

PROPERTY OF THE BOTANY DEPARTMENT

DO NOT REMOVE FROM THE HERBARIUM

Vol. II.]

[Part 2.

FLORA
OF
TRINIDAD AND TOBAGO.

ASTERALES }
CAMPA NALES } (by E. E. Cheesman)
ERICALES (by A. W. Hill and B. L. Burtl)
PRIMULALES (by E. E. Cheesman)

Price: - - 84c.



TRINIDAD:
PRINTED BY THE GOVERNMENT PRINTER,
GOVERNMENT PRINTING OFFICE,
PORT-OF-SPAIN.

1940.

COHORT 2. ASTERALES.

By

E. E. CHEESMAN. *

FAMILY 1. COMPOSITAE.

Herbs, shrubs, or rarely trees. Lvs. opposite or alternate, rarely whorled, without stipules, entire, toothed, lobed or variously cut. *Fls.* small, known as *florets*, hermaphrodite, unisexual or neuter, aggregated into *heads (capitula)* surrounded by a common *involucre* of *bracts* and simulating single flowers. *Heads* solitary or in cymes, corymbs or panicles. *Florets* within the head sessile on a common *receptacle*, the dilated apex of the peduncle, which may be flat, convex, conical or elongated, and naked, pitted or furnished with chaffy *scales*, the latter when present usually subtending each a floret. *Cal.* tube united to the ovary and indistinguishable from it; the limb wanting or represented by a ring, cup, teeth, scales or bristles crowning the ovary. *Cor.* gamopetalous, with a short or long tube and a usually 4-5-fid limb; the limb regular (radially symmetrical) or 2-lipped or strap-shaped (*ligulate*). *Stam.* as many as the corolla lobes, alternating with them, inserted on the tube; *filts.* free or united; *anth.* usually united into a tube surrounding the style. *Ovary* inferior, 1-celled; *style* usually bifid; *ovule* solitary, erect from the base. *Fruit* an *achene*, 1-celled, 1-seeded, indehiscent, usually dry, crowned by the persistent modified calyx, known as the *pappus*. *Seed* without endosperm, *embryo* straight.

Heads may be *homogamous* (with all their florets alike in sex) or *heterogamous* (with florets sexually diverse). They are said to be *radiate* when heterogamous with the corollas of the outer (female or neuter) florets ligulate, forming a *ray* round the central *disc* of tubular (usually hermaphrodite) florets. *Radiatiform* heads have the corollas of the outer florets larger than those of the disc, regular or variously irregular but not ligulate. *Discoid* heads are homogamous with all corollas tubular, regular and alike. *Disciform* heads are heterogamous and the corollas of the outer florets differ from those of the disc but are neither larger nor ligulate.

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

Ligulate heads are homogamous with all corollas ligulate; these are characteristic of the tribe *Cichorieae*, often separated off as a distinct family, and do not occur in the other tribes.

Though the largest family of flowering plants, with some 800 genera and 12,000 species, this contains few members of any great economic importance. *Lactuca sativa* L. (lettuce) is the best known useful species grown in the Colony. The family is, however, well represented in flower gardens by such genera as *Aster*, *Calendula*, *Coreopsis*, *Cosmos*, *Dahlia*, *Gaillardia*, *Helianthus*, *Tagetes*, *Tithonia* and *Zinnia*.

CONSPECTUS OF TRIBES.

Tribe 1. **Vernonieae.** *Lvs.* usually alternate. *Heads* discoid. *Cor.* white or purple, never yellow. *Anthers* sagittate at base. *Style-arms* awl-shaped, hairy on the back. *Pappus* usually of bristles or scales.

Genera 1-8.

Tribe 2. **Eupatorieae.** *Lvs.* usually opposite, the upper sometimes alternate. *Heads* discoid. *Cor.* purple, white, or occasionally yellowish-white, never true yellow. *Anthers* blunt at base. *Style-arms* usually long, roundish, papillose. *Pappus* usually of bristles.

Genera 9-12.

Tribe 3. **Asteroideae.** *Lvs.* usually alternate. *Heads* usually heterogamous, radiate or disciform, sometimes by suppression of the ray homogamous. *Receptacle* usually naked. *Cor.* of the disc usually yellow, of the ray the same colour or different. *Anthers* blunt at base. *Style-arms* flattened, appendaged (except in *Baccharis*).

Genera 13-15.

Tribe 4. **Inuloideae.** As *Asteroideae*, but *anthers* tailed at base and *style-arms* linear, without appendage.

Genera 16-17.

Tribe 5. **Helianthoideae.** *Lvs.* opposite or alternate. *Heads* usually radiate, sometimes disciform (e.g. in *Clibadium*) or by suppression of the ray homogamous and discoid. *Receptacle* scaly. *Cor.* of the disc usually yellow, of the ray commonly of the same colour, sometimes different. *Anthers* entire at base or with 2 very short pointlets. *Style-arms* truncate or appendaged. *Pappus* usually of awns or scales, or often wanting, rarely bristly.

Genera 18-36.

Tribe 6. **Helenioideae.** *Lvs.* opposite or alternate. *Heads* usually radiate, sometimes disciform, or by suppression of the ray discoid. *Receptacle* naked. *Cor.* of the disc usually yellow. *Anthers* without tails. *Style-arms* truncate or appendaged. *Pappus* usually of scales. *Involucral bracts* in one row.

Genera 37-38.

Tribe 7. **Senecionideae.** *Lvs.* usually alternate. *Heads* radiate, or less often disciform or discoid. *Receptacle* usually naked, sometimes scaly. *Anthers* with an apical appendage, often sagittate at base, but scarcely tailed. *Style-arms* of female flowers often tufted at the apex, or truncate, in a few genera like those of *Vernoniae* or *Eupatorieae*.

Genera 39-42.

Tribe 8. **Mutisieae.** *Heads* homogamous or heterogamous, often radiatiform, with the outer florets resembling ligules but not truly ligulate. *Receptacle* usually naked. *Cor.* 2-lipped, the outer lip elongated in the ray florets. *Anthers* long-tailed at the base. *Style-arms* blunt, rounded or truncate, often joined nearly to the apex. *Pappus* usually of bristles.

Genera 43-44.

Tribe 9. **Cichorieae.** *Plants* with milky sap. *Lvs.* alternate or radical. *Heads* homogamous, with all florets ligulate. *Cor.* most often yellow. *Anthers* with an apical appendage, sagittate at base. *Style-arms* thin.

Genera 45-46.

Artificial Keys to Genera.

Corollas of central or all florets regular.

(Tribes 1-7).

Florets of the same head all alike

(heads *discoid*).

Receptacle without scales among the

florets Use Key A below.

Receptacle bearing scales among the

florets Use Key B below.

Florets of the same head of more than

one kind (heads *disciform* or *radiate*).

Receptacle without scales (sometimes

fringed) Use Key C below.

Receptacle bearing scales among the

florets Use Key D below.

Key D. Genera with heads disciform or radiate and receptacle scaly.

Heads disciform.

Lvs. alternate, decurrent; pappus of
bristles17. *Pterocaulon*.Lvs. opposite, not decurrent; pappus
none18. *Clibadium*.

Heads radiate.

Pappus none.

Inner bracts spiny, enclosing the
achenes19. *Acanthospermum*Inner bracts not spiny.
Herb; corollas white22. *Eclipta*.Scandent shrub; corollas yellow24. *Wulffia*.

Pappus of awns or scales.

Lvs. alternate.

Heads small, white; pappus
2 recurved awns20. *Parthenium*.Heads large, yellow; pappus of
scales28. *Tithonia*.

Lvs. opposite.

Pappus awns not barbed or
feathery.Heads long stalked30. *Spilanthes*.Heads nearly sessile32. *Synedrella*.

Pappus awns stiff, barbed.

Achenes beaked33. *Cosmos*.Achenes not beaked34. *Bidens*.Pappus awns (or scales) feathery36. *Tridax*.

Pappus cup-shaped.

Ray florets fertile25. *Wedelia*.

Ray florets neuter.

Herb; heads less than 1 cm. across26. *Eleutheranthera*.Shrub; heads exceeding 1 cm.27. *Aspilia*.

1. STRUCHIUM P. Br.

Annual *herb*, erect, simple or sparsely branched. *Lvs.* alternate, petioled, pinnately veined. *Heads* small, axillary, solitary or clustered, discoid. *Involucre* hemispherical, the bracts numerous, imbricate, dry at the margins, the outer gradually shorter. *Receptacle* flat, naked. *Cor.* regular, tube slender, limb 3-4-fid. *Anth.* sagittate at base. *Achenes* 3-4 angled, glandular between the ribs, crowned with a cartilaginous cup.

1. *S. sparganophorum* (L.) Kuntze.

Sparganophorus Vaillantii Crantz.

Griseb. Fl. 352: Urb. Symb. Ant. 4. 618; 8. 703: Gleason in Bull. N.Y. Bot. Gard. 4. 155: N. Amer. Fl. 33. 48: Fawc. & Rendl. Fl. Jam. 7. 155: Koster in Pulle Fl. Surin. 4.2.92.

Plant 20 cm.-1 m. high; *stems* shortly hairy when young, soon becoming glabrous or nearly so; *lvs.* lanceolate, up to 12 cm. long, 5 cm. wide, more usually 6-8 cm. long, 2-3.5 cm. wide, sometimes reduced to 3 cm. long, narrowing gradually into the 0.5-2 cm. petiole, and to the acute apex, toothed or nearly entire, thin in texture, nearly glabrous; *heads* about 5-8 mm. across, single or clustered in the axils; *involucral bracts* ovate or ovate-lanceolate, abruptly acuminate with a spinelike tip, the inner 3-4 mm. long, outermost narrower and shorter; *cor.* white or pale lilac, 2 mm. long; *achenes* 1.5 mm. long, brown, the cartilaginous *pappus* yellowish white and half as long.

Moist waste and cultivated grounds, Trinidad and Tobago.

West Indies and tropical America; introduced into Africa and the East Indies.

2. CENTRATHERUM Cass.

Herbs, diffusely branched. *Lvs.* alternate, usually toothed. *Heads* rather large, stalked, usually at the tips of the branches, discoid. *Involucre* hemispherical to broadly bell-shaped, the outer bracts leafy and spreading, the inner dry or membranous. *Receptacle* slightly convex, naked or pitted. *Cor.* regular, tube slender, limb narrowly 5-fid. *Anth.* sagittate at base with blunt auricles. *Achenes* blunt, with 8-10 prominent ribs, crowned with a *pappus* of few or many short bristles, soon deciduous.

1. *C. muticum* (H.B.K.) Less.

Griseb. Fl. 354: N. Amer. Fl. 33. 50: Gleason in Bull. N.Y. Bot. Gard. 4.158.

Stems round, hairy, 20-80 cm. high; *lvs.* narrowly ovate or ovate-oblong, 3-5 cm. long, 1-2 cm. wide, narrowing gradually to the base without distinct petiole, somewhat acute at apex, sharply toothed, pubescent on both surfaces and dotted with resin glands beneath; *heads* terminal, purple, about 1.2 cm. high and broad; outermost *involucral bracts* (about 5) leaflike and up to 2.5 cm. long, spreading, the next very short, ovate, acute, and then gradually increasing, the inner about 5 mm. long, oblong, bluntish, membranous at margins and glandular towards the tip; *cor.* about 8 mm. long; *achenes* 2 mm. long, at first with a *pappus* of about 5 plumose bristles, nearly as long as the achene, but these quickly deciduous.

Grassy situations in moist districts, Trinidad.
Mexico and C. America, also in S. America.

3. *VERNONIA* Schreb.

Shrubs or *herbs*. *Lvs.* alternate, pinnately veined. *Heads* solitary or more often in cymes, corymbs or panicles, discoid, usually many-flowered. *Involucre* of various shapes, the bracts in several rows, the inner progressively longer, persistent and spreading at maturity. *Receptacle* flat or slightly convex, naked or pitted. *Cor.* regular, limb 5-fid. *Anth.* sagittate at base. *Achenes* 8-10-ribbed, or by suppression of ribs 4-5 angled, truncate, crowned with a pappus in two series, the inner of bristles the outer of shorter bristles or scales.

Inflorescence more or less leafy.

Upper *lvs.* narrowly lanceolate1. *V. tricephala*.

Upper *lvs.* ovate2. *V. trinitatis*.

Inflorescence leafless.

Heads in scorpioid cymes: shrub3. *V. scorpioides*.

Heads in corymbs: herbaceous4. *V. cinerea*.

1. *V. tricephala* Gardn.

V. tricholepis DC. sens. Griseb. Fl. 354 p.p. non DC.
Ekman in Arkiv för Botanik 13. 26 (1914).

Shrub, 80 cm. or so high; *stems* woody, the younger branches pubescent, later becoming glabrous; *lvs.* elliptical-oblong or lanceolate, acute, the upper lanceolate to linear-oblong, diminishing gradually to bracts, at first pubescent above, later often becoming nearly glabrous above but remaining felted-pubescent beneath; *heads* 20-25-fld., sessile, solitary or paired,

in the axils of the upper leaves and bracts, on flowering branches up to 35 cm. long; *involucre* about 6 mm. long, its *bracts* in several rows, the outer awl-shaped, the inner oblong and acute, all pubescent on the back; *cor.* 5 mm. long, bluish-purple, its *lobes* hairy and glandular on the back; *achenes* 1.5 mm. long, narrowed slightly to the base, brown, ribbed, pubescent between the ribs; *pappus* white, the inner bristles 3-4 mm. long, the outer scales narrow, less than 1 mm. long.

Coastal banks and bluffs in southern and south-western districts Trinidad.

Brazil.

2. *V. trinitatis* Ekman.

Ekman in Arkiv för Botanik 13. 39 (1914).

Subshrub, 1 m. or more high; *stems* erect, woody and simple below, branched above, densely pubescent when young, later almost glabrous; *lvs.* ovate, up to 13 cm. long, 6 cm. wide, but commonly smaller, rounded at base, acuminate at apex, entire or with very small distant teeth, at first pubescent on both sides, later often nearly glabrous above, felted-pubescent beneath, on very short *petioles* 2-4 mm. long; *infl.* up to 30 cm. long, 25 cm. across, of spreading one-sided cymes; *heads* about 25-fl., sessile, solitary or paired, in the axils of leafy bracts much longer than themselves, the lower heads of each cyme rather distant, the upper more approximate; *involucre* about 8 mm. long, its *bracts* in several rows, the outer linear or awl-shaped, the inner oblong and acute, all pubescent; *achenes* 2 mm. long, narrowed slightly to the base, brown, ribbed, pubescent; *pappus* white, the inner bristles 5 mm. long, the outer scales narrow, barely 1 mm. long.

Hillsides, Monos Is.; Teteron Bay (Herb. Trin. 13305, Cheesman), Trinidad.

Endemic.

3. *V. scorpioides* (Lam.) Pers.

Griseb. Fl. 353; N. Amer. Fl. 33. 77; Koster in Pulle Fl. Surin. 4.2.96.

Stems shrubby, scandent, distantly branched, softly and closely pubescent when young; *lvs.* ovate to broadly elliptical, 5-12 cm. long, 2-7 cm. wide, abruptly narrowed to a short wedge-shaped base, acute or acuminate at apex, entire or very shallowly toothed, sparsely pubescent or almost glabrous above, thinly or more densely hairy beneath, on *petioles* 1.2 cm. long; *heads* in leafless one-sided cymes; *cymes* at first curved, later spreading, up to 10 cm. long, crowded at the ends of the branches into compact, depressed panicles; *involucre* bell-shaped, 4 mm. high, its *bracts* loosely

2. *O. Milleri* (Johnston) Gleason.

Vernonia Milleri Johnston

Lychnocephalus tomentosus of Hart's List.

Johnston in Proc. Amer. Acad. 40. 698 (1905): Gleason in Bull. Torr. Bot. Club 46. 251 (1919).

Tree, up to 6 m.; young *branches* densely tawny-downy; *lvs.* ovate-lanceolate, 4-12 cm. long, 2-6 cm. wide, narrowed at the base into a short petiole, bluntish-acuminate at apex, almost entire (some with a few irregular teeth), shortly pubescent above, white-felted beneath; *panicles* leafy-bracted; *heads* about 5-fld.; *involucral bracts* downy, the outer short, the inner 4 mm. long; *cor.* white, 6 mm. long, the *tube* about 3.5 mm., the linear-lanceolate *lobes* 2.5 mm.; *achenes* 2.5 mm. long; *pappus* of linear scales 3 mm. long.

Hillsides of Monos and Chacachacare, and north-western districts, Trinidad.

Venezuela (Margarita Is.)

6. ELEPHANTOPUS L.

Herbs. *Lvs.* alternate, sessile, pinnately veined. *Heads* small, few-flowered, collected into glomerules, usually subtended by broad bracts, discoid. *Involucre* oblong, compressed, the bracts few, imbricate, dry, the four outer shorter than the rest. *Receptacle* small, naked or pitted. *Cor.* tube slender, limb unequally 5-fid. *Anth.* sagittate at base. *Achenes* 10-ribbed, truncate, with a pappus of few or many rigid bristles or scales.

Glomerules stalked, in lax corymbs;

pappus bristles about 5.

Lvs. densely velvety beneath1. *E. mollis*.

Lvs. sparsely covered with long hairs

beneath2. *E. pilosus*.

Glomerules sessile, in spikes;

pappus bristles about 303. *E. angustifolius*.

1. *E. mollis* H.B.K.

E. scaber L. var. *tomentosus* (L.) Baker. p.p.

E. tomentosus L. sec. Koster, non L.

Baker in Mart Fl. Bras. 6. 2. 173; Koster in Pulle, Fl.

Surin 4. 2. 100; Griseb. Fl. 355; Fawc. & Rendl. Fl.

Jam. 7. 163.

Stems 30-90 cm. high, stoutish, hairy, freely branched above; *lvs.* oblong to obovate, 6-15 cm. long, 3-6 cm. wide, narrowed at base to a short, winged, stem-clasping petiole, acute at apex, toothed, rough above, softly and densely pubescent beneath; *glomerules*

about 1 cm. long, their 3 subtending bracts sessile, triangular-heart-shaped, pubescent; *involucre*s narrowly cylindrical, their *bracts* few, lanceolate, spiny-tipped, more or less pubescent on the back, *cor.* white, 6-7 mm. long; *achenes* minutely hairy between the ribs, 2.5 mm. long; *pappus* bristles about 5, straight, dilated at the base, 4 mm. long.

Roadside banks, hillsides and fields, Trinidad and Tobago.
West Indies; Central and tropical S. America.

2. *E. pilosus* Philipson.

E. carolinianus Willd. sens. Koster l.c. non Willd.

E. scaber L. sens. Griseb. Fl. 354 non L.

Philipson in Journ. Bot. November, 1939, p. 314: Koster in Pulle, Fl. Surin. 4.2.101.

Stems 30-60 cm. high, sparsely hairy, freely branched above, *lvs.* spatulate-oblong, the lower 10-20 cm. or more long, 3-5 cm. wide, narrowed gradually to the stem-clasping base, blunt at apex, toothed, hairy on the principal nerves beneath and with sparsely scattered rather long hairs between the nerves on both surfaces, *glomerules* nearly 1 cm. long, their 3 subtending bracts sessile, triangular-heart-shaped, sparsely hairy like the leaves; *involucre*s narrowly cylindrical, their *bracts* lanceolate, spiny-tipped, glabrous or nearly so; *cor.* white or pale violet, 6 mm. long; *achenes* minutely hairy between the ribs, 2.5 mm. long; *pappus* bristles 5-6, straight, 3 mm. long.

Carenage, Aripo Road, Caura Road, Trinidad. Only recently recognized, but probably not infrequent in the same habitats as *E. mollis*.

Antigua; the Guianas and Brazil.

3. *E. angustifolius* Sw.

Orthopappus angustifolius Gleason.

Gleason in Bull. N. York Bot. Gard. 4. 238: Griseb. Fl.

355: Urb. Symb. Ant. 8. 707: Fawc. & Rendl. Fl. Jam. 7.

164: N. Amer. Fl. 33. 105: Koster in Pulle, Fl. Surin.

4. 2.103.

Herb. with principal leaves basal; *stem* 30-90 cm. high, erect, silky-pubescent or hairy; *basal lvs.* narrowly oblanceolate, up to 35 cm. long, 4-5 cm. wide, bluntly pointed, narrowing gradually to the sheathing base, shallowly crenate or almost entire, thinly pubescent on both sides, especially on the veins beneath; *stem lvs.* bract-like, linear to oblong; *glomerules* about 1 cm. long; *heads* 3-5-flowered; *cor.* white or pale lilac; *achenes* dark brown, pubescent, 2 mm. long, *pappus* bristles about 30, straight, 7-8 mm. long, very slightly enlarged at base.

In moist natural savannahs, Trinidad and Tobago.

West Indies and tropical America.

7. PSEUDO-ELEPHANTOPUS *Rohr.*

Herbs. *Lvs.* alternate. *Heads* small, few-flowered, solitary or few together in sessile axillary glomerules. *Involucre*, *cor.* and *anth.* as in *Elephantopus*. *Achenes* 10-ribbed, with a pappus of few bristles, unequal, variously twisted or bent.

Pappus with 2 long bristles bent into hooks at the top1. *Ps. spicatus*.

Pappus with several long bristles irregularly twisted at the top2. *Ps. Funckii*.

1. *Ps. spicatus* (*Aubl.*) *Gleason*.

Man-better-man.

Elephantopus spicatus *Aubl.*

Distreptus spicatus *Cass.*

Griseb. Fl. 355 : *Urb. Symb. Ant.* 4, 621 ; 8, 707 : *Fawc. & Rendl.* Fl. Jam. 7, 165 : *N. Amer. Fl.* 33, 109 : *Philipson* in *Journ. Bot.* October 1938 p. 301, footnote.

Stems herbaceous, erect, 30-90 cm. high, simple or freely branched ; *lvs.* the lower obovate to oblanceolate, 5-15 cm. long, 1-5 cm. wide, rounded or blunt at the tip, narrowing below to a short clasping petiole, entire, wavy or shallowly toothed, sparsely hairy above and more densely so on the nerves beneath, the upper linear or linear lanceolate, much reduced in size ; *glomerules* 1-4-headed, sessile in the axils of the upper bract-like leaves, the whole forming a loose open spicate panicle ; *heads* about 1 cm. long ; *cor.* white ; *achenes* 5 mm. long, hairy on the ribs, glandular-resinous in the furrows ; *pappus* with 2 long bristles bent into hooks at the top and several shorter bristles straight or nearly so, all somewhat dilated at base.

