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NOTES ON SOME PLANTS OF SOUTHERN AFRICA CHIEFLY FROM NATAL: XIII*

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ABSTRACT. Sixty-one items are annotated, 24 being new species: *Cynoglossum* (2), *Wahlenbergia* (2), *Ficinia* (3), *Isolepis* (2), *Schoenoxiphium* (5), *Juncus* (1), *Galtonia* (1), *Alchemilla* (1), *Harveya* (3), *Nemesia* (3) and *Xerophyta* (1). The Ethiopian *Cynoglossum montanum* var. *alpinum* is raised to specific rank, so is *Senecio serratuloides* var. *gracilis*, as *S. gregatus*; *Bulbostylis scleropus* is reinstated as a species distinct from *B. schoenoides*, and the old name *Cyperus sphaerocephalus* is readopted for *C. obtusiflorus* var. *flavissimus*. *Mahernia cordata* is transferred to *Hermannia* and *Diclis umbonata* to *Nemesia*. New infraspecific names are proposed in *Bulbostylis, Isolepis, Cephalaria* and *Valeriana*. Other annotations are made in *Ficinia, Dolichos, Hibiscus, Alectra, Harveya* (with key to Natal species), *Hyobanche, Nemesia* (with key to Natal species) and *Parietaria*. *Cynoglossum geometricum* is a new record for South Africa. Seven names recorded in Ross, *Flora of Natal* (1973) are rejected from the Natal list, but 29 species are added to it, giving an increase of 22.

BORAGINACEAE

471. Cynoglossum alpinum (Brand) B. L. Burtt, **comb. et stat. nov.**
Lectotype (chosen here): Ethiopia, auf Berg Gunna, *Schimper* 1194 (K).
Syn.: *Cynoglossum montanum* L. var. *alpinum* Brand, Pflanzenr. Heft 78, Borragin.-Borraginoid.-Cynogloss. 127 (1921).

The lectotype chosen above is in flower. We have also seen another syntype, *Schimper* 227(K), which is in fruit (Fig. 1). However, as it is unlocalized, it is less suitable as a lectotype. Brand himself suggested that this might be a distinct species. The shape of the fornices, which are broader than long not longer than broad, clearly excludes it from *C. montanum*. The affinity of *C. alpinum* lies with *C. alticola*, described below from southern Africa, and it is the need to refer to it there that has prompted its elevation to specific rank.

*Continued from *Notes RBG Edinb.* 43(2): 189–229 (1986).

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472. Cynoglossum alticola Hilliard & Burtt, **species nova** *C. alpino* (Brand) B. L. Burtt, speciei ethiopicae, affinis, sed corollis minoribus, lobis vix patentibus, glochidiis fructus robustioribus conicis distinguenda.

Herba perennis, albo-pubescens; caulis ad 60cm altus inflorescentia inclusa, 3·5mm diam., simplex, foliatus. *Folia* radicalia tempore florendia marcescentia; lamina ad 200 × 13mm, parte inferiore petiolari c.80mm longa, anguste elliptica, utrinque attenuata; caulina 35–100 × 6–8mm sursum in bracteas gradatim decrescentia, basi amplectente, apice plus minusve acuto. *Inflorescentia* paniculata parce ramosa; pedicelli c.5mm longi, ebracteati. *Calyx* fere ad basin 5-lobatus; lobi c.4 × 2·5mm, sub fructu ad 7 × 4·5mm ampliati et valde reflexi, elliptico-oblongi, obtusi, extra dense intus tenuiter pilosi. *Corollae* tubus ad fornicum bases 2·5mm longus, intus basi gibbis 10 parvis praeditus; lobi 4 × 3mm, oblongi, apice rotundato, caerulei, glabri pilis albis externe sub apice loborum exceptis; fornices c.0·75 × 1·5mm, crassi, leviter bilobi, acute papillosi, orem tubi fere occludentes, caerulei. *Stamina* 5, inclusa; filamenta in triente superiore tubi orientia, 0·3mm longa; antherae 1·25mm longae, sub medio dorsifixae. *Stylus* fructus 7mm longus; nuculae 9 × 7mm, ovatae, valde compressae, immarginatae, glochidiis validis conicis approximatis, cicatrice deltoidea 5 × 3·5mm, fascia styli cum nucula separata. **Fig. 1.**

Type: E Cape, Barkly East distr., 3027 DB, Ben McDhui, 8600ft, 5 ii 1983, *Hilliard & Burtt* 16468, cult. at RBG Edinb. under 831306 (E holo.).

LESOTHO. Mokhotlong, 'Boheme' [Sesuto], nuisance in wool, 28 ii 1947, *Guillarmod* 997 (PRE); ibidem, 7500ft, i 1953, *Liebenberg* 5789 (PRE).

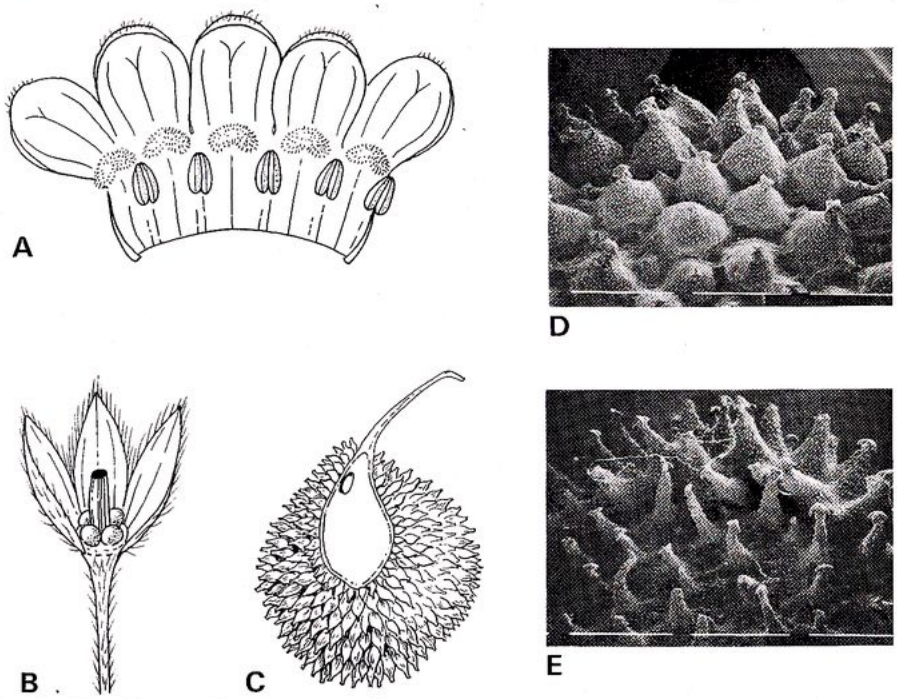

FIG. 1. *Cynoglossum alticola*: A, corolla, spread open, × 4; B, calyx and ovary (one sepal removed), × 4; C, nutlet showing scar of attachment and strip of stylar tissue, × 3; D, surface of nutlet, × 12: all from cult. plant of *H & B* 16468. *Cynoglossum alpinum*: E, surface of nutlet, × 12: from *Schimper* 227.

Cynoglossum alticola has much larger nutlets than any other species in southern Africa and it has no close ally amongst them. It is related to a plant from the highlands of Ethiopia which was placed by Brand as *C. montanum* var. *alpinum* but is here raised to specific rank as *C. alpinum* (see above).

At first it was thought that *C. alticola*, found on sheep-grazed mountains, might be an introduction from Eurasia, but all the north temperate species that are in any way similar have the fornices longer than broad, whereas in *C. alticola* they are broader than long. In this, however, it does agree with *C. alpinum* and there seems no doubt that it represents another example of the phytogeographical link between the mountains of southern Africa and the Ethiopian highlands.

Cynoglossum alticola grows on damp slopes and near streams at c.2600m on Ben McDhui on the Cape–Lesotho border. In February only old fruiting stems and new tufts of radical leaves were present. A plant raised from seed at Edinburgh flowered in May 1985 and also set fruit. Two other specimens from Mokhotlong had been misdetermined (Guillarmod, *Fl. Lesotho* 234, 1971) as '*C. basuticum* Weim.' (i.e. *C. spelaeum* Hilliard & Burtt, a quite different white-flowered species).

473. Cynoglossum austroafricanum Hilliard & Burtt, **species nova** *C. caeruleo* A. DC. affinis et magis comparanda sed differre videtur nuculis immarginatis (nec leviter marginatis) et glochidiis columnaribus basi vix incrassatis (nec conicis basi distincte expansis).

Syn.: [*Cynoglossum austroafricanum* Weim., Jacot Guillarmod, Fl. Lesotho 233 (1971); Gibbs Russell *et al.* in Mem. Bot. Surv. S. Afr. 48:109 (1984)—nomen nudum.]

Herba hispida, perennis vel biennis(?), radice palmari valido usque ad 1cm diam.; caulis ad 1m altus inflorescentia inclusa, ad c.5mm diam., simplex vel e basi ramosus, foliatus. *Folia* radicalia tempore florendi emarcida; lamina ad 170 × 25mm, elliptica, utrinque attenuata, parte petiolari ad 25mm longa; folia caulina plerumque 50–100 × 8–20mm in bracteas gradatim minores in inflorescentia transeuntia, lanceolata, apice acuta, basi angustata. *Inflorescentia* paniculata, bene ramosa. *Flores* numerosa. *Calyx* fere ad basin 5-lobus; lobi c.2–3 × 1·75–2·5mm sub fructu, anthesi paulo minores, late elliptici, obtusi, intus glabri, extra hispidi. *Corolla* 2·75–4·25mm longa; tubus lobis aequalis, extra glaber, intus zona papillarum basali 0·5mm lata; lobi 1·5–2·5 × 1·5–2·5mm suborbiculares, vivide caerulea, glabra, fornicibus 0·5–0·75 × 0·75–1·25mm plus minusve oblongis paulo bilobis extra papillosis orem tubi vix occultantibus caeruleis. *Stamina* 5, inclusa; filamenta e triente tubi superiore orientia, c.0·25–0·3mm longa; antherae 0·75–1mm longae. *Stylus* fructus 1·5–2mm longus. *Nuculae* 3–3·5 × 2·5–3mm, ambitu ovatae, leviter dorsoventraliter compressae, immarginatae, glochidiis columnaribus dense armatae, cicatrice deltoidea c.0·5 × 1·25mm, cum fascia styli caducae.

Type: Natal, Underberg distr., 2929 CB, Cobham Forest Reserve, Sipongweni, c.6500ft, 21 ii 1981, *Hilliard & Burtt* 14072 (E holo., NU iso.).

ORANGE FREE STATE. Witzieshoek, near the entrance to the Rest Camp, 7200ft, 28 xii 1975, *Hilliard & Burtt* 8665 (E, NU). Harrismith distr., 2829 AC, Platberg, 7 i 1979, *Hilliard & Burtt* 11960 (E, NU).
NATAL. Klip River distr., Van Reenen Pass, farm Nolans Volens, 5000–5500ft, 9 xii 1976, *Hilliard & Burtt* 9437 (E, NU). Bergville distr., 2829 CC, Cathedral Peak Forest Reserve above Tseketseke river, c.6900ft, 18 i 1983, *Hilliard & Burtt* 16298 (E, NU). Lion's River distr., Mooi River, 13 xii 1900, *Johnston* 288 (E). Mpendhle distr., 2929 BC, Loteni Nature Reserve, 24 xii 1978, *Hilliard & Burtt* 11803 (E, NU); ibidem, c.4900ft, 27 xii 1982, *Hilliard & Burtt* 16135 (E, NU); Mulangane ridge above Carter's Nek, 7000–7300ft, 3 ii 1984, *Hilliard & Burtt* 17509 (E, NU). Underberg distr., 2929 CB, Sani Pass, near ruins of old police post, 7800ft, 5 i 1984, *Hilliard & Burtt* 17241 (E, NU); ibidem 8000–8800ft, 23 iii 1977, *Hilliard & Burtt* 9793 (E, NU).

Cynoglossum austroafricanum was originally recognized as an independent species by the late Dr H. Weimarck, but he did not pursue his studies in this genus nor did he publish the name. However, as it has crept into use as a *nomen nudum*, it seems best to retain the epithet although it is described from a different type specimen.

In southern Africa this species was at first confused with *C. lanceolatum* Forsk., which differs in its smaller and paler flowers, smaller fruits and more divaricate inflorescence branches. The closer affinity of *C. austroafricanum* may be with *C. caeruleum* A. DC., which was described from Ethiopia. How much East African material should be assigned to this species is uncertain, but we have been able to examine an isotype (*Schimper* 554, K) and this has slightly marginate nutlets with the glochidia expanded at the base. In the present state of knowledge of this difficult genus it would merely add to the confusion to include *C. austroafricanum* here, though further comparison with more plentiful Ethiopian material is obviously needed.

One specimen that we assumed in the field to be *C. austroafricanum* proved to differ in having marginate and bigger (4 × 3·5mm) nutlets. This specimen (Natal, Mpendhle distr., 2929 AD, upper Loteni valley in vicinity of Ash Cave, 6400ft, 5 ii 1985, *Hilliard & Burtt* 18103) we now believe to represent the hybrid *C. austroafricanum* × *C. geometricum*. For further discussion of hybrids see under *C. geometricum* below.

474. Cynoglossum geometricum Baker & Wright in Thiselton-Dyer, Fl. Trop. Afr. 4(2):52 (1905).
Lectotype (chosen here): Malawi, Mt Chiradzulu, *Whyte* s.n. (K).
Syn.: *Cynoglossum lanceolatum* Forsk. subsp. *geometricum* (Baker & Wright) Brand, Pflanzenr. Heft 78, Borag.-Boraginoid.-Cynoglosseae 140 (1921); Taton in Fl. Congo, Rwanda & Burundi, Borag. 52, pl. 7, carte 18 (1971).
Paracynoglossum geometricum (Baker & Wright) R. Mill in Notes RBG Edinb. 41:478 (1984).
NATAL. Bergville distr., 2828 DB, Royal Natal National Park, foot of E facing cliffs below Dooley, c.6200ft, 17 ii 1984, *Hilliard & Burtt* 17658

(E, NU). Mpendhle distr., 2929 BC, upper reaches of Loteni R., c.6000ft, 31 iii 1984, *Hilliard* 8218 (E, NU). Lion's River distr., 2929 BB, between Mooi River and Hlatikulu, farm Lanner Veane, c.5000ft, 21 iii 1983, *Hilliard* 8208 (E, NU). Estcourt distr., Kamberg Mt, 6300 ft, 19 ii 1974, *Wright* 1690 (NU).

TRANSKEI. Baziya Mt, 3128 BC, road from Forest Station to watch-tower, c.3400ft, 12 ii 1981, *Hilliard & Burtt* 13952 (E, NU).

Distribution in Tropical Africa: Burundi, Rwanda, Uganda, Kenya, Tanzania, Malawi, from c.1800–3000m.

The choice of Whyte's collection from Mt Chiradzulu as the lectotype of the species is dictated by the presence on it of C. H. Wright's dissection notes which provide, almost verbatim, the floral details of the published description. One of the other syntypes has similar notes (2nd day's march from Eldoma ravine, upper Mau plateau, 7000–8000ft, *Whyte* s.n.), but they do not match the description quite so accurately.

Cynoglossum geometricum provides just one more example of a plant with a distributional break in its range in south eastern Africa. At present there are no records of its occurrence between Malawi and Natal, where it is now recorded for the first time in S Africa.

In tropical Africa there seems to be some variation in flower colour, some specimens being recorded as deep blue, others as pale blue or white. In southern Africa it is always white with a pale blue centre. In tropical Africa, too, it has been recorded as a perennial herb or as 'annual?'. Further south it is a definite biennial, non-flowering rosettes being always present in a population of flowering plants; they will have lost the radical leaves by the time they come into flower. None of the tropical material seen in herbaria has radical leaves.

Cynoglossum geometricum was regarded as a subspecies of *C. lanceolatum* Forsk. by Brand and more recently by Taton (refs in synonymy above); it is not difficult to see why this is so. The lectotype of *C. geometricum* has a distinctly marginate nutlet with a single median ridge of about 5 glochidia; just rarely there are one or two scattered glochidia on either side. On other specimens the scattered glochidia are more numerous. However all these specimens have a very distinctly marginate nutlet and the glochidia on the surface are never so dense as they are in *C. lanceolatum*, in which the nutlet is immarginate. The material cited above is all submontane in Natal, and conforms to this concept of *C. geometricum*. However, searching through the South African covers of *C. lanceolatum* it has been possible to pick out a group of specimens which, though generally resembling *C. lanceolatum*, have slightly marginate nutlets and the facial glochidia more spaced and with a slight tendency towards the formation of a median line. The differences between the extreme forms of *C. geometricum* and *C. lanceolatum* seem too great to be happily resolved by reducing *C. geometricum* to subspecific rank. It seems to us more likely that the two hybridize when they meet and that there has been widespread introgression. As pure speculation it may be suggested that *C. geometricum* is the native species of natural habitats and that the weedy *C. lanceolatum* is an anthropochore, travelling with man and his flocks and herds and

hybridizing with the native species. Specimens hitherto referred to *C. lanceolatum* but showing a distinct tendency towards marginate achenes, and less divaricate inflorescences branches, are found from the Transvaal south to Uitenhage, a much wider distribution than is at present known for *C. geometricum*.

Selected examples:

TRANSVAAL. Letaba distr., Ofcalaco to The Downs, 25 i 1956, *Story* 5392 (K).

ORANGE FREE STATE. W of Harz R. near Taungs, 75 miles N of Kimberley, *Rodin* 3628 (K).

NATAL. Ingwavuma distr., 2732 AC, 1500ft, 13 xi 1969, *Moll* 4472 (K). Inanda distr., Inanda, vi 1879, *Wood* 370 (K). Bergville distr., Tugela valley, 5000ft, *Bayer & McClean* 47 (K). Pietermaritzburg distr., Henley Dam, 2500ft, v 1955, *Geekie* 24 (E). Camperdown distr., Nagle Dam, 26 vi 1957, *Wells* 1558 (E).

CAPE. Somerset East, Boschberg, vi 1813, *Burchell* 3234 (K). Victoria East distr., Hogsback, 4200ft, 12 iv 1955, *Johnston* 1152 (K). Uitenhage, Enon, below 100ft, *Drège* (K).

The possibility of hybridization between *C. austroafricanum* and *C. geometricum* has already been mentioned under the former species. The whole situation in south-eastern Africa, and further north as well, needs to be studied very thoroughly.

Cynoglossum geometricum may be very close to the Indian *C. wallichii* G. Don (*C. glochidiatum* Wall.), and the Indian material of *C. lanceolatum* also needs careful study to clarify the differences between these two species. Miller & Mill (in *Notes RBG Edinb.* 41:473–482, 1984) have shown that *C. lanceolatum* can be recognized in Arabia with constantly immarginate nutlets. These authors have accepted *Paracynoglossum* Popov as an independent genus, but, unless the rank of subgenus is to be abandoned entirely, this seems without justification. Popov's genus, proposed in *Flora URSS* (19:715, 1953) was subsequently abandoned in the supplementary volume of that work (Czerepanov, *Add. et Corrig. ad Floram URSS*, 116, 1973), apparently without reference to its reduction to a subgenus of *Cynoglossum* by Riedl (in *Österr. Bot. Zeit.* 109:392, 1962).

CAMPANULACEAE

475. Wahlenbergia appressifolia Hilliard & Burtt, **species nova** *W. undulatae* (L.f.) DC. affinis, sed foliis ascendentibus appressis (nec patentibus) maxime 8–25mm longis (nec 27–38) et calycis lobis 4·5–9 × 2–4mm (nec 3–4 × 1·75–2) distinguenda.

Herba perennis, stolonifera; stolones subterranei, c.1–2mm diam., caules multos emittentes; caules 20–45cm alti inflorescentia inclusa, simplices vel inferne parce ramosi, inferne crebre foliati et pilis patentibus ad 2mm longis induti, superne (i.e. pedicelli parce bracteati dimidium vel trientem plantae altitudinis formantes) glabri. *Folia* alterna, appressa, ascendentia, 8–25 × 3–6mm, lanceolata, acuta, basi lata amplectente, marginibus incrassatis remote denticulatis leviter undulatis, supra pilis parcis c.1–

1.75mm longis, infra densius pilosa. *Flores* terminales, saepe solitarii, interdum ad 4 omnes in pedicellis longis fere nudis. *Calycis* lobi 5, 4·5–9 × 2·5–4mm, lanceolata, acuta, marginibus vel dente obtuso raro vel rarissime dentibus 1–2 lineari-lanceolatis usque 1·5mm longis, etiam rarissime pilis 1–4 usque 1·5mm longis ad basin lobi. *Corolla* pallide violaceo-caerulea raro alba, late campanulata, tubo 6·5–9mm longo; lobi 5, 8–16 × 5·5–11mm, ovati, acuti. *Stamina* 5; filamenta parte basali 1·5mm longa ad 2·25mm lata dilatata, parto superiore tereti c.1mm longa; antherae 5–6mm longae. *Ovarium* c.2–3·5 × 3mm, triloculare; stylus c.5mm longus; rami styli 3, c.3–5mm longi, glandula in sinu inter ramos praediti. *Capsula* 9–10 × 7–8mm, turbinata. *Semina* 0·3mm diam., subglobosa, testa minute mammillata.

Type: Natal, Underberg distr., 2929 CB, Cobham Forest Reserve, Sipongweni, 6500ft, 22 ii 1981, *Hilliard & Burtt* 14094 (E holo., NU iso.).

NATAL. Mpendhle distr., 2929 BC, Mulangane ridge, above Carter's Nek, 7000–7300ft, 3 ii 1984, *Hilliard & Burtt* 17505 (E, K, NU, PRE, PRF). Underberg distr., 2929 CB, Sani Pass, 8000ft, 22 iii 1977, *Hilliard & Burtt* 9761 (E, K, MO, NU, UPS); Castle Gardens, 12 xii 1970, *Solomon* 70 (E, NU); 2929 CC, Bushman's Nek, Thamatu Cave, 7500ft, 6 ii 1976, *Hilliard & Burtt* 9004 (E, NU); vicinity of Tarn Cave, c.7800ft, 18 i 1984, *Hilliard & Burtt* 17315 (E, K, NU, PRE, S). Polela distr., Mawahqua Mt, Sunset farm, 6500ft, 20 i 1973, *Rennie* 331 (NU). Mt Currie distr., Kokstad, 4700ft, ii 1884, *Tyson* 1756 (E, K); ibidem, c.5500ft, 27 iv 1950, *Moberly* 81 (NU); Franklin, 5600ft, i 1958, *Young* s.n. (NU).

LESOTHO, Sehlabathebe, 2300–2500m, 4–14 i 1973, *Guillarmod, Getliffe & Mzamane* 217 (Durban-Westville).

Wahlenbergia appressifolia is diagnosed above against *W. undulata,* although in von Brehmer's key to his groups of *Wahlenbergia* (in *Bot. Jahrb.* 51, 1915), its three style branches place it in § *Grandiflorae* v. Brehm. In contrast, *W. undulata* is the type species of § *Undulatae*, in which the species reputedly have 2 style branches. But this feature is not always reliable, and we have seen material of *W. undulata* with either 2 or 3 style branches. The name *W. undulata* has become a dumping ground for specimens with undulate leaf margins. However, true *W. undulata* is a laxly branched herb with spreading oblong-lanceolate leaves and short calyx lobes c.3–4mm long. It was first collected by Thunberg and there are specimens matching his from the eastern Cape. We have ourselves collected it on Ben McDhui on the Cape–Lesotho border at 8600ft. *W. appressifolia* may be confined to Natal, where we know it from the Drakensberg and its outliers between c.4700 and 8000ft above sea level, growing in damp grassland, usually in patches, possibly because of its stoloniferous habit. The other common species in the Natal Drakensberg that is often misidentified as *W. undulata* is *W. cuspidata,* a bushy herb with spreading leaves, easily recognized by its long narrow acuminate calyx lobes, c.9·5–17 × 1·5–2·5mm. It favours damp rocky places and cliffs.

The closest ally of *W. appressifolia* is *W. pallidiflora*, described below.

476. Wahlenbergia pallidiflora Hilliard & Burtt, **species nova** *W. appressifoliae* (vide supra) affinis, sed pedicellis pilosis (nec glabris), calycis lobis

9–13mm longis (nec 4·5–9) dorso pilosis (nec glabris), corollae lobis 17–20 × 11–13mm (nec 8–16 × 5·5–11), pallide calcareo-caeruleis (nec violaceo-caeruleis) differt.

Herba perennis stolonifera; stolones subterranei 1–2mm diam.; caules 30–50cm longi inflorescentiis inclusis, erecti vel decumbentes, simplices vel parce ramosi, omnino pilosi pilis patentibus ad 2mm longis, dimidio vel triente inferiore crebre foliati, superne in inflorescentia parce bracteata abrupte transeuntes. *Folia* alterna, ascendenti-appressa, summa et infima paulo redacta, cetera 17–28 × 5·5–10mm, lanceolata, acuta, basi lata amplectente, marginibus incrassatis undulatis remote denticulatis, utrinque tenuiter pilosa pilis ad 1·5mm longis. *Flores* terminales, solitarii vel 2–3, pedicellis longis parce bracteatis. *Calycis* lobi foliacei, 9–13 × 3–4mm, lanceolata, acuta, marginibus incrassatis undulatis dentibus crassis remotis praeditis, dorso pilosi, pilis ad 2mm longis. *Corolla* late campanulata, tubo 6–7·5mm longo, lobis 5, 17–20 × 11–13mm ovatis acutis pallide calcareo-caeruleis. *Stamina* 5; filamenta parte basali dilatata 2–2·5 × 4–4·5mm, parte superiore tereti 2mm longa; antherae c.5mm longae. *Ovarium* 3–4 × 4mm, triloculare; stylus 6·5–7mm longus; styli rami 3, 3·5–5mm longi, in sinubus inter ramos glandula praediti. *Capsula* non visa.

Type: Natal, Estcourt distr., Kamberg Nature Reserve, Stillerust Vlei, 7 i 1976, *Hilliard & Burtt* 8736 (E holo., NU iso.).

NATAL. Lion's River distr., 2930 AD, Mt Gilboa, c.5000ft, 29 xii 1978, *Hilliard & Burtt* 11883 (E, NU); Nottingham Road, 4–5000ft, 13 ii 1896, *Wood* 5987 (E); ibidem, 30 xii 1890, *Wood* 4635 (K). Estcourt distr., Giant's Castle Game Reserve, 6000ft, 10 ii 1964, *McKeown* 99 (NU); ibidem, 19 ii 1964, *McKeown* 159 (NU); ibidem, 6 ii 1964, *McKeown* 43 (E); farm Game Pass, c.6250ft, 21 xii 1972, *Wright* 1341 (E); Culvers, 6000ft, xii 1923, *Rogers* 28265 (K); Liddesdale, 5000ft, xii 1889, *Wood* 4270 (K); Highmoor Forest Station, Little Berg, 6500ft, 13 i 1966, *Killick & Vahrmeijer* 3565 (K); ibidem, 14 i 1966, *Killick & Vahrmeijer* 3586 (K).

