

Notes on African plants

VARIOUS AUTHORS

ASCLEPIADACEAE

NEW SPECIES OF *BRACHYSTEMMA*

The five species described here all appear to have a restricted distribution and each is based on only one or two collectings. Efforts have been made over the years to obtain further material, but without success and it now seems a forlorn hope for the time being. There are yet other unnamed specimens in herbaria, which suggest that the quest for more adequate material should be intensified.

The lack of a good range of preserved material applies not only to the five species of *Brachystemma* being described here. With few exceptions it applies throughout the genus. For instance two species are recorded from the Cape Peninsula, which is accepted as one of the most thoroughly botanised parts of southern Africa. *B. caudatum* (Thunb.) N.E. Br. (= *B. crispum* Grah.) was collected at the Cape by Thunberg soon after 1770, but it was not recorded positively on the Peninsula until nearly 200 years later, on a site being cleared for a new housing estate. *B. occidentale* Schltr. was collected by R. Schlechter in 1892 on the slopes above Smitswinkel Bay and it has not been reported again since.

The rarity of the species of *Brachystemma* is by no means their only attraction though. As with the family Asclepiadaceae as a whole (the orchids of the Dicotyledons) the coronal structure is of particular importance in classification. To succeed in giving a clear picture of the corona in words is a task in itself. An accurate drawing or photograph is an invaluable supplement, but even this has its problems, especially when only dried material is available for dissection. Considerable skill is required to reveal the three-dimensional structure of the minute pollinia. The illustrations accompanying these descriptions will assist readers to a large degree and I express appreciation to the artists for them.

***Brachystemma delicatum* R. A. Dyer sp. nov.**, affine *B. nano* (Schltr.) N.E. Br., floribus copiosis fasciculatis, corollae lobis oblongo-ovatis, coronae lobis exterioribus emarginatis differt.

Herba perennis tuberosa, erecta, sparse ramosa, 5-6 cm alta; tuber subglobosa, 2,5-4 cm diam.; rami tenues delicati puberuli, pilis decurvis induti: *Folia* breviter petiolata, lineari-lanceolata vel-oblonga, 1,5-2,5 cm longa, 1,5-7 mm lata, subcrassa. *Flores* plures fasciculati; pedicelli plusminusve 5 mm longi, puberuli. *Sepala* plusminusve lineari-lanceolata, 1,5 mm longa, puberula. *Corolla* 3,5-4 mm longa, breviter tubulosa; tubus campanulatus, 1-1,25 mm longus, 1,25 mm diam.; lobi oblongo-ovati, 2,25-3 mm longi, leviter patentis vel ad apices conniventes. *Corona* circiter 1,5 mm alta, basi breviter tubulosa, biseriata; lobi exteriores suberecti, bilobulati; lobi interiores circiter 0,5 mm longi, incumbentes. *Pollinia* minutissima, circiter 0,25 mm longa, subpyriformia.

TYPE: Cape, 3326 (Grahamstown), between Grahamstown and Trappes Valley, 700 m alt. 1965, *D. Hardy* 2198 (PRE, holo.).

Perennial dwarf herb with erect stem and globose tuber 2,5-4 cm diam. *Stem* erect 5-6 cm tall, slender, unbranched or sparsely branched from near base, reddish, minutely puberulous with decurved hairs. *Leaves* dark green, somewhat fleshy, linear- to oblong-lanceolate, keeled, 1,5-2,5 cm long, 1,5-7 mm broad, very minutely papillose on margin and keel. *Flowers* in fascicles of 4-6 in the axils of the leaves; pedicels up to about 5 mm long, slender, sparsely and minutely hairy. *Sepals* linear-lanceolate or triangular-lanceolate, about 1,5 mm long, slightly longer than the corolla-tube, sparsely and minutely pubescent. *Corolla* glabrous, 3-4 mm long, with short campanulate tube 1,25 mm deep and 1,25 mm diam. at mouth, with the sinuses slightly prominent; lobes white with brown or purple-green tips, oblong-ovate, 2,25-3 mm long, 1,5 mm broad at base, ascending-spreading or incurved and somewhat thickened at the tips. *Corona* lime-green, 1,5 mm high, united at base into a short campanulate tube 1 mm high, biseriate; outer lobes divided for about 0,5 mm into 2 obtuse lobules; inner lobes arising from within the tube, about 0,5 mm long, incumbent on backs of anthers but not extending over the staminal column. *Pollinia* exposed in anther loculi, more or less pyriform, with translucent upper 1/3 of inner margin, with short delicate caudicles from near the middle of the inner margin; carrier with short broad wings on the lower half. FIG. 1.



