaped, about 2 mm. long; *racemes* about as long as the leaves or longer; *cal.* 2-3 mm. long, the lobes lanceolate-awl-shaped; *cor.* yellow; *standard* about 6 mm. long, the *keel* about the same length, the *wings* smaller; *ovary* woolly; *style* glabrous; *Pods* somewhat sickle-shaped-oblong, 10-16 mm. long, 4-5 mm. broad, pubescent or puberulous; *seeds* black or brown, ellipsoidal, 2.5-3 mm. diam.

Grassy thickets. Trinidad and Tobago.
Tropical and sub-tropical regions.

18. **CENTROSEMA** DC.

Climbing *herbs* or *shrubs*. *Lvs.* pinnately 3-foliate, with *stipels*. *Stip.* persistent, lined. *Fls.* large; *pedu.* axillary, solitary or in pairs, with one to numerous flowers. *Bracteoles* adpressed to the calyx, more or less as long. *Cal.* bell-shaped, teeth unequal. *Standard* large, broadly roundish, spurred or slightly pouched above the short claw; *wings* sickle-shaped-obovate; *keel* incurved, somewhat shorter than the wings. *Stam.* 10, all united into a sheath or the uppermost more or less free. *Style* more or less dilated at the apex, glabrous. *Pod* compressed, long-beaked, 2-valved, the valves ribbed near both margins and with partitions between the seeds. *Seeds* numerous.

Bracteoles twice as long as the calyx;

cal. teeth short, rounded.....1. *C. Plumierii*.

Bracteoles as long as or shorter than the

calyx; cal. lobes linear.

Cal. teeth nearly equal.....2. *C. virginianum*.

Cal. teeth very unequal.

Lowest calyx tooth 5-7 mm. long....3. *C. pubescens*.

Lowest calyx tooth 10-15 mm. long..4. *C. macrocarpum*.

1. *C. Plumieri* (Turp. ex. Pers.) Benth.

Clitoria Plumieri Turp. ex Pers.

Fawc. & Rendl. Fl. Jam. 4. 44-45.

Stem trailing or twining, somewhat woody below; *lfts.* broadly ovate or elliptical, the apex shortly and abruptly acuminate, the base obtuse or rounded, 6-12 cm. long, 3-10 cm. broad, glabrous on both sides or sometimes puberulous on the nerves; *stip.* ovate, 4-7 mm. long; *pedu.* 2-6-flowered; *bracteoles* ovate, elliptical, obtuse, with numerous lines, about 1.5 cm. long; *cal.* 5-7 mm. long, the teeth short, rounded, the uppermost very short or wanting; *standard* white or purple, pubescent, 4-5 cm. broad; *pod* 8-15 cm. long, and about 1 cm. diam., the *beak* 1-2.5 cm. long, ribbed on either side of the margins, glabrous; *seeds* about 7 mm. long and 6 mm. broad, dark brown or black.

Thickets, Trinidad.

West Indies, Cont. Trop. America.

2. *C. virginianum* (L.) Benth.

Clitoria virginiana L.

Fawc. & Rendl. Fl. Jam. 4. 46: Britt. & Wils. Sc. Surv.

Porto Rico, 5. 413: Urb. Symb. Ant. 8. 303.

Slender *vine*; *lfts.* ovate, oblong or linear-lanceolate, the apex variable, the base rounded, 2-6 cm. long, 1-2.5 cm. broad, glabrous or minutely puberulous; *pedu.* 1-4-flowered; *bracteoles* ovate, with numerous lines, shorter than the calyx, about 7 mm. long; *cal.* 8-12 mm. long including the long linear lobes; *standard* 2.5-3 cm. broad, pubescent outside; *pod* 8-12 cm. long, 3-4 mm. wide, the *beak* .5-1 cm. long, puberulous, *seeds* about 2 mm. long and 1.5 mm. broad, dark brown or black.

No locality. ? Herb. Trin. 9397, Aripo, Trinidad. Tobago. ex Urban.

S. Eastern United States, West Indies, Cont. Trop. America and Trop. Africa.

3. *C. pubescens* Benth.

Fawc. & Rendl. Fl. Jam. 4. 45-46.

Stem trailing or twining; *lfts.* elliptical or oblong, acute or obtuse at the apex, rounded at the base, 4-7 cm. long, 2-4.5 cm. broad, pubescent above, becoming glabrate, velvety beneath; sometimes glabrate; *stip.* ovate, acute, 2-3 mm. long; *pedu.* few-flowered; *bracteoles* ovate-elliptical, about 8 mm. long; *cal.* 10-12 mm. long including the lowest linear lobe, upper segment with 2 short triangular teeth, the lower segment with 3 teeth the middle one the longest and linear; *standard* 3-4 cm. broad,

whitish striped with purple in the centre, pubescent outside; *pod* about 10 cm. long and 6 mm. diam., the *beak* about 12 mm. long, puberulous becoming glabrous, *seeds* about 3-4 mm. long and broad, dark brown.

Banks and thickets, Trinidad.

West Indies, Cont. Trop. America.

4. *C. macrocarpum* Benth.

Young *stems* pilose, becoming glabrate; *lfts.* ovate, shortly acuminate at the apex, rounded at the base, up to 16 cm. long and 8 cm. broad, with long scattered hairs above when young, becoming glabrous, glabrous or puberulous beneath especially on the mid-rib and veins; *petioles* and *petiolules* pilose, becoming glabrate, 3-9 cm. long; *pedu.* densely and many-flowered; *bracteoles* ovate, 1.5-2 cm. long; *cal.* lobes linear, the longest about as long as, or slightly longer than the bracteoles; *standard* 3-4 cm. broad, pubescent; *pod.* about 16-21 cm. long with a *beak* about 2 cm. long, glabrous or nearly so; *seeds* 5-6 mm. long and 3.5 mm. broad.

Herb. Trin. 1161, 4422 and 3696, probably cultivated. Dannouse, Arima, 1901, Trinidad.

British Guiana.

19. *TEPHROSIA* Pers.

Herbs, sub-shrubs or shrubs. Lvs. imparipinnate; *lfts.* numerous, rarely 1-3 as in *T. brevipes*, usually silky beneath, and with numerous conspicuous parallel veins. *Stipels* none. *Fls.* red, purple or white, in clusters of 2-6 on racemes which are terminal, opposite the leaves, or in the upper axils, often leafy at the base. *Bracteoles* none. *Cal.* teeth 5, subequal, the lower lobe longer. *Pet.* clawed; *standard* more or less silky outside. *Stam.* 10, the uppermost more or less free, the rest united into a sheath, split above. *Pod* compressed, beaked with the persistent style, 2-valved. *Seeds* 5-15.

T. candida DC. an Indian species, growing to a height of 3 m., with white flowers, 2-2.5 cm. long, is often used for cover crop purposes.

Lfts. 1-3.....1. *T. brevipes*.

Lfts. more than 3.

Fls. more than 1 cm. long.....2. *T. toxicaria*.

Fls. 1 cm. long or less.

Lfts. obovate or wedge-shaped to broadly oblanceolate, rounded or retuse at the apex.

Lfts. 11-19, glabrous above.....3. *T. Wallichii*.

Lfts. 5-9, appressed hairy above....4. *T. cathartica*.

Lfts. linear or oblanceolate-oblong, obtuse or acute at the apex....5. *T. cinerea*.

1. *T. brevipes* Benth.

Gr. Fl. 182.

Sub-shrub, stems cylindrical, yellowish-silky; lvs. with 1-3 lfts., petioles and petiolules 2-4 mm. long; lfts. linear-lanceolate to oblanceolate, obtuse at the apex, narrowed at the base, 5-7.5 cm. long, 5-10 mm. broad, glabrous above, silvery-silky beneath; stip. minute, setaceous; fls. single or clustered, axillary; pedi. short, dilated at the top; cal. 4-5 mm. long, including the lobes, lobes lanceolate, the inferior longer than the others, standard silky, about 6 mm. long; style glabrous; pod linear, densely woolly, the wool rust-coloured on the swollen margins, up to 5 cm long, 3-4 mm. broad; seeds 6-9.

Herb. Trin. 443, savannahs, Trinidad.
Northern South America.

2. *T. toxicaria* Pers.

Gr. Fl. 182: Fawc. & Rendl. Fl. Jam. 4.18: N. Amer. Fl. 24.165.

Shrub 5-15 dm. high, branches reddish or yellowish-velvety; lvs. 1-2 dm. long, with 12-20 pairs of leaflets; lfts. linear-oblong, obtuse or acutish and mucronate at the apex, 2.5-7 cm. long. 8-18 mm. wide, silky-pubescent, especially beneath; stip. awl-shaped; fls. white with a purple tinge, in clusters of 4-6 on many-flowered racemes 1-3 dm. long; cal. silky, about 5 mm. long, lobes ovate; cor. 12-20 mm. long; standard silky outside, roundish, clawed; pod silky-pubescent, rust-coloured, 4.5-7 cm. long, 5-6 mm. broad, 10-15 seeded; seeds 4 mm. long, 2.5 mm. broad.

Lockhart in Herb. Kew, Trinidad.
West Indies, Trop. Continental America.

3. *T. Wallichii* Fawc. and Rendl.

Journ. of Botany 55.35: Fawc. & Rendl. Fl. Jam. 4.20. N. Amer. Fl. 24.180.

Perennial, somewhat woody at the base, branches glabrous or pubescent; stip. linear-lanceolate, 5-7 mm. long; lfts. 11-19, wedge-shaped to oblong, 1.5-2.5 cm. long, 5-15 mm. broad, glabrescent above, glaucous and obscurely silky with minute white hairs beneath; racemes lax, 8-10 cm. long, opposite the leaves; fls. crimson or white, 1-3 at each node; cal. with minute adpressed hairs, tube 2 mm. long, the lobes awl-shaped, about 3 mm. long; cor. 8-10 mm. long, standard elliptical-roundish, silky outside; style glabrous; stig. with very short hairs; pod. 3-4 cm. long, 5-7 seeded; puberulous or glabrous.

There are two sheets in Kew Herbm. of Wallich Cat. No. 5640, one of these has the *lfts.* glabrous above and agrees with Fawc. and Rendl.'s description but the other to which is attached the label with the manuscript name *T. Wallichii* Graham has the *lfts.* densely appressed hairy above and appears to be a different species.

Herb. Trin. 8482, Broadway, Cedros, Sieb. 125 in Herb. Kew, Trinidad.

West Indies, Guiana. Naturalized from India.

4. *T. cathartica* (Sessé and Moc.) Urb.

Galega cathartica Sessé and Moc.

Urb. Symb. Ant. 8. 284: Britt. & Wils. Sc. Surv. Porto Rico, 5. 391: N. Amer. Fl. 24. 180-181.

Perennial 3-5 dm. high, somewhat woody at the base, 4-7 mm. long, persistent; *lfts.* 5-9, obovate-oblong, rounded and mostly retuse at the apex, wedge-shaped at the base, 1-4 cm. long, 7-17 mm. broad, adpressed pubescent on both sides; *racemes* terminal and opposite the leaves, laxly few-flowered, 5-15 cm. long; *fls.* pinkish, 1 or 2 at each node; *cal.* adpressed pubescent, tube 2 mm. long, lobes acuminate 3 mm. long; *cor.* 7-10 mm. long, *standard* roundish, densely adpressed pubescent; *pod* 3-4.5 cm. long, 4-5 mm. broad, adpressed pubescent, 5-7 seeded; *seeds* brown-mottled, 3.5-4 mm. long, 2 mm. broad.

Coastal sands, Icacos and Mayaro, Trinidad.

West Indies, Yucatan, Honduras and Colombia.

5. *T. cinerea* (L.) Pers.

Galega cinerea L.

Urb. Symb. Ant. 8. 283: Fawc. & Rendl. Fl. Jam. 4. 20: N. Amer. Fl. 24. 181.

Perennial, somewhat shrubby, up to 6 dm. high, *stems* pubescent the hairs mostly adpressed; *stip.* lanceolate, 5-8 mm. long, pubescent, persistent; *lfts.* 7-11, occasionally more, linear or oblanceolate-oblong, obtuse or acute at the apex and base, 1-3 cm. long, 3-6 mm. broad, glabrescent or with minute adpressed hairs above, adpressed pubescent beneath; *racemes* opposite the leaves, lax, 5-20 cm. long, including the peduncle; *fls.* pinkish, 1-3 at the nodes of the racemes; *cal.* with long white hairs, tube 2 mm. long, the lobes awl-shaped, 3-4 mm. long; *standard* roundish, pubescent outside, 8-10 mm. long; *style* glabrous; *stig.* with long white hairs; *pod.* 4-5 cm. long, 4-5 mm. broad, pubescent with spreading hairs in the Tobago form, 8-10 seeded.

Herb. Trin. 11148, Williams, Scarborough, Tobago.

West Indies, Trop. and sub-tropical America.

20. CANAVALIA Adans.

Herbs, usually twining or creeping. *Lvs.* pinnately 3-foliolate. *Stip.* small. *Fls.* large, on elongated axillary racemes arising in clusters from the swollen joints. *Cal.* 2-lipped, the upper lip very large, entire or 2-lobed, the lower much smaller, 3-lobed. *Standard* roundish, reflexed, about as long as the wings and keel. *Stams.* all united or the uppermost free at the base and slightly adhering above; *anths.* uniform. *Style* glabrous. *Pod* large, flat, 2-valved with a longitudinal ridge on each side near and parallel with the upper margin.

The following introduced species are grown for cover crop or green manuring purposes. *C. ensiformis* DC., Maljoe, Jack or Horse Bean, a white-seeded species; *C. plagiosperma* Piper, seeds pale red, and *C. gladiata* DC., the Sword Bean which has claret-coloured seeds.

1. *C. maritima* (Aubl.) Thou. Piper Cont. U.S. Nat. Herbm
20. 564-5.

C. obtusifolia Gr. Fl. 197: Urb. Symb. Ant. 4.306: Fawc. & Rendl. Fl. Jam. 4. 60-61.

Dolichos maritimus Aubl.

Stems creeping, glabrescent; *lfts.* roundish to obovate-elliptical, the apex roundish, the base roundish or broadly wedge-shaped. 4-12 cm. long, puberulous to glabrescent; *racemes* up to 3 dm. long, exceeding the lvs.; *fls.* violet-rose; *pedi.* very short; *cal.* 1-1.5 cm. long; *cor.* about 2.5 cm. long; *standard* notched at the apex and with 2 protuberances at the base; *fil.* all united; *pod* oblong, up to 14 cm. long and 3 cm. broad, straight, glabrescent; *seeds* about 5-10, brown, 12-18 mm. long.

Sandy sea-belts, Trinidad and Tobago.

Tropics and sub-tropics.

21. GALACTIA P. Br.

Slender *herbs* or *shrubs*, usually twining, sometimes erect. *Lvs.* pinnately 3-foliolate, with *stipels*. *Fls.* in axillary racemes arising from swollen joints. *Cal.* 4-lobed, the lobes acuminate. *Stam.* 10, the uppermost free, or rarely slightly joined above with the rest; *anths.* all equal, versatile. *Style* slender, glabrous. *Pod* linear, hairy, blunt at the apex or very shortly beaked, 2-valved,

not jointed, compressed, with partitions between the seeds.
Seeds 5-12.

Erect shrub.....1. *G. Jussiaeana*.

Slender vines.

Upper stamen free.

Pod 4-5.5 mm. broad.....2. *G. trinitensis*.

Pod 6.5-9 mm. broad.....3. *G. striata*.

Upper stamen united above the base..4. *G. Lockharti*.

1. *G. Jussiaeana* Kunth.

Fawc. & Rendl. Fl. Jam. 4. 58.

Low erect shrub, up to 6 dm. high, the branches densely hairy; *lfts.* elliptical, rounded at both ends, 2.5-5 cm. long, densely silky-woolly on both sides; *stip.* lanceolate-awl-shaped, 2-4 mm. long; *infl.* about 3 cm. long; *cal.* silvery-silky, 6-8 mm. long, the lobes about twice as long as the tube; *cor.* rosy; *standard* about 1 cm. long; *stam.* the uppermost filament free; *pod* silky-woolly, 5-6 cm. long, 5-9 mm. broad.

Piarco Savannah, Trinidad.

Cuba, Isle of Pines, Hispaniola, Trop. South America.

2. *G. trinitensis* Urb.

G. filiformis Gr. in part.

Urb. Symb. Ant. 2.315: Gr. Fl. 194.

Stem twining, pubescent; *lfts.* 3, oblong-lanceolate, gradually narrowed and shortly apiculate at the apex, obtuse at the base, 2-3.5 cm. long, 7-12 mm. broad, shortly pilose above, pallid and shortly adpressed silky pilose beneath, *petioles* 1-2.5 cm. long; *stip.* subulate, 1.5-2 mm. long; *cal.* 4.5-5 mm. long, sparsely hairy, the superior and inferior lobes of equal length, about twice as long as the tube, the lateral ones somewhat shorter; *standard* obovate, 7 mm. long, 3.5 mm. broad, the claw 1 mm. long; *upper stamen* free; *pod* flat, oblong, linear, incurved above, pubescent, about 3 cm. long and 5 mm. broad.

St. Ann's, Crueger, 69 and Fendler 300 in Herb. Kew: Herb Trin. 7645. Pointe Gourde Bay, Erin, Trinidad. Endemic.

3. *G. striata* (Jacq.) Urb.

Glycine striata Jacq.

Urb. Symb. Ant. 2. 320 and 323.

Stem twining, pubescent; *lfts.* 3, rarely 5, ovate or ovate-elliptical, 3-6 cm. long, the apex obtuse or acute, the base mostly rounded, pubescent with adpressed hairs or glabrescent above,

more or less densely pubescent beneath; *stip.* awl-shaped, 2-4 mm. long; *fls.* purplish, on a slender peduncle usually longer than the leaves; *cal.* 7-8 mm. long, silky, the teeth lanceolate, about twice as long as the tube; *standard*, *wings* and *keel* of about similar length, 8-10 mm.; *upper stamen* free; *pod* 3-7 cm. long, 6-9 mm. broad, more or less pubescent.

Urban *loc. cit.* records a *var. tobagensis*, Eggers, 5906, Aukenskeoch, Tobago.

Thickets, Gasparee, Monos, Chacachacare, Chaguanas, Trinidad and Tobago, West Indies.

Mexico to Venezuela.

4. *G. Lockharti* Gr.

Gr. Fl. 194: Urb. Symb. Ant. 2. 329-330.

Stem. twining, pubescent, *lfts.* 3, ovate-oblong or oblong, the apex obtuse and mucronulate, the base rounded, 2.5-4 cm. long, 1-1.5 cm. broad, about as long as the petiole, glabrous above, pubescent beneath; *stip.* and *stipels* setaceous, persistent; *racemes* many-fl., exceeding the leaves; *cal.* 6.5 mm. long, the lobes lanceolate, acuminate, 2-3 times longer than their tube, subequal, the lateral somewhat shorter, shortly and adpressed pilose; *standard* 10-12 mm. long, *wings* and *keel* slightly shorter, *upper stamen* adhering to the column above its free base; *pod* sessile, oblong, 2.5 cm. long, 10 mm. broad, pubescent.

Lockhart; Britton 2695 in Herb. Kew. Hillside thickets, Chacachacare.

Venezuela and New Granada.

22. CALOPOGONIUM Desv.

Tall vines, often woody at the base. *Lvs.* pinnately 3-foliate, with *stipels*. *Fls.* small, blue or violet, clustered on axillary racemes arising from swollen joints; *pedi.* short; *Bracts* and *bracteoles* small, caducous. *Cal.* lobes 4, the upper lobe 2-toothed, *standard* obovate, eared at the base; *wings* narrow, adhering to the short, obtuse keel. *Stams.* 10, 9 united, and one, the upper free; *anths.* uniform. *Ovary* sessile; *style* glabrous. *Pod* linear, compressed, 2-valved, blunt at the apex or very shortly beaked. *Seeds* roundish, compressed, 5-10.

1. *C. coeruleum* (Benth.) Hemsl.

Stenolobium coeruleum Benth.

Britt. & Wils. Sc. Surv. Porto Rico, 5. 416.

Vine, up to 6 m. or more, pubescent; *lfts.* rhomboid-ovate, entire or 3-lobed, the apex acute or somewhat obtuse, the base

more or less rounded, up to 15 cm. long and 14 cm. broad, pubescent above, velvety beneath, long-petioled; *infl.* long-stalked, many-flowered; *cal.* shaggy, about 4 mm. long; *cor.* 8-10 mm. long; *pod*s 4-6 cm. long, 6-8 mm. wide, more or less shaggy with yellowish hairs.

Thickets in moist districts, Trinidad and Tobago.
Cuba, St. Vincent. Cont. Trop. America.

23. DIOCLEA H.B.K.

Tall vines, more or less woody. *Lvs.* pinnately 3-foliolate, with *stipels*. *Fls.* purplish, in clusters on an elongated peduncle, the joints swollen. *Bracteoles* membranous, caducous. *Cal.* bell-shaped, 4-lobed, or 5 with the 2 upper united. *Standard* broad, roundish or notched, eared at the base; *wings* oblique, clawed; *keel* slightly curved. *Stam.* 10, united; *anths.* all fertile, or alternately so; style glabrous; *pod* more or less compressed, the upper margin thickened. *Seeds* 3-8, rarely 2.

Pods large and woody, 4-6 cm. broad.

Pod glabrous when mature.....1. *D. reflexa*.

Pod rusty-hairy when mature.....2. *D. megacarpa*.

Pod small, 1-1.5 cm. broad.....3. *D. guianensis*.

1. *D. reflexa* Hook. Donkey Eye.

Fawc. & Rendl. Fl. Jam. 4. 59.

Stout vine, the stems, petioles and inflorescence covered with long brownish, spreading hairs, or glabrate; *lfts.* elliptical, abruptly and shortly pointed at the apex, rounded at the base, 8-16 cm. long, 5.5-11 cm. broad, more or less pubescent beneath especially on the veins, glabrous or pubescent above; *raceme* many-fl'd. 3-6 dm. long; *bracts* linear-lanceolate, reflexed, caducous, 1.5-2 cm. long; *cal.* about 1.5 cm. long; *cor.* mauve; *standard* yellowish in the centre, 13-15 mm. wide; *pod* 10-15 cm. long, 5-6 cm. broad; several-seeded; *seeds* roundish, 2.5-3 cm. diam. the *hilum* extending two-thirds around the seed.

This species and *D. megacarpa* Rolfe are not easily separable except on mature pod characters. Herb. Trin. 5376 and 6051 are also allied, but are distinguished by purplish spreading hairs; the specimens are without pods and identification is impossible.

In dry or moist districts, Trinidad and Tobago.
Tropics.

2. *D. megacarpa* Rolfe. Donkey Eye.

Kew. Bull. 1901. 139.

Branches hirsute; *lfts.* broadly elliptical, the apex abruptly and very shortly pointed, the base somewhat heart-shaped, 10-14 cm. long, 5-11 cm. broad, shortly pilose on both sides, *petioles* 10-13 cm. long; *pedu.* rusty-velvety, many-fld.; *bracts* linear-lanceolate, about 1.5 cm. long, *bracteoles* kidney-shaped-rounded, rusty-velvety, 2-3 mm. long; *cal.* velvety, about 15 mm. long, the upper lobe broad, shortly 2-toothed, pouched at the base, the two lateral about the same length ovate, sub-acute, the lower narrow and longer, with an incurved, somewhat obtuse apex; *standard* 18-25 mm. long, and 2.5 cm. broad, violet with a yellow centre; *keel* incurved; *stam.* tube incurved; *anths.* 5 fertile, and 5 smaller, sterile; *ovary* densely velvety; *pod* 14-18 cm. long, 4-6 cm. broad, rusty-hairy; *seeds* 3 or 4, shining, roundish, about 3 cm. diam, the *hilum* extending two-thirds around the margin.

Thickets in moist districts, Trinidad and Tobago.
Brazil, Paraguay.

3. *D. guianensis* Benth.

D. comosa Kuntze. Dolichos comosus Mey?

Gr. Fl. 198.

Somewhat slender *vine*, the young *stems* pubescent; *lfts.* elliptical, the apex mostly abruptly and shortly pointed, the base rounded, obtuse or truncate, 3.5-8.5 cm. long, 1.5-4.5 cm. broad, glabrate above, velvety or silky beneath; *racemes* 9-30 cm. long, many-fld., pubescent; *bracts* inconspicuous, erect; *pedi.* 3-4 mm. long; *bracteoles* ovate, about 2 mm. long; *cal.* 10-13 mm. long, the lobes unequal, the three lower lanceolate, the upper broader; *cor.* 15-25 cm. long; *standard* roundish, reflexed; *anths.* all fertile; *pod* oblong, flat, 7-10 cm. long, 1-1.5 cm. broad, brownish velvety; *seeds* shining, oval, 6-8 mm. long, the *hilum* extending down one margin.

Kuntze in Rev. Gen. Plant. 1.179 mentions a *var. panamensis* with lvs. velvety beneath, but this character does not appear to be of any taxonomic value.

Hillsides and thickets in dry and moist districts, Trinidad.
Panama to Ecuador and Guiana.

24. *TERAMNUS* Sw.

Slender, twining *herbs.* *Lvs.* pinnately 3-foliolate, with *stipels.* *Stip.* small. *Fls.* very small, in axillary clusters or racemes. *Bracteoles* linear or lanceolate. *Cal.* 4-5-lobed. *Standard* obovate, narrowed into a long claw at the base, without

an appendage. *Stam.* 10, all united into a sheath; *anths.* alternately small, sterile. *Style* glabrous. *Pod.* linear, 2-valved, blunt at the apex or very shortly beaked, with partitions between the seeds. Seeds about 10.

Cal. 5-lobed; fls. white.....1. *T. labialis*.

Cal. 4-lobed; fls. rosy-purple.....2. *T. volubilis*.

