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Vol. 1.]

[Part 7.

FLORA
OF
TRINIDAD AND TOBAGO .

MYRTALES (CONCL.)
PASSIFLORALES.
FICODALES.
UMBELLALES.

BY
E. E. CHEESMAN.

Price: - - 54c.



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FAMILY 6. LYTHRACEAE.*

Herbs, shrubs or trees. Lvs. usually opposite, entire and simple. *Stip.* none or very small. *Fls.* hermaphrodite, regular or irregular, solitary or in racemes, cymes or panicles. *Axis* hollow, forming the so-called *calyx-tube*, generally tubular or bell-shaped, with 3-12 valvate primary teeth or *calyx lobes* and often with *accessory teeth* or *epicalyx*. *Pet.* as many as the calyx lobes, crumpled in the bud, sometimes fewer or absent. *Stam.* typically twice as many, sometimes fewer or numerous, inserted at various heights in the calyx tube. *Ovary* free from, but surrounded by, the calyx tube, 2-6 celled at the base at least, rarely 1-celled; *style* simple; *stig.* usually capitate; *ovules* usually numerous, on axile placentas. *Fruit* most often a capsule, more or less enclosed in the calyx.

Of introduced species, *Cuphea ignea* A.DC., *C. llavea* Lex. and *C. micropetala* H.B.K. are grown in beds and borders. *Lawsonia inermis* L. (*L. alba* Lam.), cultivated in the East for henna is known locally as West Indian Mignonette, and grown as an ornamental shrub. *Lagerstroemia indica* L. and *L. flos-reginae* Retz. (Queen of Flowers) are well-known ornamentals.

- | | |
|-------------------------------|----------------------|
| Petals none..... | 1. <i>Ammannia</i> . |
| Petals pink or purple | |
| Fls. sessile, regular | 2. <i>Rotala</i> . |
| Fls. stalked, irregular | 3. <i>Cuphea</i> . |
| Petals white | 4. <i>Crenea</i> . |

1. AMMANNIA L.

Herbs, annual. *Stems* more or less 4-angled. *Lvs.* decussate, sessile, and entire. *Fls.* small, in axillary, sessile clusters. *Cal.* lobes 4, with 4 accessory teeth (in Trinidad species). *Pet.* none (in Trinidad species). *Stam.* 4 (-8), inserted about the middle of the calyx tube. *Caps.* enclosed by the calyx tube, 1-5 celled. *Seeds* numerous, very small, leathery.

*Preliminary notes on this and the following family by R. O. Williams have been completed by E. E. Cheesman and N. Wright, and revised by N. Y. Sandwith.

1. *A. latifolia* L.

Griseb. Fl. 270: Fawc. & Rendl. Fl. Jam. 5. 294.

Glabrous herb up to 35 cm. freely branching; stem 4-angled above, roundish at base; lvs. decussate, lanceolate-linear or linear, auricular-cordate at base, up to 4.5 cm. long, 8 mm. broad; fls. usually 3 in each axil (5-1); cal. tube 5 mm. long, 3 mm. broad, oblong urn-shaped, lobes 4, indistinct, the accessory teeth 4, spreading; pet. none; stam. and style enclosed within the calyx; caps. globose, 0.4 cm. diameter.

Herb. Trin. 13111 Cheesman and Wright, rice lands at St. Augustine; Fendler 366 in Herb. Kew., Trinidad.

West Indies and Cont. Trop. America.

2. *ROOTALA* L.

Herbs, usually annual and small, always glabrous. Lvs. opposite or whorled. Fls. single or clustered in the leaf-axils. Cal. tube thin, hemispherical to urn-shaped. Pet. usually persistent, rarely caducous or wanting. Stam. opposite the sepals, as many as the latter or less (down to 1). Caps. septicidal, 2-4 lobed, its wall by transmitted light very minutely horizontally striated.

1. *R. ramosior* (L.) Koehne.

Ammannia ramosior L.

A. humilis Michx.

Griseb. Fl. 270: Urb. Symb. Ant. 4. 435; 8. 469-470.

Herb, up to 25 cm. high; stem 4-angled above, roundish below; lvs. opposite and decussate, 1 cm. apart or less, linear-lanceolate, blunt at apex, tapering to the sessile base; fls. single in the axils, with two laterally placed sterile bracteoles; bracteoles 3 mm.; cal. tube 3 mm., its triangular lobes 1 mm., with 4 slightly longer and narrower accessory teeth between them; pet. 4, pink, 1 mm. long; stam. 4; style very short; caps. globose, 2 mm. in diameter; seeds numerous.

In moist grassy places, such as rice fields after reaping, Trinidad. West Indies, N. America to Brazil, Philippine Is.

3. *CUPHEA* Adans.

Herbs or shrubs. Lvs. opposite, rarely whorled, entire. Fls. usually interpetiolar and not in the leaf-axil, single or in clusters, irregular. Cal. tube elongate, ribbed, usually with a pouch or spur at the base. Pet. 6, unequal, seldom 4, 2, or 0. Stam. 11, sometimes 9 or 6, very rarely 4, joined to the middle of the calyx tube or higher. Ovary 2-celled, the septum often evanescent,

with a fleshy ring or outgrowth of the receptacle below it. *Fruit* a capsule, in which the placentas often bend out through a fissure of the calyx and ovary wall.

Lvs. linear, not exceeding 2 cm. long.....1. *C. denticulata*.

Lvs. lanceolate, up to 12 cm. long2. *C. setosa*.

1. *C. denticulata* H.B.K.

C. multiflora Lodd.

C. parviflora Hook.

C. trinitatis DC.

Griseb. Fl. 270.

Subshrub, 10-30 cm. high, much branched, becoming very woody at base; young *branches* thickly pubescent; *lvs.* opposite, linear lanceolate, up to 2.5 cm. long, 6 mm. broad, glabrous except for spine-like hairs on the margins and on the midribs beneath; *fls.* in terminal racemes, the leaves quickly diminishing; *cal. tube* 4 mm. long, conspicuously furrowed, hairy within, *lobes* minute; *pet.* 6, pink, linear, 2 mm. long; extruded placentas of the *caps.* 2 mm. long.

Shaded banks and mountain paths, and by streams. Northern Range and Moruga, Trinidad; Tobago.

British Guiana, Venezuela.

2. *C. setosa* Koch.

Diffuse shrub, rooting from the stems where decumbent; young stems dark red with two lines of reflexed hairs down the internodes, alternating with the leaves of the node above; *lvs.* opposite, lanceolate, tapering into a very short petiole, up to 12 cm. long, 3 cm. wide, somewhat rough, with scattered stiff hairs along the veins on both surfaces, veins dark red; *fls.* in pairs in terminal racemes on pedicels of 2 mm., alternating with pairs of minute hairy bracts; *cal. tube* 6 mm. long, pubescent, constricted about the middle, pouched at the base, *lobes* 6, unequal, broadly triangular; *pet.* 6, unequal, purple; *stam.* 10, their filaments hairy and of unequal length.

Banks and beds of streams, Tobago; not recorded from Trinidad. Mexico, Central America, Colombia, Peru, Bolivia.

4. *CRENEA* Aubl.

Glabrous *herbs* or *shrubs*. *Lvs.* opposite, entire. *Pedu.* axillary, solitary, 1-2 fld., 2-bracteolate below the fls. *Fls.* rather large, white. *Cal. tube* urceolate, *lobes* 4, accessory teeth none. *Pet.* 4, obovate, corrugate. *Stam.* 12-16, inserted at the middle of the calyx tube, *filts.* elongated, exserted, *anths.* oblong. *Ovary* globose, included in the calyx tube, 4-celled. *Style* exserted, *stig.* capitate, *ovules* numerous. *Caps.* globose, by disappearance of the septa 1-celled, 4-valved, with numerous seeds on a free central placenta.

1. *C. surinamensis* (L.f.) Koehne.

Dodecas maritimus Griseb. as to the Trinidad plant, not *C. maritima* Aubl.
Griseb. Fl. 270.

Shrubby, 35-45 cm. high, erect, stem 4-angled, simple or few-branched; *lvs.* oblong spatulate, narrowing to the base, subsessile, 2-5 cm. long, 4-6 mm. broad; *fls.* 15 mm. wide; *pedi.* 4-6 mm. long; *cal. tube* 4-5 mm. long, lobes 4, 3-4 mm., broadly ovate, acuminate, persistent; *pet.* 4, white, spatulate with a very short limb and a claw about 5 mm. long; *ovary* 2 mm. long, *style* 7 mm.

On edge of mangrove thickets, banks of the Caroni River, Trinidad. Herb. Trin, 12580, Father Graf; Herb. Kew, Crueger specimen and Broadway 7476.

Guiana, Brazil, Colombia and Ecuador.

FAMILY 7. ONAGRACEAE.

Mostly perennial herbs, a few shrubs or trees. *Lvs.* opposite or alternate, simple. *Stip.* nearly always absent, but minute ones are present in *Jussiaea*. *Fls.* usually hermaphrodite and regular, solitary in the leaf axils or in spikes or racemes. *Axis* hollow forming the so-called *calyx tube*, joined to the ovary, and often produced beyond it (but not in *Jussiaea*); *cal. lobes* 2-4 (rarely 5-6) valvate. *Pet.* usually 2-4, occasionally 0, inserted at the base of the *disc* when such is present, twisted in the bud, falling early. *Stam.* 1-8 inserted with the petals. *Ovary* inferior, usually 4-celled, the septa commonly imperfect; *style* simple; *stig.* capitate; *ovules* 1-numerous in each cell. *Fruit* various, often a capsule. *Seeds* usually small.

1. JUSSIAEA L.

Herbs or, rarely, *shrubs*. *Lvs.* alternate, usually entire. *Stip.* 2, minute. *Fls.* yellow or white, axillary, solitary. *Pedi.* often very short, with 2 bracteoles at the top which are usually small and frequently represented only by glands. *Cal. tube* cylindrical or prismatic, lobes 4-6, acute, persistent. *Pet.* 4-6, inserted under the margin of a *disc*, spreading. *Stam.* twice as many, inserted with the petals, *fil.* short, *anths.* ovate or oblong. *Style* simple, *stig.* 4-6 lobed. *Capsule* cylindrical or with 4-12 angles or ridges, 4-6 celled, splitting both septicidally and loculicidally, the valves breaking up and leaving the 8-12 persistent ribs. *Seeds* numerous, attached to the margins of the valves or to placentas separating from the valves.

A genus of water and marsh plants, but several species occur commonly on drier land also.

- Capsule obconical, long-stalked1. *J. peruviana*.
- Capsule prismatic, 4-angled,
 - Caps. subsessile, narrow2. *J. erecta*.
 - Caps. stalked, about 3 times longer than broad3. *J. decurrens*.
 - Caps. stalked, nearly as broad as long ...4. *J. latifolia*.
- Capsule subcylindrical
 - Cal. lobes 5 (-6).
 - Cal. lobes 8-12 mm. ; caps. distinctly stalked5. *J. leptocarpa*.
 - Cal. lobes 3-6 mm. ; caps. very shortly stalked.....6. *J. affinis*.
 - Cal. lobes 4.
 - Caps. about 2 cm. long, glabrous.....7. *J. linifolia*.
 - Caps. 3-5 cm. long, pubescent.
 - Caps. rounded at base ; bracteoles reduced to glands.....8. *J. suffruticosa*.
 - Caps. tapering at base ; bracteoles linear9. *J. octonervia*.

1. *J. peruviana* L.

J. hirta Vahl.

Griseb. Fl. 273: Fawc. and Rendl. Fl. Jam. 5. 405.

Shrub, 1-3 m. high, erect ; young stems shortly hairy ; *lvs.* broadly lanceolate, acute at both ends, petioled, prominently veined, pubescent on both surfaces, especially along the veins beneath, up to 20 cm. long, 7 cm. broad, petioles 1-4 cm. ; *pedi.* 1 cm. or more long in flower ; *bracteoles* conspicuous, sometimes leafy and up to 1 cm. long and broad ; *cal. lobes* triangular-ovate, acuminate, 1 cm. long or more, increasing slightly on the fruit ; *pet.* yellow, longer than the calyx lobes, about 1.5 cm. long, 2 cm. broad ; *stam.* 8 ; *caps.* 1.5-2.0 cm. long, 1 cm. broad at the top, tapering gradually to the pedicel ; seeds very numerous, in several series, narrowly ellipsoidal, slightly curved, with slightly or scarcely prominent raphe.

Along streams and in marshes, Trinidad.

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

2. *J. erecta* L.*J. acuminata* Sw.

Griseb. Fl. 272 (in part): Urb. Symb. Ant. 8. 505:

Fawc. & Rendl. Fl. Jam. 5. 406.

Herb. 0.3-2 m., much branched, the branches ascending; *stems* angled, glabrous; *lvs.* lanceolate to linear-lanceolate, the upper ones linear, up to 10 cm. long, 2.5 cm. broad; *fls.* subsessile; *cal. tube* 7 mm. long, 1 mm. wide, 4-angled, *lobes* narrowly triangular, 4 mm. long, usually falling before the capsule ripens; *pet.* yellow, obovate, slightly longer than the calyx lobes; *caps.* 1.5-1.8 cm. long, 3 mm. broad, very slightly rough with minute appressed hairs; *seeds* brown, shining.

Herb. Trin. 3094, 8906, no locality; 4439 Broadway, Princes Town; 13114 Cheesman and Wright, in rice lands at St. Augustine, Trinidad. Tobago (ex Urban).

West Indies, Cont. Trop. America.

3. *J. decurrens* DC.

Griseb. Fl. 272.

Herb. 1-1.5 m., erect, glabrous and shiny; *stem* winged by the decurrent leaf bases; *lvs.* linear-lanceolate, sessile, the lower 12 cm. long, 2.5 cm. wide, the upper linear, 6 cm. long; *pedi.* about 5 mm.; *cal. tube* prominently winged, *lobes* triangular, very finely toothed on their usually reddish margins; *pet.* about 1 cm. long and nearly as broad; *caps.* 1.5 cm.; *seeds* brown, shining, slightly curved, with inconspicuous raphe.

Herb. Trin. 12028, Williams, Fyzabad; 13109 Cheesman and Wright, St. Augustine in rice lands; *Herb.* Kew. Fendler 364, Broadway 6724 Mora Forest, Trinidad.

St. Vincent; Cont. Trop. America.

4. *J. latifolia* Benth.

Herbaceous, minutely puberulous on stems and main nerves of leaves; *branches* angled; *lvs.* lanceolate or elliptical-lanceolate, acute at both ends, shortly petioled, 4-11 cm. long, 1-3.7 cm. broad; *pedi.* 1-4 mm. long; *cal. tube* angled, 6 mm. long, 4 mm. wide at top, urn-shaped, *lobes* ovate or triangular-lanceolate, acute, hairy on the margins, 5-6.5 mm. long; *pet.* shorter than the calyx lobes; *caps.* 8-10 mm. long, 5-8 mm. broad; *seeds* brown, shining.

Herb. Trin. 3092, Finlay, Road to Siparia 1865, the only local record. In Hart's List as *J. acuminata*.

Cont. Trop. America.

5. *J. leptocarpa* Nutt.*J. pilosa* H.B.K.*J. variabilis* Meyer.

Micheli in Mart. Fl. Bras. 13. 2. 164: Malme in Arkiv.

Bot. 29A. 2 p. 8.

Erect *subshrub* 1-2 m. high, pubescent; *branches* spreading; *lvs.* lanceolate, the lower up to 15 cm. long, the upper 3-8 cm. long, 1-2 cm. wide, acute at apex, tapering to a subsessile base; *fls.* shortly stalked, the *pedicel* in fruit 4-7 mm. long; *cal. lobes* 5 (sometimes 6), lanceolate, acuminate, 8-12 mm. long; *petals* obovate, up to 13 mm. long when fresh and as broad as long; *caps.* cylindrical, pubescent, 2-3 cm. long, 3 mm. in diameter; *seeds* each surrounded by a horseshoe-shaped segment of the corky endocarp.

Grisebach (Fl. 272) includes both this species and *J. affinis* under the name of *J. variabilis* Meyer. The Lockhart specimen cited by him is *J. affinis*.

Oropouche Lagoon, Trinidad.

West Indies and Cont. Trop. America; also in Trop. Africa.

6. *J. affinis* DC.

Micheli in Mart. Fl. Bras. 13. 2. 165 tab. 34 fig. 1:

Malme in Arkiv. Bot. 29A. 2 p. 9.