Grassy banks, fields and hillsides, common, Trinidad and Tobago.

West Indies and tropical America generally : introduced into the Old World tropics.

2. *Ps. Funckii* (*Turcz.*) *Philipson*.

Spirochaeta Funckii *Turcz.*

Distreptus crispus *Cass.*

Elephantopus crispus (*Cass.*) *D. Dietr.*

Philipson in *Journ. Bot.* October 1938 p. 301.

Erect *herb*, 30-90 cm. high, simple or freely branched ; *stems* clothed with long appressed hairs ; *lvs.* the lower oblanceolate narrowing to a short clasping petiole, the upper lanceolate or oblong lanceolate, much reduced in the flowering region, almost glabrous above, sparsely hairy beneath ; *glomerules* 1-4-headed, in *spikes* much denser than those of *Ps. spicatus* ; *heads* 5-7 mm. long, 4-flowered ; *cor.* pale mauve, the tube slender, 5 mm. long, limb

1.5 mm.; *achenes* brown, 2.5 mm. long, narrowed to the base, glandular resinous between the ribs; *pappus* of several bristles (usually about 8 with 4 longer than the rest) all longer than the achene, much twisted at the top, scarcely dilated at base.

Grassy roadsides, river banks and hillsides, Tobago. Not uncommon, and sometimes occurring with *Ps. spicatus*. Not recorded from Trinidad.

Lesser Antilles (Tobago to Martinique); Brazil, Venezuela, Colombia to Bolivia.

8. ROLANDRA Rottb.

Subshrub. *Lvs.* alternate, white beneath. *Heads* small, 1-flowered, subtended each by a chaffy bract and collected into dense axillary glomerules. *Involucre* narrow, of 2 awned bracts, the outer larger. *Cor.* regular, tube short and slender, limb shortly 3-fid. *Achenes* 4-5 angled, with a *pappus* of very short scales joined into a toothed crown.

1. *R. fruticosa* (L.) Kuntze.

R. argentea Rottb.

Griseb. Fl. 355: Urb. Symb. Ant. 4. 621: N. Amer. Fl. 33. 110.

Stems erect, 20-90 cm., sparingly branched, more or less hairy when young, becoming woody; *lvs.* oblong to narrow lanceolate up to 15 cm. long, 6 cm. wide, more typically 7 cm. long, 2.5 cm. wide, narrowed at base into a short, fringed petiole, apex acute or shortly acuminate, margins entire or wavy, glabrous or (more often) rough above, softly white-felted beneath; *glomerules* hemispherical to globose, 1 cm. or more in diameter; *involucres* 4-5 mm. long, their ovate-lanceolate *bracts* tipped with a short spine; *cor.* white; *achenes* glabrous and glandular, 2 mm. long; *pappus* minute, of unequally fringed scales.

Natural savannahs and moist waste grounds, Trinidad and Tobago West Indies and tropical America, from Porto Rico to Brazil.

9. AGERATUM L.

Herbs or shrubs. *Lvs.* opposite, the upper sometimes alternate. *Heads* in dense corymbs or less frequently in loose panicles, discoid. *Involucre* bell-shaped, its bracts linear in 2-3 rows, almost equal. *Receptacle* naked or with caducous scales among the florets. *Cor.* regular, bluish purple or white, limb 5-fid. *Anth.* obtuse at base with a terminal appendage. *Achenes* 5-angled. *Pappus* of short scales, acute or awned, free or joined into a cup.

1. *A. conyzoides* L.

Herbe a femme.

Griseb. Fl. 356 : Urb. Symb. Ant. 4. 622 ; 8. 709 : Fawc. & Rendl. Fl. Jam. 7. 169 : Britt. & Wils. Sci. Surv. Porto Rico 6. 286.

Stems erect, 20-60 cm. high, hairy ; *lvs.* on slender hairy petioles 0.5-3 cm. long, blades ovate to elliptical, up to 7 cm. long 4.5 cm. wide, obtuse at apex, rounded or obtuse at base, coarsely and bluntly toothed, hairy chiefly on the veins ; *heads* in corymbs, rather crowded ; *involucral bracts* about 4 mm. long ; *cor.* lavender, blue, or white ; *achenes* black, 1.5 mm. long ; *pappus* scales long awned, slightly longer than the achene.

Roadsides and waste or cultivated grounds, Trinidad and Tobago. Widely distributed in the warmer regions of both Hemispheres.

10. *EUPATORIUM* L.*

Herbs or *shrubs*. *Lvs.* opposite, rarely alternate. *Heads* usually in corymbs, sometimes in panicles or solitary, many-flowered, discoid. *Involucre* cylindrical, ovoid, bell-shaped or hemispherical, its bracts imbricate in few or many rows. *Receptacle* flat, convex, or conical, usually naked. *Cor.* regular, tube slender, limb shortly 5-lobed or toothed. *Anth.* obtuse at base and with an apical appendage. *Achenes* 5-angled, truncate, crowned with a pappus of numerous bristles in a single series.

Receptacle glabrous, flat or nearly so.

Involucre cylindrical, of closely imbricate bracts, at maturity readily deciduous.

Pedicels angular, glabrous 1. *E. laevigatum*.

Pedicels roundish, pubescent.

Inv. bracts with subherbaceous, broadly triangular or truncate tips..... 2. *E. ivaeifolium*.

Inv. bracts narrowing gradually to bluntish tips..... 3. *E. odoratum*.

Involucre bell-shaped or top-shaped, its bracts very unequal, persisting until after the fall of the achenes.

Perennial herbs or shrubs ; heads 5 mm. long, or longer.

Heads separate or in small glomerules, disposed in open panicles.

* I am indebted to Dr. Lyman B. Smith of the Gray Herbarium, Harvard University, for invaluable assistance with *Eupatorium* and *Mikania*.—E. E. C.

- Lvs. pinnately veined 4. *E. trinitense*.
 Lvs. palmately 3-nerved from below the middle.
 Lvs. ovate to lanceolate, distinctly petioled, usually toothed.
 Heads about 5-fld.; inv. bracts all acute 5. *E. iresinoides*.
 Heads about 20-fld.; inner inv. bracts obtuse 6. *E. pycnocephalum*.
 Lvs. narrowly lanceolate, almost sessile, entire 7. *E. triplinerve*.
 Heads crowded in corymbs 8. *E. inulaefolium*.
 Annual; heads not over 4 mm. long, in an open panicle 9. *E. microstemon*.
 Receptacle hairy, strongly convex; heads about 50-flowered; lvs. up to 20 cm. long and wide 10. *E. macrophyllum*.

1. *E. laevigatum* Lam.

Osmia laevigata Sch. Bip.

Griseb. Fl. 357: Robinson in Contrib. Gray Herb. 55. 273.

Erect shrub, 1-3 m., usually glabrous throughout, freely branched, the branches ascending; main stem thick and woody; younger branches angled; lvs. opposite, rhombic-ovate or ovate to ovate-oblong, 5-10 cm. long, 2-5 cm. wide, wedge-shaped at base, acute or acuminate at apex, toothed in the upper two-thirds, 3-nerved from the base, firm in texture, on petioles 0.5-1.5 cm. long; involucre about 8 mm. long, its bracts in 4-5 series, the outermost ovate, 1-2 mm. long, very obtuse, the innermost oblong, bluntish; florets about 20, pale lavender or whitish; cor. about 5 mm. long; the exserted styles as long again as the corollas and of the same colour; achenes 3 mm. long, slightly rough on the angles; pappus 4-5 mm., whitish.

Savannahs and open hillsides, Trinidad.

Widely distributed from Mexico to Argentina.

2. *E. ivaefolium* L.

Osmia ivaefolia Sch. Bip.

Griseb. Fl. 359: Urb. Symb. Ant. 8. 711: Robinson, Contrib.

Gray Herb. 55. 275: Fawc. & Rendl. Fl. Jam. 7. 175.

Erect subshrub or shrub, 40-120 cm. high, branching; branches round, roughly pubescent; lvs. lanceolate, 3-8 cm. long, 0.5-3 cm. wide narrowed at base into a short petiole, acute at apex, the lower distantly toothed, upper almost entire, pubescent on the

nerves on both surfaces; *heads* in trichotomous, open, sometimes spreading inflorescences; *pedi.* 5-15 mm. long; *involucre* cylindrical, 5-8 mm. long, its *bracts* in 4-5 rows, the outer short, inner oblong, 5 mm. long, pubescent at their rather broadly triangular or truncate, dark, subherbaceous tips; *cor.* lilac, 3 mm. long; *achenes* black with light ribs, 3-4 mm. long, narrowed at base; *pappus* brownish white, 4 mm. long.

Savannahs, roadsides and grassy places, Trinidad and Tobago.

Lesser Antilles, Jamaica, Cuba; Southern U.S.A. to Brazil and Paraguay.

3. *E. odoratum* L.

Christmas Bush.

E. conyzoides Vahl.

Osmia odorata Sch. Bip.

Griseb. Fl. 358: Urb. Symb. Ant. 4. 623; 8. 710: Fawc. & Rendl. Fl. Jam. 7. 174: Britt. & Millsp. Bah. Fl. 438: Robinson Contrib. Gray Herb. 55. 280.

Straggling or somewhat scandent *shrub*, 1-3 m., much branched, the branches spreading; *stems* round, pubescent; *lvs.* rhombic-ovate to lanceolate, *petioles* 1-2.5 cm. long, *blades* 6-12 cm. long, 3-7 cm. wide, abruptly wedge-shaped at base, long-acuminate at apex, coarsely toothed above their widest part (upper lvs. sometimes entire or almost so), 3-nerved from near the base, sparsely pubescent above, moderately pubescent or velvety, with copious yellow glands among the hairs beneath; *heads* in terminal trichotomous, convex corymbs, 5-10 cm. across; *involucre* about 1 cm., its *bracts* in 4-5 series, oblong, bluntish, white marked with green lines, pubescent near the tips, frilled at the membranous margins; *florets* about 30, pale lavender or whitish; *cor.* about 5 mm. long; the exserted *styles* as long again as the corollas and of the same colour; *achenes* 4-5 mm. long, narrowed below, rough on the ribs or glabrous; *pappus* as long as the achene, whitish.

A common, widespread and variable species. Flowers in the Colony about Christmas, and is for a few weeks one of the most conspicuous features in the vegetation.

Roadside banks, fields, hillsides and waste lands generally, Trinidad and Tobago.

West Indies generally, and continental America from Florida to Paraguay.

4. *E. trinitense* (Kuntze) Rusby and Robinson.*E. Squiresii* Rusby.*Baccharis trinitensis* Kuntze.

O. Kuntze Rev. Gen. 1 (1891) 319: Heering in Urb. Symb. Ant.

5. 241: Robinson in Contrib. Gray Herb. 55. 258 and 337;
61. 11.

Subshrub, 2 m.; *stems* round, glabrous; *lvs.* opposite, short-petioled or almost sessile, oblong to lanceolate, 9-22 cm. long, 3-10 cm. wide, narrowed at base, sometimes slightly decurrent into the petiole, acuminate at apex, distantly and minutely toothed, glabrous on both surfaces or puberulent on the veins beneath; *panicle* terminal, up to 30 cm. long, leaf-bracted to the middle; *heads* shortly pedicellate, about 20-flowered, 6 mm. long, 3.5 mm. across; *involucral bracts* in 3-4 series, very unequal, rounded at their tips, pubescent on the back; *cor.* yellowish white; *achenes* black 1.3 mm. long, with about 25-30 white *pappus* bristles 3 mm. long.

San Fernando (type collection) and Oropouche Lagoon (Herb. Trin. 2566, Finlay, 1865), Trinidad.

Venezuela.

5. *E. iresinoides* H.B.K.

Griseb. Fl. 360: Robinson Contrib. Gray Herb. 55. 285.

Straggling or weakly climbing *perennial*; *stems* herbaceous or becoming more or less woody, up to 2 m. high; *lvs.* ovate, 4-8 cm. long, 1.5-4 cm. wide, abruptly wedged-shaped at base, bluntish or acute at apex, toothed, wavy or subentire, 3-nerved from above the base, more or less pubescent on both surfaces; *heads* about 5-flowered, shortly stalked in open panicles; *involucral bracts* very unequal, loosely imbricated, acute, the inner 4 mm. long; *cor.* white; *achenes* pubescent, 2 mm. long; *pappus* 2.5 mm.

Banks and thickets; Monos and Chacachacare Is., Teteron Bay and Maracas, Trinidad.

St. Vincent, Martinique; Venezuela and Panama.

6. *E. pycnocephalum* Less.

Robinson, Contrib. Gray Herb. 55. 296; 68. 31.

Herbaceous, 20-50 cm. or more high, branching; *stems* round, finely pubescent with incurved hairs; *petioles* slender 0.5-2.0 cm. long; *lvs.* ovate-lanceolate, 3.5-7 cm. long, 2-4 cm. wide, wedge-shaped at base, acuminate at apex, coarsely toothed above the base, 3-nerved, almost glabrous above, pubescent on the nerves beneath;

heads about 25-fld., on *pedicels* 4-8 mm. long; *involucral bracts* in about 3 rows, the inner oblong, blunt or rounded at the tip, 5 mm. long, the outer gradually shorter, oval and blunt to lanceolate and acute, pubescent on the back; *cor.* purplish; *achenes* about 1.5 mm. long, black with lighter ribs; *pappus* 3 mm. long.

This is a widespread species, subject elsewhere to considerable variation in height, leaf-shape, density of inflorescence and especially pubescence. The description given applies only to Trinidad material examined. Within the Colony it has only been collected at one station.

Among wet rocks at Maracas Waterfall, Trinidad (Herb. Trin. 5632, Broadway (1893); 13301, Cheesman and Baker (1938).

Venezuela, Central America to Mexico and South-western U.S.A.

7. *E. triplinerve* Vahl.

E. Ayapana Vent.

Griseb. Fl. 362 (note): Urb. Symb. Ant. 4. 624: Britt. & Wils. Sci. Surv. Porto Rico 6. 289 and 565.

Perennial, 1-1.5 m. high, branching; *stems* woody below, glabrous below, glabrous or sparsely pubescent above; *lvs.* lanceolate to oblong-lanceolate, 4-15 cm. long, 0.5-3 cm. wide, shortly-petioled or sessile, acute at both ends, entire or nearly so, 3-nerved from below the middle, nearly glabrous; *heads* few, in loose corymbs, on slender pubescent *pedicels* 1-2 cm. long; *involucral bracts* narrow, the inner 4-5 mm. long, linear-oblong, herbaceous at their acute and pubescent tips, the outer shorter, acute, pubescent on the back; *achenes* 2 mm. long, glabrous; *pappus* 2.5-3 mm. long.

Herb. Trin. 13338, Freeman, Balandra Bay (1921), Trinidad.

This native of continental tropical America is valued as a febrifuge and cultivated in some West Indian Islands. It is recorded as an escape in Porto Rico, St. Croix, Guadeloupe and Martinique. The Trinidad plant was probably either an accidental introduction or an escape from an unrecorded cultivation.

8. *E. inulaefolium* H.B.K.

E. cinereum Griseb.

Griseb. Fl. 359: Robinson in Contrib. Gray Herb. 55. 291.

Soft-wooded *shrub*, up to 4 m. high, usually about 2 m., erect and sparingly branched; *stems* round, velvety pubescent when young; *lvs.* lanceolate or oblong-lanceolate, up to 20 cm. long, 8 cm. wide, abruptly tapered at base to a petiole of 0.5-1 cm., gradually tapered to a long pointed apex, coarsely toothed, softly

downy above, velvety beneath, 3-nerved well above the base; heads about 12-flowered, in terminal corymbose panicles 20 cm. across, strongly scented; involucre bracts white, with longitudinal green lines, the outermost ovate, 2 mm. long, the innermost linear-oblong, blunt, 6 mm. long; cor. white, 5 mm. long; achenes 2 mm. long, pappus 4 mm.

The specimens (Herb. Trin. 13190 and 13204) from which this description has been drawn up are referable to *forma suaveolens* (H.B.K.) Hieron.

In flower about October, and then conspicuous.

Waste lands, Trinidad and Tobago.

Southern Antilles and S. America to Argentina.

9. *E. microstemon* Cass.

E. paniculatum Schrad.

Griseb. Fl. 362: Urb. Symb. Ant. 4. 625; 8. 714: Robinson in Contrib. Gray Herb. 55. 295: Fawc. & Rendl. Fl. Jam. 7. 182.

Annual herb, 30-90 cm. high; branches ascending, slender, round, very shortly pubescent; lvs., the lower opposite, the upper often alternate, petioles 1-5 cm. long, blades thin, ovate, 2.5-8 cm. long, 1.5-6 cm. wide, abruptly narrowed at base, acuminate or bluntish at apex, toothed, almost glabrous above, shortly pubescent on the nerves beneath; heads on slender pedicels in loose panicles; involucre bracts oblong, the outer acute and pubescent, the inner blunt, glabrous, 4 mm. long; cor. white, very narrow, 2-3 mm. long; achenes black, narrowed below, minutely pubescent, 1.5 mm. long; pappus white, the bristles 2 mm. long.

Common in moist, shaded situations, Trinidad and Tobago. West Indies and tropical continental America.

10. *E. macrophyllum* L. Herbe Chat; Zeb Chat.

Hebeclinium macrophyllum DC.

Griseb. Fl. 356: Urb. Symb. Ant. 4. 622; 8. 709: Robinson Contrib. Gray Herb. 55. 329: Fawc. & Rendl. Fl. Jam. 7. 184.

Shrub, 1-2 m.; branches round, velvety; lvs. opposite (upper sometimes alternate), broadly ovate, up to 20 cm. or more long and about as wide, broadly cordate at base but narrowed into the petiole at its insertion, acuminate, irregularly toothed, pubescent along the veins above, velvety beneath; heads rather crowded at the ends of short panicle branches, about 50-flowered; involucre

narrowly bell-shaped, about 5 mm. long, its bracts rather closely imbricate, the outermost ovate and short, the inner lanceolate to linear-lanceolate; cor. whitish or lavender; achenes about 1 mm. long; pappus 3 mm.

Hillsides and thickets, Trinidad and Tobago.

West Indies and Continental America from Mexico to Paraguay.

DOUBTFUL RECORDS.

E. punctatum Lam. is recorded from Trinidad by Grisebach (Fl. p. 357) citing Sieber 75, but not otherwise known from the Colony.

E. macropus Urb. (*Critonia macropoda* DC.) is recorded doubtfully by Urban (Symb. Ant. 1. 460) citing Sieber 184, possibly from Martinique. Not otherwise known from the Colony.

11. MIKANIA Willd.

Climbing shrubs or herbs. Lvs. opposite, usually petioled. Heads in spikes, racemes, corymbs or cymes, 4-flowered, discoid. Involucre oblong, of 4 nearly equal narrow bracts. Receptacle naked. Cor. white or pale yellowish, regular, its tube slender, limb bell-shaped, 5-fid. Anth. obtuse at base, with an appendage at the apex. Achenes 5-angled, truncate, with a pappus of numerous bristles.

Panicle branches spicate 1. *M. Hookeriana*.

Panicle branches racemose 2. *M. scabra*.

Panicle branches neither spicate nor racemose.

Heads all or in part pedicellate.

Petioles usually much exceeding 2 cm.

Involucres 4-7 mm. long; achenes 3-4 mm.

Inv. bracts 4-5 mm. long, pubescent at their blunt tips.

Inv. bracts firm, not wider at apex than at base; pedi. 0-3 mm. 3. *M. vitifolia*.

Inv. bracts thin, distinctly wider at apex than at base; pedi. 2-6 mm. 4. *M. Broadwayi*.

Inv. bracts 6-7 mm. long.

Inv. bracts glabrous; bracts below heads leafy, nearly as long as the involucre 5. *M. Lindleyana*.

Inv. bracts acute, pubescent on the back; bracts below heads narrow, much shorter than the involucre 6. *M. cordifolia*.

- Involucres 3-4 mm. long; achenes
 about 2 mm. 7. *M. micrantha*.
 Petioles short, 1-2.5 cm. 8. *M. rotunda*.
 Heads sessile in threes on the tips of the
 panicle branchlets.
 Lvs. broadly ovate to nearly orbic-
 ular; corymbs very dense 9. *M. guaco*.
 Lvs. ovate to oblong-ovate; corymbs
 rather open 10. *M. trinitaria*.

1. *M. Hookeriana* DC.

B. L. Robinson in Contrib. Gray Herb. 104. 50-53: Koster in
 Pulle Fl. Surin. 4. 2. 123.

Stems rather slender and loosely scandent, or stout and strongly
 twining, glabrous or pubescent in the upper parts; *lvs.* elliptical,
 ovate-oblong or broadly ovate, 10-12 cm. long, 2-13 cm. wide,
 more or less rounded at base, acute or acuminate (rarely blunt) at
 apex, entire, thin or more or less fleshy; *heads* about 7-8 mm. long,
 closely sessile, usually crowded along the distal parts of the panicle
 branchlets, forming short, dense spikes, occasionally crowded at
 the tips of the branchlets only; *involucral bracts* oblong, bluntish,
 slightly pubescent towards the tip, elsewhere glabrous, slightly
 swollen at base; *cor.* 5 mm. long, somewhat enlarged upward but
 without distinct throat, the limb purplish and granular-pubescent;
achenes 1.5-3 mm. long, glabrous; *pappus* 4 mm., white, becoming
 dull buff.

A variable species, of which three varieties have been recorded
 from Trinidad, as follows:

(a) var. *typica* Robinson.

M. Hookeriana DC.

M. gracilis Sch. Bip.

M. Imrayana Griseb.

Stems rather slender, loosely scandent, pithy, glabrous or
 nearly so; *lvs.* on slender petioles, ovate-oblong or elliptical,
 acuminate or acute (rarely blunt), about 2-5 cm. wide, membranous
 or more or less fleshy; *heads* in spikes.

Herb. Trin. 1042, without locality or date (det. Robinson).

British and Dutch Guiana; Dominica; Mexico.