FIG. 1.—*Brachystemma delicatum*, the holotype, life size.

Only two tubers of this species have been recorded. Mr D. Hardy collected the first on the road from Grahamstown to Trappes Valley in 1965 and it

flowered at the Botanical Research Institute in December of that year. Col. and Mrs R. D. Bayliss unearthed a second tuber in the adjacent Coombes Valley when they were collecting succulents in August 1968. This came into flower in Grahamstown on 9th December with the last of the 28 buds opening partially twelve days later. In this case the corolla-lobes remained touching at the tips whereas those on the Hardy specimen opened more or less half way. The colour of the corolla is white towards the base and the thickened tips of the lobes are purple-green or brown. It is a truly dainty species.

Judging from the meagre material available for comparison and from N. E. Brown's work on the genus in Fl. Cap. 4, 1: 833 (1908), *B. delicatum* is nearest allied to *B. nanum* (Schltr.) N.E. Br. and *B. occidentale* Schltr., the former from the O.F.S. and Transvaal and the latter collected only once on the Cape Peninsula. The obvious difference is in the remarkably floriferous habit and there are also differences in the structure of the coronas.

CAPE.—3326 (Grahamstown), between Grahamstown and Trappes Valley, *Hardy 2198*; Coombes Valley near Grahamstown, dry grassland, 700 m, 1968, R.D. & A.W.E. *Bayliss 4271*.

***Brachystelma glenense* R. A. Dyer, sp. nov.**, affine *B. caudato* (Thunb.) N.E. Br., corollae tubo extus glabro, lobis supra breviter pubescentibus, coronae lobis exterioribus v-formatis distinguitur.

Herba perennis tuberosa e basi ramosa, usque 10 cm alta; rami recti, glabrescentes vel sparse pubescentes. *Folia* breviter petiolata, oblongo-lineata, usque 3 cm longa, 5 mm lata, supra glabra, infra sparse pilosa. *Flores* 2–10, fasciculati; pedicelli 10–15 mm longi, glabri. *Corolla* 3,5–4 cm longa, breviter tubulosa, extus glabra; tubus campanulatus, 4–5 mm longus; lobi basi ovati, lineari-attenuati, intus infra medium breviter pilosi. *Corona* biseriata; lobi exteriores v-formati, lobulis lateralibus 0,5 mm prolongati; lobi interiores incumbentes, conniventes.

TYPE: Orange Free State, 2826 (Brandfort): about 20 km north of Bloemfontein at Glen College of Agriculture (–CC) on a low ridge, in rooi-grass veld (*Themeda triandra* Forsk.) very rare, 3rd March, 1962, J. W. Mostert 219 (PRE, holo.).

Perennial herb up to about 10 cm tall, branched from the base, rootstock a tuber, probably up to about 5 cm in diam.; branches glabrous or thinly and minutely pubescent. *Leaves* shortly petiolate, oblong-linear, up to about 3 cm long and 5 mm broad, glabrous above, subglabrous below. *Flowers* 2–10 together from the same flowering eye, fasciculate from lower nodes, opening more or less together; pedicels more or less erect, slender, 10–15 mm long, glabrous. *Sepals* lanceolate-acuminate, 5 mm long, glabrous. *Corolla* 3,5–4 cm long, united shortly at base, glabrous outside; tube campanulate, 4–5 mm long; lobes linear-attenuate from an ovate base, 3–3,5 cm long, shortly pilose on the inner surface below the middle. *Corona* biseriate; outer lobes v-shaped forming pockets between the inner lobes and with lateral lobules spreading 0,5 mm from the base of the inner lobes; inner lobes oblong-obtuse, incumbent and connivent over the staminal column. FIG. 2.

