

## FABACEAE

### A NEW SPECIES OF *INDIGOFERA* FROM THE SOUTH-WEST CAPE

***Indigofera superba*** C. H. Stirton, sp. nov.  
subsektionem *Psiloceratiae* Gillettii proxima.

Frutex erectus molliter lignosus ad 2 m altus; ramis in partibus superioribus ramificantibus, cano-albis, junioribus appressis strigulosis glabrescentibus. *Stipulae* liberae, subulato-setaceae. *Folia* regularia, imparipinnata. *Foliola* 9–11, 16–18 mm longa, 11–13 mm lata, suborbiculata ad late obovata, utrinque minute strigillosa semiconduplicata. *Inflorescentiae* axillares, racemosae densae, floribus multis, roseae. *Flores* 8–9 mm longi rosei, unoquoque bractea caduca filiformi 5–7 mm longa subtenti. *Tubus calycis* 2 mm longus, lobis 3plo brevioribus; lobis calycis omnibus linearibus, complanatis, villosis. *Vexillum* 8–8,5 mm longum, 4,2–4,7

mm latum, anguste ovatum. *Petala alarum* 8 mm longa, 2 mm lata. *Laminae carinae* 8 mm longae, 2 mm latae, manifeste saccatae. *Pistillum* 4,5 mm longum, glabrum sessile, ovulis 5–7. *Antherae* valde apiculatae, dorsifixae, squamis basalibus ad 0,5 mm longis; vagina stamineali 6 mm longa. *Fructus* cylindraceus (10)15–25 mm longus, 3 mm latus dehiscens; septa 2 mm lata, doliiformi, semina secedenti. *Semina* 2,25 mm lata et longaque, flavovirentia maculis purpurascensibus graduum variorum.

TYPE. — Cape, 3419 (Caledon): near Vogelpool, Vogelgat (–AD), I. Williams 2439 (PRE, holo.!, K, iso!; NBG, iso!; Vogelgat Herbarium, iso!).

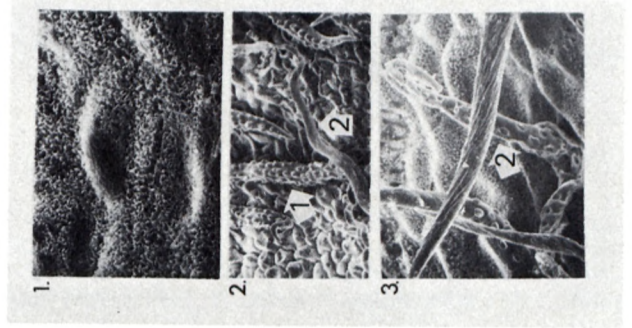
Erect, softly woody shrub up to 2 m tall; stem and older branches reddish brown and puckered with greyish lenticels (Fig. 5.3), branching mostly in the upper parts, greyish-white appressed strigulose when young but glabrous when mature. *Stipules* free, adnate to the base of the petiole, up to 5 mm long, subulate -setaceous, pubescent on the outside, glabrous inside. *Leaves* regular, odd pinnate, petiolate. *Leaflets* 16–18 mm long, 11–13 mm wide, 9–11 in number, suborbiculate to wide obovate, base obtuse, apex recurved mucronate, scurfy (Fig. 1), finely strigillose on both surfaces, two types of hairs (Figs 2–3), half-conducuplicate. *Petiole* up to 2 mm long, petiolules shorter. *Inflorescences* axillary, racemose, densely many-flowered, pink, up to 12 cm long including a peduncle of 40–60 mm long, pubescent. *Flowers* 8–9 mm long, pink, each subtended by a 5–7 mm filiform, rapidly caducous bract, ebracteolate. *Calyx tube* 2 mm long, three times shorter than the calyx lobes; keel lobe 6,5 mm long, lateral lobes 6,0 mm long, vexillar lobes 4 mm long, tips flared, all linear, flattened, glabrous inside, villous outside. *Standard* 8–8,5 mm long, 4,2–4,7 mm wide, narrowly ovate, base narrowing into a flattened claw, auricles absent, apex acute, appendages absent. *Wing petals* 8 mm long, 2 mm wide, slightly auriculate, sculpturing basal and left central, of up to 10 thick lamellae. *Keel blades* 8 mm long, 2 mm wide, prominently pocketed, pocket 2 mm deep. *Pistil* 4,5 mm long, glabrous, 5–7-ovuled, sessile; style upcurved, height of curvature 1 mm; stigma capitate. *Vexillar stamen* free; anthers uniform, 1,5 mm long, strongly apiculate, dorsifixed, basal scales present and up to 0,5 mm long; staminal sheath 6 mm long. *Fruit* cylindrical (10) 15–25 mm long, 3 mm wide, dehiscent, blackish brown, septa 2 mm wide, barrel-shaped, separating the seeds. *Seeds* 2,25 mm wide and long, yellowish-green with blotches of purple of various intensities (Figs 4 & 5).

*Indigofera superba* is restricted to the mountains adjacent to Hermanus in the Caledon District (Fig. 6). This mountain fynbos endemic flowers in late summer and early autumn. Mature fruits have been found in early summer. It occurs between 100–300 m.

CAPE.—3419 (Caledon): near Nerina Pool (–AD), Williams 2426 (NBG); near Vogelpool, Vogelgat (–AD), Williams 2439, 2525 (K, NBG, PRE); near mountain hut on the Vogelgat Private Nature Reserve (–AD), Stirton 8473 (PRE).