Wahlenbergia pallidiflora is closely allied to *W. appressifolia* which it much resembles in general facies. However, its pilose pedicels and calyx lobes are distinctive and, furthermore, both leaves and flowers are usually larger. The flowers of *W. pallidiflora* are pale chalky blue whereas those of *W. appressifolia* are a clear violet blue.

Wahlenbergia pallidiflora favours marshy ground and often flowers earlier than *W. appressifolia*. As yet it is known only from a small area of the Natal Midlands, between c.5000 and 6500ft above sea level and north-east of the area occupied by *W. appressifolia*.

COMPOSITAE

477. Senecio gregatus Hilliard, **nom. et stat. nov.**, a *S. serratuloidei* DC. foliis plerumque angustioribus (2–)5–10(–13)mm latis (nec (13–)16–24mm) glabris (nec subtus, saltem primo, arachnoideis) rectis (nec falcatis) distinguenda.

Type: Natal, *W. G. Grant* (K).

Syn.: *Senecio serratuloides* DC. var. *gracilis* Harvey in Harvey & Sonder, Fl. Cap. 3:382 (1865); Hilliard, Comp. in Natal 410 (1977). Type as above.

S. serratuloides var. *rehmannii* Thellung in Vierteljahrsschr. Naturf Ges. Zürich 66:246 (1921). Type: Transvaal, Hoggeveld, Page's Hotel [Kaapsche Hoop], *Rehmann* 6853 (Z).

S. serratuloides var. *dieterlenii* Thellung, loc. cit. Types: Basutoland (Lesotho), Leribe, *Dieterlen* 778 (Z, K, NH, PRE). Transvaal, s.l., 1892, *Dieterlen* s.n.

S. serratuloides var. *holubii* Thellung, loc. cit. Types: Transvaal, Hoggeveld, between Porter and Trigardsfontein, *Rehmann* 6627 (Z); Linokana, *Holub* 3773/4; Phoberg, *Holub* 4786, 4788; Matebequellen, *Holub* s.n. Natal, Howick, *Junod* 16.

TRANSVAAL. Piet Retief distr., farm Mooihoek, 1350m, 19 iv 1976, *Devenish* 1631 (NU).

NATAL. Ngotshe distr., Ngome, c.4000ft, 3 iv 1977, *Hilliard & Burtt* 9968 (NU). Bergville distr., Royal Natal National Park, 8 iv 1964, *Hilliard* 2837 (NU). Estcourt distr., Gladstone's Nose, c.5750ft, 6 iv 1967, *Wright* 169 (E, K, M, NH, NU). Lion's River distr., Karkloof range, farm Benvie, c.5000ft, 14 iv 1977, *Hilliard & Burtt* 10148 (E, K, MO, NU, S). Mpendhle distr., Mulangane ridge above Carter's Nek, c.7000ft, 13 iii 1985, *Hilliard & Burtt* 18365 (E, NU, PRE). Polela distr., Mawahqua Mt, farm Glengariff, 5500ft, *Rennie* 1140 (NU). Underberg distr., Bamboo Mt, c.6000ft, 9 iv 1977, *Hilliard & Burtt* 10090 (E, NU). Alfred distr., Weza, Ngeli slopes, 23 ii 1963, *Hilliard* 1304 (NU).

CAPE. Maclear distr., Little Pot River, 9 iv 1966, *Hilliard* 3900 (E, NU). Barkly East distr., NE of Rhodes, Kloppershoek valley, farm Mavis Bank, c.7000ft, 14 ii 1983, *Hilliard & Burtt* 16637 (E, K, NU, S).

LESOTHO. Maseru distr., between Molimo Nthuse and Blue Mountain Pass, 2200m, 4 iii 1978, *Schmitz* 8237 (E, NU). Qacha's Nek distr., Sehlabathebe National Park, c.2425m, 22 iv 1977, *Hoener* 1819 (NU).

Senecio gregatus is a plant of marshy streamsides and other damp or wet places. The plants are stoloniferous and may form extensive stands, which suggested the specific epithet. The species ranges from Angola and the eastern highlands of Zimbabwe to the Transvaal, Swaziland, Natal, Lesotho and the eastern Cape. In Natal it occurs chiefly between c.1200 and 2250m above sea-level. Its ally, *S. serratuloides* DC., is a plant of open grassland, woodland and forest margins, and ranges from about sea-level to c.1500m.

In addition to the leaves of *S. gregatus* being narrower than those of *S. serratuloides*, and straight (not falcate), the marginal teeth are smaller and blunter and the basal lobes are mostly fewer and smaller, giving the plant a different aspect.

CYPERACEAE

(B. L. Burtt)

478. Bulbostylis oritrephes (Ridley) C. B. Cl. subsp. **australis** B. L. Burtt, **subsp. nova**, a subsp. *oritrephes* spiculis sessilibus in capitulum simplex congestis, spiculis pedunculatis numquam adsentibus differt.

Type: Natal, Mpendhle distr., Loteni Nature Reserve, sandy grassland in stream valley, c.5000ft, 25 xii 1984, *Hilliard & Burtt* 18033 (E holo., NU iso.).

Selected citations:
TRANSVAAL. Pretoria distr., c.6 miles S of Pretoria on Kempton Park road, c.5000ft, 21 x 1954, *Comins* 865 (NU).
NATAL. Dundee distr., Dundee airfield, 23 ix 1964, *Shirley* 132 (NU). Bergville distr., Royal Natal National Park, near Basuto Gate, c.7200ft, 18 ii 1984, *Hilliard & Burtt* 17686 (E, NU); Cathedral area, x 1944, *Schelpe* 848 (NU); Cathedral Peak Forest Station, 6000ft, 3 x 1950, *Killick* 942 (K, NU). Estcourt distr., Giant's Castle, ix 1957, *Frankish* 186 (NU); Tabamhlope, xi 1964, *Gordon Gray* 5036 (NU). Underberg distr., Bamboo Mt above Restmount, 6000ft, 20 xi 1982, *Hilliard & Burtt* 15583 (E, NU). Pietermaritzburg distr., Otto's Bluff road near Claridge, 20 xii 1957, *Frankish* 189 (NU); Claridge, 20 xi 1949, *Killick* 707 (E, NU). Hlabisa distr., Hluhluwe Game Reserve, 900ft, 16 x 1953, *Ward* 1543 (NU).

Ridley, in his original description of this species (as *Fimbristylis oritrephes*), said that the inflorescence was of 3 stalked and 1 sessile spikelets, occasionally of one sessile spikelet only. Haines & Lye (*The Sedges and Rushes of East Africa* 101, 1983) give 1 sessile spikelet surrounded by 1–2 stalked ones, with solitary spikelets also of occasional occurrence. It seems that these are always on the shorter weaker culms, and such solitary spikelets are also found in subsp. *australis*. However in this subspecies stalked spikelets are always entirely absent, and as this is a constant feature of all the Natal material taxonomic recognition is desirable. Haines & Lye describe the nutlet as pale brown, in the type of subsp. *australis* it is pale grey. However, too few ripe nutlets have been seen for a judgment to be formed on the taxonomic value of nutlet-colour.

Bulbostylis oritrephes subsp. *australis* is widespread in Natal from 270–2200m, usually on dryish hill slopes in bare ground between grass tussocks. The leaves are always short, the blade up to 5cm; the culms are usually 10–15cm. When the culms are taller (they reach 75cm in *Frankish* 189) a number of them bear small single abortive spikelets, or just the basal bracts. This may be a reaction to growing in taller grass cover, when the true leaves will be smothered by vegetation, and sterile culms, growing up with the surrounding grasses, play a purely photosynthetic role.

Bulbostylis oritrephes is easily recognized in the field. The culm base is swollen and persistent, and culms arise close together so that an absolutely characteristic linear series of these swollen bases is produced.

479. Bulbostylis scleropus C. B. Cl. in Thiselton-Dyer, Fl. Cap. 7: 207 (1898).
Lectotype (chosen here): Transvaal, Apies River, *Burke* (K).
Syntype: [Transkei] Tembuland, Bazeia, 2000ft, *Baur* 85 (K).
Selected citations:
TRANSVAAL. Pretoria, 15 miles S of Pretoria off Krugersdorp road, in open grassveld, wet area, 4500ft, Oct. 1948, *Repton* 3510 (NU). Krugersdorp distr., Sterkfontein Caves, 5150ft, 28 ix 1969, *Mogg* 34405 (K).

ORANGE FREE STATE. Senekal, 5450ft, 7 xii 1931, *Goossens* 907 (K).
NATAL. Underberg distr., Garden Castle Forest Reserve, track to Crystal Waters, 6000–6200ft, 5 xii 1980, *Hilliard & Burtt* 13803 (E, NU); 2929 CB, Gxalingenwa valley, between Sani Pass and Polela valley, c.7000ft, 9 xii 1983, *Hilliard & Burtt* 17125 (E, NU); c.5 miles N of Castle View farm, 'Chameleon Cave' area, c.6800ft, 3 xii 1984, *Hilliard & Burtt* 17820, (E, NU). Estcourt distr., Lowlands, Oct. 1961, *Gordon-Gray* 4001 (NU); Kamberg, 'Game Pass', Jan. 1942, *D. Greene* 6 (NU); Mooi River, 2000m, 23 ix 1893, *Schlechter* 3338 (K); Mooi River, 'The Hook', 4700ft, 26 ix 1962, *Bourquin* 39 (NU). Pietermaritzburg distr., Town Hill, 3000ft, Nov. 1949, *Huntley* 561 (E, K, NU), 570 (NU); near World's View, Nov. 1954, *Huntley* 903 (NU); Winterskloof, Sept. 1947, *Dicks* 31 (NU); Town Hill, Nov. 1948, *Huntley* 313 (NU). Bergville distr., Cathedral Peak, 5600ft, 26 xi 1952, *Killick* 1788 (NU); ibidem, 6500ft, *Hilliard* s.n. (NU); near Bergville, 15 ix 1951, *Winkler* s.n. (NU). Vryheid distr., Hlobane, 14 iii 1950, *Johnstone* 382 (E, K, NU); ibidem, Nov. 1950, *Johnstone* 535 (K, NU); ibidem, 2 x 1950, *Johnstone* 569 (NU); ibidem, 2 xii 1950, *Johnstone* 573 (NU).
LESOTHO. Leribe, *Dieterlen* 335 (K).
TRANSKEI. Engcobo, 3127 DB, Satanna's Nek, 4700–4800ft, 28 xi 1981, *Hilliard & Burtt* 14551 (E, NU).
E CAPE. Maclear distr., 34 miles from Maclear on road to Mt Fletcher, c.4000ft, 10 xi 1953, *Killick & Marais* 2071A (NU).

Bulbostylis scleropus has been reduced to synonymy under *B. schoenoides* Kunth by Dr K. D. Gordon-Gray (in *Mitt. Bot. Staatss. München* 10:571, 1971, and in Ross, *Fl. Natal* 111, 1973). In her herbarium determinations she had given *B. scleropus* the rank of *forma*, but this has not been published. The annotations read '*B. scleropus* is not distinct from *B. schoenoides* but is merely the form which this species takes under more extreme environmental conditions'. However, this is gainsaid by the fact that we have twice collected these two sedges growing within a few inches of one another and have unhesitatingly treated them as distinct species, although not knowing at the time what they were. The first occasion was in November 1981, in Transkei on Satanna's Nek between Engcobo and Elliot, 'in short grass and around rock outcrops'; the second was in the southern Natal Drakensberg, in the Gxalingenwa Valley just south of Sani Pass. Here they were on the rather dry ridge of a steep grass slope. In both places the fewer broader leaves and the dark brown, broader, more persistent leaf-sheaths marked off *B. scleropus* as distinct from *B. schoenoides* with finer capillary leaves and pale non-persistent leaf-sheaths.

Bulbostylis schoenoides is usually a plant of marshy places, or at least of damp grassland, and its occurrence on drier areas, as at these two localities, is less common. However, it clearly can tolerate these conditions and when it does so it is recognizably different from *B. scleropus*, which usually favours the drier habitats although occasionally recorded from wet areas. Since appreciating the differences between these two species, we have found no difficulty in distinguishing them in the field. Whether both extend to tropical Africa requires critical confirmation.

480. Cyperus sphaerocephalus Vahl, Enum. 2:310 (1806); Kunth, Enum. 2:45 (1837); Oliver in Trans. Linn. Soc. Bot. 29:164, tab. 108 fig. A (1875).

Type: Cape of Good Hope, *sine coll.* (C, n.v.—herb. Vahl. I.D.C. microf. 23, coll. Brugm[ans]).

Syn.: *Cyperus flavissimus* Schrader in Goett. Gel. Anz. 3:1067 (1821), n.v. & Anal. Fl. Cap. 5, t. 2 f. 2 (1832). Type: Cape of Good Hope, *Hesse* (n.v.).

C. sphaerocephalus Vahl var. *sphaerocephalus*; Kunth, Enum. 2:45 (1837), by establishment of var. *leucocephalus* Kunth.

C. obtusiflorus Vahl var. *flavissimus* (Schrader) Boeckeler in Linnaea 25:529 (1868); Kükenthal, Pflanzenr. Heft 101, Cyp.-Scirp.-Cyp. 286 (1936); Gordon-Gray in Ross, Fl. Natal 104 (1973).

C. compactus Lam. (non Retz.) var. *flavissimus* (Schrader) C. B. Cl. in Durand & Schinz, Consp. Fl. Afr. 5:522 (1893).

C. obtusiflorus Vahl var. *sphaerocephalus* (Vahl) Kükenthal in Bot. Notiser 1934:67 (1934).

C. niveus Retz. var. *flavissimus* (Schrader) Lye in Haines & Lye, Sedges & Rushes of E Africa 257 (1983).

The golden-headed sedge of the Drakensberg has been known for some time as *Cyperus obtusiflorus* var. *flavissimus*. However, a few years ago Fosberg, in studying the Aldabra flora, decided that the African *C. obtusiflorus* was no more than a variety of the Asiatic *C. niveus* Retz.; in this rank he found its correct name to be *C. niveus* var. *leucocephalus* (Kunth) Fosberg, based on *C. sphaerocephalus* var. *leucocephalus* Kunth (see Fosberg in *Kew Bull.* 31:835, 1977). Following Fosberg's lead Lye has made the combination *C. niveus* var. *flavissimus* for the golden-headed plant.

At the International Botanical Congress at Sydney in 1981, it was unfortunately decided that autonyms should be transferable, taking priority from the date when they were established according to the retroactive Code (ICBN Art. 57.3, 1983). *Cyperus sphaerocephalus* is the specific name for the golden-headed sedge; when Kunth in 1837 described var. *leucocephalus*, he automatically established the typical variety, var. *sphaerocephalus*, and this provides the earliest varietal name for the plant that later acquired the epithet *flavissimus*. A new varietal combination for *C. sphaerocephalus* under *C. niveus* would therefore seem to be in order. However, I am not satisfied with the taxonomy.

I had already wondered whether *C. obtusiflorus* var. *obtusiflorus* and var. *flavissimus* should not be ranked as independent species before I became aware of the problem concerning *C. niveus*. There is, in general, no likelihood of confusing the two, *C. obtusiflorus* var. *flavissimus*, or as I now prefer to call it *C. sphaerocephalus*, is a very distinctive entity occurring over a wide area of the Drakensberg and neighbouring mountain grasslands; as with many other Drakensberg species its full range is from the eastern Cape to southern Tanzania. From much of this area typical *C. obtusiflorus* is absent, although there are areas of overlap (e.g. near Lydenburg in the E Transvaal and on Town Hill above Pietermaritzburg). *C. sphaerocephalus* usually appears in herbaria as a

shorter plant with smaller heads than *C. obtusiflorus*, but this may simply be due to its more frequent collection from burnt grasslands. For comparison, therefore a large-headed specimen was chosen: the two compared in Table 1 are: *C. sphaerocephalus*, Natal, Underberg distr., Coleford, *Harvey* 44; *C. obtusiflorus*, Natal, Hlabisa distr., Mtunzini, *van Rensburg* 16.

TABLE 1

	C. sphaerocephalus	*C. obtusiflorus*
Diameter of head	3cm	3cm
Number of spikelets	c.20	c.40
Large spikelet	17mm long	7mm long
	14mm wide	7–9mm wide
Glumes	8–9 on each side	c.6 on each side
	2–3 short scales at base	2 empty glumes at base, half normal length
Middle glume	8mm	7mm
Longest of the three involucral bracts	5cm	9·5cm

When a whole range of inflorescences of different sizes is measured a complicated set of figures will be obtained, but for the present purpose this comparison of equivalent heads shows that the differences are not confined to flower colour. Inspection of numerous herbarium sheets confirms this, and the revival of the specific name *C. sphaerocephalus* seems fully justified.

It should be noted, however, that Gordon-Gray (in Ross, *Fl. Natal* 104, 1973) remarks 'Intermediates between type and variety occur occasionally (*Fisher* 973)'. The hybrid origin of such specimens cannot be ruled out, but intermediacy seems to exist only in the pale yellow colour of the spikelets. In other respects the plants seem to belong to *C. sphaerocephalus* and should be placed there as a minor colour variant.

Specimens with pale yellow heads:

NATAL. Umvoti distr., Ahrens, 'Mowbray', occasional in grassveld, inflorescence pale yellow, ±5000ft, 9 ii 1946, *Fisher* 973 (NU). Kranskop distr., The Kop, 24 iii 1963, growing on steep slope in grassveld, 3800ft, *Ross* 101 (NU) [Spikelets pale yellow?]. Babanango, frequent in open grassveld, flowers very pale yellow, almost white, sometimes tinted pink, 4700ft, *King* 453 (NU).

As to the status of *C. obtusiflorus* itself, it has to be noted that the characters given above do not agree with those attributed by Fosberg to the plant on Aldabra which he calls *C. niveus* var. *leucocephalus*. These are 'Involucral bracts usually 4 unequal, spikelets ovate acute to obtuse, in heads of 5–10(–12), white (to rarely pale brownish)'. The spikelets, in the Natal plants of *C. obtusiflorus* are oblong and obtuse. On the whole I am cautious about Fosberg's reduction of *C. obtusiflorus* to *C. niveus* and prefer to leave the Natal plant under the former name at present.

481. Ficinia acuminata (Nees) Nees in Linnaea 9:292 (1834).
Type: Cape, Table Mt, 2000–3000ft, *Ecklon* 858 (E iso.).

Syn.: *Scirpus acuminatus* Steudel in Flora 1829, 146 nom. illegit.—non Muhlenb. (1817). Type as above.
Isolepis acuminata Nees in Linnaea 7:501 (1832); A. Dietr. in Linn. Sp. Pl. ed. 6, 2:103 (1832–33).

Ficinia acuminata is usually cited with the authorities (Steudel) Nees. However, Steudel's use of the epithet *acuminatus* in *Scirpus* was illegitimate; it ranks as legitimate from its transfer to *Isolepis* by Nees. A. Dietrich made the same transfer almost simultaneously, but it seems likely that Nees's name has priority. *F. acuminata* is included in these Notes only because it provides the affinity for *F. filiculmea* described below.

482. Ficinia crinita (Poiret) B. L. Burtt, **comb. nov**.
Type: Cape of Good Hope, *Du Petit Thouars* 12 (P-n.v.)
Syn.: *Cyperus crinitus* Poiret, Encycl. Méth. 6:752 (1805).
Ficinia oligantha (Steudel) Raynal var. *crinita* (Poiret) Raynal in Adansonia 14:210 (1974)—which see for full synonymy.

J. Raynal (in *Adansonia* 14:200, 1974) showed that the name *Cyperus crinitus* Poiret was very probably a *lapsus calami* for *Scirpus crinitus*: nevertheless it is to be accepted as printed. Raynal further stated that he was unable to draw a satifactory distinction between '*Ficinia filiformis* sensu Levyns' and '*F. capillaris* sensu Levyns'. The former he had shown to be correctly named *F. oligantha* (Steudel) J. Raynal, the latter was the same as *Cyperus crinitus* Poiret, and he proceeded to reduce it to a variety of *F. oligantha*. However Poiret's name (1805) antedates Steudel's basionym of *F. oligantha* (1829) and if a species and variety relationship is to be maintained the ranking of the names must be reversed.

I am in no way competent to judge this taxonomic relationship. If these are thought to be two separate species, then they will be correctly known as *F. crinita* and *F. oligantha*; if there is thought to be only one, then it must be called *F. crinita*; the need for varietal recognition of *F. oligantha* can only be decided when critical studies have been made in the field; I therefore refrain from the possibly unnecessary varietal combination.

483. Ficinia dasystachys C. B. Cl. in Thiselton-Dyer, Fl. Cap. 7:251 (1898).
Type: E Cape, Komgha, 2000ft, ix, *Flanagan* 922 (K).
NATAL. Port Shepstone distr., 3130 AA, Port Edward, 100ft, 25 x 1975, *Stirton* 5651 (K).

Ficinia dasystachys was described without any ripe nutlets having been seen. If, as I believe, *Stirton* 5651 belongs to this species (despite the bracts below the inflorescence being shorter than in the type), then the nutlets are smooth, grey, bluntly trigonous and the hypogynium is well developed. The head of spikelets is globose with the individual spikelets projecting little. *F. dasystachys* has previously only been known from the type specimen: this is a new record for the Flora of Natal.

484. Ficinia filiculmea B. L. Burtt, **species nova** *F. acuminatae* (Nees) Nees affinis, sed glumis pallide brunneis sensim acutis (nec fere nigris abrupte recurvo-acuminatis) differt.

Herba perennis, caespitosa; rhizomata tenuia (c.2mm diam.), articulis brevibus nodosis aggregatis, squamis pallide brunneis papyraceis indutis, quoque articulo culmum unum emittente; stolones longiusculi, tenues, c.1mm diam., squamis laete brunneis crebre costatis lanceolatis acutis induti. *Culmi* plerumque 15–50cm longi, effusi vel erecti, filiformes, costati, virides, glabri. *Folia* plerumque ad vaginas rubro-brunneas ad basim culmi redacti; interdum vaginae superiores in laminam brevem viridem ad 3cm longam 0.3mm latam facie canaliculatam marginibus scabridulis excurrentes; interdum surculus folia ad 4 usque 50cm longa 0·75mm lata fere plana vel leviter canaliculata marginibus minute scabridulis emittens. *Bracteae* 2 (vel spicula solitaria una), rubro-brunneae, membranaceae, valde carinatae, carina viridi et excurrente, foliaceae, infima spiculam aequans vel paulo superans. *Spiculae* saepe solitariae, vel ad 4 apice culmi glomeratae, 4–6 × 1·5–2mm, rubro-brunneae, 3–12-florae. *Glumae* cymbiformes, c.3–4mm longae, saltem parte superiore rubro-brunneae, nervis lateralibus pallidis 8–10, carina in mucronem brevem acutum excurrente ea glumae infimae interdum longiore viridique. *Stamina* 3; filamenta c.1mm longa; antherae 2mm, appendice sterili triangulari pubescente. *Ovarium* 1mm; stylus 1mm, ramis 3 1·5mm. *Nucula* 2 × 1·5mm, trigona, testa grisea vel laete brunnea, laevis, nitens, minute reticulata cellulis latitudine longioribus; hypogynium obconicum, distincte trilobum.

Type: Natal, Underberg distr., 2929 CB, Upper Polela Cave area, c.6800ft, 14 ii 1979, *Hilliard & Burtt* 12564 (E holo., NU iso.).

NATAL. Bergville distr., 2829 CC, MnWeni area, steep S slope of Rockeries Peak, 9000ft, vii 1951, *Esterhuysen* 18677 (K). Underberg distr., 2929 CB, Sani Pass, c.7000ft, 26 i 1966, *Killick & Vahrmeijer* 3819 (K); ibidem, c.8600ft, 17 ii 1982, *Hilliard & Burtt* 15519 (E, NU); 5–7 miles, NNW of Castle View Farm, headwaters Mlahlangubo river, 8000ft, 23 i 1982, *Hilliard & Burtt* 15319 (E, NU); Garden Castle Forest Reserve, Mlambonja Valley, 7500ft, path to Mashai Pass, 8 i 1982, *Hilliard & Burtt* 15053 (E, NU); ibidem, stream valley beyond Forester's house, c.6400ft, 11 xi 1980, *Hilliard & Burtt* 13446 (E, NU).

E CAPE. Maclear distr., 3028 CA, Naude's Nek, c.8200ft, 13 ii 1983, *Hilliard & Burtt* 16613 (E, NU).

Ficinia filiculmea is, as it seems at present, most closely allied to *F. acuminata* (see above) from the Cape Peninsula. However that species can be easily distinguished by its almost black glumes that have a conspicuous recurved point.

This species we found first on ledges of a sandstone cliff, and then in the rocky grass bank of an incised stream. These plants had long trailing culms. Both the collections cited from Sani Pass (*Killick & Vahrmeijer* 3819, *Hilliard & Burtt* 15519) were erect plants and were at first taken to be a distinct species. However, there is no clear distinctive character and *Hilliard & Burtt* 16613 from Naude's Nek, which was growing in long wet grass on a steep slope, is somewhat intermediate in habit. They are all, therefore, regarded here as forms of a single species.

485. Ficinia nana B. L. Burtt, **species nova** *F. stoloniferae* Boeckeler affinis sed habitu semper nano, culmi basi saepe curvati, spiculis plerumque solitariis distinguenda.

Herba nana perennis, stolonifera, caespites nanos formantes; rhizomata brevissima, ad 5mm longa, 1mm diam., breviter horizontalia deinde erecta, vaginis papyraceis brunneis obtecta; stolones longiusculi, 5cm vel ultra, 0·5mm diam., squamis papyraceis pallide brunneis lanceolato-acuminatis induti. *Culmi* 1–8cm longi, c.0·5mm diam., virides, costati, glabri. *Folia* ad basin culmi aggregata, setacea, ad 6cm longa; vagina ad basin pallide brunnea, valde nervosa, brunneo-maculata, marginibus et dimidio superiore albida papyracea; lamina setacea, dorso rotundata, facie adaxiali complanata, costata, glabra sed costis ad apiceum interdum minute scabridulis, apice subacuto. *Inflorescentia* plerumque e spicula solitaria, unibracteata, interdum spiculis 2–3 et bracteis 2; bractea c.5–10mm longa, basi expansa vaginata, superne lamina viridi setacea, spiculam superans. *Spicula* c.2·5–4 × 1·5mm, laete vel fusce castanea, 3–8-floris, floribus superioribus in spiculis plurifloris masculinis. *Glumae* cymbiformes, c.2–2·5mm longae, castaneae, nervis lateralibus pallidis 12–14, carinatae; carina parte superiore pallida, acuta, ea glumae infimae excurrens, foliacea, spiculae aequalis. *Stamina* 3, filamentis c.1mm longis complanatis pallide brunneis, antheris 1·25mm luteis appendice triangulari translucente pubescente praeditis. *Ovarium* 1mm longum, stylo 1mm, ramis 3 1·5–2mm longis. *Nucula* c.1·25 × 1mm, trigona, angulis acutis, grisea, laevis; hypogynium c.0·3mm longum, obconicum, truncatum, flavidum.