(b) var. *Badieri* (DC.) Robinson.

M. Badieri DC.

Stems rather slender, glabrous or nearly so; *lvs.* oval or
 elliptical-oblong, often shortly and bluntly acuminate, somewhat
 leathery; *heads* crowded at the tips of the panicle branchlets,
 scarcely or not at all in spikes.

This is recorded from Trinidad by Urban (Sym. Ant. 5. 219) citing Sieber 214. Not otherwise known from the Colony, or indeed (*vide* Robinson, *l.c.*) from anywhere but Guadeloupe. Probably not a Trinidad plant.

(c) var. *platyphylla* (DC.) Robinson.

M. platyphylla DC.

M. vitrea Robinson.

Plant much more robust, distinctly woody, strongly twining; *stems* (when 5 mm. or more in diameter) hollow, either glabrous or stiffly pubescent in the upper parts; *lvs.* broadly ovate, blunt or subtruncate at base, usually acuminate at apex, about 6-13 cm. wide, thick, rather fleshy and brittle; *heads* in spikes; *panicle* pyramidal, compound, leafy-bracted, 30 cm. long, 15 cm. across.

Forests of the Northern and Central Ranges, Trinidad.
Venezuela to Bolivia, Peru and Colombia.

2. *M. scabra* DC.

Willoughbya *scabra* Kuntze.

Griseb. Fl. 363: Urb. Symb. Ant. 5. 218: Robinson, Contrib.

Gray Herb. 64. 54: Koster in Pulle, Fl. Surin. 4. 2. 117.

Stems twining or straggling, round, pithy, rough with short, stiff, spreading hairs; *lvs.* ovate to oblong, up to 15 cm. long 8 cm. wide, rounded at base, acute or acuminate at apex, entire or very shallowly toothed, rough above, pubescent but rather less rough beneath, on *petioles* 1-2 cm. or sometimes longer; *panicle* of a terminal and 4-10 spreading lateral racemes; *pedi.* 1-5 mm. long, usually longer than their subtending bracts; *heads* 7-9 mm. long *involucral bracts* pubescent, all acute or the inner obtuse, 5-6 mm. long; *cor.* white, 4.5 mm.; *achenes* 3 mm. long, smooth and black when ripe; *pappus* at first white, becoming rust-coloured with age.

Savannahs and forest borders in northern districts, Trinidad; Tobago.

Venezuela, the Guianas and Brazil; Panama.

3. *M. vitifolia* DC.

B. L. Robinson in Contrib. Gray Herb. 104. 53.

Stems twining, round, glabrous or somewhat pubescent, subherbaceous or soft-woody; *lvs.* various, either ovate entire or 3-5-angled (see forms below), 8-16 cm. long, 5-20 cm. wide, rounded or cordate at base, acuminate at apex, distantly and minutely toothed, finely puberulent along the nerves on both sides, otherwise glabrous, *petioles* 3-12 cm. long, joined at their bases by a prominent ridge; *panicles* pyramidal, leafy-bracted, up to 20 cm. long and

10 cm. across, their branches puberulent to brownish pubescent heads clustered towards the ends of the branchlets; *pedi.* very short or none, or up to 3 mm. long; *involucral bracts* firm, linear-oblong, 4-5 mm. long, pubescent at their blunt tips; *cor.* whitish, glabrous, about 5 mm. long; *achenes* 3-4 mm. long, smooth or minutely rough; *pappus bristles* 5-6 mm. long, whitish, rusty with age.

A widely ranging species, of which the typical form with leaves sharply 7-angled is known only from Brazil. In Trinidad two forms occur, as follows:

Forma *boliviensis* (Lingelsh.) Robinson.

M. boliviensis Lingelsh.

M. punctata Klatt non Gardn.

B. L. Robinson in Contrib. Gray Herb. 64. 33; 104. 54: Koster in Pulle, Fl. Surin. 4. 2. 122.

Cauline *lvs.* sub-deltoid-ovate or pentagonal-ovate, 12-16 cm. long, 15-20 cm. wide, cordate at base with an open sinus, acuminate at apex, and usually with a similar acumination on each side above the base.

Dannouse, un-numbered, St. Anne's, June, 1905; Herb. Trin-13298 Cheesman, Arima-Blanchisseuse Road, March, 1938, Trinidad-Central America and northern South America to Bolivia.

Forma *cryptodonta* Robinson.

M. cryptodonta Robinson.

M. ambigens Urban.

B. L. Robinson in Contrib. Gray Herb. 73. 22: 104. 55: Urb. Symb. Ant. 2. 460; 5. 221.

Lvs. ovate, neither lobed nor angled, 8-14 cm. long, 5-10 cm. wide, rounded or broadly or distinctly cordate at base.

Arima (Eggers 1121, 1457), Arena (Broadway 5102) and Maraval (Broadway 7000), Trinidad.

Venezuela, Brazil and Peru.

NOTE.—*M. ambigens* was described by Urban from Eggers 1121. This specimen (Herb. Berol.) has been examined by N. Y. Sandwith and found to agree perfectly with Eggers 1457 and Broadway 7000, determined by Robinson as *M. vitifolia* forma *cryptodonta*.

4. *M. Broadwayi* Robinson.

B. L. Robinson in Contrib. Gray Herb. 68. 35 (1923).

Stems round, glabrous or nearly so; *lvs.* triangular ovate, 5-7-nerved from the base, the lower about 15 cm. long and nearly as wide, rounded at the base or slightly cordate, acuminate at the apex and with a similar point on each side well above the base, minutely and distantly toothed, on *petioles* 4-7 cm. long, *upper lvs.* lanceolate or ovate-lanceolate, not cordate, gradually passing into

small lanceolate bracts; *panicle* brownish pubescent; *pedi.* 2-6 mm. long, some with a bracteole above the middle; *involucral bracts* thin, broadly oblong, distinctly wider near the apex than at base, about 5 mm. long, pubescent only at the rounded tip; *cor.* whitish, glabrous, its tube 2 mm. long; *achenes* sparsely pubescent, 3 mm. long; *pappus* whitish, later taking on a reddish tinge.

Herb. Trin. 9828 (isotype) Broadway, Heights of Aripo, Trinidad. Endemic.

NOTE.—This species is barely distinguishable from some material of *M. vitifolia* DC. forma *boliviensis* (Lingelsh.) Robinson. It should, perhaps, be reduced thereto, or at least to *M. vitifolia* DC. as a distinct form, but for the present and until it is better known may conveniently retain its specific rank. The differences emphasised by the late Dr. Robinson in describing it are that in *M. Broadwayi* the heads have longer pedicels and are less crowded towards the ends of the branchlets; they have also broader involucral bracts, shorter corolla tube, and shorter, stouter and more pubescent achenes.

5. *M. Lindleyana* DC.

B. L. Robinson in Contrib. Gray Herb. 80. 37: Koster in Pulle, Fl. Surin. 4. 2. 124.

Glabrous; *stems* twining, round; *lvs.* ovate, 7-15 cm. long, 3-8 cm. wide, acuminate at apex, rounded at base, entire or with 2 obsolete lateral lobes in the lower third, rather fleshy, on *petioles* 2-6 cm. long; *panicles* long and leafy; *heads* clustered towards the ends of the branchlets, each subtended by a leafy bract nearly as long as the involucre; *pedi.* 2-5 mm. long; *involucral bracts* 6 mm. long, foliaceous at their acute or bluntish tips; *achenes* 3-4 mm. long, glabrous, angled; *pappus* bristles 5 mm. long, whitish, becoming rusty red with age.

Broadway 7843, near No. 115 small bridge, Southern Road, south of Kern Oilfields, Trinidad. Herb. Trin. 13210, Cheesman, Mount St. George-Castara Road near 8½ mile post, Tobago.

Venezuela, British and Dutch Guianas, Brazil, Panama.

6. *M. cordifolia* (L.f.) Willd.

M. suaveolens H.B.K.

M. gonoclada DC.

Griseb. Fl. 364: Urb. Symb. Ant. 4. 626; 5. 227; 8. 716:

Fawc. & Rendl. Fl. Jam. 7. 188: Robinson in Contrib. Gray Herb. 64. 41: Koster in Pulle Fl. Surin. 4. 2. 121.

Stems twining, angled, more or less pubescent, often twisted; *lvs.* ovate, up to 15 cm. long, 10 cm. wide, base cordate, apex acute or acuminate, margins entire or wavy-toothed, roughly or finely hairy, especially beneath, 3 (-5)-nerved from the base, on *petioles* 2-8 cm. long; *heads* in corymbs, *bracts* leaflike but greatly reduced; *pedi.* about 2 mm., with bracteoles beneath the heads; *involucral*

bracts oblong, acute, about 7 mm. long, minutely hairy on the back; cor. white, 6 mm. long; achenes glabrous, 3-4 mm.; pappus whitish, later reddish.

Herb. Trin. 7905, Broadway, Moruga sea-beach, Trinidad, Feb. 1916, has been determined as this species by B. L. Robinson; the only record for the Colony.

Widely distributed in tropical and subtropical America.

7. *M. micrantha* H.B.K.

Guaco.

M. orinocensis H.B.K.

M. scandens Auct. (non Willd.)

Griseb. Fl. 364 (excl. syn.): Urb. Symb. Ant. 4. 627; 5. 229; 8. 716; Fawc. & Rendl. Fl. Jam. 7. 189; Robinson, Contrib. Gray Herb. 64. 41; 104. 56; Koster in Pulle, Fl. Surin. 4. 2. 119.

Stems twining, slender, glabrous or pubescent; lvs. thin, ovate, up to 12 cm. long, 8 cm. wide, but usually smaller, base deeply cordate or hastate (especially on lower leaves), apex acuminate, margins coarsely toothed or rarely nearly entire, glabrous or nearly so, petioles 2-9 cm. long; panicles fragrant, terminal and axillary on long peduncles, composed of few-headed corymbs; bracts few, leaflike but greatly reduced; corymbs at maturity rather open, the spreading pedicels up to 5 mm. long (but note variety below); bracteoles beneath the heads lanceolate, acute, shorter than the involucre; involucre bracts oblong, puberulent on the back, 3-4 mm. long, barely 1 mm. wide, shortly and sharply pointed; cor. white, 2.5-3 mm. long, the tube nearly as long as the broadly bell-shaped limb; achenes black, less than 2 mm. long, with minute glands between the ribs; pappus 3 mm. long, white, becoming pale brown or reddish with age.

This species has been confused with *M. scandens* (L.) Willd., a North American species, from which however it differs in a number of points, noted by Robinson (loc. cit.).

Var. congesta (DC.) Robinson (*M. congesta* DC., *M. Sieberiana* DC.) differs from the typical form of the species in having the heads sessile or very shortly pedicellate, so that the panicle is composed of rather dense subglobose glomerules rather than of corymbs. This has been admitted as a species by Robinson in Contrib. Gray Herb. 104. 57 (1934) and by Koster in Pulle, Fl. Surin. 4. 2. 120. Moore in Fawc. & Rendl. Fl. Jam. 7. 190 ranks it as a variety of *M. micrantha*, following an earlier treatment by Robinson in Contrib. Gray Herb. 64. 41 (1922), and the same opinion is held here. The Trinidad material sorts quite readily into species and variety, about equally represented; no Tobago material of *var. congesta* has been seen.

Hillside thickets, Trinidad and Tobago.

Widely distributed in Tropical America.

8. *M. rotunda* Griseb.

Griseb. Fl. 364: Urb. Symb. Ant. 5. 222.

Stems scandent, glabrous; *lvs.* oval-roundish, 8-12 cm. long, 6-9 cm. wide, base rounded, apex shortly and bluntly pointed, entire, glabrous, on *petioles* 1-2.5 cm. long; *corymbs* in terminal and axillary panicles; *heads* 3 together, on *pedicels* 2-4 mm. long; *involucral bracts* oblong-linear, blunt, glabrous, about 7 mm. long; *cor.* 5 mm. long, tube as long as the 5-toothed limb; *achenes* glabrous; *pappus* tawny-whitish.

Herb. Trin. 709, Crueger, Mt. Tucuche, Trinidad (1848).

Apparently known only from a single collection.

9. *M. guaco* H. & B.

B. L. Robinson in Contrib. Gray Herb. 64. 10 and 46; 68. 39:

Koster in Pulle Fl. Surin. 4. 2. 127.

Stems twining, round, soon becoming glabrous, herbaceous or softly woody; *lvs.* broadly ovate to roundish, large, up to 20 cm. long and wide, acuminate or rounded at apex, narrowed suddenly to a wedge-shaped base, slightly toothed, rough on both surfaces, *petioles* up to 6 cm. long; *corymbs* large, convex or rounded, long-peduncled in the upper axils and together forming a large ovoid panicle; *heads* sessile in threes on the ultimate branchlets; *involucral bracts* about 5 mm. long, oblong, puberulent, especially near the rounded tip; *achenes* 3 mm. long, narrow, angular, tapering to the base; *pappus* bristles 5 mm., reddish with age.

Herb. Trin. 2019, Finlay, road to Bonaventure (1866); 9830, Broadway, Heights of Aripo (1922), Trinidad.

Central and tropical South America.

10. *M. trinitaria* DC.*M. latifolia* J. E. Sm. sens. Urban (in part) non J.E. Sm.

Griseb. Fl. 363 (in part): Urb. Symb. Ant. 5. 223: Robinson

Contrib. Gray Herb. 64. 58: Koster in Pulle, Fl. Surin. 4. 2. 125.

Stems twining, at first angular and roughish pubescent, later becoming roundish and smooth; *lvs.* ovate to oblong-ovate, up to 13 cm. long, 7 cm. wide, rounded or somewhat narrowed at base, acute or acuminate at apex, entire, glabrous above, shortly and densely pubescent below, on *petioles* 1-2 cm. long; *corymbs* on short leafy branches; *heads* sessile in 3's, subtended by bracteoles about 3 mm. long; *involucral bracts* oblong, 5-8 mm. long, blunt, pubescent on the back; *cor.* greenish white; *achenes* 4 mm. long, pale brown; *pappus* bristles 6 mm. long, rather rough, at first white, soon brownish, reddish brown in age.

Piarco Savannah (Britton and Britton III in Gray Herb. and Herb. Trin. 13279) South of Arima (Britton and Britton 2890) and path to Maracas waterfall (Herb. Trin. 13302), Trinidad, Venezuela and Surinam.

NOTES.—(1) Urban (l.c.) refers this species with mark of affirmation to the synonymy of *M. latifolia* J.E. Sm., but in the opinion of Robinson (l.c.) this would certainly give the latter species an unduly wide interpretation.

(2) *M. latifolia* forma *dominicensis* Urb. loc. cit., recorded as from Trinidad on the evidence of Sieber 182, is not otherwise known from the Colony and doubtfully a Trinidad plant.

12. BRICKELLIA Ell.

Herbs or subshrubs. Lvs. opposite or alternate. *Heads* in panicles, discoid. *Involucre* bell-shaped or narrow, its bracts imbricate in several rows, the outer progressively smaller. *Receptacle* flat or convex, naked, glabrous or pubescent. *Cor.* regular, slender, the 5-fid limb scarcely wider than the tube. *Anth.* obtuse at base, with an appendage at the apex. *Achenes* 10-ribbed, with a *pappus* of numerous bristles in one series.

1. *B. diffusa* (Vahl) A. Gray.

Eupatorium diffusum Vahl.

Coleosanthus diffusus (Vahl) Kuntze.

Griseb. Fl. 356: Urb. Symb. Ant. 8. 717: Fawc. & Rendl. Fl. Jam. 7. 190.

Annual herb, 60-120 cm. high; *stems* round, glabrous or very shortly downy; *lvs.* opposite below, often alternate above, on *petioles* 0.5-5.0 cm. long, *blades* very broadly ovate or triangular-heart-shaped, 2-8 cm. long, 2-6 cm. wide, truncate or slightly cordate at base, often narrowed suddenly into the petiole, acuminate at apex, coarsely toothed, very shortly pubescent along the veins on both surfaces; *panicle* branches very slender and spreading, the heads few at the ends of the branchlets, lower *bracts* leaflike but reduced, upper ones linear, very small; *heads* narrow, 7-8 mm. long, about 12-flowered; outer *involucral bracts* very short, inner linear; *cor.* greenish white; *achenes* finely hairy, barely 2 mm. long; *pappus* of smooth white bristles, 4 mm. long.

Hillside thickets and banks, Trinidad.

Greater Antilles and tropical continental America.

13. EGLETES Cass.

Herbs, usually prostrate. *Lvs.* alternate, toothed or lobed. *Heads* terminal or opposite to the leaves, radiate, florets of the ray female, of the disc hermaphrodite. *Involucre* broadly bell-shaped, its bracts in a few rows, the outer herbaceous, the inner membranous. *Receptacle* conical or ovoid, naked. *Cor.* of the

ray florets ligulate, of the disc florets regular, tubular, with a narrowly bell-shaped 3-5-fid. limb. *Anth.* obtuse at the base. *Achenes* oblong, compressed, not ribbed, crowned with a cartilaginous ring or toothed cup.

1. *E. prostrata* (Sw.) Kuntze.

E. domingensis Cass.

Matricaria prostrata Sw.

Griseb. Fl. 380: Urb. Symb. Ant. 8. 717: Fawc. & Rendl. Fl.

Jam. 7. 192: Britt. & Wils. Sci. Surv. Porto Rico 6. 293.

Stems more or less prostrate, rooting where in contact with the soil; *lvs.* sessile, obovate, 1.5-2.5 cm. long, 1-1.5 cm. wide, rounded at the top, narrowing gradually to the base, coarsely toothed; *heads* on stalks as long as the leaves or longer, about 1.5 cm. across in flower; *involucral bracts* lanceolate, the outer 3 mm. long, the inner a little longer; *ray* white, *ligules* oblong, 4 mm. long; *disc cor.* yellow, 2 mm. long, the limb as long as the hairy tube *achenes* pale, about 1 mm. long, finely glandular-hairy, the cupular *pappus* white, shallowly toothed, barely half as long as the achene.

Roadsides near the coast, Trinidad and Tobago.

West Indies and trop. S. America.

NOTE.—Herb. Trin. 13212, collected on a grassy roadside at Castara, Tobago, is an erect plant about 50 cm. high, with thinner leaves than the typical form and glandular hairy in all its parts. It cannot be distinguished as a species, and the differences appear to be due to habitat.

14. ERIGERON L.

Herbs, annual or perennial, sometimes with radical leaves, sometimes erect and branched. *Lvs.* when cauline alternate, entire, toothed or incised. *Heads* solitary or in corymbs or panicles, radiate, florets of the ray female, of the disc hermaphrodite. *Involucre* hemispherical or bell-shaped, its bracts narrow, often numerous. *Receptacle* flat or almost so, naked. *Cor.* of the ray florets all or the outer ones ligulate, narrow or very narrow, the inner sometimes tubular, of the disc florets tubular, regular, the limb shortly 5-lobed or toothed. *Anth.* obtuse at the base. *Achenes* compressed, often narrow, the pappus bristles slender.

Heads in corymbs 1. *E. spathulatus*.

Heads in racemiform panicles.

Heads (in flower) 6-7 mm. long 2. *E. bonariensis*.

Heads (in flower) 3-4 mm. long 3. *E. canadensis*.

1. *E. spathulatus* Vahl.*E. apurensis* (H.B.K.) Griseb.*E. chinensis* Jacq.*Conyza apurensis* H.B.K.

Griseb. Fl. 365: Urb. Symb. Ant. 4. 628; 8. 719: Blake in Cont. U.S. Nat. Herb. 26. 235: Britt. & Wils. Sci. Surv. Porto Rico 6. 296.

Erect herb, 20-70 cm. high, hairy; stem ribbed, simple or branched below, often proliferous in the lower axils, branched above in the flowering region; lower lvs. ovate in the distal half, narrowed into a petiole-like base, 6-12 cm. long, 3-5 cm. wide coarsely toothed, upper lvs. oblanceolate, pinnatifid or coarsely toothed, passing gradually into narrow oblanceolate bracts, heads 3-5 mm. across, in open corymbs; involucre truncate-conical its bracts numerous, linear, 3 mm. long, acute; cor. of outer florets greenish white, very narrow, about 3 mm. long, of inner florets yellow, a little shorter; achenes less than 1 mm. long, light brown, hairy; pappus bristles about 2 mm. long, some often much shorter.

Waste and cultivated lands, Trinidad and Tobago.

West Indies and continental tropical America.

2. *E. bonariensis* L.*Leptilon bonariense* Small.*Conyza erigeroides* of Hart's List.

Griseb. Fl. 365: Urb. Symb. Ant. 4. 628; 8. 719: Fawc. & Rendl. Fl. Jam. 7. 197: Britt. & Wils. Sci. Surv. Porto Rico 6. 296.

Erect herb up to 120 cm. or more, leafy throughout, often branched, coarsely hairy; stems roundish, ribbed; lvs. sessile, the lower narrow-oblanceolate up to 15 cm. long, 3 cm. wide, often toothed or pinnatifid, the upper entire and gradually reduced to linear-lanceolate bracts, all roughly pubescent or nearly glabrous heads numerous, the upper part of the plant forming a large, compound, racemiform panicle; pedi. mostly longer than the heads; involucre broadly bell-shaped, about 5 mm. long, its bracts narrow, hairy on the back, very acute, outer shorter; ray florets numerous, disc fewer; disc cor. 5-lobed; achenes 1 mm. long minutely pubescent; pappus 4 mm., brownish.

Waste and cultivated grounds, Trinidad and Tobago.

West Indies and continental tropical America.

3. *E. canadensis* L.*Leptilon pusillum* Britton.

Fleabane.

Griseb. Fl. 365: Urb. Symb. Ant. 4. 628; 8. 719: Britton in Torrey 14. 198: Britt. Fl. Berm. 394: Fawc. & Rendl. Fl. Jam. 7. 197.

Erect herb up to 120 cm. or more, leafy, hairy or glabrous, *lvs.* sessile, linear-lanceolate, the upper linear, acute, entire or the lower coarsely few-toothed, variable in pubescence; *heads* numerous, in a terminal, racemiform, leafy-bracted panicle *involucre* about 3 mm. long, its *bracts* narrow, acute, the outer shorter; *disc cor.* 4-lobed; *achenes* 1 mm. long; *pappus* 2 mm.