1. *T. labialis* Spreng.

Fawc. & Rendl. Fl. Jam. 4. 49-50.

A slender hairy vine, *lfts.* elliptical or ovate, obtuse or somewhat acute at the apex, rounded at the base, 2-5 cm. long, with scattered appressed hairs above, appressed-pubescent beneath; *stip.* lanceolate, about 3 mm. long; *cal.* 5-lobed, 3.5-4 mm. long, shaggy, the lobes narrow, about as long as the tube; *cor.* white, slightly longer than the calyx; *pod* 3-5 cm. long, about 3 mm. wide, the upturned beak about 2 mm. long, sparsely pubescent with scattered hairs.

Herb. Trin. 11453 and 12108, W.G.F. and R.O.W. Farm Road and Eggers 5493, Tobago.
Tropics.

2. *T. volubilis* Sw.

Fawc. & Rendl. Fl. Jam. 4. 49.

Slender hairy vine; *lfts.* oblong or lanceolate to elliptical-lanceolate, glabrous above, pubescent with scattered adpressed hairs beneath, 2-7 cm. long, 1-2 cm. broad; *cal.* 3.5-4 mm. long, shaggy, 4-lobed, upper lobe shortly 2-toothed, triangular, acute; *cor.* rosy-purple (ex Broadway), slightly longer than the calyx; *pod* 2.5-3.5 cm. long, about 2 mm. broad, with an oblique beak about 2 mm. long, with scattered adpressed hairs.

Broadway, 6927, Woodbrook, Trinidad.
Jamaica, Trop. South America.

25. PHASEOLUS L.

Herbs, mostly twining, rarely woody at the base. *Lvs.* pinnately 3-foliate, with *stipels*. *Stip.* persistent, striate. *Fls.* in clusters along the upper part of the rhachis of axillary racemes. *Bracts* usually caducous, stipule-like or very small. *Bracteoles* often broader, persistent, arising from joint-like thickenings. *Cal.* bell-shaped, 5-lobed or toothed, the 2 upper more or less united. *Standard* roundish, recurved, spreading or somewhat contorted;

wings obovate or rarely oblong; *keel* incurved linear or obovate forming a complete spiral or coil. *Stam.* 10, the uppermost free, the rest united; *anths.* uniform. *Style* thickened and twisted within the beak of the keel, bearded on the inside. *Pod* compressed or sub-cylindrical, beaked with a persistent style, 2-valved.

This genus yields several edible beans the most important of those cultivated locally being the Lima Bean (*P. lunatus* L.) and the French, Kidney or String Bean (*P. vulgaris* L.). The lima bean is either a climbing or bushy plant, the seeds of which may be cooked either in the green or dry state. The kidney bean, of which there are many climbing and bush varieties may be used similarly and also as a salad bean when the pods are young.

Lfts. linear 1. *P. linearis*.

Lfts. ovate-lanceolate, ovate or ovate-rhomboid.

Lfts. velvety 2. *P. pilosus*.

Lfts. puberulous to glabrous.

Pod 2-3 mm. broad.

Stems sub-erect 3. *P. lathyroides*.

Stems trailing or twining 4. *P. peduncularis*.

Pod 8-12 mm. broad 5. *P. adenanthus*.

1. *P. linearis* H.B.K.

A slender vine, woody at the base, stems more or less shaggy becoming glabrous; *stip.* ovate, with many conspicuous parallel nerves; *lfts.* elongated oblong-linear, or sometimes shorter and somewhat ovate-oblong, 3-8 cm. long, 4-12 mm. broad, the apex obtuse and mucronate, the base rounded, more or less shaggy on both sides or glabrous, conspicuously net-veined; *petioles* mostly much shorter than the leaflets; *pedu.* much elongated, bearing a few flowers near the apex; *pedi.* short, jointed on to a receptacle-like protuberance; *cal.* tube broad, somewhat hairy, 4 mm. long, the lower and two lateral lobes long-acuminate, 7-8 mm. long, the upper broad and much shorter; *fls.* bluish-purple, 2.5-3 cm. long; *standard* deeply 2-lobed; *pod* narrowly linear, acuminate, 6-8.5 cm. long, 4-5 mm. broad, glabrous.

Hillsides and Natural Savannahs, Trinidad.

Cont. Trop. America.

2. *P. pilosus* H.B.K.

P. hirsutus Mart.

P. lasiocarpus Mart.

Piper in Cont. U.S.A. Nat. Herbm. 22.678.: Gr. Fl. 197:

Hassler Candollea 1. 465.

A slender vine, densely shaggy, the hairs yellowish or rusty; *stip.* awl-shaped, 5-7 mm. long; *lfts.* ovate or broadly ovate, the

apex acute or obtuse, the base broadly wedge-shaped or obtuse, up to 8 cm. long, 5 cm. broad, densely shaggy-velvety on both sides; *petiole* shorter than the *lfts.*; *pedu.* much longer than the leaves; *cal.* shaggy, about 1 cm. long, 4-lobed to about the middle, the upper lobe 2-toothed; *cor.* yellow, about 2 cm. long; *pod* sub-cylindrical, nearly straight, very shaggy, pendulous, 5-7.5 cm. long, about 7 mm. broad, the *pedi.* very short; *seeds* about 3-5 mm. long.

Piper loc. cit. draws attention to the highly variable shape and pubescence of the *lvs.*; the above description relates to the Trinidad material examined which would come under *var. lasiocarpus* (Mart.) Hassler.

Savannahs, Trinidad.

Cont. Trop. America.

3. *P. lathyroides* L.

P. semierectus L.

Gr. Fl. 197: Fawc. & Rendl. Fl. Jam. 4.65-66.

Herb, stem erect, simple or somewhat branched, 3-10 dm. long, silky-hairy, the hairs long, scattered and usually deflexed or glabrate; *stip.* lanceolate, acuminate, up to 1 cm. long, strongly lined; *lfts.* ovate-oblong or ovate-lanceolate, often conspicuously broadened at the base, abruptly narrowing above the middle (more or less hastate), acute, obtuse or apiculate at the apex, acute or obtuse at the base, 2-6.5 cm. long, thinly pubescent or puberulous on both sides; *racemes* elongated, 1-3 dm. long, much longer than the leaves; *fls.* distant in pairs; *pedi.* very short; *cal.* 4-6 mm. long, the teeth much shorter than the tube, the upper triangular, the lower lanceolate; *cor.* reddish-purple, about 15 mm. long; *pod* sub-cylindrical, linear, straight or slightly curved, spreading, 8-10 cm. long, 2-3 mm. broad, adpressed-pubescent; *seeds* 3-3.5 mm. long.

The narrow-leaved form mentioned by Fawc. & Rendl. loc. cit. does not apparently occur in Trinidad.

Banks and roadsides, Chaguanas, Claxton Bay, Guanapo, Trinidad. Tropical America, India and Malaya.

4. *P. peduncularis* H.B.K.

Vigna peduncularis Fawc. & Rendl.

Fawc. & Rendl. Fl. Jam. 4. 68-69: Britt. & Wils. Sc. Surv.

Porto Rico, 5.423: Piper Con. U.S. Nat. Herbm. 22. 674.

Stem prostrate or twining, slender, sparingly pubescent or glabrous; *lfts.* ovate to triangular-ovate, the apex acute or acuminate, truncate or broadly wedge-shaped at the base, 2-5 cm.

long, 2-3.5 cm. broad, puberulous to glabrous on both sides; *petioles* puberulous or glabrous; *stip.* sessile, oblong-lanceolate, 3-4 mm. long; *pedu.* as long as or much longer than the leaves; *fls.* yellow-purple, few, somewhat distant in the cluster at the top of the peduncle; *cal.* about 4 mm. long, the upper tooth rounded, the lower ovate; *standard* 1-1.5 cm. long; *pod* linear, puberulous, 4.5-8 cm. long, 3-3.5 mm. broad; *seeds* 3-4 mm. long.

Shaded banks and roadsides, Central districts, appearing as if introduced, Trinidad.

Jamaica, Cuba, Hispaniola, Cont. Trop. America.

5. *P. adenanthus* Mey.

Fawc. & Rendl. Fl. Jam. 4.65: Urb. Symb. Ant. 8. 311.

Twining perennial, stem slender; *stip.* ovate, strongly nerved, 3-4 mm. long; *lfts.* ovate to ovate-oblong, unequal-sided, the apex usually acute, the base rounded, broadly wedge-shaped or truncate, 4-7 cm. long, 2-4.5 cm. broad, puberulous on both sides; *racemes* few-flowered; *fls.* somewhat close together at the top of the peduncle which is usually shorter than the leaves; *pedi.* very short; *cal.* tube broadly bell-shaped, about 4 mm. long, upper tooth very broad, truncate, emarginate, the *lateral* and *lower sepals* lanceolate acuminate, about as long as the tube; *cor.* white or yellowish and rosy-purple, about 2-2.5 cm. long and broad; *pod* linear, recurved, about 10 cm. long, 8-12 mm. broad; *seeds* about 15, 6 mm. long and 5 mm. broad, flat.

On trees and in thickets in moist districts, Trinidad and Tobago. Tropics.

26. *VIGNA* Savi.

Climbing, prostrate or erect *herbs*. *Lvs.* pinnately 3-foliate. *Stipels* persistent. *Stip.* sessile or produced at the base below the insertion. *Fls.* yellowish or purplish, clustered at the end of long axillary peduncles springing from thickenings on the rhachis. *Bracts* and *bracteoles* small, caducous. *Cal.* 4-5-lobed or toothed. *Standard* roundish, eared at the base the ears folded upwards; *wings* somewhat shorter than the standard; *keel* about equal to the standard, incurved, not forming a complete spiral or coil, sometimes curled in the form of a letter S. *Stam.* 10, the upper free, the rest united; *anths.* uniform. *Ovary* sessile; *ovules* numerous; *style* bearded along the inner side; *stig.* lateral or oblique. *Pod* linear, sub-cylindrical or compressed, 2-valved.

The genus is of considerable economic importance in Trinidad. The Cow Pea (*V. unguiculata* Walp.) being largely grown as a

rotation crop with rice. The so-called black eye pea is the common variety, and is used largely in the dry state. An excellent variety for table purposes with cream coloured seeds is known as gub-gub; another is the Yard Bean or Bodi, characterized by a pod 1-3 ft. long.

- Pods 8-10 cm. long.....1. *V. vexillata*.
 Pods 5-7 cm. long.....2. *V. repens*.

1. ***V. vexillata* (L.) A. Rich.**

Phaseolus vexillatus L.

Britt. & Wils. Sc. Surv. Porto Rico, 5. 422.

Stems slender, twining, up to 4 or 5 m., more or less pilose with long spreading hairs; *lfts.* lanceolate, ovate or elliptical, the apex acuminate, acute or obtuse, the base more or less rounded or truncate, 4-12 cm. long, 2-7.8 cm. broad, pilose with long spreading hairs on both sides; *stip.* lanceolate, striate, 6-9 mm. long; *pedu.* 30-40 cm. long with 2-5 nearly sessile flowers at the top; *cal.* bell-shaped, about 1 cm. long, deeply 5-lobed, the lobes triangular to lanceolate, acuminate, pubescent; *fls.* pale purple and yellowish variegated; *standard* 2-2.5 cm. long; *pod* 7-10 cm. long, 4-5 mm. broad, pubescent or puberulous with long hairs.

Savannahs; banks and hillsides, Trinidad and Tobago.
 Tropics.

2. ***V. repens* (L.) Kuntze.**

Dolichos repens L.: *V. luteola* Benth.

Fawc. & Rendl. Fl. Jam. 4. 67-68: Britt. & Wils. Sc. Surv. Porto Rico, 5. 422.

Vine trailing or twining, glabrous or somewhat shaggy; *lfts.* ovate, lanceolate or linear, the apex mostly acute, 2-8 cm. long, 0.5-5 cm. broad, glabrous or with few scattered hairs; *stip.* ovate or lanceolate, acuminate, about 3 mm. long; *pedu.* longer than the leaves with a few flowers crowded at the top; *pedi.* 1-3 mm. long; *cal.* bell-shaped, 4-5 mm. long, 4-lobed, the upper lobe rounded with 2 small teeth, the lateral triangular, the lower awl-shaped; *cor.* yellow; *standard* kidney-shaped, the apex slightly notched, about 1.5 cm. long, 1.5-1.8 cm. broad, with two *calli* at the base, *wings* about as long as the standard, the *keel* slightly shorter; *Pods* linear, sub-cylindrical, 4-6.5 cm. long, 6-7 mm. broad, shaggy, pubescent or glabrate; *seeds* black, about 5 mm. long.

Coastal thickets, Trinidad and Tobago.
 Tropics and sub-tropics.

27. CLITORIA L.

Erect *herbs* or slender-stemmed *vines*. *Lvs.* pinnately 3-foliolate, sometimes with 5-7 or 9 leaflets in *C. Ternatea* L. *Stipels* present. *Stipules* persistent, striate. *Fls.* large, 1 to several on axillary peduncles. *Bracteoles* large, veiny, less than half as long as the calyx. *Cal.* tubular, 5-toothed, the two upper teeth more or less united. *Pet.* : standard large, erect, roundish, notched at the apex, narrowed at the base, without appendages; *wings* sickle-shaped-oblong; *keel* acute, shorter than the wings. *Stam.* 10, all united into a sheath or the uppermost more or less free. *Ovary* stalked; *style* more or less horizontally dilated at the apex, hairy along the inner side. *Pod* compressed, linear or linear-oblong, 2-valved.

Lfts. 3.

Pods ribbed on either side appearing somewhat 4-angled.

Erect shrub; *lvs.* shortly-stalked....1. *C. laurifolia*.

Slender vine; *lvs.* fairly long-stalked...2. *C. rubiginosa*.

Pods not ribbed.....3. *C. arborescens*.

Lfts. 5, 7 or 9.....4. *C. Ternatea*.

1. *C. laurifolia* Poir.

C. cajanifolia Benth.: *Martusia laurifolia* (Poir.) Britton.

Gr. Fl. 192: Britt. & Wils. Sc. Surv. Porto Rico, 5. 412.

Erect *shrub*, 2-7 dm. high, perhaps more; *stems* pubescent; *lvs.* 3-foliolate; *petiole* 2-5 mm. long; *lfts.* oblong to lanceolate-oblong, roundish and notched at the apex, more or less wedge-shaped at the base, 4-10 cm. long, 11-22 mm. wide, glabrous above, woolly to sparingly pubescent and pale beneath; *stip.* triangular, acuminate, 4-6 mm. long; *pedu.* 5-30 mm. long, 1 or 2-flowered; *bracteoles* ovate, about 7 mm. long, hairy; *cal.* about 2 cm. long, including the ovate or ovate-lanceolate lobes, having long weak hairs; *cor.* not seen, purple to white, 5-6 cm. long; *pod* shortly-stalked, oblong, 2.5-5 cm. long, glabrous, with a longitudinal ridge on both sides, glabrous or pubescent along one side of the rib; *seeds* 5-8, ovoid-globose, sticky, about 5 mm. long.

Bellevue Estate, Oropuche, May 1865 and Oropuche Rd. to St. Joseph, July, 1865, Trinidad.

Cuba, Porto Rico, Hispaniola, Trop. South America.

2. *C. rubiginosa* Juss.

C. glycinoides DC.: *Martusia rubiginosa* (Juss.) Britt.

Gr. Fl. 192: Fawc. & Rendl. Fl. Jam. 4. 47-48: Britt. & Wils.

Sc. Surv. Porto Rico, 5. 411-412: Urb. Symb. Ant. 8. 301-302.

Stems slender, twining, shaggy; *lvs.* 3-foliolate, *petioles* 1-4 cm. long; *lfts.* ovate, elliptical or oblong, obtuse, rounded or acute

at the apex, rounded at the base, 2-6.5 cm. long, 1-3.5 cm. broad, glabrous above, pale beneath and more or less softly silky-pubescent; *infl.* shaggy, 1-3 fld.; *pedu.* 3-12 cm. long; *bracteoles* ovate, acute, 5-9 mm. long; *cal.* about 2-3 cm. long, the lobes lanceolate, acuminate; *fls.* white with purplish or crimson veins; *standard* 4-5 cm. long, pubescent; *pod* shortly-stalked, oblong, about 3 cm. long, with a longitudinal ridge on both sides, glabrous; *seeds* about 3-6, roundish, sticky.

Savannahs and waste places, Trinidad and Tobago.
West Indies, Panama and Trop. South America.

3. *C. arborescens* Ait.

C. Poitaei DC.

Gr. Fl. 192: Cont. U.S. Nat. Herbm. 27. 215.

Plant woody, erect or scandent, young *stems* rusty-woolly to glabrescent; *lfts.* 3, elliptical, shortly pointed at the apex, more or less wedge-shaped at the base, 11-13 cm. long, 5-6 cm. broad, glabrous or nearly so above, woolly beneath; *stipels* 5-9 mm. long; *infl.* rusty-pubescent; *fls.* pink, about 4 together, crowded at the tip of the peduncle; *bracteoles* ovate or ovate-lanceolate, 8-10 mm. long; *cal. tube* about 14 mm. long, the teeth ovate-triangular, 5-8 mm. long; *standard* pubescent, about 5 cm. long, 3-4.5 cm. broad, more or less densely pubescent on the back; *ovary* densely woolly; *mature pod* 20 cm. long, 2-2.2 cm. broad, thinly pilosulous or glabrescent with partitions between the flat seeds.

Lockhart in Herb. Kew: Herb. Trin. 2685, Prestoe, Las Cuevas, Trinidad.

St. Vincent. Panama to Guiana.

4. *C. Ternatea* L.

Gr. Fl. 192: Fawc. & Rendl. Fl. Jam. 4. 46-47: Britt. & Wils. Sc. Surv. Porto Rico, 5. 411.

Stem slender, twining, pubescent when young, becoming glabrate; *lfts.* usually 5, sometimes 7 or 9, elliptical or ovate, usually obtuse at the apex, obtuse or narrowed at the base, 2-5 cm. long, 1-2.8 cm. broad, minutely puberulous on both sides; *stip.* linear-lanceolate, acuminate, 5-8 mm. long; *fls.* solitary, blue or white; *pedu.* 3-8 mm. long; *bracteoles* roundish, 6-8 mm. long; *cal.* about 17 mm. long, the lobes lanceolate, glabrous or with few hairs; *standard* 4-5 cm. long; *pod* nearly sessile, oblong-linear, compressed, 6-10 cm. long, about 9 mm. wide, beaked, pubescent; *seeds* 3-9, somewhat kidney-shaped, flat, 5-6 mm. long. Double forms are known in cultivation.

More or less naturalized in Trinidad and Tobago.

Generally distributed in the tropics by cultivation. Native of the Old World tropics.

28. CRACCA Benth.

Herbs or sub-shrubby perennials. Lvs. imparipinnate with stipules and stipels; lfts. 5-numerous. Stip. awl-shaped. Fls. in axillary racemes. Bracteoles none. Cal. tube bell-shaped, lobes 5, subequal, setaceous-acuminate. Standard roundish or kidney-shaped, with reflexed margins. Stam. the upper free, the rest united into a sheath. Ovary sessile; ovules numerous; style rigid, incurved, longitudinally bearded above. Pod linear, compressed, 2-valved, hairy, conspicuously constricted between the seeds externally and with cross-partitions within. Seeds numerous.

1. *C. caribaea* (Jacq.) Benth.

Galega caribaea Jacq.

Galega pubescens Lam.

Benthamantha caribaea (Jacq.) Kuntze.

Gr. Fl. 183: N. Amer. Fl. 24, 245.

Erect shrub up to 2 m. high, stems slender, pubescent becoming glabrous; *stip.* 4-8 mm. long; *lfts.* numerous (5-25) mostly elliptical-oblong, rounded and mucronate at the apex, obtuse or more or less rounded at the base, 1-5.5 cm. long, 5-28 mm. broad, adpressed pubescent on both sides, more densely so beneath; *stipels* awl-shaped, 1-2.5 mm. long; *racemes* 3-6 cm. long, few-flowered; *fls.* yellowish with purple stripes; *cal.* silky-pubescent, 4-7 mm. long, the lobes longer than the tube; *cor.* 8-12 mm. long; *pod* 3-6 cm. long, 3 mm. broad, pubescent; *seeds* numerous, about 2 mm. long.

Chacachacare: Herb. Trin. 11843, Williams, Patos.

Hispaniola, Porto Rico, Lesser Antilles, Panama and Northern South America.

29. INDIGOFERA L.

Shrubby herbs or sub-shrubs. Lvs. pinnate with an odd terminal leaflet. Stip. and stipels small. Fls. white and purplish variegated, in axillary racemes. Cal. 5-lobed. Standard roundish; keel usually spurred on either side. Stam. 10, the upper one free, the rest united into a slender, persistent, split sheath; anths. apiculate. Style slender, glabrous. Pod linear, 4-angled or sub-cylindrical, 2-valved with partitions between the seeds.

I. tinctoria L. is the true Indigo which was formerly cultivated in the West Indies and other tropical countries. There is no record of its becoming naturalized in Trinidad or Tobago.

1. *I. suffruticosa* Mill. Wild Indigo.*I. anil* L.

Fawc. & Rendl. Fl. Jam. 4.16: Britt. & Wils. Sc. Surv. Porto Rico, 5.389.

Erect shrub 1-1.5 m. high, the stems densely whitish appressed-pubescent; *stip.* threadlike, 2.5-6 mm. long, stipels minute; *lfts.* 11-13, oblong or obovate-oblong, obtuse or somewhat acute and mucronate at the apex, narrowed at the base, 1-3 cm. long, 5-8 mm. broad, appressed-pubescent on both sides, especially beneath; *racemes* shorter than the leaves; *fls.* numerous, crowded; *cal.* 1.5-2 mm. long, appressed-pubescent, the lobes triangular; *cor.* 3.5-4.5 mm. long; *pod* sickle-shaped, 10-15 mm. long, 2 mm. broad, ridged along the margins, pubescent to glabrous, 3-8 seeded; *seeds* cylindrical or somewhat angled, 1.5-2 mm. long.

General in waste places, Trinidad and Tobago.

Bermuda to Cont. Trop. America. Africa and Asia (possibly introduced).

30. *GLIRICIDIA* H.B.K.

Trees or shrubs. *Lvs.* pinnate with an odd terminal leaflet; *lfts.* entire, opposite, without *stipels*. *Stip.* small. *Fls.* pink, in axillary or lateral racemes. *Cal.* bell-shaped, entire, or nearly so. *Standard* roundish, reflexed, clawed, with 2 lobes inside above the claw; *wings* oblong, free; *keel* curved, obtuse; *Stam.* 10, the upper free, the rest united into a tube split above. *Ovary* stalked; *ovules* numerous; *style* awl-shaped, bent inwards; *stig.* small, terminal. *Pod* flat, broadly linear, compressed, dehiscent, the margins somewhat thickened. *Seeds* about 3-6, flat, roundish.

1. *G. sepium* (Jacq.) Steud. Nicaraguan Cacao Shade.*G. maculata* Steud.*Robinia sepium* Jacq.

Fawc. & Rendl. Fl. Jam. 4. 22: Britt & Wils. Sc. Surv. Porto Rico, 5. 392.

Tree up to 15 m., young stems pubescent; *lfts.* 7-19, lanceolate, ovate or elliptical, usually obtusely acuminate at the apex, rounded to wedge-shaped at the base, 3-7 cm. long, 12-27 mm. broad, sparsely and minutely short-pubescent on both sides; *petiolules* 4-5 mm. long, pubescent; *racemes* 10-15 cm. long; *cal.* 5-6 mm. long, glabrous; *standard* recurved, 1.5-2 cm. long, deeply notched and incurved at the apex, lilac with a yellow centre within, whitish

outside, glabrous; *wings* lilac, about as long as the standard, the *keel* shorter; *ovary* reddish, glabrous; *pod* 10-20 cm. long, 1-2 cm. wide; *seeds* about 1 cm. long.

Cultivated as a shade tree in many West Indian Islands.
Native of Cent. America and Northern South America.

31. ABRUS L.

Slender, somewhat woody *vines*. *Lvs.* pinnate with a small bristle at the apex; *lfts.* opposite, numerous, entire, without *stipels*. *Fls.* rose or whitish, in clusters along axillary or terminal racemes. *Cal.* truncate or with very short teeth. *Cor.*; *standard* elliptical-ovate with a short broad claw; *wings* oblong, sickle-shaped; *keel* curved, larger than the wings. *Stam.* 9, united into a sheath, split above. *Ovary* sessile; *style* short, incurved, glabrous; *stig.* terminal. *Pod* compressed, 2-valved, with transverse, membranous partitions between the seeds.

1. **A. precatorius** L. Crabs Eyes. Jumbie Bead. Liquorice.
Gr. Fl. 190: Fawc. & Rendl. Fl. Jam. 4. 42-43.

Lvs. 5-13 cm. long; *lfts.* 10-20 pairs, oblong, or the upper ones broadened in the upper part, rounded at both ends and apiculate at the apex, 1-2 cm. long, 3-6 mm. broad, glabrous above, puberulous beneath; *petiolules* less than 1 mm. long; *stip.* awl-shaped, 3-5 mm. long; *racemes* 3.8 cm. long; *fls.* numerous, crowded; *cal.* about 3 mm. long; *cor.* flesh-coloured, 8-12 mm. long; *ovary* pubescent; *pod.* oblong, beaked, 2-3.5 cm. long, 1-1.5 cm. broad, short and thickly pubescent; *seeds* scarlet with a black base, ovoid or ellipsoid, 5-7 mm. long.

The seeds are used for ornamental bead-work, and the leaves as a remedy for coughs.

Hedges and thickets. Trinidad and Tobago.
Generally distributed in the Tropics.