Type: Natal, Mpendhle distr., 2929 BC, Highmoor Forest Reserve, ridge SE of Giant's Castle, headwaters of Elandshoek river, 7900ft, 6 i 1983, *Hilliard & Burtt* 16257 (E holo., NU iso.).

NATAL. Underberg distr., 2929 CA, Garden Castle Forest Reserve, Mlambonja valley, c.6800ft, 5 i 1982, *Hilliard & Burtt* 14907 (E, NU); Pillar Cave, c.6500ft, 9 xi 1977, *Hilliard & Burtt* 10528 (E, NU); 2929 CB, 5–7 miles NNW of Castle View Farm, headwaters Mlahlangubo river, 7000ft, 23 i 1982, *Hilliard & Burtt* 15370 (E, NU); ibidem, c.7000ft, 25 xi 1980, *Hilliard & Burtt* 13669 (E, NU); Lakes Cave area, c.7200ft, 12 xii 1982, *Hilliard & Burtt* 15950 (E, NU); 2929 CC, Tarn Cave above Bushman's Nek, c.7800ft, 20 xi 1983, *Hilliard & Burtt* 16788 (E, NU).

LESOTHO. Sehlabathebe, 2500m, 21 xi 1977, *Hoener* 1862 (NU).

Ficinia nana shows little morphological variation and has now been found from Giant's Castle to Sehlabathebe and Bushman's Nek. This is unlikely to be its full range, but it is a small plant and easily overlooked. It is obviously a close ally of the Drakensberg plant accepted as *F. stolonifera*, and technical differences in spikelets and nutlets are slight. However, its consistently small size and different habit over a wide area mark it off as a distinct entity. Equivalent herbarium specimens have not been found from outside the southern Drakensberg.

486. Ficinia undosa B. L. Burtt, **species nova** prope *F. filiformem* Schrader (*F. tenuifoliam* Kunth) ob hypogynium minimum et nuculam lineis

interruptis undulatis horizontalibus notatam ponenda; ab hac differt habitu robustiore, spiculis in capitulo numerosioribus.

Herba perennis caespitosa; rhizomata tenuia (2–3mm diam.), articulis brevibus nodosis squamis tenacibus fibrosis brunneis indutis; stolones breves, tenues (c.1mm diam.), ut rhizomata squamis lineari-lanceolatis induti. *Culmi* c.12–45cm alti, c.0.75mm diam., virides, glabri, crebre costati. *Folia* ad c.10, basi culmi aggregata, eo triente breviora; vaginae brunneae, crebre costatae, marginibus tantum membranaceis, demum in fibras dissolutae; lamina c.0·5–1mm lata, dorso rotundata, supra profunde et late canaliculata, crebre costata, marginibus minute scabridulis, apice obtuso. *Bracteae* 2, basi expansae glumaceae, carina viridi excurrente ea bracteae inferioris foliacea erecta inflorescentiam excedente, ea bracteae superioris breviore deflexa vel patente; bracteae minores in capitulo etiam adsentes. *Spiculae* numerosae, in capitulum sphaericum 6–12mm diam. aggregatae, raro paucae, c.4–7 × 1·5–2mm, 3–pluri-florae, pallide vel fusce rubro-brunneae. *Glumae* cymbiformes, usque c.3mm longae, rubro-brunneae saltem in parte superiore, nervis lateralibus pallidis 12–14, carina pallida in gluma infima in acumen breve excurrente in summa vix evoluta. *Stamina* 3; filamenta c.0·5mm longa; antherae c.1·25–1.5mm, appendice deltoidea sterili pubescente praeditae. *Ovarium* c.1mm longum; stylus 0·5mm, ramis 3 2·5mm longis. *Nucula* 1·25 × 1·25mm, angulis acutis trigona; testa rubro-brunnea, lineis rugosis griseis transversis undulatis praedita; hypogynium minimum, sub nucula sicca emarcidum.

Type: Natal, Mpendhle distr., 2929 BC, Mulangane ridge above Carter's Nek, 7000–7300ft, 4 ii 1984, *Hilliard & Burtt* 17551 (E holo., NU iso.).

NATAL. Bergville distr., 2828 DB, Royal Natal National Park near Basuto Gate, c.7200ft, 18 ii 1984, *Hilliard & Burtt* 17682 (E, NU); 2829 CA, Oliviershoek pass, above Little Switzerland, c.5700ft, 5 ii 1982, *Hilliard & Burtt* 15428 (E, NU). 2829 CC, Cathedral Peak Forest Station, 6850ft, 2 ii 1951, *Killick* 1383 (K). Mpendhle distr., 2929 BC, Mulangane ridge above Carter's Nek, 7000–7300ft, 3 ii 1984, *Hilliard & Burtt* 17546 (E, NU). Underberg distr., 2929 CB, 5–7 miles NNW of Castle View Farm, headwaters Mlahlangubo river, 7000ft, 21 i 1982, *Hilliard & Burtt* 15302 (E, NU); 2929 CC, vicinity of Tarn Cave above Bushman's Nek, 7300ft, 22 i 1984, *Hilliard & Burtt* 17496 (E, NU); Cobham Forest Reserve, Upper Polela cave area, c.6900ft, 14 ii 1979, *Hilliard & Burtt* 12535 (E, NU).

LESOTHO. Sehlabathebe National Park, 2300–2500m, 4–14 i 1973 *Guillarmod, Getliffe & Mzamane* 51 (E).

J. Raynal, having studied the early type specimens in the Paris herbarium, showed that the name *F. filiformis* (Lam.) Schrader had long been misapplied and that it must now be adopted for the plant commonly known as *F. tenuifolia* Kunth. It is to this plant that *F. undosa* is allied. The epithet *undosa* draws attention to the irregular wavy ridges on the surface of the nutlet, and these are one of the important links between *F. undosa* and *F. filiformis*. The other link is that in both species the hypogynium is obsolescent, and on the dry nutlet is scarcely visible. Raynal considered that *F. filiformis* is restricted to a small area of the SW Cape.

Ficinia undosa is more likely to be confused with *F. dasystachys* C. B. Cl., but, as shown above, this species must now be grouped with those that have a smooth trigonous oblong nutlet, quite distinct from that found in *F. undosa*.

487. Isolepis angelica B. L. Burtt, **species nova** fortasse *I. kilimanjaricae* Haines & Lye proxima, sed culmis folia superantibus, glumis marginibus angustis membranaceis distincta. Ab formis terrestribus *I. fluitantis* (L.) R. Br. spicula supra bractea foliacea sessili, styli ramis 3 (nec 2), nuculis trabeculatis recedit.

Herba nana perennis; rhizomata tenuia, diffusa, ramosa, c.1–2mm diam., flavida, internodiis ad 40mm longis primum vagina pallide aurantiaco-brunnea papyracea indutis, nodis radicantia et illic vel ramosa vel culmum foliaque emittentia. *Culmus* 5–40mm altus, filiformis, viridis, glaber, multicostatus. *Folia* 1–4 e basi culmi; vaginae papyraceae pallide aurantiaco-brunneae, nervosae, apice plus minusve truncatae; lamina culmum superans, viridis, setacea, obtusa, dorso paulo rotundata, facie adaxiali anguste canaliculata. *Bractea* 1, basi glumacea, carina excurrente foliacea spiculam superante. *Spicula* solitaria (vel ad 3? vide commentarium), 3–7 × 2–2·5mm, nigrescens, 4–pluri-flora. *Glumae* 2–3mm longae, cymbiformes, carinatae, nigro-rubro-brunneae angustissime albo-marginatae, nervis lateralibus c.10–12 inconspicuis, apice rotundato, carina ad apicem viridi brevissime excurrente. *Stamina* 3; antherae 1·5mm longae, appendice apicali minuta conica coronatae. *Ovarium* 0·5mm longum, stylo brevissimo, ramis 3 c.2mm longis. *Nuculae* 1–1·5 × 0·75–1mm, trigonae, ad basin angustatae, apice minute apiculatae, rubro-brunneae, longitudinaliter et tenuiter striatae, cellulis inter strias transverse oblongis.

Type: Lesotho, Sani Top, 9400ft, 9 i 1977, *Hilliard & Burtt* 9666 (E holo., NU iso.).

LESOTHO. Maseru distr., beyond Blue Mountain pass, xi 1976, *Schmitz* 6880 (ROMA). Butha Buthe distr., Tsehlanyane river valley, 9000ft, 13 ii 1961, *Guillarmod* 4080 (NU); ibidem, 13 ii 1961, *Lubke* 45 (NU); Oxbow Agric. Camp, 8500ft, *Williamson* 418 (K); Qacha's Nek distr., Sani, 1–2km N of chalet, c.2865m, 13 i 1977, *Killick* 4103 (NU).

CAPE. Barkly East distr., 3027 DB, Ben McDhui, c.8400ft, 3 xii 1981, *Hilliard & Burtt* 14688 (E, NU).

Isolepis angelica has previously been misdetermined as *Scirpus diabolicus* Steudel (=*Isolepis diabolica* (Steudel) Nees) and has been mentioned under that name by Killick (in *Bothalia* 12:539, 1979) when describing the vegetation at Sani Top. *I. diabolica*, however, came from the foot of Devil's Mt on the Cape Peninsula: it is a tufted plant, leaves and culms much taller than in *I. angelica*, the tufts linked by slender stolons and the inflorescences have 3–9 spikelets with lighter brown glumes. The epithet *angelica* emphasises the contrast to *I. diabolica* and also the lofty habitat of the species on the cloud-swept summit plateau of the Drakensberg.

The description given above refers to plants with solitary spikelets.

There are a few other specimens that have, on all except the smallest culms, a tight head of 2–3 spikelets:
LESOTHO. Qacha's Nek distr., Sani, valley towards Hodgson's Peak, c.9400ft, 9 i 1977, *Hilliard & Burtt* 9682 (E, NU); Sani, 1–2km N of chalet, c.2865m, 13 i 1977, *Killick* 4093 (E); Sehlabathebe 4–14 i 1973, *Guillarmod, Getliffe & Mzamane* 162 (K) & 240 (K); ibidem, 2400m, 28 xi 1977, *Hoener* 1876 (NU).
CAPE. Barkly East distr., Saalboom Nek, 13·4 miles SE of Clifford, 7200ft, 15 i 1959, *Acocks* 20188 (K).

At Sani this plant was only in flower when the typical form with one spikelet was fruiting freely. Further study is needed before any decision is taken about taxonomic recognition.

488. Isolepis costata var. **macra** (Boeck.) B. L. Burtt, **comb. nov.**
Type: Madagascar, E Imerina, Andrangoloaka, *Hildebrandt* 3738 (n.v.).
Syn.: *Scirpus macer* Boeck. in Bot. Jahrb. 5:503 (1884).
Scirpus costatus (A. Rich.) Boeck. var. *macer* (Boeck.) Cherm. in Bull. Soc. Bot. Fr. 74:607 (1927).
Selected citations:
NATAL. Underberg distr., 2929 CB, Cobham Forest Reserve, Sipongweni tarn, 6500ft, 19 ii 1981, *Hilliard & Burtt* 13974 (E, NU); N side of Bamboo Mt near Umzimkulwana R., 5100ft, 22 xi 1982, *Hilliard & Burtt* 15656 (E, NU); 2929 CC, Garden Castle Forest Reserve, track to Crystal Waters, 6000–6200ft, 5 xii 1980, *Hilliard & Burtt* 13842 (E, NU); ibidem, near forester's house, 6000ft, 4 xii 1980, *Hilliard & Burtt* 13799 (E, NU).

The current tendency is to regard the plants represented by this varietal name as trivial, perhaps ecological, variants of *Isolepis costata* (Gordon-Gray in Ross, *Fl. Natal* 109 (1973), under *Scirpus*; Haines & Lye, *Rushes & Sedges of E Africa* 135–6, 1983). I am less confident. *I. costata* var. *macra* is not necessarily found under recognizably poor growing conditions, and, although occasional plants are difficult to place, the finer more delicate culms of var. *macra* are usually distinctive; sometimes, too, the sheaths are tipped by a lamina up to 5mm long. Plants of var. *macra* may, indeed, look as though they are leafy at the base: this however is due to the production of a number of fine green culms that only bear an aborted inflorescence. That might seem to support the idea that the variety is a result of poor growing conditions, but the production of sterile culms is not a necessary feature. The variety needs much more critical investigation; it would be a mistake to drop the name that draws attention to its existence.

489. Isolepis pellocolea B. L. Burtt, **species nova** ob nuculas trigonas faciebus laevibus *I. proliferae* (Rottb.) R. Br. affinis, sed caespitibus robustioribus, inflorescentiis haud proliferis, spiculis brevioribus inter se aequilongis distinguitur. Ab *I. costata* A. Rich., cui facie similis, vaginis conspicuis fusco-brunneis, culmis rigidioribus praecipue nucula trigona faciebus laevibus (nec trabeculata) longe recedit.

Herba dense caespitosa, aphylla, ad 0·75m alta. *Vaginae* basales fusco-

brunneae, parte superiore paulo pallidiore, c.10cm longae, apice ore obliquo, apiculo viridi lanceolato 2–3mm longo terminatae. *Culmi* teretes sulcati, c.1mm diam. *Inflorescentia* 0·7mm diam., spiculis c.20, bractea c.5–6mm longa basi expansa apice apiculo obtuso c.2mm longo praedita. *Spiculae* c.4mm longae, c.6-florae; glumae cymbiformes, 3mm longae, marginibus hyalinis exceptis inter nervos interrupte castaneo-lineolatae, nervis pallidis 12–14, apice incrassato vel glumae infimae in apiculum obtusum viridem producto. *Stamina* 3; filamenta plana, pallide brunnea, 1mm longa; antherae 1mm. *Ovarium* 1·5mm, oblongum trigonum; stylus 1mm, ramis 3 0·5mm longis. *Nuculae* oblongae, trigonae, breviter apiculatae, 1·25mm longae, laeves; cellulae epidermidis transverse elongatae parietibus superficie inconspicuis.

Type: Natal, Underberg distr., 2929 CC, vicinity of Tarn Cave, above Bushman's Nek, c.7800ft, 21 i 1984, *Hilliard & Burtt* 17468 (E holo., NU iso.).

NATAL. Underberg distr., 2929 CB, 5–7 miles NNW of Castle View farm, headwaters of Mlahlangubo river, below Wilson's cave, 6800ft, 26 xi 1980, *Hilliard & Burtt* 13677 (E, NU); ibidem, 23 i 1982, *Hilliard & Burtt* 15371 (E, NU).

Isolepis pellocolea forms dense tussocks in areas of closed marsh. It could easily be passed by as particularly robust *I. costata*, but when the tussock is parted the dark brown shining sheaths are very conspicuous. It is these dark sheaths that give the species its name: from the Greek words pellos–dark and koleos–sheath. Another small vegetative difference is to be found in the reduced blade that tips the inner leaf sheaths; the mouth of the sheath itself is oblique and the reduced blade is lanceolate in shape and subacute to obtuse at the tip; in *I. costata* the mouth of the sheath is truncate, the reduced lamina is linear and is very obtuse at the tip.

Although *Isolepis pellocolea* is most likely to be confused with *I. costata* in the field, its true affinity lies rather with *I. prolifera* (Rottb.) R. Br. *I. costata* has a ribbed, trabeculate nut, similar to that of *I. setacea* (L.) R. Br.; *I. pellocolea* has a trigonous nut with smooth faces, as found in *I. prolifera*. However, *I. prolifera* does not occur in the mountains, is not densely tufted, has heads of spikelets that are of markedly unequal length and usually at least 1 or 2 proliferous heads on a plant. Confusion here is unlikely.

Growing in the same marshy area as the type specimen of *I. pellocolea* was *Scirpus ficinioides* Kunth (*Hilliard & Burtt* 17467), but this is easily distinguished in the field not only by paler sheaths but by the long bract, many times longer than the inflorescence and ending in a fine sharp point. *S. ficinioides* has hypogynous bristles, absent in *Isolepis*.

490–494. Schoenoxiphium Nees in Linnaea 7:531 (1833); C. B. Cl. in Thiselton-Dyer, Fl. Cap. 7:297–299 (1898); Kükenthal in Pflanzenr. Heft 38, Cyperaceae-Caricoideae 28–33 (1909); Kukkonen in Bothalia 14: 819–823 (1983).

Type species: *S. capense* Nees (=*S. lanceum* (Thunb.) Kük.).

The following diagnostic descriptions of new species have been supplied by Dr I. Kukkonen (Helsinki) in order to make the names available for

use. Full descriptions and discussion will appear in his monograph of the genus now in preparation.

490. Schoenoxiphium altum Kukkonen, **species nova**.

Planta laxe caespitosa, 50–75cm alta, stolonibus longis. *Caulis* 0·5–1·5mm diam., trigonus vel subtrigonus. *Folia* ultra medium caulis attingentia; laminae 3–4·5mm latae, longe attenuatae, utrinque plus minusve papillosae. *Inflorescentia* e coflorescentiis c.10, inferioribus remotis. *Bracteae* angustae, filiformes, inflorescentiis longiores. *Glumae* femineae 5–6mm longae, acutae, carinatae. *Utriculi* 6–7·6mm longi, fusiformes, nitentes, laeves, stipite 0·6–0·8mm et rostro 1·9–2·7mm inclusis. *Rhachilla* 3·8–4·5mm. *Nuculae* 3·6–4·3 × 0·9–1·1mm plus minusve fusiformes.

Type: Cape, George div., Saasveld, Groeneweidebos, 300m, 2 iii 1982, *Geldenhuys* 622 (H).

Schoenoxiphium altum, like *S. lehmanii*, is a plant of the forest floor.

491. Schoenoxiphium bracteosum Kukkonen, **species nova**.

Planta caespitosa, 40–90cm alta, stolonibus brevibus ascendentibus. *Caulis* 1–1·5mm diam., teres. *Folia* plus minusve ad medium caulem attingentia; vaginae griseo-brunneae, demum in fibras fissae; laminae 3–4mm latae, planae. *Inflorescentia* e coflorescentiis imbricatis sursum decrescentibus. *Bracteae* filiformes inflorescentias aequantes vel superantes, infima vagina ad 10mm praedita. *Glumae* femineae 3·6–5·4mm longae, truncatae acumine ad 3·5mm incluso. *Utriculus* 3·2–3·5 × 1·3–1·4mm, obovatus vel ellipsoideus, plano-convexus, stipite 0·6–0·7mm et rostro 0·4–0·7mm paulo scabro inclusis. *Rhachilla* c.2·6–3mm. *Nuculae* 2·2–2·4 × 1·2–1·4mm, planoconvexae.

Type: Cape, Barkly East distr., 3027 DB, Ben McDhui, 9000ft, in grass tussocks on hillside, 5 ii 1983, *Hilliard & Burtt* 16471 (H holo.; E, NU iso.).

Schoenoxiphium bracteosum is one of a group of species closely allied to *S. sparteum* (Wahlenb.) C. B. Cl. It has a wide range in the mountains on the E Cape–Lesotho border and in the southern Natal Drakensberg.

492. Schoenoxiphium burttii Kukkonen, **species nova**.

Planta robusta ad 120cm alta; caulis 3–5mm diam., trigonus. *Folia* laminis 8–12cm latis. *Inflorescentia* e coflorescentiis ovatis brunneis 2–5 pedunculis 150mm longis composita. *Bracteae* inflorescentias aequantes vel superantes vaginis ad 60mm longis. *Glumae* femineae 5·6–7·1mm longae. *Utriculus* 5·6–7·8mm longus, rostro 2–2·3mm longo incluso, plano-convexus, distincte nervosus. *Rhachilla* 6·3–7·5mm. *Nucula* 4·8–5 × 1·4–1·5mm.

Type: Natal, Underberg distr., 2929 CB, Chameleon Cave area, c.5 miles N of Castle View farm, 6700ft, forming loose clumps at streamside, inflorescences pendulous, 2 xii 1984, *Hilliard & Burtt* 17812 (H holo.; E, NU iso.).

Schoenoxiphium burttii is probably the largest species of the genus and its rich brown pendulous inflorescences make it a conspicuous feature. It is found on streamsides and on wet scrubby or more rarely grassy slopes.

493. Schoenoxiphium molle Kukkonen **species nova**.

Herba perennis, laxe caespitosa, 20–40cm alta. *Caulis* 0·5mm diam., trigonus, angulis scabriusculis. *Folia* caules aequantia vel superantia, flexuosa, gracilia; lamina 1·5–2·3mm lata, plana, ad apicem filiformem attenuata, facie adaxiali papillosa. *Inflorescentia* e grege terminali coflorescentiarum c.25mm longa et plerumque gregibus 2–4 coflorescentiarum in axillis foliorum caulinum. *Bracteae* inflorescentias aequantes vel superantes. *Glumae* femineae 3·4–4·1mm obtusae vel acutae, costa viridi, marginibus brunneis et late scariosis. *Utriculi* 4·6–4·7 × 0·6–0·7mm, fusiformes, validiuscule nervosae, stipite c.0·4mm, rostro 1·5–1·6mm longo; apex rhachillae in ore ostiolae visibilis.

Type: Natal, Underberg distr., 2929 CB, 5–7 miles NNW of Castle View farm, headwaters of Mlahlangubo river, c.7000ft, at damp mouth of sandstone cave, 23 xi 1980, *Hilliard & Burtt* 13574 (H holo.; E, NU iso.).

Schoenoxiphium molle, like *S. strictum*, belongs to subg. *Galpinia* Kükenthal, which was based on *S. filiforme* Kük. It is softer than either of the other species and is found on damp cliffs and at the mouth of caves and overhangs.

494. Schoenoxiphium strictum Kukkonen, **species nova**.

Planta caespitosa, 30–50cm alta. *Caulis* 0·5mm diam., teres, laevis. *Folia* dimidium caulis aequantia, erecta; lamina 0·3–0·5mm lata, canaliculata. *Inflorescentia* plerumque e coflorescentiis c.10 subterminalibus c.20mm longis composita, interdum insuper 1–2 inferioribus remotis additis. *Bracteae* inflorescentia breviores, basi aperte vaginatae. *Glumae* femineae 2·7mm longae, obtusae vel acutae, medio virides, marginibus laete brunneis scariosis. *Utriculi* 4·3–4·6 × 0·6–0·8mm, anguste ovati, valde nervosi; rostrum 0·8–1mm. *Rhachilla* 3·5–4·5mm. *Nuculae* 2·6 × 0·8mm, anguste ovatae.

Type: Natal, Underberg distr., 2929 CA, Garden Castle Forest Reserve, Mlambonja Valley, 6800ft, in grass on Cave Sandstone ridge, forming small clumps, 5 i 1982, *Hilliard & Burtt* 14909 (H holo.; E, NU iso.).

DIPSACACEAE

(B. L. Burtt)

495. Cephalaria galpiniana Szabó subsp. **simplicior** B. L. Burtt **subsp. nova** a subsp. *galpiniana* segmentis foliorum latioribus dentatis (nec segmentis angustis iterum pinnatisectis) et statura robustiore differt.

Type: Natal, Underberg distr., 2929 CB, Upper Polela Cave area, c.6800ft, 14 ii 1979, *Hilliard & Burtt* 12568 (E holo., NU iso.).

Selected citations:

NATAL. Estcourt distr., Giant's Castle Game Reserve, Bannerman Pass, c.8000ft, 28 iv 1968, *Hilliard* 4825 (E, NU). Mpendhle distr., 2929 AD, upper Loteni valley, vicinity of Ash Cave, 6500ft, 7 ii 1985, *Hilliard &*

Burtt 18192 (E, NU). Underberg distr., 2929 CB, Sani Pass, c.8500ft, 23 iii 1977, *Hilliard & Burtt* 9807 (E, NU); 5–7 miles NNW Castle View farm, headwaters of Mlahlangubo R., 8500ft, 23 i 1982, *Hilliard & Burtt* 15325 (E, NU); 2929 CC, below Devil's Knuckles (Thaba Ntšo), above Bushman's Nek, c.8100 ft, 23 xi 1983, *Hilliard & Burtt* 16908 (E).
CAPE. Maclear distr., Naude's Nek, 8200ft, 22 ii 1971, *Hilliard & Burtt* 6716 (E, NU).
LESOTHO. Maseru distr., Ramosebo Pass, Makhoalipana gorge [29°43′S 27°49′E], 9200ft, 15 i 1954, *Guillarmod* 1811 (PRE). Leribe distr., above Soloane, 8200ft, 9 i 1960, *Guillarmod* 3897 (PRE). Central distr., Thaba Tseou, 8000ft, i 1946, *Archibald* 700 (GRA), 701 (GRA).

Cephalaria galpiniana was described from a specimen collected by E. E. Galpin on Satsanna's Peak, just within Lesotho and some 30 miles north of Naude's Nek, its only other known locality as yet. *C. galpiniana* subsp. *simplicior* is much more widespread and is not uncommon along the face of the Drakensberg from Giant's Castle southward to the Natal border at altitudes between 2060 and 2750m. There is then an apparent gap, probably due to lack of collecting, to Naude's Nek where it grew in coarse grass at the foot of a cliff, not far from populations of subsp. *galpiniana* in short turf and in gravel patches. *C. galpiniana* subsp. *simplicior* has also been collected on the western side of Lesotho and here the lower leaves tend to be more strongly lyrate and the margins of the terminal lobe bluntly rather than sharply toothed. There is certainly a lot more to learn about both the morphological and geographical range of this subspecies.

JUNCACEAE

496. Juncus mollifolius Hilliard & Burtt, **species nova** ut videtur prope *J. capensem* Thunb. ponenda, a qua stylo brevissimo, antheris filamentis brevioribus et habitu foliis mollibus caules florentes superantibus differt. A *J. dregeano* Kunth foliis mollibus, caulibus florentibus tenuissimis, perianthiis laete brunneis distinguenda.

Herba rhizomate verticali simplice. *Folia* plana, mollia, caules florentes superantes, linearia, acuminata, 5–15cm longa et 2–3mm lata, c.7-nervia, basi vagina aperta. *Caules* florentes axillares, tenues, vix 0·5mm diam., 5–12cm longi, aphylli. *Inflorescentiae* capituliformes, prima subsessilis, 1–3 in pedunculis lateralibus c.15–20mm longis plerumque additae; capitula usque 7mm diam., 3–7-flora. *Bracteae* c.3·5mm longae, basi 1mm latae, triangulari-acuminatae, uninerviae, plus minusve membranaceae. *Pedicelli* vix 1mm longi. *Tepala* 3·5–4 × 1mm, interiora minime breviora, acuminata, medio laete brunnea, 3-nervia, marginibus membranaceis. *Stamina* 6; filamenta c.1mm longa; antherae 0·5mm. *Stylus* brevissimus, vix 0·5mm longus. *Capsula* oblongo-truncata, 2–2·5mm longa, brevissime apiculata. *Semina* late ellipsoidea, 0.5mm longa, apice mamillata, tenuissime costata, cellulis inter costas transverse elongatis, laete brunnea.
Type: Natal, Mpendhle distr., 2929 BC, Mulangane ridge above Carter's Nek, c.7000ft, 5 ii 1984, *Hilliard & Burtt* 17596 (E holo., NU iso.).