I have been unable to trace this species in any European or South African herbarium. It seems remarkable that such a distinctive and graceful plant should have escaped detection for so long. It was first collected in December 1977 by Dr Ion Williams. It grows quite commonly at the headwaters of a small stream that passed by the comfortable and peacefully isolated mountain hut that he has erected on his property. I am most grateful to Dr Williams for his generous hospitality and for drawing my attention to the possibility that this might be a new species.

*Indigofera superba* is not easy to place in Gillett's (1958) infrgeneric classification of *Indigofera*. It shares the following characters with members of



FIGS 1–3.—1, scurfy abaxial surface of leaf of *Indigofera superba*,  $\times 1200$  (Stirton 8473). 2 & 3, abaxial surface of leaf of *Indigofera superba*, showing two types of hairs; 1, biramous warty hair curled at the tips and, 2, twisted hair with depressions. (2,  $\times 240$ , 3,  $\times 600$ ). Stirton 8473.

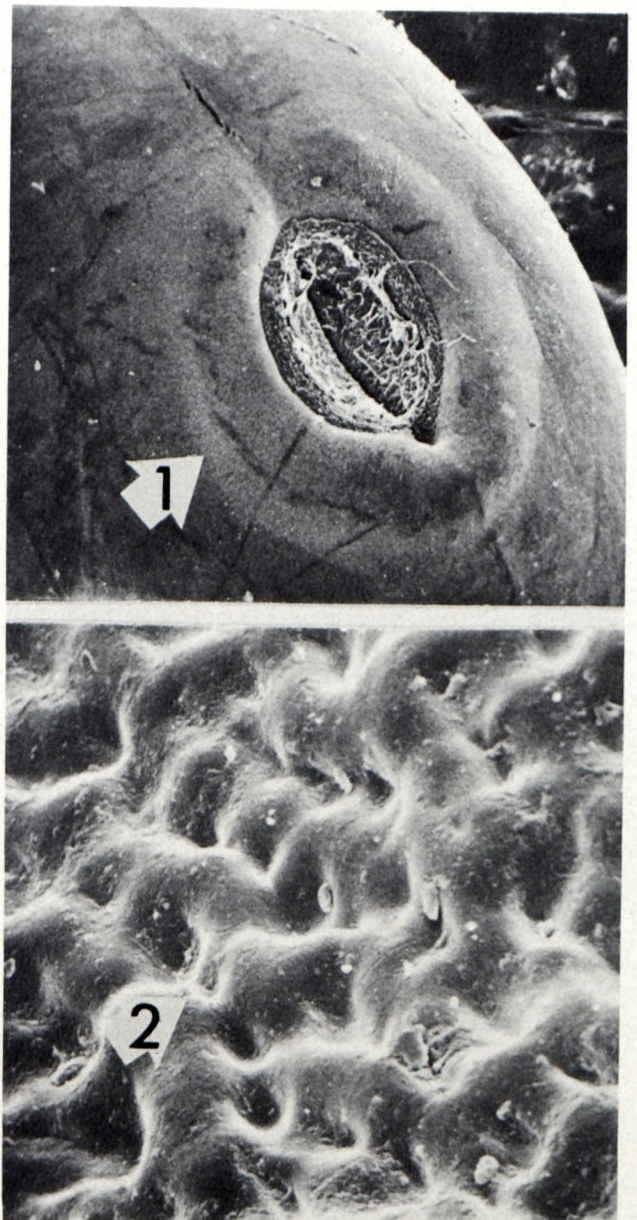
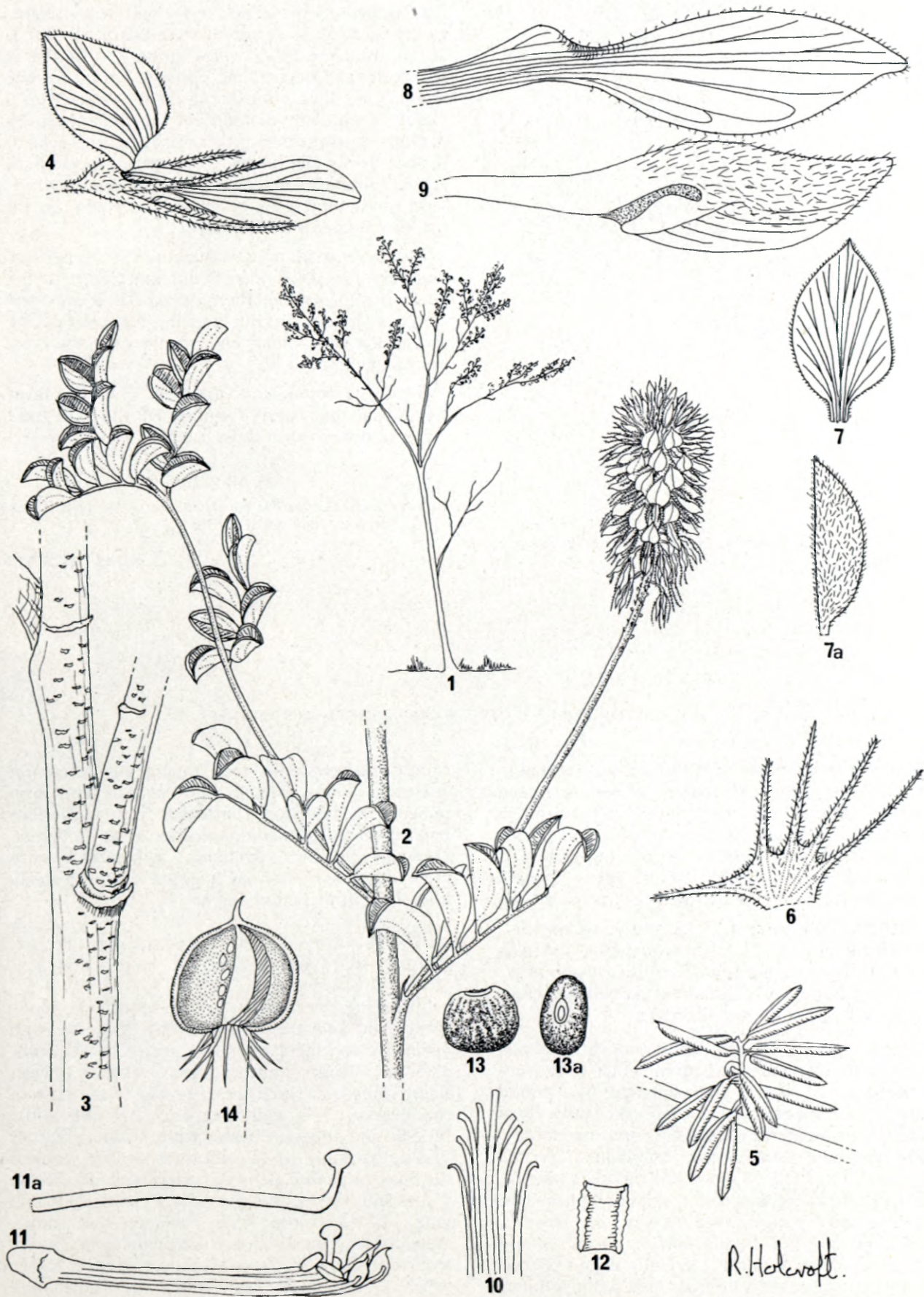