Plant erect or straggling and subscandent, somewhat shrubby, up to about 1 m. high, more or less pubescent; *branches* spreading; *lvs.* lanceolate or ovate-lanceolate, 3-10 cm. long, 1.5-3.0 cm. wide, thus shorter and relatively broader than those of *J. leptocarpa*, acute at apex, tapering to a subsessile base; *fls.* subsessile; *cal. lobes* 5 (sometimes 6), ovate, 3-6 mm. long; *petals* obovate, about as long as the calyx lobes and as broad as long; *caps.* cylindrical, pubescent, 2.5-3 cm. long, 3-4 mm. in diameter; *seeds* each surrounded by a horseshoe-shaped segment of the corky endocarp.

Roadsides and damp grassy places in moist districts, Trinidad, Cont. Trop. America.

7. *J. linifolia* Vahl.*J. acuminata* Sw. sens. Griseb. in part.

Griseb. Fl. 272.

Herb. 0.3-1.5 m., glabrous, reddening in age; *stem* angled above but not prominently winged, roundish below, much branched, the *branches* spreading; *lvs.* lanceolate or ovate-lanceolate, tapering to the short petiole or subsessile base, the lower up to 8 cm. long, 2 cm. wide, the upper 1-3 cm. long, rather prominently veined; *fls.* subsessile, about 1.2 cm. long;

cal. lobes narrowly triangular to lanceolate, 3 mm. long; *pet.* slightly longer, obovate-lanceolate; *caps.* 2-3 cm. long, about 2 mm. broad; *seeds* in one series in each loculus, each surrounded by a segment of the corky endocarp.

A common weed in rather dry as well as wetter places, and extremely variable with habitat, sometimes reduced to a simple stem a few centimetres in height.

General, Trinidad.

Cuba, Cont. Trop. America.

8. *J. suffruticosa* L.

J. angustifolia Lam.

J. villosa Lam.

Griseb. Fl. 273 (in part): Fawc. & Rendl. Fl. Jam. 5. 407 (in part); Micheli in Arch. Sci. Bull. Univ. Geneve, 1874, and in Mart. Fl. Bras. 13. 2. 169.

Erect, branching *herb*, often woody at base and up to about 1 m. high, variable in pubescence; *lvs.* linear lanceolate, tapering to both ends, subsessile, 5-12 cm. long, 1-1.5 cm. wide; *pedi.* about 2 mm.; *cal. lobes* 4, ovate, 5-8 mm. long and about half as wide; *petals* yellow, obovate, up to 12 mm. long, 10 mm. wide when fresh; *caps.* 3-4 cm. long, 4-5 mm. broad, cylindrical, rounded at the base, its *bracteoles* reduced to glands; *seeds* in several series, with a very large raphe, giving the appearance of an empty cell attached to the ripe seed, the whole seed thus spheroidal with a groove.

This and the following species have been combined as *J. suffruticosa* by Fawcett and Rendle and other authors and as *J. angustifolia* by Britton and Wilson (Sci. Surv. Porto Rico 6. 46). Micheli (*loc. cit. supra*) has given reasons for their separation, which seem to be confirmed in the herbarium and in the field, and he is followed by Malme (in Arkiv. Bot. 29A No. 2 p. 11. 1937).

General in Trinidad and Tobago.

Warm countries of both hemispheres.

9. *J. octonervia* Lam.

? *Oenothera octovalvis* Jacq.

J. suffruticosa L. var. a. of Griseb. Fl. 273.

J. octofila DC.

Micheli in Arch. Sci. Bibl. Univ. Geneve (1874) and in Mart. Fl. Bras. 13. 2. 170: Malme in Arkiv. Bot. 29A. 2. 11 (1937).

Woody *herb* or *subshrub*, 1-2 m. high, pubescent; *lvs.* lanceolate, very shortly stalked, 5-6 cm. long, 1.5-2 cm. wide, thus distinctly shorter and broader than those of *J. suffruticosa*,

sometimes wavy at the margins; *pedi.* about 5 mm.; *cal lobes* 4, ovate, about 1 cm. long and half as wide; *petals* longer than the calyx lobes; *caps.* 3-5 cm. long, narrowing gradually to the base and often conspicuously stalked, its *bracteoles* linear awl-shaped; seeds as in *J. suffruticosa*.

In moist places, Trinidad and Tobago.

West Indies; Florida, Texas; widely distributed in Central and S. America.

COHORT 13. PASSIFLORALES.

BY

E. E. CHEESMAN.*

Flowers hermaphrodite; ovary superior or half-inferior.

Trees or shrubs; stamens more than 5 1. *Samydaceae*.

Shrubs or herbs; stamens 5 2. *Turneraceae*.

Climbers, usually with tendrils; ovary stalked 3. *Passifloraceae*.

Flowers unisexual; ovary completely inferior.

Fls. symmetrical; plant usually climbing by tendrils 4. *Cucurbitaceae*.

Fls. asymmetrical; plant without tendrils 5. *Begoniaceae*.

FAMILY 1. SAMYDACEAE.

Trees or shrubs. *Lvs.* alternate, two-ranked, simple, petiolate, often pellucid-dotted, entire or toothed. *Stip.* usually small and deciduous. *Fls.* inconspicuous, in racemes or panicles or clustered, with jointed, bracteolate pedicels, regular, hermaphrodite. *Cal.* leathery, persistent, lobes 3-7, imbricate or valvate. *Pet.* as many as the calyx lobes, rarely more, sometimes none. *Disc* perigynous

*Preliminary notes by R. O. Williams have been utilized. All the Trinidad material of PASSIFLORACEAE has been very kindly examined and determined by Dr. E. P. Killip, to whom I am indebted for the basis of the key to that family and for sundry notes, and from whose published works I have drawn many details in the descriptions. The manuscript of the remaining families has been critically revised at the Royal Botanic Gardens, Kew, by Mr. N. Y. Sandwith, whose great assistance, particularly with SAMYDACEAE and CURCUBITACEAE, is gratefully acknowledged.—E. E. C.

or hypogynous. *Stam.* few or indefinite, in one or several series, often alternating with staminodes, equidistant or bunched opposite to the petals; *Ovary* free, or more rarely joined to the calyx tube, sessile, unilocular; *style* usually short, entire, or narrowly trifid at apex; *stig.* usually simple; *ovules* many or few on 3-5 parietal placentas. *Fruit* a capsule or rarely indehiscent, leathery or fleshy, 1-many seeded, splitting into 3-5 valves alternating with the placentas. *Seeds* usually small, often arillate.

Perianth of one whorl; seed with aril.

Staminodes as many as stamens

- | | |
|-----------------------|----------------------|
| Style present | 1. <i>Casearia</i> . |
| Style absent | 2. <i>Zuelania</i> . |
| Staminodes none | 3. <i>Samyda</i> . |

Perianth of two whorls; seed without aril

- | | |
|--------------------|----------------------|
| Style single | 4. <i>Banara</i> . |
| Styles 2-6 | 5. <i>Homalium</i> . |

1. CASEARIA Jacq.

Trees or *shrubs*. *Lvs.* often with pellucid dots or lines. *Stip.* small, deciduous. *Fls.* hermaphrodite, in clusters or umbels, rarely solitary, inconspicuous, greenish, yellow or whitish, rarely pink. *Cal. lobes* 4-6, imbricate. *Pet.* none. *Stam.* 6-15 (rarely 20-23) in a single series, alternating with an equal number of staminodes (or disc lobes). *Filts.* free or joined at the base to each other and to the staminodes. *Ovary* free, narrowing into a short style, with a single capitate stigma or 3; *ovules* numerous, on 3 parietal placentas. *Caps.* fleshy or dry, opening in 3 or 4 valves with the many seeds borne along their middle lines. *Seeds* oblong or angled, with a fleshy aril.

Style trifid, with 3 stigmas 1. *C. sylvestris*.

Style simple

Stam. 8.

Stam. twice as long as staminodes..... 2. *C. guianensis*.

Stam. barely exceeding staminodes..... 3. *C. spinescens*.

Stam. 10.

Lvs. with numerous pellucid dots;

fr. small, dry 4. *C. zizyphoides*.

Lvs. with few or no pellucid dots;

fr. 1 cm. fleshy 5. *C. decandra*.

Stam. about 20-23 6. *C. tremula*.

1. *C. sylvestris* Sw. Wild Coffee.

Griseb. Fl. 23: Fawc. & Rendl. Fl. Jam. 5. 214: Urb.
Symb. Ant. 4. 422 and 8. 448: Sleum. & Uitt. in Pulle,
Fl. Surin. 3. 297.

Shrub or small *tree*; *lvs.* elliptical, acuminate, entire or inconspicuously toothed, pellucid-dotted, glabrous, usually slightly unequal-sided, up to 16 cm. long, 7 cm. broad, on *petioles* 0.5-1 cm.; *fls.* clustered in the leaf-axils, white and fragrant; *pedi.* 3-5 mm. jointed below the middle, with membranous *bracts* at the base; *stam.* 10, *anths.* subglobose, with a gland at the apex; *staminodes* (or disc-lobes) as many, hairy, about half as long as the stamens; *style* trifid, with 3 capitate stigmas; *fr.* ovoid-globose, glabrous, red or orange, about 4 mm. in diameter, opening in 3 valves; *seeds* enclosed in red, sticky arils.

Woodlands and forests, Trinidad and Tobago.

West Indies and Trop. Cont. America.

2. *C. guianensis* (Aubl.) Urb. Pipe Wood.

C. ramiflora Vahl.

Iroucana guianensis Aubl.

Griseb. Fl. 24 (excl. var. B): Urb. Symb. Ant. 3. 322,
4. 420 and 8. 447: Fawc. & Rendl. Fl. Jam. 5. 214:
Sleum. & Uitt. in Pulle, Fl. Surin. 3. 292.

Shrub or small *tree* up to 10 m., young *stems* brown, hairy; *lvs.* oblong-elliptical, obovate-elliptical or elliptical, obtusely and shortly acuminate, more or less definitely toothed, pellucid-dotted and lined, pubescent on both sides when young, later glabrescent, 6-18 cm. long, 2-10 cm. broad, on *petioles* of 2-5 mm.; *fls.* greenish white, fragrant, clustered in the leaf axils or more usually at defoliated nodes below the leafy apex of the branches; *pedi.* about 4 mm., jointed near the base, usually, with the calyx, brownish pubescent; *cal. lobes* oblong, obtuse, spreading, about 3 mm. long; *stam.* 8; *staminodes* (or disc lobes) as many, about half as long, hairy; *ovary* more or less hairy; *fr.* (ex Fawc. & Rendl.) white, often with one side brownish violet or reddish brown, ellipsoidal or subglobose, 6-12 mm. long; *seeds* with orange-coloured arils.

In woods and by roadsides, in both moist and dry district
Trinidad and Tobago.

West Indies, Central and Trop. S. America.

3. *C. spinescens* (Sw.) Griseb.

Guidonia spinescens Griseb.

Casearia brevipes Benth.

Griseb. Fl. 24: Urb. Symb. Ant. 8. 445: Britt. & Millsp.

Bah. Fl. 286.

Shrub or small *tree* up to 6 m. ; *branchlets* pubescent, sometimes forming spinelike spurs ; *lvs.* lanceolate, elliptical or obovate, acuminate, narrowing to a short petiole, toothed, pellucid-dotted, more or less pubescent on both surfaces when young, later glabrescent, nearly equal-sided, 2-7 cm. long, 0.8-3 cm. broad ; *fls.* white, fragrant, about 1 cm. diam. when expanded, in few-flowered axillary clusters ; *pedi.* 3-4 mm., pubescent, jointed above the middle ; *cal.* pubescent, 4 mm. long, *lobes* ovate to obovate ; *stam.* 8, a little longer than the felted staminodes ; *fr.* ovoid, 1.5-2 cm. long, 3-valved, the valves crimson within ; *seeds* pale brown, with orange-coloured arils.

Dry hillsides, Trinidad and Tobago.

Cuba and Guiana.

4. *C. zizyphoides* H.B.K.

C. serrulata Sw. sec. Griseb. Fl. 23, as to the Trinidad plant, not Sw.

Sleumer in Notizbl. Bot. Gard. Berlin 12. 53.

Shrub (or small *tree*?), *branchlets* very slender, the young ones felted ; *lvs.* elliptical or elliptical-lanceolate, acuminate, inconspicuously but sharply toothed, pellucid-dotted and lined, glabrous, only slightly unequal-sided, 2-5 cm. long, 1-2 cm. broad, on *petioles* 2-4 mm. ; *pedi.* 2-3 mm. ; *cal.* 2 mm. ; *stam.* 10 ; *fr.* globose, about 3 mm. in diameter.

Only recorded within the Colony from the dry hillsides of Chacachacare.

Margarita, Venezuela, British Guiana.

5. *C. decandra* Jacq.

Wild Cherry.

C. parvifolia Willd.

Griseb. Fl. 23: Urb. Symb. Ant. 4. 420 and 8. 447.

Shrub or small *tree* up to 10 m. ; *lvs.* elliptical to obovate, acuminate with a long tapering point, toothed, not or rarely pellucid-dotted, glabrous, equal sided, 3-8 cm. long, 1-4 cm. broad, on short *petioles* of 2 mm. ; *pedi.* about 5 mm., jointed near the base ; *stam.* 10 ; *fr.* red, globose, fleshy, 1 cm. diameter.

In forests on Southern Range, and Mayaro, Trinidad, Tobago (ex Utilitas).

West Indies and South America.

6. *C. tremula* (Griseb.) Wright.*C. spiralis* Johnston.*C. bonairensis* Boldingh.*Zuelania tremula* Griseb.

Sleumer in Notizbl. Bot. Gard. Berlin 11. 959.

Small tree; *lvs.* ovate-oblong, oblong or obovate-oblong, acuminate, oblique at the base and wedge-shaped, rounded or slightly cordate, shallowly toothed, conspicuously pellucid-dotted, glabrous or pilose along the lower half of the midrib beneath, 3-10 cm. long, 2-4.5 cm. broad, on long slender *petioles* 0.8-2.5 cm. long; *fls.* in dense clusters on long slender *pedicels* up to about 1 cm. long; *sep.* unequal, 4-6 mm. long, very thin; *fr.* "green" (Broadway) globose, 1.2-1.8 cm. diameter, on *pedicels* 1.3-1.8 cm. long.

Near flagstaff, Patos Is., Broadway 7518 in Herb. Kew., det Sleumer.

Cuba, Dutch W. Indies, Margarita, Venezuela, Colombia, S. Mexico.

2. *ZUELANIA* A. Rich.

Trees or shrubs. *Lvs.* pellucid-dotted. *Fls.* hermaphrodite, in dense clusters. *Cal. lobes* 4-5, imbricate. *Pet.* none. *Stam.* 20-40, alternating with as many staminodes. *Ovary* free; *stig.* sessile or subsessile; *ovules* numerous on 3 placentas. *Caps.* fleshy, globose, berry-like but at length opening by valves. *Seeds* arillate.

1. *Z. Guidonia* (Sw.) Britt. and Millsp.

Sardine.

Z. laetioides A. Rich.*Z. Roussoviae* Pittier.

Britt. and Millsp. Bah. Fl. 285: Pittier in Cont. U.S. Nat. Herb. 18 (1916) 163: Standley *ibid* 23 (1923) 843.

Deciduous tree 10-25 m. high, sapwood and to a limited extent the bark exuding a clear gum, bark grayish and rugged on the trunk and main limbs, reddish and smooth on the young twigs; *lvs.* on young shoots only, oblong, rounded at base, subacute, toothed, pellucid-dotted, more or less pubescent above, hairy beneath, 8-10 or up to 20 cm. long, 3-4 or up to 8 cm. broad, on *petioles* of about 1 cm.; *fls.* 10-15 together, clustered in defoliate axils; *pedi.* 12-14 mm. long, hairy; *cal. lobes* 5, ovate, rounded at tip, greenish or greenish white, 7 mm. long;

stam. 32-34 ; *staminodes* or disc lobes 34-42, about 2 mm. long, sparsely covered with long hairs ; *ovary* densely hairy ; *stig.* sessile ; *fr.* globose, with 3 shallow grooves, about 3.5 cm. in diam., yellowish green or purplish green, endocarp opening as a 3-valved leathery capsule, mesocarp pulpy ; *seeds* numerous, about 4 mm. long.

Herb. Trin. 12915, Marshall, Southern Watershed Reserve ; Herb. Kew., Broadway 6083, (det. Sleumer) San Fernando Hill, Trinidad. Cuba, Jamaica, Bahamas, Panama.

3. SAMYDA L.

Shrubs. *Lvs.* pellucid-dotted ; *stip.* minute. *Fls.* hermaphrodite, axillary, solitary or clustered. *Cal. tube* bell-shaped, coloured ; *lobes* 4-6, imbricate, unequal. *Pet.* none. *Stam.* 8-13 inserted in the throat of the calyx. *Ovary* free, narrowing into the style ; *stig.* capitate ; *ovules* very numerous, on 3-5 placentas. *Fruit* leathery-fleshy, 3-5 valved at apex. *Seeds* angled, with a fleshy aril.