32. COURSETIA DC.

Trees or *shrubs*. *Lvs.* abruptly pinnate with a terminal mucro; *lfts.* numerous, entire; *stipels* minute. *Stip.* awl-shaped. *Fls.* in axillary racemes. *Cal.* shortly, broadly and unequally 5-toothed. *Pet.* of about equal length; *standard* roundish; *wings* free from the keel; *keel petals* united on the back above;

stam. 10, the upper free or slightly united with the rest at the middle. *Ovary* sessile; *ovules* numerous; *style* curved, bearded on the inner side. *Pod* linear, compressed, 2-valved. *Seed* roundish or somewhat square.

1. *C. arborea* Griseb.

Gr. Fl. 183.

Small tree up to 14 m.; *lfts.* 10-22, ovate or ovate-oblong, narrowed to the obtuse apex, more or less rounded at the base, 2-6.5 cm. long, 8-23 mm. wide, glabrous above, minutely puberulous beneath, becoming glabrous; *racemes* yellowish-pubescent, shorter than the leaves; *fls.* 5-numerous; *pedi.* about 12 mm. long; *cal.* pubescent, 4-5 mm. long, the teeth triangular; *standard* white with a yellow blotch, 14-16 mm. long and broad, glabrous; *keel* shortly sickle-shaped, lilac-coloured; *pod* 8-17 cm. long, 7-11 mm. broad; *seeds* about 8 mm. long and 5 mm. broad.

Thickets and woodlands in dry and moist districts and Bocas Islands, Trinidad.

Venezuela. Guiana.

33. SESBANIA Pers.

Herbs or *shrubs*. *Lvs.* pinnate without an odd terminal leaflet; *lfts.* in pairs, numerous, entire. *Stipels* minute or none. *Fls.* in axillary, lax racemes. *Cal.* bell-shaped, 5-toothed. *Standard* roundish or ovate; *wings* oblong-sickle-shaped; *keel* obtuse. *Stam.* 10, the upper free, the rest united into a sheath; *anths.* uniform or the alternate a little longer. *Ovary* usually stalked; *ovules* numerous; *style* glabrous. *Pod* long-linear, compressed, 2-valved or sometimes scarcely opening and with transverse partitions between the seeds.

S. grandiflora (L.) Pers. and *S. Sesban* (L.) Merril are both natives of the Old World Tropics; both are known under cultivation.

Lvs. glabrous.

Lfts. 10-20 pairs.....1. *S. emerus*.

Lfts. 25-50 pairs.....2. *S. exasperata*.

Lvs. pubescent beneath.....3. *S. sericea*.

1. *S. emerus* (Aubl.) Urb.

Aeschynomene emerus Aubl.

Sesbania occidentalis (Willd.) Pers.

S. picta Lindl. Bot. Reg. t. 873.

Gr. Fl. 184: Fedde Rep., 16 (1919). 149: Britt & Wils.

Sc. Surv. Porto Rico, 5. 395.

Shrub, 2-3 m. high, glabrous or sparingly pubescent above when young; *lvs.* 1-2 dm. long; *lfts.* 10-20 pairs, linear-oblong,

obtuse at both ends, mucronate at the apex, 1.5-2.5 cm. long; *racemes* shorter than the leaves, few to several-flowered; *pedi.* slender, 8-12 mm. long; *cal.* broadly companulate, 6-7 mm. long, its triangular teeth very acute; *cor.* about 2 cm. long; *standard* yellow, purple-dotted; *pod* 1.5-2.5 dm. long, 2-3 mm. wide, biconvex, slightly constricted between the seeds when young.—(Descr. ex. Britton & Wils.)

Not seen (Lockhart *vide* Bot. Reg. *loc. cit.*), Trinidad. Not otherwise known from Trinidad.

Porto Rico, Cuba, Bahamas, Hispaniola, Guadeloupe and Panama.

2. *S. exasperata* H.B.K.

Gr. Fl. 184: Fawc. & Rendl. Fl. Jam. 4.23-24.

Herb or *under-shrub*, 1-2.6 m., glabrous, *branches* angular, generally without any prickles but sometimes rough; *lvs.* 2-3 dm. long; *lfts.* 25-50 pairs, oblong-linear, irritable, mucronate, 1.5-2.5 cm. long, 3-6 mm. broad; *infl.* 4-6-fld., 8-12 cm. long; *fls.* 2-2.4 cm. long; *cal. tube* 4-5 mm. long, teeth 2-3 mm. long; *standard* 2-2.5 cm. long; *wings* oblong, equalling the standard; *pod* 20-25 cm. long, compressed, only slightly or not cylindrical and swollen at intervals, long beaked.

Crueger in Herb. Kew, Trinidad.

Jamaica and Trop. Cont. America.

3. *S. sericea* (Willd.) DC.

Coronilla sericea Willd.

Slender shrub, 1-3 m. high, silky-pubescent; *lvs.* 1-2.5 dm long; *lfts.* 12-25 pairs, oblong-linear, obtuse and mucronate at the apex, more or less obtuse at the base, 1.5-3 cm. long, 4-7 mm. broad, glabrous or nearly so above, silky beneath; *racemes* few-flowered, much shorter than the leaves; *pedi.* thread-like; *cal. tube* 3-4 mm. long, teeth triangular, about 1 mm. long; *cor.* yellow, spotted brown or purple, about 1 cm. long; *pod* 1-2 dm. long, about 3 mm. broad, the apex pointed; *seeds* brown, about 3 mm. long and 2 mm. broad.

Roadsides. Claxton's Bay and near Port-of-Spain, Trinidad.

Jamaica, Bahamas, Hispaniola, Porto Rico, St. Thomas, St. Croix, Antigua, Guadeloupe and Martinique.

34. *ANDIRA* Lam.

Trees. *Lvs.* alternate, pinnate with an odd terminal leaflet; *lfts.* opposite. *Fls.* purplish, in terminal panicles or the panicles arising from the axils of the uppermost leaves. *Cal.* shortly

5-toothed. *Pet.*: standard roundish, without appendages; *wings* and *keel* nearly alike; *keel* petals not united. *Stam.* 10, the upper free, the rest united into a sheath split on the upper side; *anths.* versatile. *Stig.* small, terminal. *Pod* globose to obovoid, drupe-like, indehiscent. *Seed* 1, pendulous.

Lfts. pointed.....1. *A. inermis*.

Lfts. mostly retuse.....2. *A. retusa*.

1. *A. inermis* H.B.K. Angelin.

Geoffraea jamaicensis W. Wright.

Andira jamaicensis Urb.

Griseb. Fl. 202: Fawc. & Rendl. Fl. Jam. 4. 84-86: Urb.

Symb. Ant. 4. 298.

Tree up to 20 m.; *lfts.* 7-13, oblong to oblong-lanceolate or obovate-oblong, acute or shortly acuminate at the apex, more or less wedge-shaped at the base, 5-13 cm. long, 2.5-5 cm. broad, glabrous; *stipels* awl-shaped, deciduous, 3-5 mm. long; *stip.* linear, deciduous, 5-10 mm. long; *panicles* showy, up to 3 dm. long, many-flowered; *cal.* pubescent, 4-5 mm. long; *pet.* glabrous, *standard* notched, 12-15 mm. long, 1 cm. broad, pink to purplish; *wings* and *keel* pinkish about as long as the standard; *ovary* glabrous, hairy on the lower margin; *pod* ellipsoidal, about 3.5 cm. long, fleshy outside, woody within.

Forests and hillsides in wet or moist districts, Trinidad and Tobago. West Indies, Trop. Cont. America. West Africa.

2. *A. retusa* H.B.K.

Griseb. Fl. 202-203.

Tree 15 m.; *lfts.* usually 9, oblong or obovate-oblong, rounded and retuse or mucronate at the apex, usually rounded at the base, 3.5-10 cm. long, 2-5.5 cm. broad, glabrous above or puberulous when young, minutely puberulous beneath; *racemes* up to 17 cm. long, rusty-pubescent; *cal.* bell-shaped, 3-4 mm. long, the short teeth triangular; *fls.* in large panicles with a dark brown tomentellous indumentum; *cal.* 5-6 mm. long with short triangular lobes; *cor.* violet, about 18 mm. long, glabrous; *ovary* glabrous or with very few hairs, the *stipe* slightly exceeding the calyx; (*pod* very large, irregular, corky ex Griseb).

Forests in moist districts, Valencia and Piarcó, Trinidad. Guiana and Brazil.

35. GEOFFRAEA L.

Tree. *Lvs.* alternate with an odd terminal leaflet; *lfts.* usually alternate. *Fls.* yellow, often foetid, in simple racemes. *Cal.* unequally and deeply 5-toothed, the tube top-shaped. *Pet.*: standard roundish, without appendages; *wings* and *keel* nearly alike; *keel petals* not united. *Stam.* the upper free or united with the rest into a split tube; *anths.* versatile. *Ovary* sessile or shortly stalked with 3-4 ovules; *style* incurved; *stig.* small, terminal. *Pod* drupaceous, ovoid, indehiscent. *Seed* one.

1. *G. Sieberi* Benth.

Griseb. Fl. 203.

Lfts. 8-11, oval or oblong, obtuse or retuse at the apex, 4.5 cm. long, 2.5-3.2 cm. broad, glabrous, pale beneath; *racemes* woolly; *fls.* about 22 mm. long; *standard* glabrous; *ovary* shortly-stalked, pubescent.

Not seen. Sieber 313 (ex Griseb.) not otherwise known from Trinidad or elsewhere.

36. MACHAERIUM Pers.

Prickly *trees* or climbing *shrubs*. *Lvs.* pinnate with many *lfts.* and an odd terminal one; *lfts.* alternate, without *stipels*. *Fls.* in compound axillary or terminal panicles. *Pedi.* very short. *Bracts* deciduous. *Bracteoles* 2, persistent at the base of the calyx and sometimes partly enveloping it. *Cal.* shortly and unequally 5-toothed. *Pet.*: *standard* broadly ovate or rounded; *wings* oblong, usually sickle-shaped; *keel* incurved. *Stam.* 10, all united in a sheath open on the upper or on both sides, sometimes the vexillar stamen free. *Ovary* stalked. *Pod* samara-like, oblong, indehiscent, with one seed at the base, produced at the top into a long wing, which is net-veined, and thickened on the lower edge.

Small tree; standard glabrous.....1. *M. robinifolium*.

Climbing shrub; standard pubescent.....2. *M. tobagense*.

1. *M. robinifolium* (DC.) Vogel. Salt Fish Wood.

Nissolia robinifolia DC.

Griseb. Fl. 201.

Low prickly *tree*; young *branches* densely pubescent; *stipular spines* 5-9 mm. long, broadened at the base, the margins incurved; *lfts.* 19-31, oblong, usually broadened and rounded at the base,

retuse at the apex, 1.5-3.5 cm. long, up to 14 mm. broad, glabrous or minutely pubescent beneath; *panicles* rusty-pubescent; *bracteoles* pubescent, about 1 mm. long; *cal.* densely rusty-pubescent, 3 mm. long; *standard* glabrous, about 9 mm. long; *staminal sheath* split on both sides; *ovary* densely shaggy, curved, long stalked; *pod* bent below the wing, 4-5 cm. long, finely pubescent.

2. *M. tobagense* Urb.

M. angustifolium Griseb. Fl. p. 201, not of Vogel.

Fedde Repert. 15. 315.

Climbing shrub, young *branches* densely pubescent, and with sparse yellow bristles at the tops; *stip.* broadly lanceolate, the margin recurved, the apex spinescent, 7-9 mm. long; *lvs.* 12-20 cm. long; *petioles* 1.5-2.5 cm. long, densely pubescent as is also the *rhachis*; *lfts.* 31-71, oblong-linear, rounded at both ends and retuse at the apex, 1-3 cm. long, 4-7.5 mm. wide, papery, puberulous or glabrescent; *infl.* paniculate-corymbose, about 25 cm. long; *rhachis* shortly pubescent, the apex developed into a head united by broadly ovate, spinescent, acuminate scales, 5-9 mm. long, densely nerved longitudinally; *rhachis* shortly pubescent, sometimes with yellow bristles also below the head; *bracteoles* ovate-orbicular, covering two-thirds of the calyx, glabrous or nearly so, 3.5-4 mm. long; *cal.* 5.5 mm. long, sparsely pilose; *cor.* pale lilac; *standard* about 8 mm. long, broadly ovate, contracted at the base into a claw 1 mm. long, adpressed pubescent outside; *wings* and *keel* slightly shorter and abruptly clawed; *staminal sheath* split on both sides; *ovary* densely pubescent; *style* short; *pod* including the wing 5.5-6 cm. long and 13-15 mm. broad, nearly straight, somewhat broadened above, glabrous or nearly so.

Hillsides and forests in moist and dry districts, Monos, Chacachacare, Trinidad.

St. Vincent.

No Tobago material seen but the Trinidad specimens agree with Urban's description.

Climbing on trees in wet or moist districts. Trinidad and Tobago. Endemic.

37. *DREPANOCARPUS* Meyer.

Climbing shrubs or trees. *Lvs.* pinnate with an odd terminal leaflet; *lfts.* mostly alternate, without *stipels*. *Stip.* spiny, recurved. *Fls.* purple to white, in terminal or axillary panicles or racemes; *Bracts* small; *Bracteoles* roundish, persistent. *Cal.* minutely 5-toothed. *Cor.* : *standard* roundish or broadly ovate;

wings more or less oblong; *keel* incurved, its petals united on the back. *Stam.* in one or two bundles, the sheath variously divided; *anths.* longitudinally dehiscent. *Ovary* shortly stalked; *ovules* 1 or 2; *style* thread-like, incurved; *stig.* terminal. *Pod* leathery, compressed, curved into a circle, or broadly falcate. *Seeds* 1, flat, kidney-shaped.

1. *D. lunatus* Mey.

Griseb. Fl. 201: Urb. Symb. Ant. 8. 298: Britt. and Wils. Sc. Surv. Porto Rico, 5. 406-407.

Branches slender, probably climbing; *lfts.* 5-11, oblong or oblanceolate, rounded at the apex, often shallowly notched or minutely apiculate, somewhat narrowed at the base, 2-4.5 cm. long, 8-20 mm. broad, glabrous on both sides, papery; *petiolules* 2-3 mm. long; *petioles* slender, 1-2 cm. long; *stipular spines* recurved, 4-10 mm. long; *panicles* 6-15 cm. long, many-flowered; *pedi.* about 2 mm. long; *bracteoles* about 1 mm. long; *cal.* 4-5 mm. long, obtuse at the base; *cor.* purplish or lilac-coloured, 7-9 mm. long; *standard* silky outside or sometimes glabrous; *pod* curved into a circle, 2-4.5 cm. broad, glabrous, veiny.

Herb. Trin. 2825, Finlay: 7589, Broadway, Moruga: Britton and Broadway, March, 1921, Moruga. The last named collection has the standard completely glabrous, but can hardly be distinguished as a variety as an examination of Para specimens shows that this is a variable character.

Wet grounds, southern districts along the coast, Trinidad and Tobago.

Cont. Trop. America and Trop. coast of Western Africa.

38. DALBERGIA L.

Trees or trailing or twining shrubs. *Lvs.* alternate; *lfts.* 1 or 3-5, alternate, without *stipels*. *Fls.* in axillary panicles. *Cal.* of 5 unequal segments. *Standard* obovate or roundish. *Stam.* 10, all united into a sheath split on the upper side, sometimes also on the lower side, or the upper stamen free or wanting; *anths.* small, in pairs, opening by a chink at the apex. *Ovary* stalked; *stig.* small, terminal; *ovules* 2 or few. *Pod* indehiscent, oblong or roundish, flat, thin. *Seeds* 1-4.

Lfts. one 1. *D. Ecastaphyllum*.

Lfts. 3-5 2. *D. monetaria*.

1. *D. Ecastaphyllum* Taub.

Ecastaphyllum Brownei Pers.

Griseb. Fl. 202: Fawc. and Rendl. Fl. Jam. 4. 77-78: Urb. Symb. Ant. 8. 297.

Shrub 3-4 m., the *branches* trailing; *lfts.* one, ovate, elliptical or elliptical-oblong, the apex shortly and obtusely acuminate, the base rounded, 4-12 cm. long, 2-7.5 cm. broad, puberulous beneath with fine adpressed down, especially when young; *panicles* about 2 cm. long, many-flowered; *fls.* white, fragrant; *cal.* 3-3.5 mm. long, woolly, the 2 upper segments broad, obtuse, the 3 others triangular; *standard* roundish, sometimes notched at the apex, 7-8 mm. long; *wings* oblong, 8-9 mm. long; *keel* about 6 mm.; *stam.* 10, in two bundles; *ovary* stalked, the stalk longer than the calyx; *pod* oblique, roundish, 2-3 cm. long, puberulous, the stalk about 3 mm. long; *seed* 1.

Coastal thickets and saline river-banks, Trinidad and Tobago.

Florida, West Indies, Cent. and S. America, Western Trop. Africa.

2. *D. monetaria* L.

Ecastaphyllum monetaria DC.

Griseb. Fl. 202; Fawc. and Rendl. Fl. Jam. 4. 78: Urb.

Symb. Ant. 8. 297.

Shrub or *tree* with twining branches; *lfts.* 3-5, sometimes 2, elliptical to roundish-elliptical, abruptly acuminate at the apex, rounded at the base, 5-13 cm. long, 3-8.5 cm. broad, glabrous or minutely puberulous beneath; *panicles* contracted, about 1.5 cm. long, somewhat corymbose; *cal.* about 3 mm. long, puberulous, the segments acute, the two upper broader; *pet.* of nearly equal length, about 6 mm.; *standard* roundish, the blade and claw of equal length; *wings* elliptical-oblong, eared, long-clawed; *stam.* 9, in 2 bundles of 4 and 5, 1 of the five more or less free; *ovary* stalk longer than the calyx; *pod* oval-roundish, often saucer-shaped when mature, 2.5-3.5 cm. long, glabrous, the stalk 5-6 mm. long; *seed* 1.

River Banks, Trinidad.

West Indies. South America.

39. *PTEROCARPUS* L.

Trees. *Lvs.* alternate, pinnate with an odd terminal leaflet; *lfts.* alternate or irregularly opposite, without *stipels*. *Fls.* numerous, yellow, in axillary panicles or racemes. *Bracts* and *bracteoles* small, caducous. *Cal.* top-shaped, unequally 5-toothed. *Pet.*: *standard* roundish; *wings* obliquely obovate; *keel* petals shortly connected. *Stam.* 10, all united into a sheath, split on the upper side, or on both sides, or the upper stamen more or less free; *anths.* versatile. *Stig.* small, terminal. *Pod* roundish, compressed, more or less winged on the margin, indehiscent. *Seeds* 1 or 2 in the centre of the pod.

P. indicus L. is cultivated in Gardens and Squares in Port-of-Spain.

Cal. rusty-woolly1. *P. Rohrii*.

Cal. glabrous2. *P. officinalis*.

1. *P. Rohrii* Vahl. Bloodwood.

Griseb. Fl. 201: Aubl. t. 147 f. 56.

Tree about 15-20 m. with blood-coloured resin; *lfts.* oblong, elliptical-oblong or obovate-oblong, obtusely acuminate at the apex, rounded or broadly wedge-shaped at the base, 5-14 cm. long, 3-5.5 cm. broad, very minutely pubescent beneath, the hairs only discernible under a lens, glabrous above; *cal.* about 8 mm. long, densely rusty-woolly; *standard* about 2 cm. long and broad, narrowed into the claw; *wings* nearly as long, the *keel* shorter; *wings* and *keel* distinctly clawed; *pod* sessile, suborbicular, 5-9 cm. diam., flat and veiny, broadly winged around the margin.

Herb. Trin. 448, Crueger, Caroni: Herb. Trin. 8488, Broadway, Cedros: Herb. Trin. 12159, Williams, Royal Botanic Gardens (wild); Fendler 305 in Kew Herb.

Forests in wet or moist districts, Trinidad.

St. Vincent, Venezuela, Guiana, Equatorial Brazil.

2. *P. officinalis* Jacq. Bloodwood. Dragon's Blood.

P. Draco L.

Jacq. Sel. Stirp. Amer. 283. t. 183. f. 92: Griseb. Fl. 201: Fawc. and Rendl. Fl. Jam. 4. 79-80.

Tree up to 30 m. with blood-coloured resin, glabrous except the minutely pubescent inflorescence; *lfts.* 5-9, ovate, ovate-oblong, elliptical or elliptical-oblong, the apex acuminate, the base rounded or obtuse, 5-12 cm. long, 2.5-6 cm. broad, shining; *panicles* lax, 5-20 cm. long; *pedj.* 2-4 mm. long; *cal.* about 5 mm. long, the teeth short and broad, glabrous or very minutely puberulous; *standard* 10-15 mm. long; *wings* nearly as long; *keel* shorter; *pod* shortly stalked, very obliquely suborbicular, 3-5 cm. diam., broadly winged on one side, veined; *seeds* 1.

Forests in wet or moist districts, Trinidad.

West Indies, Continental Tropical America.

40. ICHTHYOMETHIA P. Br.

Tree. *Lvs.* alternate, pinnate with an odd terminal leaflet; *lfts.* 7-11, opposite, without *stipels*. *Fls.* in panicles. *Cal. teeth* 5, broad, short, the two upper partly united. *Pet.*: *standard* roundish, notched; *wings* sickle-shaped-oblong, adhering to the keel, long-clawed; *keel* obtuse, united on the back, long-clawed.

Stam. 10, the upper one free at the base, united above with the rest into a closed tube; *anths.* versatile. *Style* thread-like, incurved; *stig.* small, terminal. *Pod.* stalked, linear-compressed, indehiscent, with 4, broad, longitudinal, membranous wings which are slightly constricted between the seeds. *Seeds* 3-7.

1. *I. acuminata* Blake. Black Mahoe.

Journ. Wash. Acad. Sc. 9. 249.

Tree; *lfts.* 7-11, elliptical to obovate-elliptical, the apex rounded, obtuse or very shortly acuminate and mucronate, the base rounded or obtusely wedge-shaped, 4-15.5 cm. long, up to 7 cm. broad, puberulous or glabrous above, greyish and minutely puberulous beneath; *panicles* 10-30 cm. long; *cal.* 5-6 mm. long, densely pubescent; *standard* 12 mm. long including the claw, 12 mm. broad, silky outside; *ovary* densely pubescent; *pod* up to 8.5 cm. long, its *wings* much wider than the body, minutely pubescent or puberulous, the *stipe* very conspicuous, more than twice as long as the calyx.

Herb. Trin. 11095, Williams, Charlotteville: Broadway, June, 1914 and Herb. Trin. 11910, Marshall, Tobago.

Porto Rico and Lesser Antilles.

41. *PLATYMISCIUM* Vogel.

Tree. *Lvs.* opposite, pinnate with an odd terminal leaflet, glabrous; *lfts.* opposite, without *stipels*. *Stip.* caducous. *Fls.* yellow, in axillary racemes, the *racemes* branched near the base. *Bracts* and *bracteoles* small. *Pedi.* jointed at the top. *Cal.* shortly 5-toothed. *Pet.*: *standard* roundish, without appendages; *wings* obliquely oblong; *keel* straight or slightly incurved, the petals united on the back at the apex. *Stam.* 10, united into a split tube, rarely the upper stamen free. *Ovary* long-stalked, with one ovule; *style* thread-like, incurved; *stig.* small, terminal. *Pod.* oblong, compressed, thin and membranous, or almost wing-like around the seed.

1. *P. trinitatis* Benth. Roble.

P. polystachyum Griseb. (sphalm. *platystachyum*) in part.
Griseb. Fl. 200-201.

Tree up to 30 m. high and 1 m. diam.; *lfts.* 3-5, elliptical, obtuse at the apex, rounded to wedge-shaped at the base; 2.5-12 cm. long, 1.5-6.7 cm. broad; *petiolules* 5-8 mm. long; *petioles* 9 cm. or less; *racemes* yellowish-pubescent; *pedi.* 3-5 mm. long; *cal.* finely pubescent, 6 mm. long; *cor.* about 16 mm. long, the petals clawed; *standard* very minutely puberulous outside;

keel and *wings* deeply eared below, the keel puberulous on the back margin at about the middle; *pod* oblong, more or less rounded at both ends, 5-8 cm. long, about 3 cm. broad, glabrous.

The wood is reddish-brown, hard and durable, used for cabinet work, furniture, and outdoor constructional work.

Forests in moist or wet districts, Trinidad.

St. Vincent.

42. LONCHOCARPUS H.B.K.

Trees or *shrubs*. *Lvs.* pinnate with an odd terminal leaflet; *lfts.* opposite, having *stipels*. *Stip.* rudimentary or caducous. *Fls.* pink or purplish on a simple or branched raceme. *Bracts* and *bracteoles* small, roundish, ovate or linear, early deciduous. *Cal.* cup-shaped, truncate or toothed. *Standard* usually roundish, narrowed, eared or thickened at the base, rounded and notched at the apex; *wings* obliquely-oblong to sickle-shaped, adhering to the keel above the claw; *keel* obtuse, more or less sickle-shaped, joined by the keel margin. *Stam.* in one bundle, the staminal tube open above at the base, the basal opening divided by the free base of the upper stamen. *Ovary* sessile or stalked; *ovules* 2-9; *style* slender, curved or bent; *stig.* small. *Pod* broadly ovate to narrowly elongate, flattened, membranous or leathery. *Seeds* usually 1-4, flat, kidney-shaped.

Lfts. with transparent dots1. *L. punctatus*.

Lfts. without transparent dots.

Pod leathery2. *L. sericeus*.

Pod thin, papery3. *L. latifolius*.

1. *L. punctatus* H.B.K.

L. violaceus of Griseb. and *L. caribaeus* Urb. as to the Trinidad plant.

Pittier in Cont. U.S.A. Nat. Herb. 20. 88 (1917): Fedde. Rep. 17. 156 (1921).