FIG. 4.—Seed of *Indigofera superba*. 1, hilar region,  $\times 60$ ; 2, surface pattern,  $\times 650$ . Stirton 8473.



R. Holcroft.

FIG. 5.—*Indigofera superba*. 1, habit; 2, twig with inflorescence and leaves,  $\times 1$ ; 3, main stem,  $\times 0.5$ ; 4, flower,  $\times 6$ ; 5, inflorescence,  $\times 1$ ; 6, calyx opened out,  $\times 5$ ; 7, standard opened out,  $\times 4$ ; 7a, standard closed,  $\times 4$ ; 8, wing petal,  $\times 12$ ; 9, keel petal,  $\times 12$ ; 10, apical part of staminal sheath flattened,  $\times 10$ ; 11, staminal sheath enclosing gynoecium,  $\times 12$ ; 11a, gynoecium,  $\times 12$ ; 12, seed partition,  $\times 5$ ; 13, lateral view of seed,  $\times 5$ ; 13a, ventral view of seed,  $\times 5$ ; 14, anther,  $\times 40$ . (Stirton 8473 for fruits, seed, stem, habit; Williams 2439 for the rest.)

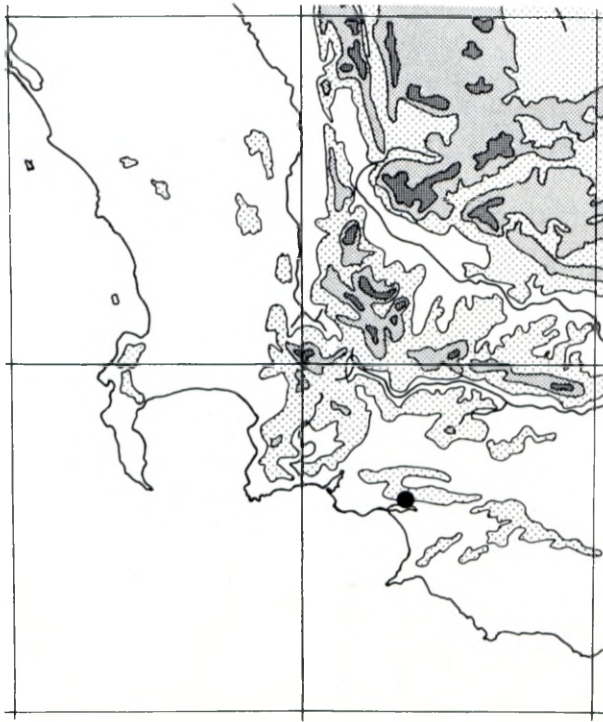


FIG. 6.—Known distribution of *Indigofera superba* in southern Africa.

sub-section *Psiloceratae* Gillett: leaves pinnate; fruiting pedicel spreading; ovary and pod straight, glabrous; seeds 4 or more, well-separated. But it differs from the *Psiloceratae* in that the rachis is not prolonged beyond the opposite lateral leaflets and that the calyx is not shorter than the stamens. As Gillett has already pointed out the *Psiloceratae* is perhaps an unnatural group. It does not seem to have a clearly identifiable sister species in southern Africa, although in some respects it approaches *I. velutina* E. Mey. I am grateful to Dr R. M. Polhill for his comments in this respect.

The description of this distinctive species perhaps underlies the poor state of our knowledge of the genus *Indigofera* in southern Africa. There are a few complex species in our region, but overall the species are very distinct and, when seen in the field, are unambiguously so.

Finally, I would like to thank Mr E. G. H. Oliver for doing the Latin diagnosis of the four new legumes described in these notes.

#### REFERENCES

- GILLETT, J. B., 1958. *Indigofera (Microcharis)* in tropical Africa. *Kew Bull. Add. Sér 1*: 1–165.

C. H. STIRTON

#### A NEW SPECIES OF *OTHOLOBIUM* IN SOUTH AFRICA

The genus *Otholobium* C. H. Stirton was erected to accommodate some 40 species of southern and eastern African legumes placed previously in *Psoralea* L. sensu lato (Stirton, *Advances in Legume Systematics* 1: 337, 1981). Whilst engaged in a nomenclatural investigation of the genus, I came across the following undescribed species.