1. *S. dodecandra* Jacq.

S. serrulata L.

Griseb. Fl. 25: Urb. Symb. Ant. 4 418 and 8. 444.

Shrub or small *tree* up to 4 m. ; *lvs.* soft, oblong or elliptical, toothed, more or less pubescent above, velvety beneath, 5-10 cm. long, variable in being pointed or blunt, and in the size and number of the teeth ; *fls.* white pubescent ; *cal.* variable in length (*vide* Urban), lobes blunt.

The only record of this species for Trinidad appears to be Sieber 46 in Herb. Kew.

Greater and Lesser Antilles.

4. BANARA Aubl.

Trees or *shrubs.* *Lvs.* unequal at the base, often with glandular teeth, *stip.* minute. *Fls.* small, in panicles, pubescent or felted. *Cal. tube* short, *lobes* 3-5, valvate, persistent. *Pet.* 3-5, imbricate, resembling the calyx lobes. *Stam.* very numerous. *Ovary* narrowing into a slender persistent style ; *stig.* capitate ; *ovules* very numerous on 3-8 placentas in several series. *Fruit* indehiscent, leathery or fleshy, many seeded. *Seeds* striate, without aril.

1. *B. guianensis* Aubl.

Trilix glandulosus Domb.

Griseb. Fl. 22: Sleum. and Uitt. in Pulle, Fl. Surin. 3: 300.

Shrub or small *tree* up to 6 m.; young *stems* brown pubescent; *lvs.* oblong or ovate-oblong, acuminate, irregularly toothed with a small cup-shaped gland at the apex of each tooth, and a larger one at the base of the midrib beneath, upper surface with scattered hairs, lower thickly grayish-pubescent, up to 15 cm. long, 7 cm. broad, on *petioles* about 1 cm.; *fls.* greenish-white, fragrant, in greyish-pubescent panicles; *cal. lobes* 3 (-4), ovate, about 4 mm. long; *pet.* similar; *fr.* 7-8 mm. diam., globose, pointed by the persistent style, pulpy within; *seeds* numerous, brown, 1 mm. long, longitudinally ridged.

Trinidad specimens agree with the Panama, rather than the French Guiana, material in Herb. Kew. but the whole species is very variable.

Herb. Trin. 1787 San Fernando; 9268 Carr, Caparo 12076 Williams, Lady Chancellor Road; 12168 Williams, Southern Watershed Reserve, Trinidad.

Cont. Trop. America.

5. *HOMALIUM* Jacq.

Shrubs or *trees*. *Lvs.* glandular-toothed, rarely entire. *Fls.* small, in slender axillary racemes. *Cal. tube* top-shaped, joined to the ovary at the base, *lobes* 6-7, persistent. *Pet.* 6-7, persistent, inserted at the throat of the calyx and alternate with its lobes. *Stam.* as many as the petals and opposite to them, or more numerous in clusters opposite the petals, alternating with the glandular lobes of the disc; *anths.* small. *Ovary* half-superior, with 2-6 threadlike styles; *ovules* many or few, on 2-6 placentas. *Caps.* leathery, 2-6 valved at apex. *Seeds* angular or oblong, without arils.

1. *H. racemosum* Jacq.

Urb. Symb. Ant. 8. 443: Fawc. & Rendl. Fl. Jam. 5. 223:

Sleum. and Uitt. in Pulle, Fl. Surin. 3. 302.

Small *tree*. *Lvs.* elliptical to oblong, parchmentlike, nearly glabrous, shortly and obtusely acuminate, toothed, 8-14 cm. long, 4-7 cm. broad; *fls.* white to yellowish green, in long, slender racemes; *pedi.* up to 1 cm. at base of inflorescence; *cal. lobes* lanceolate, 3-3.5 mm. long; *pet.* broader and longer; *stam.* in clusters of 3-4; *ovary* densely hairy; *styles* 3, distinct.

Trinidad (ex Journ. Linn. Soc. 4. 36). Otherwise unknown from Trinidad.

West Indies, Guiana, N. Brazil.

FAMILY 2. TURNERACEAE.

Herbs or shrubs. Lvs. alternate, petiolate, simple or pinnately cut, usually acutely toothed, often 2-glandular at the base. *Stip.* small or none. *Fls.* axillary, solitary or few, hermaphrodite, regular. *Cal.* tubular, 5-lobed, lobes imbricate deciduous. *Pet.* 5, inserted in the throat of the calyx, clawed, twisted in the bud, membranous. *Stam.* 5, *filts.* free. *Ovary* free, 1-celled; *styles* 3, simple or bifid; *stig.* brushlike. *Caps.* 1-celled, 3-valved. *Seeds* numerous, on placentas along the middle lines of the valves, oblong-cylindrical, with a membranous aril and copious endosperm.

- Styles simple 1. *Turnera*.
 Styles bifid 2. *Piriqueta*.

1. TURNERA L.

Herbs, subshrubs or shrubs. Lvs. toothed or somewhat divided, often 2-glandular at the base. *Fls.* solitary, yellow. *Pedu.* usually united with the petiole, with 2 bracteoles. *Cal.* tube short, lobes oblong, linear or lanceolate. *Pet.* obovate rounded or spatulate, shortly clawed. *Ovary* sessile; *styles* simple. *Caps.* 3-valved to the base.

T. ulmifolia L. with canary yellow flowers and its variety (*var. elegans* Hort.) with petals purple-blotched at the base, are low shrubs grown in gardens and occasionally spontaneous as escapes. They are natives of some West Indian Islands, Central and South America, but not of Trinidad.

- Shrub, lvs. ovate 1. *T. odorata*.
 Herb, lvs. linear 2. *T. guianensis*.

1. *T. odorata* Rich.

T. parviflora Benth.
 Griseb. Fl. 297.

Shrub, to 2 m.; young stems brownish hairy; *lvs.* ovate to lanceolate, coarsely toothed, usually 2-glandular at the base, softly pubescent above, velvety beneath, 1.5-8 cm. long, 1-3.5 cm. broad, on petioles of about 5 mm.; *fls.* subsessile free from the petiole; *bracteoles* linear, nearly as long as the calyx; *cal.* hairy, 5-lobed; *pet.* a little longer than the calyx; *caps.* hairy, globose, 5 mm. in diameter; *seeds* few.

Cedros and Icacos, Trinidad, and dry hillsides of Chacachacare Is. Guiana and Brazil.

2. **T. guianensis** Aubl.

Tribolacis juncea Griseb.

Griseb. Fl. 297.

Herb., becoming woody at base 30-40 cm. high; *stems* slender, freely branched below, branches erect, giving a tufted grass-like appearance to the plant; *lvs.* linear, 1-6 cm. long, distant, decreasing on the flowering stems to bracts; *fls.* in few-fl. terminal racemes, shortly pedicellate; *cal.* 8 mm. long, slightly constricted above the base; *pet.* 6 mm. long, spatulate; *caps.* globose, exceeding the persistent bracteoles.

Savannahs of Aripo and Piarco, Trinidad.

Venezuela, Guiana, Brazil.

2. **PIRIQUETA** Aubl.

Herbs, subshrubs or shrubs. *Lvs.* without glands (in Trinidad species). *Pedu.* (in Trinidad species) free and without bracteoles. *Styles* divided.

1. **P. cistoides** (L.) Meyer.

Turnera cistoides L.

Griseb. Fl. 298: Fawc. & Rendl. Fl. Jam. 5. 230: Urb.

Symb. Ant. 4. 422 and 8. 449.

Herb., 20-60 cm. high, variable in pubescence, commonly with reddish stellate and simple hairs; *lvs.* oblong to linear lanceolate, without glands, broadly and distantly toothed, the lower up to 8 cm. long, 2 cm. broad, upper ones 1-2 cm. long and linear or reduced to bracts; *pedi.* about 1 cm., jointed above the middle, without bracteoles, increasing to 2 cm. in fruit; *cal.* 5 mm. long, lobed nearly to the middle; *pet.* usually exceeding the calyx lobes, yellow, very delicate; *styles* divided to about the middle; *caps.* globose or ovoid, 7 mm. long, 3-valved to near the base, valves brittle; *seeds* nearly 2 mm. long, pitted.

A form with leaves up to 3 cm. broad is distinguished as var. *latifolia* Urb. (Broadway 6316, St. Augustine).

Grassy savannahs and weed of open cultivation, Trinidad.

West Indies. Cont. Trop. America.

FAMILY 3. PASSIFLORACEAE.

Herbs or shrubs, most commonly climbing by tendrils. *Lvs.* alternate, entire or variously lobed; *petioles* often glandular; *stip.* 2 or none. *Fls.* axillary, hermaphrodite (rarely unisexual), regular, often showy. *Receptacle* (or *calyx tube*) saucer- or bell-shaped, bearing at its throat or within one or several series of filamentous or membranous outgrowths (*corona* and *operculum*). *Sep.* 5, often coloured within. *Pet.* as many, or none. *Stam.* usually 5, borne below the ovary on an elongation of the axis (*gynophore*). *Ovary* 1-celled; *styles* 3-5 or one 3-5-branched. *Fr.* berry-like or capsular. *Seeds* numerous, covered with a fleshy *aril*, or pulp.

Note: Two members of the closely allied family *Caricaceae* have been recorded in Trinidad. *Carica papaya* L., the papaw, widely cultivated throughout the Tropics, is indigenous to Central America, and possibly some West Indian Islands. In Trinidad it only occurs spontaneously as an escape from cultivation. *Carica cauliflora* Jacq., recorded by Grisebach on the authority of Don, is represented in the Trinidad herbarium by one specimen from Maraval, dated 1893. This was probably an introduced plant; the species is not otherwise known from Trinidad.

1. PASSIFLORA L.

Climbers. Tendrils axillary, unbranched. *Fls.* usually large, solitary; *pedu.* jointed, usually with 3 bracts, which are either small and distant from the flower or large, leafy and close to the flower forming an *involucre*. *Receptacle* (or *cal. tube*) shorter than the rest of the flower. *Cal. lobes* 5, often horned at the apex. *Pet.* 5 or none. *Corona* of one or several series of distinct or more or less united filaments, borne at or just below the throat of the tube, the outer usually longer than the inner ones. *Operculum* of a single series borne within (or below) the corona, membranous, flat or folded, entire, fringed or filamentous, rarely wanting. *Stam.* 5, their *filts.* joined to the gynophore below, free above. *Ovary* stalked, oblong or subglobose; *styles* 3; *stig.* capitate. *Berry* dry or pulpy. *Seeds* pitted, netted or transversely grooved.

P. quadrangularis L., the granadilla or barbadine, *P. edulis* Sims, passion fruit, and *P. maliformis* L., paraquite, are cultivated for their fruit, but not indigenous.

Bracts scattered along peduncle or
wanting,

Petals none ; fls. rarely over 1 cm.

wide.....1. *P. suberosa*.

Petals present ; fls. larger,

Petioles with 2 auricular glands

at base.....2. *P. auriculata*.

Petioles glandless,

Plant pubescent ; bracts none 3. *P. rubra*.

Plant glabrous ; bracts present,

Lvs. longer than broad4. *P. tuberosa*.

Lvs. broader than long5. *P. vespertilio*.

Bracts forming an involucre near base
of flower,

Bracts pinnately cut, the ultimate
segments gland-tipped.....6. *P. foetida*.

Bracts entire, toothed, or fringed,

Lvs. compound, with stalked

leaflets.....7. *P. pedata*.

Lvs. simple entire or variously
lobed.

Bracts linear ; fls. rich pink

or red8. *P. quadriglandulosa*.

Bracts ovate ; fls. white,

pinkish or bluish,

Lvs. deeply 5-7-lobed.....9. *P. serrato-digitata*.

Lvs. entire or 3-lobed,

Stip. semi-cordate oblong ;

bracts small, soon

deciduous.....10. *P. cyanea*.

Stip. narrowly linear ;

bracts enclosing bud,

persistent,

Lvs. never lobed.....11. *P. laurifolia*.

Lvs. variable in lobing...12. *P. serrulata*.

1. *P. suberosa* L.

P. pallida L.

P. hirsuta L.

P. minima L.

Griseb. Fl. 290: Urb. Symb. Ant. 4. 424 and 8. 451:

Fawc. & Rendl. Fl. Jam. 5. 238: Killip, American

Species of Passifloraceae in Field Mus. Nat. Hist. Bot.

Ser. 19. 88. (1938).

Stems slender ; *stip.* linear ; *petioles* 0.5-1.5 cm. long, with a pair of glands near the middle ; *leaf-blades* very variable in form and size, usually more or less 3-lobed with the median lobe the longest, lobes triangular, ovate or oblong, acute or obtuse, varying from glabrous to hairy, usually without glands beneath ; *fls.* single in the axils or 2 together ; *pedicels* about 1 cm. long, jointed above the middle, bracts minute, thread-like, soon deciduous ; *cal.* green, pale within, darker without, its lobes oblong, blunt, up to 7 mm. long, 3 mm. wide ; *cor.* wanting ; *corona* of 2 series of rather fleshy spreading filaments, half as long as the sepals ; *operculum* membranous, folded, the margin incurved ; *fruit* 1 cm. in diameter, blackish purple.

Dry woodlands and thickets, Trinidad. Tobago (ex Urban).

Widely distributed throughout Trop. America.

2. *P. auriculata* H.B.K.

P. appendiculata G. F. W. Meyer.

P. torta Mast.

Griseb. Fl. 291: Killip *loc. cit.* 122 ; and in Pulle Fl. Surin. 3. 313.

Stems slender, ribbed, very shortly pubescent ; *stip.* minute, soon deciduous ; *petioles* 1-3 cm. long, with a pair of sessile ear-like glands, 1-2 mm. across, near the base ; *leaf-blades* variable from ovate to oblong, rounded at base, acute at apex, up to 12 cm. long, 8 cm. wide, "undulately or angulately 3-lobed, rarely unlobed" (ex Killip, but Trinidad material is most often unlobed), glabrous except for a minute pubescence on the nerves, usually with scattered glands beneath, firm in texture ; *fls.* usually 2 in each axil ; *pedi.* about 1 cm. long, not jointed, bearing 2 or 3 small bracts in the lower half ; *cal. lobes* greenish-yellow, narrow triangular, 12 mm. long, blunt ; *pet.* linear and inconspicuous, 2-3 or up to 7 mm. long ; *corona* in 2 series, the outer of fleshy filaments about 8 mm. long, purple at base, whitish above, the inner of slender, white capitate filaments 2 mm. long ; *operculum* membranous, closely folded, white, 1 mm. high ; *fruit* spheroidal, about 1 cm. in diameter, purplish black ; *seeds* black, 3 mm. long, transversely wrinkled.

Thickets in northern districts, Arima, Guanapo, Piarco, Sangre Grande, Trinidad.

Cont. Trop. America from Nicaragua to the Amazonian basin of Peru, Bolivia and Brazil.

3. *P. rubra* L.

Griseb. Fl. 292: Urb. Symb. Ant. 4. 426 and 8. 453:

Fawc. & Rendl. Fl. Jam. 5. 239: Killip *loc. cit.* 217.

Stems slender, ribbed, hairy; *lvs.* bilobed, the lobes blunt, divergent; *stip.* linear; *petioles* 1-2 cm. long; *blades* 3-7 cm. long (along median nerve) 6-11 cm. broad (from point to point of lobes), cordate at base, margins entire, pubescent on both surfaces, especially on the veins beneath; *fls.* solitary or occasionally 2 in the axil; *pedi.* 3-4 cm. long, jointed near the top; *bracts* none; *cal. lobes* 5, linear-lanceolate, 1.5-2 cm. long, 3-4 mm. wide, green-veined and pubescent outside, white within; *pet.* white, linear, 1 cm. long; *corona* in 1 or 2 series, the outer segments threadlike, pinkish, 1 cm. long, the second series if present barely 2 mm. high, *operculum* membranous, minutely fringed; *gynophore* 7 mm. long; *ovary* 4 mm., hairy; *fruit* ovoid, 2-5 cm. long, 1-3 cm. in diameter, red, hairy; *seeds* black, about 3 mm. long.

Thickets and hedges in moist districts, Trinidad.

West Indies and in S. America to Peru and Bolivia, east to eastern Brazil.

4. *P. tuberosa* Jacq.Killip *loc. cit.* 159.

