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# Notes on the Genus Brachystelma

*by*

R. A. Dyer

ABSTRACT

The distribution and synonymy of *Brachystelma blepharanthera* H. Huber, *B. circinatum* E. Mey. and *B. dinteri* Schltr. are discussed in the light of material recently available. New names include a new combination: *B.* **stenophyllum** (Schltr.) R. A. Dyer (*Siphonostelma stenophyllum* Schltr.) and three new species: *B.* **cupulatum** R. A. Dyer from South West Africa, *B.* **tenue** R. A. Dyer and *B.* **vahrmeijeri** R. A. Dyer, both from Natal.

An effort has been made to clarify some long outstanding nomenclatural problems in southern Africa. For this purpose specimens collected by K. Dinter in South West Africa were kindly sent on loan to the National Herbarium from the S.A. Museum Herbarium by the Director of the National Botanic Gardens, Kirstenbosch. As an introduction to the conclusions arrived at, it seems appropriate to recall an observation by Dinter when describing his *Brachystelma grossarthii* in 1914; the variation in the length and width of the leaves of the species were so great that when dealing with extreme forms one might readily think that one was confronted by two completely distinct species. He went on to say that the same phenomenon of variability is met with in *Brachystelma dinteri* Schltr. and several other related plants growing on the Rehoboth sand flats in South West Africa.

**Brachystelma arnotii** *Baker* in Ref. Bot. 1 : t.9 (1869); N.E. Br. in Fl. Cap. 4, 1 : 845 (1908).

*B. grossarthii* Dinter, Neue Pfl. S.W. Afr. 16 (1914); H. Huber in Prodr. Fl. S.W. Afr. 114 : 12 (1967).

Dinter referred in his description of *B. grossarthii* to the similarity of *B. arnotii* Baker but gave no diagnostic characters to distinguish between them. He stated, however, that he was unable to find an inner corona in *B. grossarthii*. An examination of the syntypes, *Grossarth* sub Dinter 2698 and *Dinter* 2790 a, shows that the inner corona-lobes are inconspicuous as in *B. arnotii*. They are represented by inwardly inclined cushion-like swellings between the outer corona-lobes and are pressed against the base of the filaments. No significant difference between the two concepts was discerned.

Specimens in PRE which have also been identified with *B. arnotii* are *Bradfield* 350 from the Waterberg of South West Africa and *H. Hechter* sub PRE 30681 from between Windhoek and Gobabis (cult. Uitenhage, South Africa).

**Brachystelma blepharanthera** *H. Huber* in Mitt. Bot. München 4 : 33 (1961); Prodr. Fl. S.W. Afr. 114 (1967), partly, as to *Dinter* 410, 680 and 1514, excl. *Story* 6400.

*Belpharanthera dinteri* Schltr. in Bot. Jahrb. 51 : 146, Fig. 2, A-F (1913).

*Blepharanthera edulis* Schltr. l.c. Fig. 2, G-M (1913).

Since the two epithets *dinteri* and *edule* had already been created for other species in *Brachystelma*, Huber gave the new name *blepharanthera* to cover the combined concept. It was only in his second publication (1967) that he cited *Story* 6400 under his *blepharanthera*, but the *Story* specimen has a cupular outer corona and reduced inner corona-lobes, quite unlike typical *B. blepharanthera*. *Story* 6400 is specifically equal to *Dinter* 2699 in its greater part in the S.A. Museum Herbarium and is designated as the holotype of the species described below under the epithet *cupulatum*.

**Brachystelma circinatum** *E. Mey.*, Comm. 196 (1836); N.E. Br. in Fl. Cap. 4. 1 : 858 1908).

*B. filiforme* Harv., Thes. Cap. 1 : 58, t. 93 (1859); N.E. Br., l.c. 856 (1908).

*B. ovatum* Oliver in Refug. Bot. 4 : t. 226 (1870); N.E. Br., l.c. 860 (1908).

*B. cinereum* (Schltr.) N.E. Br., l.c. 862 (1908).