The known distribution of this species is limited to its presence in 1952 in an experimental grazing plot on the Glen College of Agriculture. Mr J. W. Mostert searched the area for a further specimen both at the time and in subsequent seasons but with no success. The rarity of some tuberous-rooted species of Asclepiadaceae has been remarked upon before with the suggestion that it was linked with their edibility. It must be many years since the tubers were sought



FIG. 2.—*Brachystelma glenense*, part of the holotype, approximately life size.

after as a source of food in that area and there has been ample time for regeneration if it happened readily. It would be interesting to know what the limiting factors are.

The name *Brachystelma caudatum* (Thunb.) N.E. Br., used for the plant referred to in the comparative diagnosis above, was placed by N. E. Brown in Fl. Cap. 4, 1: 839 (1908) in the synonymy of *B. crispum* Grah. A summary of the present priorities is as follows:

***Brachystelma caudatum* (Thunb.) N.E. Br.** in J. Linn. Soc. Bot. 17: 169 (1878).

Stapelia caudata Thunb., Prod. 46 (1794).

S. tuberosa Meerburg, Pl. Rar. t. 54, Fig. 1 (1789), not the basionym for, nor equal to *Brachystelma tuberosa* R. Br. in Bot. Mag. t. 2343 (1822).

Brachystelma spathulatum Lindl. in Bot. Reg. t. 1113 (1827).

B. crispum Grah. in Ed. Phil. J. 1830, 2: 170 (1830); N.E. Br. in Fl. Cap. 4, 1: 839 (1908).

The relationship of *B. glenense* to *B. caudatum* must be close, but here again a detailed assessment is not possible because of inadequate material. *B. glenense* appears to have a more robust inflorescence, the colour of the flowers differs, the pubescence differs, even making allowance for considerable variation in *B. caudatum*, and apparently there are differences in the structure of the coronas.

***Brachystelma incanum* R. A. Dyer, sp. nov.**, herba grosse pubescens, ramis paucis decumbentibus, foliis obovatis, floribus 1–3, corolla atropurpurea vel nigrescenti, pedicellis gracilibus, corona late campanulata, lobis interioribus parvis pulvinatis distinguitur.

Herba perennis tuberosa, decumbens, grosse pubescens, basin versus sparse ramosa, rami usque 10 cm longi, internodiis 5–10 mm longis. *Folia* lamina obovate 1–1,5 cm longa, 1–1,5 lata in petiolum circiter 1 cm longum sensim contracta. *Flores* 1–3, extra axillares producti; pedicelli tenues, 1–1,2 cm longi. *Sepala* lineari-lanceolata, 3,5–4 mm longa. *Corolla* usque 10 mm diam. 2/3-lobata, extus grosse

pubescens, intus circum coronam pilis longis albidis mollibus induta, atropurpurea vel nigrescens; lobi ovato-lanceolati patentes marginibus recurvatis. *Corona* late campanulata, 1,5 mm diam., lobis exterioribus saccatis emarginatis, lobis interioribus parvis pulvinatis.

TYPE: Transvaal, 2626 (Klerksdorp), 22 km S.W. of Lichtenburg, 'Rooigrasveld' (*Themeda triandra* Forsk.) about 1 500 m alt. 19/2/1946, J. P. H. Acocks, 12476 (PRE, holo.).

Herb with tuberous root, coarsely hairy. *Stem* sparsely branched towards base; branches decumbent, up to about 10 cm long, shortly pubescent with curved hairs; internodes 5–10 mm long. *Leaves* obovate tapering into a slender petiole about 5 mm long, 2–2,5 cm long, (including petiole) 1–1,5 cm broad, pubescent on both surfaces, rarely thinly so on upper surface, folding upwards. *Flowers* 1–3, extra-axillary in succession; pedicels slender 10–12 mm long pubescent. *Sepals* linear-lanceolate 3–4 mm long, somewhat shaggy pubescent. *Corolla* star-shaped, up to 1 cm diam., with a very short tube containing the base of the staminal column, coarsely pubescent on the outer surface particularly so on the apical 1/3 of the lobes with recurved margins, dark maroon to black on upper surface (possibly surface somewhat uneven) with apical 1/3 of lobes lighter in colour, with a ring of long (white) hairs around the corona, otherwise glabrous (the dense hairs on the under surface may give the impression of marginal cilia). *Corona* arising 0,25 m up the staminal column, broadly campanulate, about 1,5 mm diam. and about equalling the staminal column in height; outer lobes forming pockets within and emarginate; inner lobes small, cushion-like at the back of the filaments. (Pollinia absent). FIG 3.