Plant glabrous; *stems* slender; *lvs.* bilobed, the lobes only slightly divergent; *stip.* linear, 3-4 mm. long; *petioles* 1-1.5 cm. long; *blades* 6-15 cm. long (to tips of lobes), 3-10 cm. wide, rounded at base, variable in lobing, the sinus extending from one-fourth to three-fourths of the total length of blade, the lobes correspondingly short and broad or long and narrow, sometimes purplish beneath, often marked above with a yellowish or whitish band along the lateral nerves, bearing 2 glands between the nerves at base beneath and others scattered on the lower surface; *fls.* 2 in each axil, greenish-white, up to 6 cm. across; *pedi.* 2-4 cm. long, jointed about 5 mm. below the flower; *bracts* linear, inconspicuous; *cal. lobes* oblong-lanceolate, blunt, 1.5-2.5 cm. long; *pet.* thin, oblong, semi-reflexed between the calyx lobes, about half as long; *corona* filaments in 2 series, the outer strap-shaped, up to 7 mm. long in the fresh flower, banded purple, the inner thread-like, 0.5-2 mm.; *operculum* folded; *gynophore* about 1 cm. long, purplish; *fruit* (unripe) ovoid, 2 cm. long, 1.5 cm. in diameter.

Thickets in moist districts, Trinidad and Tobago.

St. Thomas. Northern S. America.

5. *P. vespertilio* L.

P. hemicycla G. F. W. Mey.

P. biflora Lam. sec. Griseb. Fl. 293 (in part), non Lam.
Killip loc. cit. 156.

Stems slender; *lvs.* glabrous, rounded at the base, 2-3 lobed, the lateral lobes blunt and broadly spreading, the median lobe small or wanting, so that the whole blade is a broad crescent, or almost semicircular with a wavy truncate top, *glands* 2 at the base of the median nerve beneath and several others scattered on the lobes, *blades* up to 5 cm. long (along median vein) 12 cm. broad (from point to point of lobes), *petioles* 1-2 cm. long; *fls.* solitary or 2 (rarely 3) to the axil; *pedi.* about 1 cm., jointed a little above the middle; *bracts* minute, just below the joint; *cal. lobes* lanceolate, blunt, greenish-white, 2 cm. long; *pet.* white, narrow-oblong, 1 cm. long; *corona* filaments in 2 series, the outer longer than the petals, united at the base into a broad membrane, the inner very slender, 3-4 mm. long, arising from the united part of the outer series; *operculum* membranous, closely folded; *gynophore* 9 mm. long; *ovary* 3 mm. long; *fr.* purplish-black, 2-3 cm. in diameter when fresh.

Thickets in moist districts, Trinidad.

Guianas and Venezuela, South to Amazonian Brazil.

6. *P. foetida* L.

Griseb. Fl. 294: Urb. Symb. Ant. 4. 424 and 8. 452:

Fawc. & Rendl. Fl. Jam. 5. 237: *Killip loc. cit.* 481
and in Pulle Fl. Surin. 3. 316.

Stems round above, ribbed below, softly hairy; *lvs.* usually 3-lobed, cordate at base, upper sometimes almost lanceolate with very small lateral lobes near base, commonly 4-5 cm. long, about as wide across the lobes, lobes minutely toothed or almost entire, fringed with hairs and stalked glands, softly hairy on both surfaces, *petioles* 1-1.5 cm.; *stip.* deeply cut, the segments glandular; *fls.* usually solitary in the axils; *pedu.* 2.5-3 cm., *involucral bracts* deeply cut, the ultimate segments filiform, gland-tipped; *cal. lobes* narrow-triangular, 1.5-2.5 cm. long, greenish without, whitish within, pointleted; *pet.* white, thin, as long as the calyx; *corona* filamentous in several series, the outer segments whitish, nearly as long as the petals, the next dark purple at base, white above, the innermost purple and very short; *ovary* 3 mm. long, densely hairy; *fr.* ovoid, about 3 cm. long, yellow.

Hillsides, savannahs and forest clearings, Trinidad and Tobago.
Widely distributed in the West Indies and South America

var. a. hispida (DC.) Killip (*P. hispida* DC. ; Triana & Planch. Ann. Sci. Nat. V. Bot. 17: 172. 1873), a form with glabrous ovary, basal leaf-blades prominent, and the bracts more closely interwoven.

Herb. Trin. 5720, D.W.A., Carapichaima; 8738 and 9758 Broadway, Tabaquite.

West Indies and northern S. America.

7. *P. pedata* L.

Urb. Symb. Ant. 8. 456: Killip *loc. cit.* 382 and in Pulle Fl. Surin. 3. 318.

Plant very shortly and finely pubescent; *stems* slender, ribbed on drying; *lvs.* compound, with 3 shortly stalked leaflets, the middle leaflet oblong, up to 10 cm. long, 4 cm. wide, acuminate, denticulate, not lobed, the lateral leaflets again 3-parted to the base, their segments like the middle leaflet, but smaller; *petioles* 1.5-4 cm. long, biglandular at or below the middle, *stip.* linear-awl-shaped 5-10 mm. long; *fls.* solitary in the axils; *pedu.* up to 5 cm. long, stout; *involucral bracts* oblong or ovate, up to 5 cm. long, 2.5 cm. wide, fringed on the margin; *cal. lobes* ovate, 3-3.5 cm. long, pointed, green without, light blue or violet within; *petals* linear lanceolate, light blue or violet, as long as the sepals; *corona* filaments purple with paler bands, in several series, the outermost rather fleshy, about 1.5 cm. long, those of the second series slightly longer, dilated below the middle, those of succeeding series hairlike, 1-1.5 mm. long; *operculum* membranous, the margin densely fringed; *ovary* ovoid, densely pubescent; *fr.* globose, about 4 cm. in diameter, yellow.

Herb. Trin. 11,901 Williams, Teteron Bay, Trinidad (1927).
Greater Antilles; northern S. America.

8. *P. quadriglandulosa* Rodschied.

Tacsonia quadriglandulosa DC.

T. sanguinea DC. sens. Griseb. Fl. 296, non DC.

Killip *loc. cit.* 316.

Stems woody at base, climbing up to 50 ft. or more on forest trees; *lvs.* variable, commonly oblong or elliptical-oblong, up to 15 cm. long, 6 cm. wide, sometimes 3-lobed, rounded or wedged-shaped at base, acuminate at apex, coarsely and irregularly toothed, almost glabrous except for fine pubescence along the veins; *petioles* about 1 cm. long, sometimes glandular; *stip.* threadlike, 3-5 mm. long, deciduous; *fls.* solitary in the axils, on young leafy shoots from the older wood; *pedu.* 3-5 cm.;

bracts 1 cm. long, linear-lanceolate, acuminate, glandular; *cal. lobes* oblong-lanceolate, 5-8 cm. long, keeled, the keel terminating in an awn; *petals* crimson, as long as the sepals but without awns; *corona* of 3 series, the outermost filamentous to the base, 1-1.5 cm. long, bright red, the second similar but a little shorter, the third filamentous in the upper third only, joined below into a tubular membrane, the membranous portion red, the filaments white; *fruit* ovoid, about 5 cm. long.

Forests in wet or moist districts, Trinidad.

British Guiana; Amazon basin of Peru, Bolivia and Brazil. Also in the Lesser Antilles, where perhaps introduced.

9. *P. serrato-digitata* L.

P. serrata L.

P. digitata L.

Griseb. Fl. 293: Urb. Symb. Ant. 4. 427: Killip *loc. cit.* 341 and in Pulle, Fl. Surin. 3. 320.

Plant glabrous (except the bracts); *stem* round; *lvs.* palmately 5-7-lobed to below the middle, shallowly cordate at base, up to 15 cm. long, 18 cm. wide, the lobes oblanceolate, up to 4 cm. wide, acuminate, finely toothed; *petioles* 4-10 cm. long, with a pair of glands just below the blade and others about the middle; *stip.* linear, about 1.5 cm. long, soon deciduous; *fls.* solitary or 2 in each axil, 6-8 cm. across when expanded; *pedu.* 3-4 cm. long; *involucral bracts* ovate, joined at the base, usually to about their middle, about 4 cm. long, 2 cm. wide; *cal. lobes* greenish-white without, blue-tinged within, oblong, up to 3.5 cm. long, 1-1.5 cm. wide; *petals* pinkish blue, up to 3 cm. long, about 1.2 cm. wide, blunt; *corona* in several series, the 2 outer series filamentous, banded, 1-2.5 cm. long, the inner series reduced to deep pink papillae or tubercles arranged in a number of irregular and broken rows; *gynophore* on the fruit 3-4 cm. long; *fr.* globose or elliptical, about 4 cm. (sometimes up to 6 cm.) in diameter.

Thickets in moist or wet districts, Trinidad.

West Indies, Guianas and Amazonian Brazil to southern Bolivia and Peru. Sometimes cultivated for its edible fruit.

10. *P. cyanea* Mast.

P. monticola J. R. Johnst.

Mart. Fl. Bras. 13. 570 (1872): Proc. Amer. Acad. 40. 692 (1905): Killip *loc. cit.* 455.

Plant glabrous throughout; *stems* slender, roundish; *lvs.* 3-lobed, truncate or shallowly cordate at base, the lobes broadly ovate to oblong-ovate, bluntish to rounded at apex, almost entire, the middle lobe usually narrowed at its base, the lateral lobes

spreading, whole blade 4-8 cm. long, 5-12 cm. wide, often somewhat glaucous; *petioles* 2-4 cm. long; *stip.* leafy, asymmetrical, commonly 2-3 cm. long, 1 cm. wide, entire, terminated by a slender glandular pointlet; *fls.* about 5 cm. across, bluish or purplish, single or paired in the axil; *pedu.* 5 cm. long; *involucre* borne 0.5-1 cm. below the flower, its *bracts* lanceolate, 4-5 mm. long, 2-3 mm. wide; *cal. lobes* narrowly oblong, 2.5-3.0 cm. long, 0.5 cm. wide, green without, dorsally awned; *petals* white, nearly as long as the sepals; *corona* in several series, the outer 2 or 3 series of filaments 1-1.3 cm. long, the inner about 2 mm.; *operculum* membranous below, filamentous above, its filaments 5-6 mm. long; *fr.* ovoid, about 4 cm. long.

Thickets in moist districts, Trinidad and Tobago.

Northern Venezuela.

II. *P. laurifolia* L. Belle Apple. Pomme de Liane.

Griseb. Fl. 293: Urb. Symb. Ant. 8. 456: Fawc. & Rendl. Fl. Jam. 5. 235: Killip *loc. cit.* 365 and in Pulle, Fl. Surin. 3. 323.

Stem becoming woody at base, up to 3 cm. or more in diam., young branches roundish; *lvs.* oblong, entire, somewhat leathery, up to 14 cm. long, 6 cm. wide, rounded at base, very shortly pointletted at apex, on *petioles* 1-2 cm. long, with a pair of glands just below the blade; *fls.* solitary or 2 (-3) in the axils, 6-10 cm. across, strongly scented; *pedi.* 3 cm., not jointed, *bracts* green, broadly oval, 4-5 cm. long and nearly as wide, glandular on the margin in the upper half; *cal. lobes* 5, rosy-purple dotted within, whitish without, narrow oblong, 4 cm. long, 1.5-2 cm. wide, with a 5 mm. filiform dorsal appendage just below the apex; *pet.* rosy-purple dotted, a little shorter and narrower than the calyx; *corona* in several series, the outer segments filamentous, 1.5 cm. long, the next rather fleshy, dark violet banded with white, as long as the corolla or a little longer, within these several rows of very short filaments; *operculum* a continuous membranous ring; *ovary* 1 cm. long; *fr.* orange-yellow, ovoid, 6-8 cm. long.

Thickets and forest borders in moist or wet districts, Trinidad and Tobago. Also cultivated in the Colony.

West Indies, Guiana, N. E. Venezuela and N. Brazil. Often cultivated for its fruit.

12. *P. serrulata* Jacq.

Jacq. Obs. Bot. 2: 26. pl. 46, f. 2 (1767): Killip loc. cit. 357.

Stems round above, 1-2 mm. in diameter, becoming corky at the base and up to 1 cm. thick; *lvs.* variable, the lower sometimes entire, ovate-lanceolate, up to 12 cm. long, 7.5 cm. wide, the upper usually 3-lobed, 4-12 cm. long, the margins very finely toothed; *petioles* 1-3 cm. long, with a pair of glands at or below the middle; *stip.* linear, 3-6 mm. long; *fls.* solitary in the axils, 5-6 cm. across, fragrant; *pedu.* 2-3 cm. long; *bracts* broadly obovate, enclosing the bud, 2-5 cm. long, 1.5-3 cm. wide; *cal. lobes* white, lanceolate, 1.5-2 cm. long; *petals* white, linear-lanceolate, a little shorter than the sepals and much narrower; *corona* in several series, the outer 2 series of linear filaments 1.5-2 cm. long, purple-banded, the next 2 or 3 series of very short tubercles, the innermost about 1 mm. long; *operculum* membranous; *fruit* yellowish, globose, about 2.5 cm. in diam.; *seeds* about 5 mm. long.

Rocky hillsides, Gasparee, Monos, Chacachacare and Patos Is. Venezuela and northern Colombia.

FAMILY 4. CUCURBITACEAE.

Climbing or prostrate *herbs*, annual or with a perennial root, rarely shrubby, usually with abundant sap. *Lvs.* alternate, simple, palmately lobed or divided, usually cordate. *Tendrils*, when present, lateral, solitary, simple or branched. *Fls.* unisexual, the sexes usually on the same plant (*monoecious*), sometimes on different individuals (*dioecious*), usually regular. *Cal. tube* joined to the ovary; *lobes* 5 (sometimes 3 or 6) imbricate. *Pet.* 5 (3 or 6) free or united. *Stam.* free or variously united, most commonly 3, of which one has a 1-celled anther and the others 2-celled anthers; *filts.* usually short; *anths.* free, coherent, or joined into a head, often bent up and down. *Ovary* inferior, or with the apex free, usually of 3 carpels, 3-celled, the placentas meeting in the axis. *Fruit* usually berry-like, sometimes called a *pepo*, fleshy or corky, rarely dehiscent, commonly 1-celled by dissolution of the partitions in ripening.

Lagenaria vulgaris Ser., (gourd), *Citrullus vulgaris* Schrad. (water melon), *Cucurbita* sp. (pumpkin) and *Sechium edule* Sw. (christophine) are commonly cultivated and may occasionally be found growing spontaneously as escapes. *Benincasa hispida* Cogn.

(*B. cerifera* Savi) (wax gourd), *Cucumis sativus* Linn. (cucumber) and *Trichosanthes anguina* Linn. (snake gourd) are also grown. *Luffa cylindrica* (Lour.) Roem. though a native of the Old World Tropics, may be considered naturalised and is included below.

- Fr. opening by valves 1. *Momordica*.
- Fr. opening transversely,
 Fr. dry, opening by an apical lid 2. *Luffa*.
 Fr. fleshy, opening near the base 3. *Corallocarpus*.
- Fr. not opening, berry-like,
 Stam. 2,
 Cal. green; corolla large,
 contracted at base 4. *Anguria*.
 Cal. red; corolla small, not
 contracted at base 5. *Gurania*.
- Stam. 3,
 Anthers straight or little curved,
 Fruit not exceeding 5 cm long,
 Cal. tube bell-shaped 6. *Melothria*.
 Cal. tube slender, stalk-like 7. *Ceratosanthes*.
 Fruit about 10 cm. long 8. *Posadaea*.
 Anthers distinctly bent or folded,
 Fls. usually clustered;
 cal. lobes minute, or not exceed-
 ing 3 mm. long;
 seeds basal 9. *Cayaponia*.
 Fls. all solitary; cal. lobes
 about 1 cm. long; seeds
 horizontal 10. *Sicana*.
- Stam. 5 11. *Fevillea*.

1. MOMORDICA L.

Herbs, climbing or prostrate, annual or perennial. *Lvs.* lobed or entire. *Pedu.* sometimes with a large bract. *Male fls.* solitary or in panicles; *cal. tube* short, bell-shaped, closed by 2 or 3 incurved scales, lobes 5; *cor.* 5-cleft to base; *stam.* 3, *anths.* at first cohering, then free, one 1-celled and the others 2-celled. *Female fls.* solitary; *cal.* and *cor.* similar to male; staminodes none, or represented by 3 glands at base of style; *ovary* with 3 placentas; *stig.* 3; *ovules* numerous, horizontal. *Fruit* (in the Trinidad species) 3-valved.

1. *M. Charantia* L.

Carilla.

Griseb. Fl. 287: Urb. Symb. Ant. 4. 612; 8. 696:
Britt. & Millsp. Bah. Fl. 425: Fawc. & Rendl. Fl.
Jam. 5. 259.