*B. galpinii* (Schltr.) N.E. Br., l.c. 860 (1908).

*B. pallidum* (Schltr.) N.E. Br., l.c. 861 (1908).

*B. undulatum* (Schltr.) N.E. Br., l.c. 859 (1908).

*B. zeyheri* (Schltr.) N.E. Br., l.c. 855 (1908).

*Dichaelia forcipata* Schltr. in Bot. Jahrb. 51 : 145 (1914); Dinter, Neue Pfl. S.W. Afr. 27, t. 10 (1914).

Many attempts at the National Herbarium to distinguish clearly between the several species recognised by N. E. Brown l.c. (1908), within the *B. circinatum* complex, have failed. Consultation with Mr. A. A. Bullock of Kew in 1966 revealed that he had experienced similar difficulties and, although he favoured the retention of the generic status of *Dichaelia* Schltr. for species with united corolla-tips, he held the view that *B. pallidum* (Schltr.) N.S. Br., *B. galpinii* (Schltr.) N.E. Br., *B. ovatum* Oliver, *B. bolusii* N.E. Br., and *B. commixtum* N.E. Br. are not specifically distinct from *B. circinatum* E. Mey. In agreeing with Mr. Bullock, the question arose whether or not to go further and reduce the specific status of *B. undulatum* (Schltr.) N.E. Br., *B. filiforme* Harv., and *B. zeyheri* (Schltr.) N.E. Br. A good range of material from the type localities is not available for further assessment but the characters relied upon for distinction by the authors are unconving in the light of our knowledge of natural variability.

Several specimens from South West Africa conforming to the description and illustration of *Dichaelia forcipata* Schltr. have been received at the National Herbarium, and they too agree with *Brachystelma circinatum* in essential characters. The decision to accept *Dichaelia forcipata* as a synonym of *B. circinatum* E. Mey. gives the species a very wide range of distribution from the eastern Cape Province northwards to the Transvaal and westwards to the northern parts of S.W. Africa.

It goes without saying that the concept of *B. circinatum* becomes a very broad one, and is even broader than the sum total of the above synonyms, because of the inclusion of yet other forms in the Transvaal, one with longer

corolla lobes, *Galpin* 9150, from a ravine near Potgietersrust and *Schlieben* 7627, from the Soutpansberg, with flat leaves, thickly pubescent on both surfaces.

**Brachystelma cupulatum** *R. A. Dyer*, sp. nov. nulla affinitate manifesta, corolla 6-9 mm longa viridi, corona exteriore cupulata 1.5-2 mm alta., lobis interioribus parvis pulvinatis valde insignis.

Herba tuberosa erecta simplex vel parum ramosa, 8-15 cm alta, breviter pilosa, pilis decurvis; tuber depressum, circiter 10 cm diam. *Folia* ovata, lanceolata, elliptica vel linearia, 3-8 cm longa, 4-5 mm lata, breviter petiolata, in superficiebus ambabus breviter pilosa. *Flores* plures extra axillares, pedicellis 2-3 mm longis; calyx sparse pilosus segmentis ovatis vel lanceolatis 1.5-2 cm longis. *Corolla* viridis, 6-9 mm longa, extus sparse pilosa intus glabra, tubo 1.5-2.5 mm rariter 3 mm longo, lobis plus minusve oblongis attenuatis vel lineari-lanceolatis, marginibus leviter recurvis. *Corona* exterior cupulata circiter 2 mm alta, margine 5-emarginato, lobi interiores 5 pulvinati antheris oppositi.

Type: S.W. Africa, Grootfontein, about 8 km west of Aha Mts., sandy grasslands, *Story* 6400 (PRE, holo.).