***Otholobium pungens* C. H. Stirton, sp. nov.**, *O. decumbenti* (Ait.) C. H. Stirton proximum, sed foliis subdigitatis, pungentibus, nitidis, obovatis, pellucido-glandulosis, calycis lobo carinali pungente, vexillo fere duplo majore diversum.

Frutex lignosus effusus, valde ramosus, caulibus veterioribus nigrescentibus prominenter subgriseo-lenticellatis. *Stipulae* conferruminatae, basi petioli adnatae, late oblique ovatae, margine ciliatae, extra basin versus tenuiter pubescentes, ceterum glabrae. *Folia* petiolata, subdigitata, trifoliolata. *Foliola* 8–10 mm longa, 2,5–3,0 mm lata, lateralia minora, costa excentrica, oblanceolata usque elliptica, basi cuneata, apice pungenti sed raro modice recurvo, nitida, glabra, nisi foliola juniora secus costam marginesque sparse pilosa, glandulis magnis pellucidis sphaericis immersis desuper visis prominentibus sparse obsita. *Inflorescentiae* axillares, 2–3-florae, apicem ramorum versus aggregatae, breviter pedunculatae, bractea obovata dentata 2,5–4,0 mm longa suffultae. *Flores* 9–11 mm longi, 4–5 mm lati, violacei, ebracteolati, bractea lineari 4 mm longa

suffulti. *Calycis* dentes tubo longiores, prominenter 3-costati, lobo carinali late ovato glanduloso pungenti excepto omnes lanceolati, lobis vexillaribus haud connatis. *Petala* alaria carina multo longiora. *Ovarium* sessile, 1-ovulatum, glandulis clavatis recurvatis sparse obsitum, stigmatibus oblique penicillato. *Fructus* et semina ignota.

TYPE.—Cape, 3420 (Bredasdorp): Potberg North (–BC), *Acocks* 22835 (K, holo.!). Fig. 7.

Spreading, decumbent, much-branched woody shrub; old branches blackish but puckered with distinctive rectangular bands of grey-white lenticels, glabrous; young branches green, sparsely pilose, finely ribbed. *Stipules* fused, adnate to the base of the petiole, 3–4 mm long, 1,5–2,0 mm wide, broadly and obliquely ovate, acute, striate, glabrous inside, sparingly white pubescent outside towards the base, otherwise glabrous, margins ciliate. *Leaves* trifoliolate, subdigitate, petiolate. *Leaflets* 8–10 mm long, 2,5–3,0 mm wide, oblanceolate, rarely elliptic, base cuneate, apex sharply pungent, rarely recurved, shiny, glabrous except for younger leaves which are sparingly hairy along the midrib and margins, sparingly covered in large spherical internal pellucid glands prominent when seen from above; lateral leaflets smaller, excentric. *Petiole* 2,5–4,0 mm long, petiolules very short. *Inflorescences* axillary, 3- rarely 2-flowered, clustered towards the

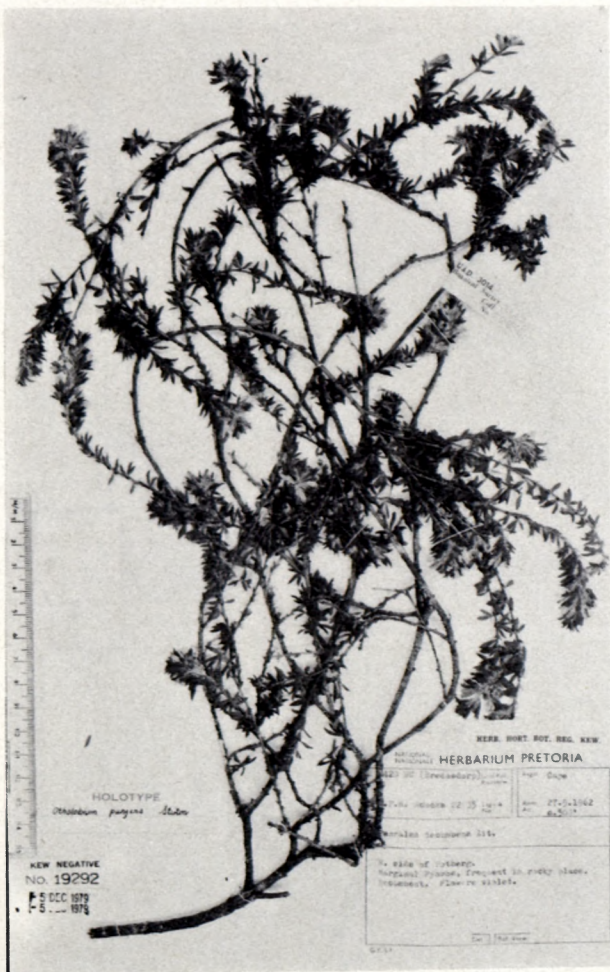


FIG. 7.—*Otholobium pungens*, holotype in K,  $\times 0.3$ . Acocks 22835.

ends of branches, shortly pedunculate, each inflorescence subtended by a 2.5–4.0 mm long,