Herb. Trin. specimens (without locality) are poor, and not convincingly distinct from *E. bonariensis*. *E. canadensis* is, however recorded from Trinidad by Urban; there is no Tobago record.

Native of temperate N. America, now widely naturalised.

15. BACCHARIS L.

Shrubs or *subshrubs*. *Lvs.* alternate or opposite. *Heads* in panicles in the upper axils, dioecious, either female and fertile or structurally hermaphrodite and functionally male, many-flowered in both sexes. *Involucre* ovoid, oblong, bell-shaped, or hemispherical, its *bracts* imbricate in several series. *Receptacle* flat or slightly convex, naked or pitted. *Cor.* of the female florets slender, shorter than the style; of the male regular, tubular, with a 5-fid limb. *Achenes* of the female small, somewhat compressed, 5-10-ribbed, with numerous pappus bristles; of the male abortive, with few bristles.

1. *B. trinervis* (Lam.) Pers.

B. nervosa DC.

Griseb. Fl. 366: Heering in Urb. Symb. Ant. 5. 237.

Shrub, 1-4 m.; *lvs.* alternate, elliptical or elliptical-lanceolate, 4-10 cm. long, 1.5-3.5 cm. wide, acute at both ends, sometimes shortly acuminate, entire, glabrous, 3-nerved from the base, on very short *petioles* about 5 mm. long; *panicles* terminal and lateral or united into a leafy compound panicle, denser in the female plants than in the male; *pedicels* up to 1 cm. long; *male heads* 20-30 fld. *female* many-flowered; *involucral bracts* ovate to oblong, the inner about 4 mm. long, membranous at the margins; *cor.* white; *achenes* about 1 mm. long, pubescent; *pappus* bristles 3-4 mm. long.

Cedros, Quinam, Palo Seco, and also collected on Cumuto-Tumpuna Road, Trinidad.

Guadeloupe and Martinique; tropical S. America.

Note.—Heering (*loc. cit.*) includes Trinidad in the distribution of *B. rhexioides* H.B.K., citing a Crueger specimen. *B. rhexioides* H.B.K. is only a pubescent variety of *B. trinervis*, properly known as *var. rhexioides* (H.B.K.) Baker, and no specimen referable to this variety occurs among the material examined from Trinidad. I am indebted to Dr. S. F. Blake for determination of our material, and for notes on its nomenclature.

16. PLUCHEA Cass.

Shrubs or subshrubs. Lvs. alternate. *Heads* in corymbose, terminal, leafless cymes, disciform, the outer florets in several rows female and fertile, the inner few, structurally hermaphrodite, functionally male. *Involucre* ovoid, broadly bell shaped or almost hemispherical, its *bracts* imbricate in few or several series. *Receptacle* flat, naked. *Cor.* of the female flowers slender, shorter than their styles, 3-fid. or minutely toothed, of the male tubular, 5-fid. *Achenes* not or scarcely compressed, 4-5-angled. *Pappus* bristles in 1 series.

Lvs. not decurrent along the stem1. *P. odorata*.

Lvs. decurrent, winging the stem.....2. *P. Quitoc*.

1. *P. odorata* (L.) Cass.

Gueri tout.

Conyza odorata L.

Griseb. Fl. 366: Urb. Symb. Ant. 4. 629; 8. 722: Fawc. & Rendl. Fl. Jam. 7. 201: Britt. Fl. Berm. 389: Britt. and Millsp. Bah. Fl. 445: Koster in Pulle, Fl. Surin. 4. 2. 132.

Shrub 1-2 m.; *branches* downy, ribbed beneath the down; *lvs.* ovate-oblong to lanceolate, up to 17 cm. long, 6 cm. wide, on *petioles* 1-2 cm. long, narrowed gradually to both ends, shallowly toothed, minutely denticulate, or the upper almost entire, roughish above, very shortly downy beneath; *corymbs* dense, many-headed; *heads* stalked; *involucral bracts* the outer ovate, blunt, 2 mm. long, downy on the back, the inner oblong-lanceolate, acute, 5 mm. long; *cor.* whitish or lavender; central, hermaphrodite or male florets about 10, outer, female florets numerous; *achenes* minute (about 0.5 mm.), *pappus* about 3 mm. long.

Banks, hillsides and thickets, Trinidad.

West Indies and continental America from Mexico to Venezuela.

2. *P. Quitoc* DC.

Subshrub about 1 m. high, viscid and strongly odorous; *stems* winged by the decurrent leaf bases, which are 3-5 mm. wide; *lvs.* lanceolate, the lower up to 15 cm. long, 4.5 cm. wide, the upper gradually reduced to linear-oblong bracts, gradually narrowed to the decurrent base, mostly acute at apex, shallowly toothed (upper minutely denticulate), very shortly sticky-pubescent on both surfaces and abundantly furnished with translucent resin glands; *heads* many-flowered, in terminal corymbose panicles; *pedi.* 0.5-2 cm. long, downy; *involucre* 6-8 mm. across in flower, outer

bracts acuminate, inner narrower, acute or bluntish, about 5 mm. long; *female* and *hermaphrodite florets* both numerous; *achenes* barely 0.5 mm. long; *pappus* 4 mm.

Herb. Trin. 2046, Chaguanas (1866); 5125 Alexander, Chaguanas (1893); 13286 Cheesman, Cocorite (1938) Trinidad.

Brazil to Bolivia and Argentina; also in St. Vincent (? introduced.)

17. PTEROCAULON Ell.

Herbs, sometimes woody below, often more or less downy. *Lvs.* alternate, decurrent along the stem. *Heads* in glomerules, arranged in globose clusters or spikes, disciform, the outer florets in several rows female and fertile, the inner few, structurally hermaphrodite, usually functionally male. *Involucre* ovoid or bell-shaped, its *bracts* in few series, narrow. *Receptacle* small, naked or hairy or occasionally with deciduous scales among the florets. *Cor.* of the female florets slender, minutely 2-3-toothed or truncate; of the hermaphrodite tubular, the limb 5-fid. *Achenes* small, angled or somewhat compressed, 4-5 ribbed. *Pappus* bristles numerous.

1. *P. alopecuroides* (Lam.) DC.

Urb. Symb. Ant. 4. 630; 8. 723; Fawc. & Rendl. Fl.

Jam. 7. 204.

Coarse *herb* about 60 cm. high; *stems* stout; *lvs.* elliptical or elliptical oblong, 4-8 cm. long, 1-3 cm. wide, decurrent at base, bluntish at apex, toothed, almost glabrous above, densely felted beneath, the *upper lvs.* gradually reduced to bracts; *glomerules* globose; *heads* in flower 1 cm. long, 5 mm. wide; *involucral bracts* the outer 2 mm. long, downy, the inner linear, very acute, 5 mm. long, nearly glabrous, chaffy; *cor.* of outer (female) florets thread-like, of the very few inner (hermaphrodite) florets shorter and narrowly funnel-shaped; *achenes* 1 mm. long, hairy; *pappus* bristles soft, white, 6-8 mm. long.

In natural savannahs (O'Meara, Mausica, St. Joseph), Trinidad. Greater and Lesser Antilles; S. America.

18. CLIBADIUM L.

Herbs or *shrubs*, roughly or softly hairy. *Lvs.* opposite. *Heads* small, in corymbs, disciform, outer florets in 1 or 2 rows female and fertile, inner structurally hermaphrodite and functionally male. *Involucre* ovoid to subglobose, its *bracts* few, ovate, imbricate. *Receptacle* small, naked in the centre or scaly throughout. *Cor.* all regular, the limb larger in the hermaphrodite florets. *Achenes* obovoid, broad, pilose or glabrous at apex, becoming fleshy, those of the hermaphrodite florets linear and empty.

Lvs. regularly serrate, rough above.....1. *C. surinamense*.

Lvs. irregularly serrate, scarcely rough2. *C. sylvestre*.

1. *C. surinamense* L.*C. asperum* DC.*C. trinitatis* DC.*C. terebinthaceum* of Hart's List, not DC.

Griseb. Fl. 367: O. E. Schulz in Urb. Symb. Ant. 7. 78:
Fawc. & Rendl. Fl. Jam. 7. 210: Koster in Pulle, Fl.
Surin. 4. 2. 137.

Shrub 1-6 m.; *branches* rough-pubescent; *lvs.* oblong-ovate to lanceolate, up to 17 cm. long, 8 cm. wide, on *petioles* 1-2 cm. long, narrowed at base, acute or acuminate at apex, toothed, rough on both surfaces, especially above, veins prominent beneath; *heads* greenish-white, sessile or shortly stalked, 5 mm. long; *involucral bracts* 3 or 4, roundish, pointed, 4 mm. long; *receptacular scales* broadly ovate, 4 mm. long; *florets* white, female 3-6, *cor.* 2 mm. long, hermaphrodite 6-13; *achenes* obovoid, 2-3 mm. long, slightly hairy at apex, ripening fleshy with abundant yellow sap.

Used in some countries as a fish poison.

Savannahs, hillsides, banks and thickets, Trinidad and Tobago.

West Indies, Central and tropical South America.

2. *C. sylvestre* (Aubl.) Baill.*C. Vargasii* DC.

O. E. Schulz in Urb. Symb. Ant. 7. 80: Koster in Pulle,
Fl. Surin. 4. 2. 136.

Shrub 0.5-2 m.; *branches* slender, pubescent; *lvs.* ovate, up to 17 cm. long, 10 cm. wide, on *petioles* 1-2.5 cm. long, blades narrowed at base, long acuminate at apex, irregularly and remotely toothed, more or less pubescent on both surfaces but scarcely rough; *heads* shortly stalked, subglobose, 3.5 mm. long and broad; *involucral bracts* broadly ovate, pubescent, with prominent nerves; *receptacular scales* of the female flowers ovate, as long as the involucre; *florets* pale pink or white, female 4-6, *cor.* 2 mm. long, hermaphrodite 8-12, *cor.* 3 mm. long; *achenes* obovoid, 2 mm. long, slightly hairy at the apex, ripening black and glossy.

Used in some countries as a fish poison.

Trinidad, Lockhart specimen and Crueger 268, both in Herb. Kew.

West Indies, Venezuela, Guiana and Brazil.

DOUBTFUL RECORD.

C. erosum (Sw.) DC. is recorded from Trinidad by De Candolle (Prodr. 5. 506) citing Sieber 319, and by Grisebach (Fl. 368) citing Lockhart. The Sieber specimen has not been seen by us, but a Lockhart specimen in Herb. Kew (as well as Crueger 268) agrees with *C. sylvestre*, and we can find no evidence that *C. erosum* is a Trinidad plant.

19. ACANTHOSPERMUM Schrank.

Diffuse annual *herbs*. *Lvs.* opposite, toothed or cut. *Heads* at first very small, terminal or subsessile in the axils, radiate, florets of the ray female and fertile, of the disc structurally hermaphrodite but functionally male. *Involucre* duplex, its *outer bracts* herbaceous, the *inner* each enclosing a ray floret, and later closing over the achene. *Receptacle* conical, bearing scales among the disc florets. *Achenes* of ray florets oblong, laterally compressed, smooth, without pappus, each enclosed by one of the enlarged, prickly or spiny inner involucre bracts. *Achenes* of disc florets thin and empty.

1. A. hispidum DC.

Urb. Symb. Ant. 8. 727: Britt. & Wils. Sci. Surv. Porto Rico 6. 301.

Herb, 30-60 cm. high, freely branched; *branches* round, hairy; *lvs.* oblanceolate, 2-5 cm. long, 1-2.5 cm. broad, sessile, coarsely toothed, hairy on both surfaces; *heads* solitary in the axils, in flower 0.5 cm. across, in fruit 1-1.5 cm.; *ray florets* about 6-8, enclosed in the inner involucre bracts, their ligules exerted, yellow, 1.5 mm. long; *disc florets* about 4-6, corollas yellow, 5-lobed; *anthers* brown; *inner involucre bracts* on the ripe achenes, 4 mm. long, bearing 2 stout spreading spines, 3 mm. long, one straight and one hooked at the tip, and a number of hooked spines a little less than half as long.

In pastures and by roadsides, Tobago. Broadway 9306 in Herb. Kew. is from St. Joseph, Trinidad, but may well have been an accidental introduction from Tobago, especially as the locality is near the Government Stock Farm. Present evidence does not indicate this as a Trinidad species.

Santo Domingo, St. Thomas, St. Croix, Guadeloupe; Central and South America. Introduced into W. and S.W. Africa.

20. PARTHENIUM L.

Herbs or *shrubs*. *Lvs.* alternate. *Heads* small, in terminal panicles, radiate, *florets* of the ray female and fertile, of the disc structurally hermaphrodite and functionally male. *Involucre* broadly bell-shaped, its *bracts* in 2 or few series, broad and blunt, almost equal or the outer smaller than the inner. *Receptacle* convex, bearing scales surrounding the disc florets. *Achenes* of the ray compressed from the back, keeled on the inner side, crowned with 2-3 short and soft or longer and stiffened awns, surrounded by an involucre bract and 2 receptacular scales.

1. *P. Hysterophorus* L.

Griseb. Fl. 369: Urb. Symb. Ant. 4. 632; 8. 727: Fawc. & Rendl. Fl. Jam. 7. 214: Britt. Fl. Berm. 398: Britt. & Millsp. Bah. Fl. 448.

Slender herb, 30-60 cm.; stem branched, ribbed, with scattered hairs, becoming glabrous or roughish; lvs. sessile, deeply cut, up to 12 cm. long but usually smaller, the ultimate segments narrow, pubescent, especially beneath; heads white, about 5 mm. long and broad, on slender stalks 1 cm. or less; involucre bracts ovate, the outer pubescent on the back, the inner only at the tip; ligule of ray florets white, roundish, 1 mm. long, cor. of disc florets a trifle longer; achenes broadly obovoid, 2 mm. long, black, with 2 slender recurved awns their own length.

Waste and cultivated grounds, Trinidad and Tobago.

West Indies generally; continental America, from Florida to Argentina; introduced into the Old World.

21. *AMBROSIA* L.

Annual or perennial herbs. Lvs. opposite or alternate, entire or variously cut. Heads unisexual, monoecious (both sexes on the same plant), the male several-flowered, sessile or shortly stalked, in simple terminal spikes or racemes, the female 1-flowered, sessile in the axils of the upper leaves, solitary or in glomerules. Involucre of males cup-like, lobed, herbaceous; receptacle bearing filiform scales; cor. regular, with a very short tube and bell-shaped 5-fid limb. Involucre of females joined and closed round the single floret, often tubercled or prickly near the top, and contracted into a short beak surrounding the style; cor. none. Achenes obovoid or ovoid, thick, without pappus, enclosed in the persistent and hardened involucre.

1. *A. cumanensis* H.B.K.

A. artemisifolia var. *trinitensis* Griseb.

A. paniculata var. *cumanensis* Schulz.

Griseb. Fl. 370: O. E. Schulz in Symb. Ant. 7. 86: Urb.

ibid 8. 727: N. Amer. Fl. 33. 17.

Often woody at base, 40 cm.-2 m.; stem stout, clothed with long, soft hairs; lvs. deeply and bipinnately cut, the segments rather bluntly toothed, blades 4-8 cm. long, about as wide across the basal segments, on petioles about half the length of the blade, variable in pubescence, with usually scattered hairs or almost glabrous above, more pubescent beneath; male heads shortly stalked, in terminal leafless spikelike racemes, 4 mm. across; female heads in glomerules, in the axils of much reduced leaves below the male; female involucre at maturity tuberculate, spiny, 2-3 mm. long, including the 0.5 mm. beak.

Waste grounds and hillsides, Trinidad and Tobago.

West Indies; Mexico to Venezuela and Peru.

22. ECLIPTA L.

Herbs. Lvs. opposite. *Heads* axillary, stalked, solitary or, few together, radiate, *florets* of the ray female and fertile or sterile of the disc hermaphrodite and fertile. *Involucre* hemispherical or broadly bell-shaped, its *bracts* herbaceous, almost equal or the inner shorter. *Receptacle* flat or slightly convex, scaly, the scales subtending the centre florets very narrow or wanting. *Achenes* of the ray narrow, 3-angled, often empty, of the disc rather thick, slightly compressed laterally, flat at the top or with 2 short awns.

1. *E. alba* (L.) Hassk. Congo Lala.

Verbesina alba L.

Griseb. Fl. 370: Urb. Symb. Ant. 4. 633: 8. 729: Britt. Fl.

Berm. 399: Britt. & Millsp. Bah. Fl. 449: Fawc. &

Rendl. Fl. Jam. 7. 222.

Stems round, rather rough with appressed hairs, usually freely branched, 20-90 cm.; *lvs.* sessile, lanceolate to narrow lanceolate, 4-8 (or up to 12) cm. long, 1-2.5 cm. wide, narrowed to both ends, shallowly toothed to entire, rough on both surfaces; *heads* usually solitary, but sometimes 3, or even 4, to the axil, white, about 7 mm. across, on slender *peduncles* 1-3 cm. long; *involucral bracts* ovate, pointed, hairy, about 4 mm. long, 2.5 mm. wide; *ray cor.* short (barely 2 mm.) linear; *achenes* 2 mm. long, flat-topped, slightly narrowed to base, wrinkled.

A common weed, especially in wet or moist situations, Trinidad and Tobago.

Widely distributed in the warm countries of both hemispheres.

23. ISOCARPHA R. Br.

Herbs. *Heads* solitary or few together on the ends of long peduncles, many-flowered, all florets hermaphrodite and fertile. *Involucre* short, its *bracts* narrow, in 2-3 series. *Receptacle* oblong or conical, scaly, the scales enveloping the florets. *Cor.* regular, tubular, 5-toothed. *Achenes* 4-5-angled, flat-topped, without pappus.

Lvs. opposite, entire or nearly so.....1. *I. oppositifolia*.

Lvs., at least the upper, alternate,

distinctly toothed.....2. *I. Billbergiana*.

1. *I. oppositifolia* (L.) R. Br.

Calea oppositifolia L.

Griseb. Fl. 376: Britt. & Millsp. Bah. Fl. 450: Fawc.

& Rendl. Fl. Jam. 7. 224.

Plant erect, 30-90 cm.; *stems* round or lightly ribbed, pubescent; *lvs.* opposite, sessile or nearly so, lanceolate to linear-lanceolate, 5-8 cm. long, 1-2 cm. wide, narrowed at base, acute or blunt at apex, entire or nearly so, shortly pubescent; *heads* top-

shaped, solitary or in small clusters at the ends of slender peduncle-like branches 2-15 cm. long; *involucral bracts* about 4 mm. long, narrow-oblong, sharply pointleted, pubescent on the back with 2 prominent central ribs; *receptacular scales* much like the involucral bracts, but thinner and less pubescent; *cor.* white; *achenes* black, oblong, narrowed to base, 1-2 mm. long.

Gasparillo, Monos, Chacachacare, Patos Islands; Tobago.
Bahamas, Cuba, Jamaica; Texas to Venezuela and Colombia.

2. *I. Billbergiana* Less.

I. atriplicifolia of Hart's List.

Griseb. Fl. 377: Blake in Contrib. U.S. Nat. Herb. 22. 614.

Plant 30-90 cm., freely branched, the branches spreading, stems round, roughish-pubescent when young, becoming glabrous; *lvs.* the lower opposite, upper alternate, ovate or lanceolate, toothed, glabrous or nearly so, narrowing to a petiole-like base which bears a pair of small lobes at the junction with the stem, the whole 2-4 cm. long, 1-2 cm. wide; *heads* numerous, terminal on the branchlets and solitary in the upper axils, on glandular-pubescent *pedicels* 1-2 cm. long, in flower conical, 8 mm. long; *involucral bracts* linear-lanceolate, 4 mm. long, glandular-pubescent; *receptacle* conical to cylindrical, its *scales* narrow, green, fringed with gland-tipped hairs; *cor.* white; *achenes* 1-1.5 mm. long, narrow, pubescent.

In moist savannahs and rice-fields after harvest, Trinidad.
Colombia.

24. *WULFFIA* Neck.

Coarse rough herbs or shrubby. *Lvs.* opposite, petioled, toothed. *Heads* at first flattish, later globose, solitary or few together at the end of the branches, radiate, *florets* of the ray neuter, sterile, sometimes wanting, of the disc hermaphrodite and fertile. *Involucre* hemispherical, its *bracts* in 2-3 series. *Receptacle* rather convex, with stiff scales subtending or surrounding the fertile *florets*. *Achenes* obovoid-oblong, hick, 4-angled, finally often fleshy, flat-topped without pappus.

1. *W. baccata* (L.f.) Kuntze.

W. stenoglossa DC.

Griseb. Fl. 372: O. E. Schulz in Symb. Ant. 7. 91.

Shrubby, scandent, 1-5 m.; *branches* angled, rough with stiff appressed hairs on the angles; *lvs.* ovate to oblong-ovate, up to 16 cm. long, 10 cm. wide, usually rather smaller, rounded at base or shortly narrowed into the petiole, acuminate, shallowly toothed, rough on both surfaces, on *petioles* 0.5-2 cm. long; *pedu.* in the axils of the uppermost leaves and terminal on the branchlets, 1-4 cm. long; *heads* about 4 cm. across; *involucral bracts* 5-6 mm.

long, oblong, herbaceous, hairy, their tips recurved; *receptacular scales* a little longer than the bracts, oblong ovate, orange-coloured at apex, abruptly narrowed into a spinelike point; *ray florets* bright yellow, ligules 1.5 cm. long, 0.5 cm. broad; *disc cor.* orange, 4 mm. long; *anth.* black, with an orange apical appendage; *achenes* 3.5-4.5 mm. long, glabrous except for a few very short hairs surrounding a central tubercle on the flat top, finally somewhat fleshy.

Hillsides, woods and roadsides, Trinidad and Tobago.

St. Vincent, Martinique, Guadeloupe; Venezuela, Colombia—the Guianas and Brazil; Panama.

25. WEDELIA Jacq.

Herbs or subshrubs. *Lvs.* opposite, usually toothed or lobed. *Heads* stalked, terminal or axillary, radiate, *florets* of the ray female, of the disc hermaphrodite, all usually fertile. *Involucre* ovoid, bell-shaped or almost hemispherical, its *bracts* in about 2 series, the outer usually herbaceous or leafy, the inner dry or stiffly membranous. *Receptacle* scaly, the scales surrounding the disc florets. *Achenes* wedge-shaped or obovate, thick, laterally compressed or 3-angled, rounded at apex. *Pappus* cup-shaped, toothed or divided into scales, sometimes reduced to a ring, occasionally with 1-2 short bristlelike awns

Herb, stems creeping at base.....1. *W. trilobata*.