Shrub or small *tree*; *lfts.* usually 7, sometimes 5 or 9, ovate, ovate-oblong, or ovate-elliptical, obtusely acuminate at the apex, the base rounded or obtuse, 3-10 cm. long, 1.5-4.5 cm. broad, papery, densely pellucid-dotted, glabrous; *petiolules* 4-7 mm. long; *fls.* many, borne in pairs on axillary racemes 7-16 cm. long; *pedi.* slender, 5-8 mm. long from the fork, glabrous; *bracteoles* roundish, fringed; *cal.* 4-5 mm. long, truncate or wavy at the apex, glabrous except on the margin which is slightly puberulous; *cor.* pale purple or pinkish, glandular-dotted; *standard* roundish, 10-15 mm. long,

12-20 mm. broad, the apex roundish, deeply notched, eared on both sides at the base and with a claw about 1.5 mm. long, marked at the base with a dark purple spot, glabrous on the back except at the base of the median line where it is puberulous, puberulous within more especially on the median line; *wings* 12-15 mm. long including the claw which is about 4 mm. long; *keel* about as long as the wings, the apex rounded, pubescent along the lower margin; *anths.* ovate; *ovary* sessile, linear, densely and minutely pubescent; *style* puberulous at the base, elsewhere glabrous except for a few hairs on the lower margin; *pod* shortly stalked, broadly linear to oblong-roundish, 1-seeded or more rarely 2-3-seeded, the apex abruptly acuminate, up to 13 cm. long and 2.5 cm. broad, glabrous or puberulous at the base, thin and parchment-like; *seeds* kidney-shaped, about 15 mm. long, and 8-10 mm. broad, dark brown.

Hillsides, north-western coastal districts, Gasperee, Monos, Chacachacare and Patos.

Margarita and Venezuela.

2. *L. sericeus* (Poir.) H.B.K. Savonette.

Cont. U.S.A. Nat. Herb. 20. 83-84 (1917).

Tree up to 20 m.; *lvs.* with usually 7-9 lfts., densely pubescent when young, becoming more or less glabrous; *lfts.* ovate, obovate or oblong, rounded, obtuse, or shortly obtuse-acuminate at the apex, rounded at the base, up to 11 cm. long and 7 cm. broad, minutely puberulous above at first, becoming glabrous, minutely pubescent beneath especially on the veins, leathery; *racemes* solitary in the axils of the upper leaves, 9-24 cm. long, densely pubescent; *bracteoles* roundish, minute; *cal.* cup-shaped, 3-5 mm. long, minutely silky-pubescent outside, truncate or barely toothed; *standard* deep pink or purplish, greenish-white in the centre, roundish, the margin deeply notched, about 11 mm. long, 12-14 mm. broad, densely silky-pubescent outside and at the base within; *wings* purplish, oblong, clawed, 12-15 mm. long, including the claw, 4-5 mm. broad; *keel* petals purplish with white silky pubescence, oblong, clawed, the apex obtuse, 12 mm. long including the claw, 3 mm. broad; *ovary* sessile, densely hairy; *style* hairy at the base only; *pod* with 1-5 seeds, obliquely ovate to oblong, acute at the apex, narrowed at the base, constricted between the seeds, 5-12 cm. long, 2-3 cm. broad; *seeds* oblong-kidney-shaped, 12-14 mm. long, 7 mm. broad, dark brown with a white *hilum*.

Hillsides, Trinidad.

West Indies to Mexico, Southern Trop. America.

L. s. var. glabrescens Benth.

L. domingensis (Pers.) DC.

A variety native of the West Indies, recorded by Urban (Symb. Ant. 8. 299) from Tobago and Trinidad but only known to us from cultivated trees in Trinidad. It differs in the glabrous or glabrescent lower surface of the leaflets.

3. **L. latifolius** (Willd.) H.B.K. Savonette Jaune.
Britt. and Wils. Sc. Surv. Porto Rico, 5. 408.

Tree up to 20 m.; *lvs.* with 5-9 lfts.; *lfts.* elliptical to oblong, abruptly and obtusely acuminate at the apex, narrowed or rounded at the base, up to 23 cm. long and 10 cm. broad, leathery, glabrous above or puberulous when young, finely pubescent beneath; *stip* minute, falling early; *fls.* numerous, in simple or branched racemes, solitary in the axils of the upper leaves, the *rhachis* pubescent; *cal.* about 3 mm. long, minutely pubescent, distinctly 5-toothed; *cor.* purplish; *standard* roundish, slightly notched at the apex, the blade about 6 mm. long and 8 mm. broad, pubescent outside, the claw 1-1.5 mm. long; *wings* and *keel* puberulous; *staminal tube* glabrous; *ovary* sessile, linear, minutely pubescent; *pod* lanceolate, narrowed at both ends, apiculate at the apex, submembranous, finely pubescent or at length glabrous; the margins not thickened, up to 6.5 cm. long and 2.5 cm. broad, usually 1- or 2-seeded.

Forests, Trinidad.

West Indies, Cont. Trop. America.

43. MUELLERA L.

Trees. *Lvs.* alternate, pinnate with an odd terminal leaflet; *lfts.* opposite, without *stipels*. *Fls.* in axillary racemes, often branched below. *Bracts* and *bracteoles* minute. *Cal.* teeth very short or wanting. *Pet.*: *standard* broadly ovate or rounded, without ears; *wings* oblong or sickle-shaped, slightly joined to the keel; *keel* incurved, obtuse. *Stam.* the uppermost free at the base, soon joined with the others into a closed tube; *anths.* versatile, shortly pointed. *Ovary* subsessile; *ovules* numerous; *style* filiform; *stig.* small, terminal. *Pod* thick, fleshy or corky, indehiscent, subcylindrical, constricted between the seeds, or one-seeded by abortion.

1. **M. moniliformis L. fil.**

Coublandia frutescens Aubl.

Aubl. t. 356: Griseb. Fl. 200.

Lvs. about 18 cm. long, glabrous, *petioles* 4.5-6 cm. long; *lfts.* 5, ovate or elliptical, the apex more or less acuminate, the base rounded to wedge-shaped, 7-10.5 cm. long, 3-4.5 cm. broad,

membranous, with very minute inconspicuous hairs or glabrescent and with inconspicuous, scattered, pellucid dots; *petiolules* 4-5 mm. long; *fls.* usually in pairs on the inflorescence; *cal.* puberulous or pubescent, about 5 mm. long, the teeth minute, distant; *standard* and *wings* about 16 mm. long, *keel* slightly shorter, glabrous; *pod.* moniliform (necklace-like), many seeded, constricted between the joints or 1-seeded by abortion; *mature joints* subglobose, about 2.5 cm. diameter.

Herb. Kew, Cruieger, Irois : Herb. Trin. McLean, Arima, Trinidad. St. Vincent, Nicaragua, Panama, Guiana and Brazil.

SUB-FAMILY 2. CAESALPINIEAE.

Lvs. pinnate with 2-numerous leaflets, compoundly pinnate, or sometimes with 2 leaflets united, e.g., *Bauhinia*. *Fls.* irregular, rarely regular. *Sep.* usually 5, imbricate, often spathe-like in *Bauhinia*. *Pet.* usually 5, imbricate, rarely less or none, the upper petal inside and enclosed by the others in the bud. *Stam.* 10, or sometimes fewer, rarely numerous, sometimes some reduced to *staminodes*; *fil.* distinct or more or less united. *Fruit* usually dehiscent at the valves, sometimes indehiscent.

The introduced members of this sub-family include many beautiful flowering trees notable amongst which are *Poinciana regia* Boj., *Amherstia nobilis* Wall., *Colvillea racemosa* Boj., *Saraca indica* L., *Peltophorum ferrugineum* Benth. and *Peltophorum brasiliense* Urb.

The Tamarind, *Tamarindus indicus* L. the pods of which make a refreshing drink is not very common, and *Eperua falcata* Aubl. the South American Wallaba, *Cynometra trinilensis* Oliver, described from a tree in the Royal Botanic Gardens, *Cynometra grandiflora* A. Gray, *Detarium senegalense* Gmel., *Eperua Jenmani* Oliver, and *Priora copaifera* Griseb. are scarcely grown except in the Government collections.

Grisebach records *Parkinsonia aculeata* L. "in fences" but this is no longer known in Trinidad.

Lvs. compoundly pinnate44. *Caesalpinia*.

Lvs. simply pinnate.

Pods splitting at the middle of the valves, not on the margin45. *Haematoxylon*.

Pods splitting on one or both sides or indehiscent.

Anths. basifixed 46. *Cassia*.

Anths. versatile.

- Lfts. 2 joined together or sometimes more or less free in
B. cumanensis47. *Bauhinia*.
- Lfts. 2 or more free from each other.
 Bracteoles conspicuous and persistent.
 Infl. densely rosette-like.....48. *Brownea*.
 Infl. loosely racemose49. *Macrolobium*.
 Bracteoles small or shedding early.
 Lvs. with one pair of leaflets.
 Legume flat, dehiscent50. *Peltogyne*.
 Legume sub-cylindrical, indehiscent.51. *Hymenaea*.
 Lvs. with more than 1 pair of leaflets.
 Pet. none.
 Fls. in simple, cylindrical racemes52. *Crudia*.
 Fls. in compound loosely branched spikes53. *Copaifera*.
 Pet. 5, fls. sessile, in dense cylindrical spikes branching near the base.....54. *Mora*.

44. CAESALPINIA L.

Shrubs or *trees*, sometimes climbing, armed or unarmed. *Lvs.* compoundly pinnate. *Fls.* in axillary racemes or paniculate at the ends of the branches. *Cal.* 5-parted, imbricate, united into a tube at the base. *Pet.* 5, imbricate, more or less unequal. *Stam.* 10, free; *anths.* versatile, longitudinally dehiscent. *Ovules* few. *Pod* mostly oblong, straight, curled or twisted, 2-valved or indehiscent.

C. pulcherrima Sw. known as Barbados Pride or Flower Fence, is largely grown in gardens. There are yellow and reddish-orange varieties.

C. paucijuga Benth ex Oliver was described from a cultivated tree in the Royal Botanic Gardens, and is not known to be native.

Climbing prickly shrub1. *C. bonducella*.

Small tree without prickles2. *C. coriaria*.

1. *C. bonducella* (L.) Flem. Grey Nickar. Bonduc.

Guilandina bonducella L.

Griseb. Fl. 204: Fawc. and Rendl. Fl. Jam. 4. 93-94.

Prickly climbing shrub; stems puberulous and with scattered prickles; *stip.* 2 or 3, leaf-like; *lvs.* 3-6 dm. long with recurved prickles on the pubescent rhachis; *pinnae* about 6-8 pairs; *lfts.* 5-8 pairs with two recurved prickles at the base of each pair, ovate or oblong-elliptical, usually obtuse and with a bristle at the apex, the base rounded, 2-5 cm. long, 12-22 mm. broad, puberulous principally on the mid-rib and margin; *fls.* yellow, numerous, on slender rather densely-flowered racemes 1-1.5 dm. or more long; *bracts* linear-lanceolate, 6-12 mm. long, extending beyond the buds; *cal.* 7-8 mm. long, yellowish rusty-woolly, the lobes longer than the tube; *pet.* oblong, longer than the sepals, the upper one broader and shorter than the rest; *stam.* slightly shorter than the petals; *pod* bright orange-brown, 5-10 cm. long, 3-6 cm. broad, dehiscent; *seeds* 1 or 2, pale greenish-grey, sub-globose, 2-2.5 cm. long.

A common drift seed. They are used in ornamental bead work and have a medicinal reputation.

Herb. Trin. 5589 and Sea Coast, Erin, Trinidad.

Tropical and sub-tropical regions.

2. *C. coriaria* (Jacq.) Willd. Divi-divi.

Poinciana coriaria Jacq. Libidibia coriaria Schlecht.

Griseb. Fl. 206: Fawc. and Rendl. Fl. Jam. 4. 96.

Small tree 5-10 m. high, unarmed; *lvs.* up to 14 cm. long with 4-7 pairs of *pinnae* and an odd terminal one; *lfts.* numerous (about 15-28), linear-oblong, the apex more or less rounded, 5-8 mm. long, 1-2 mm. broad, with a few black dots beneath; *fls.* yellow, fragrant and crowded on axillary and terminal panicles about half as long as the leaves; *cal.* about 5 mm. long, the lobes recurved, rather longer than the tube; *pet.* about as long as the calyx, 4 roundish-spathulate and 1 recurved; *stam.* 6-7 mm. long, longer than the petals, shaggy with long distinct hairs; *pod* oblong, curled, 3-6 cm. long, 1-2 cm. broad; *seeds* 6-10, indehiscent or very tardily dehiscent.

The small brown pods are of commercial value for tanning purposes.

Chacachacare, naturalized after planting: Crueger, Trinidad.

Bahamas to Colombia and Venezuela.

45. HAEMATOTOXYLON L.

Tree with reddish heart wood. *Lvs.* more or less clustered, simply pinnate, without an odd terminal leaflet; *lfts.* 2-4 pairs. *Fls.* small, yellow, in axillary racemes. *Sep.* 5, unequal, imbricate, united at the base. *Pet.* 5, oblong or narrowly obovate, spreading, somewhat unequal. *Stam.* 10, free, pilose at the base; *anths.* uniform, versatile. *Ovary* shortly stalked; *style* thread-like; *ovules* 2 or 3. *Pod* flat, membranous, wing-like, dehiscent through the middle of the valves, not at the margins. *Seeds* transversely oblong.

1. **H. campechianum L.** Logwood. Campeche.

Griseb. Fl. 204; Fawc. and Rendl. Fl. Jam. 4. 97.

Tree about 8 m. high; *lvs.* glabrous, 5-10 cm. long, 1-4 arising from swollen joints; *lvs.* obovate or obcordate, or broadly reversely wedge-shaped, shallowly or deeply notched at the apex, 1-3 cm. long, 1-2.5 cm. broad; *racemes* about as long as the leaves, many-flowered; *pedi.* thread-like, 4-6 mm. long; *sep.* 4-5 mm. long; *pet.* 5-7 mm. long; *stam.* about as long as the petals; *pod* oblong, tapering to both ends, 3-5 cm. long, 8-15 mm. wide, very thin; *seeds* 1-3.

The tree favours dry places and is valued for its hard and heavy heart-wood from which is extracted a deep red dye (haematoxylin).

Naturalized after planting, Trinidad and Tobago.

Bahamas, West Indies, Central America and Northern South America.

46. CASSIA L.

Herbs, shrubs or trees. *Lvs.* abruptly pinnate, with or without glands; *lfts.* opposite, rarely subopposite as in *C. moschata* H.B.K. *Fls.* in racemes, racemose panicles, clustered or solitary. *Bracts* and *bracteoles* various. *Cal.* 5-parted, the segments imbricate, unequal, deciduous. *Pet.* 5, imbricate, subequal or the lower larger, the highest inside. *Stam.* 10, sometimes all perfect and variously subequal or 6 or 7 perfect and 3 or 4 imperfect (*staminodes*), or wanting; *anths.* basifixed, usually linear, sometimes ellipsoidal or ovate, usually dehiscent by pores or chinks at the apex or sometimes by pores at the base. *Pod* cylindrical or flat-compressed, dry or pulpy inside, often with many transversely partitioned cells, dehiscent or indehiscent, sometimes elastically 2-valved. *Seeds* compressed, transverse or rarely longitudinal, sometimes tetragonal.

The following introduced species are commonly grown as ornamental trees :—*C. fistula* L. the Indian Laburnum, native of Tropical Asia : *C. javanica* L. the Apple Blossom Cassia, native of Malaya : *C. nodosa* Buch. somewhat similar to the Apple Blossom Cassia, native of Tropical Asia.

C. siamea Lam., native of the East Indies and Malaya and *C. grandis* L., native of the West Indies and Northern South America are occasionally seen. *C. glauca* Lam., an introduced species, is only recorded from Trinidad by Sieber's collection 296. It is no longer to be found in Trinidad or Tobago.

Anths. ovoid or ellipsoidal ; *stam.* usually
7 perfect ; staminodes 31. *C. moschata.*

Anths. linear.

Stamens usually 7 perfect, and 3 staminodes (6 and 4 in *C. hirsuta* L.)

Lvs. composed of 2 pairs of leaflets.

Erect shrub ; bracts small, deciduous.....2. *C. bacillaris.*

Climbing shrub ; bracts large, persistent3. *C. undulata.*

Lvs. composed of several to many pairs of leaflets.

Pod with 4 marginal wings4. *C. alata.*

Pod not winged.

Ovary glabrous.

Lvs. composed of 3-5 pairs of leaflets.

Lfts. rounded or obtuse at the apex5. *C. bicapsularis.*

Lfts. acuminate6. *C. laevigata.*

Lvs. composed of many pairs of leaflets.

Lfts. oblong-lanceolate, narrowed to the apex....7. *C. spectabilis.*

Lfts. oblong, rounded at the apex8. *C. multijuga.*

Ovary hairy.

Lvs. glandular either on the petiole or between the leaflets, or both.

Lfts. elliptical or oblong-elliptical, obtuse9. *C. biflora.*

pubescent; *bracts* not seen; *sep.* deep reddish-brown, unequal, 5-8 mm. long; *pet.* yellow and orange-red, unequal, 10-15 mm. long; *stam.* 7 perfect, 3 much longer than the other four; *anths.* ellipsoidal, dehiscent by pores at the base; *staminodes* 3, very short; *ovary* glabrous or with a few distinct hairs; *pod* cylindrical, minutely puberulous, up to 4.5 dm. long, about 13 mm. diam., pointed at the apex, indehiscent; *seeds* shining, light brown, more or less semi-circular, 5-6 mm. broad, immersed in sticky pulp.

Hillsides, northern mountain range; Naturalized or native, Trinidad.

Costa Rica to Panama and Tropical South America.

2. *C. bacillaris* L. fil. Cockrico Bush.

Chamaefistula bacillaris (L.) G. Don.

Griseb. Fl. 207: Britt. and Wils. Sc. Surv. Porto Rico, 5. 370.

Shrub or small *tree* not climbing, flowering throughout the year; *stems* grey; *lvs.* up to 2.5 dm. long; *lfts.* in 2 pairs, broadly ovate, very oblique, the terminal pair the largest, a conical gland 2.5 mm. long between the lower pair, 5-15 cm. long, 2.5-8 cm. broad, the apex usually bluntly acute, the base rounded, minutely pubescent when young, becoming glabrate, glaucous beneath; *petiole* 2.5-4 cm. long; *stip.* linear, shedding very early; *panicles* broad, terminal, nodding, 2-2.5 dm. long and broad; *pedi.* up to 4 cm. long, spreading; *bracts* small, inconspicuous, early deciduous; *sep.* green, unequal, 6-11 mm. long, 6-8 mm. broad, minutely pubescent; *pet.* pale yellow, dull beneath, rounded, unequal, 23-30 mm. long, 16-22 mm. broad, puberulous outside; *stam.* 7 perfect, about 1 cm. long; *staminodes* 3, minute, 1 mm. long; *ovary* densely yellowish pubescent; *pod* sub-cylindrical, becoming glabrous, up to 2.5 dm. long, 1-1.5 cm. broad, the apex pointed, dehiscent only along the inner margin; *seeds* very numerous, embedded in pulp, transversely semi-circular, 4-5 mm. long, 2-3 mm. broad, shining black or dark brown.

Woods and thickets in moist and wet districts, Trinidad and Tobago.

Porto Rico, St. Vincent, Cont. Trop. America.

3. *C. undulata* Benth.

Griseb. Fl. 207: N. Amer. Fl. 23. 238.

Climbing or *trailing shrub*; *lvs.* up to 16 cm. long; *lfts.* in 2 pairs, ovate, ovate-lanceolate or ovate-oblong, somewhat oblique, the terminal pair the largest, 2-10 cm. long, 1.5-4.5 cm. broad, the apex usually obtusely acuminate terminated by a minute bristle,

the base unequally rounded or wedge-shaped, shining above, minutely puberulous beneath, a linear-cylindrical gland between each pair; *petiole* 2-4 cm. long; *stip.* sickle-shaped, membranous, 5-15 mm. long, 1-2.5 mm. broad, more or less persistent, striate; *bracts* ovate-acuminate, 10-15 mm. long, persistent; *racemes* axillary at the tops of the branches forming a terminal panicle, 1-3 dm. long; *pedi.* 1-2 cm. long; *bracts* lanceolate or elliptical, up to 11 mm. long and 7 mm. broad, conspicuous; *sep.* green, roundish, unequal, 4-8 mm. long, 3-5 mm. broad; *pet.* bright yellow, rounded, subequal, 10-20 mm. long, 5-15 mm. broad, puberulous outside; *stam.* 7 perfect, subequal; *staminodes* 3, 1 mm. long; *ovary* densely yellowish-pubescent; *pod* sub-cylindrical, becoming glabrous when ripe, up to 19 cm. long, about 1 cm. broad, the apex pointed, dehiscent only along the inner margin; *seeds* transversely narrowly oblong, 4-5 mm. long and about 2 mm. broad.

Thickets and forest borders in wet or moist districts, Trinidad
Yucatan to Honduras, St. Vincent, Panama, Colombia and
Guiana,

4. *C. alata* L. Ringworm Bush.

Herpetica alata Raf.

Griseb. Fl. 209; Fawc. and Rendl. Fl. Jam. 4. 109-110: Urb.
Symb. Ant. 8. 269; Britt. and Wils. Sc. Surv. Porto Rico, 5. 374.

Shrub or small *tree* up to 4 m., *lvs.* up to 5 or 6 dm. long; *lfts.* 8-12 pairs, oblong, obovate-oblong or sometimes elliptical, obtuse and apiculate at the apex, obtuse at the base, 5-17 cm. long, 2-9 cm. broad, minutely pubescent or puberulous, without glands; *petioles* up to 4 cm. long; *stip.* 1-1.5 cm. long, lanceolate and eared on one side at the base; *racemes* axillary at the top of the branches forming a large terminal panicle; *pedi.* very short; *bracts* elliptical, apiculate at the apex, orange-coloured, enclosing the bud, 2-2.5 cm. long, deciduous; *sep.* orange-coloured, unequal, 12-14 mm. long; *pet.* bright orange-yellow, obovate, unequal, 15-20 mm. long; *stam.* 6 perfect, 2 much longer than the other 4; *staminodes* 4, 3 together and 1 between the 2 large stamens; *ovary* densely pubescent; *pod* linear, 10-16 cm. long, about 1.5 cm. broad, glabrous, longitudinally 4-winged on dehiscence, the wings broadly notched, shortly pointed at the apex, many partitioned; *seeds* brown, 4-cornered, compressed in the narrow transverse cells, 5-7 mm. long.

Waste moist ground Trinidad and Tobago.
Tropics.

5. *C. bicapsularis* L.

Adipera bicapsularis (L.) Britt. and Rose.

Griseb. Fl. 207: Fawc. and Rendl. Fl. Jam. 4. 103: Urb. Symb. Ant. 8. 265. Britt. and Wils. Sc. Surv. Porto Rico, 5. 370.

Shrub up to 3.5 m., glabrous; *lvs.* 4-8 cm. long; *lfts.* 3-5 pairs, obovate, elliptical or roundish, the terminal pair the largest, rounded at the apex, rounded or narrowed at the base, 1-3.5 cm. long, 8-20 mm. broad, glabrous, an obtuse gland 1-1.5 mm. long between the lowest pair; *petioles* 1-2 cm. long; *stip.* small, early deciduous; *racemes* axillary as long as or longer than the leaves, often forming a terminal panicle; *pedi.* very short, 3-5 mm.; *bracts* awl-shaped, minute, early deciduous; *sep.* unequal, oblong, obtuse, 8-12 mm. long, 3-6 mm. broad; *pet.* yellow, oblong-obovate, slightly longer than the sepals; *stam.* 7 perfect, 2 much longer than the rest, 1 intermediate, and 4 much shorter; *taminodes* 3; *ovary* glabrous; *pod* sub-cylindrical, glabrous, 6-15 cm. long, 1-1.5 cm. broad, the apex blunt, dehiscent along one or both margins; *seeds* transversely semi-circular or obliquely oval, 4-5 mm. long, about 3 mm. broad, shining brown.

Summit clearing, Chacachacare. Stoer Bay, Tobago.

West Indies, Bermuda and Trop. Cont. America.

6. *C. laevigata* Willd.

Fawc. and Rendl. Fl. Jam. 4. 103.

Shrub, glabrous, 1-2 m.; *stip.* linear—awl-shaped, 4-8 mm. long, 1 mm. broad; *lfts.* 3-4 pairs, with a cylindrical or ovoid gland between each pair or sometimes absent in the terminal pair; *lfts.* ovate-lanceolate or lanceolate, the apex acuminate, more or less wedge-shaped, 3-8 cm. long, 1.5-3.5 cm. broad, veins rather prominent on both surfaces; *racemes* axillary and terminal; *fls.* yellow; *sep.* 5-10 mm. long; *pet.* 12-16 mm. long; *ovary* glabrous; *pod* (not seen on Trinidad specimens) shortly stalked, cylindrical, splitting along one margin or sometimes not splitting open, beaked with the remains of the style, 6-9 cm. long.

Herb. Trin. 8814b, Woodbrook, Broadway (see also under *C. sophera* L.) Trinidad. Eggers, 4145, Tobago, fidé Rolfe, not seen.

Tropics.

7. *C. spectabilis* DC. Calceolaria Cassia. Archibald's Cassia. *C. trinitatis* Richb.

Griseb. Fl. 208: Fawc. and Rendl. Fl. Jam. 4. 104: Urb. Symb. Ant. 8. 266: N. Amer. Fl. 23. 230.

