

THE GENUS *CYCLOPIA*, VENT.

By JOAN HOFMEYR and E. P. PHILLIPS, M.A., D.Sc., F.L.S.,
Division of Botany, Pretoria.

THE genus *Cyclopia* was founded by Ventenat in 1808. Two years later a plant, now known as *Cyclopia genistoides*, was figured in the *Botanical Magazine*, t. 1259, and described as the type of a new genus, viz. *Ibbetsonia*. In 1825 the genus *Cyclopia* was dealt with in De Candolle's "Prodromus" (Vol. II, p. 101), and three species described, and it was not until 1861 that Harvey revised the genus in the "Flora Capensis" (Vol. I, p. 6). Since Harvey's account nothing has been written on the genus, but in the interval much material has accumulated in local herbaria which extends our knowledge of the species.

Several species of *Cyclopia* have become of some commercial value locally as the source of "bush tea," and it was with the object of clearly defining the known species as a foundation on which any future experimental work might be based that this revision of the genus was undertaken.

Harvey in the "Flora Capensis" recognized nine species, but our examination of all the available local material has led us to subdivide the genus into twelve very distinct species. The species are all shrubs with ternate, very often revolute leaves, and yellow flowers. They are mostly confined to the Western Province and the south-eastern regions, but one species extends as far as Port Elizabeth. According to observations made by Forest Officers, most of the species grew well in all situations and soils, except on stiff clayey soils. The cultivation of the species used as "bush teas" should be experimented with, and should not prove difficult, though the young seedlings may require some shelter until firmly established.

The method at present used for preparing "bush teas" for local consumption is to heat the leaves in an oven for about an hour to produce "sweating," after which they are dried in the sun. When thoroughly dry the leaves and smaller twigs are removed from the stem and larger branches, packed, and sold under various names. If the demand for "bush tea" is sufficiently great, cultivation trials will be justified, as it may then be possible to put a superior article on the local market.

Our thanks are due to the Curators of the Albany Museum Herbarium, the Cape Government Herbarium, the Transvaal Museum Herbarium, and the Forest Department for allowing us to examine the material in their respective herbaria.

C. genistoides. The District Forest Officer, Elgin, Caledon District, reports: "This species grows on the slopes of mountains and hills, and is found in fairly large quantities on the Groenland Range, near Elgin. It grows to approximately 3 ft. in height. The leaves and flowers are sun-dried." Known as "honey tea."

C. tenuifolia. The District Forest Officer, Elgin, Caledon District, reports: "This species is not unlike the 'Loney tea' (*C. genistoides*); the flowers are similar in colour and appearance, but the leaves are finer and longer. It is sun-dried before being used, and has a stronger flavour." Known as "vlei tea."

C. brachypoda. The District Forest Officer, Elgin, Caledon District, reports: "The leaves are broader and longer than the other two species (*C. genistoides* and *C. tenuifolia*). It also flowers later. It is found in large quantities throughout the Caledon and Swellendam Districts, and shares popularity with 'honey tea' (*C. genistoides*) as a beverage amongst the poorer classes. It is prepared in a similar manner to 'honey and vlei tea,' known as 'Heidelberg tea.'"

C. subternata. The District Forest Officer at Grootvadersbosch, Swellendam District, reports: "This variety is known as the 'common bush tea,' and thrives abundantly along the slopes of the Langeberg Mountain Range in the Divisions of Swellendam and Riversdale, and large quantities are available each year. The flowering season is generally in the month of August. Large quantities are collected on private ground, the bulk of which is used by poor whites and coloured people, very little being sold owing to the small amount (1½d. per lb.) offered by local buyers after preparation." A form of this species is known as "Hottentot's tea," and according to the District Forest Officer at Grootvadersbosch, "only small quantities of this tea can be found growing, especially in the heart of the Langeberg Mountain Range. Flowering season in August. Very little tea is collected annually."