Subshrubs or shrubs.

Stem erect; branches spreading, very rough with spreading hairs2. *W. caracasana*.

Stem often decumbent; branches diffuse, with appressed hairs.....3. *W. fruticosa*.

1. *W. trilobata* (L.) Hitchc.

W. carnosa L. C. Rich.

Silphium trilobatum L.

Griseb. Fl. 371: Urb. Symb. Ant. 4. 634; 7. 95; 8. 730:

Britt. & Millsp. Bah. Fl. 451: Fawc. & Rendl. Fl.

Jam. 7. 227.

Stems rather succulent, glabrous or nearly so, creeping at base and rooting at the lower nodes; ascending branches rising to 15-50 cm.; *lvs.* 4-8 cm. long, 2-4 cm. wide, rather thick, mostly

3-lobed with the central lobe broad and bluntish, lateral lobes small, narrower and more acute, upper *lvs.* sometimes obovate, not lobed, all blades narrowing below to the sessile base, the opposite bases meeting round the stem, margins toothed, all with sparsely scattered hairs above and on the veins beneath; *pedu.* solitary in the axils, rather stout, 3-8 cm. long, covered with appressed hairs, *heads* yellow 2.5-3 cm. across; *involucral bracts* oblong-lanceolate, the outer about 12 mm. long, 5 mm. wide, the inner narrower and sometimes shorter; *receptacular scales* membranous, narrow, acute, 7 mm. long; *ray florets* about 10, ligules 10 mm. long, 5 mm. broad; *achenes* top-shaped, 3 mm. long.

Roadsides and sea-beaches, Trinidad and Tobago.

West Indies; Florida to Colombia.

2. *W. caracasana* DC.

W. Jacquinii var. *caracasana* O. E. Schulz.

Griseb. Fl. 371: Urb. Symb. Ant. 4. 635: O. E. Schulz
ibid 7. 104.

Subshrub 1-3 m., freely branched; *stems* round, rough with spreading hairs; *lvs.* opposite, shortly petioled, lanceolate or ovate, 4-12 cm. long, 1-6 cm. wide, wedge-shaped at base, acuminate at apex, shallowly toothed, 3-nerved above the base, very rough on both surfaces, the hairs on the upper surface dilated at the base (a character conspicuous on drying) those of the lower surface somewhat softer and mainly on the veins; *pedu.* slender, 2-4 cm. long; *heads* yellow; *involucral bracts* ovate or oblong-ovate 8-12 mm. long, pointleted, hairy; *receptacular scales* concave, membranous, yellow-tipped in flower, shorter than the ray florets, purple-tipped in fruit and longer than the achenes; *ray florets* 8-10, their ligules about 10 mm. long, 5 mm. broad; *achenes* 3 mm. long, pubescent; *pappus* a minute fringed cup.

This species is easily confused with *Aspilia verbesinoides* (D.C.) Blake, which may, however, be distinguished by the black lines on its inner bracts and receptacular scales, as well as by the ray florets.

Banks and borders of woods; Aripo Savannah, Trinidad; Monos and Chacachacare Islands.

Venezuela, British Guiana, Panama.

3. *W. fruticosa* Jacq.

O. E. Schulz. in Urb. Symb. Ant. 7. 107.

Subshrub or *shrub*, 20-70 cm. high, freely branched; *stem* often decumbent and rooting, *branches* diffuse, slender, scandent, at first hairy, becoming glabrous; *lvs.* oblong-ovate, 2-9 cm. long, 1-4 cm. wide, the base rounded and shortly decurrent into the 4-10 mm. petiole, apex acute, margins shallowly and distantly toothed or almost entire, rough on both surfaces; *pedu.* solitary or occasionally 2 together, slender, at length recurved, 1.5-11 cm. long; *heads* yellow; *involucral bracts* broadly ovate, rather acute, hairy on both sides, 7.5-10 mm. long, 5-7 mm. wide, the lowermost narrower; *receptacular scales* the outer obovate, rounded at apex, fringed with hairs, 6-7 mm. long, the inner oblong-linear, somewhat acute, 5-6 mm. long; *ray florets* 8-9, their ligules oblong-ovate, 1-1.5 cm. long, deeply bilobed at the apex; *disc florets* about 45, 7 mm. long; *achenes* oblong, narrowed at base, 4-angled, hairy, tuberculate, 3 mm. long; *pappus* a fringed cup.

Patos Is. (Broadway 7198 in Herb. Kew.); Mile End (Broadway 3144 ex Schulz) and Rockley Vale (Broadway un-numbered in Herb. Brit. Mus.) Tobago.

Martinique, British Guiana, Venezuela, Colombia, Panama.

26. *ELEUTHERANTHERA* Poit.

Annual *herbs*, pubescent or hairy. *Lvs.* opposite, petioled. *Heads* small, shortly stalked, terminal or axillary, discoid, or occasionally with a few small neuter ligulate florets. *Involucre* bell-shaped or ovoid, its *bracts* few, herbaceous. *Receptacle* convex, scaly, the scales surrounding the florets. *Cor.* tubular, the limb shortly 5-fid. *Achenes* rather thick, slightly 2-3-angled. *Pappus* small, cup-shaped, fringed with hairs or sometimes with 2-3 very short awns.

1. *E. ruderalis* (Sw.) Sch. Bip.

Ogiera ruderalis Griseb.

Griseb. Fl. 369: Urb. Symb. Ant. 4. 636; 8. 732: Fawc. & Rendl. Fl. Jam. 7. 229.

Herb 20-50 cm. high, freely branched, *branches* slender; *lvs.* shortly petioled, ovate or ovate-lanceolate, 2-6 cm. long, 1-3 cm. wide, rounded or blunt at base, bluntish at apex, toothed, usually pubescent on both surfaces; *pedu.* very slender, 3-15 mm.

long; heads 5-6 mm. across; involucre bracts oblong ovate, 5-7 mm. long, blunt, hairy, rather spreading and leaflike; receptacular scales oblong, acute, 3-4 mm. long, hairy at their tips; cor. yellow, 2 mm.; achenes obovoid, 2-3 mm. long, minutely pubescent; pappus fringed with hairs.

Waste and cultivated grounds, Trinidad and Tobago.

West Indies and Northern S. America.

27. ASPILIA Thou.*

Herbs or shrubs. Lvs. opposite. Heads terminal or axillary, solitary, few together or in loose panicles, radiate, florets of the ray neuter, of the disc hermaphrodite and fertile. Involucre ovoid, bell-shaped or hemispherical, its bracts in 2-3 series. Receptacle convex or slightly conical, scaly, the scales surrounding the fertile florets. Achenes thick, somewhat compressed, slightly 4-angled, rounded at the top. Pappus cup-shaped, sometimes of awns and scales, sometimes of scales only.

1. *A. verbesinoides* (DC.) Blake.

Gymnopsis verbesinoides DC.

Aspilium nigropunctatum Blake.

DC. Prodr. 5. 561: Blake in Proc. Biol. Soc. Washington 34. 119, 120.

Subshrub, 1-2 m., freely branched and spreading; branches roundish, rough with stiff appressed pubescence; lvs. ovate-lanceolate, 6-15 cm. long, 2-6 cm. wide, long acuminate at apex wedge-shaped at base, the lower sharply saw-toothed, the upper more shallowly toothed, rough pubescent above, glabrous beneath except on the veins, copiously black-dotted beneath; heads yellow about 3 cm. across the rays; pedu. 2-6 cm. long; involucre bracts about 8 mm. long, oblong-lanceolate to ovate, the outer narrower than the inner, all black-lined; receptacular scales oblong, about 6 mm. long, shorter than the florets; disc florets about 30; ligules about 10, 13 mm. long, 5 mm. broad; achenes top-shaped, 3 mm. long, hispid; pappus a minute fringed cup.

* I am indebted to Dr. S. F. Blake for examining the local material of this genus and for advice on its taxonomy and nomenclature.

In general habit and appearance this plant very closely resembles *Wedelia caracasana* DC., and both Grisebach (Fl. 372) and O. E. Schulz (in Urb. Symb. Ant. 7. 104) have erroneously referred *Gymnopsis verbesinoides* DC. to the synonymy of that species. The two are distinguished by their ray florets, fertile in *Wedelia*, neuter in *Aspilia*; an easier character for distinction in the field is the presence or absence of black dots on the leaves and lines on the involucre.

Banks and roadsides in forest districts, Trinidad and Tobago.

DOUBTFUL RECORD.

Aspilia wedelioides (DC.) Blake in Contrib. U.S. Nat. Herb. 26. 252 (*Gymnopsis wedelioides* DC. Prodr. 5. 562) is known only from the type collection, of uncertain habitat. De Candolle gives it as occurring in ins. *Caribaeis, forte in Tobago*, but the available evidence is insufficient for its admission as a Tobago plant.

28. TITHONIA Desf.

Strong annual herbs or shrubby at the base. *Lvs.* alternate. *Heads* large, on long peduncles, radiate, the florets of the ray neuter, of the disc hermaphrodite. *Involucre* hemispherical, its bracts in 2 rows, leafy or broadened at the tips. *Receptacle* convex, with scales embracing the disc florets. *Cor.* of the ray ligulate, spreading, entire or minutely toothed, of the disc tubular, contracted above the base, cylindrical above, 5-toothed. *Achenes* oblong, compressed 4-sided. *Pappus* of free or joined small scales, with or without 1 or 2 awns.

1. *T. diversifolia* (Hemsl.) A. Gray.

Fawc. & Rendl. Fl. Jam. 7. 232. Britt. & Wil. Sci. Surv. Porto Rico 6. 307.

Perennial; stems 2 m. or more high, branches round, finely downy; *lvs.* variable in shape and size, commonly deeply 3-5-lobed, the lobes acute, sometimes undivided, up to 20 cm. long and nearly as wide, but often smaller, pubescent on both surface, the blades decurrent into long petioles, which have stipule-like outgrowths at the base; heads deep yellow, 6-12 cm. across, on stout peduncles enlarged under the head; involucre bracts unequal, the outermost firm, lanceolate or ovate, acute, 5-8 mm. long, the inner oblong,

blunt, up to 2 cm. or more long, thin and soft in the upper half; *receptacular scales* oblong, 1 cm. long, very sharply pointed; *disc cor.* nearly 1 cm. long, shortly 5-fid; *achenes* appressed-pubescent; *pappus* of scales joined at the base, about 2 mm. long, 2 prolonged into awns 4 mm. long.

Introduced, but now often spontaneous on waste lands, Trinidad.
S. Mexico to Costa Rica.

Note: *T. rotundifolia* (Mill.) Blake, an annual species, is common in local gardens. Native of Mexico and Central America.

29. MELANTHERA Rohr.

Herbs or *shrubs*. *Lvs.* opposite, stalked, toothed or lobed. *Heads* at first flattened, later globose, terminal or axillary, stalked, sometimes discoid, sometimes radiate with the ray florets either female or neuter. *Involucre* hemispherical, its *bracts* in 2-3 series. *Receptacle* convex, scaly, the scales concave and often spiny-tipped. *Achenes* short, thick, 4- or 3-sided. *Pappus* of 2 or several unequal awns, bristle-like, fringed, soon falling.

1. *M. nivea* (L.) O. E. Schulz. Dog Bush.

M. aspera (Jacq.) L. C. Rich, sensu O. E. Schulz.

M. deltoidea DC. (in part).

Griseb. Fl. 372 (in part): O. E. Schulz in Urb. Symb. Ant.
7. 118-121.

Straggling soft-wooded *shrub*, up to 2 m. or more; *branches* bluntly 4-angled, rough with appressed hairs or almost smooth, commonly purple-tinged or spotted; *lvs.* on petioles 1-5 cm. long, blades triangular-ovate to deltoid-ovate, 7-15 cm. long, 4-10 cm. wide, truncate at base, acute or acuminate, often long-acuminate, at apex, toothed, roughish hairy on both surfaces; *heads* discoid, 0.8-1.5 cm. across, terminal, solitary or 2 (-3) together on a common peduncle; *pedicels* slender 1-6 cm. long; *involucral bracts* ovate, rather blunt, about 5 mm. long, pubescent on the back; *receptacular scales* 5 mm. long, oblong or oblanceolate, shortly and abruptly acuminate; *cor.* white, tubular, 5-fid, 5-6 mm. long; *anth.* black;

style exserted; *achenes* black, 2 mm. long, thick, narrowed at base, mostly 4-sided; *pappus* of several (3-10) bristle-like awns, 2-3 mm long, soon falling.

Waste lands and hillsides, Trinidad and Tobago.

Lesser Antilles; continental tropical America.

Note: O. E. Schulz (*loc. cit.*) refers Trinidad material to *M. aspera* and Tobago collections to *M. nivea*, but we are unable to follow him in distinguishing two species.

30. SPILANTHES L.

Herbs. *Lvs.* opposite, usually toothed. *Heads* usually long-stalked, terminal or axillary, radiate with the ray florets female or discoid with the ray wanting. *Involucre* short, bell-shaped, its *bracts* in 1-2 series. *Receptacles* convex or elongated, scaly, the scales surrounding the disc florets. *Cor.* of the ray, when present, ligulate, usually short. *Achenes* of the ray 3-sided or compressed on the back, of the disc laterally compressed. *Pappus* of 2-3 slender bristle-like awns, or absent.

Inv. bracts 3 mm.; heads less than 1 cm.

long 1. *S. uliginosa*.

Inv. bracts 4 mm.; heads up to 1 cm.

long 2. *S. ocymifolia*.

1. *S. uliginosa* Sw.

S. Acmella of Hart's List.

Griseb. Fl. 376: A. H. Moore in Proc. Amer. Acad. 42. 537:

Fawc. & Rendl. Fl. Jam. 7. 238.

Branching *herb*, 15-30 cm. high; *stems* round, thinly pubescent with up-curved hairs; *lvs.* lanceolate, 2.5 cm. long, 0.5-1.5 cm. wide, acute or acuminate at apex, tapering gradually into the petiole at base, shallowly toothed, glabrous except for a few hairs on the nerves beneath; *heads* ovoid, at length conical, yellow, about 8 mm. long, 5-6 mm. across, borne in lax cymes; *involucral bracts* broadly ovate, 3 mm. long; *ray florets* about 8, *ligules* 1 mm. long; *achenes* 1.5 mm. long, 2-3-edged, dark, with pale fringed edges and crowned by 2 short bristle-like awns.

Moist grassy places, Trinidad and Tobago.

Lesser Antilles; Jamaica; Central America and Brazil.

2. *S. ocymifolia* (Lam.) A. H. Moore.*S. exasperata* Jacq.Griseb. Fl. 376: A. H. Moore *loc. cit.* 531.

Branching herb, up to 40 cm. or more high; *lvs.* ovate-lanceolate, up to 7 cm. long, 3 cm. wide, acute or acuminate at apex, narrowing rather abruptly into the petiole at base, shallowly toothed; *heads* conical, discoid (rarely radiate), about 1 cm. long, 5 mm. broad at base; *involucral bracts* oblong-ovate, 4 mm. long; *achenes* 2 mm. long, dark with pale fringed edges and crowned by 2 short bristle-like awns.

Trinidad Crueger ex Griseb. *l.c.* Herb. Trin. 2028, without locality or date, but obviously an old specimen, appears to be this species. Not recently collected.

Northern South America.

31. *SALMEA* DC.

Shrubs, erect or scandent. *Lvs.* opposite, petioled. *Heads* rather small, in panicles at the ends of the branches, discoid. *Involucre* short, top-shaped or bell-shaped, its *bracts* imbricate in several series, the outer shorter. *Receptacle* conical or elongated, scaly, the scales folded round the florets. *Cor.* regular. *Achenes* laterally compressed, with sharp, fringed or narrowly winged edges. *Pappus* of 2 awns, equal or unequal.

1. *S. scandens* (L.) DC.*S. grandiceps* Cass.*S. oppositiceps* Cass.

Griseb. Fl. 375: Urb. Symb. Ant. 4. 637; 5. 256; 8. 734:

Blake in Journ. Bot. 53. 197: Fawc. & Rendl. Fl. Jam.

7. 240.

Stems scandent or procumbent, glabrous or nearly so; *lvs.* ovate or ovate-lanceolate, 4-10 cm. long, 2-5 cm. wide, rounded or narrowed at base, acute or acuminate at apex, wavy-toothed or entire, rather thin, on *petioles* 0.5-1.5 cm. long; *infl.* several-to many-headed, rather open, up to 10 cm. across; *heads* top-shaped, about 0.5 cm. across; *involucral bracts* ovate or oblong-ovate, the inner about 4 mm. long; *achenes* oblong, 2-3 mm. long, with a narrow fringed margin.

Trinidad, Crueger ex Grisebach *loc. cit.* and Herb. Trin. 399, Maraval, 1850, which is probably the same collection as seen by Grisebach. This may have been an introduced specimen. There is no record of any more recent collection, and the species would appear to be doubtfully native in the Colony.

Greater Antilles and Mexico to Bolivia.

32. SYNEDRELLA Gaertn.

Annual *herbs*. *Lvs.* opposite, petioled, irregularly toothed. *Heads* rather small, terminal or axillary, solitary or several together, radiate, the *florets* of the ray female, of the disc hermaphrodite. *Involucre* ovoid or oblong, its *bracts* few, the outermost usually leafy, the inner like the receptacular scales. *Receptacle* small, with flattish scales subtending the florets. *Cor.* of the ray short, broad and 2-3-toothed, of the disc tubular, the limb 4-fid. *Achenes* of the ray dorsally flattened, with 2 crested wings, produced above into basally flattened awns, of the disc narrower, dorsally compressed or 3-sided, crowned with 2-3 rigid awns.

1. S. nodiflora (L.) Gaertn.

Verbesina nodiflora L.

Griseb. Fl. 377 : Urb. Symb. Ant. 4. 639 ; 8. 735 : Britt. & Millsp. Bah. Fl. 452 : Fawc. & Rendl. Fl. Jam. 7. 247.

Stem branched and spreading, 30-60 cm. high ; *branches* round, roughish with stiff appressed hairs above, becoming nearly glabrous in the older parts ; *lvs.* ovate, up to 10 cm. long, 6 cm. wide, triplinerved, decurrent at base along the short flat petiole, acute at apex, shallowly toothed, sparsely pubescent above, more abundantly so beneath, the hairs appressed ; *heads* few together, in nearly sessile terminal and axillary clusters, yellow ; *involucral bracts* 8 mm. long, the outer 2 ovate-oblong, pubescent, the inner narrower and glabrous ; *receptacular scales* oblong, about 6 mm. long ; *ray florets* about 4-6, sometimes more, their 2-cleft *ligules* barely 2 mm. long ; *disc florets* about 6-10 ; *achenes* of the ray 4 mm. long, 3 mm. across including their wings, their awns short, about 1 mm., those of the disc about as long but only 1 mm. across, their diverging awns as long as the achenes themselves.

A common weed of roadsides, waste and cultivated lands, Trinidad and Tobago.

West Indies, Florida and continental tropical America ; naturalized in the Old World.

33. COSMOS Cav.

Herbs. *Lvs.* opposite, entire, lobed, or deeply divided. *Heads* rather large, long-stalked, solitary or in loose panicles, radiate, the ray florets neuter, rarely discoid with the ray wanting. *Involucre* almost hemispherical, its *bracts* in 2 series joined at the base. *Receptacle* flat, with flat or slightly concave scales subtending the florets. *Achenes* narrow, 5-sided or somewhat compressed, more or less narrowed at the apex into a beak, crowned with 2-4 persistent awns armed with backward pointing hooks or barbs.

1. *C. caudatus* H.B.K.

Griseb. Fl. 373: Urb. Sym. Ant. 4. 641; 8. 737: Fawc. & Rendl. Fl. Jam. 7. 254.

Branching herb up to 1.5 m. high; branches round, ribbed, glabrous; lvs. 4-8 cm. long, deeply and bipinnately cut into linear lanceolate segments, glabrous, on slender petioles 1-2 cm. long; heads 2-3 cm. across the rose-coloured rays, on pedicels of varying lengths up to 20 cm.; involucre bracts about 1 cm. long, those of the outer series linear lanceolate, very acute, fringed on the margins, those of the inner series linear-oblong, blunt, entire and membranous at the margins; ray florets few, their ligules 2-3-toothed; disc florets more numerous, cor. yellow; achenes narrow, 4-angled, about 1 cm. long, tapering gradually into the rough beak of equal length; awns diverging, 3-4 mm. long.

Roadsides and open places, Trinidad and Tobago.

West Indies; naturalized in Florida and Central America, and as an escape from cultivation widespread in tropical America and in Asia.

DOUBTFUL RECORD.

C. sulphureus Cav., a species with yellow ray florets, is recorded from Trinidad by Grisebach (l.c.) citing Crueger, but is not otherwise known as a native of the Colony. Herb. Trin. 2578 collected at Cedros in 1864 and so labelled is unfit for precise determination and may well be *C. caudatus*. This and *C. bipinnatus* Cav., both Mexican species, are grown in gardens and may occasionally be found as escapes.

34. *BIDENS* L.

Herbs. Lvs. opposite (the upper sometimes alternate), toothed or more or less deeply divided. Heads usually solitary or few at the ends of the branches, sometimes in panicles, radiate, the ray florets neuter (rarely female), rarely discoid with ray wanting. Involucre bell-shaped or almost hemispherical, its bracts in 1-2 series often shortly joined at the base, the outer usually herbaceous. Receptacle flat or slightly convex, with flattish scales subtending the disc florets. Achenes dorsally compressed or 4-sided, oblong-linear or linear, apex sometimes slightly narrowed, but not beaked, crowned by 2-4 (-6) rigid persistent awns, usually furnished with recurved hooks.

Lvs. simply pinnate; achenes 2-awned 1. *B. pilosa*.

Lvs. bipinnate; achenes 4-6 awned..... 2. *B. cynapiifolia*.

1. *B. pilosa* L. Railway Daisy. Spanish Needle.