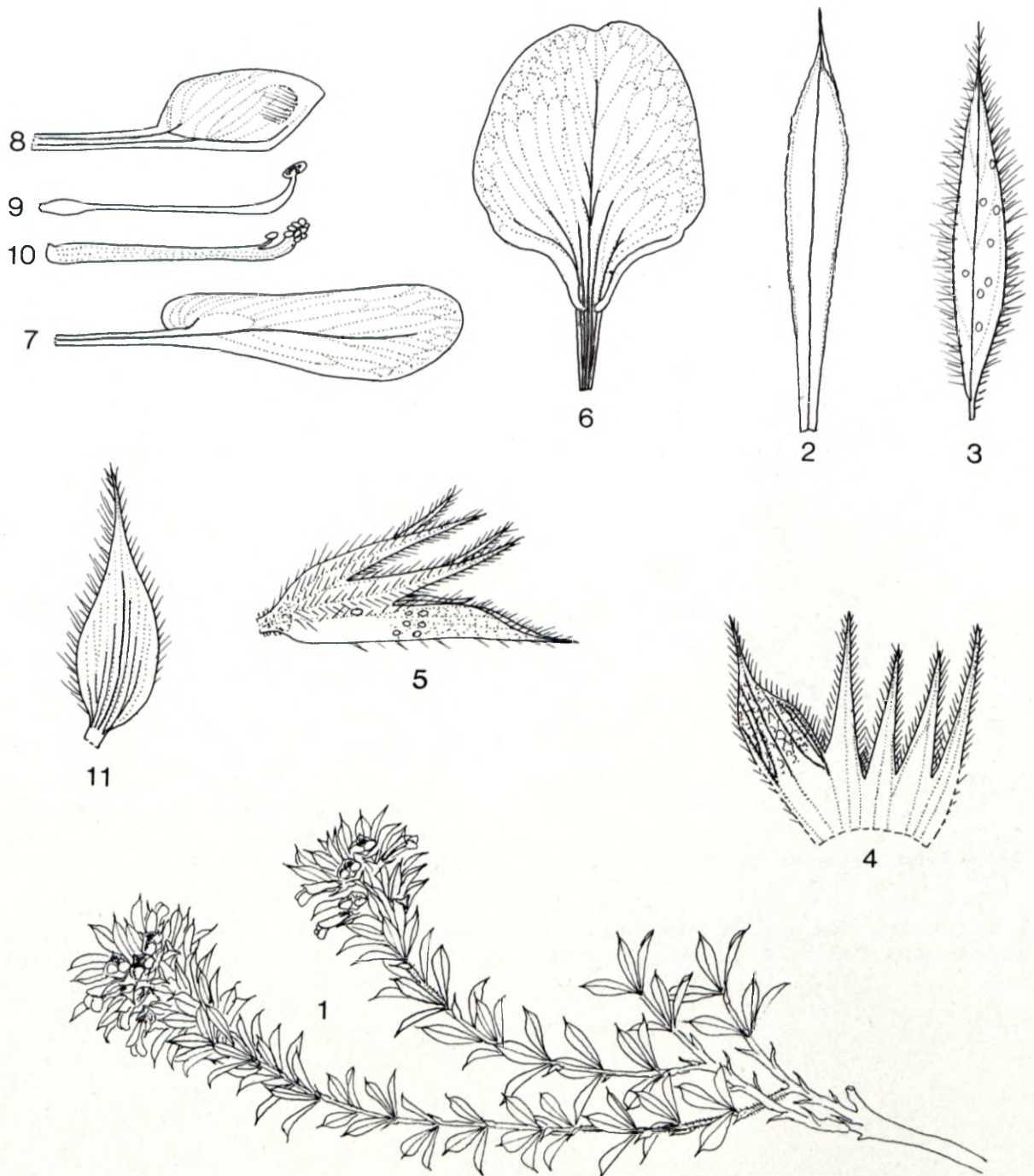
glabrous toothed, obovate bract with ciliate margins. Flowers 9–11 mm long, 4–5 mm wide, light violet, each subtended by a 4 mm long linear bract, ebracteolate. Calyx tube 3 mm long, lobes 5 mm long, each tooth prominently 3-ribbed, all lanceolate except the broadly ovate, glandular and pungent keel lobe, hairy along the ribs and on the tube, inner face of teeth finely pubescent. Standard 12 mm long, 11 mm wide, broadly-obovate, auriculate, appendages absent, claw 3 mm long, apex emarginate, only sides of the standard reflexed. Wing petals 11 mm long, 4 mm wide, cultrate, auriculate, sculpturing upper basal consisting of  $\pm 9$  recurved lamellae. Keel 7 mm long, 2 mm wide, purple-tipped, shorter than wing petals. Pistil 5.5 mm long, glabrous; ovary 3 mm long, 1-ovuled, sessile, sparsely covered with recurved clubshaped glands; style gently upcurved, swollen at point of curvature, height of curvature 2.5 mm; stigma oblique, penicillate. Vexillar stamen free, anthers uniform, alternately basifixed and medifixed on long and short filaments respectively. Fruit and seed unknown. Fig. 8.

*Otholobium pungens* appears to be restricted to the transition zone between Mountain Fynbos and Renosterbosveld in the vicinity of Potberg. It occurs commonly in rocky places along the gentle lower slopes of the Potberg.

CAPE.—3420 (Bredasdorp): north of Potberg (–BC), Acocks 22835 (PRE; K); Taylor 7200 (PRE, K, STE); west base of the Potberg (–BC), Pillans s.n. (BOL; K).

This distinctive but rarely collected species stands out from all other species of *Otholobium* by its sharply pointed leaves and lower calyx tooth; hence the specific epithet *pungens*.

C. H. STIRTON



R. Holcroft.

FIG. 8.—*Otholobium pungens*. 1, habit  $\times 1$ ; 2, terminal leaflet,  $\times 6$ ; 3, lateral leaflet,  $\times 6$ ; 4, calyx opened out,  $\times 4$ ; 5, calyx closed,  $\times 5$ ; 6, standard opened out,  $\times 6$ ; 7, wing petal,  $\times 6$ ; 8, keel petal,  $\times 6$ ; 9, gynoecium,  $\times 6$ ; 10, androecium,  $\times 6$ ; 11, flower bract,  $\times 10$ .