Slender climber; stems usually 2-4 mm. thick, ribbed, sparsely pubescent or almost glabrous; tendrils simple; lvs. 4-8 cm. long and wide, palmately cut nearly to the base into 5 (-7) obovate toothed lobes, usually almost glabrous except on the veins; male fls. solitary on very slender peduncles, 5 cm. or more long, with a roundish bract, 5 mm. across, below the middle; cal. tube broadly bell-shaped, 3 mm. long, lobes ovate, 4 mm.; petals yellow, 1-1.5 cm. long, 7-9 mm. broad; female fls. on rather shorter peduncles, with the bract generally near the base; cal. tube and ovary 1 cm. long, lobes oblong, 2-3 mm.; petals yellow; fr. 4-6 cm. long, bright orange, narrowed to the base and to a very acute beaked apex, 8-ribbed, with prominent tubercles on the ribs, opening in 3 irregular valves from the apex; seeds oval, compressed, barely 1 cm. long, covered with a bright red pulp.

The description given applies to var. *abbreviata* Ser. ex DC., which is the common local form of the species. A more typical form also occurs in Trinidad, but is much less common. It tends to be larger in plant and leaf, and its fruit, 8 cm. long or more, tapers more gradually to its acute apex, without distinct beak. (Herb. Trin. 13316 Cheesman, Lopinot Road, and ex Cogn. Mon. 346.)

Banks, thickets and waste lands; Trinidad and Tobago.

Tropics of both Hemispheres, native of the Old World.

Cultivated Species.

M. cochinchinensis Spreng, a native of Tropical Asia, with flat brown seeds 3-4 cm. in diameter, occurs in gardens.

2. *LUFFA* Cav.

Annuals. Lvs. 5-7 lobed, petiole without glands. *Tendrils* 2-many branched. *Male fls.* in racemes; *stam.* 3 (rarely 5), *filts.* free or 2 united. *Female fls.* solitary; *cal. tube* produced above the ovary; *ovary* long, with 3 placentas, *style* columnar, with a 3-lobed *stigma*. *Fr.* dry, oblong or cylindrical, opening by a lid at the apex. *Seeds* oblong, compressed.

1. *L. cylindrica* (Lour.) Roem.*L. aegyptiaca* Mill.

Fawc. & Rendl. Fl. Jam. 5. 261.

Strong vine, climbing or creeping; *lvs.* palmately 5-lobed, up to 20 cm. long and wide, cordate at base, lobes acute or acuminate, toothed, rough on both surfaces; *male fls.* on the upper parts of *peduncles* up to 20 cm. long or more; *pedicels* 0.5-1 cm.; *cal. tube* 8 mm. long, *lobes* broadly triangular-ovate, 1.5 cm. long; *petals* broadly ovate, 4.5 cm. long and wide, yellow, very thin, quickly fading; *filts.* 3-5; *female fls.* on shorter *peduncles* (8-10 cm.); *ovary* 3-3.5 cm. long, densely clothed with appressed hairs, marked with 10 longitudinal dark lines; *cal. tube* above ovary 7 mm. long, *lobes* 1.5 cm. long but narrower than in the male; *cor.* similar to male; *stig.* 12 mm. across; *fruit* about 20 cm. long; *seeds* flat, 12 mm. long, surrounded by a short wing.

Waste lands, most commonly near habitation, but apparently naturalized, Trinidad.

An Old World species naturalized throughout the American Tropics.

3. *CORALLOCARPUS* Welw.

Prostrate herbs roughish or subtomentose. *Lvs.* rounded or cordate, lobed or palmate. *Tendrils* simple. *Fls.* minute. *Male fls.* clustered at the ends of long peduncles; *cal.* broadly bell-shaped, *lobes* 5, short; *cor.* 5-parted; *stam.* 3, *filts.* very short, *anths.* one 1-celled, the others 2-celled, cells straight. *Female fls.* sessile or shortly stalked; *ovary* 1-3-celled, *style* straight, with no disc at base, *stig.* 2-3. *Fr.* fleshy, ovoid, opening transversely at base, few-seeded.

1. *C. emetocatharticus* (Gros.) Cogn.

Cogniaux in Bull. Soc. Bot. Belg. 30 (1891) 279, and in Engl. Pflanzenreich 4. 275. 1. p. 172; Urb. Symb. Ant. 4. 611.

Young stems and buds densely whitish-pubescent, older stems glabrous; *lvs.* membranous, suborbicular or broadly ovate-triangular, 3-9 cm. long, 4-10 cm. broad, adpressed pubescent or becoming glabrous above, whitish-woolly tomentose beneath, margin obscurely denticulate, lobes undivided, sinus broad and

rounded; *petiole* pubescent, 0.8-3 cm. long; *fls.* all sessile, densely clustered; *male fls.* very shortly hairy; *ovary* oblong, longitudinally striate, densely villous at the base; *fr.* sessile, narrowly ovoid, 10-12 mm. long, 6 mm. thick, 6-8 seeded.

Rocky hillside on Gasparee Is. (551 E.E. Britton and Dorothy Coker in New York Botanical Garden Herbarium, coll. March, 1920). The only record for the Colony.

St. Thomas, St. Croix, Guadeloupe; Mexico to Venezuela.

4. *ANGURIA* L.

Fls. dioecious. *Male fls.* grouped at the ends of long peduncles; *stam.* 2, free, included in the calyx tube, *anths.* 2-celled. *Female fls.* solitary, clustered, or arranged like the male; *ovary* with 2 placentas; *style* bifid; *stig.* 2, bifid. *Fr.* oblong or ovoid, round, angled or ridged, many-seeded.

Leaves trifoliate, or if simple, entire; *fls.*

spicate 1. *A. triphylla*.

Leaves simple, variously lobed; *fls.*

racemose 2. *A. umbrosa*.

1. *A. triphylla* Miq.

A. elliptica Britton.

Cogniaux in Engl. Pflanzenreich 4. 275. 1. p. 184: Britton in Bull. Torr. Bot. Club 50. 54.

Slender, glabrous *vine*; *stems* round; *lvs.* compound with 3 shortly stalked leaflets, or occasionally simple and entire; *petioles* 1-3 cm. long, somewhat fleshy, *petiolules* about 1 cm.; *lfts.* (or *lvs.* when simple) elliptical or oblong-elliptical, sometimes oblong-obovate, 8-15 cm. long, 3-8 cm. wide, rounded or narrowed at base, abruptly acuminate at apex, entire, somewhat leathery when fresh, drying thin; *male fls.* in spikes, on *peduncles* longer than the leaves, deciduous after blooming, old spikes up to 10 cm. long; *cal. tube* 1-1.5 cm. long, green, *lobes* triangular, acute, about 1 mm.; *cor.* red, its *lobes* obovate, 6 mm. long; *anth.* 5 mm. long; *female fls.* solitary, on a peduncle 1-2 cm. long, increasing on the fruit to 3-4 cm.; *fruit* ovoid, rounded at base, narrowed at apex, 3-4 cm. long, 2-2.5 cm. in diameter; *seeds* about 7 mm. long.

A. elliptica Britton l. c. seems to be nothing but a variety of *A. triphylla* in which the leaves are all simple. Vines can be found bearing both kinds of leaves.

Forests in wet districts, Trinidad.

Northern South America.

2. **A. umbrosa** Kunth.

Griseb. Fl. 289: Cogniaux in Engl. Pflanzenreich l. c. 190.

Lvs. simple, deeply 5-lobed, 12-16 cm. long and about as wide, basal sinus bordered by the lateral nerves, lobes ovate, oblong, or obovate-oblong, acuminate, remotely denticulate, pubescent along the veins beneath; *petioles* 3-5 cm. long, pubescent; *male fls.* in racemes, on common peduncles 10-20 cm. long, *pedi.* 2-5 mm. long; *cal. tube* 1-1.5 cm. long, green, inflated at base, *lobes* triangular lanceolate, about 2 mm. long; *cor.* orange red, lobes about 1 cm. long, 0.5 cm. wide; *anth.* 9-11 mm. long, with a very shortly papillose appendage; *female fls.* solitary or in pairs or threes on pedicels up to 3 cm. long; *ovary* about 1 cm. long, *cal. tube* above ovary 8-9 mm., lobes about 2 mm. long; *cor.* as in male; *fruit* (unripe) ellipsoid, bluntly beaked, about 3.5 cm. long, 1.8 cm. wide, striped with dark green on a paler ground.

Moist shaded places, Trinidad and Tobago.

Mexico; Northern S. America.

Notes: 1. Cogniaux (*loc. cit.* p. 189) cites Broadway 2009 (St. Clair, on fence, Dec. 11. 1907) and Broadway 3271 (Belmont, Sept. 1907) as *A. Plumieriana* Schlecht. These specimens in Herb. Berol. have been examined by N. Y. Sandwith who refers both to *A. umbrosa*.

2. Eggers 5560 (Tobago) in Herb. Berol. identified by Cogniaux (*loc. cit.* p. 181) as *A. Ottoniana* Schlecht. has been examined by N. Y. Sandwith and referred by him to *A. umbrosa*.

5. **GURANIA** Cogn.

Fls. small, without bracts, dioecious (seldom monoecious). *Cal. tube* cylindrical or subglobose. *Male fls.* variously grouped at the ends of long peduncles; *stam.* 2. *Female fls.* solitary, clustered, or arranged like the male; *ovary* with 2 placentas; *style* bifid; *stig.* bifid. *Fr.* many seeded.

1. **G. spinulosa** (Poepp. and Endl.) Cogn.

Anguria spinulosa Poepp. & Endl.

Cogniaux in Engl. Pflanzenreich l. c. 216.

Coarse vine, climbing or straggling; *stems* shortly pubescent, somewhat woody at base; *lvs.* 3-lobed, up to 30 cm. long, 35 cm. wide, but more usually 15-20 cm. long, base cordate with a broad sinus, lobes wavy, margins revolute, minutely toothed, very shortly pubescent above, densely pubescent beneath;

pedu. of the *male vine* axillary, about 20 cm. long; *male fls.* crowded in a short raceme at the tip of the peduncle on *pedicels* about 8 mm. long; *cal.* orange-red, mealy-pubescent, 1.5-2 cm. long, including the linear 5 mm. lobes; *pet.* yellow, inserted at the base of the calyx lobes, and as long; *female vine*, flowers crowded (5-10 together) in short axillary racemes without peduncle; *pedicels* stout, 1-2 cm. long; *ovary* green, cylindrical, 2-2.5 cm. long, 5-6 mm. in diameter, *cal. tube* above ovary orange-red like the male, barrel-shaped, 1.5 cm. long, 1 cm. in greatest diameter, lobes triangular, 2 mm. long; *pet.* yellow, exceeding the calyx lobes; *fruit* about 7 cm. long, 2-2.5 cm. in diameter, green with fine whitish speckling.

Female vines of this species seem to be very much less common than the male.

Forests and clearings in wet or moist districts, Trinidad.

Northern S. America.

6. MELOTHRIA L.

Tendrils simple, slender. *Fls.* small, yellow or white. *Male fls.* in racemes, rarely solitary; *cal.* bell-shaped, shortly 5-toothed; *cor.* deeply 5-parted; *stam.* 3 inserted on the calyx tube, *anths.* one 1-celled, the rest 2-celled, or sometimes all 2-celled, cells usually straight. *Female fls.* solitary or clustered, on long slender stalks; *staminodes* 3 or 0; *ovary* with 3 placentas; *ovules* horizontal; *style* short, surrounded at the base by a ringlike disc; *stig.* 3. *Fr.* berry-like.

Fruit 1-1.5 cm. long.....1. *M. guadalupensis*.

Fruit 3-4 cm. long2. *M. trilobata*.

1. *M. guadalupensis* (Spreng.) Cogn.

M. pervaga Griseb.

M. fluminensis Gardn.

Griseb. Fl. 289: Urb. Symb. Ant. 4. 610; 8. 694:

Fawc. & Rendl. Fl. Jam. 5. 255: Britt. & Millsp.

Bah. Fl. 426: Cogniaux in Engl. Pflanzenreich 4. 275.

1. p. 83.

Stems slender, climbing or creeping, much branched; *lvs.* angular-ovate, 4-8 cm. long, nearly as wide, cordate at base with a broad or narrower sinus, shortly and rather bluntly acuminate at apex, sometimes shallowly 3-5-lobed, more usually angled rather than lobed, the margins with distant minute teeth,

upper surface very rough, lower surface less so, with scattered, very short hairs; *petioles* 2-4 cm. long, pubescent; *male fls.* on short *pedicels* clustered at the apex of a slender *peduncle* as long as the subtending petiole or longer; *cal. tube* bell-shaped, 2-3 mm. long, *lobes* triangular; *cor.* yellow, its lobes squarish, 2 mm. long; *female fls.* solitary, often in the same axil as the male, on similar slender *peduncles*; *ovary* 4-5 mm. long; *cal.* and *cor.* similar to male; *fruit* ellipsoidal, about 1.5 cm. long, ripening purplish-black; *seeds* rather numerous, flat, 4 mm. long.

In hedges and thickets, common, Trinidad and Tobago.

West Indies and Trop. Cont. America.

2. *M. trilobata* Cogn.

Cogniaux l. c. p. 81.

Stems slender, angled, ribbed, sparsely pubescent or hairy; *petioles* about 5 cm. long; *lvs.* 3-5 lobed, 6-12 cm. long, about as wide, deeply cordate at base, usually 3-fid nearly to the base, the central lobe oblong-elliptical, narrowed towards its base, acute at apex, wavy-edged and sometimes with subsidiary lobes, the lateral segments variable, sometimes deeply cut into 2 distinct lobes, sometimes only shallowly lobed, all margins distantly and minutely denticulate, *blades* thin, roughish on both surfaces, pubescent along the main nerves above; *male fls.* greenish-yellow in small axillary racemes, on slender *peduncles* 1-2 cm. long; *cal. tube* narrowly bell-shaped, 7 mm. long, *lobes* very short (1 mm.) and recurved; *pet.* obovate-oblong, 3 mm. long and about as wide, notched at apex, papillose-hairy; *stam.* 3, *anth.* narrow obcordate; *female fls.* sometimes in the same axils as the male, solitary, on stouter *peduncles* 7 mm. long; *ovary* ellipsoidal, 1.3 cm. long, 7 mm. in diam.; *cal. tube* above ovary 5 mm. long, 3.5 mm. wide, *lobes* narrow triangular subulate, about 1 mm. long; *pet.* smaller than in the male, blunt, not notched, 2 mm. long and wide, greenish-yellow, hairy; *stig.* 3 mm. long, greenish-white, fleshy; *fruit* almost spherical, 3.5-4 cm. diameter, glabrous, marked with dark green mottlings and leopard-like ring-spots, the pattern most developed at the stalk end and descending in longitudinal tongues on the greenish-white ground of the apical end.

Thickets and forest banks in the Northern Range (Hts. of Aripo and Arima-Blanchisseuse Roads), and at Siparia Quarry (Britton and Broadway 2805), Trinidad.

Central and northern S. America.

7. CERATOSANTHES Juss.

Slender, glabrous *climbers* with a large tuberous *root*. *Lvs.* palmately lobed. *Tendrils* simple, slender. *Fls.* all in racemes. *Male fls., Stam.* 3, sessile in the throat of the calyx. *Female fls., ovary* small; *style* long. *Fr.* oblong, few or many-seeded.

1. *C. palmata* (L.) Urb.

C. corniculata (Lam.) Cogn.

C. tuberosa J. F. Gmel.

Trichosanthes palmata L.

Griseb. Fl. 289: Cogniaux in Engl. Pflanzenreich 4. 275.

1 p. 242: Urban in Fedde Rep. 15. 323 (1918).

Branches slender; *lvs.* 8-15 cm. long and broad, 3-lobed almost to the base, the lateral lobes again lobed, lobes lanceolate or sublinear, acute, margins entire, sparsely pubescent or almost glabrous on both surfaces; *fls.* clustered at the ends of long peduncles, which usually greatly exceed the leaves; *pedi.* 3-8 mm. long; *cal. tube* slender, stalk-like, 10-15 mm. long, gradually broadening above to a diameter of about 2 mm., *lobes* oblong lanceolate, about 2 mm. long; *cor.* whitish yellow, about 1 cm. long; *fruit* narrowly ovoid, acute at apex, longitudinally striate, 3-4 cm. long, 1.5-2 cm. in diameter, pale with dark green marbling.

Hillside woodlands, Chacachacare Is. (Broadway 3153 ex Cogn.; Herb. Trin. 10384, Britton, Freeman and Watts); Monos Is. (Herb. Trin. 7571). Also at Arima, Trinidad, (Crueger 7 ex Cogn.).

Lesser Antilles; Venezuela.