B. leucantha Willd.

Griseb. Fl. 373. Urb. Symb. Ant. 4. 639; 8. 737: Schulz, *ibid.* 7. 133: Britt. Fl. Berm. 402: Britt. & Millsp. Bah.

Fl. 453: Fawc. & Rendl. Fl. Jam. 7. 251.

Annual herb, 20-90 cm., glabrous or slightly pubescent, more or less branched stems 4-angled; lvs. opposite, petioled, mostly pinnate with 3 ovate or ovate-lanceolate leaflets, the terminal one

the largest and up to 8 cm. long, 4 cm. wide, all toothed above the base, the upper leaves smaller and sometimes undivided; *heads* sometimes discoid and then 7-10 mm. across, sometimes with a conspicuous white ray and 2 cm. or more across; *involucral bracts* linear-oblong, slightly wider near the top, bluntish, hairy, 4-5 mm. long, their tips bent outward; *ray florets* when present, usually about 5-6, sterile, their *ligules* obovate, about 1 cm. long, 6 mm. wide; *achenes* linear, straight or nearly so, unequal, the central ones longer than the involucre, sparsely hairy; *awns* usually 2 (occasionally 3 or 4) about 2 mm. long, armed with backward-pointing barbs.

A widespread and variable species. The typical form is that with discoid heads, common in Tobago and occasional in Trinidad. The common form in Trinidad, however, is that with radiate heads, distinguished as *var. radiata* Sch. Bip. *var. alba* O. E. Schulz; *Bidens leucantha* Willd. The latter does not appear to occur in Tobago.

Waste and cultivated grounds: Trinidad and Tobago.

Warm countries of both hemispheres.

2. *B. cynapiifolia* H.B.K.

B. bipinnata L. sens. Griseb. (non L.)

Griseb. Fl. 373: Urb. Symb. Ant. 4. 640; 8. 736:

Schulz, *ibid.* 7. 128; Britt. & Millsp. Bah. Fl. 453:

Fawc. & Rendl. Fl. Jam. 7. 249.

Herb. 90 cm. or more high; *stem* simple below, branched above, the branches spreading, slender, glabrous or nearly so; *lvs.* up to 20 cm. long, nearly as wide, deeply cut, the terminal segment of each leaflet larger than the rest, all segments coarsely toothed; *heads* yellow, the *disc* 5 mm. across in flower; *involucral bracts* linear, acute, 7 mm. long, spreading when in fruit; *ray florets* few (5-10) their *ligules* yellow, about 7 mm. long, 3 mm. wide but irregular in size and shape, sometimes absent; *achenes* linear, the inner about 12 mm. long and nearly glabrous, a few outer ones shorter, broader, and hairy; *awns* commonly 4, 3 mm. long, armed with backward-pointing barbs.

Roadsides and waste grounds in moist districts, Trinidad and Tobago.

West Indies and northern S. America.

35. *CALEA* L.

Shrubs or *subshrubs*. *Lvs.* opposite. *Heads* of medium size and solitary or smaller in terminal and axillary cymes, usually radiate (but ray florets wanting in the local species). *Involucral bracts* in several series, the outer shorter. *Receptacle* more or less convex, with concave scales subtending the disc florets. *Achenes* usually narrow, 4-5 angled, narrowed at base, crowned by a *pappus* of scales.

1. *C. solidaginea*. H.B.K.

Griseb. Fl. 379.

Straggling or somewhat scandent shrub; stems round, shortly pubescent in their younger parts; *lvs.* ovate-lanceolate, 4-10 cm. long, 2-5 cm. wide, wedge-shaped at base, acuminate at apex, shallowly and distantly toothed or almost entire, 3-nerved from near the base, rough above, roughish or almost glabrous beneath, on slender petioles about 1 cm. long; heads discoid, about 7 mm. long and 4 mm. across, about 12-flowered, borne 10-12 together in fan-like cymes; pedicels 0.5-1.5 cm. long; involucre bracts pale yellow, the inner ones lanceolate and 6 mm. long; receptacular scales oblong, 4-5 mm. long, lacinate at the apex; cor. yellowish white, 5 mm. long, the limb dilated and rather deeply 5-fid.; achenes black, 2 mm. long, pubescent; pappus scales narrow, 4 mm. long.

Roadside banks and waste lands, Trinidad.

Venezuela, Guiana, Colombia.

36. *TRIDAX* L.

Perennial herbs. *Lvs.* opposite, deeply toothed or divided. Heads long-stalked, radiate, the ray florets female. Involucre ovoid, bell-shaped or almost hemispherical, its bracts few. Receptacle flat or convex, scaly. Cor. of the ray ligulate, or 2-lipped with the outer lip large and the inner minute, of the disc tubular. Achenes top-shaped. Pappus of several feathery awn-like scales.

1. *T. procumbens* L.

Britt. & Millsp. Bah. Fl. 454: Britt. & Wils. Sci. Surv.

Porto Rico 6. 316.

Stems round, branched from the base, branches prostrate or ascending, hairy; *lvs.* opposite, lanceolate to ovate-lanceolate, 2-4 cm. long, 1-2 cm. wide, wedge-shaped at base, narrowing into a short petiole, acute at apex, deeply and irregularly toothed, 2 or more of the teeth near the base often developed almost into lobes, hairy on both sides and rather rough, especially above, heads solitary on slender erect peduncles 5-20 cm. high; involucre bracts in 2 series, almost equal, ovate, acute or acuminate, the outer hairy on the back, the inner glabrous where overlapped; hairy towards the tip, all about 5-7 mm. long; receptacular scales oblong, 8 mm. long, 2 mm. wide, pubescent at tip; ray florets few, (about 4-6), their ligules 5-6 mm. long, nearly as broad, 2-3-lobed, pale yellow; achenes 2 mm. long, densely silky-hairy; pappus 5 mm. long.

In grassy places and waste and cultivated grounds, Trinidad and Tobago.

Grenada, Bahamas, Cuba, Florida; continental tropical America.

37. POROPHYLLUM Vaill.

Herbs, glabrous, often glaucous, glandular. *Lvs.* alternate, or the lower sometimes opposite. *Heads* stalked, solitary or in loose corymbs, discoid. *Involucre* cylindrical or narrowly bell-shaped, its *bracts* few, equal, free or joined at the base. *Receptacle* small, naked. *Cor.* with a slender tube and narrowly bell-shaped 5-fid limb. *Achenes* linear, ribbed, often contracted at the top. *Pappus* of numerous rough or barbellate bristles.

1. *P. ellipticum* (L.) Cass.

P. ellipticum var. *genuinum* Urb.

P. ruderales Griseb.

P. Porophyllum Kuntze.

Cacalia Porophyllum L.

Griseb. Fl. 379: Urb. Symb. Ant. 1. 467; 4. 642; 8. 739:

Robinson in Proc. Amer. Acad. 49. 509: Britt. & Millsp.

Bah. Fl. 456: N. Amer. Fl. 34. 184: Fawc. & Rendl.

Fl. Jam. 7. 260.

Erect *herb*, 30-90 cm. high; *stem* round; *lvs.* ovate or oblong-ovate, 3-6 cm. long, 1-3 cm. wide, obtuse or acute at apex, narrowed at base into the slender 1-3 cm. long *petiole*, margins wavy or bluntly toothed; *heads* 2-2.5 cm. long, 0.5 cm. across, about 30-fld.; *involucral bracts* 5, narrow-oblong, 2 cm. long, 2-3 mm. wide, acuminate; *cor.* green or tinged with purple, its *tube* 12 mm. long, very slender, the *limb* 2 mm. long and nearly 2 mm. across; *anth.* dark purplish brown; *styles* purplish; *achenes* about 1 cm. long, tapering to both ends, pubescent; *pappus* white, the bristles as long as the achene.

Roadsides and waste lands: Trinidad and Tobago.

West Indies and continental tropical America.

38. PECTIS L.

Herbs. *Lvs.* opposite, narrow, usually with stiff hairs on the margins below the middle. *Heads* usually narrow, solitary or in corymbs, radiate, the ray florets female, the disc hermaphrodite, all fertile. *Involucre* cylindrical or bell-shaped, its *bracts* free, equal, in one series. *Receptacle* small, naked. *Achenes* linear, lightly ribbed; *pappus* of few or many bristles, often fewer in the ray than in the disc, slender or scaly below, sometimes mixed with small scales, or consisting of small scales alone.

1. *P. humifusa* Sw.

Griseb. Fl. 378: Urb. Symb. Ant. 4. 642; 5. 271; 8. 740:

N. Am. Fl. 34. 199: Britt. & Wils. Sci. Surv. Porto

Rico 6. 318.

Small prostrate or procumbent *herb*, usually much branched at the base; *stems* 5-40 cm. long, sometimes rooting at the base, shortly hairy along two decurrent lines; *lvs.* oblanceolate to

obovate, 3-12 mm. long, 2-4 mm. wide, rounded or blunt (rarely acute) at apex, fringed by 2-6 pairs of bristles towards the base, bearing irregularly scattered glands; *heads* solitary at the ends of short branchlets; *involucral bracts* usually 5 (rarely 3), elliptical-oblong to almost orbicular, rounded or notched at the apex, keeled at the base, glandular towards the apex; *ray florets* 5 (-3) with ligules 3-5 mm. long; *disc florets* 10-25, with *corollas* 2-4 mm. long; *achenes* 2.5-3 mm. long, glabrous or sparsely pubescent; *pappus* very variable.

Bacolet Rocks (Herb. Trin. 11801, Williams, and Sandwith 1933. in Herb. Kew.) and Hope Beach (Broadway 4401), Tobago.

Not recorded from Trinidad.

West Indies from Santo Domingo to Tobago.

39. NEUROLAENA R. Br.

Tall *subshrubs*. *Lvs.* alternate. *Heads* rather small in terminal corymbose panicles, discoid. *Involucre* bell-shaped, its *bracts* in 3-4 series, the outer smaller. *Receptacle* flattish, scaly with membranous caducous scales. *Achenes* oblong-topshaped, glabrous or nearly so. *Pappus* of numerous bristles.

1. *N. lobata* (L.) R. Br. Herbe-a-pique.

Griseb. Fl. 381: Urb. Symb. Ant. 4. 644; 8. 743: Britt. & Millsp. Bah. Fl. 457: Fawc. & Rendl. Fl. Jam. 7. 269: N. Amer. Fl. 34. 307.

Plant somewhat straggling, up to 4 m. high; *branches* round, ribbed, rough-pubescent; *lvs.* ovate-lanceolate to oblong-lanceolate, up to 25 cm. long, 8 cm. wide, gradually narrowed at base into a short petiole, acute or acuminate at apex, entire, toothed or variously lobed (often 3-lobed with the lateral lobes smaller than the median), rough above, pubescent beneath; *heads* yellow about 8 mm. long and 4 mm. across; *pedi.* mostly longer than the heads, slender, pubescent, bearing a few small scattered bracts; *involucral bracts* oblong, the outermost small, the rest gradually longer, innermost 5-6 mm. long, blunt, 3-nerved; *receptacular scales* as long as the inner bracts but narrower, 1-nerved; *cor.* just overtopping the scales; *achenes* dark brown, nearly 2 mm. long, narrowed below, glabrous or slightly puberulent; *pappus* bristles white, 5 mm. long.

A bitter infusion of the plant is used medicinally.

Forests, especially in the Northern Range, Trinidad; Tobago.

West Indies; Mexico to Ecuador and Guiana.

40. **ERECHTHITES** Raf.

Herbs, annual or perennial. *Lvs.* alternate. *Heads* usually narrow, in terminal corymbs, disciform, the outer florets in 2-several rows female, the inner hermaphrodite. *Involucre* cylindrical, its *bracts* narrow, equal, in one row, with sometimes a few small ones outside. *Receptacle* flat, naked. *Cor.* of the female florets filiform, of the hermaphrodite florets broader. *Achenes* oblong-linear. *Pappus* of numerous soft bristles.

1. **E. hieracifolia** (L.) Raf.

Griseb. Fl. 381: Urb. Symb. Ant. 4. 644; 8. 743: Britt. & Millsp. Bah. Fl. 458: Fawc. & Rendl. Fl. Jam. 7. 271.

Annual, coarsely hairy or glabrous; *stem* erect, 30-90 cm., rather succulent, ribbed, simple or branched, the branches ascending; *lvs.* sessile, oblong to lanceolate, up to 18 cm. long, base often auricled, apex usually acute, margins sharply toothed and often deeply cut into triangular toothed lobes; *heads* yellowish white, about 1.5 cm. long, in flower 6-7 mm. across, crowded in terminal corymbs; *pedicels* hairy, shorter than the heads; *involucral bracts* linear, about 1 cm. long, with a few shorter and fringed ones outside; outer (female) florets in several rows, inner (hermaphrodite) relatively few, slightly longer, with a slightly larger corolla-limb; *achenes* 3 mm. long, pale brown, ribbed, slightly hairy between the ribs; *pappus* bristles 1 cm. long, smooth, shining white.

Very hairy and almost completely glabrous individuals may often be found side by side.

Waste and cultivated grounds, especially common in recent forest clearings, Trinidad and Tobago.

West Indies and Central America. Introduced into the Old World.

41. **EMILIA** Cass.

Herbs, annual or perennial. *Lvs.* mostly radical, or crowded at the base of the stem, the cauline few, alternate. *Heads* long-stalked, solitary or in loose corymbs, discoid. *Involucre* cylindrical, its *bracts* equal, in one row. *Receptacle* flat, naked. *Achenes* more or less 5-angled. *Pappus* of numerous soft, very slender bristles.

Heads bright red, 5-10 mm. across 1. *E. coccinea*.

Heads pinkish-mauve, 3-4 mm. across 2. *E. sonchifolia*.

1. **E. coccinea** (Sims) Sweet

E. sagittata Auct. an (Vahl) DC.?

Urb. Symb. Ant. 8. 744: Fawc. & Rendl. Fl. Jam. 7. 273:

Britt. & Wils. Sci. Surv. Porto Rico 6. 321.

Annual, 20-60 cm. high, variable in pubescence, usually somewhat hairy below and glabrous or nearly so above; *basal and lower lvs.* 5-8 cm. or up to 12 cm. long, highly variable, the first

usually broadly ovate or almost orbicular in the upper half and so much narrowed in the lower half as to appear petiolate, the next less abruptly narrowed, and later ones pinnatifid with the terminal segment much larger than the rest, *upper lvs.* sessile, oblong-lanceolate to lanceolate, sagittate, the basal auricles clasping the stem, *all lvs.* toothed, except sometimes the uppermost; *heads* few, 0.5-1.0 cm. across when fully expanded, borne in very loose corymbs on long stems well above the leaves, many-flowered, bright crimson or orange-red; *involucre* 10-13 mm. long, 5-7 mm. in diameter at base, about 3 mm. at the top, its *bracts* linear, acute, joined nearly to their tips in the fresh flower, separating and reflexed in fruit, commonly pubescent near their tips; *cor.* 1 cm. long, its limb narrow, 5-fid.; *achenes* brown, 3 mm. long, strongly ribbed, hispid on the ribs; *pappus* bristles 6 mm. long.

Waste and cultivated grounds, Trinidad and Tobago.

Tropical regions of both hemispheres; native of the Old World.

Note.—This has been widely known under the name of *E. sagittata*.

Cacalia sagittata Vahl was a *nomen abortivum*, being based on *Hieracium javanicum* Burm. f. The identity of *Emilia javanica* (Burm. f.) C. Rob. is by no means certain, but the name is applied by Alston (Suppl. Fl. Ceylon p. 171) to a plant quite different from our *E. coccinea*.

2. *E. sonchifolia* (L.) DC.

Cacalia sonchifolia L.

Griseb. Fl. 381: Urb. Symb. Ant. 4. 644; 8. 743: Britt.

Fl. Berm. 397: Britt. & Millsp. Bah. Fl. 457: Britt. &

Wils. Sci. Surv. Porto Rico 6. 320.

Annual, similar in habit to *E. coccinea* (with which it has been confused) but usually smaller in all its parts, slenderer and more freely branched; *lvs.* narrower, more deeply cut when pinnatifid, and more distinctly toothed; *heads* narrower and more numerous, not exceeding 0.5 cm. across when fully expanded; *involucre* about 12 mm. long, but only 3-5 mm. in diameter at the base and about 2 mm. at the top; *cor.* exerted from the involucre barely 1 mm., its limb pinkish-mauve (rarely white); *achenes* 2 mm. long, ribbed, hispid on the ribs; *pappus* bristles 5-6 mm. long.

Waste and cultivated grounds, Trinidad and Tobago.

Tropical regions of both hemispheres.

Note: The two local species of *Emilia* are quite distinct in the field, but both variable in size of parts, so that they tend to approach each other in some characters. In dried material the distinctions are less obvious, and descriptions of *E. sonchifolia* in some Floras seem to cover both species.

42. *SENECIO* L.

Herbs or shrubs. *Lvs.* alternate or radical. *Heads* radiate, the florets of the ray female, of the disc hermaphrodite. *Involucre* cylindrical, bell-shaped or almost hemispherical, its *bracts* equal in one row, with sometimes a few smaller ones outside. *Receptacle*

flat or slightly convex, naked, pitted, or fringed. *Achenes* more or less 5-10-ribbed. *Pappus* of numerous slender bristles, smooth or rough or shortly barbed.

1. *S. Freemanii* Britton and Greenman.

Ann. Missouri Bot. Gard. 8. 98 (1922).

Stems woody, scandent, up to 15 m. long; *branches* round, brownish, glabrous; *lvs.* alternate, ovate or elliptical, 5-8 cm. long, 2.5-4 cm. wide, acute or bluntish at apex, entire, glabrous on both surfaces, on *petioles* 0.5-1.5 cm. long; *heads* in terminal or axillary cymes; *involucre* narrowly bell-shaped, its *bracts* usually, linear-lanceolate, acute, 12-15 mm. long, 1.5-3 mm. broad, glabrous, membranous at the margins, with a few short ones outside; *disc florets* about 18; *achenes* about 3 mm. long, striate-ribbed, glabrous; *pappus* bristles about 1 cm. long, rough.

Heights of the Northern Range, Trinidad.

Endemic.

DOUBTFUL RECORD.

S. lucidus DC. recorded from Trinidad by Grisebach (Fl. p. 382) on the evidence of a Sieber specimen is not otherwise known from the Colony.

43. *CHAPTALIA* Vent.

Herbs of rosette habit, with perennial rootstock. *Lvs.* radical, felted beneath. *Heads* solitary on leafless scapes, radiatiform, the outer florets in 2 or more rows female and fertile, the inner hermaphrodite, all fertile or the innermost (or all) sterile. *Involucre* bell-shaped or top shaped, its *bracts* narrow, in several rows. *Receptacle* flat or slightly convex, naked. *Cor.* of the outer female florets ligulate, of the inner female florets short and threadlike, of the hermaphrodite florets tubular, the limb 2-lipped, outer lip usually shortly 3-fid, inner lip more deeply 2-fid. *Achenes* oblong or narrowed to each end, more or less beaked. *Pappus* of numerous rough or barbellate bristles.

1. *C. nutans* (L.) Polak.

Leria nutans DC.

Griseb. Fl. 383: Urb. Symb. Ant. 3. 419; 4. 645; 8. 746:
Fawc. & Rendl. Fl. Jam. 7. 280.

Lvs. up to 18 cm. long, 7 cm. wide, lobed, with the terminal segment ovate, much larger than the others, blunt at apex, margin wavy and broadly and shallowly toothed, lower lobes gradually smaller to the base, irregular in outline, glabrous above except for silky hairs on the midrib, densely white-felted beneath; *scape* slender, up to 50 cm. long, silky-hairy; *heads* nodding, narrow, 2.5 cm. long, in flower only about 8 mm. across; *involucral bracts* in several rows, outer 3 mm., inner 2 cm. long, all linear, acute,

dark reddish purple at tips and margins, cobwebby; *ray florets* numerous, *ligules* linear, crimson, 5 mm. long; *achenes* about 4 mm. long, shortly pubescent, the beak about twice as long; *pappus* bristles 12 mm. long, only slightly rough.

Roadside banks and hillsides in moist districts, Trinidad and Tobago.

West Indies generally; Southern U.S.A. to Argentina.

44. *TRIXIS* P. Br.

Herbs or *shrubs* of varied habit. *Lvs.* alternate. *Heads* usually in corymbose panicles, radiatiform or with all florets similar, all florets fertile. *Involucre* cylindrical or bell-shaped, its bracts usually in 2 rows, the inner erect and equal, the outer smaller. *Receptacle* naked or fringed. *Cor.* 2-lipped, the outer lip 3-toothed and in the outer florets often longer, inner lip 2-fid. *Achenes* oblong or linear, 5-ribbed, contracted above or produced into a beak. *Pappus* of numerous, slender, roughish bristles.

1. *T. radialis* (L.) Lag. ex Jackson in Index Kew.

Inula trixis L.

Perdicium radiale L.

T. frutescens Spreng.

Index Kew. 2 (1895) 1131: Griseb. Fl. 383: Urb. Symb.

Ant. 8. 748: Fawc. & Rendl. Fl. Jam. 7. 283.

Straggling *shrub*, 1-3 m.; *branches* pubescent when young, but soon becoming glabrous; *lvs.* elliptical-lanceolate, 3-8 cm. long, 2-3.5 cm. wide, narrowed to both ends, acute at apex, often with a minute pointlet, entire or with distant minute teeth, glabrous on both sides or pubescent below, on very short *petioles* somewhat swollen at the base; *heads* in small leafy corymbs, radiatiform, about 1 cm. across, yellow; *involucral bracts* 8, in one series with a few accessory herbaceous ones outside, oblong-linear, acute or bluntish, pubescent at the tips, about 1 cm. long; *receptacle* covered with small fringed scales; *cor.* of outer florets with a 5 mm. tube, outer lip ovate-oblong, 6 mm. long, inner slightly shorter and deeply bifid, of inner florets similar but with shorter lips; *achenes* linear, pubescent, contracted below the top, not beaked, 5 mm. long; *pappus* bristles 8 mm. long.

Chacachacare and Patos Islands.

Cuba, Hispaniola, Jamaica; Mexico to Venezuela.

45. *LACTUCA* L.