C. Ashtonii. The District Forest Officer at Grootvadersbosch, Swellendam District, states: "This tea, like *C. subternata*, thrives well along the mountain slopes of the Langeberg, but prefers the damper places. Consequently, the only large patches are found on the mountain side. The flowering season is about November, which is practically the only time that this tea is collected, and then only in small quantities." Locally known as "vlei tea."

C. Burtonii. The Conservator of Forests, Knysna, reports: "It is known in the Zwartberg Mountains as 'heuning or sugar tea.' The shrub grows to a height of 1½-18 in., and is only found in a few places on the Zwartberg Mountains. Apparently it grows at a higher altitude than the ordinary 'bush tea,' and appears able to stand the frost better."

CYCLOPIA, VENT.

Erect branched shrubs. *Leaves* sessile, palmately trifoliolate; leaflets narrow-linear, lanceolate or very rarely ovate, glabrous or pubescent, frequently with revolute margins; stipules none. *Peduncles* axillary, one-flowered, with two, rarely three, bracts at the base. *Flowers* bright yellow. *Calyx* subequally 5-cleft, with an intruse base. *Vexillum* roundish, plaited at the base and with a short claw; alae oblong, with a transverse fold; carina incurved, obtusely rostrate, with a small triangular pocket. *Stamens* separate or slightly connate at the base; filaments dilated. *Ovary* glabrous, several ovuled. *Legume* oblong, compressed, with coriaceous valves.

KEY TO SPECIES.

Plants glabrous or nearly so.

Leaflets flat or with slightly recurved margins.

Bracts three..... 1. *Burtonii*.

Bracts two.

Leaflets ovate, cordate or truncate at the base..... 2. *latifolia*.

Leaflets elliptic, oblong or sublanceolate-linear, obtuse or acute.

Pedicels exceeding the small obtuse or acute bracts; lobes of the calyx equalling the tube or rarely shorter..... 3. *subternata*.

Pedicels the same length as the bracts; the lobes of the calyx exceeding the tube..... 4. *brachypoda*.

Leaflets linear or filiform with strongly revolute margins.

Bracts very broad, obtuse..... 5. *tenuifolia*.

Bracts boatshaped, acute..... 6. *genistoides*.

Plants villous or pubescent at least on the younger parts.

Bracts ribbed, recurved at the apex.....	7. <i>pubescens</i> .
Bracts smooth, straight.	
Flowers pedicellate.	
Calyx glabrous.	
Leaflets linear, strongly revolute.....	8. <i>galioides</i> .
Leaflets narrowly ovate, cordate at the base, slightly revolute..	9. <i>Ashtonii</i> .
Calyx softly hairy.....	10. <i>Bolusii</i> .
Flowers subsessile.	
Lobes of the calyx falcate.....	11. <i>sessiliflora</i> .
Lobes of the calyx oblong, not falcate.....	12. <i>montana</i> .

1. **C. Burtonii**, sp. nov.

Rami glabri. *Foliola* subsessilia, 0·6–1·2 cm. longa, 2 mm. lata, lanceolato-elliptica, apice acuta, plana, marginibus leviter reflexis. *Bracteae* 3, 1–2 mm. longae, lanceolatae, apice acutae. *Calyx* 3 mm. longa; lobi ovato-acuminati. *Vexillum* 8·5 mm. longum, 6 mm. latum, apice acutum; ala oblonga; carina rostrata.

Oudtshoorn Division: Zwartberg Mountains, November, *Burton in Herb. Forest Dept.* 2914.

A much-branched glabrous shrub, 30–37 cm. high. *Leaflets* subsessile, 0·6–1·2 cm. long, 2 mm. broad, lanceolate-elliptic, acute at both ends, flat, with slightly reflexed margins. *Bracts* three, 1–2 mm. long, lanceolate, acute, equalling the pedicel; one adnate to the pedicel and smaller than the other two. *Calyx* 3 mm. long; lobes ovate, acuminate, longer than the tube. *Vexillum* 8·5 mm. long, 6 mm. broad, acute; alae narrow-oblong; carina very obtusely rostrate.