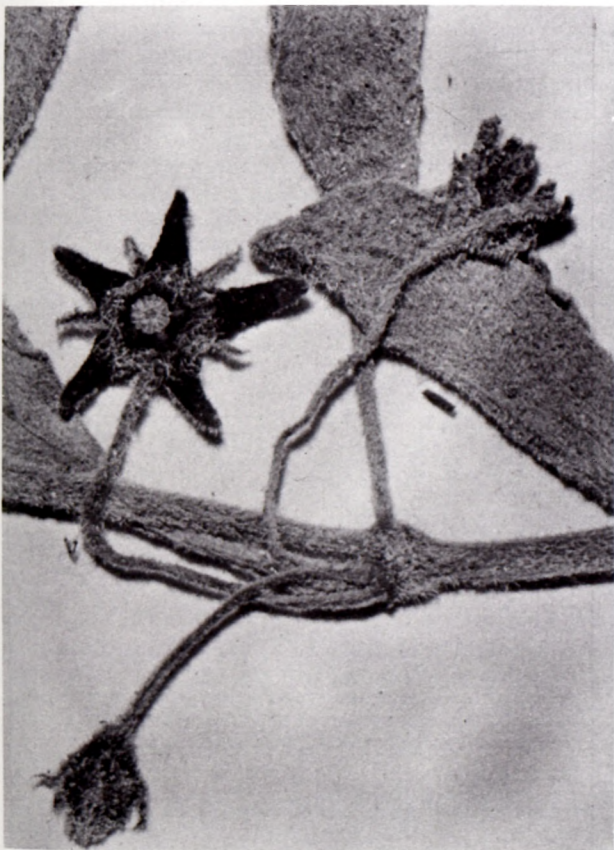


FIG. 3.—*Brachystelma incanum*, featuring the general hairiness of the plant, a single flower (1 cm diam.) with long soft white or whitish hairs surrounding the maroon campanulate corona, in the centre of which is the light coloured apex of the staminal column, enlarged.

It was not my intention to describe this species now because only one good flower was available for dissection. But the distinctive appearance of the plant with hairy, obovate leaves and a ring of long, presumably white, hairs on the corolla surrounding the corona, giving the whole a rather distinctive hoary appearance, persuaded me to do so. Mr John Acocks discovered a single specimen while mapping veld types in 1946 and it is unlikely that he nor anyone else will be able to contribute further flowering material in the near future, a prerequisite for my part. In addition, with more and more of the 'Rooigrasveld' habitat coming under the plough, the survival of the species becomes so much more precarious.

If one must name a species as a close affinity it would be *B. dinteri* Schltr., which is similar in its normally coarsely hairy stems and leaves and flowers. The species differ in habit, shape of leaves, shape and pubescence of the corolla-lobes and details of the corona. *B. dinteri* was at one time regarded as restricted to S.W. Africa in its distribution, but in recent years it has been traced to a few localities in the northern Transvaal.

Brachystelma remotum R. A. Dyer sp. nov., affine *B. tuberoso* R. Br., caulibus patentibus, floribus parvis, corollae lobis supra pilis longis indutis, non ciliatis, corona circiter 2 mm alta, 1,5 mm cupulata distinguitur.

Herba perennis humilis tuberosa, basi ramosa; rami patentes vel procumbentes, graciles, breviter pilosi. *Folia* breviter petiolata, late ovata demum ovato-lanceolata, usque 1,5 cm longa et lata, supra dense vel sparse minute pubescentia. *Flores* 1–2, extra axillares producti, bracteati; sepala lineari-lanceolata, usque 3 mm longa, subpilosa. *Corolla* malvine vel maculata, 6–8 mm longa, breviter tubulata, extra glabra; tubus campanulatus, plusminusve 6–7 mm diam.; lobi triangulati-ovati, 6–7 mm longi, basi 4 mm lati, marginibus reflexis, supra pilis longis induti. *Corona* 2 mm alta, 1,5 mm cupulata, biseriata; lobi exteriores marsupiiiformes, emarginati; lobi interiores oblongi, incumbentes. *Pollinia* subglobosa vel pyriformia, circiter 0,3 mm longa.