Herbs, often with milky sap. *Lvs.* radical or alternate. *Heads* in panicles, all florets ligulate and fertile. *Involucre* cylindrical, usually smooth, its *bracts* in few rows, the inner elongated, the outer shorter. *Receptacle* flat, naked. *Achenes* oval, oblong or narrow, more or less compressed, beaked. *Pappus* of numerous, slender, smooth bristles.

1. *L. intybacea* Jacq.

Brachyramphus intybaceus DC.

Griseb. Fl. 384: Urb. Symb. Ant. 4. 647; 8. 760: Britt. & Millsp. Bah. Fl. 430: Fawc. & Rendl. Fl. Jam. 7. 288.

Glabrous annual herb, 30 cm.-1 m. or more high; stem round, simple and leafy below, branched above; lower lvs. thin, obovate or oblanceolate in general outline, up to 20 cm. long, 6 cm. wide, narrowed to a petiole-like base, blunt or shortly pointlet at apex, incised or irregularly lobed and toothed, the margins between the major teeth very finely toothed, upper lvs. similar but smaller, and clasping the stem at base; heads distant on the branches of a loose panicle, on pedicels much shorter than the involucre, about 20-fl., 6 mm. across when expanded; involucre bracts, the outer ovate, 3 mm. long, the inner linear-oblong, blunt, and about 1 cm. long; ligules yellow; achenes 3 mm. long, narrow, very shortly beaked, finely warted; pappus white, 6 mm. long.

Herb. Trin. 2581, Chacachacare Is. on cliffs near the sea, October 1864. Not recently collected.

West Indies and Central America.

46. *SONCHUS* L.

Herbs, annual or perennial. Lvs. radical or alternate. Heads usually in irregular corymbose panicles, all florets ligulate and fertile. involucre ovoid or bell-shaped, its bracts imbricate in several rows, the outer gradually shorter. Receptacle flat, naked. Achenes oval, oblong or narrow, more or less compressed, 10-20-ribbed, not beaked. Pappus of numerous smooth bristles.

1. *S. oleraceus* L. Sow Thistle.

Griseb. Fl. 384: Urb. Symb. Ant. 4. 647; 8. 749: Britt. Fl. Berm. 381: Britt. & Millsp. Bah. Fl. 430: Fawc. & Rendl. Fl. Jam. 7. 289.

Annual, 30 cm. to 1 m. or more high, with milky sap; stem hollow, often simple below, somewhat angular, hispid above, becoming glabrous below; lower lvs. up to 25 cm. long, 10 cm. wide, petioled, or so much narrowed below as to appear petiolate, upper lvs. sessile with basal auricles clasping the stem, all lvs. except the uppermost usually deeply pinnatifid, with the triangular terminal segment much larger than the rest, irregularly and very sharply toothed, glabrous; heads many-flowered, in flower about 1 cm. across; involucre narrowly bell-shaped, about 12 mm. long, 6 mm. in diameter at base, narrower above, its bracts linear-lanceolate, acute; ligules linear-oblong, pale yellow; achenes obovate-oblong, narrowed to both ends but more to the base than above, 2-3 mm. long, ribbed and transversely wrinkled; pappus silky, 5-6 mm. long.

Waste and cultivated grounds, Trinidad.

An Old World species, widely naturalized.

COHORT 3. CAMPANALES.

BY

E. E. CHEESMAN.

FAMILY 1. CAMPANULACEAE.

Annual or perennial *herbs*, or *shrubs*, usually with milky juice. *Lvs.* without stipules, usually alternate. *Fls.* hermaphrodite, regular or irregular, often showy, solitary or in inflorescences of various habit. *Cal.* tube united with the ovary, limb 5 (3-10) lobed or parted, persistent. *Cor.* gamopetalous, lobes as many as those of the calyx, limb sometimes divided nearly to the base. *Stam.* as many as the corolla lobes and alternate with them, often inserted on a disc at the base of the corolla, sometimes on the tube; *filaments* free or united below; *anthers* free or united in a ring round the style. *Ovary* inferior or at least partly so, usually 2-5-celled, with numerous ovules on axile placentas; *style* simple, at first below the anthers, later exerted beyond them, usually with a crown of pollen-collecting hairs. *Fruit* a capsule or berry. *Seeds* numerous, usually small, with a straight embryo and fleshy endosperm.

The family is mainly temperate in distribution and only scantily represented in Trinidad and Tobago.

Flowers in racemes or solitary.

Fruit indehiscent; cor. red1. *Centropogon*.

Fruit dehiscent.

Cor. almost regular, white2. *Isotoma*.

Cor. 2-lipped, mauve3. *Lobelia*.

Flowers massed in dense spikes4. *Sphenoclea*.

1. CENTROPOGON Presl.

Subshrubs or *shrubs*, occasionally scandent. *Lvs.* alternate. *Fls.* stalked, solitary in the axils or in terminal panicles. *Cal.* tube hemispherical, rarely top-shaped, lobes various. *Cor.* curved, the tube entire or shortly split down the back, the limb 2-lipped. *Stam.* 5, the filaments joined into a tube and to the base of the corolla, 2 anthers with a cartilaginous or brushlike appendage, the other 3 naked at the apex. *Ovary* 2-celled. *Fruit* an indehiscent berry, crowned by the persistent calyx lobes.

1. *C. surinamensis* (L.) Presl. Crepe Coq. Deer Meat.

Griseb. Fl. 385: Lanjouw in Pulle Fl. Surin. 4. 1. 303.

Soft shrub, about 1 m. high with milky sap; stems round, slightly pubescent in the younger parts, soon becoming glabrous; lvs. ovate to ovate-oblong, 7-17 cm. long, 3-8 cm. wide, rounded at base or abruptly narrowed into the petiole, acuminate at apex, minutely toothed, glabrous, on petioles 5-15 mm. long; fls. axillary; pedicels 4-6 cm. long, with a pair of linear bracteoles near the base; cal. tube 7 mm. long and broad, slightly hairy, lobes narrowly lanceolate, acute, about twice as long; cor. red, about 4 cm. long, the upper lip 2-lobed, curved over in the bud, and larger than the 3-lobed lower lip; staminal tube exserted; anthers 8 mm. long, bearded with spreading purple hairs, the 2 inferior with a triangular cartilaginous appendage; berry globose, glabrous, 1-1.5 cm. in diameter.

Moist shaded banks and cacao-fields, Trinidad and Tobago.

West Indies; Central and tropical South America.

2. *ISOTOMA* Lindl.

Herbs of various habit. lvs. alternate. Fls. axillary or in terminal racemes. Cor. with a long cylindrical tube and spreading limb, its lobes almost equal. Stam. inserted near the top of the corolla tube; filts. more or less joined; anth. joined, the 2 lower tipped with stiff hairs, the 3 upper larger, naked or bearded. Ovary 2-celled; stig. shortly 2-lobed. Fruit a capsule, opening loculicidally at the top within the persistent calyx lobes.

1. *I. longiflora* (L.) Presl.

Griseb. Fl. 388: Fawc. & Rendl. Fl. Jam. 7. 138: Lanjouw in Pulle, Fl. Surin. 4. 1. 305.

Herb, 20-50 cm., with milky sap; stems stout, pubescent, simple or branched from the base; lvs. sessile, narrowly oblanceolate to oblong, 10-20 cm. long, 1.5-5 cm. wide, tapering to the base, coarsely and irregularly toothed, pubescent when young, becoming glabrous or almost so; fls. white, axillary, on short, pubescent pedicels; cal. tube about 1 cm. long, lobes narrow, acute, nearly 2 cm. long, sometimes unequal, furnished with a few marginal spinelike teeth; cor. tube up to 10 cm. long, 3 mm. in diameter, pubescent, the lobes equal, oblong-lanceolate, 1.5-2 cm.; anth. bent over the stigma, all bearded; capsule ovoid, bent downward, about 1.5 cm. long.

The plant is reputed to be very poisonous.

Roadsides and banks, Trinidad.

West Indies.

3. LOBELIA L.

Herbs or subshrubs (rarely shrubs) of varied habit. *Lvs.* alternate. *Fls.* axillary or in terminal racemes, resupinate (i.e. with the pedicel twisted through 180°). *Cal.* lobes 5, slightly unequal. *Cor.* irregular, the tube split down the (apparently) upper side, the limb distinctly 2-lipped. *Stam.* tube free from the corolla, *anth.* 2 or all with a brushlike appendage. *Ovary* 2-celled, often only partly inferior; *stig.* shortly 2-fid. *Fruit* a capsule, opening loculicidally above the calyx tube, crowned by the persistent lobes.

Lvs. ovate; pedicels exceeding the bracts 1. *L. Cliffortiana*.

Lvs. lanceolate; pedicels shorter than the bracts 2. *L. trinitensis*.

1. *L. Cliffortiana* L.

Griseb. Fl. 385: Urb. Symb. Ant. 4. 617; 8. 701: Fawc. & Rendl. Fl. Jam. 7. 140.

Herb, 30-60 cm. high, glabrous; *stem* slender, generally erect, simple or branching from the base, the branches ascending; *lvs.* thin, ovate, about 2 cm. long, 1.5 cm. wide, narrowing abruptly at base into a slender petiole of about 1 cm., bluntish at apex, coarsely and unequally toothed; *fls.* in terminal racemes; *pedicels* very slender, in flower about 1 cm. long, much longer than their linear subtending bracts, increasing in fruit; *cal. tube* in flower about 2 mm. long, increasing slightly in fruit, *lobes* linear, 3 mm. long; *cor.* mauve, its lobes about 1 mm. long; *capsule* longer than the calyx.

Only collected in the Colony at River Estate, Diego Martin, Trinidad, where it occurs in grass at shady roadsides.

West Indies and continental tropical America.

2. *L. trinitensis* Griseb.

Griseb. Fl. 385.

Herb, about 20-30 cm. high, glabrous; *stems* slender, angled, often decumbent at base and branching freely below; *lvs.* lanceolate to linear-lanceolate, 1.5-4 cm. long, 5-8 mm. wide, tapering to the sessile base, which is faintly decurrent, acute at apex, minutely and rather distantly toothed; *fls.* in terminal racemes, the upper leaves passing into gradually diminishing bracts; *pedicels* slender, about 3 mm. long, much shorter than their subtending bracts; *cal. tube* in flower 2-3 mm. long increasing in fruit to 5 mm., *lobes* linear; *cor.* pinkish-mauve, about 1 mm. longer than the calyx lobes; *capsule* as long as the calyx tube; *seeds* dark brown, shining.

Savannah and grassy roadsides, Trinidad.

Endemic.

DOUBTFUL RECORD.

L. cirsiifolia Lam. (Herb. Trin. 5856, Baptiste, Maraval, 1891) was probably a garden plant or escape. The species is native of the the Cape Verde Islands, though Duss records it as from Martinique.

4. SPHENOCLEA Gaertn.

Annual herb of marshy places. *Lvs.* alternate, entire. *Fls.* in dense, cylindrical, stalked, terminal spikes. *Cal. tube* hemispherical, lobes 5. *Cor.* bell-shaped, lobes 5, valvate. *Stam.* inserted at the base of the corolla tube; *anth.* distinct, included in the tube. *Ovary* half-inferior, 2-celled; *style* very short; *stig.* shortly 2-fid. *Fruit* a capsule, opening transversely at the top of the calyx tube, the lid falling off with the calyx lobes attached. *Seeds* very numerous, minute.

1. S. zeylanica Gaertn.

S. Pongatium DC.

Pongatium indicum Lam.

Griseb. Fl. 389: Urb. Symb. Ant. 4. 616: Trimen, Fl. Ceylon 3. 59.

Plant 30 cm. to 1 m. or more high, quite glabrous, slightly glaucous; *stem* stout, round, hollow, erect, branched above, the branches ascending; *lvs.* narrow-elliptical, 5-10 cm. long, 2-3 cm. wide, acute or bluntish at apex, narrowing gradually at base to a short petiole, thin in texture; *spikes* about 1 cm. in diameter, finally 5-10 cm. long; *fls.* each with 3 triangular-tipped bracts, shorter than the calyx; *cal. tube* about 1 mm. long, lobes broadly ovate, rounded or truncate, 1 mm. long and wide; *cor.* white 2.5 mm. long, 5-lobed to about the middle; *stam.* on very short filaments; *caps.* 3-4 mm. across.

Moist waste and cultivated grounds, Trinidad.

Tropics of both hemispheres; originally Old World.

COHORT 4. ERICALES.

BY

A. W. HILL AND B. L. BURTT.

Cor. generally gamopetalous: pollen in tetrads.

Ovary inferior 1. **Vacciniaceae.**

Ovary superior 2. **Ericaceae.**

Cor. of 5 free petals; ovary superior;

pollen simple 3. **Clethraceae.**

FAMILY 1. VACCINIACEAE.

Shrubs. *Leaves* simple, alternate, exstipulate. *Flowers* axillary, fasciculate or racemose, regular. *Cal. tube* adnate to the ovary, limb 5- (rarely 4-7-) lobed. *Cor.* gamopetalous, epigynous, 5- (rarely 4-7-) lobed, lobes imbricate. *Stam.* generally twice as

many as the corolla lobes, more rarely equalling them in number, epigynous or adhering to the base of the corolla; *anthers* bilocular, the sacs generally produced into tubules dehiscing by pores. *Ovary* 4-10-celled, crowned by an annular epigynous disc; *style* filiform with simple truncate or minutely lobed stigma; *ovules* generally numerous on axile placentas. *Fruit* usually a berry, rarely drupaceous or dry. *Seeds* small, compressed with fleshy endosperm.

Corolla thick, coriaceous, about 2 cm. long.

Stamens equal 1. *Psammisia*.

Stamens alternately unequal 2. *Orthaea*.

Corolla thinner, not exceeding 1 cm. long.

Fls. racemose; calyx articulate with the pedicel 3. *Vaccinium*.

Fls. solitary or paired; calyx not articulate 4. *Sphyraspermum*.

1. PSAMMISIA Klotzsch.

Shrubs, sometimes epiphytic. *Fls.* pedicelled, clustered or racemose, axillary or terminal. *Cal. tube* articulate with pedicel, shortly cylindric or campanulate, *limb* 5- (rarely 2- 4-) lobed. *Cor.* subcylindric, elongate-urceolate or subglobose, 5-lobed. *Stam.* 10 (rarely 8 or 12), equal in length; *filaments* distinct or connate; *anther* tubules as long as sacs, connective 2-spurred (on 5 or 10 stamens), spurs acute and conspicuous or rounded and obscure.

1. *P. Urichiana* (Britton) A. C. Smith. Wild Clove.

Cavendishia Urichiana Britton.

Psammisia recurvata Britton?

Britton in Bull. Torr. Bot. Club 48. 335, 336 (1921):

A. C. Smith in Contrib. U. S. Nat. Herb. 28. 393.

Woody vine, much branched, glabrous throughout; *branchlets* slender, round; *lvs.* ovate or oblong-ovate, 15-25 cm. long, 5-12 cm. wide, shortly narrowed at base, acuminate at apex, entire 5 (-7)-nerved from near the base, on stout *petioles* 5-10 mm. long; *fls.* in axillary clusters or very short racemes; *pedi.* slender, 8-15 mm. long, each subtended by an oblong bractlet about 3 mm. long, and bearing a pair of minute bracteoles near the base; *cal. tube* 2-4 mm. long, about 3 mm. in diameter at flowering, *limb* about 3 mm. long, including the 5 shallow, pointleted lobes; *cor. tube* scarlet, almost cylindrical, about 2 cm. long, 0.5 cm. in diameter,

contracted at the top, *limb* white, 4 mm. long, with 5 ovate-lanceolate or triangular lobes; *stam.* shorter than the corolla; *style* slender, longer than the corolla; *fruit* globose, crowned by the spreading calyx limb.

Mt. Tucuche and Heights of Aripo, Trinidad.

Mt. Roraima, British Guiana, and mountains of Venezuela.

Note.—*Psammisia recurvata* has been distinguished from *P. Urichiana* by its corolla being 4 cm. (not 2 cm.) long, but no corolla of this length has been seen and there is none on the type specimen. A. C. Smith (*op. cit.*) has separated it by the anthers being more than 7 mm. long (as against less than 6 mm. long in *P. Urichiana*), but the only anthers of this length seen are three imperfect ones (detached) on the type sheet. Fruiting specimens are indistinguishable and *P. recurvata* can scarcely be accepted as a distinct species till flowering specimens showing the large corolla and anthers be found.

2. ORTHAEA Klotzsch.

Small *shrubs*, frequently epiphytic. *Lvs.* alternate, subcoriaceous, nerves pinnate or spreading from the base. *Fls.* 1-2, or sub-fascicled in axillary or terminal racemes. *Pedicels* bibracteolate. *Cal. tube* articulate with pedicel, *limb* 5-lobed or truncate. *Cor.* subcylindric, 5-lobed. *Stam.* 10, alternately unequal; *anths.* attached near the base, tubules about as long as the sacs, opening by oblique pores. *Style* filiform, as long as corolla.

1. *O. apophysata* (Griseb.) A. C. Smith.

O. pendula Tutin.

Sophoclesia apophysata Griseb.

Findlaya apophysata Hook. f.

Griseb. Fl. 143: Hook. fil. in Benth. & Hook. Gen. Pl. 2. 569:

A. C. Smith in Contrib. U. S. Nat. Herb. 28. 516.

Half-climbing epiphytic *shrub*; *branchlets* round, brownish or ashy, glabrous; *petioles* 3-5 mm. long, glabrous; *lvs.* leathery, ovate, 5-7 cm. long, 2.5-3 cm. wide, broadly wedge-shaped at base, long-acuminate at apex, entire, glabrous, rather shiny; *fls.* axillary, solitary or 2 together; *pedi.* 1.5-2 cm. long, with 2 ovate, swollen bractlets near the middle; *cal. tube* leathery, with a slight ring-like inflation at the base, about 2.5 mm. long, 4 mm. in diameter at base, contracted above, *limb* leathery 1.5 mm. long, truncate or minutely 5-toothed; *cor.* bright red, fleshy, about 2 cm. long, 6-7 mm. in diameter, contracted towards the top, lobes oblong about 4 mm.; *style* exserted; *fr.* truncate-cylindrical, 8 mm. long, 1 cm. diam.

Northern range and Valencia, Trinidad.

British Guiana.

3. VACCINIUM L.

Shrubs, rarely trees, very rarely epiphytes. Fls. in axillary or terminal racemes or axillary fascicles rarely solitary, usually smallish. Calyx tube globose, hemispherical or turbinate, limb 4-5-lobed. Corolla urceolate or campanulate, more rarely tubular or conical, terete or more rarely angled, 4-5-lobed. Stamens 8-10, free or adhering to the base of the corolla tube; anthers produced into two tubules, generally dehiscent by pores, aristate or muticous on the back. Ovary 4-5-locular, or 8-10-locular by false septation: style straight, stigma small, simple. Fruit globose, seeds small, compressed, ovoid or reniform.

1. *V. latifolium* (Griseb.) Jacks.

Thibaudia latifolia Griseb. (*pro parte maxima*).

Griseb. Fl. 143: Benth. & Hook. fil. Gen. Pl. 2. 575:

Jacks. Ind. Kew. 1162: A. C. Smith in Contrib. U. S. Nat.

Herb. 28. 439: Sleumer in Notizbl. Bot. Gart. Berlin,

13. 135.

Vine 8 m. high; branchlets round glabrous; lvs. leathery, elliptic 8-22 cm. long, 6-12 cm. wide, shortly wedge-shaped at base, long-acuminate at apex, entire, glabrous; racemes usually 2-5 in each axil, 2.5-8 cm. long, surrounded at base by minute, triangular bud-scales, wholly covered with short whitish hairs; pedi. 8-12 mm. long with a small bract at base and 2 bracteoles above the base; cal. tube ovate, 1 mm. long, limb as long with 5 small acute teeth; cor. 4 mm. long, the limb spreading, lobes ovate, blunt; stamens 10, equal, as long as the corolla, filaments villous, anther sacs rather gradually narrowed upwards, dehiscent by elongate pores; ovary surmounted by a large annular disc; fruit about 1.5 cm. long, 1 cm. in diam. crowned by the persistent calyx limb.

Northern range (Tucuche and Matelot), Trinidad.

Grenada.

4. SPHYROSPERMUM Poepp. & Endl.

(*Sophoclesia* Klotzsch).

Shrubs, usually epiphytic with slender elongate branches. Fls. solitary (rarely paired) in the leaf axils, on slender pedicels. Cal. tube continuous with the pedicel, subglobose or obconic, the limb 4-5-lobed. Cor. subcylindric 4-5-lobed. Stam. 4-10, usually as many as or twice as many as the corolla lobes, equal or alternately somewhat unequal; anther tubules as long as or longer than the sacs. Fruits globose or ellipsoid, pericarp brittle. Seeds numerous, the basal ones best developed.

1. *S. buxifolium* Poepp. & Endl.*S. majus* Griseb.*S. cordifolium* Benth.*Sophoclesia trinitensis* Britton.

Poepp. & Endl. Nov. Gen. & Sp. I. 4, t. 8. For further references and synonymy see A. C. Smith in Brittonia, I, 207, under the three species *S. buxifolium*, *S. majus* and *S. cordifolium*.

Epiphytic shrub with slender elongate branches; branchlets pubescent when young, becoming glabrous; petioles 1-2 mm. long, pubescent; lvs. coriaceous, glabrous except for a few short black bristles on the lower surface, ovate to suborbicular, 1-4 cm. long and 1-2 cm. broad, rounded at the base, obtuse or rounded at the apex, margins entire slightly recurved, obscurely 3-5-nerved from the base; pedi. slender, pubescent or glabrous, 1-2 cm. long; cal. tube, outside of corolla and fruit varying from glabrous to densely setose-pubescent; cal. tube subglobose, 1-1.5 mm. diam. at flowering, limb short 0.5 mm. long including the 4-5 acute teeth; cor. white to pink 4-7 mm. long with 4-5 very small deltoid lobes; stam. 4-10 (usually 4, 8 or 10), slightly shorter than the corolla, filaments sparsely villous or glabrous; fruit pale violet, subglobose, about 6 mm. diameter.

Forests in wet mountainous districts; Northern range, Trinidad, and Main Ridge, Tobago.

Mexico southwards to Bolivia, including Haiti and British Guiana.