2. **C. latifolia** (D.C., Prodr., 2, p. 101).

Plant glabrous. *Stem* strongly ribbed. *Leaflets* sessile, 0·5–2·3 cm. long, 0·3–1·5 cm. broad, ovate, mucronate, cordate or truncate at the base, with entire slightly recurved margins; the middle leaflet the longest. *Bracts* two, 0·5 cm. long, sharp pointed, as long as or almost as long as the pedicel, persistent. *Pedicel* 0·8–1 cm. long. *Calyx* 0·5 cm. long; segments acute, slightly falcate, as long as the tube; the lowest segment longer and minutely toothed at the base.—*Flora Capensis*, II, 6.

Cape Division: Table Mountain, October, *Bodkin in Herb. Bolus* 8038.

3. **C. subternata** (Vog. Linn. 10, p. 595).

A branched glabrous shrub. *Stems* ribbed. *Leaflets* 1·25–3·75 cm. long, 2–5 mm. broad, elliptic, oblong or lanceolate, acute or obtuse, flat, with reflexed margins. *Bracts* two, 2 mm. long, rarely 4 mm. long, broadly ovate, mucronate, shorter than the pedicels. *Pedicel* 4–11 mm. long. *Calyx* 4–5 mm. long; lobes deltoid, obtuse or subacute, as long as or shorter than the tube.—*C. Vogelli, Harv., var. subternata, Harv., "Flora Capensis,"* II, 6.

George Division: Without precise locality, September, *District Forest Officer in Herb. Forest Dept.* 3112. Port Elizabeth Division: Port Elizabeth, *Patterson* 863; Witte Els Bosch, Zitzikama, September, *Galpin* 3899. Riversdale Division: Muis Kraal, near Garcias Pass, October, *Galpin* 3900; *Phillips in Herb. Musei Austro-Afric.* 1991; Toll House, 1700 ft., October, *Bolus* 11249. Swellendam Division: Grootvadersbosch, *District Forest Officer in Herb. Forest Dept.* 2844, 2845. Cape Division: Capetown, October, *Tyson*. Paarl Division: French Hoek, September, *Bolus*. Tulbagh Division: Witsenberg Vlake, November, *Zeyher*. Knysna Division: Knysna, September, *Keet in Herb. Forest Dept.* 2539; Plettenberg Bay, *Zeyher*. Ceres Division: Koude Bokkeveld, September, *Schlechter* 8922, *Burchell* 5549. Oudtshoorn Division: Zwartbergen, 3000 ft., October, *Schlechter* 5583. Humansdorp Division: Mountains near Humansdorp, *Herb. Bolus* 1056; near French Hoek, c. 2400 ft., November, *Bolus* 5151 (in this specimen the base of the calyx is intruse and thus the lobes appear to be longer than the tube).

Specimens collected by Gatherstone at Congo and by Kennedy at Humansdorp compare well with *C. subternata*, except that they have a split fleshy calyx.

4. ***C. brachypoda***, comb. nov.

A glabrous shrub. *Stems* ribbed. *Leaflets* 1.25-2.5 cm. long, 2-3 mm. broad, lanceolate or narrow-linear, acute or obtuse, flat, with reflexed slightly wavy margins. *Bracts* two, 4-6 mm. long, ovate-lanceolate, acuminate, very acute, as long as the pedicel. *Calyx* 5-7 mm. long; lobes longer than the tube, falcate, acute.—*C. Vogelii*, *Harr.*, var. *brachypoda*, *Harr.*, "*Flora Capensis*," II, 6.

Paarl Division: French Hoek, October, *Phillips* 1097. Tulbagh Division: Witsenberg, December, *Ecklon* and *Zeyher* 1147; September, *Zeyher* 354.