TYPE: Natal, 2730 (Vryheid): Naauwhoek, near Utrecht on mountain plateau, shallow soil over rock, sometimes partially above ground, about 2250 m alt. Oct. 1962, N. J. Devenish 914 (PRE, holo.).

Perennial herb with tuber and short neck-like stem; tuber 2,5–4 cm diam., somewhat compressed; stems branched; branches annual herbaceous, spreading, 3–6 cm long, minutely pilose or subglabrous. *Leaves* broadly ovate, sometimes the early ones nearly round, later ones ovate-lanceolate, obtuse or acute, up to about 1,5 cm long and broad, minutely pubescent on upper surface, sometimes thinly so. *Flowers* 1–2 together, extra axillary, opening in succession. *Sepals* linear-lanceolate, up to 3 mm long, with few long hairs. *Corolla* mauve or mottled, about 6–8 mm long, up to 1,8 cm diam. shortly tubular, glabrous outside; tube broadly campanulate, about 3 mm long, 6–7 mm wide; lobes triangular-ovate, 6–7 mm long, 4 mm broad at base, with recurved margins and conspicuous long white hairs on inner surface. *Corona* 2 mm high, united for 1,5 mm in a cup-shaped tube, biseriata; outer lobes forming emarginate pockets or pouches; inner lobes arising from inner margin of tube, incumbent on back of anthers but not

meeting over staminal column. *Pollinia* about 0,3 mm long, subglobose or subpyriform, attached by short caudicles to light-coloured carrier. FIGS. 4 and 5.

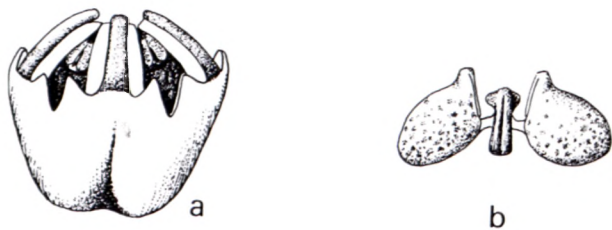


FIG. 4.—*Brachystelma remotum*. a, corona: tubular outer corona, forming deep pockets, with V-shaped margin, inner corona-lobes arising from within the outer tube, incumbent on the anthers; b, pollinia and carrier.



FIG. 5.—*Brachystelma remotum*, plant collected by D. H. Roux, life size.

NATAL.—2730 (Vryheid): Naauwhoek mountain plateau, *Devenish 914*; between Wakkerstroom and Paulpietersburg on shale outcrop in grassveld, shallow soil, about 2000 m, Oct. 1961, *D. H. Roux in PRE, 41785*.

The specimens on which this species is based have been languishing in the National Herbarium for a number of years. The first tuber was brought to the National Herbarium by D. H. Roux in 1961 and this flowered with little delay, wereupon the plant was photographed and a sketch made of a flower. No notes were made at the time. A specimen agreeing with the Roux plant was added to the herbarium collection by N. J. Devenish in the following year, identified as *B. tuberosum* R. Br. It is distinct in several characters, however, and is possibly more closely allied to species such as *B. pulchellum* (Harv.) Schltr. and *B. modestum* R. A. Dyer. It is recognized from all these by the long white hairs on the inner surface of the corolla-lobes and by the cupular shape of the corona. Devenish described the flowers as with small mauve star-shaped corollas and mentioned that the plant co-exists with *Euphorbia clavarioides*, *Delosperma* sp. and *Crassula* spp. The corolla-lobes of the Roux specimen are purple-mottled. The degree of variability of *B. remotum* cannot be assessed until more specimens are studied from its somewhat remote distribution range on the mountains within the Wakkerstroom, Utrecht and Paulpietersburg triangle of northern Natal.