Large spreading tree up to 20 m. flowering in November and December; *lvs.* 25-40 cm. long; *lfts.* 5-18 pairs, usually about 12-15, mostly oblong-lanceolate, gradually narrowed to the rather blunt and apiculate apex, rounded at the base, without glands, 3-8 cm. long, 18-27 mm. broad, puberulous on both sides, paler beneath; *petiole* 1.5-3 cm. long; *stip.* thread-like, 5-10 mm. long; *panicles* terminal, erect, large and pyramidal, up to 6 dm. long, leafy at the base; *pedi.* 2-2.5 cm. long; *sep.* yellow, unequal, 3-7 mm. long, 2 much smaller than the rest; *pet.* bright yellow, unequal, the 3 upper obovate, about 22 mm. long, the 2 lower, one somewhat narrowly obovate, 26 mm. long, the other, obliquely and contorted oblong; *stam.* 7 perfect, 7-10 mm. long; *staminodes* 3, 4 mm. long; *ovary* glabrous; *pod* cylindrical or somewhat quadrangular, irregularly constricted between the seeds, up to 25 cm. long, about 1 cm. broad, dehiscent on one margin, many partitioned; *seeds* light brown, more or less quadrate, 5 mm. long, 4 mm. broad.

Sieber 57 ex Griseb., not otherwise known from Trinidad, except in cultivation. Wild in Tobago.

Jamaica, Cuba, Hispaniola, Central America, Northern South America.

8. *C. multijuga* Rich.

Griseb. Fl. 208.

Small tree up to about 5 m.; *lvs.* 1-3 dm. long; *lfts.* about 15-30 pairs, oblong, rounded and apiculate at the apex, obtuse at the base, 2-4 cm. long, 8-10 mm. broad, glabrous above, minutely puberulous and glaucous beneath, with a cylindrical gland 2-3 mm. long between the lowest pair of leaflets; *petiole* short, 10-15 mm. long; *stip.* not seen, early deciduous; *racemes* forming a large terminal panicle; *pedi.* 1-2 cm. long; *bracts* small, linear-lanceolate, early deciduous; *sep.* very unequal, 5-10 mm. long; *pet.* yellow, unequal, one very oblique; *stam.* 7 perfect, 2 much longer than the other 5; *staminodes* 3, minute; *ovary* glabrous; *pod* oblong-linear, flat and thin, unevenly and distantly constricted along the margins, abruptly pointed at the apex, 9-13 cm. long, 14-19 mm. broad, glabrous, many partitioned, dehiscent along both margins; *seeds* transversely oblong, compressed, about 6 mm. long and 1 mm. broad.

Naturalised in some hillsides of the northern range, Trinidad. St. Vincent, Grenada, Cont. Trop. America.

9. *C. biflora* L.*C. angustisiliqua* Lam.

Griseb. Fl. 208: Fawc. and Rendl. Fl. Jam. 4. 107-108.

Shrub 3-4 m., puberulous or glabrate; *lfts.* usually 7-10 pairs (4-13), elliptical or oblong-elliptical, the terminal pair broader in the upper part, obtuse, or according to Grisebach emarginate in the Trinidad form, unequal at the base, 2-3.5 cm. long, puberulous beneath and on the margin or glabrate, a cylindrical gland between one or both of the lowest pairs; *fls.* yellow, in a corymbose umbellate raceme in the upper axils with 2-4 or sometimes 6 flowers; *pedu.* 2.5-3.5 cm. long; *pedi.* 15-18 mm. long, with 1 or 2 glands at the base; *bracts* lanceolate, early deciduous; *sep.* unequal, 5.5-8 mm. long; *pet.* unequal, 10-23 mm. long; *stam.* 3 longer beaked, 3 or 4 smaller, blunt; *staminodes* 1-3, with broad blades; *pod* linear, usually slightly curved, somewhat hairy, thin, compressed, the apex blunt, 2-valved, 7-15 cm. long, 4-8 mm. broad; *seeds* 14-20.

Lockhart in Herb. Kew, the only record.

Jamaica, Bahamas, Trop. and subtropical Cont. America.

10. *C. Tora* L. Wild Coffee.*C. obtusifolia* L.*Emelista tora* (L.) Britt. and Rose.

Griseb. Fl. 209: Fawc. and Rendl. Fl. Jam. 4. 105-106:

Britt. and Wils. Sc. Surv. Porto Rico, 5. 371.

Shrubby annual up to 1 m. high; *stems* puberulous; *lvs.* 5-9 cm. long; *lfts.* 3 pairs in the material seen, obovate or obovate-oblong, the upper broadly wedge-shaped, obtuse, and terminated by a bristle, gradually wedge-shaped from the middle to the obtuse base, a linear orange-coloured gland 2 mm. long between the lowest pair, sometimes also between the middle pair, 2.5 cm. long, 1-2.5 cm. broad, glabrous above, puberulous beneath; *petiole* 1-3.5 cm. long; *stip.* linear-awl-shaped, 8-15 mm. long; *fls.* bright yellow, in pairs on a peduncle about 1 mm. long in the upper axils; *pedi.* 2-2.5 cm. long; *bracts* linear-lanceolate, about 5 mm. long; *sep.* yellowish-green, puberulous and fringed on the margin, very unequal, 6-10 mm. long; *pet.* bright yellow, 12-15 mm. long, obovate or obovate-elliptical, 3 rather longer than the other 2; *stam.* 7 perfect, 3 long, 1 shorter than the other 2 and 4 short; *staminodes* 3, 2-3 mm. long, much shorter than the stamens; *ovary* densely pubescent; *pod* narrowly linear, compressed, long pointed at the apex, the margin thickened,

dehiscent, puberulous, 10-15 cm. long or sometimes more, 3-5 mm. wide; *seeds* more or less oblong, parallel with the pod, shining dark brown, compressed, 4-5 mm. long, 2 mm. broad.

Waste and cultivated ground, Trinidad and Tobago.
Tropical and subtropical regions.

11. *C. indecora* H.B.K. Urb. Symb. Ant. 8. 265.

C. bicapsularis var. *pubescens* Benth.

C. bicapsularis var. *indecora* Urb. Symb. Ant. 2. 268.

C. tomentosa Griseb. Fl. 207 as to the Trinidad plant not L.

Shrub, woolly or pubescent; *lvs.* up to 10 cm. long; *lfts.* 2-5 pairs, usually 4 or 5, the pairs increasing in size from the lowest to the highest, obovate-oblong, the apex rounded, the base obtuse, 1.5-4 cm. long, 10-18 mm. broad, glabrous above, woolly beneath, a linear gland between the lowest pair of leaflets; *petiole* 2-3.5 cm. long; *stip.* linear; *racemes* axillary at the tops of the branches and forming a leafy panicle; *fls.* yellow, woolly; *pedi.* 10-15 mm. long; *bracts* awl-shaped, 2-3 mm. long; *sep.* very unequal, from 6-11 mm. long; *pet.* unequal, up to 17 mm. long; *stam.* 7 perfect, 3 long, 1 shorter than the other 2, and 4 short; *staminodes* 3, 2-3 mm. long, much shorter than the stamens; *ovary* densely woolly; *pod* 14-17 cm. long, 8-12 mm. broad, subcylindrical, dehiscent, glabrous when mature; *seeds* transversely semicircular or obliquely ovate, 4-5 mm. long, about 3 mm. broad, shining brown.

Britton and Broadway 2821, Siparia: Herb. Trin. 5685, Aripo Savannah and 3077 in part: Herb. Trin. 12466, Williams, Morne Diabole: Cruieger in Herb. Kew: Trinidad.

Cuba, Santa Domingo, Cont. Trop. America.

12. *C. hirsuta* L.

Ditremexa hirsuta (L.) Britt. and Rose.

Griseb. Fl. 209: Fawc. and Rendl. Fl. Jam. 4. 105: Britt. and Wils. Sc. Surv. Porto Rico, 5. 372.

Erect *herb*, 1-1.5 m., woody below, very hairy; *lvs.* 2-3 dm. long, shaggy in all parts; *lfts.* 3-6 pairs, ovate to ovate-lanceolate, the apex acute or acuminate, the base usually wedge-shaped, 4-9 cm. long, 1.5-3 cm. broad; *petioles* 3-9 cm. long with a cylindrical gland above the base; *stip.* linear, acuminate, 7-10 mm. long, more or less persistent; *racemes* axillary; *pedu.* very short; *pedi.* about 15 mm. long on the young pods; *sep.* oblong, very shaggy outside, about 9 mm. long; *pet.* yellow; *stam.* 6 perfect, 2 longer than the other 4; *staminodes* 4; *ovary*

densely shaggy; *pod* narrowly linear, compressed, membranous, conspicuously pubescent, 6-15 cm. long, 4-6 mm. broad; *seeds* brown, subglobose, compressed, 1.5-2 mm. diam.

Waste places, Trinidad and Tobago.

West Indies. Cont. Trop. America.

13. *C. occidentalis* L. Stinking Weed. Jumbie Coffee. Wild Coffee. Negro Coffee. Miamol.

Ditremexa occidentalis (L.) Britt. and Rose.

Griseb. Fl. 209: Fawc. and Rendl. Fl. Jam. 4. 104: Britt. and Wils. Sc. Surv. Porto Rico, 5. 372: Urb. Symb. Ant. 8. 266.

Shrub, 1-1.5 m.; *lvs.* 1-2 dm. long, without glands on the rachis; *lfts.* 4-6 pairs, ovate to ovate-lanceolate, the apex acute or acuminate, the base rounded, 2-7.5 cm. long, 10-26 mm. broad, glabrous except for the minutely fringed margin; *petiole* 3-5.5 cm. long, with a short gland near the base; *stip.* lanceolate or ovate-lanceolate, deciduous, 4-6 mm. long; *racemes* axillary in the upper axils or forming a short terminal panicle, shortly stalked; *bracts* lanceolate; *sep.* green, veined with brown, 5-10 mm. long, very unequal; *pet.* buttery yellow, 10-14 mm. long, obovate-elliptical, 3 broader than the other 2; *stam.* 6 perfect, 2 longer than the other 4; *staminodes* 4, 1 between the 2 large stamens and 3 next to the shorter stamens, the middle one of the 3 larger than the 2 others; *ovary* pubescent; *pod* oblong-linear, compressed or somewhat swollen when ripe, abruptly pointed at the apex, the margins thickened, puberulous, 6-12 cm. long, 5-9 mm. wide, dehiscent along both margins; *seeds* more or less transversely obovoid with the partitions, brown, 3-4 mm. long.

Waste places, Trinidad and Tobago.

Tropics.

14. *C. Sophora* L.

Ditremexa Sophora (L.) Britt. and Rose.

Britt. and Wils. Sc. Surv. Porto Rico, 5. 372: Urb. Symb. Ant. 8. 266.

Low *shrub* similar to *C. occidentalis* L. from which it may not be specifically distinct; *racemes* short in the upper axils; *ovary* pubescent; *pod* turgid or subcylindrical, glabrous, 5-10 cm. long, 7-9 mm. broad, the apex shortly pointed, dehiscent along both margins; *seeds* oblique, dull brown, 3-5 mm. long.

Herb. Trin. 8814b, Broadway, Woodbrook, Trinidad, the two sheets are apparently not from the same plant, No. 1 is *C. Sophora* L., No. 2 (not in fruit) is *C. laevigata* Willd.

Bahamas, West Indies, Cont. Trop. America and Old World Tropics.

15. *C. reticulata* Willd.

DC. Prod. 2. 499: Cent. U.S. Nat. Herb. 27. 200-201.

Shrub or small *tree* very similar to *C. alata* but differs by the absence of wings on the pod; *lvs.* large; *lfts.* about 9-12 pairs, oblong or obovate-oblong, rounded or obtuse at the apex, broadly wedge-shaped at the base, 5.5-10 cm. long or more, 2-4 cm. broad, minutely pubescent, fairly densely so beneath; *petiole* and *leaf rhachis* without glands; *stip.* not seen; *racemes* axillary at the tops of the branches forming a large terminal panicle; *pedi.* short; *bracts* elliptical, apiculate at the apex, enclosing the bud; *fls.* yellow (only poor material seen); *sep.* about 10 mm. long, unequal; *pet.* longer than the sepals; *stam.* similar to *C. alata*; *ovary* densely pubescent; *pod* linear, compressed, 10-13 cm. long, 14-16 mm. broad, puberulous especially along the margins, abruptly pointed at the apex, dehiscent along both elevated margins, many partitioned; *seeds* brown, transversely oblong, about 7 mm. long and 2 mm. broad.

Fendler 334 in Herb. Kew and Oropuche Lagoon, Britt. and party, April 8, 1921, Trinidad.
Cent. Trop. America.

16. *C. hispidula* Vahl.

Grimaldia hispidula (Vahl.) Britt. and Rose.

Herb or *sub-shrub* with spreading hairs on the young stems; *lvs.* up to 6 cm. long; *lfts.* 2 pairs, roundish, 1-2 cm. long, 9-19 mm. broad, glabrous or with a few distinct hairs; *petiole* 1.5-3.5 cm. long, puberulous with long and short hairs; *stip.* thread-like, 2-3 mm. long; *racemes* few-flowered, terminal, the flowers distant; *pedi.* 1.5-2 cm. long; *bracts* minute; *sep.* lanceolate, unequal, 10-12 mm. long, puberulous; *pet.* obovate, unequal, 14-17 mm. long; *stam.* 10, all perfect, 5-6 mm. long, with a pubescent line on either side; *ovary* with long, straight, brownish hairs at the base, glabrous above, 3.5 cm. long, 6 mm. broad; *pod* oblong, compressed, the apex acute and apiculate, puberulous with short hairs and a few long ones; *seeds* about 8.

Piarco and Aripo Savannas, Trinidad.
Cuba and Cent. Trop. America.

17. *C. praetexta* Vogel.

Griseb. Fl. 211.

Sub-shrub, glabrescent; *lvs.* 4-10 cm. long; *lfts.* 20-30 pairs, sessile, linear-oblong, blunt and apiculate at the apex, rounded at the base, unequal-sided, lateral veins about 6-8 pairs, 1-2 cm. long,

2-3 mm. broad, glabrous; *petiole* 6-11 mm. long, with a sessile, circular gland at about the middle above; *stip.* lanceolate, 6-10 mm. long, distinctly ribbed; *fls.* 1 or 2-4 clustered on short peduncles arising some distance above the axils; *pedi.* 4-5 mm. long; *bracts* lanceolate, 3 mm. long; *bracteoles* awl-shaped, 1-1.5 mm. long; *sep.* lanceolate, acuminate, 5-6 mm. long; *pet.* yellow, about 8 mm. long; *stam.* 10 perfect, subequal; *ovary* densely hairy on both margins; *pod* oblong, compressed, 2-5 cm. long, the margins narrowly winged, the wings infolded and fringed, elastically 2-valved; *seeds* 7-16, square, 2.5-3 mm. diam.

Piarco Savannah, Trinidad.
Guiana and Brazil.

18. *C. pilosa* L.

Chamaecrista pilosa (L.) Greene.

Griseb. Fl. 210: Fawc. and Rendl. Fl. Jam. 4. III-112. N.
Amer. Fl. 23. 277.

Procumbent low herb or sub-shrub; *stems*, *petioles* and *leaf rhachis* with long spreading straight hairs; *lvs.* 2-3.5 cm. long; *lfts.* 2-4 pairs, oblong or often obovate-oblong, rounded at the apex and minutely apiculate, rounded at the base, nearly sessile, 10-17 mm. long, 3-6 mm. broad, the mid-rib not central, the margin usually fringed with long hairs, otherwise usually glabrous; *petioles* 3-4 mm. long, with a small, flat, circular gland at about the middle above (Fawc. and Rendl. and Bentham wrongly described the petiole as eglandular); *stip.* ovate, acuminate at the apex, 6-12 mm. long, distinctly ribbed and fringed with long straight hairs; *fls.* solitary, in pairs or few-flowered clusters, on long pedicels arising from a short peduncle shortly above the axil; *pedi.* 2-2.5 cm. long increasing up to 3.5 cm. in fruit; *bracts* lanceolate, 5 mm. long; *bracteoles* awl-shaped, 2.5 mm. long; *sep.* unequal, acuminate, shaggy, about 5 mm. long; *pet.* yellow, 6-7 mm. long; *stam.* 5 perfect, subequal; *staminodes* 2; *ovary* densely hairy; *pod* linear, compressed, 2-3.5 cm. long, 2.5-4 mm. broad, puberulous, the apex apiculate, elastically 2-valved; *seeds* 6-14, transversely oblong, 4-angled, about 2 mm. long.

Herb. Trin. 1001, Maracas Savannah, 1850, and 7398, Icacos, 1915, Trinidad.

Jamaica, Cuba, Guatemala to El Salvador, Colombia, Venezuela.

19. *C. patellaria* DC.

Chamaecrista patellaria (DC.) Greene.

Griseb. Fl. 211: Fawc. and Rendl. Fl. Jam. 4. 115.

Annual, stem erect, 1-1.5 m. high, pubescent; *lvs.* 4-8 cm. long, the *rhachis* pubescent; *lfts.* 15-25 pairs, oblong-linear, with

a bristle at the apex, blunt at the base, 10-22 mm. long, 2-3 mm. broad, the midrib close to the margin; *nerves* parallel, 4 or 5 arising from the base, others from the mid-rib, puberulous; *glands* 1 or 2 at the top of the petiole, flat, sessile; *stip.* lanceolate-acuminate, pubescent, fringed, 9-15 mm. long; *fls.* bright yellow, in clusters of 2-4 arising either from the axils or on the internodes; *pedu.* very short; *pedi.* about 1 mm. long; *bracts* lanceolate, acuminate, 4-6 mm. long; *sep.* greenish-yellow, lanceolate, unequal, 4-6 mm. long, pubescent; *pet.* obovate or elliptical, two 4-5 mm. long, the other three rather smaller; *stam.* 10, all perfect of unequal length (Griseb. and Fawc. and Rendl. say 7 or 8); *ovary* minutely silky; *pod* oblong-linear, compressed obtuse and shortly apiculate at the apex, elastically 2-valved, 2.5-3.5 cm. long, 4 mm. broad, shaggy; *seeds* dark brown, 6-10, square, about 2 mm. diam., pitted.

Grassy Savannas, Trinidad and Tobago.

Jamaica, Cuba, Porto Rico, Trop. Cont. America.

20. *C. glandulosa* var. *Swartzii* (Wickstr.) Macbride *Cont. Gray Herb.* 2. 59. 26 (1919).

C. Swartzii Wickstr.

C. glandulosa var. *stricta* of Griseb. *Fl.* 211.

Chamaecrista Swartzii Britt.

Britt. and Wils. *Sc. Surv. Porto Rico*, 5. 366.

Sub-shrub, the stems more or less pubescent; *lvs.* 3-7 cm. long; *lfts.* 9-12 pairs in the only Trinidad specimen, up to 20 in Porto Rican, nearly sessile, linear-oblong, sometimes rather broader in the upper part, the apex obtuse and apiculate, obtuse and oblique at the base, 1-2 cm. long, 3-5 mm. broad, the mid-rib nearly central, the lateral veins numerous, parallel, ascending, glabrous or almost so in the Trinidad material; *petioles* 4-5 mm. long, bearing a distinctly stalked capitate gland and sometimes others along the rhachis; the *rhachis* puberulous; *stip.* awl-shaped, broadened, ribbed; *fls.* in clusters of 1-3 arising some distance above the axils; *pedu.* very short; *pedi.* up to 23 mm. long; *bracts* and *bracteoles* similar to the stipules; *sep.* acuminate, 10-12 mm. long; *pet.* longer than the sepals; *stam.* 10, 2 larger than the rest, the others sub-equal; *ovary* pubescent; *pod* linear-oblong, 3.5-4 cm. long, or up to 5.5 in the Porto Rican material, 4-5 mm. broad, the apex blunt and apiculate, puberulous, dehiscent on the margins; *seeds* square.

Herb. Trin. 5864, Maraval, Trinidad.

Porto Rico and Lesser Antilles.

47. BAUHINIA L.

Trees or shrubs, erect or climbing, armed or unarmed. *Lvs.* usually of 2 united leaflets more or less divided at the apex, sometimes free or almost free from each other as in *B. cumanensis*. *Fls.* solitary, in pairs, or racemes. *Cal. tube* cylindrical, bell-shaped or cup-shaped, the limb spathaceous with the segments more or less united, 5-fid or 5-lobed. *Pet.* 5, subequal, sometimes reduced to threads. *Stam.* 10, in the Trinidad spp. either all perfect or sometimes only 5 perfect; *anths.* ovate-oblong or linear, versatile. *Ovary* stalked or rarely sessile, the stalk free or joined to the calyx tube; *ovules* 2-numerous; *style* thread-like or short; *stig.* small or variously dilated and oblique. *Pod* oblong or linear, compressed, 2-valved, dehiscent. *Seeds* roundish or ovate, compressed.

This genus is well represented in Trinidad gardens by the following: *B. variegata* L. an Asiatic species known as Napoleon's Hat, the flowers variegated, white, yellowish-green, rose, crimson, cream and purple. *B. ungula* Jacq. a spiny shrub with white flowers native of Grenada, Venezuela and Colombia. *B. tomentosa* L. a shrub with golden yellow flowers blotched with purple, native of Tropical Asia and Africa. *B. Vahlia* Wight and Arn., *B. purpurea* L., *B. Galpini* N.E.Br. and other species are scarcely seen outside the limits of the Royal Botanic Gardens.

Plant unarmed.

Vines.

Lvs. united to above the middle1. *B. excisa*.

Lvs. completely divided or united only
below or sometimes as far as the

middle2. *B. cumanensis*.

Small tree.....3. *B. megalandra*.

Plant armed.

Pet. elliptical4. *B. Bredmeyer*.

Pet. threadlike.....5. *B. Pauletia*.

1. *B. excisa* (Griseb.) Hemsl.

Schnella excisa Griseb.

Griseb. Fl. 214-215: Cont. U.S. Nat. Herb. 27. 201.

High climber with coiled tendrils; the stems pubescent when young, becoming glabrous; *lvs.* heart-shaped, roundish, divided above to one third or less, the segments roundish, triangular, acuminate and bluntish at the apex, rounded at the base, 5-15 cm. long and broad, glabrous above, minutely pubescent especially on the nerves beneath, or becoming glabrous; *petiole* 1-5 cm. long; *fls.* white, numerous, on elongated racemes often compound at the

base arising either terminal or from the upper axils; *buds* ovoid; *pedi.* 2-4 mm. long; *cal.* densely rusty-pubescent, about 6 mm. long, 2-lipped, blunt except for the 5 minute teeth; *pet.* obovate-oblong, shaggy outside, especially in the centre and at the base, about 15 mm. long; *stam.* 10, all perfect, 6-7 mm. long; *anths.* about 1 mm. long; *ovary* shaggy, sessile; *pod* curved, flat, compressed, silky, shortly-stalked, apiculate, about 4 cm. long.

Forests in wet or moist districts, Trinidad.
Panama.

2. *B. cumanensis* H.B.K.

Schnella trinitensis Britt. ined.

Woody vine up to 10 m.; *stems* slender, pubescent when young, becoming glabrous; *lvs.* deeply heart-shaped, divided nearly or quite to the base or sometimes only to the middle the segments obliquely lanceolate or ovate-lanceolate, acuminate, acute or obtuse at the apex, rounded at the base, 6-8 cm. long, 1-3 cm. broad, densely reticulate-veined, dark green above, pale beneath, appressed-pubescent beneath when young, becoming glabrous or nearly so; *petioles* slender, 2-5 cm. long; *racemes* axillary and subterminal, densely brownish-hairy, the hairs appressed or somewhat shaggy, few-several-flowered, 3.5-14 cm. long; *bracts* linear-lanceolate, 4-6 mm. long; *pedi.* 8-15 mm. long; *cal. tube* 10 mm. long, the teeth lanceolate, 2.5 mm. long; *pet.* oblanceolate, 15-17 mm. long, very shaggy more especially below; *stam.* 5-10 mm. long; *pod* broadly oblong, black or dark brown, glabrescent, about 6-10 cm. long, 2.3-3 cm. broad; *seeds* oval to roundish, flat, 8-11 mm. long.

Herb. Triana 6348, Hart, Chacachacare, 1897, in flower and young fruit (compared with type at Paris): 1727, Britt. and Hazen, Chacachacare, 1920, in fruit.

Cuba, Margarita and Venezuela.

3. *B. megalandra* Griseb.

Griseb. Fl. 213-214.

Tree up to 6 m. unarmed; *stems* pubescent when young becoming glabrous; *lvs.* somewhat heart-shaped, roundish or oblong-roundish, divided at the top to about one-third of their length, 10-16 cm. long, 6.5-12.5 cm. broad, minutely appressed-pubescent beneath, more prominently pubescent on the nerves; *petioles* 1.5-4.5 cm. long; *fls.* solitary, mostly opposite the leaves or forming a terminal raceme; *pedu.* very short and thick; *cal.*

cylindrical, slightly curved, rusty-woolly outside, pale green within, the tube 2.5-5 cm. long, segments 5, linear, united above, divided below, spathe-like, contorted after the bud opens, about 8 cm. long, the apex obtuse; *pet.* white, linear, about 8 cm. long and 5-10 mm. broad, glabrous; *stam.* 10, all perfect, recurved, 5 about 10 cm. long and 5 about 8 cm.; *anths.* linear, 17-25 mm. long; *ovary* stalked; *stig.* unilaterally funnel-shaped, about 7 mm. long; *pod* oblong, broader above the middle, compressed, up to 25 cm. long and 3 cm. broad, rusty-pubescent especially on the margins, becoming nearly glabrous.

The species is doubtfully native, but is naturalized in the vicinity of Port-of-Spain. There are specimens in Herb. Trin. from Maraval and Laventille, Trinidad.

St. Kitts, Antigua, St. Vincent, Venezuela.

4. *B. Bredmeyer* Vogel.

Griseb. Fl. 214.