Var. **internedia**. *Bracts* and *pedicels* 1 mm. long. *Leaves* 6-8 mm. long, 2 mm. broad, very obtuse.—*C. Vogelii*, *Harr.*, var. *intermedia*, "*Flora Capensis*," II, 7; *C. intermedia*, *E. Mey Com.*, p. 3, *excl. lit c.*

Caledon Division: Without precise locality, *District Officer in Herb. Forest Dept.* 2841. Riversdale Division: Langeberg, Riversdale, August, *Muir* 843.

A specimen collected at Elgin in the Caledon Division (*Herb. Forest Dept.* 2891) compares well with *C. brachypoda*, but the material is insufficient to be quite certain of the species.

5. ***C. tenuifolia*** (Lehm. *Linm.* 5, p. 373).

Plant glabrous. *Stem* ribbed. *Leaflets* 1.25-5 cm. long, linear-filiform, with revolute margins. *Bracts* two, 3 mm. long, 5 mm. broad, folded longitudinally and overlapping each other, obtuse or truncate, strongly keeled, glabrous without, sparsely hairy within. *Pedicel* 1.25-1.75 cm. long, elongating in fruit. *Calyx* 5 mm. long; lobes as long as the tube, acute, with slightly woolly margins; the lowest lobe longer and broader than the others, minutely toothed at the base. *Legume* oblong, with a recurved mucro at the apex; valves leathery.—"*Flora Capensis*," II, 7.

Caledon Division: Elgin, October, September, *District Forest Officer in Herb. Forest Dept.* 2840, 3114. Swellendam Division: River Zonder Einde, *Zeyher* 2257. Riversdale Division: Corento River Farm, Riversdale, November, *Muir* 50, and in *Herb. Galpin* 5072.

6. ***C. genistoides*** (Br. *Hort. Kew.*, ed. 2, vol. 3, p. 5).

Stem ribbed, glabrous or nearly so. *Leaflets* 1.25-3.75 cm. long, narrow-linear, with strongly revolute margins. *Flowers* in a dense mass near the ends of the branches. *Bracts* 5 mm. long, acute and mucronate at the apex, boat-shaped, folded longitudinally, glabrous without, with a few scattered hairs on the inner surface. *Pedicel* 6-8 mm. long. *Calyx* 8-11 mm. long; lobes longer than the tube, broadly falcate, with a mucronate apex, margins woolly; lowest segments longer than the others and toothed at the base.—"*Flora Capensis*," II, 7.

Caledon Division: Caledon, August, *Rogers* 11017; October, *Bolus*; *District Forest Officer in Herb. Forest Dept.* 2842. Cape Division: Tokai Plantation, September, *Herb. Forest Dept.* 1052; Cecelia Plantation, *Ross in Herb. Forest Dept.* 3113; near Capetown, October, *Bolus* 7272; Devil's Peak, November, *MacOwan* 1113, and in *Herb. Musei Austro-Afric.* 6546; Constantia, September, *Schlechter* 1461. Stellenbosch Division: Stellenbosch, October, *Mrs. De Jongh in Herb. Galpin* 4390. Swellendam Division: Swellendam, *Ecklon* and *Zeyher*. Clanwilliam Division: Clanwilliam, *Mader in Herb. Austro-Afric.*

7. ***C. pubescens*** (E. and Z. *Enum.* No. 1146).

Stem pubescent. *Leaflets* 1.25-3.75 cm. long, about 1 mm. broad, narrow-linear, with revolute margins, pubescent, at length becoming almost glabrous. *Flowers* densely massed. *Bracts* 4-6 mm. long, almost as broad, ribbed, acuminate, recurved at the apex, pubescent, shorter than the pedicel. *Pedicel* 1.25-1.75 cm. long, villous. *Calyx* 8 mm. long, pubescent; lobes taper-pointed from a broad base, twice as long as the tube.—"*Flora Capensis*," II, 8.

Port Elizabeth Division : Port Elizabeth, September, *Drege in Herb. Albany Museum* 167.