Tuber up to about 10 cm in diam., compressed from above and below. *Stem* single or once-branched near the base and sparsely above, up to 15 cm tall, sparsely hairy with decurved hairs. *Leaves* ovate, lanceolate, elliptic or linear, 3-8 cm long, 0.4-1.5 cm broad, contracted at base into a short petiole, shortly pubescent on both surfaces. *Flowers* several together, extra-axillary, opening successively; pedicels 2-3 mm long. *Calyx* with sepals ovate to lanceolate, 1.5-2 mm long, sparsely hairy. *Corolla* green, 6-9 mm long, thinly hairy on outer surface, glabrous within; tube 1.5-2.5 mm rarely up to 3 mm long; lobes more or less oblong, slightly narrowed to apex, with slightly recurved margins. *Corona* arising about 0.5 mm above base of staminal column; outer-corona cupular, about 2 mm high and much exceeding the staminal column, sometimes with 5 slits 0.5 mm deep on rim alternating with the inner corona-lobes and 5 small notches above (opposite) the inner corono-lobes cushion-like, arising from near base of inner wall of outer corona and pressing on base of filaments. *Pollinia* about 0.25 mm diam. compressed, translucent on upper half of inner margin, with short connectives from about middle, attached to small carrier.

S.W. Africa. — Grootfontein: about 8 km (5 miles) west of Aha Mts., sandy grasslands, *Story* 6400. Rehoboth: *Dinter* 2699, for the greater part, cult. Okahandja. Windhoek: between Windhoek and Gobabis at Witvlei, *H. Hechter* sub PRE 30682, cult. Uitenhage.

Dinter may have distributed a mixture of species under his number 2699 but it is more likely that the mixing which took place happened inadvertently later. All but one twig on the three sheets with that number in the S.A. Museum collection, although differing in the shape and texture of their leaves, are growth forms of the one species. The epithet *cupulatum* is given in reference to the cup-shaped outer corona. The foreign twig on one of the sheets mentioned is *B. blepharanthera* Huber, equal to *Dinter* 410 & 680.

**Brachystelma dinteri** *Schltr.* in Bot. Jahrb. 51 : 144 (1913); Dinter, Neue Pfl. S.W. Afr. 15, Fig. 7 (1914); H. Huber in Prodr. Fl. S.W. Afr. 114 : 12 (1967).
*B. brevipedicellatum* Turrill in Kew Bull. 1922 : 29 (1922).
*B. ringens* E. A. Bruce in Flow. Pl. Afr. 28 : t. 1096 B (1951).

The syntype numbers are *Dinter* 775, 1515, 1890 and 2384, the last two being represented in the S.A. Museum collection. They are matched very closely by *Hechter* sub PRE 30680, cultivated in Uitenhage from tubers collected near

Witvlei, between Windhoek and Gobabis. The coronal structure of these and of the concepts described by Turrill and Bruce as *B. brevipedicellatum* and *B. ringens* respectively, are very similar. Identified with these also are specimens collected in the Transvaal, Pretoria district, near Hammanskraal, by *D. S. Hardy* 2205, 2210; Waterberg district, per *W. J. Louw* sub PRE 30679; and Letaba district, east of Tzaneen, by *B. van Zyl* sub PRE 28904 (cult.). Plants come into flower at an early age as seen in *B. ringens* and the leaf formation, their texture and pubescence show considerable variation according to the conditions of growth. The present records give the species a considerable extension of distribution from S.W. Africa to the Northern Cape Province and Transvaal.

**Brachystelma stenophyllum** *(Schltr.) R. A. Dyer,* comb. nov.

*Siphonostelma stenophyllum* Schltr. in Bot. Jahrb. 51 : 148, Fig. 3 A—E (1913); Dinter, Neue Pfl. S.W. Afr. 49, Fig. 37 (1914); H. Huber in Prodr. Fl. S.W. Afr. 114 : 53 (1967).

The isotype of *Dinter* 2361 in the S.A. Museum Herbarium shows that the original figure is inaccurate in the proportion of corolla-tube to corolla-lobes; the lobes are appreciably longer than the tube and the tube is more campanulate than depicted in the figure. It is agreed, as interpreted by Phillips in his Genera, ed. 2 : 607 (1951), that *Siphonostelma* should be regarded as a synonym of *Brachystelma*. Both Dinter and Huber compare the species with *Ceropegia pygmaea,* but the affinity is certainly only remote. The corona is comparable to that in *B. cupulatum* described above.