Plant armed with minute *stipular spines*; young *stems* woolly; *lvs.* subquadrate-oblong or roundish, divided above to one-third or one-fourth, rounded at the base, 2.5-9 cm. long, 2.5-5 cm. broad, pubescent above, velvety beneath, the lobes ovate, blunt, divergent; *fls.* in pairs or solitary; *cal.* pubescent outside, spathaceous, united above, tube 12 mm. long, limb 2.5 cm. long; *pet.* elliptical, bluntish at the apex, tapering at the base into the claw, glabrous, about 5 cm. long; *stam.* 10, all perfect; *anths.* linear, recurved, about 7 mm. long; *stig.* unilaterally funnel-shaped, 2 mm. long.

Shack, Trinidad, specimen in Herb. Kew. On the label of this sheet is written *B. aculeata* from the main, so the specimen may have been collected in Venezuela.

Venezuela.

5. *B. Pauletia* Pers. Railway Fence.

Britt. and Wils. Sc. Surv. Porto Rico, 5. 362.

Shrub up to 5 m.; the *stems* armed with stout prickles in pairs at the nodes; *lvs.* roundish or somewhat quadrate, more or less divided at the top, 3-6 cm. long, up to 6 cm. broad, pubescent beneath especially on the nerves; *petioles* 5-15 mm. long; *fls.* in pairs at or between the axils or the pairs forming a terminal raceme; *pedu.* very short, often partly adhering to the stem; *pedi.* 1-3 cm. long; *sep.* up to 10 cm. long, green, linear, arising from a cup-like base up to 16 mm. long, segments united except at the base and at the awl-shaped tips, spathe-like and coiling after the bud opens; *pet.* thread-like, about 6 cm. long, yellowish-green; *stam.* 10,

5 perfect, 9 cm. long; *anths.* linear, 27 mm. long; 5 imperfect *stam.* 5 cm. long, the cup-like base woolly within; *ovary* long-stalked; *style* long; *pod* linear, compressed, with a long awl-shaped point at the apex, velvety, up to 25 cm. long, 12-18 mm. wide, elastically dehiscent by both valves; *seeds* flat, roundish, about 8 mm. diam.

Roadsides, railway hedges and thickets, Trinidad.
Mexico to Venezuela.

48. *BROWNEA* Jacq.

Trees. *Lvs.* abruptly pinnate with 2 to many pairs of leaflets. *Stip.* foliaceous, coloured, caducous. *Fls.* large, red, in dense rosette-like clusters at the tops of the branches or often on the old wood even to the base of the trunk. *Bracts* large, caducous. *Cal.* enclosed within a bracteolar sheath, the tube top-shaped or bell-shaped, lobes 4-5, coloured, slightly unequal, imbricate. *Pet.* 5, clawed, ovate or oblong, slightly unequal, imbricate. *Stam.* 10-15, usually more or less united to the middle; *anths.* equal, oblong, versatile, longitudinally dehiscent. *Ovary* stalked, the stalk adhering to the calyx tube; *ovules* numerous; *style* thread-like; *stig.* terminal, dilated-capitate. *Pod* oblong, compressed, leathery or woody, 2-valved, the upper margin usually thickened, elastically dehiscent. *Seeds* few, transverse, ovate, flat.

B. capitella Jacq., and *B. grandiceps* Jacq., introduced species, are cultivated in the Botanic Gardens, Port-of-Spain.

1. *B. latifolia* Jacq. Mountain Rose. Cooper Wood. Sweet Water Wood.

B. speciosa Rchb. ex DC.

Hermesias latifolia (Jacq.) Kuntze.

Griseb. Fl. 212.

Tree up to about 8 m.; *lvs.* 10-35 cm. long; *lfts.* 2-7 pairs, subopposite, oblong, elliptical-oblong or oblong-lanceolate, rarely broader in the upper part, the apex rather abruptly long-acuminate, the base wedge-shaped to rounded, 4-23 cm. long, 1.5-6.5 cm. broad, glabrous; *fl. heads* 7-9 cm. long, surrounded by many, coloured, overlapping, densely pubescent bracts, the lower much smaller than the upper ones, also with a linear-oblong bract to each flower; *bracteolar sheath* 2-lobed, 3 cm. long, pubescent; *cal.* of similar colour to the petals, the tube about as long as the bracteolar sheath, the lobes 1.5-2 cm. long; *pet.* orange-scarlet, twice as long as the cal. lobes; *stam.* 11, slightly longer than the petals, united into a sheath below, the sheath often divided in two; *anths.* about 3 mm. long; *ovary* densely silky; *pod* 12-24 cm. long, about 4 cm. broad, glabrescent; *seeds* about 4-10.

We have not seen Sieber's specimen which was the type of *B. speciosa* Rchb. The St. Vincent specimen quoted by Grisebach as this species cannot be distinguished from *B. latifolia* Jacq. The Trinidad and Tobago material of the latter is very variable in the shape and size of the leaflets but no specific distinctions are apparent.

General in forests in moist districts, Trinidad and Tobago.
St. Vincent, Venezuela.

49. MACROLOBIUM Schreb.

Trees unarmed. Lvs. abruptly pinnate, of 1 pair of leaflets or 2 or 3 pairs. Stip. foliaceous or inconspicuous, usually caducous. Fls. in simple loose racemes, sometimes 2 together in the axils, axillary or pseudo-terminal. Bracts usually caducous. Bracteoles sheath-like or free, enclosing the bud. Cal. tube usually shortly top-shaped, lobes 4, narrow, imbricate. Pet. 1, large and clawed, and 2 or 4 small, scale-like or none. Stam. 3, perfect, long, free; anths. ovate or oblong, longitudinally dehiscent, versatile; staminodes 7 or fewer, small or none. Ovary stalked, the stalk adhering to the calyx tube; ovules 3-numerous; style thread-like; stig. terminal, small or capitate. Pod obliquely-roundish, ovate, oblong or sickle-shaped, compressed, leathery, 2-valved, the upper margin sometimes thickened and dilated. Seeds solitary or few, large, ovate or roundish, compressed.

Lfts. 2-3 pairs *M. trinitense*.

Lfts. 1 pair *M. bifolia*.

1 *M. trinitense* Urb.

Urb. Symb. Ant. 1. 314-315.

Tree unarmed; lvs. composed of 2-3 pairs of lfts., 7-12 cm. long, glabrous; petiole 5-15 mm. long; stip. not seen; lfts. sessile, elliptical or oblong-elliptical, the apex shortly and obtusely pointed, the base obliquely wedge-shaped, 5-8 cm. long, 22-35 mm. broad, papery, the pinnate nerves very numerous, slightly prominent on both sides; racemes axillary at the tops of the branches, 4-7 cm. long, 10-25 flowered, flowering to the base of the racemes; bracts deciduous; pedi. 3-8 mm. long; bracteoles obovate, rounded at the apex, 6-7 mm. long, united into a bi-lobed sheath; cal. tube cylindrical, 7 mm. long, oblong or oblong-elliptical, about 7 mm. long; pet. 1, 15 mm. long, pubescent in the lower half inside and at the base outside; stam. about 17 mm. long, pubescent below;

anths. 2.5 mm. long; *staminodes* 1 or none; *ovary* shortly-stalked, glabrous; *ovules* 3-4; *style* long, thread-like; *stig.* capitate.

Herb. Trin. 1130, Cruieger, Heights of Las Cuevas: 5216, Broadway: 6817 and 10052, Freeman and Williams, Tucuche: Broadway, 6186, Morne Bleu in Herb. Kew. Endemic.

2. *M. bifolia* (Aubl.) Pers.

M. hymenaeoides Willd.

Vouapa bifolia Aubl. p. 25. t. 7.

Tree; *lvs.* composed of one pair of leaflets, glabrous; *petiole* about 1 cm. long; *lfts.* sessile, obliquely oblong or ovate-oblong, abruptly and obtusely pointed at the apex, wedge-shaped at the base, 6-9 cm. long, 2-4 cm. broad, papery, the nerves and reticulation fairly prominent on both sides; *racemes* 3-4 cm. long, axillary and terminal, usually two together; *fls.* numerous, rather crowded and flowering to the base of the raceme; *bracts* small; *pedi.* 2-3 mm. long; *bracteoles* 2 at the base of the calyx, oblong-elliptical, about 5 mm. long, pubescent; *cal. tube* 2 mm. long, the lobes about 4 mm. long; *pet.* 1; *stam.* 3 perfect, about 6 mm. long; *ovary* brownish-pubescent; *style* long; *pod* leathery, oblong, obtuse.

Herb. Trin. 854, March, 1847, no locality.
Guiana and Brazil.

50. *PELTogyne* Vog.

Trees. *Lvs.* of one pair of leathery leaflets. *Fls.* small, white, in racemose panicles at the tops of the branches. *Bracts* and *bracteoles* short, caducous. *Cal. tube* short; *lobes* 4, very imbricate. *Pet.* 5, sessile, oblong or obovate, slightly unequal, the uppermost often larger. *Stam.* 10, free, glabrous; *anths.* versatile, ovate or ellipsoidal, longitudinally dehiscent. *Ovary* shortly stalked, the stalk adhering to the calyx tube; *ovules* few; *style* thread-like or short; *stig.* terminal, dilated-capitate. *Pod* obliquely roundish, compressed, leathery, 2-valved. *Seed* usually one, roundish, compressed.

1. *P. porphyrocardia* Griseb., nomen; Benth. in Mart. Fl. Bras. 15.2. 234, in obs. Sapatero. Purple Heart.
Griseb. Fl. 710.

Tree up to 30 m. with purple heart wood; *lvs.* with only 1 pair of leaflets; *lfts.* ovate-oblong, oblong or elliptical, somewhat oblique, the apex acutely obtuse and often slightly notched, the base unequal, rounded, 7-13 cm. long, 3.5-6.5 cm. broad, thickly leathery, glabrous; *panicles* spreading, densely brownish-woolly, 5-20 cm. long; *fls.* shortly pedicellate or almost sessile, crowded on the short branches of the panicles; *cal. lobes* 4, ovate-

rounded, 4-5 mm. long, densely brownish-woolly outside, and to a less extent inside; *pet.* 5, oblong, very thin, about 6 mm. long; *stam.* 10; *fil.* thread-like, about 8 mm. long; *ovary* 2 mm. long, densely woolly; *style* long, bent; *pod* about 3.5 cm. long and 2-2.5 cm. broad, dehiscent.

It is highly valued for its dark purple heart wood which is hard, heavy, close-grained, tough and durable. The colour deepens considerably with age and becomes almost black. It is suitable for furniture, cabinet work, turnery and inlaying, also in buildings but is rather difficult to work.

Forests and hillsides in moist or wet districts, Trinidad, Tobago. Endemic.

51. HYMENAEA L.

Trees. *Lvs.* of one pair of unequal-sided and pellucid-dotted, leathery leaflets. *Fls.* in terminal panicles, densely corymbose. *Bracts* and *bracteoles* caducous. *Cal. tube* bell-shaped; *lobes* 4, sometimes 5, very imbricate, leathery. *Pet.* 5, sessile, ovate-elliptical, slightly unequal, the uppermost often larger. *Stam.* 10, free, glabrous; *anths.* oblong, equal, versatile, longitudinally dehiscent. *Ovary* shortly stalked; *ovules* few; *style* thread-like; *stig.* small, terminal. *Pod* oblong, sub-cylindrical, large, somewhat woody, indehiscent.

1. *H. Courbaril* L. Courbaril. Locust. Stinking Toe.

Griseb. Fl. 213: Fawc. and Rendl. Fl. Jam. 4. 120-121.

Tree up to 35 m. or more high with reddish-brown, tough, hard and close-grained wood; *stems* glabrous; *lfts.* ovate, ovate-oblong or oblong-lanceolate, very oblique, curved inwards, the midrib much nearer one margin than the other, shortly acuminate, sometimes obtusely so at the apex, rounded on one side at the base, 5-10.5 cm. long, 2.5-4.5 cm. broad, glabrous above, glabrous or glabrescent beneath except for the pubescent mid-rib; *panicles* 10-15 cm. long; *pedi.* 5-8 mm. long; *cal. tube* about 5 mm. long, the lobes unequal, oblong, obtuse, about 12 mm. long, 5-8 mm. broad, minutely and densely greyish-woolly on both sides; *pet.* white, thin, somewhat unequal and oblique, ovate-oblong, about 12 mm. long and 6 mm. broad, with conspicuous transparent dots; *stam.* white, about twice as long as the petals, folded at first; *anths.* 4-5 mm. long; *pod* brown, about 12 cm. long and 6.5 cm. broad with 2-several seeds immersed in thick mealy pulp.

The wood is used for wheelwrights work and formerly for furniture making. It does not last well in the ground.

Woodlands and hillsides, Trinidad. Tobago.

West Indies. Trop. Cont. America.

52. *CRUDIA* Schreb.

Trees. *Lvs.* pinnate with alternate leaflets and an odd terminal leaflet. *Racemes* simple, cylindrical, terminal or lateral, mostly on the older twigs. *Bracts* and *bracteoles* small, caducous. *Cal. tube* short; *lobes* 4, imbricate, becoming reflexed on opening. *Pet.* none. *Stam.* 8-10, free; *fil.* thread-like; *anths.* ovate or oblong, versatile, longitudinally dehiscent. *Ovary* shortly stalked, the stalk obliquely joined to the calyx tube; *ovules* about 4; *style* thread-like, short or elongated; *stig.* small, terminal. *Pod* sessile, woody or leathery, flat-compressed, obliquely obovate-roundish or oblong, tardily dehiscent at the margins. *Seeds* large, 1 or 2.

1. *C. obliqua* Griseb.

Water Locust.

C. oblonga of Griseb. not Bentham.

Griseb. Fl. 216.

Tree; *lvs.* 15-22 cm. long; *lfts.* 4-7, oblique, oblong, elliptical-oblong or somewhat obovate-oblong, abruptly and long-acuminate at the apex, unequally and broadly wedge-shaped or somewhat rounded at the base, 3.5-18 cm. long, 2-6 cm. broad, glabrous or minutely puberulous beneath when young; *racemes* lax, pubescent, 10-20 cm. long; *fls.* numerous, whitish, fragrant (ex Broadway); *pedi.* 4-6 mm. long; *cal. tube* about 2 mm. long; *lobes* 4, ovate, unequal, about 5 mm. long, reflexed, pubescent outside; *stam.* much longer than the calyx; *ovary* ovoid, 3 mm. long, densely brownish-shaggy; *style* elongated; *pod* obliquely roundish to broadly oblong, compressed, obliquely rounded at both ends, 5-19 cm. long, 3.5-10.5 cm. broad, densely rusty-woolly, very veiny.

Fresh water swamps and swampy woods, Trinidad. Eggers, 5738, in Herb. Kew, Tobago.

Guiana and Brazil.

53. *COPAIFERA* L.

Trees. *Lvs.* abruptly pinnate; *lfts.* leathery. *Stip.* minute. *Fls.* small, in compound loosely-branched spike-like racemes. *Bracts* and *bracteoles* usually small, ovate, shedding early. *Cal. tube* short; *lobes* 4, imbricate or subvalvate. *Pet.* none. *Stam.* 10, free; *fil.* glabrous; *anths.* equal, versatile, longitudinally dehiscent. *Ovary* stalked; *ovules* 2. *Pod* stalked, obliquely roundish, compressed or somewhat swollen, leathery, 2-valved. *Seeds* 1.

1. *C. officinalis* L. Balsam.

Copaiva officinalis Jacq.

Griseb. Fl. 215.

Tree up to 25 m. with dark reddish-brown finely marked wood; *lvs.* of 2-4 leaflets on either side, rarely 1 or 5; *lfts.* alternate or subopposite, the terminal two opposite, sometimes one absent, obliquely ovate, the apex obtusely pointed, the base unequally rounded, 3-8 cm. long, 2-4 cm. broad, glabrous, prominently reticulate-veined on both sides and with numerous transparent dots; *infl.* spreading, 7-14 cm. long, its branches pubescent; *fls.* white, sessile or nearly so; *cal. lobes* ovate-oblong, acute, 3.5-4 mm. long, equal or nearly so, glabrous outside and with long dense silky hairs within; *stam.* about 8 mm. long; *fil.* thread-like; *anths.* ovate-oblong, 2 mm. long; *ovary* roundish-flattened, 1.5 mm. long, shaggy-hairy around the margin; *style* barely 1 mm. long; *pod* obliquely roundish, at first flat, swollen at maturity, 2-2.5 cm. diam., apiculate at the apex, glabrous; *seeds* ovoid, about 15 cm. long and 1 cm. broad.

The wood is used for railway carriages, furniture, cabinet work, &c. Balsam of copaiba, an oleo-resin is obtained from this and other species.

Hillsides in dry and moist districts; Monos, Chacachacare, Maraval, Trinidad.

St. Vincent, Panama to Brazil.

54. *MORA* Benth.

Trees. *Lvs.* abruptly pinnate, rarely with an odd terminal leaflet. *Stip.* small or inconspicuous. *Fls.* small, sessile, in dense cylindrical spikes branching near the base. *Bracts* minute, caducous. *Bracteoles* none. *Cal.* bell-shaped, equally 5-6-toothed or lobed. *Pet.* 5-6, equal or subequal, obovate or oblong, imbricate. *Stam.* 5 or 6 opposite the petals, free, equal; *anths.* oblong or linear, versatile, longitudinally dehiscent. *Staminodes* 5 or 6, alternate with the petals, the apex club-shaped or dilated. *Ovary* subsessile, free; *ovules* numerous; *style* very short; *stig.* small, terminal. *Pod* leathery or woody, oblong, compressed, 2-valved. *Seeds* 1 or 2.

1. *Mora excelsa* Benth. White Mora. Red Mora.

Dimorphandra Mora Benth. and Hook. fil.

D. guianensis and D. excelsa Baill.

Griseb. Fl. 216.

Tree up to 40 m., buttressed; *lvs.* composed of 3-4 pairs of leaflets, rarely with an odd terminal one; *petiole* flattened above; *lfts.* 8-25 cm. long, 3.5-7.5 cm. broad, various (see note below);

cal. 3-4 mm. long including the shallowly-fringed lobes, more or less shaggy on both sides; *pet.* 5-6 mm. long, obovate-oblong, somewhat shaggy; *stam.* 7 mm. long, covered with long deciduous wool; *pistil* 7-10 mm. long; *ovary* more or less covered with deciduous wool; *pod* 13-21 cm. long, 5-7.5 cm. broad; *seeds* 1 or 2, kidney-shaped, up to 11 cm. long and 6 cm. broad.

The study of a wide range of material shows considerable leaf variation from oblong-lanceolate with a long-acuminate apex in seedlings and young trees to oblong with an acute or obtuse apex, or elliptical or elliptical-oblong, rounded or notched. Floral differences are not evident, except a slight variation in length of pistil, pods may be somewhat obscurely veiny or without veins altogether. In the forest the trees are known as red and white Mora by foresters, but no reliable field differentiation in the trees or timber is known.

The late Dr. Rose gave the names *M. trinitensis* and *M. Broadwayi* to two of these forms but the gradation between the two extreme types of leaves does not appear to warrant specific rank to but one species *M. excelsa* Benth.

A gregarious tree covering large forest areas between Sangre Grande and Matura and near Mayaro, Trinidad. Although termed a first class timber it is not largely used.

Guiana.

SUB-FAMILY 3. MIMOSEAE.

Herbs, shrubs, or trees. Lvs. bipinnate or pinnate in *Inga*. *Fls.* regular, hermaphrodite or rarely polygamous, in globose heads or cylindrical spikes, rarely in umbels or racemes. *Cal.* usually 4-5-toothed or lobed, valvate (imbricate in *Pentaclethra*). *Pet.* usually 4-5, free or partly united, valvate. *Stam.* as many, or twice as many as the sepals or numerous; *fil.* free, slightly united, or forming a tube at the base mostly long exserted and showy; *anths.* small. *Pod* splitting longitudinally, or into transverse sections, sometimes indehiscent or tardily dehiscent.

The most important introductions in this sub-family are *Samanea Saman* (Jacq.) Merrill, the Saman which is widely planted as a shade tree. *Enterolobium cyclocarpum* Griseb., the Devil's Ear and *Adenanthera pavonina* L. the Circassian seed or Jumbie Bead tree are also both used to a less extent for the same purpose.

- Lvs. bipinnate.
 Cal. imbricate 55. *Pentaclethra*.
 Cal. valvate.
 Stam. free ; slightly united at the
 base in *Acacia*.
 Pods splitting into transverse joints,
 the margins persistent.
 Shrubs climbing by means of
 tendrils ; unarmed 56. *Entada*.
 Herbs shrubs or trees sometimes
 climbing but without ten-
 drils ; usually armed 57. *Mimosa*.
 Pods longitudinally dehiscent.
 Stam. as many as or twice as
 many as the petals.
 Anths. tipped with a small
 early-deciduous gland.
 Trees or shrubs 58. *Piptadenia*.
 Herbs 59. *Neptunia*.
 Anths. without glands.
 Herbs or under shrubs with
 a gland between the
 lowest pair of pinnae ... 60. *Desmanthus*.
 Shrubs or small trees with a
 gland in the middle of
 the petiole or just below
 the pinnae or none 61. *Leucaena*.
 Stam. numerous 62. *Acacia*.
 Stam. united at the base into a tube.
 Valves of the pod elastically coiled
 from the apex on dehiscence... 63. *Calliandra*.
 Valves of the pod not elastically
 coiling from the apex.
 Pod coiled or curved, the valves
 twisting after dehiscence ... 64. *Pithecellobium*.
 Pod straight or curved but not
 coiled or twisted on dehi-
 scence.
 Margins of the pod wavy 65. *Zygia*.
 Margins of the pod straight ... 66. *Albizzia*.
 Lvs. pinnate 67. *Inga*.

55. PENTACLETHRA Benth.

Trees unarmed. *Lvs.* bipinnate with numerous pinnae and leaflets, without glands. *Lfts.* small, linear. *Stip.* lanceolate, small; *stipels* bristle-like. *Fls.* sessile, crowded on elongated spikes, the spikes often forming a raceme at the tops of the branches. *Cal.* bell-shaped, lobes 5, short, imbricate. *Pet.* 5, united below, valvate. *Stam.* 5 fertile, united at the base, exserted; *anths.* bearing a deciduous gland; *staminodes* 5, 10 or 15, elongated. *Ovary* sessile; *ovules* numerous; *style* thread-like; *stig.* terminal. *Pod* large, elongated, narrowed at the base, flat, woody, 2-valved, elastically revolute. *Seeds* large, compressed.

1. **P. macroloba** (Willd.) Kuntze. Bois Mulatre.

P. filamentosa Benth.

Acacia macroloba Willd.

Griseb. Fl. 216: N. Amer. Fl. 23. 192.

Tree 10-15 m., the young stems, leaf-rhachis and peduncles rusty-pubescent; *lvs.* 2-4 dm. long, of 10-20 or more pairs of pinnae; *lfts.* in numerous pairs, about 30-50, linear and somewhat sickle-shaped, the apex acute, the base blunt and eared on the lower side, 7-12 mm. long, 1-1.5 mm. broad, glabrous; *spikes* 1-2 dm. long, including the peduncle, curved; *cal.* about 2 mm. long, the teeth short and broad, more or less rounded and finely fringed; *cor.* purple outside, green within, 4-6 mm. long, deeply lobed, the lobes acute; *stam.* 5, exserted; *staminodes* 5, longer than the stamens; *pod* 2-3.5 dm. long, 3-4 cm. broad, glabrous; *seeds* obovate, about 4 cm. long.

Common on poor soils in woods and forests in wet and moist districts, Trinidad.

St. Vincent, Trop. Cont. America.

56. ENTADA Adans.

Woody vines. *Lvs.* bipinnate, often terminated by tendrils. *Fls.* in panicles or racemes, the branches of the inflorescence spike-like. *Cal.* shortly and broadly 5-toothed, valvate. *Pet.* 5. *Stam.* 10, free, shortly exserted; *anths.* with a deciduous gland. *Ovules* numerous; *style* thread-like; *stig.* small, terminal. *Pod* oblong, flat, jointed, the joints 1-seeded, separating from each other and from the persistent margin.

1. *E. polystachya* (L.) DC.

Mimosa polystachya L.

Entadopsis polystachya (L.) Britton.

Griseb. Fl. 217: Urb. Symb. Ant. 8. 262. N. Amer. Fl. 23. 191.

High vine, unarmed; *lvs.* of 2-6 pairs of *pinnae*, the upper pair sometimes transformed into tendrils; *lfts.* 6-8 pairs, oblong, rounded at the apex and slightly notched, obliquely broadly wedge-shaped to rounded at the base, 2-4.6 cm. long, 9-20 mm. broad, glabrous above, glabrous or puberulous beneath; *infl.* large, racemose, with many spike-like branches, the *spikes* up to 10 cm. long; *cal.* glabrous, 0.5 mm. long; *pet.* linear-oblong, 3 mm. long, glabrous; *ovary* glabrous; *pod* 2-4 dm. long, 5-7 cm. broad, thickly papery, glabrous, shining; *seeds* many, ovate-rounded, about 15 mm. long and 10 mm. broad.

Coastal thickets and in dry places, Trinidad and Tobago.
Hispaniola, Grenada and Trop. Cont. America.

57. MIMOSA L.

Herbs, shrubs, climbing shrubs or trees, usually armed. *Lvs.* bipinnate, usually sensitive; *petiole* usually without glands. *Fls.* small, sessile, hermaphrodite or polygamous, in globose heads or cylindrical spikes. *Cal.* usually minute, inconspicuous, 4-5-toothed. *Pet.* 4-5, more or less united, valvate. *Stam.* as many or twice as many as the petals, free, exserted; *anths.* without glands, pollen granules numerous, distinct. *Ovules* 2-numerous; *style* slender; *stig.* small, terminal. *Pod* linear or oblong, compressed, 2-valved, transversely jointed, the *joints* separating from the persistent margins, each 1-seeded.

Pinnae 1 pair1. *M. casta*.Pinnae 2 pairs, the pairs close together ...2. *M. pudica*.