8. **C. galioides** (D.C., Prodr. 2, p. 101).

Young branches ribbed, densely villous, at length becoming almost glabrous. *Leaflets* arising from a thick flattened node, 1.25–2.5 cm. long, up to 4 mm. broad, linear, with strongly revolute margins, with a recurved mucro at the apex, truncate at the base, pubescent when young. *Bracts* 4–6 mm. long, ovate-lanceolate, acuminate, longer than the pedicel. *Pedicel* 2–4 mm. long. *Calyx* 6–13 mm. long, glabrous; lobes broadly falcate, acuminate, longer than the tube.—“*Flora Capensis*,” II, 8.

Cape Division : Fish Hoek, May, *Bolus in Herb. Norm. Austro-Afric.* 67; Muizenberg, *Zeyher*; Simonstown, February, *Compton*.

9. **C. Ashtonii**, sp. nov.

Rami sericei. *Foliola* 1.75 cm. longa, 4 mm. lata, basi cordata, marginibus revolutis. *Bracteae* 4 mm. longae, ovatae, ciliatae, intus villosae. *Calyx* 8 mm. longus; lobi falcati.

Swellendam Division : Langeberg Mountains, *Ashton in Herb. Forest Dept.* 2843.

Young branches silky. *Leaflets* from a thick flattened node, up to 1.75 cm. long, 4 mm. broad, thick, cordate at the base, with revolute margins, paler beneath. *Bracts* 4 mm. long and slightly broader, ovate, ciliate, villous on the inner surface. *Calyx* 8 mm. long; lobes broadly falcate.

10. **C. Bolusii**, sp. nov.

Rami villosi. *Foliola* 1.2 cm. longa, apice mucronata, marginibus revolutis, villosa. *Bracteae* 6 mm. longae, ovatae, acuminatae, villosae. *Pedicellus* 7 mm. longus. *Calyx* 4 mm. longus; lobi falcati, villosi.

Oudtshoorn Division : In stony places at summit of the Zwartberg Pass, December, *Bolus* 11465.

A small-branched villous shrub. *Leaflets* 1.2 cm. long, mucronate at the apex, with strongly revolute margins, villous. *Bracts* 6 mm. long, broadly ovate, acuminate, villous. *Pedicels* 7 mm. long. *Calyx* 4 mm. long; lobes broadly falcate.

11. **C. sessiliflora** (E. Mey. Com., p. 4).

Young branches and leaves densely villous, at length becoming glabrous. *Leaflets* 1.25 cm. long, linear, with strongly revolute margins, subsessile. *Bracts* 6 mm. long, broadly ovate, acuminate. *Flowers* ciliate. *Calyx* softly villous; lobes falcate.—“*Flora Capensis*,” II, 8.

Caledon Division : Genadendal, December, *Schlechter* 9826.

12. **C. montana**, sp. nov.

Rami juniores sericei. *Foliola* 1.25–2.5 cm. longa, 2 mm. lata, linearia, basi cordata, marginibus revolutis. *Bracteae* 4–6 mm. longae, ovatae, glabrae. *Calyx* sericeous, 8 mm. longus; lobus inferus ceteris major.

Tulbagh Division : Sneeuwgat Valley, Great Winterhoek, November, *Phillips* 1693.

Var. **glabra**. Calycis glabris difert.

Ceres Division : Matroosberg, December, *Phillips* 1943.

Young branches and leaves silky, at length becoming glabrous. *Leaflets* 1.25–2.5 cm. long, 2 mm. broad, linear, cordate at the base, with revolute margins. *Flowers* subsessile. *Bracts* 4–6 mm. long, broadly ovate, glabrous, longer than the pedicel. *Calyx* 8 mm. long, densely silky; the lower segment largest and broadest; the middle segments shortest, subacute, broadly oblong ciliate.

Var. *glabra* differs in having a glabrous calyx.