NATAL. Same population as type, 12 iii 1985, *Hilliard & Burtt* 18354 (E, K, NU, PRE).
LESOTHO. Butha Buthe distr., Tsehlanyane river valley, 10,000ft, ii 1961, *Guillarmod* 4075 (E, NU). Qacha's Nek distr., Sehlabathebe National Park, 2300–2500m, 4–14 i 1973, *Guillarmod, Getliffe & Mzamane* 56 p.p. (Durban-Westville, E, K).

The population of *Juncus mollifolius* on Mulangane ridge was in mud under a wet sandstone overhang, and there thus seemed to be a possibility that some of its features might be due to the unusual habitat. That this is not so is shown by the notes with *Guillarmod* 4075, 'small water-logged area, open, among dwarf shrubs of valley head'. Nor is there any reason to suppose that the Sehlabathebe specimen was not in open ground, in fact the collection is a mixture of *J. mollifolius* and a curious dwarf form of *J. exsertus* Buch. which we ourselves have collected in dwarf marsh turf on Ben McDhui.

Obermeyer (in *Fl. Southern Afr.* 4(2):83, 1985) has taken a broad view of *Juncus capensis* and reduced to it a number of species which Adamson (in *J. Linn. Soc., Bot.* 50:1–38, 1935) had tried to distinguish. Amongst these synonyms it is *J. sphagnetorum* (Buch.) Adamson that shows some resemblance to *J. mollifolius*: however the tepals are more strongly dimorphic, the capsule has a much longer apiculus, and the leaves, though grass-like and soft, are distinctly narrower. The other forms of *J. capensis* differ in their distinctly tufted habit with the flowering stems clearly overtopping the leaves: this in addition to the floral differences given in the diagnosis.

Juncus dregeanus Kunth is common in the Drakensberg, but even small forms of it have narrower erect leaves and the flower heads are dark brown, almost black. It, like *J. capensis,* becomes a tufted plant. The only other ally for *J. mollifolius* is *J. lomatophyllus* Spreng., but even small forms of this species found on the Cape Peninsula maintain their strongly repent stoloniferous growth and robust inflorescences; also it has anthers longer than the filaments (in *J. mollifolius* they are shorter) and a long style.

LEGUMINOSAE

407. Dolichos junodii (Harms) Verdcourt in Mitt. Bot. München 7:327 (1970) & in Kew Bull. 24:425 (1970).
Syntypes: Moçambique, Lourenço Marques, 30m, xi 1897, *Schlechter* 11538 (K); Delagoa Bay, *Junod* 20 (B†).
Syn.: *Vigna junodii* Harms in Bot. Jahrb. 30:93 (1901).
NATAL. Ubombo distr., Tongaland, Umbhanga Nek, 180ft, 14 xii 1964, *Bourquin* 370 (K, NH, NU); Tongaland, *Bourquin* 365A (E, K, NH, NU).

This is yet another addition to Ross, *Flora of Natal* (1973). The species has been recorded from the Okavango, from Makarikari Pan, from the mouth of the Zambezi, and from the shores of Delagoa Bay, so it is not surprising that it should occur in Tongaland, which is the southern extension of the Moçambique coastal plain. It is a plant of sandy areas and Dr Bourquin collected it in open patches in dune forest.

In general facies *D. junodii* resembles *D. trilobus* L., which is widespread in lowland Natal, but it is at once distinguished by its flattened stigma (unique in *Dolichos*) being bearded particularly in front; in *D. trilobus*, the stigma is bearded all round.

LILIACEAE

498. Galtonia regalis Hilliard & Burtt, **species nova** *G. viridiflorae* Verdoorn maxime affinis sed foliis longioribus angustioribusque saturate viridibus (nec laete viridibus glaucescentibus), floribus viridi-cremeis paulo majoribus, filamentis applanatis facie interiore linea media elevata distinguenda.

Syn.: [*Galtonia viridiflora* auct. non Verdoorn; Verdoorn in Fl. Pl. Afr. 30, sub tab. 1188 (1955) quoad specimina natalensia; Killick in Mem. Bot. Surv. S. Afr. 53:121 (1963); Trauseld, Wild Flow. Natal Drak. 19, 20 (1969).]

Bulbus tunicatus, ovoideus, c.7 × 6cm. *Folia* c.6, longitudine pervariabilia, lorata, 15–55 × 3·5–6·5cm, ad apicem acutum abruptius (praecipue foliis brevioribus) angustata, marginibus angustis hyalinis integris. *Scapus* teres, robustus, c.30–80cm altus. *Bracteae* infimae 2·5–5·5cm, sursum decrescentes, lanceolato-acuminatae, primum pallide virides, membranaceo-marginatae, basi auriculatae, mox marcescentes. *Pedicelli* 1·5–2cm tempore florendi, sub fructibus ad c.3·5cm elongati et sursum curvati. *Flores* penduli, c.10–20, viridi-cremei. *Pegrigonii* tubus c.12 × 8mm; tepala exteriora c.16–25 × 5·5–9mm, elliptica, interiora c.15–22 × 6–13mm, oblonga. *Filamenta* ad apicem tubi orientia, c.9mm longa, basi 3mm lata, sursum angustata, plana, facie interiore linea elevata notata. *Antherae* dorsifixae, brunneae, 2mm longae. *Ovarium* saturate viride, c.12 × 4mm, cylindricum, sessile; stylus albus, c.7mm longus, stigmate trilobo papilloso incluso. *Capsulae* erectae, plus minusve conicae, c.3cm longae, basi 1·5cm latae, sursum attenuatae. *Semina* nigra, compressa, c.6 × 3mm, numerosa.

Type: Natal, 2828 DB, Royal Natal National Park, Tugela gorge, c.6100ft, 2 ii 1982, *Hilliard & Burtt* 15382 (E holo., NU iso.).

NATAL. Bergville distr., 2828 DB, 28 i 1957, *Pardoe* s.n. (NH 46729); Mts near National Park, *O'Connor* s.n. (PRE 28550); Cathedral Peak area, ravine below Cathedral Peak, 7900ft, ii 1943, *Schelpe* 90 (NU); ibidem, 8200ft, *Bursell* s.n. (NU); ibidem, 5800–10000ft, *Killick* 1314 (PRE); ibidem, below Organ Pipes pass, c.8000ft, 22 i 1955, *Edwards* 1175 (NU). Estcourt distr., Bushman's Pass, 7200–9000ft, *West* 1701 (K, NH); Berg valley [Bushman's River area], 7000–8000ft, i 1895, *Evans* 360 (K, NH); Giant's Castle, 7520–9270ft, 17 i 1947, *Bruyns-Haylett* 87 (E, NU). Mpendhle distr., 2929 BC, Highmoor F.R., ridge SE of Giant's Castle, c.8000ft, 4 i 1983, *Hilliard & Burtt* 16181; 2929 AD, upper Loteni valley, vicinity of Ash Cave, 6400ft, 5 ii 1985, *Hilliard & Burtt* 18120 (E, NU); ibidem, 6500ft, 6 ii 1985, *Hilliard & Burtt* 18179 (E, NU); upper Hlatimba valley, i 1985, *Small* s.n. (E, NU).

Galtonia regalis takes its epithet from the Royal Natal National Park, where we first found it, and from its lofty enthronement on the cliffs of

the Tugela gorge. Further acquaintance with the species in other localities confirms its preference for cliff habitats. From our first sight of the plant we decided that it must be distinct from *G. viridiflora* Verdoorn, which we already knew from a collection made at Molimo Nthuse in Lesotho (*Hilliard & Burtt* 12077). The longer, darker green leaves, and more yellow flowers seemed distinctive enough, but leaf measurements became less reliable as more material was studied, and reliance on the proportions of perianth tube to lobes (used by Verdoorn in distinguishing *G. viridiflora, G. princeps* and *G. candicans*) was not very satisfactory. However one clear-cut character has been found in the shape of the filaments; in *G. viridiflora* they are terete above, flattened and slightly expanded near their origin from the perianth-tube; in *G. regalis* they are flattened throughout with a distinct median ridge on the inner face and they are strongly expanded towards the base. Fortunately this character can be seen in dried material when it is boiled up.

Using this criterion it has been found that *G. regalis* has been confused with *G. viridiflora* ever since that species was first described; the Natal specimens cited by Dr Verdoorn all belong to it. Elucidation of this tangle has led to a virtual revision of *Galtonia*: this, including a key to the species, will be published shortly.

MALVACEAE

499. Hibiscus palmatus Forsk., Fl. Aegypt.-Arab. 126 (1775); Exell in Exell & Wild (ed.), Fl. Zam. 1(2):469, tab. 89 f. 5 (1961); Pooley in J. S. Afr. Bot. 44:38 (1978).

Type: Arabia, near Moccha, *Forsskal* (C—herb. Forsk. No. 604 n.v.—IDC micro. No. 54).

Syn.: *Hibiscus aristivalvis* Garcke in Bot. Zeit. 7:849 (1849). Type: Mozambique, Sena, *Peters* (B†).

NATAL. Ingwavuma distr., Ndumu Game Reserve, adjacent to Banzi Pan, 20 i 1969, *Pooley* 354 (E, NU); ibidem, 20 ii 1970, *Pooley* 821 (E).

This species is not recorded in Ross, *Flora of Natal* (1973). It is a tropical plant at the southern end of its geographical range in northern Zululand, and one of the many interesting collections made there by Mrs E. Pooley.

ROSACEAE

500. Alchemilla colura Hilliard, **species nova** *A. quinquelobae* Rothm. affinis sed lobis foliorum plus minusve truncatis, utrinque dentibus 3–4 oblongis mediano duplo longioribus (nec lobis rotundatis utrinque dentibus 5 suborbicularibus mediano aequalibus) instructis distinguenda.

Herba perennis, tegetiformans; caules prostrati vel decumbentes partibus juvenilibus tenuiter patenti-pilosa. *Stipulae* usque ad c.10 × 7mm, ambitu plusminusve oblongae, apice profunde dentato, subtus et marginibus tenuiter pilosae. *Folia* petiolis c.(10–)20–30mm longis, tenuiter patenti-pilosa; lamina usque ad c.15 × 30mm, reniformis, ad tertiam partem 5-loba; lobi ambitu hemisphaerici, 7–9-dentati, supra tenuiter appresse pilosi, subtus praecipue ad nervos densius pilosi. *Paniculae* axillares, usque

ad 100mm longae, parte florifera 30mm. *Flores* subsessiles, in axillis bractearum ad apicem hypanthii attingentium; hypanthium 1·5mm longum; sepala c.1·25mm longa, deltoidea; episepala c.0·5–0·75mm longa, linearia vel elliptica, omnia tenuiter pilosa. *Stamina* 4. *Stylus* solitarius, stigmate capitato.

Type: Cape, Maclear distr., ascent to Naude's Nek, c.8000ft, 19 ii 1971, *Hilliard & Burtt* 6607 (NU holo.; E, K, MO, PRE iso.).

NATAL. Mpendhle distr., 2929 BC, Highmoor F. R., ridge SE of Giant's Castle, headwaters of Elandshoek river, 8000ft, 5 i 1983, *Hilliard & Burtt* 16214 (E, NU). Underberg distr., 2929 CB, Sani Pass, 9000ft, 25 i 1966, *Killick & Vahrmeijer* 3742 (K). Alfred distr., 3029 DA, Weza, Ngeli Mt, c.6000ft, 2 i 1969, *Hilliard & Burtt* 5768 (E, NH, NU); ibidem, c.6500ft, 4 i 1969, *Hilliard & Burtt* 5830 (E, NH, NU).

LESOTHO. Sani Top, 9500ft, 9 xi 1973, *Hilliard & Burtt* 7152 (E, K, NU, PRE); ibidem, valley leading to Hodgson's Peaks, 9400ft, 1 i 1974, *Hilliard* 5431 (E, K, NU, PRE). Sehlabathebe National Park, 2300–2500m, 4–14 i 1973, *Guillarmod, Getliffe & Mzamane* 298 (K).

CAPE. Maclear–Barkly East boundary, Naude's Nek, c.8200ft, 27 xi 1971, *Hilliard* 5188 (E, K, NU, PRE).

Alchemilla colura runs down next to *A. quinqueloba* Rothm. in Rothmaler's key (in *Fedde Repert.* 42:120, 1937) to the species of *Alchemilla* in section *Longicaules* subsect. *Elongatae*, but it is at once distinguished by the shape of the leaf lobes, which are almost truncate in our plant, not rounded as in *A. quinqueloba*. This feature suggested the specific epithet (coluros = truncated), and its distinctiveness is enhanced by the toothing of the lobes: in *A. colura* the median tooth is considerably shorter than the other teeth, which number 3–4 and are roughly oblong in shape; in *A. quinqueloba* there are 5 suborbicular teeth each side of the median lobe, which equals them in length.

Alchemilla colura is found in the Drakensberg, in Lesotho, Natal and the Cape, as well as on Ngeli Mountain on the Natal–Transkei border, between c.1800 and 2900m above sea-level, forming mats in damp turf or on damp earth by streams. The commonest species in the Drakensberg up to c.3200m is *A. natalensis* Engl.; this is easily distinguished from *A. colura* by its shorter petioles, which rarely exceed 10mm (mostly 20–30mm in *A. colura*).

We know *A. quinqueloba* only from the type specimen, which was collected near Kentani, Transkei (*Pegler* 1506, K), at 460m above sea-level (that is, 1500ft, not 1500m as recorded by Rothmaler).

SCROPHULARIACEAE

501. Alectra basutica (E. Phillips) Melchior in Notizbl. Bot. Gart. Mus. Berlin 15:125 (1940), 437 (1941).

Type: Lesotho [presumably Leribe plateau], mountain slopes, April, *Dieterlen* 432b (iso. K).

Syn.: *Melasma basutica* E. Phillips in Ann. S. Afr. Mus. 16:225 (1917).

NATAL. Underberg distr., Bamboo Mt, north face, c.1650–1950m, 8 iv

1977, *Hilliard & Burtt* 10073 (E, NU). Weenen distr., near Weenen, 900–1200m, 11 iv 1891, *Wood* s.n. (E).

Alectra basutica has not previously been recorded from Natal. For further discussion see under *A. thyrsoidea* (no. 504 below).

502. Alectra capensis Thunb., Pl. Nov. Gen. 82 (1974); Melchior in Notizbl. Bot. Gart. Berlin 15:432 (1941)—which see for full references and synonymy.
Type: Cape of Good Hope, near Zeeko, Sondags and Callieaus rivers [Humansdorp and Port Elizabeth districts], *Thunberg* (UPS, n.v.—I.D.C. sheet 14641). [The type sheet is not localized.]
Selected citations:
TRANSVAAL. Houtboschberg, 233m, 10 xi 1894, *Schlechter* 4458 (E); New Agatha Forest Station, Wolkberg, c.5300ft, 12 iii 1981, *Hilliard & Burtt* 14299 (E, NU). Lydenburg, bei den Kuilen, ii 1888, *Wilms* 1092 (E).
NATAL. Utrecht distr., Nauwhoek, 2050m, 5 ii 1977, *Devenish* 1676 (E, NU). Umzinto distr., Dumisa, farm Friedenau, 600m, 27 x 1910, *Rudatis* 1227 (E).
CAPE. East London distr., Morgan's Bay, Double Mouth, 50ft, 29 i 1979, *Hilliard & Burtt* 12441 (E, NU). Stockenstrom div., summit of Lushington Mt, xi 1884, *Scully* 127 (E). Barkly East distr., 3028 CA, Kloppershoek valley NE of Rhodes, c.7500ft, 14 ii 1983, *Hilliard & Burtt* 16646 (E, NU); 3127 AB, Saalboom valley S of Clifford, 6500ft, 12 i 1979, *Hilliard & Burtt* 12310 (E, NU). Lady Grey distr., 3027 BC, Witteberg, Joubert's Pass, c.6800ft, 19 i 1979, *Hilliard & Burtt* 12239 (E, NU). Cathcart distr., Windvogelberg, c.5400ft, 8 xii 1981, *Hilliard & Burtt* 14784 (E, NU). Stockenstrom div., Katrivier, 2000–3000ft, *Drège* (E). [Albany distr.?] Klein und Groot Vischrivier, 2000–3000ft, *Drège* (E). Uitenhage distr., Zwartkopsrivier, *Zeyher* 233 (E).

The above citations give an outline of the geography of the species. The altitudinal range in the Eastern Cape is noteworthy: from just above sea level near the Cape–Transkei border to 7500ft (2285m) some 140 miles (225km) inland in the Barkly East district near Rhodes. See discussion under *A. thyrsoidea* (no. 504 below).

503. Alectra sessiliflora (Vahl) O. Kuntze, Rev. Gen. 2:458 (1891); Melchior in Notizbl. Bot. Gart. Berlin 15:437 (1941); Hepper in Kew Bull. 14:404 (1960). [See Melchior and Hepper for full synonymy.]
Type: Cape of Good Hope, *Bulow* (C—n.v.).

Hepper (in *Kew Bull.* 14:402, 1960) recorded variation in the hairiness of the filaments in *A. sessiliflora*. He was concerned chiefly with the tropical African material, in which the longer filaments are bearded, the shorter glabrous; but he remarked that nearly all the S African specimens examined had all the filaments glabrous. Melchior (in *Notizbl. Bot. Gart. Berlin* 15:429, 1941) had allowed in his key only for plants of *A. sessiliflora* with the long filaments bearded, but noted that one specimen from Natal (*Rudatis* 870) was exceptional in having them all glabrous. We have now made more extensive studies of this character.

In Natal and nearby, plants may have all the filaments glabrous, or the longer bearded, the shorter glabrous, or all filaments may be hairy, though the shorter ones are then always less densely so than the upper. Indeed it may be that the shorter ones carry only two or three long hairs. There seems to be no pattern in the distribution of plants with the shorter filaments bearing some degree of indumentum and for the present we regard this as just a casual variation. Melchior took the same view when in his key he wrote (p. 429) 'filamenta ... antica glaberrima vel interdum pilis nonnullis obsita'.

Unfortunately herbarium sheets usually consist of only one or two specimens and are inadequate as population samples, for, as we show below, populations with mixed filament characters certainly occur. Nevertheless, where a good number of specimens from a region fail to show any with bearded filaments, it is a reasonable deduction that such plants are absent.

This is the position in Natal. All the specimens from near the coast have all the filaments glabrous and this condition is held through coastal Transkei, the Eastern Cape and on to the Cape Peninsula.

In the Natal Midlands and in the Drakensberg it is usual for the upper filaments to be bearded and the lower glabrous, or populations are mixed with some plants of this type, others having all the filaments glabrous. Individual herbarium specimens from this area (e.g. *Allsopp* 1027, Pietermaritzburg—NU) that have all the filaments glabrous cannot be safely regarded as indicating a complete population of such plants. Further north in the Transvaal most material examined has the long filaments bearded, the short glabrous, but there are a few collections which have all the filaments glabrous, and one (*Wilms* 1090 from Lydenburg) suggests a mixed population although there can be no absolute proof that all material under this number was collected at the same place.

A few of the populations of which a reasonable sample has been available may be mentioned in detail:

1. Natal, Richmond distr., ridge leading to Peak of Byrne, c.5000ft. All plants small (less than 10cm high), growing around rock sheets. *Hilliard* 8091 was a random collection containing some plants with all the filaments glabrous, others with the long filaments bearded. On a return visit the two forms were collected separately: *Hilliard* 8147 (all filaments glabrous), *Hilliard* 8148 (long filaments bearded). The two forms appear to be about evenly distributed in the population.

2. Natal, Alfred distr., Harding, farm Rooivaal, c.2500ft. A population of c.50 plants in a lush grassy hollow near stream: plants varying from 22 to 42cm high. This population, sampled as *Hilliard & Burtt* 16720, was evenly split between plants with all filaments glabrous and others with the long filaments bearded. There were also two colour forms in the population, one with deep the other with pale yellow corollas. The condition of the filaments was not correlated with flower-colour, nor with the size of the plants.

3. Small random collections that proved to contain both filament types were: Ngotshe distr., Ngome, 3500ft, *Hilliard & Burtt* 9928; Underberg

distr., Cobham Forest station, 5500ft, *Hilliard & Burtt* 9706; Garden Castle F.R., 6200ft, *Hilliard & Burtt* 7929.

4. Natal, Alfred distr., Weza, Zuurberg, c.5500ft. Population of small plants growing around rock sheets (*Hilliard* 5477). Twenty specimens examined all having all the filaments glabrous.

5. Natal, Underberg distr., Cobham F.R., Sipongweni, c.6500ft. Population of small plants growing around rock sheets (*Hilliard* 5512, *Hilliard & Burtt* 14061). Twenty specimens examined, all having the longer filaments bearded.

Items 1, 4 & 5 taken together show that these populations of small plants found around rock sheets are not correlated with filament type.

Alectra is basically a tropical/subtropical genus found in a wide equatorial band across America, Africa and Asia. It is therefore tempting to regard the distributional spur running south to the Cape as an offshoot of the main range. On this assumption the hypothesis can be advanced that somewhere in the SE Transvaal or the Natal midlands or uplands a variant with glabrous filaments arose and that this variant was not disadvantaged in comparison with the original form having the long filaments bearded. Thus the two forms came to exist side by side in mixed populations. Either by chance or because the two forms are not physiologically identical, it was the glabrous form that colonized the lower Natal coastal region and eventually spread southwards to the Cape Peninsula. This hypothesis needs to be tested by further study and by breeding experiments, but it is simpler than one involving hybridization between distinct species.

A reasonable and informative taxonomic treatment is less easy to formulate. Hepper (in *Kew Bull.* 14:405–406, 1960) recognized three varieties, based largely on leaf form: var. *sessiliflora*, reaching from the Cape northwards as far as Malawi; var. *sengalensis* (Benth.) Hepper spread from Senegal to Moçambique and var. *monticola* (Engl.) Melchior ranging from Sierra Leone eastwards right across Africa and through to India, Thailand, China, Taiwan and the Philippines. All these varieties have the longer pair of filaments bearded except for the southern part of *A. sessiliflora* var. *sessiliflora*. Although the type specimen has not been examined for this character, it may be safely assumed that an early specimen from the Cape of Good Hope will have come from the area where only plants with all the filaments glabrous are known.

Accepting Hepper's varieties, it is clear that any formal recognition of the two filament states found within var. *sessiliflora* can only be named, if that is deemed necessary, at the level of *forma*. Generally speaking we do not feel that the trivial variants commonly ranked as *formae* have any place in a nomenclative classification. However, it does seem that in this instance distinctive names for the two states will be helpful in pursuing the investigation further. We therefore propose to take up the epithet *barbata* from a specific synonym which represents the form with the two longer filaments bearded.

Alectra sessiliflora var. **sessiliflora** forma **sessiliflora**.

All filaments glabrous.

TRANSVAAL. Nelspruit Lowveld Botanic Garden, 25 i 1982, *Hepper* 7318 (K). Ventersdorp, 17 iii 1931, *Pole-Evans* 3126 (K).

NATAL. Port Shepstone distr., 3030 CD, ii 1931, *Rump* s.n. (E, NU). Durban distr., 2930 DD, Merebank West, 30ft, 19 ii 1967, *Baijnath* 127 (E, NU). [Umzinto distr.], 3030 AD, Dumisa, Umgaye, 600m, 8 iii 1910, *Rudatis* 870 (E). 3029 BC, Alfred distr., Weza, Zuurberg, 5500ft, 3 iii 1974, *Hilliard* 5477 (E, NU). Hlabisa distr., 2832 AD, St Lucia Game Park, 23 v 1977, *Hilliard & Burtt* 10350 (E, NU); ibidem, W of Vidal road, 20 vii 1975, *Pooley* 1722 (E, NU); ibidem, 23 x 1978, *Pooley* 2193 (E, NU).

TRANSKEI. NW of Umtata, 3128 BC, hill above Mhlahlane Forest Station, c.5000ft, 31 i 1983, *Hilliard & Burtt* 16335 (E, NU).

CAPE. Cape Peninsula, Claremont, xii 1907–i 1908, *Dümmer* 977 (E); Hout Bay, *Harvey* 212 (E); between Hout Bay and Wynberg, below 1000ft, May, *Drège* (E); mountains near Capetown, up to 2000ft, *Ecklon & Zeyher* (E). George div., near George, 300m, 1 iv 1893, *Schlechter* 2439 (E). Uitenhage div., near Uitenhage, *Pappe*? in herb. Scott Elliot (E). Stockenstrom div., Elandsberg, ii 1886, *Scully* 403 (E).

Alectra sessiliflora var. **sessiliflora** forma **barbata** (Hiern) Hilliard & Burtt, **comb. et stat. nov**.

Type: Transvaal, Barberton, *Galpin* 929 (K).

Syn.: *Melasma barbatum* Hiern in Thiselton-Dyer, Fl. Cap. 4(2):374 (1904).

Alectra barbata (Hiern) Melchior in Notizbl. Bot. Gart. Berlin 15:125 (1940), 438 (1941).

Longer filaments bearded, the shorter glabrous:

TRANSVAAL. 2330 CC, New Agatha Forest Station, Wolkberg, 5300ft, 12 iii 1981, *Hilliard & Burtt* 14314 (E, NU). 2430 CD/DC, 21km from Lydenburg on Ohrigstad road, 17 iii 1981, *Hilliard & Burtt* 14391 (E, NU). 2430 DD, Graskop, near God's Window, 14 iii 1981, *Hilliard & Burtt* 14336 (E, NU). Rustenburg distr., 2527 CA, Tierkloof, *Venter* 659 (K). 2530 AB, Lydenburg, Sabie valley, 4000ft, 14 iv 1933, *Galpin* 13292 (K); Lydenburg to Dullstroom road at 37km, 5 iii 1981, *Hilliard & Burtt* 14199 (E, NU). 2530 BB, Witklip Forest Station, below Witklip rock, 8 iii 1981, *Hilliard & Burtt* 14248 (E, NU). 2530 BC, Elandshoogte near Machadodorp, 5500ft, 3 iii 1981, *Hilliard & Burtt* 14167 (E, NU). 2627 BA, 9 miles W of Krugersdorp, farm Gladysvale, 28 ii 1948, *Rodin* 3919 (K).

NATAL. Bergville distr., 2828 DB, Royal Natal National Park, Devil's Hoek valley, c.5500ft, 22 iii 1981, *Hilliard & Burtt* 14438 (E, NU); 2829 CC, Cathedral Peak F. R., top of Mike's Pass, 17 iv 1978 *Hilliard* 8143 (E, NU). Estcourt distr., 2929 BB, Mooi River, iii–v 1902, *Johnston* 863, 864, 896, 938 (E). Lion's River distr., 2930 CC, Dargle, farm Kilgobbin, 31 iii 1975, *Hilliard* 5561 (E, NU). Mpendhle distr., 2929 BC, Loteni N. R., 4800ft, 14 iii 1978, *Phelan* 79 (E, NU); Mulangane ridge above Carter's Nek, 7000–7300ft, 13 iii 1985, *Hilliard & Burtt* 18377 (E, NU); ibidem, N. side, 5800–6600ft, 16 iii 1985, *Hilliard & Burtt* 18421 (E, NU).