8. POSADAEA Cogn.

Hairy *climber*. *Tendrils* 2-branched, the upper simple. *Fls.* of medium size, yellow, monoecious. *Cal. tube* short. *Cor.* 5-parted to the base. *Male fls.* in few-flowered clusters with a common peduncle; *stam.* 3, inserted at the middle of the calyx-tube. *Female fls.* single, near the male; *staminodes* short; *ovary* elliptical-ovate with 3 placentas; *style* short and thick; *stig.* 3. *Fruit* rather large, with hard rind and soft flesh, indehiscent, many-seeded.

1. *P. sphaerocarpa* Cogn.

Cogn. in Engl. Pflanzenreich, l. c. p. 251, t. 59.

Stems, petioles and *tendrils* densely clothed with flexuous multicellular hairs; *lvs.* broadly ovate to suborbicular, varying from angular to deeply lobed, up to 18 cm. long and broad, very deeply cordate at base, the sinus up to 5 cm. deep, apex

and lobes apicular, margins regularly denticulate, roughish above, pubescent especially along the veins beneath; *male infl.* 3-4 fld.; *cal.* tube bell-shaped, about 4 mm. long, *lobes* 2-3 mm. long; *cor.* lobes irregularly obovate about 1 cm. long and wide; *female peduncle* stout; *fruit* up to 13 cm. long, 9 cm. diameter, containing a white pulp; *seeds* 12-14 mm. long.

St. Joseph, Arouca, Arima and Cunupia, Trinidad.
Costa Rica, Colombia, British Guiana.

9. CAYAPONIA Manso.

Climbing *herbs* with perennial rootstock. *Lvs.* palmately lobed. *Tendrils* usually branched. *Fls.* small, monoecious or rarely dioecious, usually in racemes or panicles. *Male fls.*, *stam.* 3; *filts.* free; *anths.* usually cohering in a central column, one 1-celled, the others 2-celled, cells bent. *Female fls.*, *ovary* 3-celled; *ovules* basal, ascending; *style* surrounded by a disc; *stig.* 3, dilated. *Fr.* fleshy or corky, indehiscent; *seeds* 1-4 in each loculus.

Fruit 1-1.5 cm. long.

Infl. longer than the leaves; *cal. tube*
glabrous1. *C. racemosa*.

Infl. shorter than the leaves; *cal. tube*
pubescent.....2. *C. subsessilis*.

Fruit about 3 cm. long3. *C. Cruegeri*.

1. *C. racemosa* (Sw.) Cogn.

Cionandra racemosa Griseb.

Griseb. Fl. 286: Fawc. & Rendl. Fl. Jam. 5. 268: Urb.

Symb. Ant. 4. 614 and 8. 697.

Vine climbing to 6 m. or more; *stems* becoming woody at base; *lvs.* very variable, up to about 12 cm. long and wide, the upper sometimes entire or nearly so, the lower shallowly or rather deeply 3-5 lobed, the lobes acute or blunt, the base cordate, blade decurrent into the petiole and glandular beneath at base, varying from rough above and softly puberulous beneath to nearly glabrous on both surfaces; *petioles* 2-5 cm. long; *panicles* up to 15 cm. long or more, often leafy; *fls.* yellowish green, male and female in the same panicle; *male cal. tube* broadly bell-shaped, glabrous, 4-5 mm. long and broad, *teeth* minute; *female cal. tube* above ovary 2 mm. *teeth* 1 mm.; *cor.* lobes oblong 5-6 mm. long, 4 mm. wide; *fr.* ellipsoidal, 1-1.5 cm. long, ripening red.

Open places in forest districts, Trinidad and Tobago.

Greater Antilles, Bahamas; Cent. America, Venezuela, Guiana.

2. *C. subsessilis* (Cogn.) Sandwith et Cheesman comb. nov.
Melothria subsessilis Cogn.
Cogniaux in Engl. Pflanzenreich 4. 275. 1. p. 103.

Stems slender; *lvs.* 3-lobed, up to 8 cm. long, 5 cm. wide, cordate at base, the lower deeply cut with narrow lateral sinuses, the upper only shallowly lobed, centre lobe acute, lateral lobes blunt and much shorter, margins wavy or shallowly toothed, blades rough above, pubescent beneath, veins prominent beneath, *petioles* 0.5-2 cm. long; *fls.* on slender pedicels, solitary or in short axillary racemes, male and female in the same raceme: *male* on *pedi.* 1-2 cm. long; *cal. tube* broadly bell-shaped, pubescent, 5 mm. long, *lobes* merely minute teeth, *petals* greenish-white, oblong-lanceolate, 7 mm. long, 3 mm. wide, very shortly pubescent without, hairy within: *female* on shorter *pedicels*; *cal. tube* produced 3-4 mm. above ovary, *teeth* triangular, 1 mm. long; *petals* 3 mm. long, 1.5 mm. wide; *style* exerted, *stig.* white, fleshy, 2 mm. across: *fruit* ellipsoidal, 1 cm. long ripening red; *seeds* 1-few.

Thickets in moist districts, Trinidad.
Brazilian Guiana.

Note: The Trinidad material (Herb. Trin. 377, Caroni (1848); 2104, Chaguanas (1866); 5146 Alexander and 13251, 13252 Cheesman, Piarco; 13164 Cheesman, Cumuto-Tumpuna Road (1937),) has been compared at Kew with the type collection of *Melothria subsessilis* (Ule 8344). Fully developed flowers were apparently not examined by Cogniaux when he referred the species to *Melothria*.

3. *C. Cruegeri* (Naud.) Cogn.
Trianosperma Cruegeri Naud.
Cogniaux in DC. Mon. p. 778.

Stems rather stout; *lvs.* deeply 3-5 lobed, up to 15 cm. long and wide, cordate at base, lobes oblong, ovate-oblong, or obovate-oblong, rounded and cuspidate or acute, roughly pubescent on both sides, veins rather prominent beneath, *petioles* up to 6 cm. long; *fls.* rather large, in leafy panicles, male and female in the same panicle; *pedi.* 4-6 mm. wide; *cal.* glabrous, *tube* 8-9 mm. long, 6-7 mm. wide, *teeth* broadly triangular, 2-2.5 mm. long, 5 mm. broad; *cor.* not seen; *anth.* loculi thrice folded; *fruit* ellipsoid, smooth, about 3 cm. long, 2 cm. in diameter.

Herb. Trin. 380, Caroni, Trinidad (1861), the only material seen, is apparently the same collection as Crueger 6 in Herb. Paris, which is the type specimen. The plant seems to have been collected only the once, though Herb. Trin. 2109 (Caroni 1868) may be upper leaves of the same species. The description of floral characters given here is taken from Cogniaux.

10. **SICANA** Naud.

Climbing annual *herbs*. *Lvs.* deeply palmately lobed. *Tendrils* 3-5 branched. *Fls.* large, yellow, monoecious, all solitary. *Cal.* bell-shaped, lobes 5 reflexed in flower. *Cor.* bell-shaped, 5-lobed. *Male fls., Stam.* 3, the *anthers* agglomerated into a head but free from each other, the cells bent in a sigmoid shape. *Female fls., staminodes* linear or wanting, *ovary* cylindrical or oblong-ovoid; *style* short, obconical; *stig.* 3, more or less bilobed. *Fruit* large, fleshy or hard, indehiscent. *Seeds* horizontal, numerous, flattened, inconspicuously margined.

1. **S. trinitensis** *sp. nov.*

A speciebus adhuc cognitis foliis profunde 7-lobatis lobi basi contractis, sepalis multo angustioribus, forma fructus haud carnosi differt.

Strong vine; stems round, glabrous; *tendril* branches commonly 5; *lvs.* glabrous but minutely and copiously warted on both surfaces when dry, 5-15 cm. long, rather broader than long, deeply 7-lobed, the lobes ovate, acuminate, 4-7 cm. wide at their widest part, narrowed to 2.5-3.5 cm. wide at their bases, remotely and irregularly denticulate or angled, base of leaf cordate, the sinus bordered by the lateral nerves; *fls.* yellow, male and female on the same vine; *male, cal. lobes* oblong-ovate or narrowly triangular, acute, 1 cm. long, 4 mm. wide, reflexed in flower, *cor.* 5-fid to about two-thirds of its length, 4 cm. across, the lobes broadly oblong-ovate, blunt, *filaments* connate below; *female cal. tube* above ovary 5 mm. long, 7 mm. across, lobes linear-oblong, 1 cm. long, 4 mm. wide, acute, reflexed, *cor.* 5-fid to three-quarters of its length, 4 cm. across, lobes ovate, *ovary* 3.5 cm. long, 1.5 cm. in diameter, glabrous, *style* broadening above, *stig.* fleshy; *fruit* ellipsoidal, about 10 cm. long, 6 cm. in diameter, ripening dull yellow, pericarp very hard and finally brittle, about 2 mm. thick; *seeds* numerous, brown, nearly oblong but narrowing towards the apex, 7-8 mm. long, about 4 mm. wide just above the base, barely 1 mm. thick, abruptly and broadly acuminate at the base, slightly notched at apex, very narrowly margined.

Herb. Trin. 13440 (type) Cheesman, St. Augustine Nurseries (spontaneous) in flower, November, 1938; 13315, Cheesman, Lopinot Road, climbing on cacao, in fruit, April, 1938. Fruits also seen from River Estate, August, 1939.

So far found only in association with cacao, though spontaneous, this species needs further study as to distribution.

11. FEVILLEA L.

Slender scandent *shrubs*. *Lvs.* cordate, palmately lobed or angled. *Pedu.* collateral with tendrils and leaves. *Fls.* small, in open, pendulous panicles, yellow or greenish, dioecious. *Male fls.*, *cal. lobes* 5, spreading; *pet.* 5, clawed, with a longitudinal erect wing; *staminodes* 5, alternating with petals and adnate to *cal. lobes*; *stam.* 5, inserted in the centre of the flower; *anths.* 2-celled. *Female fls.*, *pet.* 5, with 20 minute glands at their bases; *ovary* 3-celled; *styles* 3; *stig.* 2-lobed. *Fr.* large, ringed above the middle by the scar of the fallen calyx lobes, not opening, 3-celled below, marked with 3 radiating lines at the apex. *Seeds* numerous, large, roundish, flattened.

1. *F. cordifolia* L.

Griseb. Fl. 289; Fawc. & Rendl. Fl. Jam. 5. 269: Urb.
Symb. Ant. 4. 610 and 8. 693.

High climber; *tendrils* very long; *lvs.* cordate at base, early leaves ovate, entire, those towards the ends of branches 5-angled or more or less lobed, 7-17 cm. long, glabrous; *petioles* 3-7 cm. long; *male infl.* 20-60 cm. long, many-fl., *pedu.* puberulous; *cal. lobes* 2 mm. long; *petals* dusky orange, ovate-roundish, 4 mm. long; *fr.* globose, russet, hard, 10-12 cm. in diam.; *seeds* 10-12, smooth, sharp-edged or narrowly winged, 5-6 cm. broad, 2 cm. thick. (Description adapted from Fawc. & Rendl. *loc. cit.*).

Herb. Trin. 2112, Crueger, Chaguanas, Trinidad 1866. Not recently collected.

West Indies and Cont. Trop. America.

FAMILY 5. BEGONIACEAE.

Herbs, often succulent, or woody at base. *Lvs.* alternate, entire, lobed, or digitately divided, unequal-sided, toothed. *Stip.* 2, free, often falling early. *Pedu.* axillary, *bracts* and *bracteoles* usually opposite. *Fls.* unisexual, asymmetrical, in unisexual or bisexual cymes. *Male fls.*, *stam.* numerous, *filts.* free or united. *Female fls.*, perianth segments 2-5, rarely more; *staminodes* none; *ovary* inferior, usually 3-celled; *styles* free or joined at the base; *ovules* numerous. *Fr.* a capsule.

1. BEGONIA L.

Male fls., outer perianth segments 2, sepaloid, opposite, valvate, inner 2, petaloid, or wanting. *Female fls.*, perianth segments often 5, of which the outer 2 are sepaloid and larger. *Ovary* usually 3- (2-5) locular, 3-winged or 3-angled; *styles* most often as many as the loculi. *Fr.* a capsule, 3-cornered or unequally 3-winged (rarely round, 4-angled, or berry like) opening loculicidally below the apex through most of its length. *Seeds* very numerous, minute.

Plant perennial

Male flowers with 2 perianth segments ...1. *B. ulmifolia*.

Male flowers with 4 perianth segments

Plant scandent; bracts very small.....2. *B. glabra*.

Plant not, or scarcely, scandent;

bracts larger

Plant glandular.....3. *B. glandulifera*.

Plant not glandular.....4. *B. eciliata*.

Plant annual5. *B. humilis*

1. *B. ulmifolia* Willd.

Griseb. Fl. 305: O. E. Schulz in Urb. Symb. Ant. 7. 3.

Subshrub, 60-120 cm. high; *stems* erect, sparsely branched, the younger parts densely reddish-brown hairy, the older parts with only scattered soft hairs; *stip.* oblong-lanceolate, acute, entire, 1-1.5 cm. long; *lvs.* oblong-elliptical to somewhat obovate, the two sides unequally rounded at the base, apex acute or acuminate, irregularly toothed, with weak hairs scattered on both surfaces and grouped along the veins beneath, 8-20 cm. long, 3-8 cm. broad, on *petioles* 0.5-2 cm. long; *infl.* 15-30 flowered; *bracts* the lower narrowly lanceolate, the upper linear, pointleted, persistent; *male fls.* on *pedi.* 8-10 mm. long, *perianth segments* 2, broadly ovate (smaller inner segments occasionally present), *stam.* 30-45; *female fls.* on *pedi.* of similar length but thicker, lengthening on the fruit, *perianth segments* 5, the 2 outer 2-3.5 mm., the 3 inner 4-5 mm. long, white or pinkish, *ovary* 3-4 mm. long, unequally 3-winged; *caps.* 7-10 mm. long, the largest *wing* up to 1.5 cm. long or more.

Woodlands and thickets in moist or wet districts, Trinidad and Tobago.

Venezuela; Brazil.

2. **B. glabra** Aubl.

B. scandens Sw.

Griseb. Fl. 305: O. E. Schulz in Urb. Symb. Ant. 7. 4:
Fawc. & Rendl. Fl. Jam. 5. 250.

Stems climbing on trunks of old trees or scrambling on rocks, rooting at the nodes, glabrous; *stip.* oblong-ovate, keeled and pointleted at the bluntish apex, 1-2 cm. long; *lvs.* broadly ovate, rounded at base, apex acuminate, shallowly toothed, glabrous, 6-12 cm. long, 4-9 cm. broad, on *petioles* 1-8 cm. long; *infl.* many-flowered, spreading; *male fls.*, *perianth segments* 4, the outer broadly, the inner narrowly obovate, about 3 mm. long, *stam.* 10-17; *female fls.*, *perianth segments* 5, elliptical, unequal, 4-5.5 mm. long, *ovary* 5-8 mm. long, unequally 3-winged; *caps.* 7-9 mm. long, the largest wing up to 1.5 cm. long.

Forests of the Northern and Central Ranges, Trinidad.
Cuba, Jamaica, Central and northern S. America.

3. **B. glandulifera** Griseb.

Griseb. Fl. 304: O. E. Schulz in Urb. Symb. Ant. 7. 6.

Herb. 30-60 cm. high, with a creeping or ascending scaly *rhizome*; *stem* leafy at the base, rooting at the nodes, naked above save for occasional nodes with stipules, bearing glandular hairs, especially in its upper parts; *stip.* ovate, acute, pointleted; *lvs.* strongly asymmetrically ovate-heart-shaped, apex abruptly acuminate, irregularly toothed, with scattered hairs above, densely pubescent beneath, up to 15 cm. long, 10 cm. broad, on *petioles* often longer than the blades; *male fls.*, *perianth segments* 4, the 2 outer ovate, 8 mm. long, the 2 inner oblong-lanceolate, half as long, *stam.* numerous; *female fls.*, *perianth segments* 5, 6 mm. long; *caps.* 4-6 mm. long, the largest wing up to 1.5 cm. long.

Forests and cliffs of the Northern Range, Trinidad.
Not known outside Trinidad.

4. **B. eciliata** O. E. Schulz.

O. E. Schulz in Urb. Symb. Ant. 7. 26.

Herb. 24 cm. high; *stem* purplish brown, smooth; *stip.* ovate, with a blunt apex produced into a bristle 1.2 mm. long, entire, glabrous, 7 mm. long, deciduous; *lvs.* strongly asymmetrically ovate-cordate, apex shortly acuminate, margin entire or

wavy, not ciliate, quite glabrous, dark green above, somewhat glaucous beneath, 7-9 cm. long, 6-8 cm. broad, on glabrous *petioles* 3-6 cm. long; *cymes* about 40-flowered; *pedu.* 17 cm. long; lower *bracts* oblong, blunt, 6 mm. long, upper obovate, 3-5 mm. long, falling early; *male fls.* (in bud), *pedi.* 9 mm., *perianth segments* 4, the 2 outer 6 mm. long, ovate, slightly cordate at base, the 2 inner oblong-ovate, 5 mm. long, *stam.* about 15.