Pinnae 3-15 pairs.

Stems with stalked glands.

Cor. lobes striate-nerved3. *M. tobagensis*.Cor. lobes not striate-nerved4. *M. orthocarpa*.

Stems without stalked glands.

Pod up to 2.5 cm. long, spiny and

shortly pubescent5. *M. invisa*.Pod 3-9 cm. long, densely bristly.....6. *M. pigra*.1. *M. casta* L.

Griseb. Fl. 218-219: N. Amer. Fl. 23. 151.

Rambling *shrub* 1-2 m. with recurved *prickles* on the stems *petioles* and leaf *rhachis*; *stems* glabrous or minutely pubescent when young; *petioles* 2-7.5 cm. long; *pinnae* 1 pair, somewhat

shorter than the petiole; *lfts.* 3 or 4 pairs, unequal-sided, more or less oblong, the apex usually acute, the base rounded on one side, 1-4 cm. long, glabrous or with appressed bristles beneath and with appressed bristles on the margin, 3-5 nerved at the base; *fl.-heads* globose, 1 cm. or less diam.; *pedu.* slender, glabrous, 1-2 cm. long; *pet.* 4; *stam.* 4; *Pods* oblong, 2-4 cm. long, about 12 mm. broad, glabrous, veiny, the margins armed with long bristles, 3-5-jointed; *seeds* ovate, flat, about 5 mm. long.

Thickets in relatively dry places, Trinidad and Tobago.
Lesser Antilles, Panama, Colombia, Brazil.

2. *M. pudica* L. Shame Bush. Sensitive Plant. Ti Marie.
Griseb. Fl. 219; Fawc. and Rendl. Fl. Jam. 4. 133-134;
N. Amer. Fl. 23. 151.

Herb. up to 5 dm. high, woody at the base, sensitive; *stems* prostrate or erect, pubescent with distinct spreading hairs and armed with stout recurved prickles; *stip.* lanceolate or linear-lanceolate, 5-10 mm. long, striate, shaggy; *petioles* slender, 2-6 cm. long; *pinnae* usually 2 pairs, the pairs close together, rarely only 1 pair, 2-6 cm. long; *lfts.* 15-25 pairs, linear, acute at the apex, obliquely rounded at the base, 6-10 mm. long, 1.5-2 mm. broad, with adpressed bristle-like hairs on the margin; *fl.-heads* globose, pink, 1-1.5 cm. diam.; *pedu* 1-3 in the axils, 1-2.5 cm. long; *cal.* minute; *pet.* 4, about 2 mm. long; *stam.* 4, 7-8 mm. long; *pod* linear-oblong, constricted at the joints, 1-1.5 cm. long, 3-4 mm. broad, glabrous except for the persistent margins which are armed with long bristles; *joints* 1-4; *seeds* ovate-roundish about 2.5 mm. long.

A common weed in pastures and grassy places, Trinidad and Tobago.

West Indies, Trop. Cont. America. Naturalized in Trop. Africa and Asia.

3. *M. tobagensis* Urb.

Fedde Repert. 15. (1918) 307.

Shrub, spiny; *stems* densely clothed with stalked glands intermixed with very short hairs; *spines* sparse, strongly compressed laterally, 2-4 mm. long; *stip.* lanceolate-linear, thread-like-acuminate, glandular, persistent, 5-6 mm. long; *petioles* 1-3 cm. long; *pinnae* 3-8 pairs; *rhachis* 3-10 cm. long, hairy and with bristles at the base of the pinnae and with the apex produced into a bristle-like point; *lfts.* 25-35 pairs, subsessile, oblong-linear, rounded at the apex, truncate at the base, 4-5 mm. long, about 1 mm. broad, the margin minutely scabrous; *fls.* in

globose heads, 1 or 2 in the axils; heads 7-8 mm. diam.; pedu. 2.5-3.5 cm. long, pubescent; bracts lanceolate-linear, sparsely bristly and glandular, about 1 mm. long; cal. very shortly cylindrical, 0.5 mm. long, not striate or lobed but with the upper margin sometimes furnished with sparse bristles and glandular hairs; cor. lavender, 3 mm. long, tube cylindrical, slightly widened above, very shortly stalk-like at the base, lobes 4, oblong, obtuse at the apex, about as long as the tube, parallel-striate outside; stam. 8; fil. up to 7 mm. long; pod linear, beaked, 5-7 cm. long, glandular, 6-8 jointed; seeds brownish-black, shining.

Not seen. Broadway 4776 (type) and 2296 near Scarborough, Tobago. Endemic.

4. *M. orthocarpa* Spruce ex Benth.

Fedde Repert. 15. 307. (1918).

Erect shrub with scattered slender straight spines; stems densely clothed with stalked glands intermixed with very short hairs; stip. linear-awl-shaped, 3-5 mm. long, glandular; lvs. up to 12 cm. long; petiole and rhachis of the leaves with indumentum of stem; petiole up to 3 cm. long; pinnae 6-11 pairs, the apex of the rhachis bristle-like; lfts 15-20 pairs, oblong-linear, acute at the apex, rounded at the base, 4-5 mm. long, about 1 mm. broad, the margin and surface puberulous with simple and gland-tipped hairs; fl.-heads 1 or 2 in the axils or terminal-racemose; heads 7-8 mm. broad; cal. funnel-shaped, stalk-like at the base, about 0.75 mm. long, very slightly lobed, glabrous; cor. about 3 mm. long, tube funnel-shaped, stalk-like at the base, lobes 4, oblong, subacute at the apex, up to 2 mm. long, not striate but with a conspicuous median nerve; stam. 8; fil. about 5 mm. long; pod linear, beaked, up to 3 cm. long and 5 mm. broad, pubescent with simple and gland-tipped hairs, 6-9 jointed; seeds brownish-black, shining, about 2.5 mm. long.

No Trinidad specimen seen: Sieb. 197 ex Urb. Trinidad.
Brazil.

5. *M. invisida* Mart.

Schrankia brachycarpa Benth.

Griseb. Fl. 219-220: Fawc. and Rendl. Fl. Jam. 4. 135:
N. Amer. Fl. 23. 163.

Shrub or sub-shrub, trailing or climbing; stems pubescent, angled, armed with short recurved prickles; pinnae 5-6, sometimes 4-8 pairs, 2-4 cm. long; petiole and leaf rhachis more or less prickly; lfts. numerous pairs, oblong, 4-5 mm. long, about 1 mm. broad, fringed; fl.-heads rosy, globular, 1 or 2 in the axils; pedu. up

to 1 cm. long; *cal.* minute; *cor.* about 2 mm. long, glabrous; *stam.* 8, 4-5 mm. long; *pod* linear-oblong, 1.5-2.5 cm. long, 5-6 mm. broad, spiny and shortly pubescent, 3-5 jointed.

Cruieger 26, St. Ann's, Trinidad.

Cuba, Jamaica, Trinidad. Trop. Cont. America.

6. *M. pigra* L. Findigo.

M. asperata L.

Griseb. Fl. 219; Fawc. and Rendl. Fl. Jam. 4. 135-136; N. Amer. Fl. 23. 168.

Shrub up to 2 m., *stems* pubescent and armed with recurved prickles; *pinnae* 8-15 pairs, 2-8 cm. long, the *rhachis* bristly-hairy, armed with stout prickles and with a spine between each pair; *lfts.* numerous pairs, sensitive, linear, obliquely acute at the apex, 5-8 mm. long, fringed on the margin and pubescent beneath; *fl.-heads* white or pinkish, globose, about 1 cm. diam., 1-3 in the upper axils, often crowded above to form a terminal inflorescence; *pedu.* 2-5 cm. long; *cal.* about 2 mm. long, the margin fringed; *cor.* 4-lobed, 4 mm. long, bristly in the upper part outside; *stam.* 8, 6-8 mm. long; *Pods* often crowded on the head, linear-oblong, 3-9 cm. long, 10-12 mm. broad, flat, densely bristly-hairy, *joints* 10-20, sometimes more; *seeds* linear-oblong, about 6 mm. long and 2 mm. broad.

Monos, St. Augustine, Caroni, Nariva Swamp, Guayaguayare, Trinidad.

West Indies, Trop. Cont. America. Old World Tropics.

58. PIPTADENIA Benth.

Shrubs or *trees*, armed or unarmed. *Lvs.* bipinnate, with a sessile gland on the petiole and often between the terminal pinnae; *lfts.* small, in numerous pairs. *Fls.* sessile, in cylindrical spikes or globose heads; *pedu.* axillary, solitary or clustered, or forming panicles at the tops of the branches. *Cal.* bell-shaped, slightly 5-toothed. *Pet.* united to about the middle, valvate. *Stam.* 10, free; *anths.* with or without a small deciduous gland; *pollen granules* numerous. *Ovary* sessile; *ovules* few to numerous. *Pod* linear-oblong, flat, 2-valved, longitudinally dehiscent, not splitting into transverse sections. *Seeds* compressed.

Fls. in cylindrical spikes.....1. *P. flava*.

Fls. in globose heads2. *P. peregrina*.

1. *P. flava* (Spreng.) Benth.*P. suaveolens* Griseb. Fl. 710 non Miq.*Acacia flava* Spreng.

N. Amer. Fl. 23. 189.

Shrub or small *tree* 3-5 m., with a few minute prickles on the pubescent twigs; *lvs.* of 8-13 pairs of pinnae, the *rhachis* puberulous to glabrate, the petiole 1-4 cm. long with a sessile, flat gland above the base; *lfts.* numerous (12-35 pairs), linear, the apex acute or obtuse, the base truncate, 5-8 mm. long, 1-1.5 mm. broad, the mid-rib nearest the upper margin and glabrous; *fls.* in cylindrical spikes, 3-8 cm. long, the *rhachis* pubescent; *fls.* glabrous; *cal.* 0.5-1 mm. long; *pet.* linear, 1.5-2 mm. long; *pod* linear-oblong, wedge-shaped at the base, thin, 4-9 cm. long, 10-18 mm. broad; *seeds* oblique, 4-5 mm. long.

Herb. Trin. 2548 Finlay and 8072 Freeman, Chacachacare, and Cruieger in Herb. Kew, Trinidad.

Trop. Cont. America.

2. *P. peregrina* (L.) Benth.

Savannah Yoke.

Mimosa peregrina L.*Niopa peregrina* L. Britt. and Rose.

Griseb. Fl. 217; Fawc. and Rendl. Fl. Jam. 4. 126; Urb.

Symb. Ant. 8. 261-262; N. Amer. Fl. 23. 189.

Tree up to 20 m., unarmed; *lvs.* of 30 or more pairs of pinnae, puberulous to nearly glabrous; *petiole* with a sessile flat gland above the base; *lfts.* numerous, 25 or many more pairs, linear, acute at the apex, truncate at the base, unequal-sided, 2-4 mm. long; *fls.* in globose heads, about 1 cm. or less diam.; *pedu.* slender, 1-4 cm. long, puberulous; *cal.* about 2 mm. long, puberulous outside; *cor.* about 3 mm. long, puberulous outside; *stam.* more than twice as long as the corolla; *pod* oblong, flat, thin, leathery, the margin constricted between the seeds, 1-2 dm. long, 10-18 mm. wide, glabrous and scurfy; *seeds* thin, flat, roundish, about 1 cm. diam.

Doubtfully native, Trinidad. The specimens in Herb. Trin. are all apparently from cultivated trees.

West Indies. Trop. S. America.

59. *NEPTUNIA* Lour.

Herbs. *Lvs.* bipinnate; *lfts.* small. *Stip.* membranous, obliquely lanceolate to heart-shaped. *Fls.* sessile, in ovoid-globose heads on long axillary peduncles, the upper flowers hermaphrodite, the lower staminate or neutral with long exserted

staminodes. *Cal.* bell-shaped, shortly 5-toothed. *Pet.* 5, free or united below, valvate. *Stam.* usually 10, rarely 5, free, exserted; *anths.* bearing a stalked gland, pollen granules numerous. *Ovary* stalked; *ovules* few to many; *style* thread-like; *stig.* terminal, capitate. *Pod* obliquely-oblong, short, compressed, 2-valved, more or less divided between the seeds. *Seeds* transverse with the partitions, ovate, compressed.

1. ***N. plena* (L.) Benth.**

Mimosa plena L.

Griseb. Fl. 218: Fawc. and Rendl. Fl. Jam. 4. 130-131: Urb. Symb. Ant. 8. 260: N. Amer. Fl. 23. 181.

Herb. the branches glabrous; *stip.* ovate to lanceolate, 4-6 mm. long; *lvs.* of 3-5 pairs of pinnae, with a sessile gland just below the lowest pair; *petioles* slender, 1-3.5 cm. long; *lfts.* 12-40 pairs, linear, obtuse at the apex, 4-10 mm. long; *pedu.* 6-12 cm. long, usually bearing 1 or 2 heart-shaped bracts at or below the middle; *pod* oblong, acute or apiculate at the apex, 2-5 cm. long, 8-10 mm. broad, stalked, the margins thickened; *seeds* 5-20, about 3.5 mm. long.

Herb. Trin. 2544, Finlay (1868), Caroni Savannah, and 2547 Devenish, Trinidad. Broadway, 3877, Richmond, Tobago, in *Herb. Kew.*

Bahamas, West Indies. Trop. Cont. America. Introduced into Trop. Asia.

60. **DESMANTHUS Willd.**

Perennial *herbs* or *shrubs*. *Lvs.* bipinnate, with a sessile gland just below the lowest pair; *lfts.* small. *Stip.* bristle-like, persistent. *Fls.* few, sessile, in rounded heads on solitary peduncles, hermaphrodite, or the lowest sometimes staminate, neutral or without petals. *Cal.* bell-shaped, shortly 5-toothed. *Pet.* 5, free or slightly cohering, valvate. *Stam.* 10, rarely 5, free, exserted; *anths.* without glands; *pollen* granules numerous. *Ovary* subsessile; *ovules* few or numerous. *Pod* linear, flat, 2-valved.

Stem erect 1. *D. virgatus.*

Stem prostrate..... 2. *D. depressus.*

1. ***D. virgatus* (L.) Willd.**

Mimosa virgata L.

Acuan virgatum Medic.

Griseb. Fl. 218: Fawc. and Rendl. Fl. Jam. 4. 131-132: Urb. Symb. Ant. 8. 260: N. Amer. Fl. 23. 132.

Erect *shrub* 0.5-2 m.; *stem* angular at least above, glabrous or sparingly pubescent; *stip.* 2.5-5 mm. long; *lvs.* 4-8 cm. long;

the *petiole* and *rhachis* glabrous or slightly puberulous; *pinnae* usually 4-6 pairs, sometimes 2-7, with a large oblong or elliptical gland between the lowest pair; *lfts.* 10-25 pairs, linear or oblong-linear, the apex acute, the base truncate, 3-5 mm. long, glabrous or with a few weak hairs on the margin; *heads* few-flowered; *pedu.* 1.5-3 cm. long; *cal.* about 2.5 mm. long; *pet.* about 4 mm. long; *stam.* about 8 mm. long; *Pods* usually several-clustered at the top of the peduncle, linear, straight or slightly curved, 3.5-7 cm. long, 3-4 mm. broad, minutely puberulous; *seeds* numerous, more or less ovoid, 2-2.5 cm. long.

Banks and grassy places, Trinidad and Tobago.

Tropical and subtropical regions.

2. *D. depressus* H. and B.

Mimosa depressus Poir.

Acuan depressum Kuntze.

Griseb. Fl. 218: Fawc. and Rendl. Fl. Jam. 4. 132: Urb. Symb. Ant. 8. 260: N. Amer. Fl. 23. 132.

Prostrate *sub-shrub*, the *stems* slightly angled, glabrous or nearly so; *stip.* 2-4 mm. long; *lvs.* 1.5-4 cm. long; *pinnae* 3-4 pairs, sometimes 1-5, with a small roundish gland between the lowest pair; *lfts.* 8-12 pairs (10-20 ex Gr.) linear, obtuse, or acute at the apex, 2-5 mm. long; *fls.* greenish white; the *heads* few-fl.; *pod* 1 or few-clustered, linear, straight or slightly curved, 2-6 cm. long, about 3 mm. wide, glabrous.

This species is difficult to distinguish from *D. virgatus* (L.) Willd. except by habit, and is considered by Fawc. and Rendl. to be merely a weak form of it.

Herb. Trin. 12107, Williams, Friendship and ex Urb., Tobago. West Indies. Trop. and subtropical America.

61. *LEUCAENA* Benth.

Shrubs or *trees*, unarmed. *Lvs.* bipinnate, usually with a gland on the *petiole*. *Fls.* white, sessile, mostly hermaphrodite, in globose peduncled heads. *Cal.* tubular-bell-shaped, 5-toothed. *Pet.* 5, free, valvate. *Stam.* 10, free, exserted; *anths.* without glands, pollen granules numerous. *Ovary* stalked; *ovules* numerous; *style* thread-like; *stig.* minute. *Pod* shortly stalked, broadly-linear, compressed, membranous, 2-valved. *Seeds* transverse, ovate, compressed.

1. *L. glauca* (L.) Benth. Shack-shack.*Mimosa glauca* L.

Griseb. Fl. 220: Fawc. and Rendl. Fl. Jam. 4. 136: Urb. Symb. Ant. 8. 257-258: N. Amer. Fl. 23. 125-126.

Shrub or small *tree* 5-10 m. or more high, young *stems* finely pubescent; *lvs.* 1-2 dm. long; *petiole* 3-6 cm. long with or without a gland; *pinnae* 4-8 pairs; *lfts.* 10-20 pairs, linear-oblong, unequal-sided, acute at the apex, pale beneath, 8-15 mm. long, 2-3.5 mm. broad, glabrous except on the margin; *fl. heads* 1-3 in the axils or racemose at the tops of the branches, 1.5-3 cm. diam.; *pedu.* stout, pubescent, 2-4 cm. long; *cal.* 1-2 mm. long with short, blunt teeth, pubescent; *pet.* about 4.5 mm. long, pubescent; *stam.* 2-3 times as long as the petals; *Pods* usually clustered, linear, 10-18 cm. long, 15-18 mm. broad, tapered at the base, finely puberulous; *seeds* numerous, oblong, 6-9 mm. long, with a long thread-like stalk.

In drier thickets, Trinidad and Tobago.

Widely distributed in the Tropics and subtropics.

62. *ACACIA* Willd.

Shrubs or *trees*, armed or unarmed. *Lvs.* bipinnate in the native species, and usually with a gland on the petiole; *lfts.* usually small, in numerous pairs. *Stip.* spiny or inconspicuous. *Fls.* small, hermaphrodite or polygamous, in globose heads or cylindrical spikes; *pedu.* axillary, solitary or clustered, or paniculate at the tops of the branches. *Cal.* bell-shaped, 4-5 toothed or lobed, or the *sepals* free. *Pet.* 4-5. *Stam.* numerous, free or slightly united at the base, exserted; *anths.* small; *pollen* in 2-6 clusters in each cell; *ovary* sessile or stalked; *ovules* 2-numerous; *style* thread-like; *stig.* small, terminal. *Pod* flat, rarely cylindrical, 2-valved or indehiscent.

Pod flat.....1. *A. riparia*.Pod swollen2. *A. farnesiana*.1. *A. riparia* H.B.K.*A. sarmentosa* Griseb. not of Desv. excluding Crueger's plant from Trinidad.*A. quadricostata* Britt.

Griseb. Fl. 221: Fawc. and Rendl. Fl. Jam. 4. 140-141: Britt. and Wils. Sc. Surv. Porto Rico, 5. 353: Bull. Torr. Bot. Club. 48. 332.

Woody vine up to 8 m.; stems armed with recurved prickles; *pinnae* 4-12 pairs, 3-7 cm. long; *petiole* bearing a sessile circular gland, and sometimes 1 or 2 recurved prickles; *lfts.* numerous (15-40), oblong-linear, obtuse or acute at the apex, obliquely subtruncate at the base, the mid-rib nearer one margin, 5-10 mm. long, 1-2 mm. broad, glabrous or with a line or tuft of yellowish hairs beneath at the base, sometimes puberulous on the lower surface; *fl. heads* globose, 1-1.5 cm. diam., forming wide-spreading panicles; *cal.* about 1 mm. long; *cor.* 2-3 mm. long; *stam.* white; *pod* flat, thin, linear-oblong, finely pubescent, 8-15 cm. long, about 2 cm. broad; *seeds* dark brown, roundish or oblong-roundish, 7-10 mm. long.

The Crueger specimen in Herb. Kew. which is cited by Grisebach as *Acacia sarmentosa* is *Albizzia caribaea* (Urb.) Britt. and Rose.

Thickets in wet or moist districts, Trinidad.

West Indies. Trop. Cont. America.

2. *A. farnesiana* Willd.

Mimosa farnesiana L.

Vachellia farnesiana W. and A.

Griseb. Fl. 222: Fawc. and Rendl. Fl. J. am. 4. 139: N. Amer. Fl. 23. 87.

Shrub or small *tree*, armed with straight slender spines; *lvs* 5-10 cm. long, with a small gland on the petiole; *petiole* and *leaf-rhachis* puberulous; *pinnae* 2-8 pairs, 2-3 cm. long; *lfts.* 10-25 pairs, oblong-linear, obtuse at the apex, 3-5 mm. long, about 1 mm. broad, glabrous; *stipular spines* whitish, slender, straight, 4-30 mm. long; *fl. heads* yellow, globose, about 12 mm. diam., fragrant; *pedu.* clustered, slender, pubescent, 2-4 cm. long; *cal.* 1-1.5 mm. long; *cor.* 2-3 mm. long; *pod* swollen, more or less cylindrical, usually curved, 4-7 cm. long, about 1 cm. diam. closely set with longitudinal lines, glabrous; *seeds* ovoid or ovoid-oblong, about 8 mm. long, 5 mm. broad.

The flowers are used in perfumery manufacturing in South Europe.

Doubtfully native, Trinidad.

Widely distributed in the Tropics and subtropics, either native or introduced.

63. *CALLIANDRA* Benth.

Shrubs or small *trees*, unarmed in the local spp. *Lvs.* bipinnate, without glands on the petiole. *Fl. heads* globose, peduncled, 1-3 in the axils or forming terminal or axillary racemes. *Fls.* polygamous. *Cal.* bell-shaped, 5-toothed. *Cor.* funnel-shaped or bell-shaped, united up to or above the middle, 5-lobed.

Stam. 10-numerous; *fil.* united below into a tube or sheath, long exserted; *anths.* small, without glands, the pollen united into 2 or 4 clusters in each cell. *Pod* flat, narrow, usually tapered below the middle, the margins thickened, 2-valved, elastically dehiscent from the apex. *Seeds* obovate or orbicular, compressed.

C. falcata Benth. and *C. surinamensis* Benth. are cultivated in Gardens in Trinidad and Tobago. *C. Tweedii* Benth. is known only from a single sheet, Herb. Trin. 1002, bearing no locality and was probably from a cultivated plant.

Pinnae 1 pair.

Lfts. 2-3 pairs1. *C. Guildingii*.

Lfts. 1 pair, or 2 pairs with one of the inferior pair abortive2. *C. tergemina*.

Pinnae 2 pairs3. *C. marginata*.

Pinnae 3-4 pairs4. *C. Cruegerii*.

1. *C. Guildingii* Benth.

Niaure.

Anneslia Guildingii (Benth.) Britt. and Rose.

Griseb. Fl. 225: N. Amer. Fl. 23. 56.

Tree up to 10 m., unarmed; *pinnae* 1 pair; *petioles* 7-22 mm. long; *petiole and leaf-rhachis* pubescent above; *lfts.* 3-4 pairs, obliquely lanceolate, sub-rhomboid or semi-elliptical, the apex acute or shortly acuminate, often obtusely so, the base narrowed and very oblique, rounded on one side, the upper pair 3-10 cm. long, 1.5-3.5 cm. broad, the lower much smaller, glabrous or with a few hairs on the margin; *heads* many-fl'd.; *pedu.* axillary, 3 cm. long or less; *cal.* 3-4 mm. long; *cor.* 10-11 mm. long; *stam.* 10, in the outer flowers, the sheath about as long as the corolla, numerous in a few central flowers, the sheath long exserted, crimson; *pod* linear-lanceolate, 6-11 cm. long, 7-9 mm. broad, glabrous, coiled backwards on dehiscence, long-stalked; *seeds* transversely oblong, flat, about 8 mm. long and 5 mm. broad.

Forests in wet or moist districts, Trinidad.

St. Vincent.

2. *C. tergemina* Benth.

Anneslia tergemina (L.) Britt. and Rose.

Griseb. Fl. 224-225: N. Amer. Fl. 23. 53.

Shrub, glabrous; *petioles* thread-like, 5-20 mm. long; *pinnae* 1 pair; *lfts.* 1 pair, or 1½ pairs, by abortion of one of the lower pair, obliquely obovate-oblong, the apex rounded or obtuse, membranous, 1-4.5 cm. long; *heads* few-fl'd.; *pedu.* axillary, thread-like, 3 cm. long or less; *cal.* about 0.5 mm. long; *cor.*

slender, 6-8 mm. long; *stam.* 10, 2.5-3 cm. long, the tube shortly exerted; *pod* lanceolate-linear, apiculate at the apex, narrowed to the base, 5-10 cm. long, 6-8 mm. broad, glabrous.

Sieb., 119 in Herb. Mus. Brit.: Crueger, ex Griseb., Trinidad according to Benth.

Lesser Antilles, Venezuela.

3. *C. marginata* Griseb. Fl. 710, *nomen*.