Underberg distr., 2929 CB, Cobham Forest Station, Sipongweni, c.6500ft, 13 x 1974, *Hilliard* 5512 (E, NU); ibidem, 21 ii 1981, *Hilliard & Burtt* 14061 (E, NU); 2929 CC, Bushman's Nek near hotel, 17 ii 1975, *Hilliard & Burtt* 7978 (E, NU). Ixopo distr., 3029 DB, c.11 miles NW of Ixopo, farm Lynn Avis, 18 ii 1976, *Hilliard & Burtt* 9041 (E, NU).

Mixed populations:

TRANSVAAL. Lydenburg, xii 1894, *Wilms* 1090 (E, longer filaments bearded; K, all filaments glabrous).

NATAL. Ngotshe distr., 2731 CD, Ngome, 3500ft, 1 iv 1977, *Hilliard & Burtt* 9928 (E, NU). Underberg distr., 2929 CB, Cobham Forest Station, 5500ft, 19 iii 1977, *Hilliard & Burtt* 9706 (E, NU); 2929 CC, Garden Castle N.R., track towards Bushman's Nek, c.6200ft, 2 ii 1975, *Hilliard & Burtt* 7929 (E, NU). Richmond distr., 2930 CB, ridge leading to Peak of Byrne, c.5000ft, 5 iv 1976, *Hilliard* 8091 (E, NU); ibidem, 18 iii 1978, *Hilliard* 8147 (filaments all glabrous–E, NU), 8148 (upper filaments bearded–E, NU). Alfred distr., 3029 DB, Harding, farm 'Rooivaal', 2500–3000ft, 1 iii 1983, *Hilliard & Burtt* 16720 (E, NU).

504. Alectra thyrsoidea Melchior in Notizbl. Bot. Gart. Mus. Berlin 15:431 (1941); Ross, Flora of Natal, 315 (1972).

Types: Cape, Lesseyton near Queenstown, 1350m, *Galpin* 1999 (n.v.): 'Natal, Rensburg, O.R.C., 2000–2400m, *Wood*' (n.v.—see below).

NATAL. Underberg distr., 2929 CA, Garden Castle Nature Reserve, valley of Mlambonja (previously Umzimkulu) R., c.1740m, 29 i 1975, *Hilliard & Burtt* 7825 (E, NU); 2929 CB, Sani Pass, c.2400m, 22 iii 1977, *Hilliard & Burtt* 9768 (E, NU); Upper Umkomaas area, Nhlangeni valley, vicinity of Bird's Nest Cave, 6350ft, 20 ii 1985, *Hilliard & Burtt* 18251 (E, NU). Mpendhle distr., upper Loteni valley, vicinity of Ash Cave, 6400ft, 5 ii 1985, *Hilliard & Burtt* 18106 (E, NU).

Melchior obviously failed to understand Wood's label on the syntype. 'Rensburg' is Rensburg's Kop in the Harrismith district of the Orange Free State (the old Orange River Colony). Melchior probably added Natal from a label headed Natal Herbarium which Wood often used. The above records from Underberg and Mpendhle districts are therefore the first true ones to be published for Natal.

Melchior placed *Alectra thyrsoidea* next to *A. capensis* Thunb. (no. 502 above) and correctly distinguished it by its glabrous filaments and longer spike. Both these species belong to subsect. *Immucronulatae* Melch. with the base of the anther-thecae obtuse or acute or occasionally very shortly and obtusely apiculate. This contrasts with subsect. *Mucronulatae* Melch. in which the anther-thecae are drawn out basally into a spine-like mucro. Melchior placed *A. basutica* (no. 501 above) in subsect. *Mucronulatae*, presumably from Phillips' description of the anthers as mucronate, for Melchior himself saw no material. It is true that the anthers of *A. basutica* are somewhat more sharply pointed than those of *A. thyrsoidea*, but it is only a slight difference of degree. They do not have the sharp spine-like mucro of *A. sessiliflora*, for instance. *A. basutica* is very like *A. thyrsoidea* in general appearance (these plants are coarser than the *A. sessiliflora* group) and should certainly be placed next to it.

Alectra basutica, when transferred to subsect. *Immucronulatae*, would run to *A. capensis* in Melchior's key because of its bearded filaments. But it differs from that species (as does *A. thyrsoidea*) in its greater height, greener leaves and longer spike, and *A. capensis* does have decidedly blunter anthers than the other two. *A. basutica* is closer to *A. thyrsoidea* and differs from it chiefly in having bearded filaments, whose value in *Alectra* is so much in doubt (see under *A. sessiliflora*, no. 503 above). The question whether these two species are distinct certainly cannot be settled from the half-dozen specimens at present available to us. Populations need to be studied, but this may not be easy. Neither species is common, and as we have seen them, they occur as scattered individuals rather than in populations where a mixture of bearded and glabrous filaments might be sought, as has been done successfully in *A. sessiliflora*.

504–511. Harveya Hooker, Ic. Pl. 2: tab. 118 (1837); Hiern in Thiselton-Dyer, Fl. Cap. 4(2):400–415 (1904).
Type species: *H. capensis* Hooker.

Two specific names in *Harveya* have long been used to cover a wide range of material from the E Cape northwards. These are *H. coccinea* (Harvey) Schlechter (type from Berea, near Durban, *Sanderson* 168) and *H. huttonii* Hiern. For the latter, Hiern cited a number of specimens belonging to more than one species: we have chosen as lectotype Hutton's plant from Katberg in the E Cape.

Starting from these two fixed points we have endeavoured to bring order to the genus as it is represented in Natal, because this has some urgency for us. Work on the genus as a whole must wait; there is particular need for good field notes on the colouring of the corolla.

Ross (*Flora of Natal*, p. 316, 1973) lists six species for Natal and of these we can confirm the presence of *H. coccinea*, *H. randii* and *H. speciosa*, and add *H. scarlatina*, as well as three new species now described. We have not seen the two Krauss specimens that Hiern determined as *H. bolusii* Kuntze and *H. squamosa* (Thunb.) Steudel and that are in turn listed by Ross; however, it is highly improbable that either species occurs in Natal. The Sutherland specimen cited by both Hiern and Ross as *H. purpurea* Harv. proves to be *H. randii*, and *H. huttonii* Hiern is now to be excluded from the Natal flora. Thus we know seven species that occur in Natal, and list them below in the form of a key:

1a. Only one of each pair of anther thecae developed. . **H. speciosa**
b. Both anther thecae developed, although one is often much smaller than the other 2

2a. Corolla limb orange or orange-scarlet . . . . **H. scarlatina**
b. Corolla limb either various shades of pink or whitish . . . 3

3a. Flowers in a tuft more or less at ground level . . . **H. randii**
b. Plant with an evident stem 4

4a. Calyx 10–12mm long adaxially, corolla tube 18–24mm long adaxially . . . . . **H. coccinea**
b. Calyx (11–)13–31mm long adaxially, corolla tube 28–50mm long adaxially 5

5a. Raceme 7–20-flowered, calyx (11–)13–19mm long adaxially, corolla tube 28–34(–40)mm long adaxially, ovary suborbicular, 4–5 × 3·5–4mm . . . . . **H. silvatica**
b. Raceme 1–8(–10)-flowered, calyx 17–31mm long adaxially, corolla tube 33–50mm long adaxially, ovary turbinate, 5–8 × 3–5mm . 6

6a. Calyx (17–)20–31mm long adaxially, anticous teeth (4–)5–10mm long, corolla tube and throat white, posticous corolla lobes c.14–17mm long . . . . . **H. leucopharynx**
b. Calyx 17–23mm long adaxially, anticous teeth 4–5mm long, corolla tube and throat yellow, posticous corolla lobes c.8–12mm long . . . . . **H. pulchra**

505. Harveya coccinea (Harvey) Schltr. in Bot. Jahrb. 27:184 (not 183 as in Fl. Cap.) (1900); Hiern in Thiselton-Dyer, Fl. Cap. 4:409 (1904) p.p.
Type: Port Natal, in dense woods, Back Beach and Berea-bush, *Sanderson* 168 (K, PRE).
Syn.: *Aulaya coccinea* Harvey, Thes. Cap. 1:23, t. 36 (1859).
NATAL. Durban distr., Berea, 150ft, 3 xii 1889, *Wood* 841 (E, PRE); ibidem, 250ft, xii 1894, *Wood* 5500 (PRE); Beachwood, 15ft, vii 1958, *D'Aubrey* s.n. (NU). Umzinto distr., Umdoni Park, near Botha House, ix 1944, *Smuts* 2366 (PRE); 1·5km inland from Umzumbe river, 12 ix 1981, *Stirton* 9053 (PRE).
TRANSKEI. Willowvale distr., Mendwana, c.30ft, 16 xii 1965, *Wood* 114 (NU).

Harveya coccinea is a small herb with simple stems c.10–350mm tall, including the raceme of c.6–20 mostly short-stalked flowers. The salient features of the species are the small calyx 10–12mm long adaxially, 7–10mm abaxially, the anticous teeth 1·5–4 × 1·75–3mm, corolla tube 18–24mm long, c.7–10mm across at the apex, abruptly narrowed to 3–3·5mm within the calyx, the small limb, the largest lobes not exceeding c.10 × 10mm, and suborbicular ovary c.2·5 × 2·5mm.

The epithet '*coccinea*' refers to the stems, scales and bracts; their red colour has been recorded by a number of collectors. Sanderson said 'when fully grown inclining to white' and this of course refers to the corolla. The limb of the corolla is variously recorded as pinky-white or pink, the tube as creamy or yellow. All the specimens cited above have come from dune forest or further back from the sea in sandy grassland dotted with clumps of *Hyphaene* palms, flowering early between July and December.

Many of Hiern's citations in *Flora Capensis* are incorrect; we have seen *Schlechter* 9734 from Koude Rivier and it is *H. tubulosa* Hiern; so is *Schlechter* 585 from the summit of Table Mountain. *Harveya tubulosa* and *H. coccinea* are superficially similar, but in *H. tubulosa* the corolla tube is not strongly narrowed below as it is in *H. coccinea*.

The Galpin specimen cited by Hiern (no. 5719, from the summit of

Andries Berg near Queenstown) is *H. pumila* Schltr., based on *Galpin* 2171 from the same place.

See also our comments under *H. huttonii*, below.

506. Harveya huttonii Hiern in Thiselton-Dyer, Fl. Cap. 4(2):410 (1904); Batten & Bokelmann, Wild Flow, E. Cape Prov. 132, pl. 105, 3 (1966). Lectotype (here chosen): Cape, Katberg, 3000ft, March, *Hutton* s.n. (K). CAPE. Stutterheim div., 3227 CB, Mt Kemp, c.4650ft, 14 xii 1977, *Hilliard & Burtt* 11033 (E, NU). Kaffraria, on mountains, *Barber* 26 (K, PRE).

Under his new name, *H. huttonii*, Hiern cited specimens belonging to more than one species. We have selected Hutton's specimen to lectotypify the name, partly because it honours him, partly because Hiern's key character 'calyx somewhat turbinate at the base' fits only this specimen (but see comment below).

Harveya huttonii is a small herb c.15–40cm tall including the several-flowered raceme, which accounts for roughly a half to a third of the total height. The calyx is 11–15mm long adaxially, shorter on the anticous side, c.10mm in diam. at the mouth, anticous teeth 2–3mm long, corolla tube c.26–28mm long, c.8–10mm across in the throat, abruptly narrowed to c.4mm across within the calyx tube, the largest lobes of the limb c.10 × 10mm, ovary turbinate, c.5–6 × 3–3·5mm.

Hutton recorded neither the colour of the corolla nor the habitat of the plant, but in our specimen from Mt Kemp, which we equate with it, the limb was deep pink, tube and throat white; and this is the colour combination in the plate cited above, the material for which came from the Amatole mountains just east of Katberg (Mt Kemp lies at the eastern end of the Amatole range). We found the plant in flat rocky ground on the summit of Mt Kemp, while Batten & Bokelmann record 'stony sheltered hillsides'.

There is no doubt that *H. huttonii* is closely allied to *H. coccinea*, but they seem distinguishable on differences in the size of the corolla and in the shape of the ovary. In Hiern's key in *Flora Capensis*, they are separated in 'calyx rounded at the base' (*coccinea*) versus 'calyx somewhat turbinate at the base' (*huttonii*) but this appears to be an artefact of drying.

At least three other species have been sheltering under the umbrella-name *huttonii*; we describe them below (*H. leucopharynx, H. pulchra, H. silvatica*).

507. Harveya leucopharynx Hilliard & Burtt, **species nova** *H. pulchrae* (vide infra) affinis, sed calyce postice (17–)20–31mm longo (nec 17–23mm), lobis anticis (4–)5–10mm longis (nec 4–5mm), corollae tubo in fauce albo (nec luteo), corollae lobis posticis c.14–17mm longis (nec 8–12mm) distinguenda.

Herba parasitica, glanduloso-pilosa; caulis 15–45cm altus, dimidio superiore vel ad apicem florifero, 2·5–5mm diam., plerumque simplex,

raro ramosus. *Folia* squamosa, in parte caulis basali usque 8-juga vel saepe pauciora, usque 3 × 3mm, ovata, haud imbricata, superne 2–3 juga remota usque 25 × 4(–8)mm; folia caulesque fusco-rubra. *Flores* (1–)5–10; pedicelli inferiores ad 35mm longi, sursum decrescentes. *Calyx* fusco-ruber, postice (17–)20–31 × 11–16mm, late tubularis, ore leviter obliquo, basi subcuneata; lobi 5, 2 antici (4–)5–10 × 3–5mm, deltoidei, 3 postici paulo minores. *Corollae* tubus 40–46mm, anguste infundibularis, triente inferiore abrupte contractus et leviter curvatus, albus; limbus bilabiatus; lobi suborbiculares, 2 postici c.14–17 × 14–18mm, 3 antici c.18–23 × 18–21mm, laete vel intense rosei, interdum venis fuscis. *Stamina* 4, inclusa, didynama; filamenta postica 7–12mm longa, antica 13–17mm, sursum attenuata, glanduloso-puberula; antherae theca fertilis c.3mm longa. Ovarium turbinatum, 6–8 × 3–3·5mm; stylus 33–34mm, ad apicem abrupte inflexus; stigma capitatum, sulcatum, c.2mm diam.

Type: Natal, Underberg distr., 2929CA, Garden Castle Forest Reserve, Mlambonja valley, path to Mashai Pass, 7500ft, 8 i 1982, *Hilliard & Burtt* 15013 (E holo., NU iso.).

NATAL. Bergville distr., Royal Natal National Park, Tugela Valley, 5500ft, 20 ii 1926, *Bayer & McClean* 208 (PRE); Cathedral Peak Forest Research Station, 6800ft, 1 xii 1950, *Killick* 1179 (PRE); ibidem, 6000ft, 12 xii 1950, *Codd & Dyer* 6244 (PRE). Estcourt distr., Monk's Cowl State Forest, valley below Ship's Prow Pass, 2100m, 7 xii 1983, *Balkwill et al.* 1044 (E, NU); Giant's Castle Game Reserve, Giant's Castle Pass, c.7500ft, 17 i 1973, *Wright* 1347 (E, NU). Underberg distr., 2929 CB, Sani Pass, 2550m, 18 i 1977, *Killick* 4189, p.p. (PRE); Cobham Forest Reserve, Lakes Cave area, c.7100ft, 13 xii 1982, *Hilliard & Burtt* 16025 (E); 5–7 miles NNW of Castle View Farm, headwaters of Mlahlangubo River, c.7500ft, 26 xi 1980, *Hilliard & Burtt* 13706 (E, NU); 2929 CA, Garden Castle Forest Reserve, Mlambonja valley, 6400–6800ft, 4 i 1982, *Hilliard & Burtt* 14876 (E, NU); stream valley beyond Forester's house, 6500ft, 4 xii 1980, *Hilliard & Burtt* 13780 (E); ibidem, 26 xii 1976, *Hilliard & Burtt* 9578 (E, NU).

CAPE. Maclear distr., ascent to Naude's Nek, c.8000ft, 19 ii 1971, *Hilliard & Burtt* 6613 (NU).

Harveya leucopharynx appears to be confined to the Natal and Cape Drakensberg, where it grows in damp grassy rocky places or in damp scrub, between c.1800 and 2550m above sea level. The specific epithet refers to the white-throated corolla, which will at once distinguish *H. leucopharynx* from its yellow-throated ally, *H. pulchra*, described below. In both, the limb is pink. *Harveya leucopharynx* is often taller than *H. pulchra* with stems up to 45cm high, whereas *H. pulchra* rarely exceeds 20cm; also the flowers of *H. leucopharynx* are mostly larger, with calyx (17–)20–31mm long on the posticous side (not 17–23mm), the anticous lobes (4–)5–10mm long (not 4–5mm) and the posticous corolla lobes c.14–17mm long (not 8–12mm), the anticous ones c.18–23mm long (not 10–20mm). The flowers of *H. leucopharynx* appear between November and February and have a pleasant sharp fruity scent; *H. pulchra* flowers mostly later, between January and March.

508. Harveya pulchra Hilliard & Burtt, **species nova** *H. huttonii* Hiern affinis sed calyce postice 17–23mm longo (nec 11–14mm), corolla majore tubo 33–50mm longo (nec 26–28mm) fauce luteo (nec albo) differt.

Herba parasitica, glanduloso-pilosa; caulis c.10–20cm altus, dimidio vel duobus trientibus superioribus florifer, c.2–6mm diam., simplex, raro ramosus. *Folia* squamosa, inferiora c.4 × 4mm, ovata, saepe imbricata, superiora distantia oblongo-lanceolata, usque ad 15 × 6mm, caule foliisque fusco-rubris. *Flores* (1–)4–8, pedicellis inferioribus ad 25mm longis, sursum decrescentibus. *Calyx* c.17–23 × 8–12mm postice, late tubulosus, ore paulo obliquo, basi rotundatus, fusco-magentius; lobi 5, duo antici 4–5 × 3·5–4mm, deltoidei, 3 postici paulo minores. *Corollae* tubus 33–50mm longus, anguste infundibularis, triente inferiore abrupte contractus et leviter curvatus, pallide vel intense luteus; limbus bilabiatus; lobi suborbiculares, duo postici c.8–12 × 12–16mm, 3 antici c.10–20 × 12–20mm, pallide vel intense rosei. *Stamina* 4, inclusa, didynama; filamenta postica c.8–13mm longa, antica c.12–17mm, sursum attenuata, glanduloso-puberula; antherae theca fertilis c.3mm longa. *Ovarium* c.5–8 × 4–5mm, turbinatum; stylus c.25–33mm longus, ad apicem abrupte inflexus; stigma capitatum sulcatum, c.2mm diam. *Capsula* in calyce persistente inclusa, c.12 × 6mm, urceolata, valvis apicalibus 4 dehiscens; semina numerosa, 1 × 0·5mm, oblonga, obliqua, testa pallida laxa distincte reticulata.

Type: Natal, Underberg distr., Sani Pass, 8000ft, 6 i 1977, *Hilliard & Burtt* 9631 (E holo., NU iso.).

NATAL. Underberg distr., 2929 CB, Sani Pass, 7900ft, 5 i 1984, *Hilliard & Burtt* 17257 (E, NU); ibidem, 8700ft, 23 iii 1977, *Hilliard & Burtt* 9822 (E, NU); ibidem, c.8000ft, 2 i 1974, *Hilliard* 5452 (E, NU).

LESOTHO. Maseru distr., halfway up Bushman's Pass on Maseru–Thaba Tseka road, 2050m, 7 i 1980, *Richardson* 120 (E, NU); near God Help Me Pass (Molimo Nthuse), 2400m, 19 xi 1983, *de Kruif* 1190 (NU, PRE).

CAPE. Barkly East distr., 3027 DB, Ben McDhui, 8800ft, 6 ii 1983, *Hilliard & Burtt* 16504 (E, NU). Elliot–Maclear distr. boundary, Bastervoetpad, c.7000ft, 18 ii 1983, *Batten* 649 (E).

Harveya pulchra can be distinguished from *H. huttonii* on both the size of its floral parts and their colouring: calyx 17–23mm long on the posticous side in *H. pulchra* (not 11–14mm), anticous lobes 4–5mm long (not 2–3mm), corolla tube 33–50mm long (not 26–28mm), and both tube and throat yellow in *H. pulchra*, whereas in *H. huttonii* they are white. These colour differences seem to be of real importance, and collectors are urged to make careful notes.

Harveya pulchra appears to be confined to the Drakensberg–Maluti system in Lesotho (and probably the adjoining parts of the Orange Free State), Natal and the Cape between c.1900 and 3000m above sea level, where it grows in gritty soil on slopes and in gullies, flowering between January and March.

509. Harveya randii Hiern in J. Bot. 41:197 (1903) and in Thiselton-Dyer, Fl. Cap. 4:411 (1904).

Type: Transvaal, on stony hills around Johannesburg, ix 1902, *Rand* 722 (K).

Syn.: *H. crispula* Conrath in Kew Bull. 1914:134 (1914). Type: Transvaal, Irene, *Conrath* 966 (K).

NATAL. Utrecht distr., farm Naauwhoek, c.7000ft, 6 xi 1976, *Hilliard & Burtt* 9174 (E, K, NU); farm Tweekloof, *Thode* A203 (K). Vryheid distr., Hlobane, 10 ix 1950, *Johnstone* 449 (NU); ibidem, 1 xi 1950, *Johnstone* 453 (NU). Klip River distr., 3500–4500ft, *Sutherland* (K).

Harveya randii is a dwarf herb with only a tuft of flowers appearing above ground. The corolla tube is about 35mm long, cream to deep pink outside, the limb round, the largest lobes c.15 × 15mm, deep pink, throat bright yellow, c.12mm in diam. It grows in stony or rocky places; we found it parasitic on *Anthospermum pumilum* Sond., but it probably parasitizes grasses as well.

510. Harveya scarlatina (Benth.) Hiern in Thiselton-Dyer, Fl. Cap. 4:412 (1904).

Lectotype (chosen here): Cape, [Aliwal North div.], Witteberg, 7500ft, *Drège* (K).

Syn.: *Aulaya scarlatina* Benth. in DC., Prodr. 10:524 (1846).

[*Harveya pumila* auct., non Schltr.; Trauseld, Wild Flow. Natal Drakensberg 179 cum ic. (1969)].

NATAL. Estcourt distr., Giant's Castle Game Reserve, top of Injasuti, 9000ft, 11 i 1966, *Trauseld* 519 (PRE). Underberg distr., 2929 CA, Garden Castle Forest Reserve, Mlambonja Valley, 6400–6800ft, 4 i 1982, *Hilliard & Burtt* 14879 (E, K, NU, PRE).

CAPE. Maclear distr., ascent to Naude's Nek, c.8000ft, 28 xi 1971, *Hilliard* 5215 (E, K, NU); ibidem, c.7500–8000ft, 15 xii 1976, *Stewart* 1914 (K, NU).

Harveya scarlatina is an almost stemless herb producing a dense spike. It is easily recognized by its narrowly funnel-shaped corolla tube 40–50mm long, c.8–10mm diam. in throat, canary yellow, with a small round limb that is bright orange or orange-scarlet. We found it to be common in the valley of the Mlambonja in the southern Natal Drakensberg, growing in *Leucosidea* thickets, but on Naude's Nek it grows in gritty soil and in rock crevices on the mountain slopes, which are dotted with small shrubs.

511. Harveya silvatica Hilliard & Burtt, **species nova** ab *H. pulchra* floribus in racemo numerosioribus (7–20 nec 1–8), calyce postice 13–19mm (nec 17–23mm), ovario suborbiculari 4–5 × 3·5–4mm (nec turbinato 5–8 × 4–5mm), capsula suborbiculari (nec urceolata) differt.

Herba parasitica, glanduloso-pilosa; caulis (15–)40–60cm altus, dimidio vel trientibus duobus superioribus florifer, 3–4mm diam., simplex vel raro ramosus, viridis vel rubicundus. *Folia* squamosa, inferiora ad 15-juga approximata, ad 3 × 3mm, ovata, cetero cauli squamis 3–5 inter se remotis ad 15 × 4mm. *Flores* 7–20, pedicellis inferioribus ad 20mm longis, sursum gradatim brevioribus. *Calyx* fusco-ruber, postice (11–)13–19 × 8–11mm, late tubulosus, ore paulo obliquo, basi rotundata; lobi 5, 2 antici 3–6·5 ×

2–4mm, deltoidei, 3 postici paulo minores. *Corollae* tubus 28–34(–40)mm longus, anguste infundibularis, triente inferiore abrupte contractus et leviter curvatus, pallide luteus; limbus bilabiatus; lobi 5, pallide vel intense rosei, 2 postici 6–9 × 9–12mm, suborbiculares, 3 antici c.13–15 × 7–9mm, plus minusve oblongi. *Stamina* 4, inclusa, didynama; filamenta posteriora 7–8mm longa, anteriora c.12mm, sursum attenuata, glanduloso-puberula; antherae theca fertilis 4mm longa. *Ovarium* 4–5 × 3·5–4mm, suborbiculare; stylus c.28–31mm longus, ad apicem abrupte inflexus; stigma capitatum, sulcatum, 2mm diam. *Capsula* in calyce persistente inclusa, c.11–12 × 11mm, suborbicularis. *Semina* numerosa, c.1·5 × 0·5mm, oblonga, obliqua, testa pallida laxa valde reticulata.

Type: Natal, Ngotshe distr., Ngome, between Forest station and police post, c.5000ft, 6 xii 1975, *Hilliard & Burtt* 8416 (E holo., NU iso.).

TRANSVAAL. Pietersburg distr., Blaauwberg, Mohlakeng plateau, 5200ft, 11 i 1955, *Codd & Dyer* 9006 (PRE). Louis Trichardt distr., Zoutpansberg, Entabeni, xii 1930, *Obermeyer* 857 (PRE); ibidem, Tshakoma, xi 1931, *Obermeyer* 1052 (PRE). Sibasa distr., Tate Vondo Forest Reserve, 1235m, 2 xi 1977, *Hemm* 333 (PRE). Letaba distr., Magoebaskloof, 16 xii 1964, *Burtt* 2915 (E, PRE); Duiwelskloof, Merensky Dam, c.3000ft, 9 i 1960, *Scheepers* 841 (PRE). Pietersburg distr., Woodbush, 13 i 1955, *Prosser* 1906 (PRE). Pilgrim's Rest distr., Mariepskop, c.5000ft, 2 xii 1954, *van der Schijff* 4683 (PRE); Kowyn's Pass near Graskop, 4500ft, 1 xi 1950, *Codd* 6199 (PRE); ibidem, 31 xii 1972, *Stirton* 241 (E, NU); Klaserie River, 2 xii 1981, *Grobbelaar* 2608 (PRE); Graskop, Fairyland, 4 xi 1978, *Viljoen* 18 (PRE). Nelspruit distr., 4km SE of Kaapsche Hoop, 5 i 1976, *Van Jaarsveld* 1074 (PRE); near Agnes goldmine, 22 i 1957, *de Winter* 5081 (PRE). Middelburg distr., Botsabelo, 1630m, 29 xii 1893, *Schlechter* 4092 (E, PRE).