#### A NEW SPECIES OF RAFNIA FROM THE CAPE

***Rafnia crispa*** C. H. Stirton, sp. nov. (Sect. *Eu-rafnia*, subsect. *Angustifolia* Harv.) *R. Lancea* (Thunb.) DC. proxima a qua vexillo anguste unguiculato late ovato, carina acute rostrata, calyci dissimili et margine folii crispato cartilagineo differt.

Planta erecta herbacea perennis ad 40 cm alta glabra, caudice lignoso exorienti. *Folia* simplicia

50–65 mm longa, 15–17 mm lata, vetiora minora, denu bractee apicibus florentibus fere similia elliptica, margine crispato cartilagineo. *Inflorescentia* axillares, flore uno, terminaliter surculis longis aggregata. *Flores* 13–15 mm longi, flavi. *Calyx* 12 mm longus, dentibus tubo 7 mm longo angustioribus, dente carinae angustissimo setaceo dentibus

vexilli lateralibusque triangulare-acuminatis et conjunctoribus. *Vexillum* 14–15 mm longum, 14 mm latum, latissime ovatum, emarginatum, breviter unguiculatum. *Alae* 15 mm longae, 8 mm latae, obovatae, carinam superantes. *Laminae carinae* 14 mm longae, 7 mm latae ad partem maximam, apice rostrato, acute sursum curvato. *Vagina* staminealis 14 mm longa, antheris 5 parvis 1 mm longis dorsifixis et antheris 4, 2,25 mm longis basifixis alternantibus, anthera carinae intermedia. *Pistillum* 13 mm longum; stylo filiformi, acute sursum curvato; stigma capitata, subtiliter fimbriata.

TYPE. — 3319 (Worcester): Kluitjeskraal (–AC), *Stirton* 8439 (PRE, holo!).

Erect herbaceous perennial up to 40 cm high, glabrous, arising from a woody rootstock. *Leaves*

simple, alternate, sessile, estipulate 50–65 mm long, 15–17 mm wide, becoming smaller and eventually almost bractlike at the flowering apices, elliptic, apex attenuate, base decurrent; brochidodromous, primary vein moderately thick, straight, secondary veins diverging from primary vein at  $\leq 45^\circ$ , divergence angle nearly uniform, course abruptly curved, joining secondary at an obtuse angle, margin crispate, cartilaginous. *Inflorescences* axillary, single flowered, clustered terminally on long shoots. *Flowers* 13–15 mm long, bright yellow, each subtended by small bracts; bracteoles 2 mm long. *Pedicele* 1–2 mm long. *Peduncle* 13–15 mm long. *Calyx* 12 mm long, teeth shorter than the 7 mm long tube, keel tooth shortest, setaceous, vexillar and lateral teeth triangular — acuminate and more united. *Standard* 14–15 mm long, 14 mm wide, very



FIG. 9.—*Rafnia crispa*. 1, habit; 2, terminal inflorescence,  $\times 1$ ; 3, flower,  $\times 2$ ; 4, leaf margin,  $\times 2$ ; 5, calyx opened out,  $\times 3$ ; 6, standard opened out,  $\times 2$ ; 7, wing petal showing intracostal lunulae,  $\times 3$ ; 8, keel petal with hairs along base,  $\times 3$ ; 9, gynoeceum,  $\times 3$ ; 10, versatile anther on shorter filament,  $\times 18$ ; 11, basi-fixed anther on longer filament,  $\times 18$ .

wide ovate, emarginate, shortly clawed, auricles and appendages absent. *Wings* 15 mm long, 8 mm wide, obovate, exceeding the keel; sculpturing present, upper basal and left central, lunulate, each of 5–6 rows comprising 15–25 intercostal lunulae. *Keel blades* fused, 14 mm long, 7 mm wide at maximum, claw 5 mm long, apex rostrate, sharply upcurved, height of curvature 7 mm. *Staminal sheath* 14 mm long, split on upper side, with five small 1 mm long dorsifixed anthers alternating with four 2,25 mm long basifixed anthers, carinal anther intermediate. *Gynoeceum* 13 mm long, style filiform, sharply upcurving, height of curvature 9 mm high, stigma capitate, finely fringed, seeds and fruits unknown (one ovary contained two ovules). Fig. 9.

*Rafnia crispa* is a rare species of open flat well-drained sandy sites. I encountered only a few plants in the Kluitjeskraal Forestry area (Fig. 10) but a wider search may reveal a more extensive population. This species was found in full flower in early December.

*R. crispa* a clearly related to *R. lancea* (Thunb.) DC., which also grows in the region but among sandy-rocky sites in the mountains to the west of the Tulbagh flats. They seem to be vicariant species.

The specific epithet *crispa* refers to the distinctive crisped leaf margins.