The distribution range of *B. stenophyllum* is extended into the Transvaal by the identification with it of *Galpin* M 217, from the Waterberg, and *Hardy* 2206, from north of Pretoria.

## Two New Species from Natal

In September 1965 Mr. J. Vahrmeijer, of the Botanical Research Institute, undertook a collecting expedition to some little explored parts of Zululand. Among many interesting records, two somewhat diminutive species of *Brachystelma* proved to be undescribed.

**Brachystelma tenue** *R. A. Dyer,* sp. nov., *B. circinatae* E. Mey. affine sed pilis spatulis longis, pedicellis longioribus et tenuioribus, sepalis longioribus differt.

Herba tuberosa humilis hirsuta e basi ramosa, ramis 5-10 cm altis, 0.75-1.25 mm diam. *Folia* breviter petiolata, ovata, ovato-elliptica vel oblongo-elliptica, 1-2 cm longa, 1.5-5 mm lata, infra sparse hirsuta, supra glabra. *Flores* extra axillares singuli vel bini, gracili-pedicellati, pedicellis hirsutis 8-10 mm longis, 0.25 mm diam. *Calyx* sparse hirsutus 5-partitus, segmentis linearibus acuminatis 3 mm longis. *Corolla* luteo-fusca, plus minusve 1.5 cm longa extus sparse hirsuta intus glabra, basi in tubum 1 mm longum connata, segmentis e basi ovatis linearibus erectis, apice cohaerentibus. *Coronae lobi exteriores* circiter 0.75 mm longi, profunde bilobati, lobulis filiformibus; lobi interiores ovato-oblongi, antheris incumbentibus aequilongis.

Type: Natal, Ubombo-Ingwavuma border, near Lala Nek, about 3 km from sea, open veld, *Vahrmeijer* 1049 (PRE, holo.).

Tuber red, up to about 4 cm in diam., slightly compressed. *Stem* sparsely branched from the base and sometimes above; branches erect or somewhat straggling, 5-10 cm long, slender 0.75-1.25 mm diam., with spreading transparent