SWAZILAND. Swaziland border, 2531 CD, farm Daylight, Bearded Man Mountain, summit, 7 xi 1970, *Buitendag* 760 (PRE). Pigg's Peak distr., Horo Forest, 2500ft, xii 1890, *Galpin* 1263 (PRE). Mbabane distr., hill NE of Mbabane, c.4500ft, 21 xi 1957, *Compton* 27253 (PRE).

NATAL. Ngotshe distr., Ngome Forest, 3600ft, 10 ii 1962, *Edwards* 2728 (NU, PRE). Mahlabathini distr., Ceza Forest, 17 xii 1965, *Hilliard & Burtt* 3322 (E, NU). Hlabisa distr., E shores of Lake St Lucia, Cape Vidal, 14 xii 1978, *Pooley* 2207 (E, K, MO, NU). Nkandla distr., Nkandla forest, Nomangci, 4200ft, 16 i 1963, *Hilliard* 1186 (NU); Qudeni, 5000ft, 15 i 1935, *Gerstner* 642 (PRE). Mtunzini distr., Ngoye forest, c.900ft, 21 xii 1965, *Hilliard* 3171 (E, NU); Amatikulu, 3 xi 1919, *Mogg* 5779 (PRE). Eshowe distr., Entumeni bush, 2000ft, 2 xii 1936, *Gerstner* 1894 (PRE). Umvoti distr., road to Lilani, 3200ft, 10 xi 1963, *Hilliard* 1955 (NU); road from Greytown to Muden, 3500ft, 31 xii 1937, *Repton* 1183 (PRE). Umzinto distr., Dumisa, 'Umgaye', 4 xi 1910, *Rudatis* 1222 (E, PRE).

The confusion between *H. huttonii* and the plant we now describe as *H. silvatica* dates back to Hiern's inclusion of a specimen from the Transvaal (*Schlechter* 4092, cited above) and one from Swaziland (*Galpin* 1263) in his circumscription of *H. huttonii*, which is not surprising, as Hiern saw little material and it is no easy matter to discriminate dried specimens of closely allied species of *Harveya*, particularly when good

notes on colour are lacking. Our plant has the tube and throat pale to deep yellow, not white as in *H. huttonii*, and it is taller, more floriferous, and usually has a longer calyx and a larger corolla.

Its closest ally seems to be *H. pulchra*, which also has a pink and yellow corolla, but *H. silvatica* is usually taller than *H. pulchra* (stems often 300–500mm tall, not c.100–200mm), with 7–20 flowers in the raceme (not mostly 1–8) and the calyx (11–)13–19mm long on the posticous side (not c.17–23). The corolla tube of *H. silvatica* is frequently, though not always, shorter than that of *H. pulchra*, and they differ too in the shape of the ovary: suborbicular in *H. silvatica*, turbinate in *H. pulchra*, and this is reflected in the shape of the capsules, the four valves in *H. pulchra* being long-attenuate, whereas in *H. silvatica* they are contracted abruptly into a small beak up to 2mm long.

Harveya silvatica has a wide geographical range from the northern Transvaal to southern Natal, from about sea level to c.1500m; it may reach the E Cape, but we need better material than we have seen to confirm this. It is usually a plant of the forest floor and forest margins, but there are a number of specimens, mostly from the Transvaal, that we cannot distinguish from *H. silvatica* but they appear to come from more open sites, particularly among rocks. These include *Meeuse* 9390, PRE (near Sibasa); *Venter* 1146 and 1158, PRE (Letaba distr., Metz Mission Hospital); *Galpin* 13166, PRE (Dullstroom); *Jacobsen* 1494, PRE (Ohrigstad Nature Reserve).

512. Harveya speciosa Bernh. in Flora 27:831 (1844); Hiern in Thiselton-Dyer, Fl. Cap. 4:414 (1904), which see for full synonymy; Batten & Bokelmann, Wild Flow. E. Cape Prov. 131, pl. 104, 4 (1966).
Type: Natal, near the Umlaas river, *Krauss* 54 (K).
Selected citations:
NATAL. Hlabisa distr., St Lucia Estuary, 9 xi 1977, *Pooley* 1914 (E, MO). Underberg distr., 2929 CB, Cobham Forest Reserve, Sipongweni, 6500ft, 20 ii 1981, *Hilliard & Burtt* 14036 (E, NU).
CAPE. Maclear distr., ascent to Naude's Nek, 7300ft, 10 iv 1966, *Hilliard* 3946 (E, NU).
LESOTHO. Half way up Bushman's Pass on Maseru–Thaba Tseka road, 20 i 1980, *Richardson* 127 (E, NU).

Harveya speciosa is widely distributed in the eastern half of southern Africa, from the Transvaal to the eastern Cape. It is a handsome plant, sometimes nearly a metre tall, easily recognized by its large flowers with a very long narrow corolla tube (c.3–6mm in diam.) that is yellow in the throat, a white limb up to 70mm in diameter, and stamens in which the anthers are effectively monothecous. Hiern described the ovary as 'finely pilose-puberulous' but we find it to be glabrous. However, it is subject to fungal attack, and hyphae may have been mistaken for hairs.

513. Hyobanche rubra N.E. Br. in Kew Bull. 1901:129 (1901); Hiern in Thiselton-Dyer, Fl. Cap. 4(2):418 (1904).
Type: Cape, Mossel Bay Div., near Gauritz River bridge, about 800ft, *Galpin* 4392 (K).

Syn.: [*H. sanguinea* auct. non L.; Trauseld, Wild Flow. Natal Drakensberg 181 cum ic. (1969)].

NATAL. Estcourt distr., ridge SE from Giant's Castle, c.8000ft, 26 xii 1968, *Hilliard & Burtt* 5693 (E, NU); ibidem, Bushman's River valley, 7600ft, 7 i 1967, *Trauseld* 728 (PRE). Underberg distr., 2929 CC, above Bushman's Nek, vicinity of Tarn Cave, c.8000ft, 21 xi 1983, *Hilliard & Burtt* 16836 (E, NU); 31km from Underberg on road to Kokstad, 10 xi 1980, *Stirton* 8182 (PRE).

LESOTHO. Butha Buthe distr., 2828 CC, 7km from Oxbow on road to Moteng Pass, 2650m, 8 xii 1977, *Killick* 4354 (PRE). Maseru distr., 2927 BD, Blue Mountain Pass, 24 ii 1984, *Hilliard & Burtt* 17701 (E, NU); Khalong-la-Mashulu, 8000ft, 23 xii 1967, *Jacot Guillarmod* s.n. (PRE). Sehlabathebe, on way to Devil's Knuckles, c.9000ft, 8 xii 1979, *Davis* 166 (NU).

CAPE. Maclear distr., ascent to Naude's Nek, c.8000ft, 27 xi 1971, *Hilliard* 5199 (E, NU). Barkly East distr., 3027 DB, Ben McDhui, c.8500ft, 3 xii 1981, *Hilliard & Burtt* 14696 (E, NU); ibidem, 8600ft, 5 ii 1983, *Hilliard & Burtt* 16458 (E, NU); 3027 DA, Witteberg, farm Beddgelert, c.7000ft, 16 x 1980, *Hilliard & Burtt* 13150 (E, NU); ibidem, Avoca, c.8200ft, 5 xii 1981, *Hilliard & Burtt* 14722 (E, NU). Middelburg distr., 3 miles N of Middelburg, c.4200ft, 15 x 1952, *Acocks* 16509 (PRE). Graaff Reinet distr., 3124 DD, S extreme of Renosterberg above Lootsberg railway halt, farm Blaauwater, c.6000ft, 25 xi 1977, *Hilliard & Burtt* 10653 (E, NU).

Hyobanche rubra ranges from the mountains of the north eastern Orange Free State through Lesotho to the Cape, where it appears to be widespread in the mountainous areas; in Natal, it has been recorded in the Drakensberg and its foothills south of Giant's Castle, where it may be common in rough rocky ground in association with *Passerina montana, Relhania acerosa, Metalasia muricata* and *Euryops tysonii*, while there are precise records of its parasitizing *Merxmuellera stereophylla, Helichrysum chionosphaerum* and *Erica*. The scaly underground stem is yellow, while the flowers vary in colour from light to dark salmon- or rose-pink to crimson, and appear mainly between October and December.

The only other species of *Hyobanche* recorded from Natal is *H. fulleri* E. P. Phillips, which grows along the foreshore, in dune scrub; this species has an oblong spike, in contrast to the subcorymbose inflorescence of *H. rubra*. The shape of its inflorescence will also distinguish *H. rubra* from *H. sanguinea*, with which it has been much confused; in *H. sanguinea*, the inflorescence is elliptic or conical in outline—this is well illustrated in Batten & Bokelmann, *Wild Flowers of the eastern Cape Province*, plate 103, 1 (1966), which may be compared with the photograph of *H. rubra* in Trauseld's book, cited above.

514–527. Nemesia Vent., Jard. Malmaison 1, t. 41 (1804); Hiern in Thiselton-Dyer, Fl. Cap. 4(2):169–200 (1904).

Type: *N. foetens* Vent.

The identification and nomenclature of the perennial species of *Nemesia* that cluster around and include '*Nemesia foetens*', as that name is used by

Hiern in *Flora Capensis*, has long been in a state of confusion. A full taxonomic revision of the whole group is needed, but this seems unlikely to be carried out in the near future. We have comments to make on the species occurring in Natal, and present also a few notes on the other species names involved. These will help to clarify the nomenclatural position. As the species appear here in alphabetical order it may be helpful to list them first in chronological order of their basionyms, that is their valid dates for purposes of priority: *fruticans* (1800), *foetens* and *linearis* (1804), *capensis* (1825), *denticulata* and *divergens* (1836), *natalitia* (1852, =*denticulata*), *umbonata* (1901), *caerulea* (1904). One new species, *N. glabriuscula*, is now added to this alliance. The names *N. cynanchifolia* Benth. and *N. floribunda* Lehm. have been applied to members of this group, but they properly refer to annual species, which are almost certainly distinct.

Hiern's usage of the name *N. melissifolia* Benth. covers three species: true *N. melissifolia* as well as *N. rupicola* and *N. silvatica*, which are newly described below.

In the descriptions and key we refer to bosses at the mouth of the spur. These are a pair of bosses inside the corolla, visible from the outside as invaginations on the abaxial side (Fig. 2). The convex surface of the boss is pilose, the hairs often being bright orange. In species that lack bosses, two patches of orange hairs may nevertheless be present, but there will be no invaginations on the outside: careful observation is necessary. Bosses should not be confused with the two humps of the biconvex palate (Fig. 2).

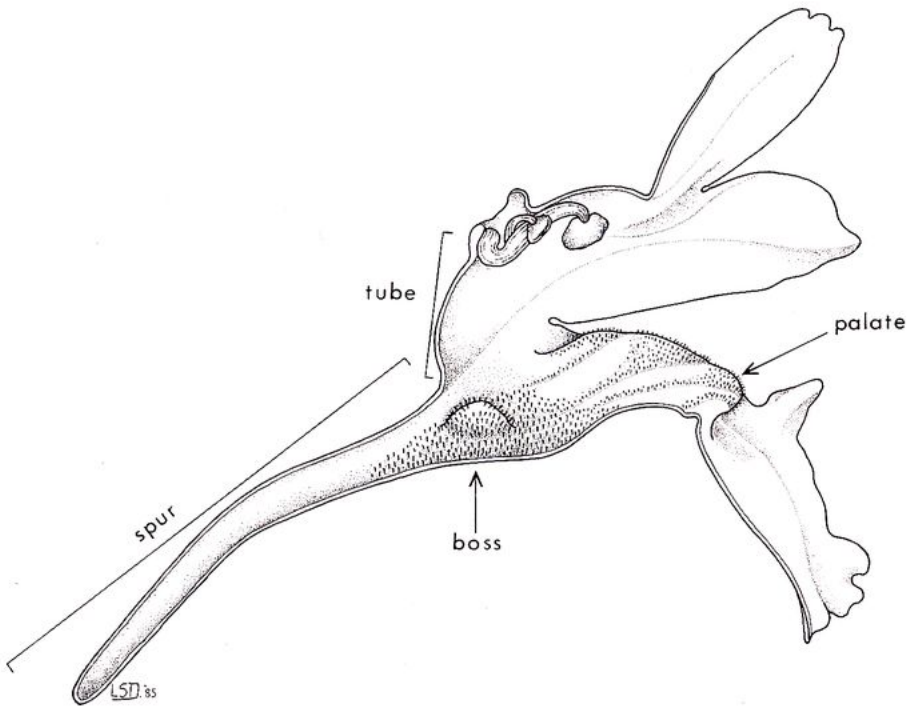

FIG. 2. Longitudinal section of corolla of *Nemesia* to show parts described.

Care is also needed in measuring the spur: this measurement is exclusive of the corolla tube (Fig. 2). The calyx lobes must be measured at anthesis; they elongate in fruit.

Bentham described *Nemesia melissifolia* as having 'pedicels long, filiform, often fasciculate', but he simply meant that the pedicels were close together in clusters, not that they arose as a fascicle of several flowers from one leaf axil. The structure of the inflorescence is interesting. The flowers are racemosely arranged and are solitary in the axils of the bracts or floral leaves (these being the reduced leaves in the lower part of the inflorescence, intermediate between foliage leaves and bracts). The curiosity of *N. melissifolia* is that the flowers are not regularly spaced. In the vegetative part of the plant the leaves are in opposite and decussate pairs, but as the floral leaves pass into bracts this paired regularity is broken and bracts and their flowers arise singly. However there now appears considerable irregularity in the length of internodes. Bracts may be subopposite or in near-whorls of 3–5 which arise in less than 1cm of axis, then there will be a gap (a long internode) before the next batch of flowers. This bunching up of the nodes gives a clustered effect to the flowers, and it is to this that Bentham's 'fasciculate' refers. Usually there is an interval of bare axis between flower-clusters; in *N. rupicola*, however, the clustering is less marked and between the smaller clusters there are often a few scattered flowers. The clustering of the flowers clearly affects their presentation to pollinators: this, and their periodicity, require field studies.

Three of the eight names in *Nemesia* listed by Ross, *Flora of Natal* (1973), do not apply to Natal species; these are *N. capensis, N. cynanchifolia* and *N. floribunda*, while a fourth name, *N. flanaganii*, is synonymous with *N. albiflora*. A revised list of the species occurring in Natal is presented in the form of a key:

1a. Palate glabrous, sparse hairs present only on the floor of the hypochile (behind the palate) and in the mouth of the spur **N. glabriuscula**

b. Palate pubescent on the crest and down the hypochile to the spur 2

2a. Two bosses present inside the corolla at the mouth of the spur, visible outside as two invaginations on the abaxial side . . 3

b. No bosses at the mouth of the spur, though there are often two patches of brightly coloured hairs in that position, and they are very rarely slightly raised 5

3a. Corolla violet-blue, rarely pinkish, spur mostly 2–3mm long; perennial herb with one or a few simple or subsimple stems from a stoloniferous stock . . . . . **N. caerulea**

b. Corolla essentially white, only occasionally palely tinted; spur at least 3·5mm long and up to 9mm; bushy herbs when well grown, but simple-stemmed when young 4

4a. Inflorescence composed of delicate panicled racemes that become flagelliform as the fruits form; spur (5–)6–9mm long; capsules mostly 3–10mm long . . . . . **N. silvatica**

b. Flowers quasifasciculate at the nodes: spur (3·5–)4–5·5(–8)mm long; capsules mostly 10–17mm long . . . . . **N. melissifolia**

5a. Inflorescence leafy (flowers either in the upper leaf axils or in racemes with leaf-like bracts) . . . . . **N. albiflora**
b. Inflorescence not leafy 6

6a. Principal leaves mostly 1–6mm broad; spur 3–3·5(–4)mm long (difficulty may be encountered here with specimens intermediate between *N. umbonata* and *N. denticulata*) . . . **N. umbonata**
b. Principal leaves mostly 5–18mm broad; if c.4–6mm, then spur at least 4mm long 7

7a. A bushy herb leafy right up to the inflorescence; spur (2–)2·5–3(–4)mm long . . . . . **N. rupicola**
b. Plants either bushy or tufted, but normally with a bare axis below the inflorescence; spur 3–6mm long 8

8a. Posticous calyx lobes 2·5–3·5mm long at anthesis; spur mostly 4·5–5mm long . . . . . **N. denticulata**
b. Posticous calyx lobes (3·5–)4–4·5mm long at anthesis; spur 3–3·5mm long . . . . . **Nemesia** sp. A

514. Nemesia albiflora N.E. Br. in Kew Bull. 1895:28 (1895); Hiern in Fl. Cap. 4(2):198 (1904).

Type: Natal, 'Berg [Drakensberg] among rocks *in* old Bushman's caves, 6000–7000ft, vii 1894, *Evans* 58 (K, NH).

Syn.: *N. flanaganii* Hiern in Fl. Cap. 4(2):199 (1904). Lectotype (chosen here): Cape, Albert div., Broughton near Molteno, *Flanagan* 1617 (K, GRA, PRE, isolecto).

TRANSVAAL. Pilgrim's Rest distr., c.1km Graskop on road to Pilgrim's Rest, '17 ii 1980, *Oliver* 6 (PRE); 2½ miles NW Sabie, 3800ft, 28 i 1956, *Codd* 9485 (K; PRE); between Sabie and Mt Sheba, In De Diepte plantation, 1 xi 1975, *Van Jaarsveld* 946 (PRE).

NATAL. Ngotshe distr., Itala Nature Reserve, 2200ft, 30 xii 1975, *Brown & Schapiro* 300 (K, PRE); ibidem, 3200–3600ft, 13 xii 1975, *Brown & Schapiro* 153 (K, PRE). Vryheid distr., road to Enyati Colliery, c.4500ft, 10 i 1969, *Hilliard & Burtt* 5898 (E, K, NH, NU, S, Z). Paulpietersburg distr., Dumbe Mt, 10 xi 1929, *Galpin* 9711 (K). Newcastle distr., Ncandu State Forest, c.1500m, 9 v 1984, *Nicholas & Isaacs* 1948 (NH, NU). Bergville distr., Royal Natal National Park, 6600ft, 28 xii 1975, *Hilliard & Burtt* 8671 (E, K, MO, NU, PRE, S). Estcourt distr., Estcourt Pasture Research Station, 4000ft, 8 x 1937, *West* 380 (PRE). Lion's River distr., Howick, 3500ft, iv 1947, *Stanton* 82 (NU); Mooi River, 4000ft, 28 xi 1888, *Wood* 4073 (K). Camperdown distr., Cato Ridge Nature Reserve, farm Craiglea, 6 viii 1967, *Jacobsen* 25 (NU). Underberg distr., Cobham Forest Station, Troutbeck valley below Ndhlovini, 6200ft, 5 iii 1985, *Hilliard & Burtt* 18340 (E, NU); farm Castle Gardens, 12 iv 1970, *Solomon* 48 (E, NU). Polela distr., farm Sunset, 6000ft, 10 xii 1983, *Rennie* 1395 (NU, PRE).

ORANGE FREE STATE. Slopes of Mont aux Sources, 6500ft, 1894, *Flanagan* 2105 (GRA, PRE). Bloemfontein distr., 2827 CC, Mequatling's Nek, 1600m, iv 1972, *Jacobs* 8534 (K, PRE).
LESOTHO. Between Leribe and Butha Buthe, Rampai's Nek woodlot, 1700m, 22 ix 1983, *Richardson* 229 (NU). Roma valley near Thorns, viii 1974, *Schmitz* 4220 (PRE). 3027 AB, between Mohali's Hoek and Mafeteng, x 1977, *Schmitz* 7889 (PRE). Leribe, *Dieterlen* 300 (NH).
TRANSKEI. Cala, Rebels Kloof, *Pegler* 1693 (K, PRE).
CAPE. Queenstown, Umbombola range, 4400ft, 13 xi 1896, *Galpin* 2149 (GRA, PRE). Albert distr., 1861, *Cooper* 623 (E, K).

Hiern sought to distinguish *N. flanaganii* from *N. albiflora* on differences in the size of the corolla limb and on the presence or absence of horns on the capsules, but what differences there are are merely part of the variation range of a single species (the capsules range from 4–14mm long; the larger the capsule, the more pronounced the horns).

Although N.E. Brown also quoted an unlocalized specimen collected by Gerrard, he wrote 'I describe from Mr Evans's specimen', and so effectively typified the name. We have selected *Flanagan* 1617 as the lectotype of the eponymous *N. flanaganii*; the syntype is *Schlechter* 6847 from Highlands in Natal, not far from Estcourt, on the Bushman's river, near the sources of which Evans probably collected the type material of *N. albiflora*.

Nemesia albiflora is relatively widespread in Natal, though not common, and is there rendered distinctive by its leafy inflorescence. It also occurs in the highlands of the eastern Transvaal, the mountainous parts of the eastern and north eastern Orange Free State, Lesotho, Transkeian mountains, and the Cape mountains between Queenstown and Molteno.

It is a straggling herb of moist and partially shaded places, particularly under rock overhangs, from c.1060 to 2100m above sea-level; Evans, on the label in his own hand, emphasized that it was *in* caves. Vagaries of rainfall probably dictate the considerable variation in leaf size (c.10–70mm long) but the leaves are always ovate in outline, coarsely serrate, almost sessile or narrowed to a petiolar part, thinly hairy with long soft gland-tipped hairs. The stems, pedicels and calyx lobes are clothed in similar hairs, which vary considerably in density and in length (c.0·5–3mm). The flowers are solitary on long pedicels in the upper leaf axils or run out into terminal racemes with foliaceous bracts: calyx lobes linear. posticous ones (3–)3·5–4 × 0·5–1mm at flowering; corolla, excluding spur, c.8–10mm long, spur 2·5–3·5mm, corolla white or creamy white, or sometimes the lip with a light pink or lilac suffusion, the veins dark from minute speckles, palate yellow, the colour continued along the floor of the tube to the entrance to the spur, no bosses present at the entrance to the spur; capsules (3–)7–14 × (4–)5–7mm.

Specimens of *N. albiflora* are sometimes misdetermined as *N. pubescens* Benth., based on *Drège* 7878 (K) from 'hills by the Klip River near Keurbooms River, 2000–3000ft', and subsequently collected as far east as Humansdorp and Uitenhage; this species differs in its mostly larger capsules and blunter toothing on the leaf margins.

515. Nemesia caerulea Hiern in Thiselton-Dyer, Fl. Cap. 4(2):191 (1904). Lectotype (chosen here): Natal, East Griqualand, near Kokstad, *Wood* 4196 (K).

NATAL. Bergville distr., Mont aux Sources, xi 1929, *Schweickerdt* s.n. (PRE); Cathedral Peak Forest Reserve, 26 x 1973, *Hilliard & Burtt* 6927 (E, NU); ibidem, 26 x 1950, *Killick* 1058 (PRE). Estcourt distr., valley below Ship's Prow Pass, 2100m, 7 xii 1983, *Balkwill et al.* 1051 (NU); Giant's Castle Game Reserve, 8500ft, 28 xi 1965, *Trauseld* 482 (NU). Mpendhle distr., Mulangane Ridge above Carter's Nek, 7000–7300ft, 1 xii 1983, *Hilliard & Burtt* 16991 (E, K, NU, PRE, PRF). Lion's River distr., Fort Nottingham Commonage, c.5400ft, 19 x 1984, *Wright* 2466 (NU); Balgowan, farm Milbank, 12 x 1964, *Moll* 1213 (NU, PRE); 2 miles N of Dargle Police Station, 4500ft, 11 xi 1964, *Moll* 996 (NU). Underberg distr., Sani Pass, c.8200ft, 8 xi 1973, *Hilliard & Burtt* 7137 (E, K, MO, NU); Natal–Lesotho border, hillslopes behind escarpment edge, 9500ft, 18 i 1976, *Hilliard & Burtt* 8867 (E, NU); Bamboo Mountain, c.6200–6800ft, 21 xi 1982, *Hilliard & Burtt* 15596 (E, K, NU, PRE, PRF, S). Polela distr., Mawahqua Mountain, farm Glengariff, 6000ft, 15 x 1972, *Rennie* 157 (NU); Garden Castle Forest Reserve, 6500ft, 8 i 1982, *Hilliard & Burtt* 15028 (E, NU); 2929 CC, vicinity of Tarn Cave above Bushman's Nek, c.7800ft, 20 xi 1983, *Hilliard & Burtt* 16791 (E, K, NU, PRE, PRF). Ixopo distr., 5 xi 1964, *Shirley* s.n. (NU). Alfred distr., Weza, Ingeli Mountain, 23 ix 1971, *Strey* 10526 (PRE). Mt Currie distr., Mount Currie, 5700ft, 12 xi 1943, *Edwards* 93 (NU); Cedarville, Mvenyani, 18 xi 1920, *Baudert* 68 (GRA).

TRANSKEI. Engcobo distr., Baziya Mountain, 4000ft, xi, *Baur* 542 (GRA).

LESOTHO. Sehlabathebe National Park, 2450m, 21 xii 1975, *Beverly* 23 (PRE); near Qacha's Nek, Maqabe Peak, 13 iii 1936, *Galpin* 14065 (PRE).

CAPE. Maclear distr., 3028 CA, Naude's Nek, c.8200ft, 13 ii 1983, *Hilliard & Burtt* 16599 (E, NU).

Nemesia caerulea is common in Natal in moist grassy places between c.1400 and 2900m above sea-level and ranges along the Drakensberg in Lesotho and Transkei to the Cape Drakensberg. It is a perennial herb that produces one to several stems from a creeping underground stock: stems either simple or branching low down, leafy below, passing into a nude axis terminating in a lax many-flowered bracteate raceme, sparsely pubescent with spreading glandular hairs that are often confined to the pedicels and calyx lobes; leaves ovate, subsessile, margins serrate; flowers c.8–10mm long excluding the spur; spur 2–3(–3·5)mm long; limb usually violet-blue, sometimes pinkish, palate often yellow, sometimes white, the two bosses inside the tube at the entrance to the spur bright orange-yellow.

Dried specimens of *Nemesia caerulea* are easily confused with those of *N. denticulata*, but that species usually has orange-yellow patches at the entrance to the spur; only rarely are these slightly raised, and then never to the degree that they are in *N. caerulea*. The living plants would never be confused, *N. denticulata* being a far more tufted plant than *N. caerulea*, and there is a difference in the texture of the leaves that is evident even in dried specimens but defies description.

516. Nemesia capensis (Sprengel) O. Kuntze, Rev., Gen. 3(2):237 (1898).
Lectotype (chosen here): Cape of Good Hope, *Thunberg* (UPS, IDC microfiche 14055).