C. H. STIRTON

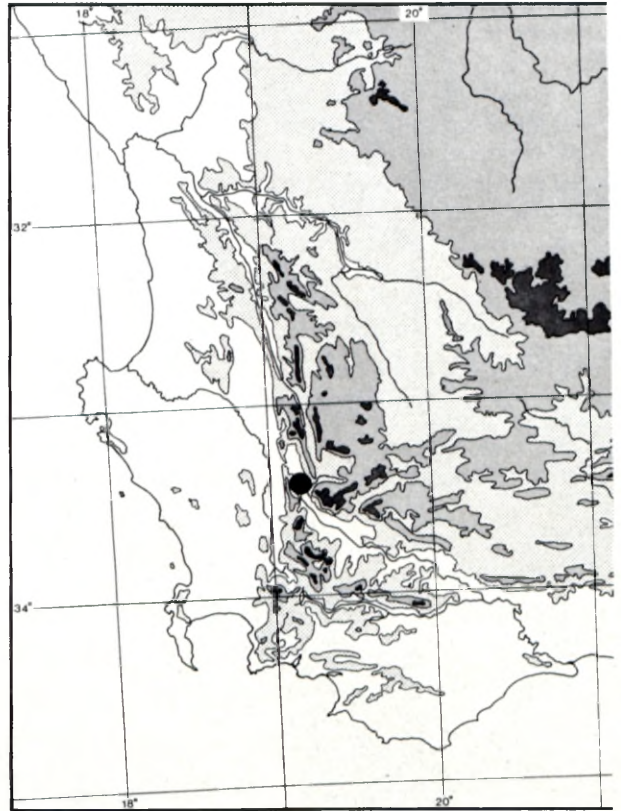


FIG. 10.—Known distribution of *Rafnia crispa* in South Africa.

#### A NEW SPECIES OF *RHYNCHOSIA* FROM VENDA

***Rhynchosia vendae*** C. H. Stirton, sp. nov.,  
affinitate incerta.

Planta perennis volubilis caulibus teretibus, pilis dense appressis tenuibus tectis et pilis patentibus glandulosis inter eos dispersis. *Stipulae* appressae, subulatae, celeriter caducae. *Foliola* 3, 45–87 mm longa, 36–65 mm lata, lateralia minora, valide gibbosa, supra subtiliter pubescentia glandibus paucis dispersis, inferne grosse pubescentia pilis in venas angulatis aliter patentibus, glandibus multis croceis in intervenia dispersis; nervatura in superficiebus ambabus prominenti. *Inflorescentiae* 1–2, axillares, racemosae, laxae, 15–25 floribus binatim spiraliter insertis. *Flores* 16–18 mm longi, flavo-brunnei, quoque parvi florum bractea ovata 4–5 mm longa celeriter caduca, subtento. *Calyx* subtiliter pubescens; tubo 3,5–4,0 mm longo; lobis anguste triangularibus; lobis vexillaribus per plus minusve  $\frac{1}{2}$  longitudinis conjunctis. *Vexillum* 18 mm longum, 13 mm latum, late obovatum, apice rotundato, appendiculis bilobatis, auriculis liberum. *Alae* 13 mm longae, 4 mm latae flavae, dimidia longitudinis carinae, auriculatae parum saccatae. *Petala carinae* 20 mm longa, 8 mm lata, marsupio extus ad basim. *Pistillum* 4,5 mm longum, dense pubescente. *Fructus* 35–40 mm longi, oblongo-falcati, angustiores ad basim, apice deorsum curvati.

TYPE. — Cape, 2230 (Messina): Punda Maria (–CA), *Van der Schijff* 3596 (PRE, holo!).

Perennial twiner with terete stems, densely clothed with thin appressed soft hairs and with

patent glandular-based hairs scattered among them. *Stipules* appressed, up to 4 mm long, 3 mm wide at the base, subulate, rapidly caducous, densely glandular outside, sparsely hairy inside. *Leaflets* 3, 45–87 mm long, 36–65 mm wide; laterals smaller, strongly gibbous with width ratio 2,2–2,4; apex acute, base truncate to broadly cuneate; finely pubescent above with a few scattered glands, coarsely pubescent below with hairs angled on the veins, otherwise patent, and with numerous small orange-coloured glands scattered in the intervenal areas; nervation prominent and raised on both surfaces. *Petiole* 25–60 mm long. *Petiolules* 2–3 mm long, canaliculate, stipellate. *Inflorescences* 1–2, axillary, racemose, laxly 15–25-flowered, with flowers borne in pairs, inserted spirally, flowers 16–18 mm long; yellowish-brown; each pair subtended by a 4–5 mm long, ovate, rapidly caducous bract; ebracteolate; pedicels 7–10 mm long. *Calyx* finely pubescent on the outside and on the inner face of the teeth; glandular on the outside only; tube 3,5–4,0 mm long; lobes narrowly triangular, keel lobe the longest, 8–10 mm long, the other lobes all 7,0–8,5 mm long; vexillar lobes joined for  $\pm \frac{1}{2}$  of their length. *Standard* 18 mm long, 13 mm wide, broadly obovate, narrowing into an auriculate 3 mm long claw; apex rounded; appendages present, bilobed, 1,5 mm above and free from auricles. *Wings* 13 mm long, 4 mm wide, yellow, half the length of the keel, auriculate, slightly pouched. *Keel petals* 20 mm long with 5 mm long claw, 8 mm wide, pocket present on the outside towards the