***Brachystelma swazicum* R. A. Dyer, sp. nov.**, affine *B. pulchello* (Harv.) Schltr., floribus 2–3, breviter pedunculatis extra axillares productis, coronae lobis exterioribus bilobulatis, lobulis falcato-curvatis distinguitur.

Herba perennis humilis tuberosa, basi sparse ramosa; rami rubri procumbentes, graciles, pilis paucis induti. *Folia* late ovata vel subcordata, usque 2 cm longa, 2 cm lata, petiolata, apiculata, atrovirentia pilis paucis induta; petiolus 1–1,5 cm longus. *Flores* 2–3, breviter pedunculati extra axillares producti, sepala lineari-lanceolata, ± 2 mm longa, pilis paucis induta. *Corolla* atropurpurea, circiter 4,5 mm longa, extra glabra, basi breviter tubulosa; tubus late campanulatus, plusminusve 1,5–2 mm longus, usque 3 mm latus; lobi triangulari-ovati, 3 mm longi, basi 1,5 mm lati. *Corona* lutea, biseriata; lobi exteriores 1,5 mm longi, bilobulati, lobulis falcato-curvatis; lobi interiores oblongi incumbentes. *Pollinia* subglobose vel pyriformia circiter 0,25 mm longa.

TYPE: Swaziland, 2631 (Mbabane) mountain above Mbabane, in rock crevices, fully exposed site, 1400 m alt., 13 Nov. 1966, *R. D. Bayliss 3733* (PRE, holo.).

Perennial herb with rather small dark tuber and 2–3 prostrate branches; branches red, 10 cm or more long with internodes 1,5–2 cm long. *Leaves* dark green, broadly ovate or subcordate, up to 2 cm long and 2 cm broad, apiculate, petiolate, with a few short hairs mainly along the margin and on veins; petiole 1–1,5 cm long. *Flowers* 2–3 from flowering eyes on rudimentary peduncles outside the leaf axis, developing successively. *Sepals* linear-lanceolate, about 2 mm long, with few long hairs. *Corolla* dark purple, about 4,5 mm long, shortly tubular, glabrous; tube broadly campanulate or saucer-shaped, 1,5–2 mm long, 3 mm wide; lobes triangular-ovate, 3 mm long, 1,5 mm broad at base, glabrous. *Corona* yellow, biseriata; outer lobes 1,5 mm long, bilobulate with the lobules falcately curving behind the inner lobes; inner lobes arising from within the outer lobes, incumbent on the backs of the anthers, but not meeting over the staminal column. *Pollinia* subglobose, 0,25 mm long with narrow translucent inner margin, sessile or with very short caudicles, carrier with small narrow oblong wings. FIG. 6.

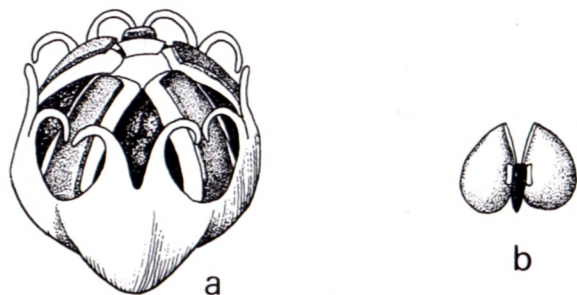


FIG. 6.—*Brachystelma swazicum*. a, corona: tubular base of outer corona forming deep pockets with 2 falcately spreading lobules from the margin; inner corona-lobes arising from within the outer tube, incumbent on the anthers; b, pollinia with shortly winged carrier.

The distribution of this species is not further known than the Mountains above Mbabane, Swaziland. It was first collected there on 13th Nov. 1966 by Col. Roy Bayliss. Efforts to obtain further material have so far failed.

Since sending the description to press the following two records have come to light: Transvaal: 2531

(Komatipoort) about 10 km from Baberton on Havelock Rd., in rock crevices, 22/1/1966, *Burt & Hilliard 3673* NU; Tienie Louw Nature Reserve, rocky ridges between boulders, 20/3/1973, *Jacobsen 2843* PRE.

At first sight the habit suggests a close relationship with *B. pulchellum* (Harv.) Schltr. and its allies, but the shape of the leaves, the inflorescences and especially the outer corona-lobes, with falcately curved lobules, leave no doubt as to its separate specific status.

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