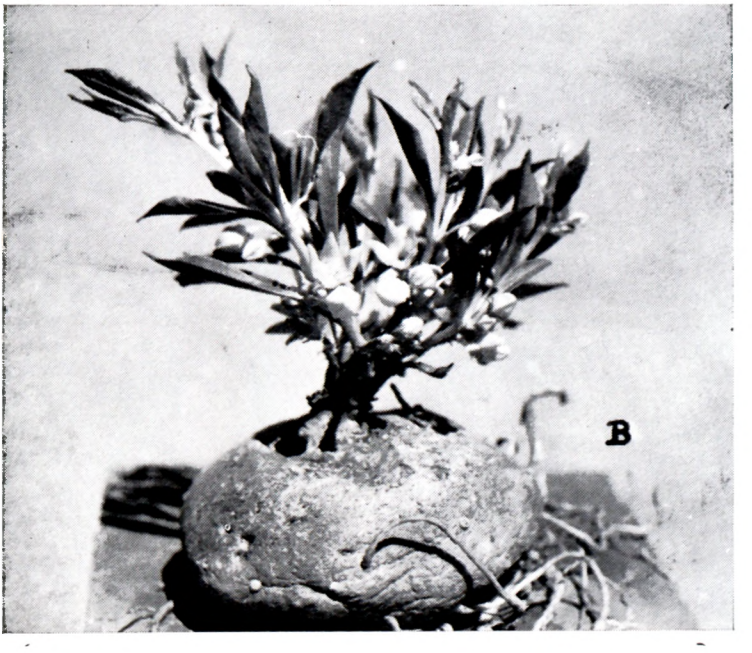


PLATE 1.—A, **Brachystelma tenue.** B, **B. vahrmeijeri.**

hairs 0.5-1 mm long. *Leaves* opposite, shortly petiolate or subsessile, ovate, ovate-elliptic, or oblong-elliptic, 1-2 cm long, 1.5-5 mm broad, thinly hirsute on the back and margins, glabrous or with very few scattered hairs on upper surface. *Flowers* 1 or 2 produced laterally at the nodes, opening together, subtended by filiform bracts about 1.5 mm long; pedicels slender, 8-10 mm long, 0.25 mm diam., soon enlarging up to 1 mm diam. after fertilization. *Sepals* linear, 3 mm long, sparsely hairy. *Corolla* yellowish-brown, about 1.5 cm long, cage-like, sparsely hairy on outer surface; tube more or less saucer-shaped, 1 mm deep, slightly recurved at the sinuses; lobes ovate at base, linear above and united at the tips. *Corona* arising from about the middle of the staminal column; outer-lobes about 0.75 mm long, deeply divided into 2 filiform horns, slightly overtopping the staminal column; inner corona-lobes ovate-oblong, incumbent on the backs of the filaments and about equal in length. *Pollinia* somewhat pyriform 0.25 mm long, slightly compressed, with short translucent wing on upper $\frac{1}{4}$ of the inner margin, with short connectives about the middle attached to the small wingless carrier.

**Brachystelma vahrmeijeri** *R. A. Dyer*, sp. nov., *B. flavido* Schltr. affine sed corollae tubo longiore, lobis latioribus, corona exteriore cupulata differt.

Herba tuberosa basi ramosa usque 10 cm alta; tuber rubrum leviter compressum, usque 5 cm diam.; rami recti minute pubescentes vel glabrescentes. *Folia* plus minusve elliptico-lanceolata, usque 3 cm longa, 7 mm lata, glabra vel nonnunquam minute et sparse ciliate, breviter petiolata vel subsessilia. *Flores* 2-3 extra axillares, pedicellis 5-10 mm longis; calyx glaber segmentis linearilanceolatis vel lanceolatis, 2.5 mm longis. *Corolla* plerumque flavo-virens plus minusve 8 mm longa, glabra, tubo 3 mm longo infundibuliformi, lobis ovatotriangularibus 5 mm longis, basi 2.5 mm latis. *Corona* exterior cupulata circiter 1 mm alta, 1.5 mm diam., margine minute 10-emarginato, lobi interiores ovatooblongi, antheris leviter incumbentibus.

Type: Natal, Ubombo-Ingwavuma border, near Lala Nek, about 3 km from sea, open veld, *Vahrmeijer* 1050 (PRE, holo.).

Tuber red, up to about 5 cm in diam., slightly compressed from above and below. *Stems* several from the centre of the upper surface, up to about 10 cm tall, rarely rebranched above, minutely pubescent or glabrescent. *Leaves* more or less elliptic-lanceolate, up to 3 cm long, 7 mm broad, the lowest smaller, glabrous on upper and lower surfaces, sometimes remotely and minutely ciliate on margin, contracted into a short petiole or subsessile. *Flowers* 2-3 together, extra axillary, the oldest uppermost and opening in succession; pedicels 5-10 mm long, subtended by short linear-lanceolate bracts. *Calyx* with sepals linear-lanceolate to lanceolate, 2.5 mm long, glabrous. *Corolla* yellowish-green or cream, rarely white or somewhat maroon, glabrous, 8 mm long; tube 3 mm long, funnel-shaped, 4 mm diam. at mouth; lobes ovate-triangular, 5 mm long, 2.5 mm broad at base, somewhat spreading and somewhat fleshy. *Corona* arising very slightly above base of staminal column; outer corona cupular, 1 mm high, 1.5 mm diam., twice as high as the staminal column, shallowly 10-notched or subentire, with few long hairs within; inner corona-lobes arising about halfway down inner wall of outer corona, linear-oblong, incumbent on back of filaments but not as long as them. *Pollinia* about 0.25 mm diam., somewhat pyriform, compressed, with narrow translucent margin $\frac{3}{4}$ length of inner margin, with short connectives from near base to small wingless carrier.