Syn.: *Antirrhinum capensis* Thunb., Prodr. Pl. Cap. 105 (1800) Fl. Cap. ed. Schultes 483 (1823), non Burm. f. (1768). Type as above.
Linaria capensis Sprengel, Syst. Veg. 2:796 (1825).
Nemesia thunbergii G. Don, Gen. Syst. 4:534 (1838), nom. illegit. citing *Linaria capensis* Sprengel.

It has been recognized that Thunberg's *Antirrhinum capense* was an homonym of *A. capense* Burm. f., and the epithet has been dropping out of use in *Nemesia*. But Sprengel's *Linaria capensis* is a new name (Art. 72, note 2) and the epithet is legitimate from that date, 1825. O. Kuntze did not cite Sprengel, only Thunberg; nevertheless, as the names in *Antirrhinum* and *Linaria* are homotypic, his combination in *Nemesia* is to be taken as being based on the legitimate *Linaria capensis* Sprengel. O. Kuntze's use of *N. capensis* included the earlier *N. linearis* Vent.; it was therefore incorrect, but not illegitimate; it becomes correct when the synonym is excluded (Art. 63.3), as it must be since *N. linearis* is an annual allied to *N. bicornis* (see below). *Nemesia capensis* must, of course, yield to *N. foetens* if synonymous with it (they are both bushy herbs leafy up to the inflorescence) but the name is available if the plant proves to be distinct botanically. There are two sheets, very similar, in Thunberg's herbarium; one, no. 14055, already has a red Type specimen label stuck on it. This choice has never been published but there is no reason to change it and it is cited above.

517. Nemesia denticulata (Benth.) Fourcade in Mem. Bot. Surv. S. Afr. 20:73 (1941).
Type: South Africa, Transkei, Pondoland, between Umtata river and St John's River [Umzimvubu], *Drège* 4852 (K).

Syn.: *Diascia denticulata* Benth. in Hook., Comp. Bot. Mag 2:18 (1836) et in A. DC., Prodr. 10:259 (1846); Hiern in Thiselton-Dyer, Fl. Cap. 4(2):163 (1904).
Nemesia natalitia Sonder in Linnaea 23(1):82 (1850). Type: Port Natal, *Gueinzius* 514, presumably = Gueinzius s.n. (S, photo, E).
[*Nemesia cynanchifolia* sensu Fl. Pl. S. Afr. pl. 765 (1940), non Benth.].

NATAL. Umvoti distr., Mondi Forest near Rietvlei, c.1564m, 27 iv 1982, *Nicholas & Isaacs* 1292 (NU). Pietermaritzburg distr., Zwartkop Location, 4500ft, 30 ix 1964, *Moll* 1126 (NU, PRE). Lower Umfolozi distr., Richard's Bay, 5m, 27 vii 1974, *J. D. Ward* 16 (NU). Hlabisa distr., St Lucia Estuary, 3 viii 1975, *Pooley* 1745 (E, K, MO, NU). Lower Tugela distr., Tongaat Beach, 27 vi 1946, *Hillary* 203 (NU). Durban distr., Isipingo North, 50ft, x 1948, *Ward* 613 (NU); Durban, The Bluff, Treasure Beach, 5 xi 1982, *Ellery* 57 (E, NU); near Durban, 40ft, 11 vii 1893, *Schlechter* 2928 (GRA, K). Umzinto distr., Vernon Crookes Nature Reserve, 20 viii 1983, *Balkwill & Manning* 945 (NU). Port Shepstone distr., Sea Park, 22 ix 1966, *Strey* 6936 (NU). New Hanover distr., Impolweni, xi 1929, *Rump* s.n. (NU). Pinetown distr., Gillitts, Chelmsford

Park, c.2000ft, 17 viii 1968, *Hilliard* 4837 (E, NU). Camperdown distr., Umgeni Dam, 14 ii 1949, *Robinson* 51 (E, NU); Cato Ridge, 5 xi 1969, *Ross* 2156 (NU). Ixopo distr., Ixopo, 5 xi 1964, *Shirley* s.n. (NU). Underberg distr., farm The Rocks, 14 xi 1976, *Stewart* 1849 (E, K, NU). Mount Currie distr., Swartberg, 4500ft, 24 xi 1953, *Comins* 604 (E, K, NU).
TRANSKEI. Umzimkulu distr., Clydesdale, 3000ft, xi 1884, *Tyson* 3156 (PRE). Port St Johns, 3129 BB, Spes Bona, 19 v 1969, *Strey* 8651 (PRE). Elliotdale distr., The Haven, *Gordon-Gray* 298 (NU). Willowvale distr., Mendwana, 15ft, 24 i 1965, *Wood* 25 (NU).
CAPE. Komgha distr., near Morgan's Bay, Double Mouth, 9 v 1985, *Batten* 696 (E, NU). East London distr., East London, Potter's Pass, 30 iv 1982, *Guillarmod & Brink* 53 (GRA).

Nemesia denticulata is a perennial herb producing tufts of annual flowering stems from a thick woody stock, which also gives rise to underground runners; in this way, extensive clones are sometimes formed. The type material came from coastal Pondoland, in what is now known as Transkei, and similar plants are common in sandy grassland along the Natal, Transkeian and Cape coasts and inland up to c.1100m, occasionally higher. Flower colour is variable, from pink to light violet or blue, with an occasional white sport in colonies of plants with coloured flowers, yellow or orange on the crest of the palate and down the floor of the corolla tube to merge with the orange-yellow of the spur. At the mouth of the spur there are two orange-coloured patches, but these are not or only very slightly raised, which at once distinguishes *N. denticulata* from *N. caerulea* in which the bosses at the mouth of the spur are very prominent. In *N. denticulata* the spur is (3–)5(–6)mm long and the principal leaves are mostly 5–10(–18)mm broad, which characters will usually serve to distinguish it from *N. umbonata*, in which the spur is only 3–3·5(–4)mm long and the principal leaves are 1–6mm broad. *Nemesia umbonata* is essentially a plant of the Transvaal and Orange Free State that descends the low Drakensberg into the northern parts of Natal, and also enters southern Natal from the Transkei via the E Cape. It is in the area of overlap in the distribution of the two species that specimens may become difficult to place; some rigorous experimental work is needed.

Nemesia denticulata, N. umbonata and *N. caerulea* characteristically have a long nude axis below the flowering part of the inflorescence, which is best seen when the plant is well grown. It is a useful character for recognizing this group of species. *Nemesia* sp. A (below) also has a strong tendency to develop a bare axis below the inflorescence.

518. Nemesia divergens Benth. in Hook., Comp. Bot. Mag. 2:22 (1836). Type: [Alexandria div.] Zwart Hoogte, *Ecklon & Zeyher* 1201 (K).

We have seen only the fragment of the original material retained by Bentham. The divergent horns on the capsule are probably not a very reliable specific character and the status of this species must remain doubtful till the group is revised.

519. Nemesia foetens Vent., Jard. Malm. t. 41 (1804).
Type: A cultivated plant (P? n.v.).
Syn.: *N. linearis* Vent. var. *latifolia* Benth. in Hook., Comp. Bot. Mag. 2:21 (1836). Type: Rhenoster Kop, *Burke* (K).
CAPE. Prieska div., Prieska, *Bryant* 63 (K). Queenstown to Tarkastad, 3126 DC, c.24km short of Tarkastad, 22 xi 1977, *Hilliard & Burtt* 10561 (E, K, MO, NU, PRE, S).

We cite two specimens that seem to us a good match of the plate published by Ventenat. The plant is a bushy herb, glabrous except for almost sessile glands particularly on the inflorescence axis, pedicels, and both surfaces of the calyx lobes; leafy right up to the inflorescence, primary leaves linear-lanceolate, secondary leaves narrower, often quasi-fasciculate, flowers c.15mm long excluding the 3–4mm spur, white or palest pink, palate orange to yellow. It is widespread in the dry interior of the Cape, from Queenstown in the east to the Nieuweveld Mountains in the west.

Hiern (in *Fl. Cap.* 4:195) cited a number of specimens from Natal under this name. We have seen most of them, and all prove to be *N. denticulata.*

520. Nemesia fruticans (Thunb.) Benth. in Hook., Comp. Bot. Mag. 2:22 (1836).
Type: Cape, without locality, *Thunberg* (UPS, IDC microfiche 14068).
Syn.: *Antirrhinum fruticans* Thunb., Prodr. Pl. Cap. 105 (1800) et Fl. Cap., ed Schultes, 481 (1823).
Linaria fruticans (Thunb.) Sprengel, Syst. Veg. 2:789 (1825).
CAPE. Without locality, *Masson* (BM).

The specimen collected by Masson (now in a very poor state) is the only one we have seen that is a good match of the photograph of Thunberg's specimen. The outstanding feature of this species is the short, broad-based, almost sessile leaves, which do not crowd up to the base of the inflorescence. However, the plant that we have keyed as *Nemesia* sp. A (no. 527 in this sequence) may possibly prove to be *N. fruticans.*

521. Nemesia glabriuscula Hilliard & Burtt, **species nova** *N. caeruleae* Hiern affinis sed crista palati glabra et pallide lilacina (nec dense glanduloso-puberula et aurantiaca), dorso palati (hypochilo) pallide lilacino et tantum in fundo et ad orem calcaris parcissime puberulo (nec dorso aurantiaco vel luteo omnino glanduloso-pubescente ad faciem calcaris) bullis ad orem calcaris deficientibus.

Herba perennis caespitosa, radice lignescente; caules erecti, simplices vel inferne ramosi, ad 20cm alti (infructescentibus elongatis), inflorescentia excepta glabri. *Folia* glabra, plerumque 8–30 × 4–14mm, lanceolata vel subacuta basi cuneata, marginibus serratis; petioli usque ad 5mm longi, sursum decrescentes; folia summa sessilia in bracteas inflorescentiae transeuntia. *Racemi* simplices, terminales, laxe multiflori, axi glanduloso-pubescente. *Bracteae* foliaceae sursum cito decrescentes, glanduloso-pubescentes. *Pedicelli* ad 17mm longi, glanduloso-pubescentes. *Calycis* lobi anthesi 3–5 × 1–1·5mm, 3 posteriores quam 2 anteriores paulo longiores,

elliptici, obtusi, extra glanduloso-pubescentes. *Corollae* tubus c.1·5–2·5mm longus; calcar 1·5–2·5mm longum, luteum, ad orem utrinque area auriantiaca papillosa notatum; labium posticum 9·5–12mm longum, lobis lateralibus oblongo-ellipticis 5–6 × 5–6mm, lobo mediano c.7 × 9mm profunde in lobis oblongo-ellipticis duobus c.5–6 × 4·5–5mm fisso, pallide lilacinum, basi medio area lutea notatum; labium anticum c.8–10 × 8–10mm, emarginatum, ad medium palato elevato convexo, glabrum, post palato (hypochilo) et ad orem calcaris glanduloso-puberulum, pallide lilacinum; venae ad bases utriusque labii interdum purpureae. *Stamina* erecta; filamentis anticis c.3mm longis circum postica c.1·5mm longa tortis. *Ovarium* c.1·5 × 1mm; stylus 1mm longus stigmate truncato. *Capsula* 6–11 × 5–6mm, marginibus apicalibus e stylo angulo 30° ascendentibus. *Semina* elliptica, pallida, c.1·5 × 0·5mm, valde mamillata, ala membranacea 0·75mm lata circumcincta.

Type: Natal, Underberg distr., 2929 CA, Garden Castle Forest Reserve, Mlambonja valley, 7200ft, 8 i 1982, *Hilliard & Burtt* 15029 (NU holo.; E, K, PRE, PRF, S, iso.).

NATAL. Underberg distr., 2929 CA, Garden Castle Forest Reserve, Pillar Cave Valley, c.6800ft, 5 xi 1977, *Hilliard & Burtt* 10425 (E, K, NU); ibidem, v 1983, *Grice* s.n. (NU).

We know this species only from the boulder bed of the Mlambonja river in Garden Castle Forest Reserve. It is rendered distinctive by its glabrous palate—only on the floor of the hypochile (behind the palate) and in the mouth of the spur are there sparse hairs; all other species of *Nemesia* occurring in Natal have a densely glandular-puberulous palate.

522. Nemesia linearis Vent., Jard. Malm. sub no. 41 (1804).

Type: In herb. Jussieu (P, sheet 6170 on IDC microfiche).

Syn.: *N. capensis* (Sprengel) O. Kuntze var. *linearis* (Vent.) Fourcade in Bot. Surv. S. Afr. Mem. 20:73 (1941).

N. fruticans (Thunb.) Benth. var. *linearis* (Vent.) Norlindh in Bot. Not. 1951:98 (1951).

Bentham (in *Comp. Bot. Mag.* 2:21, 1836) began the confusion about *N. linearis*. Because Ventenat published the name alongside *N. foetens*, Bentham must have assumed that it was a narrow-leaved relative of that species and he used the name to include Thunberg's *Antirrhinum capense*, describing the plant as a suffruticose perennial. The epithet has been used in this sense ever since. But Ventenat merely said that *N. linearis* belonged to the same genus as *N. foetens*. The microfiche of the type sheet shows clearly that the plant is an annual allied to *N. bicornis* (L.) Pers.

The type of Bentham's *N. linearis* var. *latifolia* (Rhenoster Kop, *Burke*) is a perennial (see under *N. foetens*).

523. Nemesia melissifolia Benth. in Hook., Comp. Bot. Mag. 2:22 (1836) et in DC., Prodr. 10:264 (1846); Hiern in Thiselton-Dyer, Fl. Cap. 4(2):195 (1904).

Lectotype (chosen here): Cape, 'Carroo', *Drège* 7877 c (K).

NATAL. Mtunzini distr., Mtunzini, 50–100ft, 6 i 1947, *Van Rensburg* 26 (NU). Camperdown distr., Mid Illovo, Ismont, iv 1883, 1800ft, *Wood* 1866

(K, NH). Port Shepstone distr., Umzimkulu, 150ft, 28 iv 1884, *Wood* 3039 (K, NH).

TRANSKEI. Port St Johns distr., 24 miles from Bizana on road to Spes Bona, 8 vii 1976, *Van Wyk* 1520 (PRE); Port St Johns, i 1924, *Schonland* 4054 (GRA). Lady Frere distr., Glen Grey, N'qebenya Mt, 4500ft, vi 1894, *Galpin* 1823 (K, PRE); ibidem, 28 iv 1895, *Galpin* 1931 (PRE).

CAPE. Komgha distr., Komgha, 2000ft, iii 1891, *Flanagan* 807 (GRA, K, PRE). East London, x 1909, *Rattray* 699 (GRA). Stutterheim div., near Dohne, 1860, *Cooper* 185 (K). Cathcart distr., Toise River, 3500ft, 18 x 1942, *Wehmeyer* 15 (K, PRE). Keiskama Hoek distr., Gxulu Mt, 6000ft, 7 v 1948, *Story* 3504 (GRA, PRE). Victoria East distr., Amatola Mts, Gaika's Kop, 5500ft, 5 ii 1937, *Giffen* 719A (Fort Hare); Hogsback peak, 6000ft, 24 iv 1982, *Phillipson* 565 (Fort Hare); Alice, 29 ix 1976, *Stirton* 6229 (K, PRE); Univ. of Fort Hare Research Farm, 1700ft, 12 x 1977, *Gibbs Russell* 3947 (NU, PRE). Bedford, 28 xi 1901, *Nicol* 11 (GRA). Somerset East distr., Boschberg, 2500ft, xi, *MacOwan* 330 (GRA). Albany distr., near Kowie river, 25 vii 1975, *Troughton* s.n. (GRA); Grahamstown, 1800ft, ix 1891, *Bennie* 137 (GRA); 30km from Grahamstown, road to Port Alfred, 13 xii 1980, *Germishuizen* 1523 (PRE); Salem, Kariega River drift, 30 ix 1922, *Britten* 2955 (GRA). Bathurst div., Bathurst Research Station, 23 x 1970, *Brink* 182 (K, GRA); Port Alfred, xii 1915, *Tyson* s.n. (PRE); Kowie, iv 1919, *Tyson* s.n. (PRE). Alexandria div., Zwartwater Poort, 8 vii 1813, *Burchell* 3359 (K). Uitenhage, xii 1847, *Prior* s.n. (K). Riversdale div., Garcia's Pass, ix 1908, *Phillips* 312 (E, K).

Bentham remarked of his new species that the pedicels are often 'fasciculate', and that the capsules are six lines long, four broad, that is, 12 × 8mm. The clustered pedicels and large capsules are indeed salient features of the species and will at once serve to distinguish it from *N. silvatica*, with which it has been confused since Hiern's account of the genus in *Flora Capensis* (1904). *Nemesia rupicola*, a second species that has been confused with *N. melissifolia*, is easily recognized by its short spur (mostly 2·5–3mm long) without a pair of bosses at the entrance.

Nemesia melissifolia is an annual that occurs naturally in damp and partially shaded places, often on forest margins, but collectors have frequently recorded it as a weed in gardens, fields and along roadsides. It is a bushy sappy herb, branching from the base, well grown specimens reaching a height of 600mm, glabrous or with sparse glandular pubescence particularly on pedicels and calyx; *leaves* up to 60 × 40mm, ovate in outline, coarsely toothed, contracted at the base into a petiole up to c.20mm long; *flowers* in bracteate racemes; some internodes very short giving clusters of flowers separated by a long internode, the ultimate cluster umbelliform; pedicels long, filiform; posticous *calyx* lobes (2·5–)3 (–3·5) × (0·5–)0·75(–1)mm at anthesis, enlarging in fruit; *corolla* tube 1·5–2mm long, spur (3·5–)4–5·5(–8)mm long with two papillose bosses at its entrance, upper lip (4·5–)5–9(–12)mm long, lower lip (4–)5–8(–11)mm long, corolla usually white, sometimes pale mauve; *capsules* (6–)10–17 × (4–)6–9mm.

It is commonest in the eastern Cape, where it ranges from sea-level to about 1800m, from as far west as Riversdale division to the mountains in

Transkei north-east of Queenstown, and the Amatole Mountains, down to the coast near Port Alfred, thence northwards to Mtunzini, about 40km north of the Tugela river in Natal. Records from Natal are scanty, the last having been made in 1947; lowland Natal has been devastated by sugar and timber plantations.

524. Nemesia rupicola Hilliard, **species nova** *N. silvaticae* Hilliard (infra) et *N. melissifoliae* Benth. affinis sed ab ambabus corollae calcari brevi plerumque 2·5–3·5mm longo (nec (5–)6–9mm ut in *N. silvatica* nec 4·5–6(–8)mm ut in *N. melissifolia*), bullis externe invaginatis ad orem calcaris absentibus (nec bullis invaginatis conspicuis) statim distinguenda.

Herba ramosa, fortasse breviter perennis, c.30–75cm alta, glandulis subsessilibus in petiolis pedicellis caulibus juvenilibus calycis lobis exceptis glabra. *Caules* quadrangulares, partibus veteribus tantum lignosis, crebre foliati. *Folia* opposita, patentia; lamina plerumque 20–45 × 10–20mm, late lanceolata vel ovata, marginibus grosse et acute dentata, apice acuta, basi late cuneata, petiolo c.5–15mm longo sursum decrescente, foliis summis interdum subsessilibus. *Racemi* terminales saepe paniculati, multiflori, floribus plerumque duobus interdum pluribus approximatis. *Bracteae* inferiores foliaceae, sursum celeriter decrescentes. *Pedicelli* c.10–20mm longi, filiformes. *Calycis* lobi lineares vel anguste elliptici, 3 postici anthesi (2·5–)3–3·5 × 0·5–0·75mm, 2 antici paulo breviores latioresque, omnes sub fructu paulo elongati. *Corollae* tubus c.2mm longus in calcar (2–)2·5–3(–4)mm longum productus, bullis in hypochilo ad orem calcaris nullis; labium posticum c.6–9mm longum, lobis lateralibus 2 oblongis c.4 × 2·5mm, lobo mediano c.5 × 3mm in lobulos 2 oblongos 4·5 × 1·5mm alte fisso, vel album vel pallide roseum vel laete violaceum, venis purpureis, area mediana lutea ad basin labii praeditum; labium anticum uti posticum coloratum, c.6–11 × 7–9mm, leviter emarginatum, undulatum, medio in palatum convexum longitudinaliter sulcatum luteum dense papillosum elevatum, papillis in fundum tubi et in calcar extensis. *Stamina* erecta; filamenta antica c.2·5mm longa basi circum postica 1·5mm longa torta; antherae c.0·5mm longae. *Ovarium* 1·5 × 1mm; stylus 0·5mm longus; stigma truncatum. *Capsula* (5–)7–12 × 4–7mm, angulo apicali c.30°; semina 1·5 × 0·5mm, elliptica, testa verrucosa, alis marginalibus semini aequilatis.

Type: Natal, Underberg distr., 2929 CB, 5–7 miles NNW of Castle View Farm, headwaters Mlahlangubo river, Wilson's Cave, 7000ft, 21 i 1982, *Hilliard & Burtt* 15309 (NU holo.; E, K, MO, NBG, PRE, S iso.).

Selected citations:

TRANSVAAL. Lydenburg distr., Mt Anderson, 6500ft, 11 iv 1933, *Galpin* 13600 (PRE); Belfast, xii 1909, *Leendertz* TM 8066 (PRE). Pilgrim's Rest distr., Mt Sheba N.R., 1980m, 9 ix 1979, *Kerfoot* 8462 (PRE). Middelburg distr., Klein Olifant's River, 1660m, 26 x 1893, *Schlechter* 3798 (E, K, PRE). Heidelberg distr., Suikerbosrand, 5500ft, 20 xi 1971, *Bredenkamp* 293 (PRE). Wakkerstroom distr., farm Oshoek, 200m, 4 vii 1974, *Devenish* 1538 (E, NU).

ORANGE FREE STATE. Witzieshoek distr., road to The Sentinel, c.8000ft,

27 xii 1975, *Hilliard & Burtt* 8654 (E, K, MO, NU, PRE, S). Harrismith distr., Platberg, 2400m, 2 vi 1974, *Jacobsz* 2513 (K, PRE).
NATAL. Ngotshe distr., Itala Nature Reserve, Potwe Section, 1200m, 2 vii 1982, *Porter & Ward* 63 (NH). Bergville distr., farm The Cavern, 6500ft, i 1956, *Hodson* 37 (NU); Royal Natal National Park, c.8000ft, 24 iv 1964, *Trauseld* 252 (NU); Cathedral Peak Forest Reserve, 7100ft, vii 1944, *Schelpe* 684 (NH, NU); ibidem, 6050ft, 8 ii 1951, *Killick* 1398 (NH, PRE). Estcourt distr., Monk's Cowl Forest Reserve, Cowl Fork Valley, 2100m, xii 1983, *Balkwill et al.* 1070 (NU); Giant's Castle Game Reserve, 7500ft, 5 iii 1965, *Trauseld* 353 (NU, PRE); Kamberg, c.6600ft, 6 vi 1964, *Wright* 1812 (NU). Mpendhle distr., Upper Umkomaas, Nhlangeni valley near Bird's Nest Cave, c.6000ft, 21 ii 1985, *Hilliard & Burtt* 18277 (E, NU) and 18286 (E, NU); Mulangane Ridge above Carter's Nek, 7400ft, 11 iii 1985, *Hilliard & Burtt* 18356 (E, NU). Underberg distr., Sani Pass, 6500ft, 1 xii 1962, *Hilliard* 982 (NU); ibidem, c.8500ft, 13 i 1985, *Hilliard & Burtt* 18049 (E, NU); Cobham Forest Station, Ndlovini, Troutbeck, 6000ft, 9 xi 1980, *Hilliard & Burtt* 13370 (E, K, NU); Garden Castle Forest Reserve, Mlambonja Valley, 6100ft, 7 i 1982, *Hilliard & Burtt* 14982 (E, NU, PRE).
LESOTHO. Maseru–Thaba Tseka road, Pass of the Jackals, 2650m, 13 ii 1984, *Richardson* 240 (NU); 2928 AC, Mountain road, 32·5km east of Thaba Putsoa, 2500m, 19 iii 1983, *Halliwell* 5044 (PRE); Tsanatalana Valley, 8000ft, 30 iv 1953, *Killick* 1979 (NH, NU). Mokhotlong, iii 1949, *Guillarmod* 1081 (PRE). Buffalo River waterfall, c.7100ft, 14 iii 1904, *Galpin* 6786 (K, PRE); Sehlabathebe National Park, c.2425m, 25 xi 1976, *Hoener* 1681 (K),

Nemesia rupicola has hitherto been confused with both *N. melissifolia* and the plant now described as *N. silvatica*, but it differs from *N. silvatica* in particular by a number of characters in addition to the lack of bosses at the entrance to the shorter spur. The inflorescence never becomes flagelliform in *N. rupicola*, as it does in *N. silvatica*, the inflorescence bracts are mostly larger and leafier, and the flowers are often clustered; those of *N. silvatica* are always white, whereas in *N. rupicola* they may be white, pink or light violet and the palate is yellow (white or only faintly tinged yellow inside in *N. silvatica*); posticous calyx lobes mostly 3–3·5mm long at anthesis (not 2–2·5mm).

Nemesia rupicola is essentially a montane plant growing in boulder beds and rock tumbles, more rarely in forest patches, between 1800 (a little lower in the Transvaal) and 2650m, while *N. silvatica* is a plant of forest margins and the forest floor, and is at the upper limit of its altitudinal range at about 1900m; *N. rupicola* has a relatively wide geographical range, from the northern Transvaal to the SE corner of Lesotho, while *N. silvatica* is confined to forest patches in the southern half of Natal.

We have restricted our description of *N. rupicola* to plants that are glandular-puberulous, but over the same geographical range and sometimes in the immediate vicinity of the typical plant may occur plants with a short glandular pubescence (hairs up to c.0·3mm long), and posticous calyx lobes that are often only 2·5mm long. Such plants are particularly common in the Transvaal, but we have ourselves twice collected them in

the southern Drakensberg (*Hilliard & Burtt* 18067, upper Polela; 18123, upper Loteni) and noted no difference in facies.

The tropical African species *N. zimbabwensis* Rendle and *N. montana* Norlindh (which are possibly conspecific) have sessile or subsessile leaves, which will at once distinguish them from *N. rupicola*. They seem, too, always to have simple or subsimple stems in contrast to the bushy habit of our species.

525. Nemesia silvatica Hilliard, **species nova** *N. melissifoliae* Benth. affinis, sed inflorescentiis demum flagelliformibus (nec robustis pedicellis interrupte aggregatis), calycis lobis posticis anthesi c.2–2·5mm longis (nec plerumque 3mm), calcare (5–)6–9mm (nec 4–5·5(–7)) et capsulis 3–10mm longis (nec plerumque 10–17mm).