Not seen. Known only from a single specimen collected in shady woods at Arima, Trinidad (Eggers ex Schulz *loc. cit.*).

5. **B. humilis** Ait.

Griseb. Fl. 304. O. E. Schulz in Urb. Symb. Ant. 7. 26.

Fawc. & Rendl. Fl. Jam. 5. 253.

Herb. 30-60 cm. high; *stem* branched below, swollen at the nodes, glabrous except for a few widely scattered hairs; *stip.* membranous, oblong, acuminate, hairy, 7 mm. long; *lvs.* asymmetrical lanceolate, ovate, or oblong ovate, slightly cordate at base, apex acute, irregularly toothed, pilose with stiff scattered hairs above, less so beneath, 5-10 cm. long, 3-4 cm. broad, on *petioles* of 1-4 cm.; *infl.* axillary, few-flowered; *male fls.*, outer *perianth segments* rounded, 4 mm. long, the inner very narrow, 3 mm. long, sometimes wanting, *stam.* 8-15; *female fls.*, *perianth segments* 5 (-4), oblong-obovate, 2-4 mm. long, *ovary* 4-5 mm. long, unequally 3-winged; *caps.* about 8 mm. long, on *pedicels* about twice as long as the fruit, the largest wing rounded, 8 mm. broad, the others about half as broad.

Wet banks and forests in wet or moist districts, Trinidad and Tobago.

Guiana; Brazil; Peru.

COHORT 14. FICOIDALES.

BY

E. E. CHEESMAN.

- Plant succulent, usually leafless, and
 spiny 1. Cactaceae.
- Plant succulent, with leaves, not spiny 2. Aizoaceae.

FAMILY 1. CACTACEAE. *

Perennial plants of various but usually characteristic habit, succulent and mostly very spiny. *Stems* elongate, branching, or variously reduced, rounded, angular, ribbed or tuberculate; fleshy within with a reticulate cylinder of woody fibres surrounding a very wide pith; dotted on the surface with small woolly cushions (the *areoles*), peculiar and complex organs which bear the branches, flowers, spines, hairs or glands. *Lvs.* nearly always scalelike, minute, soon falling (broad only in *Pereskia*). *Areoles* axillary when leaves are present. *Spines* various, smooth or transversely ribbed, straight or hooked, sometimes with sheaths. *Fls.* usually hermaphrodite and regular, usually solitary but sometimes clustered, sometimes borne in a specialized terminal dense inflorescence called a *cephalium*, often showy. *Receptacle* united with the ovary, short or prolonged above it in a *perianth tube*. *Perianth lobes* few or numerous, often intergrading from sepaloid to petaloid, but sometimes sharply differentiated into sepals and petals. *Stam.* usually numerous, the *filts.* usually borne on the throat of the perianth. *Ovary* 1-celled, distinct or immersed in a branch, or forming a part of a branch; *style* long, terminal, simple; *stig.* with 2 or more rays, usually spreading. *Fr.* fleshy (sometimes dry), many-seeded. *Seeds* hard, brittle or bony.

*Both generic and specific descriptions have been abridged, and otherwise modified, from Britton, N.L., and J. N. Rose, "The Cactaceae" published by the Carnegie Institution of Washington, 1919-23. Use has also been made of Britton, N.L. "The Cacti of Trinidad", Bull. Dept. Agr. Trin. and Tobago 19. 81-87 (1921).—E. E. C.

- Lvs. broad and flat ; plant climbing1. *Pereskia*.
 Lvs. small ; areoles with barbed bristles
 (*glochids*),
 Stam. longer than petals2. *Nopalea*.
 Stam. shorter than petals3. *Opuntia*.
 Lvs. wanting ; areoles without *glochids*
 Plant spiny, many jointed
 Aerial roots absent
 Ovary smooth, or nearly so
 Fls. over 20 cm. long, with
 a long tube4. *Cereus*.
 Fls. less than 10 cm. long,
 with a short tube5. *Cephalocereus*.
 Ovary bearing spines
 Plant erect6. *Lemaireocereus*.
 Plant arching or clambering7. *Acanthocereus*.
 Aerial roots present8. *Hylocereus*.
 Plant spiny, short, single-jointed
 Plant ribbed ; fls. in a central,
 terminal cephalium9. *Cactus*.
 Plant tubercled ; fls. at the bases
 or sides of the tubercles10. *Neomammillaria*.
 Plant unarmed or nearly so, climbing
 or epiphytic
 Perianth with a distinct tube ;
 joints flat11. *Epiphyllum*.
 Perianth without tube ; joints
 round, slender12. *Rhipsalis*.

1. PERESKIA (*Plumier*) Miller.

Leafy trees, shrubs or clambering vines, branching and resembling other woody plants. *Spines* in pairs or clusters in the axils of the leaves. *Lvs.* alternate, broad, flat, deciduous or somewhat fleshy. *Fls.* solitary, corymbose, or in panicles, terminal or axillary, wheel-shaped. *Stam.* numerous. *Style* single ; *stig.* lobes linear. *Seeds* black, glossy, brittle.

I. *Pereskia aculeata* Miller. Barbados Gooseberry.

P. pereskia (L.) Karsten.

Britt. and Rose, *Cactaceae* 1. 10. Britt. in Bull. Dept. Agr. Trin. and Tobago 19. 81.

Shrub, at first erect but later clambering ; *branches* up to 10 m. long ; *spines* on lower part of stem solitary or 2 or 3 together, slender and straight, those on upper parts axillary, paired, rarely in threes, short and recurved ; *lvs.* shortly petioled, lanceolate to oblong or ovate, entire, shortly acuminate, 5-8 cm. long, somewhat fleshy ; *fls.* in terminal panicles or

corymbs, white, pale yellow, or pinkish, 2.5-4.5 cm. broad; *ovary* leafy and often spiny; *fr.* yellow to red, 1.5-2 cm. in diam., when mature quite smooth, edible; *seeds* black, somewhat flattened, 4-5 mm. in diam.

Observed by Britton "apparently wild and native" at Macqueripe, Trinidad. Also cultivated for its fruit and found near house sites as an escape.

West Indies and S. America. Commonly cultivated throughout Tropical America.

Cultivated Species.

P. grandifolia Haworth, native of Brazil, a shrub often six feet high, armed with straight, long, slender spines, its leaves four to six inches long, its flowers rose-coloured, rarely white, is often planted for ornament and makes effective hedges. It has been confused with *P. bleo* (H.B.K.) DC. of Colombia and Panama (Britton *loc. cit.*).

2. NOPALEA Salm-Dyck.

Much branched, with definite cylindrical trunks. Branches or joints flattened, fleshy, often narrow. Areoles bearing short barbed bristles (glochids). Spines, if present, solitary or clustered at the areoles, sheathless. Lvs. small, roundish, soon deciduous. Fls. usually at or near the edges of the joints, red or pinkish. Perianth lobes erect. Stam. and style slender, much longer than the petals. Ovary more or less tuberculate, naked or spiny, with a very deep umbilicus. Fr. red, juicy, usually spineless. Seeds numerous, flat, covered by a bony aril.

Closely related to *Opuntia*, from which it is distinguished by the erect petals and elongated filaments and style.

1. *N. cochenillifera* (L.) Salm-Dyck

Rachette.

Cactus cochenillifer L.

Cochineal Cactus.

Opuntia cochenillifera Miller.

Britt. and Rose, *Cactaceae* 1. 34. Britt. *loc. cit.* 82.

Plant up to 4 m. high; trunk up to 20 cm. or more in diam., sometimes with short spines; branches of ascending or spreading oblong joints, flat, rather thin, spineless, 15-50 cm. long; glochids numerous, soon falling; lvs. minute, awl-shaped, soon deciduous from the young joints; fls. scarlet, 5.5 cm. long to tip of style; ovary nearly globular, 2 cm. long, with low diamond-shaped tubercles, its areoles bearing many glochids; stam. pinkish, exceeding the perianth by 1-1.5 cm.; stig. lobes 6 or 7, greenish, exceeding the stamens; fr. red, 2.5-5 cm. long; seeds about 5 mm. long.

Naturalized in Trinidad and Tobago. Widely planted about houses in the Colony and used medicinally.

Widely distributed in Trop. America. Origin unknown.

3. OPUNTIA Miller.

Plants sometimes with definite *trunks*, more often much branched from the base. *Joints* cylindrical to globose, or flattened, usually very fleshy, sometimes woody. *Areoles* axillary, bearing spines, glochids, hairs, flowers and sometimes glands. *Lvs.* usually small, roundish, soon deciduous. *Spines* solitary or clustered. *Fls.* usually solitary at the areoles, of various colours. *Perianth lobes* widely spreading. *Stam.* much shorter than the petals, sensitive. *Ovary* bearing leaves, the areoles often with spines and glochids; *style* single, thick; *stig.* lobes short. *Fr.* dry or juicy, spiny or naked.

Joints round, slender, not flattened1. *O. caribaea*.

Joints flattened, obovate or elliptical

Mature joints spiny; flowers yellow.....2. *O. Wentiana*.

Mature joints usually spineless; flowers
rose-coloured3. *O. Boldinghii*.

1. *O. caribaea* Britton and Rose.

Britt. and Rose, Cactaceae, 1. 49. Britt. loc. cit. 83.

Stems 1-3 m. high, forming thickets in open woods and waste grounds; *branches* round, slender, about 1-1.5 cm. in diameter, ultimate joints horizontal, 5-10 cm. long, with short, elevated tubercles; *areoles* large, bearing white wool and a few long caducous hairs; *spines* 1-3, needlelike, 2-3 cm. long, covered with thin, brown, papery sheaths; *lvs.* 1-2 mm. long, acute; *fls.* not known; *fr.* red, 1.5-2 cm. long, usually naked but sometimes bearing short spines from the upper areoles, so far as known always sterile.

Only known from Trinidad by a coloured drawing in Herb. Kew. sent from Trinidad by Lockhart in 1825.

Northern coast of Venezuela, Margarita Is.; Santo Domingo.

2. *O. Wentiana* Britton and Rose.

Britt. and Rose, Cactaceae, 1. 116.

Plant erect, much branched, 1-2 m. high; *joints* obovate to elliptical, rather thin, up to 25 cm. long, usually rounded at apex, pale green, slightly glaucous, the terminal ones somewhat fragile; *lvs.* small, awlshaped; *spines* on young joints usually 3, later 4 or 5, when young pale yellow soon becoming white; *fls.* 6-7 cm. long including the ovary; *pet.* pale yellow, 3 cm. long, obovate, acute; *style* cream coloured; *fr.* small, red.

Herb. Trin. 10732, R. O. and A. A. Williams, Patos Is. (1924).

Venezuela and the neighbouring islands of Margarita, Bonaire, Curacao and Aruba.

3. *O. Boldinghii* Britton and Rose.

O. Tuna of Hart's List, not of Miller.

Britt. and Rose, *Cactaceae* 1. 155. Britt. *loc. cit.* 82.

Plant bushy, up to 2 m. high, with a short trunklike base; *joints* flat, dull green, somewhat glaucous, obovate to elliptical, 15-20 cm. long, spineless or when young with a few very short brown spines; *lvs.* conical, red, 2-3 mm. long, falling early; *areoles* large, elevated, filled with short brown wool; *fls.* rose-coloured, 5 cm. long; *perianth lobes* blunt; *filts.* pink, much shorter than the petals; *style* nearly white; *stig.* lobes yellowish; *fr.* obovate, spineless, 4 cm. long; *seeds* 4 mm. in diam.

Dry banks and hillsides, Chacachacare and Patos Is.

Northern coast of Venezuela; Curacao.

Cultivated Species.

O. Ficus-indica (L.) Miller, Tall Prickly Pear, sometimes 15 feet high, with flat oblong or elliptic joints up to a foot and a half long, usually spineless, its yellow flowers three to four inches wide, its red or yellow edible fruit two or nearly four inches long, is widely planted near houses in Trinidad as in nearly all warm regions; its native home is unknown (Britton, *loc. cit.*).

4. *CEREUS* Miller.

Stems mostly upright and tall, generally much branched, the *branches* strongly angled or ribbed. *Areoles* spiny, more or less woolly, but never producing long silky hairs. *Fls.* nocturnal, elongated, funnel-shaped, the upper part, except the style, falling away from the ovary by abscission soon after opening. *Perianth tube* cylindrical, expanding above into the swollen throat, nearly naked without. *Perianth segments*, the outer blunt, thick, green or dull-coloured, the inner thin, petaloid, commonly white. *Stam.* numerous, varying greatly in length, slender and weak, included. *Style* slender, elongated but often included; *stig.* lobes linear. *Fr.* fleshy, red (rarely yellow), naked, splitting down one side when mature, often edible. *Seeds* black.

1. *C. hexagonus* (L.) Miller.

C. Northumberlandianus Lamb.

C. lepidotus Salm-Dyck.

Britt. and Rose, *Cactaceae*, 2. 4. Britt. *loc. cit.* 83.

Plant up to 15 m.; *trunk* up to 40 cm. in diameter, usually branching near the base; *branches* erect, leafless, lower joints usually 6- (occasionally 7-) angled, upper ones often 4- (or 5-) angled, ribs thin, 3-5 cm. high, the margins wavy; *areoles* about 2 cm. apart, small, felted, those on young joints often without spines or with a few very short ones (2-3 mm. long), but those on old branches bearing 8-10 or more; *spines* very unequal, the

longest 5-6 cm., brown when young, lighter in age; *fls.* often numerous, 20-25 cm. long; *perianth tube* slender, 10 cm. long, *segments*, the outer lanceolate to oblong-lanceolate, 6-7 cm. long, tinged with purple, the inner much thinner, white, 7-8 cm. long; *fr.* ovoid, 5.5-13 cm. long, somewhat oblique, truncate or a little depressed at apex, pale red, slightly glaucous, bearing small scattered areoles, *pulp* white or pinkish, edible; *seeds* numerous, black.

On dry banks, north-western Trinidad, San Fernando Hill, Beccas Islands and Patos Is. Also much planted. Established on Saman trees at St. Joseph from seeds carried by birds.

Northern S. America from the Guianas to Colombia.

5. CEPHALOCEREUS Pfeiffer.

Plants various in habit, mostly columnar and erect, sometimes much branched with a short trunk. *Fls.* nocturnal, shortly bell-shaped, funnel-shaped or pear-shaped, straight or curved. *Perianth* persisting on the ripening fruit. *Fr.* usually depressed-globose, sometimes oblong. *Seeds* black, smooth or tubercled.

Flowering areoles with very short wool

or none.....1. *C. Smithianus*.

Flowering areoles with long wool2. *C. Moritzianus*.

1. *C. Smithianus* Britt. and Rose.

Britt. and Rose, *Cactaceae*, 2. 37. Britt. *loc. cit.* 84.

Stems weak and slender, 4-7 cm. in diameter, simple or much branched, erect or more or less clambering; *ribs* 9-11, low and rounded, sometimes constricted between the areoles; *areoles* rather large, felted; *spines*, the radial ones short, white, needlelike, 1 cm. long or less, central ones several, 3-4 cm. long, at first black, in age black only at tips; *fl.* 6-8 cm. long, 4 cm. broad across the mouth, with a short funnel-shaped tube bearing a few broad ovate scales with reddish tips; *perianth segments*, the inner short, rounded, white; *ovary* with a few minute scales; *fr.* ovoid, 3-4 cm. in diameter, red, splitting on one side when mature; *pulp* white; *seeds* black.

Patos Is.

Northern coast of Venezuela.

(Note:—Dr. Britton has the following note attached to his description of this species in *Bull. Dept. Agr.*, Trinidad and Tobago, 19, 84-85:—"When flowers of the Patos plant are obtained they may be found to be somewhat smaller than specimens from Venezuela. We have included this species in the genus *Cephalocereus* with considerable hesitation; it is more slender and weaker than most species of the genus and its imperfectly known flowers indicate that it may be generically distinct".)

2. *C. Moritzianus* (Otto) Britt. and Rose.

Britt. and Rose, *Cactaceae*, 2. 41. Britt. *loc. cit.* 84.

Tree-like, up to 10 m. high, sometimes with 50 ascending branches, green or bluish; *ribs* 7-10, obtuse, separated by acute intervals; *areoles* 10-12 mm. apart, all white-woolly at first, flowering areoles with tufts of wool 1 cm. or more long; *spines* slender, at first brownish, rigid, straight, 1-3.5 cm. long, the radial ones 6-8, the central 3; *fls.* 5 cm. long; *perianth segments*, the outer broad and short, the inner white and blunt; *stam.* very numerous, shorter than the perianth; *ovary* smooth, more or less enclosed in the white wood of the areole, *style* slender, about as long as the perianth; *fr.* red, depressed, smooth, 4-5 cm. in diameter.