Note:—Hitherto *S. cordifolium* has been distinguished from *S. buxifolium* and *S. majus* by its stamens being twice as numerous as the corolla lobes, whereas in the other two species they are the same in number. But intermediate numbers do occur and it is admitted that specimens may "demonstrate no other observable differences" (A.C. Smith, *op. cit.* 205). Nor does it seem feasible to distinguish *S. buxifolium* from *S. majus* on account of its smaller more rounded leaves, for these are by no means constant even on the same plant. In addition the characters which have hitherto been used to separate these species do not seem to be the expression of deeper geographical or ecological differences.

FAMILY 2. ERICACEAE.

Only one member of the Ericaceae has been recorded from Trinidad: *Gaultheria sphagnicola* A. Rich., of which Grisebach (Fl. 142) recorded a specimen collected by Sieber, under the name *Brossaea anastomosans* Griseb. This specimen has not been seen and the species, which is native to Guadeloupe, Martinique and Northern S. America, has never since been found in Trinidad.

FAMILY 3. CLETHRACEAE.

Shrubs or trees. Lvs. simple, alternate, exstipulate, deciduous or evergreen. *Fls.* in terminal racemes or panicles. *Cal.* deeply 5-lobed, lobes imbricate persistent around the fruit. *Cor.* of 5 free, imbricate petals. *Stam.* 10-12, hypogynous, *anthers* extrorsely inflexed in bud, opening by apical pores. *Style* simple, trilobed. *Ovary* superior, hairy, 3-lobed, trilocular; *ovules* numerous on axile placentas. *Fruit* a subglobose 3-lobed, loculicidally 3-valved capsule. *Seeds* numerous, compressed or trigonous, often winged, with fleshy endosperm and cylindric embryo.

1. CLETHRA L.

The only genus.

1. *C. Broadwayana* Briquet.

C. tinifolia Sw. sec. Griseb. Fl. 141—non Sw.

Briquet in Ann. Conserv. & Jard. Bot. Geneve 20. 369 (1919).

Tree; the older *branches* with a grey bark, the younger thick, densely covered with a reddish brown indumentum of long and short hairs; *lvs.* broadly oblanceolate-elliptic, very shortly acuminate at the apex, narrowed to a rounded base, setose denticulate on the margins, glabrous or thinly pubescent above, closely covered with short brown hairs below, up to 26 cm. long and 11 cm. broad, *petiole* about 1 cm. long, hairy, like the young branchlets; *racemes* several 8-25 cm. long, brown, hairy, like the young leaves; *pedi.* spreading 5 mm. long; *cal.* 5-lobed, lobes 2-3 mm. long, ovate-oblong, obtuse; *petals* white, obovate, rounded at the tips, irregularly crenate or subentire, about as long as the calyx-lobes; *stam.* shorter than the corolla lobes; *style* glabrous; *capsule* depressed globose, 3-lobed; *seeds* small, compressed, with an irregular wing.

St. Anne's, Arima, Valencia, Trinidad.

Endemic.

COHORT 5. PRIMULALES.

BY

E. E. CHEESMAN.*

- Stigmas 5 1. Plumbaginaceae.
 Stigma 1.
 Staminodes none 2. Myrsinaceae.
 Staminodes present, simulating petals... 3. Theophrastaceae.

FAMILY 1. PLUMBAGINACEAE.

Herbs or (as in the Trinidad species) *subshrubs*. *Lvs.* various
Fls. hermaphrodite, regular. *Cal.* tubular or funnel-shaped,
 ribbed. *Cor.* 5-lobed. *Stam.* 5, opposite to the corolla lobes,
Ovary superior, 1-celled; styles 5-fid or 5 distinct. *Fruit* dry,
 1-seeded.

1. PLUMBAGO L.

Perennial *herbs* or *subshrubs*. *Lvs.* alternate. *Fls.* in spikes
 at the ends of the branches. *Cal.* tubular, glandular, 5-toothed.
Cor. with a slender tube and spreading 5-lobed limb. *Stam.* free
 from the corolla. *Ovary* narrowed at the top; *style* terminal,
 5 branched. *Fr.* a capsule.

P. capensis Thunb. and *P. rosea* L. are well-known plants in
 local gardens, especially the former, which usually has pale blue
 flowers, but occurs also in a white variety not to be confused with
 the native species.

1. *P. scandens* L. Wild White Plumbago.

Griseb. Fl. 390: Urb. Symb. Ant. 4. 478; 8. 523: Britt. &
 Millsp. Bah. Fl. 319.

Subshrub, straggling or half-climbing; *lvs.* ovate to oblong-
 lanceolate, 5-12 cm. long, 2-6 cm. wide, narrowed at base, acute or
 acuminate at apex, entire or slightly wavy at the margins, glabrous,
 on *petioles* 1 cm. long or less; *spikes* 10-15 cm. long, several-
 to many-flowered; *bracts* lanceolate, acuminate, 3-4 mm. long,
 persistent; *cal.* 8 mm. long, covered with long-stalked glands;
cor. white, its *tube* about twice as long as the calyx, its *lobes* obovate,
 minutely pointleted, 5 mm. long.

Roadsides and thickets, Trinidad and Tobago.

West Indies and continental tropical America; Florida.

* The writer is indebted to Mr. N. Y. Sandwith for considerable
 assistance with MYRSINACEAE.

FAMILY 2. MYRSINACEAE.

Trees, shrubs or rarely undershrubs, usually glabrous. *Lvs.* alternate, rarely opposite or whorled, usually leathery and resinous. *Stip.* none. *Fls.* regular, hermaphrodite or unisexual, usually small. *Cal.* 4-6-lobed. *Cor.* 4-6-lobed. *Stam.* as many as the corolla lobes and opposite to them; *filts.* joined to the corolla at base; *staminodes* usually none. *Ovary* 1-celled; *ovules* few to many. *Fr.* usually fleshy, 1 or few-seeded.

Infl. very short (less than 1 cm.) 1. *Rapanea*.

Infl. rather long (at least exceeding 1 cm.)

Petals imbricate.

Anth. basally attached, opening by pores 2. *Cybianthus*.

Anth. dorsally attached, opening by clefts 3. *Weigeltia*.

Petals contorted.

Ovules numerous, in several series 4. *Ardisia*.

Ovules few, in one series 5. *Stylogyne*.

1. RAPANEA Aubl.

Trees or shrubs. *Lvs.* usually entire. *Fls.* small, sessile or shortly stalked, in axillary clusters, with bracts, hermaphrodite or unisexual. *Cal.* 4-5-fid, persistent. *Cor.* more or less deeply 4-5-fid. *Stam.* inserted in the throat of the corolla. *Ovary* globose or ovoid. *Fr.* pea-like, dry or fleshy, 1-seeded, the endocarp brittle, leathery or woody.

1. *R. guyanensis* Aubl.

Myrsine floribunda R. Br.

Griseb. Fl. 393: Mez in Urb. Symb. Ant. 2. 431: Urb.

ibid. 4. 478; 8. 522: Bottelier in Pulle, Fl. Surin. 4. 438.

Shrub or small tree up to 7 m.; branches ash-coloured; *lvs.* obovate-elliptical, 6-12 cm. long, 3-6 cm. wide, narrowed at base to a short but distinct petiole, rounded or very blunt, sometimes notched, at apex, quite entire, shiny above, dull beneath, leathery in texture; *fls.* about 2 mm. long, glabrous, clustered on short spur-branchlets, which are shorter than the petioles and covered with imbricate bracts; *pedi.* very short; *cal. lobes* 5, ovate or ovate-lanceolate, more or less acute; *petals* elliptical, joined at base; *fr.* globose, smooth, about 5 mm. in diameter.

Irois, La Brea and Matelot, Trinidad; Tobago (ex Urban).

West Indies; Florida to Brazil.

DOUBTFUL RECORDS.

R. trinitatis (DC.) Mez, Trinidad, Sieber 302 ex Mez (*loc. cit.*).

Not otherwise known from the Colony.

R. coriacea (Sw.) Mez, Trinidad, Sieber 50 ex Mez (*loc. cit.*). Not otherwise known from the Colony. This Sieber specimen is referred by Grisebach (Fl. 392) to *Myrsine laeta* A. DC.

2. CYBIANTHUS Mart.

Trees or shrubs. *Lvs.* sometimes in false whorls, petiolate, entire. *Fls.* small, white, greenish or purplish, in lateral racemes or panicles with small deciduous bracts, 4-merous, unisexual with rudiments of the other sex. *Calyx* usually gland-dotted, the lobes ciliate on the margins. *Cor.* deeply divided. *Stam.* inserted at the throat of the corolla; *filts.* very short or none; *anth.* usually short, basally attached, opening by pores. *Ovary* ovoid; *style* short and thick; *stig.* lobed; *ovules* few. *Fr.* globose, 1-seeded.

1. C. Cruegeri Mez.

C. cuspidatus Miq. sens. Griseb. non Miq.

Griseb. Fl. 393: Mez in Urb. Symb. Ant. 2. 424 (excl. syn.

Weigeltia myrianthus Griseb.)

Lvs. alternate, *petioles* 1.5-2 cm., *blades* elliptical or oblong-elliptical, 6-15 cm. long, 3-6 cm. wide, narrowing gradually to an acute base, acute or prominently acuminate at apex, glabrous above, firm in texture, when dry much paler beneath, finely rusty scurfy and dotted with black glands; *panicles* not much shorter than the leaves; *pedi.* about 2 mm. long, glandular-ciliate; *fls.* 3-4 mm. across; *cal. lobes* ovate, gland-fringed; *petals* broadly ovate, rounded at apex; *stam.* not much shorter than the petals, *anth.* opening beyond the middle by large pores; *fruit* 5 mm. in diameter.

El Tucuche (Herb. Trin. 2236, 2352B, Crueger) and Heights of Aripo (9839, Broadway) Trinidad.

Endemic.

3. WEIGELTIA DC.

Trees or shrubs, glabrous or scurfy. *Lvs.* alternate, rarely in false whorls, usually entire. *Fls.* small, in axillary panicles, unisexual with rudiments of the other sex, 4-merous (rarely 3- or 5-merous). *Sepals* imbricate, shortly joined at base. *Stam.* usually shorter than the corolla and inserted in its upper part; *filts.* longer than the anthers; *anth.* opening by clefts from apex to base. *Ovary* ovoid; *style* thick; *stig.* lobed; *ovules* few. *Fr.* globose, 1-seeded.

Pedicels of fully developed male flowers

short and thick, not longer than the

bracts; *cor.* at least 2 mm. long1. *W. antillana.*

Pedicels of fully developed male flowers

slender, longer than the bracts; *cor.*

less than 2 mm. long2. *W. surinamensis.*

1. W. antillana Mez.

Mez in Urb. Symb. Ant. 2. 423.

Tree; *branches* thick, glabrous; *lvs.* obovate or elliptical-obovate, *petioles* about 1.5 cm. long, *blades* about 12 cm. long, 5 cm. wide, narrowed towards the base, shortly acute or sometimes

rounded at apex, entire; *male infl.* many-flowered, longer than the leaves, *female infl.* of fewer flowers and shorter; *pedi.* scarcely exceeding 0.5 mm. long; *fls.* at least 3.5 mm. across, reddish, fragrant, mostly 4-merous, sometimes 5-merous; *sepals* broadly obovate, blunt, joined to scarcely one quarter of their length, those of the female flowers gland-dotted, the male much less so; *petals* ovate, rounded, *fruit* globose, 4-5 mm. in diam.

Easterfield (Broadway 4048, 4660 in Herb. Kew.) Tobago.
Grenada, St. Lucia.

2. *W. surinamensis* (Spreng.) Mez.

W. myrianthos DC.

Griseb. Fl. 394: Bottelier in Pulle, Fl. Surin. 4. 441.

Tree; young branches rusty-scurfy; *lvs.* oblong-elliptical to oblanceolate, 10-22 cm. long, 3-7 cm. wide, tapering at base to a *petiole* about 1 cm. long, usually acuminate, rarely bluntish at apex, firm in texture, glabrous, when dry rust-coloured beneath; *male panicles* up to 20 cm. long, *female* fewer-flowered and shorter; *pedi.* slender, about 1.5 mm. long, glandular-ciliate; *sepals* ovate, rounded, not gland-fringed; *petals* ovate, about 1.5 mm. long; *fruit* globose, 5-6 mm. in diameter when dried.

In savannahs and in forests of the Northern Range, Trinidad.
Guiana.

4. *ARDISIA* Sw.

Shrubs or *trees*, rarely herbaceous. *Lvs.* alternate, usually petiolate. *Fls.* small, pedicellate, in terminal or axillary panicles, racemes or (rarely) umbels, hermaphrodite or polygamous, 5-merous or 4-merous. *Sepals* usually dextrorsely contorted, free or shortly joined. *Petals* joined at base, but rarely above the middle. *Stam.* inserted at base of corolla; *filts.* free or shortly joined to the corolla, usually much shorter than the anthers; *anth.* long, sagittate, dorsally attached. *Ovary* sessile; *style* long and slender; *stig.* small; *ovules* numerous. *Fruit* globose, 1-seeded.

Fls. mostly 4-merous (occasionally

5-merous), 4 mm. long in bud1. *A. guyanensis*.

Fls. 5-merous, 6 mm. long in bud.....2. *A. compressa*.

1. *A. guyanensis* (Aubl.) Mez.

Icacorea guyanensis Aubl.

Ardisia acuminata Willd.

Griseb. Fl. 395: Mez in Urb. Symb. Ant. 2. 392: Bottelier in Pulle Fl. Surin. 4. 433.

Shrub, or small tree; *lvs.* elliptical, 7-15 cm. long, 2.5-5.5 cm. wide, rather abruptly acuminate at apex, narrowing in the lower third to a wedge-shaped base, the margins finely and irregularly wavy-toothed in the upper two-thirds; *petioles* about 5 mm. long narrowly winged by the decurrent blade; *infl.* terminal and axillary, 3-6 cm. long, their branches rusty-scurfy; *pedicels* slender, about

as long as the flowers; *fls.* about 4 mm. long in the full-grown bud, mostly 4-merous, with occasional 5-merous examples; *sep.* ovate, blunt, 1-1.5 mm. long; *pet.* narrowly elliptical, white or pale pink, gland-dotted like the sepals, reflexed; *fruit* scarlet, 6 mm. in diameter.

Forests, Trinidad and Tobago.

Northern South America.

2. **A. compressa** H.B.K.

A. decipiens A.DC. sens Griseb. (non A.DC.)

Griseb. Fl. 395: Mez in Urb. Symb. Ant. 2. 393.

Shrub; *lvs.* obovate or elliptical-obovate, 7-15 cm. long, 3-7 cm. wide, shortly and abruptly acuminate at apex, narrowing in the lower third to an acute wedge-shaped base, the margins only obscurely wavy in the upper two-thirds; *petioles* about 5 mm. long, narrowly winged by the decurrent blade; *infl.* 5-12 cm. long, its branches reddish, sparsely scurfy; *fls.* about 6 mm. long in the full-grown bud; *sep.* 5, ovate, blunt, 2 mm. long; *pet.* elliptical, white or pinkish, gland-dotted like the sepals, reflexed; *fruit* 6 mm. in diameter.

Forests of the Northern Range and Chaguanas, Trinidad.
Central America to Venezuela.

5. **STYLOGYNE** A.DC. *emend.* Mez.

Trees or *shrubs*, glabrous or scurfy. *Lvs.* alternate, petiolate. *Fl.* small, in axillary or terminal panicles, stalked, hermaphrodite or polygamous, 4- or 5-merous. *Sepals* dextrorsely contorted, free or shortly joined at the base, usually gland-dotted. *Petals* joined at base, but not above the middle, rounded or asymmetrical at apex. *Stam.* usually shorter than the corolla; *filts.* free or shortly joined to the petals at base; *anth.* long, usually opening by clefts. *Ovary* globose or ovoid, reduced in the male flowers; *style* as long as the ovary or longer; *ovules* few. *Fruit* 1-seeded.

Sepals heavily gland-dotted1. *S. lateriflora*.

Sepals without glands, or with very few.....2. *S. tenuifolia*.

1. **S. lateriflora** (Sw.) Mez.

Ardisia lateriflora Sw.

A. laurifolia Juss. sens Griseb. Fl. 395 non Juss.

A. caribaea Miq.

Mez in Urb. Symb. Ant. 2. 418: Britt. & Wils. Sci. Surv.

Porto Rico 6. 59.

Shrub or small *tree*, *lvs.* elliptical or elliptical-obovate, 10-25 cm. long, 4-10 cm. wide, bluntish or shortly and broadly acuminate at apex, usually narrowed to a wedge-shaped base, entire; *panicles* 3-6 cm. long, many-flowered, their branches red; *fls.* in corymbs at the ends of the panicle branches, about 4 mm. long in the

full-grown bud; *sep.* ovate, gland-dotted; *pet.* narrowly elliptical, white, glandular-lined, recurved; *fruit* globose, smooth, 4-6 mm. in diameter (when dry).

Forests, Trinidad and Tobago.

Lesser Antilles. Recorded, perhaps erroneously, from Porto Rico.

2. *S. tenuifolia* Britton.

Britton in Bull. Torr. Bot. Club 50. 53.

Small tree, up to about 10 m.; *lvs.* elliptical, 8-20 cm. long, 4-10 cm. wide, shortly and broadly acuminate at apex, narrowed at base, entire, thin in texture, glabrous; *panicles* axillary and terminal, 5 cm. long or less, rather lax-flowered; *sep.* broadly ovate, rounded, about 2 mm. long, not gland-dotted or only sparsely so; *cor.* about twice as long as the calyx; *fruit* globular, white, 6-7 mm. in diameter (when dry).

Forests at higher elevations in the Northern Range (El Tucuche and Heights of Aripo) Trinidad. Endemic.

Note.—I find great difficulty in separating *S. tenuifolia* from *S. lateriflora*. From some material of the latter it is distinct enough, by its thinner leaves and the prominence of their very fine reticulation, but other specimens referred to *S. lateriflora* intergrade in this respect, and the leaf character may be determined by habitat. Glands are not obvious on the sepals and petals of our authentic *tenuifolia* material, which may be entirely epunctate, but further comparison of living material of both species is necessary before the status of *S. tenuifolia* can be decided with confidence.

FAMILY 3. THEOPHRASTACEAE.

Trees or *shrubs*. *Lvs.* alternate or whorled, often crowded at the ends of the branches. *Stip.* none. *Fls.* regular, hermaphrodite or unisexual. *Sepals* 5. *Cor.* 5-lobed. *Staminodes* 5. *Ovary* 1-celled, with numerous ovules. *Fr.* a drupe.

A small family, sometimes included in Myrsinaceae. *Clavijsa longifolia* (Jacq.) Mez (C. ornata D. Don), a Venezuelan tree, is known in local gardens, but there is no evidence that it is native in the Colony.

1. JACQUINIA L.

Shrubs. *Lvs.* scattered or in false whorls, entire, usually stiff, often gland-dotted. *Fls.* in terminal or axillary racemes, hermaphrodite. *Sepals* free or shortly joined at the base, imbricate. *Cor.* with a distinct tube, its lobes spreading, imbricate. *Staminodes* inserted high in the corolla tube and simulating petals, but smaller than the corolla lobes. *Stam.* inserted at the base of the corolla opposite the petals; *filts.* dilated below into a fleshy ring joined to the corolla; *anth.* dorsally attached, extrorsely dehiscent. *Fruit* ovoid or globose, pointletted by the persistent base of the style, few-seeded.

Sepals ciliate on the margin 1. *J. revoluta*.

Sepals not ciliate..... 2. *J. barbasco*.

1. *J. revoluta* Jacq.*J. armillaris* Jacq. sensu Griseb. (in part, not Jacq.)

Griseb. Fl. 397 (in part) : Mez in Urb. Symb. Ant. 2. 444.

Shrub; branches finely scurfy; *lvs.* in whorls of 4-10, *petioles* very short, *blades* obovate, 2-4 cm. long, 0.8-1.8 cm. wide, narrowed to a wedge-shaped base, rounded at apex, entire with margins revolute, leathery, glabrous and shiny, with punctate glands on both surfaces; *fls.* yellowish-white, in short terminal racemes; *pedi.* about 8 mm. long, with a small ovate bracteole just above the base; *sepals* broadly ovate or almost orbicular, ciliate on the membranous margins, punctate on the back, 2 mm. long; *cor. tube* broadly bell-shaped, yellow, 3 mm. long and wide, *lobes* waxy white, 2.5 mm. long and wide, rounded or notched at the apex; *staminodes* inserted at the throat of the corolla, and simulating a second whorl of petals, 1.5 mm. long; *stam. filts.* 2 mm. long, *anth.* 1.5 mm.; *ovary* as long as the calyx, glabrous, punctate, *style* about 0.5 mm., *stig.* purple; *berry* bright red, shiny, globose, 6-7 mm. diameter.

Gasperee, Monos, Chacachacare and Patos Islands; Bacolet (Sandwith 1756 in Herb. Kew.) Tobago.

Venezuela; Antigua, St. Martin.

2. *J. barbasco* (Loefl.) Mez. Torchwood.*J. armillaris* Jacq.

Griseb. Fl. 397 (in part, including var. *arborea*); Mez in Urb. Symb. Ant. 2. 442 and in Pflanzenreich 32; Urb. Symb. Ant. 4. 474.

Shrub or small *tree*, up to 5 m. high; branches scurfy; *lvs.* in whorls, rarely scattered, *petioles* about 4 mm. long, *blades* oblong or obovate, 5-9 cm. long, 2-4.5 cm. wide, but very variable in size, narrowed to a wedge-shaped base, rounded or more or less notched (sometimes obcordate) at apex, entire, shiny above, gland-dotted on both surfaces; *fls.* white or yellowish in terminal racemes often longer than the leaves; *pedi.* about 1 cm. long, with a small ovate bracteole a little above the base; *sepals* almost orbicular, their margins entire or more or less toothed, not ciliate, sometimes slightly notched at apex; *cor. tube* broadly bell-shaped, *lobes* almost rectangular, rounded or notched at the apex; *staminodes* ovate to almost orbicular, scarcely three-quarters the length of the corolla lobes; *fruit* bright red, shiny, globose, about 12 mm. in diameter.

Sea beaches and cliffs, Tobago. Trinidad ex Urb. Symb. Ant. 8.518 but no Trinidad specimen seen by me.

Greater and Lesser Antilles, Curacao, Bonaire.