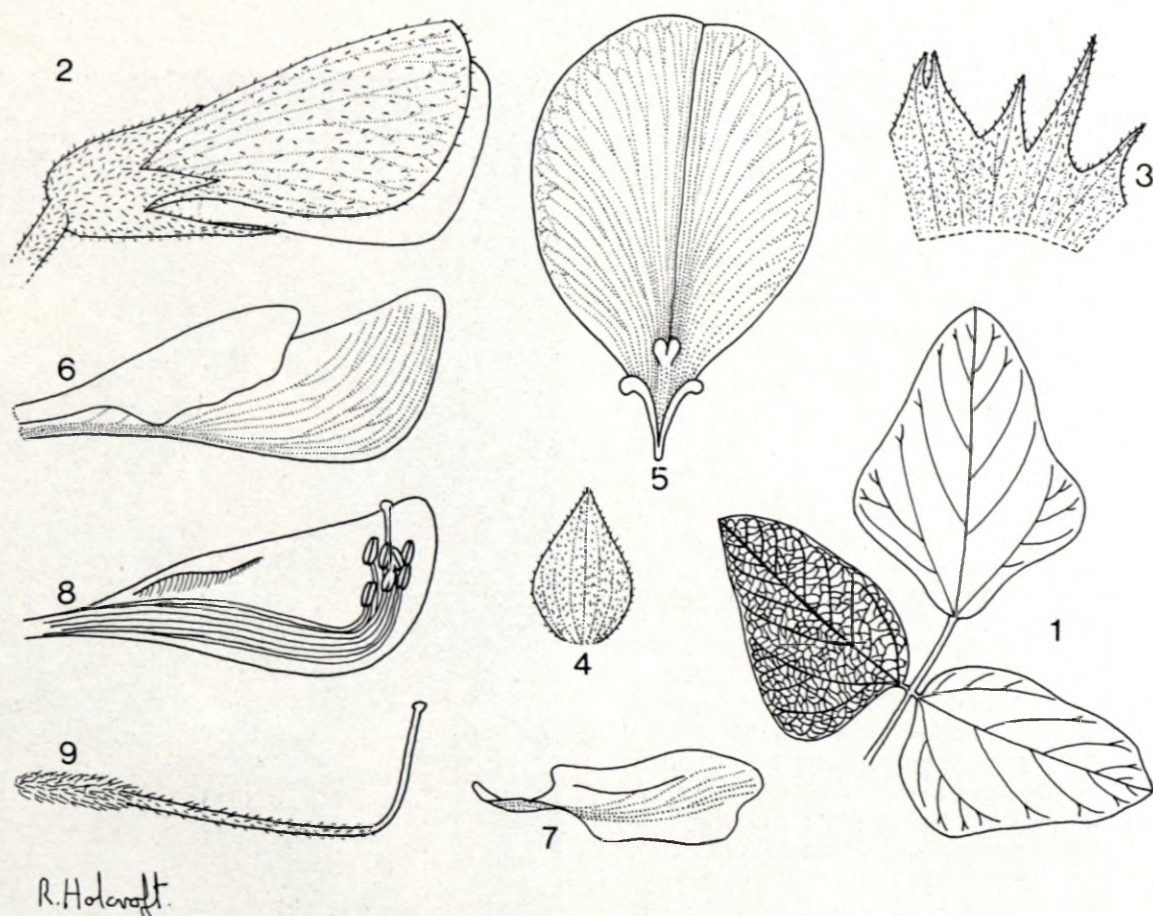


FIG. 11.—*Rhynchosia vendae*. 1, trifoliate leaf,  $\times 0,5$ ; 2, flower,  $\times 3$ ; 3, calyx opened out,  $\times 3$ ; 4, flower bract,  $\times 3$ ; 5, standard opened out, front face,  $\times 3$ ; 6, wing petal interlocking with keel petal,  $\times 3$ ; 7, wing petal,  $\times 3$ ; 8, position of pistil and gynoecium within the keel,  $\times 3$ ; 9, pistil,  $\times 3$ .

base, 1–1,5 mm deep, auricles absent. *Stamens* diadelphous, sheath split adaxially; anthers monomorphic, anthers alternately basifixed and dorsifixed, 1–1,3 mm long. *Pistil* bi-ovulate, 4,5 mm long, densely pubescent; style bent, height of curvature 6 mm, pubescent to the point of flexure. *Fruits* 35–40 mm long, oblong falcate, narrowed towards the base, recurving downwards at the tip. *Seeds* unknown. Fig. 11.

*Rhynchosia vendae* appears to be restricted to Acocks's veld type 8, the North-eastern Mountain Sourveld (Fig. 12). Within its range, it occupies diverse habitats such as wooded watercourses, sandveld and rocky outcrops. Flowering takes place from December to March, with fruiting concentrated in March and April.

VENDA.—2230 (Messina): 11 km north-west of Punda Milia (–DB), Codd 6533 (PRE); 35 km north of Sibasa on the road to Rambunda (–DC), Codd 6897 (PRE). 2231 (Pafuri): south east of Klopperfontein near the Mozambique border (–CA), Van der Schijff 2964 (PRE); Punda Milia (–CA), Van der Schijff 3355, 3596 (PRE)

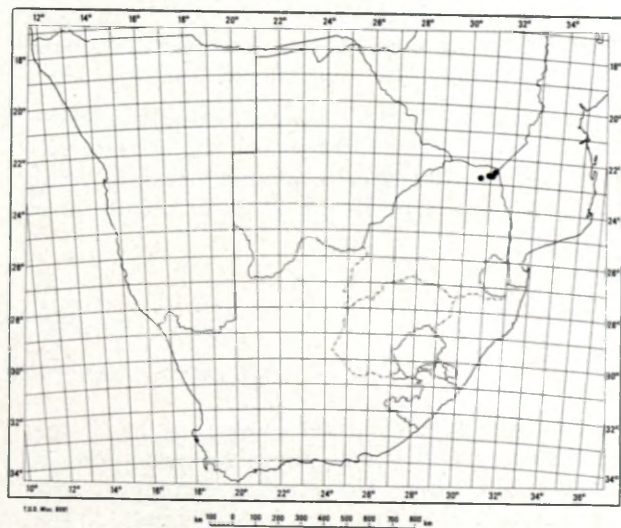


FIG. 12.—Known distributions of *Rhynchosia vendae* in Southern Africa.

The Vendan name for *R. vendae* is 'lufoko', meaning 'light dust'. Some Vendans use the perennial rootstocks to make a remedy for coughs. The specific epithet "*vendae*" is given in honour of the Vendan people.