C. formosa Benth. Trans. Linn. Soc. 30. 542.

Shrub or *tree*, unarmed, glabrous throughout; *petioles* 2-2.5 cm. long; *pinnae* 2 pairs; *lfts.* 4-7 pairs, obliquely oblong-obovate or elliptic-obovate, the apex acute or obtuse and mucronate, the base narrowed on one side, truncate on the other, membranous, the upper leaflets 1-3 cm. long, 7-16 mm. broad, the lowest pair much smaller; *fl. heads* globose, 5-6 mm. diam.; *pedu.* very slender, 1-5.5 cm. long; *cal.* glabrous, 2 mm. long, the lobes oblong-linear, as long as the tube; *cor.* glabrous, 3-4 mm. long, lobes elliptic, 2.5-3 mm. long; *ovary* glabrous; *pod* linear, 5.5-8.5 cm. long, 5-7 mm. broad, glabrous.

Crueger, 326 in Herb. Kew: Herb. Trin. 1069, Chacachacare and 2551 Finlay, no locality. Endemic.

4. *C. Cruegerii* Griseb. Fl. 224.

Shrub unarmed, young stems, *petioles* and *leaf-rhachis* somewhat woolly; *pinnae* 3-4 pairs; *lfts.* 20-40 pairs, sickle-shaped-linear, the apex obtusely acute, very oblique at the base, 3-9 mm. long, 1-2 mm. broad, the margin weakly fringed, glabrescent; *stip.* oblong-lanceolate, striate, persistent, 5-8 mm. long; *fl. heads* globose, subsessile, axillary or in an interrupted spike; *cal.* 3 mm. long, glabrescent; *cor.* hairy, about 6 mm. long; *stam.* 20, 12-18 mm. long, united to one-third; *pod* linear, about 5.5-6 cm. long and 6-8 mm. broad, the apex rounded and obliquely apiculate, thinly woolly.

Monos and Chacachacare. Endemic.

64. *PITHECELLOBIUM* Mart.

Shrubs or *trees*, armed or unarmed. *Lvs.* bipinnate with several pairs of *pinnae*; *lfts.* 1-numerous pairs. *Fls.* usually hermaphrodite, in globular heads, rarely in spikes, solitary or clustered in the axils or racemose or clustered at the tops of the branches. *Cal.* bell-shaped, shortly 5-6-toothed. *Cor.* funnel-shaped, 5-6-lobed. *Stam.* few or numerous, united below into a

tube; *anths.* small, pollen usually united into 2-4 clusters in each cell. *Style* slender; *stig.* small, capitate. *Pod* flat or swollen, mostly curved and twisted, 2-valved, dehiscent; *seeds* with or without arils.

Lvs. of one pair of pinnae1. *P. unguis-cati*.

Lvs. of 2-4 pairs of pinnae.....2. *P. Jupunba*.

1. ***P. unguis-cati* (L.) Mart.** Bread and Cheese. Black Jessie. *Mimosa unguis-cati* L.

M. roseum Vahl.

P. oblongum Benth.

Griseb. Fl. 226: Fawc. and Rendl. Fl. Jam. 4. 146-147:

N. Amer. Fl. 23. 21-22.

Shrub or small *tree* up to 6 m. usually armed with straight spiny stipules 5-15 mm. long; *petiole* 5-20 mm. long; *pinnae* 1 pair; *lfts.* 1 pair with a sessile gland between the pinnae and leaflets; *lfts.* obliquely obovate, elliptical, or oblong-lanceolate, the apex obtuse, the base obliquely narrowed, 1-5.5 cm. long, 7-25 mm. broad, glabrous; *fl. heads* globose or shortly spicate, stalked, in axillary racemes or terminal panicles; *cal.* 2 mm. long, pubescent; *cor.* 5-6 mm. long, pubescent; *stam.* pale-yellow, rosy or purplish, 15-18 mm. long; *pod* red outside and inside, coiled, curved or contorted, 5-10 cm. long, 7-10 mm. broad, somewhat constricted between the seeds; *seeds* 5-7, black, shining, 4-6 mm. broad, partly covered with a white fleshy aril.

P. oblongum was distinguished by Benth and subsequent writers as having a spicate inflorescence. Both spicate and capitate forms occur in Trinidad and Tobago and gradations from one form to another have been found in the same locality and it is doubtful whether *P. oblongum* Benth. is distinct from *P. unguis-cati* (L.) Mart.

North Western coastal hills and Bocas Islands, Trinidad and Tobago.

Florida, Panama, West Indies. Northern South America.

2. ***P. Jupunba* (Willd.) Urb.** Puni.

Acacia Jupunba Willd.

Pithecellobium trapezifolium Benth.

Jupunba Jupunba (Willd.) Britt. and Rose.

Griseb. Fl. 226: Urb. Symb. Ant. 2. 257-258: N. Amer. Fl. 23. 27.

Tree up to 20 m. the young parts rusty-pubescent; *pinnae* 2-4 pairs, with a small roundish gland between each pair and sometimes on the petiole; *lfts.* 3-6 pairs, rarely more, obliquely

rhomboid or obovate, the apex rounded or obtuse, the base broadly wedge-shaped, 1-6 cm. long, 1-3 cm. broad, papery, glabrous above, minutely appressed-pubescent or glabrate and pale beneath; *fl. heads* globose, or shortly spicate, axillary, or in terminal panicles; *pedu.* slender, up to 8 cm. long, rusty-pubescent; *cal.* rusty-pubescent, 2.5-3 mm. long; *cor.* 5-6 mm. long, rusty-pubescent; *stam.* numerous, about 2 cm. long, the tube shorter than the corolla; *pod* curved or coiled, twisting on dehiscence, 10-15 mm. broad, more or less constricted between the seeds, red inside, puberulous outside; *seeds* roundish, compressed, about 7 mm. diam. without arils.

"A brownish wood often with an effective wavy grain suitable for furniture, &c. Takes a good polish. Locally it is often used for scantlings and building construction. Moderately heavy and fairly easy to work."—Marshall.

Forests in wet or moist districts, Trinidad and Tobago.

Guadeloupe to Trinidad, Northern South America.

65. ZYGIA P. Browne.

Shrubs or *trees* without spines. *Lvs.* bipinnate; *petiole* very short; *pinnae* 1 pair; *glands* between the pinnae and between the terminal leaflets. *Fls.* hermaphrodite, in heads or short spikes, these clustered, sessile or very short-peduncled, often borne on the old wood. *Cal.* minute, 5-toothed. *Cor.* small, tubular, 5-toothed. *Stam.* numerous; *fil.* united at the base into a tube. *Pod* flat, with the edge wavy-curved, leathery, tardily dehiscent by the ventral margin. *Seed* flat, disk-like, without arils.

1. Z. latifolia (L.) Fawc. and Rendl.

Mimosa latifolia L.

Pithecolobium latifolium Benth.

Calliandra latifolia Griseb.

Griseb. Fl. 225: Fawc. and Rendl. Fl. Jam. 4. 150: N. Amer. Fl. 23.39.

Shrub or *tree* 3-8 m., glabrous; *lfts.* 1 or 2 pairs with an odd leaflet at the base, the lower pair subopposite, the terminal pair opposite, elliptical, narrowed to the apex and oblique base, 7-16 cm. long, 2.5-7.5 cm. broad, the lower leaflet much smaller; *fl. heads* laxly fld., subsessile or shortly stalked, in dense clusters; *fls.* crimson or purplish; *cal.* bell-shaped, 1.5-2 mm. long, puberulous above; *cor.* tubular, 6-10 mm. long, glabrous; *stam.* more than twice as long as the corolla, the tube exerted; *pod* oblong, slightly or deeply curved, about 1 dm. long, 2-2.5 cm. broad, minutely puberulous; *seeds* about 1.5 cm. long.

Forests in wet districts, Trinidad.

Martinique, St. Vincent, Panama, Northern South America.

66. ALBIZZIA Durazz.

Shrubs or trees unarmed. Lvs. bipinnate. Fl. heads hermaphrodite in globose heads or spikes, these subsessile or peduncled, solitary, clustered or forming racemose panicles. Cal. bell-shaped or tubular, 5-toothed or shortly 5-lobed. Cor. tubular or funnel-shaped, 5-lobed. Stam. numerous, long exserted, united below; anths. small; pollen united into 2-4 clusters in each cell. Pod broadly linear, flat, thin, straight or nearly so, not pulpy, indehiscent or tardily dehiscent. Seeds roundish, compressed.

A. lebbek Benth. Woman's Tongue, is commonly planted.

1. A. caribaea (Urb.) Britt. and Rose. Naked Indian. Tantakayo.

Pithecolobium caribaeum Urb.

Acacia sarmentosa Griseb. as to Crueger's Trinidad plant.

Urb. Symb. Ant. 2. 260-261; N. Amer. Fl. 23. 44.

Tree 30 m. or more, young stems, petioles, leaf-rhachis, and peduncles puberulous or glabrate; petiole 2-4.5 cm. long, often having a small roundish gland; pinnae 5-10 pairs, often with a gland between the upper pairs; lfts. 30-50, linear, the apex obtuse, oblique at the base, 5-11 mm. long, about 1 mm. broad, the mid-rib nearer one side, glabrous or inconspicuously fringed; fl. heads globose, 10-12 mm. diam., somewhat racemose; pedu. 6-13 mm. long; fls. sessile or nearly so; cal. about 1 mm. long, top-shaped, very shortly toothed, minutely pubescent; cor. about 4 mm. long, the lobes lanceolate; stam. numerous, about 1 cm. long, the tube about as long as the corolla; pod subsessile, 6-15 cm. long, 11-27 mm. wide, glabrous, at length dehiscent; seeds 7-10.

Marshall states the wood is heavy, yellowish-white, hard and strong; at present little utilized except for indoor constructional work.

Hillside, Monos; forests, Trinidad and Tobago, also frequently planted.

St. Vincent, Grenada, Costa Rica, Panama, Margarita, Venezuela.

67. INGA Willd.

Shrubs or trees, unarmed. Lvs. abruptly pinnate, with 2-several pairs of leaflets usually with a gland between each pair, the petiole and rhachis often winged. Stip. usually small. Fls. in heads, umbels, racemes or spikes. Cal. 5-lobed, tubular or bell-shaped, toothed or shortly lobed. Cor. 5-lobed, tubular or funnel-shaped. Stam. numerous, long exserted, united below into a tube; anths. small, the pollen united into 2 or 4 masses. Pod flattened, subcylindrical or 4-angled, indehiscent or bursting irregularly. Seeds immersed in pulp.

The trees are commonly known as Pois doux or Sacky Sac.
 Leaf-rhachis winged.

Lvs. with 2 pairs of leaflets1. *I. setifera*.

Lvs. with more than 2 pairs of leaflets.

Pod flat with elevated margins.

Pods thickly hairy2. *I. venosa*.

Pods glabrous or puberulous.

Pod thin; stip. linear.....3. *I. acuminata*.

Pod thick; stip. ovate to
 roundish4. *I. Hartii*.

Pod subcylindrical with numerous
 longitudinal ribs.

Pods woolly

Fls. stalked5. *I. ingoides*.

Fls. sessile.....6. *I. edulis*.

Pods glabrous or only puberulous 7. *I. macrophylla*.

Leaf-rhachis not winged.

Lvs. glabrous.

Fls. in elongated spikes.....8. *I. laurina*.

Fls. in umbels9. *I. heterophylla*.

Lvs. variously hairy.

Lvs. with 2 pairs of leaflets and with
 minute scattered hairs on both
 sides10. *I. punctata*.

Lvs. with 4 or more pairs of leaflets,
 rather densely hairy11. *I. thibaudiana*.

1. *I. setifera* DC.

Griseb. Fl. 227.

Tree, 6 m. or more high, rusty-hairy, *petiole* and *leaf-rhachis* prominently winged, with a large cup-shaped gland between each pair of leaflets; *lfts.* 2 pairs, elliptical or somewhat oblong-elliptical, the apex abruptly acuminate, the base wedge-shaped, 8-27 cm. long, 4-12 cm. broad, pubescent on both sides when young, becoming almost glabrous and shining, leathery; *fl. spikes* 1.5-3 cm. long, usually 2 together in the upper leaf axils; *pedu.* 4-7.5 cm. long; *fls.* yellow, sessile; *bracts* linear, deciduous; *cal.* tubular, slightly broader at the top, about 9 mm. long, striate, sparsely hairy; *cor.* 12-15 mm. long, densely hairy with long appressed hairs; *staminal tube* included in the corolla, the free *filaments* long exserted (2-2.5 cm.); *pod* flat, oblong, 8-17 cm. long, 3.5-4 cm. broad, the margins thickened and elevated; *seeds* numerous, small.

Forests in wet or moist districts, Trinidad.
 Guiana, Brazil.

2. *I. venosa* Griseb. ex Benth.1. (sphalm) *Juga venosa* Griseb. Fl. 711, nomen.

Tree 10 m., young stems and leaves rusty-felty with spreading hairs; *lvs.* of 3-4 pairs of leaflets with a minute stalked gland between each pair, the *rhachis* more or less densely pubescent with long spreading hairs and broadly winged, the *petiole* short and narrowly winged; *lfts.* ovate or elliptical, acute, obtuse or acuminate at the apex, obtusely wedge-shaped or rounded at the base, 5-22 cm. long, 3-9 cm. broad, stiffly papery, sparsely hairy with distinct spreading hairs on both sides; *fl. heads* on hairy peduncles, arising 2 together from the upper axils, many forming a large terminal umbel or panicle; *fls.* whitish-yellow; *bracteoles* lanceolate, 10-15 mm. long; *cal.* 15-22 mm. long, glabrous except at the lobes; *cor.* 3.5-4 cm. long, densely appressed-pubescent with long yellowish hairs; *staminal tube* extended beyond the corolla; *pod* oblong, flat, often twisted, the margin elevated, up to 28 cm. long and 4 cm. broad, densely rusty-hairy with long stiff hairs; *seeds* more or less ovoid about 15 mm. long.

Forests in wet or moist districts, Trinidad. Endemic.

3. *I. acuminata* Benth.

Griseb. Fl. 227: Cont. U.S. Nat. Herb. 18. 195.

Tree 10 m.; *lvs.* of 3-4 pairs of leaflets with a minute saucer-shaped gland between each pair, the *rhachis* and *petiole* broadly winged; *lfts.* lanceolate, or lanceolate-elliptical, acuminate or often obtusely acuminate at the apex, narrowed to the obtuse base, 5-15 cm. long, 1.2-5.5 cm. broad, membranous, puberulous when young becoming glabrous; *stip.* linear; *fls.* sessile, in small globose heads about 10-18 cm. diam. on slender peduncles up to 7 cm. long; *buds* conspicuously acuminate; *bracteoles* oblong-linear; *cal.* about 6 mm. long, prominently pointed at least in the bud, puberulous; *cor.* appressed-pubescent with long yellowish straight hairs, longer than the calyx; *pod* linear-oblong, flat and thin, often constricted in one or two places, 10-20 cm. long, 16-25 cm. broad, glabrous or minutely puberulous; *seeds* numerous, narrowly oblong, 12-15 mm. long.

Forests in wet or moist districts, Trinidad. Endemic.

4. *I. Hartii* Urb.

Urb. Symb. Ant. 1. 311-312.

Tree; *lvs.* of 3-6 pairs of leaflets with a small gland between each pair; *rhachis* winged, *petiole* 2-4 cm. long, rarely winged; *lfts.* ovate or elliptical, mostly acuminate at the apex, usually narrowed to the obtuse base, sometimes rounded, 10-20 cm. long,

4.5-8.5 cm. broad, membranous or somewhat papery, pubescent on both sides when young, becoming glabrous above, and roughish puberulous especially on the nerves beneath or sometimes almost or quite glabrous; *stip.* ovate, ovate-oblong or roundish, 10-20 mm. long, 5-13 mm. broad, caducous; *fls.* sessile, numerous, crowded on heads 2-3.5 cm. long, 3-4.5 cm. broad; *pedu.* 1 or 2 in the leaf axils, 2-5 cm. long; *bracteoles* narrowly lanceolate, about 1 cm. long and 1.5-2 mm. broad; *cal.* cylindrical, 13-15 mm. long, striate, glabrous or nearly so; *cor.* adpressed-pubescent, 22-25 mm. long, the lobes 3-4 mm. long; *stam.* united to above the corolla, the free *filaments* long exserted; *pod* woody, compressed, 15-33 cm. long, 2.5-4 cm. broad, the margin elevated, 8-13 mm. thick, glabrous or nearly so; *seeds* numerous, ovate, oblong, 15 mm. long by 1 mm. broad.

Forests and hillsides of the northern mountains, Trinidad. Endemic.

5. *I. ingoides* (Rich.) Willd.

Mimosa ingoides Rich.

I. vera Griseb. as to Crueger's Trinidad plant.

Griseb. Fl. 228: N. Amer. Fl. 23. 15-16: Cont. U.S. Nat. Herb. 18. 214 and 217.

Tree, 15 m., young *stems* reddish-woolly; *lvs.* of 3-5 pairs of leaflets, with a small sessile gland between each pair, the rachis winged, pubescent; *lfts.* lanceolate-elliptical or elliptical, shortly acuminate at the apex, obtusely wedge-shaped at the base, 5-17 cm. long, 1.5-8 cm. broad, pubescent to glabrate above, the mid-rib densely pubescent, pubescent beneath; *racemes* short, 1 or 2 in the axils; *pedu.* 2-6 cm. long; *fls.* greenish-white; *pedi.* 3-15 mm. long; *cal.* 5-10 mm. long, pubescent; *cor.* about 2 cm. long, brownish-pubescent; *stam.* 5-7 cm. long, the tube about as long as the corolla; *pod* subcylindrical often irregularly constricted, 25 cm. long or more, with many longitudinal ribs and elevated margins, densely rusty-woolly; *seeds* longitudinally oblong, about 1 cm. long and 5 mm. broad.

Forests and hillsides, Trinidad.

Guadeloupe, Dominica, Martinique, Colombia to French Guiana.

6. *I. edulis* Mart.

N. Amer. Fl. 23.14: Pittier, Cont. U.S.A. Nat. Herb. 18.217.

Tree up to 12 m., young *stems* brownish-woolly; *lvs.* of 4-6 pairs of leaflets with a large sessile gland between each pair, the *rhachis* winged; *lfts.* elliptical or oblong-elliptical, acute or acuminate at the apex, rounded or obtuse at the base, 7-20 cm. long, finely-woolly when young; *infl.* 5-8 cm. long, composed

of clusters of 4-6 spikes, sometimes paniculate; *cal.* (in the Trinidad form) 3-4 mm. long, woolly; *cor.* 10-13 mm. long, shaggy outside; *pod* subcylindrical, 3 cm. long or more, 12 mm. diam., woolly, many-ribbed.

Herb. Trin. 12413 (without fruit), Marshall, Plum Road, Trinidad.
Broadway, 4659, The Widow, Tobago.
Grenada. Cont. Trop. America.

7. *I. macrophylla* H. and B. ex Willd.

Benth. Trans. Linn. Soc. 30. 622.

Tree, flowering stems quadrangular; *lvs.* of several pairs of leaflets with a large saucer-shaped gland between each pair, the *rhachis* winged; *lfts.* oblong to ovate-elliptical, the apex obtusely acuminate, the base obtuse or somewhat rounded, 23-26 cm. long, 8.5-10 cm. broad, membranous, puberulous to glabrous on both sides; *infl.* not seen; *pod* subcylindrical with a deep groove on either side and several longitudinal parallel ribs along each margin, about 20 cm. long, and 2.5 cm. thick, glabrous or nearly so; *seeds* more or less 4-angled, 14-16 mm. long.

The material is very incomplete but the branchlets and leaflets agree with those of specimens identified as *I. macrophylla* by Benth. and more recently by Ducke. The pod of *I. macrophylla* was not described by Willdenow. Flowering material of the Trinidad plant may prove it to be a distinct species.

Herb. Trin. 7705, P. McLean, Road to Blue Basin, 1915, Trinidad.
Northern South America.

8. *I. laurina* (Sw.) Willd.

Mimosa laurina Sw.

I. martinicensis of Griseb. at least in part.

Griseb. Fl. 227: N. Amer. Fl. 23. 2: Cont. U.S. Nat.
Herb. 18. 182.

Tree up to 15 m., glabrous in all parts; *lvs.* of 2 pairs of leaflets (rarely 1 or 3) with a minute gland between each pair, the *rhachis* wingless; *lfts.* mostly elliptical, shortly and obtusely pointed at the apex, wedge-shaped at the base, 3-10 cm. long, 1.5-6 cm. broad, shining, papery; *fls.* numerous, in sessile or subsessile, axillary, slender, elongated spikes, 10-12 cm. long; *cal.* 1.5-2 mm. long; *cor.* white, funnel-shaped, about 6 mm. long, glabrous; *stam.* long exserted, the tube slightly exceeding the corolla; *pod* irregularly oblong, flat, 5-15 cm. long, 2-3.5 cm. broad, the margins elevated, glabrous.

Herb. Trin. 2846, Tamana, and 1152, 1410 and 10045 without locality; Sieb. 120 in Herb. Kew, Trinidad.
West Indies. Cent. America.

9. *I. heterophylla* Willd.

Griseb. Fl. 227.

Small tree, glabrous; *lvs.* of 1-4 pairs of leaflets, with a small cylindrical gland between each pair, the *rhachis* wingless or very narrowly and inconspicuously winged; *lfts.* ovate-lanceolate, the apex long-acuminate, the base wedge-shaped, 2.5-8 cm. long, 2-3 cm. broad, shining; *fls.* in umbels, usually several umbels on a short peduncle, each about 7-20 fld., and 2-2.5 cm. diam.; *pedi.* thread-like, 5-7 mm. long; *cal.* minute, about 1 mm. long; *cor.* 5-7 mm. long; *staminal tube* long exerted; *pod* oblong, compressed, 4-10 cm. long, 2-2.5 cm. broad, the margins slightly thickened, glabrous.

Crueger, Tucuche: Fendler 340 and Broadway, 5839, Aripo Road, in Herb. Kew: Herb. Trin. 1032, Crueger, and McLean, Arima, Trinidad.

Northern South America.

10. *I. punctata* Willd.*I. ierensis* Britt.

Cont. U.S. Nat. Herb. 18. 187-188: N. Amer. Fl. 23. 5.

Small tree up to 16 m., young stems pubescent; *lvs.* of 2 pairs of leaflets, with a small gland between each pair; *petioles* slender, 2-3 cm. long, the *rhachis* wingless; *lfts.* broadly ovate to oblong or elliptical, more or less long and sharply acuminate at the apex, broadly rounded to wedge-shaped at the base, 5-21 cm. long, 2.5-7 cm. broad, shining, papery, with distant veins, appressed-pubescent on both sides; *infl.* more or less paniculate; *pedu.* 1-6 cm. long, finely pubescent, the *spikes* about 1 cm. long; *cal.* 3-4 mm. long, appressed-pubescent; *cor.* 5-9 mm. long, silky; *pods* broadly linear, compressed, up to 12 cm. long, 2.5 cm. broad, appressed-pubescent when young, glabrate with age, occasionally constricted between the seeds.

Forests in wet or moist districts, Trinidad and Tobago.
Guatemala to Venezuela and Bolivia.

11. *I. thibaudiana* DC.

DC. Prod. 2. 434.

Small tree; *lvs.* of 4-7 pairs of leaflets with a large saucer-shaped gland between each pair, the *rhachis* not winged; *lfts.* ovate, ovate-oblong or elliptical, acuminate at the apex, wedge-shaped to rounded at the oblique base, 5-15 cm. long, 1.8-5.8 cm. broad, finely appressed-pubescent above, the mid-rib densely pubescent, softly and finely pubescent beneath, densely so on the nerves and

mid-rib, papery; *fl. spikes* short; *pedu.* 2-6 cm. long, 2-4 together in the leaf-axils, or forming a panicle at the tops of the branches; *fls.* sessile; *cal.* cylindrical, 5-7 mm. long, densely pubescent; *cor.* cylindrical-funnel-shaped, 2-2.5 cm. long, densely silky; *staminal tube* about as long as the corolla, the free *filaments* long exerted, white; *pod* oblong, flat, curved, sometimes constricted in parts, the margin elevated, 18-25 cm. long, 2-2.6 cm. broad, densely and finely pubescent; *seeds* numerous, oblong, about 12 mm. long and 6 mm. broad.

Forests in wet or moist districts, Trinidad.

Northern South America.

DOUBTFUL SPECIES.

The two following species cannot be identified with any species of *Inga* in the Kew Herbarium and are possibly new, but the material is too poor to describe them as such.

I. sp.

Tree; *lvs.* of 4 or 5 pairs of leaflets with a saucer-shaped gland between each pair, the *rhachis* densely woolly, not winged; *lfts.* (? fully developed) obliquely lanceolate or oblong-lanceolate, the apex acute or acuminate, the base rounded or obtuse, 3-8 cm. long, 15-28 mm. broad, pubescent on both sides, the nerves and mid-rib densely so; *pedu.* rusty-woolly, one or two together in the upper axils; *pedi.* 1-2 mm. long; *cal.* rusty-woolly, about 1 cm. long; *cor.* 21-25 mm. long, thickly whitish-silky; *staminal tube* shorter than the corolla, the free *filaments* long exerted; *pod* not seen.

Herb. Trin., 9796, Broadway, Heights of Aripo, Trinidad.

I. sp.

Lvs. about 8 cm. long of 4 pairs of leaflets with a stalked gland between each pair, the *rhachis* rusty-woolly and broadly winged; *lfts.* ovate to elliptical-oblong, 3-8 cm. long, 1.5-3 cm. broad, rather densely pubescent on both sides; *infl.* not seen; *pedi.* 3-4 mm. long; *cal.* about 9 mm. long, shortly woolly, the lobes acute; *cor.* about 12 mm. long, densely silky with long hairs; *staminal tube* about as long as the corolla; *pod* long linear, not less than 30 cm. in the 1 immature, incomplete *pod* seen, 1.5 cm. broad, flat with the margins raised from 2-2.5 mm. on either side and laterally furrowed, densely rusty-woolly.

Herb. Trin. 1289, Dannouse, Maracas, Trinidad.