Herba ramosa fortasse breviter perennis sed anno primo florens, usque ad c.1m alta, glabra vel pilis parcis gracilibus glandulosis praecipue in caulibus pedicellis calycis lobis praedita. *Caules* quadrangulares, foliati. *Folia* opposita, patentia; lamina plerumque 20–70 × 10–35mm, late lanceolata vel ovata, marginibus grosse vel incise dentata, apice acuto, basi cuneata in petiolum 5–20mm longum angustata, et lamina et petiolo sursum decrescentibus. *Racemi* terminales, plerumque paniculati, multiflori, demum flagelliformes. *Bracteae* ad 10mm longae sed saepe minores, lineares. *Pedicelli* 12–25mm longi, filiformes. *Calycis* lobi lineares vel anguste lanceolati, 3 postici anthesi c.2–2·5 × 0·5–0·75mm, 2 antici paulo breviores latioresque, omnes sub fructu accrescentes. *Corollae* tubus c.2–3mm longus, in calcar (5–)6–9mm productus, bullis in hypochilo ad orem calcaris 2 glanduloso-pubescentibus et pallide viridi-luteis extra invaginatis; labium posticum c.8–11mm longum, lobis lateralibus oblongis, c.3–3·5 × 2·25–3mm, lobo mediano c.3·5–4·5 × 3–4mm in lobulis 2 oblongis 3–4 × 1·75–2·5mm; labium anticum c.8–11 × 6–9mm, paulo emarginatum, undulatum, medio in palatum convexum longitudinaliter sulcatum dense papillosum elevatum, papillis in fundum hypochili et in calcar extensis; corolla omnis alba, venis laete griseo-caeruleis, palato interdum pallide luteo-suffuso. *Stamina* erecta; filamenta antica 2·75–3mm longa, basi circum postica filamentis 1mm longis torta; antherae c.0·75–1mm longae. *Ovarium* c.1·5 × 1·25mm, stylo c.1mm longo, stigmate capitato. *Capsulae* 3–10 × 3–7mm, angulo apicali c.30°; semina 2 × 0·75mm, elliptica, testa verrucosa, alis marginalibus semini aequilatis.

Type: Natal, Underberg distr., Cobham Forest Reserve, Emerald Dale, 6400ft, forest floor, 4 iii 1985, *Hilliard & Burtt* 18297 (NU holo.; E, K, PRE, PRF, iso.).

NATAL. Estcourt distr., 17km E of Mooi River on Hlatikulu road, 27 xi 1982, *Balkwill & Manning* 348 (NU); Hlatikulu, i 1895, *Evans* 388 (K, NH); NE foot of Hlatikulu Mt, c.5200ft, 9 iii 1944, *Acocks* 10191 (NH, PRE). Umvoti distr., Greytown, farm Deaseene, 27 i 1939, *Galpin* 14748 (NH, PRE); Muden, iv 1936, *Wylie* s.n. (K, NH). Lion's River distr., farm Silverdale, c.5100ft, 6 iv 1973, *Wright* 1492 (E, NU); Nottingham Road, iii 1939, *McClean* 926 (K); Mooi River, 4000ft, 25 x 1888, *Wood* 4039 (K); farm Kilgobbin, c.5000ft, 10 xii 1965, *Hilliard & Burtt* 3198 (E, NU); farm Umgeni Poort, 5500ft, 19 v 1964, *Moll* 860 (K,

NH, NU, PRE); farm Liddesdale [Merrivale], 4000ft, 17 ii 1888, *Wood* 3939 (K); Mt Ashley, 3500ft, 23 x 1964, *Moll* 1325 (NU, PRE). New Hanover distr., Karkloof, farm Benvie, 4–5000ft, v 1900, *Wylie* comm. Wood 7814 (GRA, PRE). Mpendhle distr., Boston, 3–4000ft, iv 1909, *Wood* 11150 (E, NU, PRE). Richmond distr., farm Keerom, 5 iii 1972, *Strey* 10879 (K, NH, NU); Byrne, 4500–5000ft, 5 v 1932, *Galpin* 11900 (K, PRE). Underberg distr., Sipongweni Mountain, 2 v 1976, *Grice* s.n. (NU). Polela distr., Mawahqua Mt, farm Sunset, 5000ft, 8 iv 1973, *Rennie* 363 (E, NU); Bulwer, Kukamahutsha Bush, 6000ft, 12 iii 1936, *McClean* 2481 (PRE); Xumeni forest, 12 vi 1977, *Shirley* s.n. (NU). Alfred distr., Weza, Ingeli slopes, 1 i 1966, *Strey* 6307 (NH); Mt Currie distr., base of Mt Currie near Kokstad, 5000ft, iii 1883, *Tyson* 1136 (E, K); Zuurberg, 9 v 1884, *Wood* 1988 (K); without precise locality, Faku's Territory, *Sutherland* s.n. (K, PRE).

TRANSKEI. Mt Ayliff distr., Tonti Forest, *Kotze* 656 (PRE).

Nemesia silvatica is known only from the southern part of Natal, from Estcourt, Lion's River and Umvoti districts in the north to Mt Currie and Alfred districts in the south, and from Mt Ayliff distr., Transkei, between c.900 and 1950m above sea level, on forest margins and on the forest floor, particularly on rocky sites. It is a bushy herb, characterized by its long-spurred white flowers borne in delicate panicled racemes that become flagelliform as the fruits begin to develop. It flowers principally between December and April but may begin earlier and go on later.

The leaves of *N. silvatica* resemble those of *N. melissifolia*, but the inflorescences of *N. melissifolia* are more congested than those of *N. silvatica*, the flowers tend to be clustered and the tip of each inflorescence is subumbellate, altogether different in appearance from the delicate flagelliform racemes of *N. silvatica*. The flowers of *N. melissifolia* are probably always smaller than those of *N. silvatica*, and this is perhaps reflected in the mostly shorter spur, c.4–5·5mm long, not mostly 6–9mm, and the capsules are usually larger, mostly 10–17mm long, not 3–10mm.

526. Nemesia umbonata (Hiern) Hilliard & Burtt, **comb. nov.**

Type: Orange River Colony, without precise locality, *Patershall Thomas* s.n. (BM).

Syn.: *Diclis umbonata* Hiern in J. Bot. 39:104 (1901) & in Thiselton-Dyer, Fl. Cap. 4(2):202 (1904).

TRANSVAAL. Lydenburg distr., 9km from Lydenburg on road to Dullstroom, 5 iii 1979, *Germishuizen* 1077 (PRE). Nylstroom, x 1901, *de Jongh* in herb. Galpin 6477 (GRA, PRE). Ermelo distr., Ermelo, i 1909, *Collins* TM 6322 (PRE). Belfast distr., Waterval, 21 ix 1905, *Leendertz* TM 4688 (PRE); between Belfast and Dullstroom, 3 miles from Belfast, 30 ix 1971, *Balsinhas & Kersberg* 2052 (PRE). Johannesburg, Jeppestown Ridge, c.6000ft, ix 1898, *Gilfillan* 96a (PRE); Milner Park, ix 1926, *Moss* s.n. (PRE). Pretoria distr., Wonderboomspoort, 4800ft, 4 xi 1893, *Schlechter* 3629 (GRA); farm Mooiplaas, 20 miles E of Pretoria, 3 x 1948, *Kinges* 1853 (PRE). Wakkerstroom distr., Kastrol Nek, i 1925, *Fitzsimons & Van Dam* TM 26001 (PRE). Piet Retief distr., Iswepe, 29 x 1948, *Sidey* 1537 (PRE).

ORANGE FREE STATE. Bethlehem distr., Golden Gate, 15 i 1976, *Fenn* 13 (NU). Ficksburg distr., Gumtree, farm Schuttes Draai, 5000ft, 25 ix 1964, *Ross* 1318 (NU).
NATAL. Vryheid distr., Skurweberg Mts, 12 x 1964, *Shirley* 266 (NU). Dundee distr., top of Mpati Hill, 20 ix 1964, *Shirley* 51 (NU). Klip river distr., Collings Pass, 1 xi 1965, *Shirley* s.n. (NU); Van Reenen, 5500ft, 1 i 1912, *Wood* 12172 (NU). Bergville distr. [Natal National Park], 31 viii 1930, *Hutchinson et al.* 128 (NH, PRE); Cathedral Peak F.R., 30 xi 1956, *Killick* 1175 (PRE). Estcourt distr., Giant's Castle Game Reserve, 7000ft, 8 xii 1965, *Trauseld* 493 (NU, PRE); ibidem, Bannerman Hut, c.7400ft, 4 iii 1973, *Wright* 1489 (NU); Highmoor Forest Reserve, 1936m, 18 x 1977, *Ruddock* 60 (NU). Mt Currie distr., Swartberg, 4500ft, *Comins* 604 (E, K, NU).
TRANSKEI. Umtata, 3 miles NE, 1 i 1921, *Schönland* 3810 (GRA); between Nqamakwe and Engcobo, 3600ft, 1896, *Bolus* 8755 (PRE).
CAPE. Stutterheim distr., Debe Nek, 5 iii 1909, *Rogers* 4460 (GRA). Cathcart distr., Cathcart road near Seymour turnoff, 4900ft, 14 iv 1955, *Johnston* 1198 (GRA); Happy Valley, Fairfield Farm, 2 xii 1957, *Comins* 1749 (GRA). Albany distr., near Sidbury, Rockcliffe, xi 1904, *Daly* 762 (GRA).

Nemesia umbonata, like *N. denticulata*, is a tufted perennial herb spreading by means of underground runners, and there is no doubt that they are closely allied. But *N. umbonata* can usually be separated by its narrower leaves and, particularly, by its shorter spur, and they scarcely overlap in distribution (for details see under *N. denticulata*). We therefore elect to uphold both names at species level until their relationship has been more fully investigated and is better understood.

527. Nemesia sp. A

Tufted, well-branched herb, which will flower in the seedling stage and then the stems simple or subsimple, taproot becoming woody, stems erect, up to c.45cm tall, glabrous or glandular-pubescent, always so on the inflorescence branches. *Leaves* glabrous, mostly 15–35 × 5–18mm, lanceolate to narrowly ovate, acute, base cuneate, margins serrate, petiole up to 4mm long, progressively shorter upwards, uppermost sessile, usually well below the bottom flowers in the inflorescence. *Racemes* simple, terminal, laxly many-flowered, axis glandular-pubescent. *Bracts* up to 5 × 2mm, progressively smaller upwards, lanceolate, glandular-pubescent. *Pedicels* up to 20mm long, glandular-pubescent. *Calyx* lobes (measured in flower) (3·5–)4(–5) × (0·75–)1–1·25(–1·5)mm, the 2 anticous ones slightly shorter and broader, all glandular-pubescent outside. *Corolla* tube c.2mm long produced into a spur 3–3·5(–4)mm long, spur orange-yellow; posticous limb 10mm long, the 2 lateral lobes oblong-rotund, 4 × 4·5mm, median lobe 6 × 6mm, deeply divided into 2 elliptic-oblong lobes 5 × 3mm, pale lilac-pink or violet with a median yellow patch at base; anticous limb pale violet or lilac-pink, c.8 × 12mm, slightly emarginate, raised at the base into a convex, longitudinally grooved palate, orange and glandular-puberulous on the crest, orange and becoming glandular-pubescent down the back and on the anticous face of the spur. *Stamens* erect, filaments of

the anticous pair c.3mm long, the bases twisted round the posticous pair with filaments c.1·5mm long, anthers c.1mm long. *Stigma* truncate, style 1mm long, ovary 1·5 × 1mm. *Capsules* c.5–13 × 5–8mm, the apical angles ascending at c.30°; seeds elliptic, pale, c.1 × 0·5mm, glandular, surrounded by a membranous wing c.0·5mm broad.

Basis of description: Natal, 2828 DB, Bergville distr., Royal Natal National Park, Tugela gorge, c.6000ft, 2 ii 1982, *Hilliard & Burtt* 15395 (E, NU).

NATAL. Bergville distr., Oliviershoek Pass, 28 x 1938, *Häfstrom & Acocks* 1224 (PRE); Cathedral Peak area, 4000ft, xii 1944, *Slinger* 21 (NU); Cleft Peak path, 8800ft, 2 i 1944, *Schelpe* 495 (NU, mixed with *Diascia*).

ORANGE FREE STATE. Witzieshoek, road to Sentinel, c.7500ft, 27 xii 1975, *Hilliard & Burtt* 8659 (E, K, NU, PRE); Sentinel, 8500ft, 9 iv 1944, *Stone* 21 (NU); Mont aux Sources, chain ladder, 9000ft, 28 iii 1946, *Schelpe* 1440 (NU). Estcourt distr., Monk's Cowl Forest Station, valley below Ship's Prow Pass, 2100m, 7 xii 1983, *Balkwill, Manning & Meyer* 1060 (NU).

CAPE. Lady Grey distr., 3027 CB, Witteberg, Joubert's Pass, 7500–7700ft, 18 i 1979, *Hilliard & Burtt* 12189 (E, NU). Barkly East distr., Doodman's Krans Mt, 8900ft, 7 iii 1904, *Galpin* 6788 (PRE); Ben McDhui, 9900ft, 11 iii 1904, *Galpin* 6787 (PRE); ibidem, 8400–9600ft, 4 ii 1983, *Hilliard & Burtt* 16396 (E, NU); Naude's Nek, below summit on Rhodes side, c.7500ft, 13 xii 1976, *Stewart* 1887 (E, K, MO, NU, S); near Rhodes, Carlisle's Hoek, 31 i 1985, *Batten* 684 (E, NU).

LESOTHO. Below Buffalo River Waterfall, c.7100ft, 14 iii 1904, *Galpin* 6789 (PRE). Sani Top, 20–26 ii 1985, *Manning* 543 (E, NU).

This is possibly an undescribed species, but on the other hand it may prove to be *N. fruticans*. It can be distinguished from *N. umbonata*, with which it is partly sympatric, by its generally broader leaves, and longer calyx lobes (mostly 4–4·5mm long, not 2·5–3·5mm); the latter character will also distinguish it from *N. denticulata*, which also has a longer spur (mostly 4·5–5mm, not 3–3·5).

STERCULIACEAE

528. Hermannia cordata (E. Phillips) De Winter, **comb. nov.**

Lectotype (chosen here): Cape, Stormberg, *Drège* (SAM).

Syn.: *Mahernia cordata* [E. Meyer ex] E. Phillips in Ann. S. Afr. Mus. 16:54 (1917).

[*Hermannia betonicifolia* auct. non Ecklon & Zeyher; Harvey in Harvey & Sonder, Fl. Cap. 1:218 (1860) p.p.; Burtt Davy, Man. Flow. Pl. Transv. 1:264 (1926); Ross, Fl. Natal (Mem. Bot. Surv. 39) 245 (1973).]

The type of *H. betonicifolia* Ecklon & Zeyher (*Enum. Pl. Afr. Extratrop.* 40, 1835) was shown by E. P. Phillips (ref. above) to belong to *H. geniculata* Ecklon & Zeyher, described at the same time. Phillips accordingly validated the *nomen nudum Mahernia cordata* E. Meyer for the misidentified plant. However he maintained the genus *Mahernia*, now

reduced to *Hermannia*, and the name *M. cordata* has not hitherto been taken up in *Hermannia*. We thank Dr B. de Winter, Pretoria, for providing the new combination.

URTICACEAE

529. Parietaria micrantha Ledeb., Ic. Pl. Fl. Ross. 1:7, tab. 22 (1829); Hara, Fl. E. Himalaya, Third report (Univ. Museum, Univ. Tokyo Bull. 8) 23 (1975).

Syn.: [*Parietaria debilis* auct. non Forst. f.; Killick in Mem. Bot. Surv. S. Afr. 34:125 (1963); Guillarmod, Fl. Lesotho 162 (1971); Ross, Fl. Natal (Bot. Surv. Mem. 39) 151 (1973)].

Selected citations:

NATAL. Bergville distr., Mont aux Sources, 10000ft, 26 iii 1946, *Schelpe* 1421 (NU). Mpendhle distr., 2929 AD, Loteni river valley, 5900ft, 13 i 1982, *Hilliard & Burtt* 15072 (E, NU). Underberg distr., 2929 CA, Garden Castle F.R., Mlambonja valley, c.6100ft, 7 i 1982, *Hilliard & Burtt* 14998 (E, NU); 2929 CB, Sani Pass, c.8800ft, 23 iii 1977, *Hilliard & Burtt* 9804; 2929 CC, vicinity of Tarn Cave above Bushman's Nek, 8000ft, 19 i 1984, *Hilliard & Burtt* 17384 (E, NU).

E CAPE. Barkly East distr., 3028 CA-CC, Rhodes to Naude's Nek, c.8000ft, 13 ii 1983, *Hilliard & Burtt* 16590 (E, NU).

The name *Parietaria debilis* Forst. f. has been commonly applied on an almost cosmopolitan basis. Hara (ref. above) examined the Himalayan material in detail and decided that it was different from the New Zealand plant described by Forster, being much more delicate and diffuse, resembling rather *P. lusitanica* L. subsp. *chersonensis* (Lang) Chrtek; the same is true of the South African plant. But *P. lusitanica* and its subspecies have three distinctive features: elongate lanceolate bracts, firmer brownish perianth lobes and achenes that are brown even when fully mature. The Himalayan material, Hara pointed out, has ciliate linear bracts, membranous (not accrescent) perianth lobes and achenes that are black at maturity. These are characters of *P. micrantha* Ledeb. The African material hitherto called *P. debilis* has these same features, and we therefore follow Hara in adopting the name *P. micrantha* for it.

P. micrantha is found on mossy rocks or on the floor of forest patches, and under Cave Sandstone and basalt overhangs. It is a monoecious annual; the female flowers have bright red stigmas.

VALERIANACEAE

(B. L. Burtt)

530. Valeriana capensis Thunb., Prodr. Pl. Cap. 7 (1794) & Fl. Cap., ed. Schultes, 33 (1823); Sonder in Harvey & Sonder, Fl. Cap. 3:40 (1863); Meyer in J. Linn. Soc., Bot. 55:766 (1958); Kokwaro in Fl. Trop. E. Afr., Valerian. 6 (1968); Cannon in Launert (ed.), Fl. Zamb. 7(1):75 (1983).
Type: Cape of Good Hope, Lange Kloof, *Thunberg* (UPS).

Valeriana capensis is the only species of the genus in southern Africa, and it is closely allied to the widespread and polymorphic Eurasian

V. officinalis L. F. G. Meyer (ref. above) compared the two species and decided that *V. capensis* was distinct: the relationship has not been investigated further. Meyer described and illustrated the wide range of leaf variation in *V. capensis*, and concluded that 'In the absence of clear-cut geographical discontinuities that would support the differences in leaf-shape, subspecific differentiation of *V. capensis* cannot be upheld by the present author'. This decision followed immediately after a reference to *V. capensis* var. *lanceolata* N. E. Br., characterized by mostly undivided leaves. If one is prepared to recognize only geographically circumscribed subspecies, and no varieties, then the decision is justified. The same course was followed by Cannon in *Flora Zambesiaca* (ref. above).

There are, however, two reasons for reconsidering the infraspecific variation of *V. capensis*. The first is that it depends not on leaf variation alone, but on the combination of leaf form and habit. Meyer has shown (his Fig. 5) how bewildering a set of leaf variations removed from the parent plants can be; the differences in habit do not really strike home until one has had the opportunity of seeing the plants in the field. Secondly, there has been a considerable increase in the material available for study and this is now backed up by field observations. Variation in *V. capensis* is centred on the Eastern Mountain Region and in this region the unqualified use of the name *V. capensis* is simply not adequate.

Three variants deserve recognition and these are named at varietal rank. They are separated on a combination of leaf form and habit and there are altitudinal differences in their occurrence. However, there is some intergradation in morphology and some overlap of altitudinal ranges: the use of varietal rank is therefore appropriate until an experimental evaluation of the differences is undertaken.

var. **capensis**

Stems to 1·5m, arising singly unbranched. All leaves pinnate or pinnatipartite. Inflorescence branches arising only near the top of the stem.

Distribution: Cape Peninsula through the southern and eastern Cape, Transkei, Natal, Orange Free State, Lesotho, Transvaal, Swaziland, eastern highlands of Zimbabwe, NE Zambia & N Malawi (Nyika plateau), Tanzania and Kenya.

var. **lanceolata** N. E. Br. in Kew Bull. 1895:146 (1895).

Lectotype (chosen here): Natal, [Estcourt distr., 2929 BA], Tabamhlope, 6000–7000ft, i 1895, *Evans* 368 (K).

Syntypes: Transkei, Baziya, 4000ft, *Baur* 546 (K). Malawi, Mt Mulanje, *Whyte* s.n. (K).

Selected citations:

NATAL. Estcourt distr., Giant's Castle Game Reserve, 7000ft, 17 xi 1965, *Trauseld* 433 (E, NU). Mpendhle distr., Kamberg area, 'Storm Heights', c.7000ft, 14 xii 1978, *Hilliard & Burtt* 11732 (E, NU). Underberg distr., Gxalingenwa valley, 6400ft, 10 xii 1983, *Hilliard & Burtt* 17175 (E, NU); Garden Castle Forest Reserve, Mlambonja valley, 6100ft, 25 xi 1976, *Hilliard & Burtt* 9347 (E, NU); Sani Pass, 6700ft, 13 xii 1984, *Hilliard & Burtt* 17906 (E, NU).

LESOTHO. Sehlabathebe National Park, 2300–2500m, 4–14 i 1973, *Guillarmod, Getliffe & Mzamane* 60 (E).
TRANSKEI. Mt Ayliff distr., Mt Insizwa, 17 xi 1973, *Hilliard & Burtt* 7292 (E, NU).

Stems up to 0·75m tall, sometimes single, more usually in a small clump. Basal leaves lanceolate, entire or with one or two lobes near the base. Inflorescence branches often arising from middle of stem.

Valeriana capensis var. *lanceolata* looks a very different plant in the field from var. *capensis*. The often clumped habit and much shorter, more delicate stems, set it apart before one is close enough to examine the leaves. It differs in habitat too. Typical *V. capensis* is usually in tall vegetation in marshy streamlines or in valley-bottom marshes, whereas var. *lanceolata* is found on shorter grassland in valley bottoms or on wet slopes or stabilized boulder beds. It is itself a variable plant, some forms tending towards var. *capensis*, having thicker unbranched stems, others coming near var. *nana*.

N. E. Brown based his variety on the lectotype and two syntypes quoted above, without any indication of a type. Meyer (in *J. Linn. Soc., Bot.* 55:766, 1958) records 'Holotype: *Evans* 368' without comment, whereas Cannon (in *Fl. Zamb.* 7(1):76, 1983) writes 'Syntypes from South Africa and Malawi, Mt Mulanje, *Whyte* s.n. (K, Holo, BM Iso)'. Neither seems to give a considered choice of a lectotype. The specimens all match the description; however the variety was described at the same time as several new species collected by M. S. Evans in the Tabamhlope area of Natal in January 1895 and it is clear that N. E. Brown was engaged in determining this collection: it was Evans' specimen that he wanted to name and it is therefore chosen as lectotype. This course has the advantage of putting the type locality in the Drakensberg, which is the focal area of variation in the species.

The disjunct distribution and slight botanical differences suggest that the material from Mt Mulanje, Malawi, may represent the independent origin of an almost identical variety. A critical study is needed.

var. **nana** B. L. Burtt, **var. nova** a var. *lanceolata* N. E. Br. statura humiliore (7–30cm), foliis radicalibus minoribus lamina plerumque late elliptica integra differt.
Type: Natal, Underberg distr., Cobham Forest Reserve, above Upper Polela Cave, c.7500ft, 23 xi 1976, *Hilliard & Burtt* 9329 (E holo., NU iso.).
NATAL. Estcourt distr., plateau at summit of Giant's Castle Pass, c.10000ft, 16 xii 1970, *Wright* 1056 (E, NU). Underberg distr., Garden Castle Forest Reserve, Pillar Cave valley, c.6700ft, 5 xi 1977, *Hilliard & Burtt* 10420 (E, NU); Sani Pass, 8600ft, 9 xi 1973, *Hilliard & Burtt* 7146 (E, NU); 5–7 miles NNW of Castle View farm, headwaters of Mlahlangubo river, 8300ft, 23 i 1982, *Hilliard & Burtt* 15353 (E, NU); Gxalingenwa valley, c.7400ft, 11 xii 1983, *Hilliard & Burtt* 17195 (E, NU).
LESOTHO. Sani Top, north-east of chalet, 9400ft, 17 i 1976, *Hilliard & Burtt* 8834 (E, NU).

CAPE. Maclear distr., Naude's Nek, 8200ft, 27 xi 1971, *Hilliard* 5182 (E, NU); ibidem, 8000ft, 15 xii 1976, *Stewart* 1926 (E, NU).

Valeriana capensis var. *nana* clearly represents the high altitude part of the variation range of the species, but all the varieties show some overlap. The lowland var. *capensis* goes up to 2150m; the montane var. *lanceolata* is found at 1800–2350m, while var. *nana* is restricted to altitudes between 2200 and 3050m.

VELLOZIACEAE

(O. M. Hilliard)

531. Xerophyta longicaulis Hilliard, **species nova** *X. viscosae* Baker affinis sed caule 30cm longo (nec usque ad 5cm), basibus firmis foliorum veterum apicibus appressis induto (nec basibus fibrosis apicibus recurvis), perianthio albo (nec purpureo), stigmate c.10mm longo (nec c.16 –20mm) distinguenda.

Caulis c.30cm longus, 12mm diam., ad apicem in caules duo 50 × 8–10mm furcatus, basibus foliorum imbricatis appressis fusco-brunneis, apicibus griseis truncatis, indutus. *Folia* c.45cm longa, basi 5–8mm lato sursum celeriter in apicem longe attenuatum angustata, marginibus incrassatis, denticulatis, costa supra sulcata subtus prominens et in parte superiore denticulata. *Pedicelli* 15cm longi, c.1mm diam., triangulares, hispidi glandulis brevibus validis. *Perianthii* segmenta 6, ad basin libera, alba pallide purpureo-venosa; 3 exteriora c.41 × 6–7mm, lanceolata, acuta, extra glanduloso-hispida, 3 interiora c.35 × 10mm, oblongo-elliptica, obtusa, apiculata. *Stamina* 6; filamentis c.0·25mm longis, antheris 13 × 1·5mm. *Ovarium* turbinatum c.6 × 6mm, glandulis brevibus crassis indutum, stylo 4mm longo, stigmate 10mm longo (siccitate 8mm) 1·5mm diam. triquetro.

Type: Natal, Bergville distr., Royal Natal National Park, [Tugela] Gorge, c.6100ft, x 1964, *Trauseld* 279 (NU holo.).

This plant is known only from the type collection, made over 20 years ago by Mr Trauseld and illustrated in his book, *Wild Flowers of the Natal Drakensberg*, as a white form of *Xerophyta viscosa* (p. 32, bottom left, as *Vellozia viscosa*). The flowers of *X. viscosa* are usually light to dark purple, in contrast to the white flowers of *X. longicaulis*. White sports of *X. viscosa* are known (e.g. *Wright* 1337, E, from the farm Storm Heights, Mpendhle distr., Natal), but are at once distinguished from *X. longicaulis* by their short stems, never more than 5cm long, and the leaf bases, which shred into fibres with recurved tips. In *X. longicaulis* the firm leaf bases are closely appressed to the long stems.

Xerophyta longicaulis was found at the edge of a moist cliff and was flowering in October; *X. viscosa* begins to flower only in December.