North-western coast of Trinidad and Bocas Islands; Patos Is.; Tobago.

Northern coast of Venezuela.

8. *LEMAIREOCEREUS* Britt. and Rose.

Plants usually large, tall and branching. *Areoles* rather large, felted. *Spines* usually stout and numerous. *Fls.* diurnal or in some species nocturnal, one at an areole, tubular funnel-shaped or bell-shaped, the short tube tardily separating, with the style, from the top of the ovary. *Stam.* numerous, in many rows on the inner surface of the throat. *Ovary* more or less tubercled, bearing scales felted in the axils, the areoles at first spineless or nearly so, soon developing a cluster of spines. *Fr.* globular to oval, irregularly bursting when old, exposing the seeds, at first very spiny, but when ripe the spines are often deciduous. *Seeds* many, black.

1. *L. griseus* (Haworth) Britt. and Rose.

Cereus griseus Haworth.

C. eburneus Salm-Dyck.

Britt. and Rose, *Cactaceae*, 2. 87. Britt. *loc. cit.* 85.

Plant up to 8 m., branching at the base or with a short trunk which may be 35 cm. in diameter, smooth when old; *branches* nearly upright, 8-10 ribbed, more or less glaucous, 7-13 cm. in diameter; *areoles* rather close together; *spines* grey, needlelike, up to 4 cm. long; *fls.* solitary, mostly high up, shortly funnel-shaped, 7 cm. long, pinkish, the inner *perianth segments* nearly white; *style* exerted before the flower opens; *ovary* bearing numerous small white-felted areoles, developing spines in the ripening of the fruit; *fr.* purplish, nearly globular, about 5 cm. in diameter, with red, edible pulp.

Patos Is.

Westward along the Venezuelan coast and adjacent islands. Cultivated in many parts of Trop. America for its fruits.

7. ACANTHOCEREUS *Britt. and Rose.*

Stems weak, elongated, many-jointed, at first erect but soon clambering or trailing, the joints usually strongly 3-angled, sometimes 4-5 or 7-angled. *Areoles* bearing short wool or felt and several stiff spines. *Fls.* funnel-shaped, solitary, nocturnal. *Perianth tube* green, rather slender, expanded towards the summit, bearing a few areoles subtended by small scales, remaining rigid after flowering, gradually drying and remaining on the ripe fruit; *lobes* somewhat shorter than the tube, widely expanded, outer segments narrowly lanceolate to linear, acuminate, green, shorter than the white inner segments. *Stam.* not extending as far as perianth segments, attached all along the upper half of the tube or throat. *Style* very slender; *stig.* lobes linear. *Fr.* spiny or naked, with a thick, dark red skin breaking irregularly from the top downward; *flesh* red. *Seeds* numerous, black.

1. A. pentagonus (L.) *Britt. and Rose.*

Cactus pentagonus L.

Britt. and Rose, Cactaceae, 2. 123. Britt. loc. cit. 85.

Stems clambering, 2-3 m. or up to 7 m. high, or arching and rooting at the tips to form thickets or large colonies; old *trunk* becoming nearly round, 5 cm. in diameter or more, with a thick, spineless cortex and woody axis; *joints* 3-8 cm. broad, 3-5 angled, low-crenate, young growth nearly cylindrical with 6-8 low ribs; *areoles* 3-5 cm. apart; *spines* grey, awl-shaped or needlelike, radial ones at first 6 or 7, 1-4 cm. long, central spine often solitary, spines on old areoles often as many as 12, of which several are centrals; *fls.* 14-20 cm. long; *ovary* and *tube* bearing conspicuous areoles with brown felt and several awl-shaped spines; *perianth segments*, the outer green, the inner white, acuminate; *fr.* red, oblong, edible.

Gasparee, Chacachacare and Patos Is.; Stoer Bay, Tobago (*Herb Trin. 11, 169 Williams*).

Lesser Antilles north to Guadeloupe; Venezuela to Guatemala and southern Texas; Florida Keys; Cuba.

8. HYLOCEREUS *Britt. and Rose.*

Climbing cacti, often epiphytic, with elongated *stems*, normally 3-angled or 3-winged and *branches* emitting aerial roots. *Areoles* bearing a tuft of felt and several short spines. *Fls.* very large, nocturnal, funnel-shaped, the limb as broad as long and as long as the tube or longer. *Ovary* and *tube* with leafy scales, but without spines, felt, wool or hairs. *Perianth segments*, the outer

similar to the scales, but longer, the inner petaloid, narrow, acute or acuminate, usually white. *Stam.* very many, in 2 series. *Style* cylindrical, rather stout; *stig.* lobes numerous, linear, simple or branched. *Fr.* spineless, but with persistent scales. *Seeds* small, black.

1. **H. Lemairei** (Hooker) Britt. and Rose. Night-blooming Cereus
Cereus Lemairei Hooker.

Britt. and Rose, Cactaceae, 2. 189. Britt. loc. cit. 86.

A somewhat slender, high-climbing vine; *joints* 3-angled, freely rooting on one side, 2-3 cm. in diameter, margins with slight elevations at the areoles; *areoles* 2-2.5 cm. apart on the angles; *spines* usually 2, very short, swollen at base, brownish; *fls.* about 27 cm. long, opening in the evening and wilting next morning; *tube*, including *ovary*, 15 cm. long, covered with thick, ovate, purple-margined scales, those on the upper part of the tube elongated; *outer perianth segments* about 20, 12 cm. long, 1 cm. broad or less, inner ones about 15, broader, oblanceolate, acute, the lower portion pinkish and the upper white; *filts.* cream-coloured; *style* thick, *stig.* lobes cleft to the middle and their branches often notched at the tip; *fr.* purple, oblong, 6-7 cm. long, when mature splitting down the centre almost to the base into 2 nearly equal parts, flesh white.

Frequent on trees and rocks, Trinidad and Tobago.

Wider natural distribution uncertain. Possibly Surinam.

9. CACTUS L.

Plants solitary or clustered, 1-jointed, globular to shortly cylindrical, sometimes depressed, bearing clusters of spines on the ribs. *Ribs* 9-20, mostly straight, rarely spiral in some individuals. *Infl.* a compact mass of hairs and bristles forming a *cephalum* at the top of the plant, often very large and elongated. *Fls.* small, pinkish, appearing in the mid-afternoon from the top of the cephalium, tubular-salver-shaped. *Perianth segments* few, spreading. *Stam.* attached near the top of the tube. *Style* slender; *stig.* lobes linear, few. *Fr.* club-shaped, naked, red or rarely white. *Seeds* black.

Areoles 2-3 cm. apart.....1. *C. caesioides*.

Areoles 1 cm. apart.....2. *C. Broadwayi*.

1. **C. caesius** (Wendland) Britt. and Rose, Turk's Cap.
Melon Cactus.

Melocactus caesius Wendland.

Britt. and Rose, Cactaceae, 3. 233. Britt. loc. cit. 86.

Plant globose, depressed, or narrowed above, 10-20 cm. high, green; *ribs* 10-15, prominent, acute, 2 cm. high; *areoles* 2-3 cm. apart, white-woolly when young; *radial spines* about 8, spreading, horn-coloured, central ones similar, about 2 cm. long; *cephalium* broad and low, broader than the apex of the plant body, composed of white wool and brown bristles; *fls.* pink; *fr.* obovoid, wine-coloured, up to 3 cm. long, 1-1.5 cm. in diameter.

Patos Is.

Venezuelan coast, westward to Colombia.

2. **C. Broadwayi** Britt. and Rose. Tobago Turk's Cap.
Britt. and Rose, Cactaceae, 3. 229.

Plant a little longer than thick, 10-20 cm. high, yellowish green; *ribs* 14-18, sometimes branching above, rather low, 1-1.5 cm. high, 1-2 cm. broad at base, rounded, separated from one another by acute intervals; *areoles* small, depressed, 1 cm. apart; *spines* horn-coloured, but often with brownish tips or some, especially the central ones, brown throughout, at least when young; *radial spines* 8-10, 1-1.5 cm. long, more or less curved inwards, central spines usually one, sometimes 2 or 3, a little stouter than the radials; *cephalium* small, 6-7 cm. broad at base, 2-3 cm. high, made up of soft brown bristles and white wool; *fls.* small, purplish; *fr.* club-shaped, 2.5 cm. long, purple; *seeds* black.

Tobago. Discovered by W. E. Broadway in 1914. Herb. Trin. 11695, W. G. F. and R. O. W. opposite Melville Is.
Grenada (coll. R. O. Williams).

10. NEOMAMMILLARIA Britt. and Rose.

Plants globose, depressed-globose, or shortly cylindrical, occasionally elongated, tubercled, the tubercles arranged in more or less spiral rows, never on vertical ribs. *Spines* in clusters on top of the tubercles, all alike or the central ones very different from the radial. *Fls.* arising from axils of old tubercles, more or less bell-shaped, variously coloured. *Perianth segments* rather narrow, spreading. *Stam.* numerous, borne on the base of the perianth tube, short, included. *Style* about as long as stamens; *stig.* lobes linear. *Fr.* usually club-shaped, naked, usually ripening rapidly. *Seeds* brown or black.

1. *N. mammillaris* (L.) Britt. and Rose.

Cactus mammillaris L.

Britt. and Rose, Cactaceae, 4. 70.

Globose to shortly cylindrical, 4-6 cm. high; *tubercles* short, 5-7 mm. long, conical, nearly round, pale green, only slightly woolly in their axils; *areoles* bearing a dense mass of white wool when young; *spines* reddish-brown, needlelike, radial ones 10-12, spreading, 5-7 mm. long, central ones 3-4, stouter and a little longer than the radial; *fls.* 8-10 mm. long, cream coloured, outer *perianth segments* narrow, bearing long mucronate tips; *fr.* 15-20 mm. long, red; *seeds* minute, brown.

Herb. Trin. 12566 and 12574 Rasool, Patos Is. (July 1931) the first record for the Colony.

N. Venezuela and the neighbouring Dutch islands.

11. *EPIPHYLLUM* Haworth.

Plants mostly epiphytic. *Main stem* often round and woody; *branches* usually much flattened, often thin and leaflike, sometimes 3-winged. *Areoles* small, borne along the margins of the joints. *Spines* usually wanting in mature plants. *Fls.* usually large. *Perianth tube* longer than the limb. *Filts.* usually long, borne at the top of the tube or scattered over the surface of the throat. *Style* elongated, white or coloured; *stig.* lobes several, linear. *Fr.* globular or short-oblong to narrowly oblong, often with low ridges, sometimes tubercled, when mature splitting down one side. *Seeds* black, shining.

1. *E. Hookeri* (Link and Otto) Haworth.

Night-blooming Cactus.

Cereus Hookeri Link and Otto.

Phyllocactus Hookeri Salm-Dyck.

Britt. and Rose, Cactaceae, 4. 197. Britt. loc. cit. 87.

Plant up to 7 m. long, freely branched; *joints* 30-60 cm. long, 5-9 cm. broad, rather thin, light green, deeply notched; *fls.* solitary, borne on the edges of the joints; *perianth tube* slender, 11-13 cm. long, greenish, bearing a few narrow, slightly spreading, rose-tipped scales; *segments*, the outer narrow, greenish pink, the inner pure white, narrow, 5 cm. long; *stam.* in a single series, attached at the top of the throat; *style* carmine, with yellowish base and pinkish top, smooth above, papillose below; *ovary* green, somewhat angled, 2 cm. long, bearing a few small, spreading scales; *fr.* oblong, red, 8 cm. long.

"It has been confused with *Epiphyllum Phyllanthus*, a South American plant, which has a flower with a much longer tube and a smaller limb." (Britton).

On trees and cliffs, Trinidad and Tobago.

Northern Venezuela.

13. RHIPSALIS Gaertn.

Commonly *epiphytes*, hanging from trees. *Stems* usually much branched, round, angled or flattened. *Lvs.* wanting or represented by minute bracts. *Areoles* usually small, bearing hairs, wool, bristles and flowers. *Fls.* usually solitary, but sometimes several from a single areole, small for the family. *Perianth tube* none, *segments* distinct, few, usually spreading. *Filts.* few or numerous, in 1 or 2 rows. *Stig.* lobes 3 or more, usually slender, spreading. *Ovary* small, sometimes depressed or sunken in the branch. *Fr.* globular or oblong, usually naked. *Seeds* small, few to many.

1. **R. cassutha** Gaertn. Mistletoe. Old Man's Beard.

Britt. and Rose, Cactaceae, 4. 225. Britt. *loc. cit.* 87.

Epiphyte, usually on large trees, hanging in large clusters 1-9 m. long; *branches* when young bearing 5-9 white bristles at the areoles, when old naked, round, often only 3 mm. in diameter, light green, usually growing from tips of other branches, generally in pairs but sometimes in clusters of 6 or 8; *fls.* lateral, solitary, small, greenish in bud; *pet.* 2 mm. long, cream-coloured; *ovary* exserted; *fr.* naked, white or pink, maturing a few days after flowering, globose, 5 mm. in diameter.

Abundant in various localities in the Colony, especially on Saman trees.

West Indies; Cont. America from Florida to Peru; Ceylon; Trop. Africa.

FAMILY 2. AIZOACEAE (*Ficoideae*).

Herbs, usually prostrate and branched, or *sub-shrubs* with branches often whorled and nodes sometimes jointed. *Lvs.* simple, often fleshy, entire. *Stip.* scaly or wanting. *Fls.* usually in cymose clusters, hermaphrodite, regular. *Cal.* 4-5 lobed, often green, imbricate, persistent. *Pet.* (in Trinidad genera) 0. *Stam.* as many as the sepals and opposite to them, or more, equidistant or bunched. *Ovary* most often free, 2-many-celled; *styles* as many as the cells. *Fr.* usually a membranous or papery capsule, opening loculicidally or transversely, smaller than the persistent calyx and included by it. *Seeds* many or single, often patterned.

Stam. numerous; caps. 3-5 celled.....1. *Sesuvium*.

Stam. 6-10; caps. 1-celled.2. *Trianthema*.

1. **SESUVIUM L.**

Herbs, perennial, sometimes sub-shrubs, erect or prostrate, branched, succulent. *Lvs.* opposite, fleshy, linear or oblong. *Fls.* axillary. *Perianth* with a top-shaped tube and 5 oblong blunt lobes, pointleted on the back, coloured within. *Stam.* 5 or numerous. *Ovary* free, 3-5-celled; *styles* 3-5. *Caps.* oblong, thin-walled, 3-5-celled, dehiscing transversely, many-seeded.

1. **S. portulacastrum L.**

Griseb. Fl. 57: Urb. Symb. Ant. 4. 230 and 8. 217:
Fawc. & Rendl. Fl. Jam. 3. 166: Britt. & Millsp. Bah.
Fl. 136: Eyma in Pulle, Fl. Surin. 1. 160: N. Amer.
Fl. 21. 274.

Herb, fleshy, glabrous; *stems* much branched, prostrate, woody at base, some branches ascending; *lvs.* 1.5-5 cm. long, 2-8 mm. broad, their bases clasping the stem; *fls.* solitary, shortly stalked, 1 cm. long or less; *perianth lobes* lanceolate, purplish within; *stam.* numerous; *caps.* about 1 cm. long.

Coastal sands and rocks, Trinidad.

Tropical sea beaches of both Hemispheres.

2. **TRIANTHEMA L.**

Herbs, diffuse, prostrate and branched. *Lvs.* opposite, the pair unequal, entire; *petioles* joined by a membranous sheath. *Fls.* axillary, with 2 bracteoles. *Perianth* with a short or bell-shaped tube, lobes 5, pointleted on the back, coloured within. *Stam.* 5-many. *Ovary* free, 1-2-celled; *styles* 2 or 1 eccentric. *Caps.* opening transversely around the middle, 1-many-seeded.

1. **T. portulacastrum L.**

T. monogynum L.

Griseb. Fl. 58: Urb. Symb. Ant. 4. 231 and 8. 217:
Fawc. & Rendl. Fl. Jam. 3. 167: N. Amer. Fl. 21. 273.

Stems 60-90 cm. long; *lvs.* almost circular to obovate, glabrous, blades 1-5 cm. long and broad; *petioles* 0.5-2 cm.; *fls.* sessile, half-hidden by the sheathing petiole, purplish within; *stam.* 6-10, *ovary* 1-celled; *seeds* 6-8, 1 (-2) partially enclosed within the lid of the capsule.

Waste grounds; Chacachacare and Patos Is.

Tropics of both Hemispheres.