NOTES ON SOME PLANTS OF SOUTHERN AFRICA CHIEFLY FROM NATAL: I

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ABSTRACT. Thirty two species are annotated. Two, *Sclerochiton odoratissimus* and *Scabiosa drakensbergensis* are new; *Cotula radicalis* is transferred from *Schistostephium*; ten are new records either for Natal or for South Africa, some being introduced weeds. Keys are given to species of *Sclerochiton*, *Heliotropium* and *Hypochoeris*.

In the following notes the plants are arranged alphabetically by families, and within families by genera: items are numbered to facilitate eventual indexing. We are grateful to the Directors of the institutions whose specimens are cited for the loan of, or access to, the material in their care. We are also greatly indebted to the various government departments, provincial authorities and private individuals who have given us permission for field work on land under their control. O.M.H. (Department of Botany, University of Natal, Pietermaritzburg) acknowledges financial assistance from C.S.I.R. for fieldwork.

ACANTHACEAE

1–5. Sclerochiton Harv. in Hook., Lond. Journ. Bot. 1: 27 (1842).

The description of *S. odoratissimus* has provided an opportunity to survey the South African species of this genus, which is closely allied to *Acanthus* L.; the affinity is underlined by the parallelism in leaf form between *S. ilicifolius* and *Acanthus ilicifolius*.

Key to South African species of Sclerochiton

1a.	Pubescence on bracts and calyx glandular	4. *S. ilicifolius*
1b.	Pubescence eglandular	2.
2a.	Flowers subtended by bracts manifestly different from the leaves	3.
2b.	Flowers subtended by leaves or leaf-like bracts	4.
3a.	Leaves elliptic, innocuous, petioled; bracts less then 10 mm long; beard of short, stiff trichomes in throat	3. *S. caeruleus*
3b.	Leaves oblong to linear-lanceolate, spine-tipped, subsessile; bracts ± 15 mm long; beard of soft hairs in throat	5. *S. triacanthus*
4a.	Corolla white, very rarely pinkish, limb deflexed, tube short (rarely more than 5 mm long), point of division in limb hidden by the posticous sepal	1. *S. odoratissimus*
4b.	Corolla violet-blue, limb flat, tube at least 7 mm long, point of division in limb usually not hidden by the posticous sepal	2. *S. harveyanus*

1. Sclerochiton odoratissimus Hilliard, **species nova** a *S. harveyano*, quocum adhuc confusa, floribus albis, nec violaceo-caeruleis, limbo corollae valde deflexo nec plano, corollae tubo breviore distinguitur.

Frutex erectus, ramosus, c. 2 m usque altus, cortice griseo longitudinaliter striato; ramuli pubescentes. *Folia* petiolo 3–6 mm longo supra canaliculato pubescente instructa; lamina elliptica, usque ad 3·5 × 2 cm, apice obtusa basi in petiolo attenuata, parce pilosa glabrescens, costa supra impressa subtus prominente et saepe pilosa, nervis lateralibus utrinsecus 3–5 arcuatis prope marginem ascendentibus, margine integra subrevoluta. *Flores* suave odoratissimi, solitarii, versus apicem ramulorum axillares et quasi spicam 2–9-floram formantes; bracteolae 2, 8 × 3·5 mm, oblongae, concavae, extra pilis albis pubescentes vel pilosae, costa prominente in apiculum excurrente. *Calyx* fere ad basin in segmentis 5 concavis ovato-oblongis apiculatis bracteolis simillimis divisus; segmentum posterius paulo majus, 8 × 7·5 mm, saepe apice fisso itaque bilobo, caetera 7·5 × 5·5–6 mm, omnia prominenter 3–5-nervia et ciliato-marginata, tria exteriora etiam extra pubescens basin versus pilosa. *Corolla* c. 2 cm longa, alba, fauce lineis rubris vel brunnescentibus notata; tubus brevissimus, calyce occultus, c. 5 mm longus, 2·5 mm latus, subcylindricus sursum leviter ampliatus sed 1 mm infra fissionem constrictus, extra levis nitensque, intus glaber sed ad constrictionem (stamina orientia) dense et retrorse barbata; limbus unilabiatus, cuneiformis, dimidio superiore valde deflexus, c. 1·5 cm longus, apicem versus 2 cm latus, subaequaliter 5-lobus; lobi oblongi rotundati c. 5 × 4 mm extra pubescentes pilis lineas 4 secus suturas formantibus (limbo ceterum externe plus minusve glabro), intus pubescentes pilis in duas lineas latas utrinque secundum costam glabram dispositis et deorsum gradatim longioribus robustioribus usque in barbam constrictionis mergentibus, alibi pilis brevibus simplicibus et papillis glandulosis, versus margines tantum pilis glandulosis, pubescentes. *Stamina* 4 per paria approximata, subaequalia, exserta; filamenta robusta, applanata, 8 mm longa basin versus pubescentia, basi pilosa; antherarum thecae singulae 2 mm longae ad filamenta adnatae, marginibus ciliatis et coma apicali deinde caduca praeditae. *Ovarium* conicum, loculis duobus biovulatis; stylus 1 cm, levis, gracilis, ad apicem leviter curvatus; stigma brevissime et obscure bifidum. *Capsula* c. 1·5 cm longa, ad apicem vix angustata, brunnea, lignosa. *Semina* brunnea, applanata, elliptica, hilo obliquo, pilis hygroscopicis absentibus.

NATAL. Vryheid district, Zungwini Mt., 1500 m, *Hilliard & Burtt* 5860 (NU holo, E, K, NH iso); *ibidem*, *Hilliard* 4787 (E, NU). Lions River district, "Benvie", 1200–1500 m, *Wylie* in herb. *Wood* 7811 (E, NH); c. 5 miles Howick on Karkloof road, "Shafton", *Hilliard* 4053 (E, NU, NH); summit Karkloof range, Blinkwater Bush, c. 1500 m, *Hilliard* 4864 (E, NU); Karkloof, "Ehlatini", *Moll* 3477 (K, PRE). Umvoti district, Greytown, "Deaseene", *Galpin* 14744 (K, PRE). Without precise locality, *McKen* 5(K). CAPE. Kingwilliamstown district, Keiskammahoek, Cala Forestry Reserve, *Story* 3259 (K, PRE). Somerset East district, Boschberg, *MacOwan* 538 (K, PRE); Somerset East, *Scott Elliot* 499 (E, NH). Kaffraria, *Mrs. Barber* 36 (K, PRE). Transkei, *Mrs. Barber* 29 (K—right hand specimen only: left hand specimen is *S. harveyanus*); Bedford, *Nicol* 103 (PRE).

Mr. H. B. Nicholson first drew my attention to this shrub on Zungwini Mt. in northern Natal in February 1968 (*Hilliard* 4787) but it was not until January of the following year that we returned to find it at the peak of its flowering, filling a gully near the summit of the mountain and sweetly

scenting the air. Here the shrubs are about 2 m or more tall with rather spreading branches, forming thickets in the shallower gullies or occurring on the forest margin in the deeper, forested kloofs.

There is little doubt that a *Sclerochiton*, common in places in the Karkloof area of the Natal Midlands, is the same species. The flowers are identical. The Karkloof plants, however, are stiffer, more compact, with more erect branches than those on Zungwini Mt. and have smaller, narrower leaves. They fringe the forest, Blinkwater Bush, on the road from Howick to Rietvlei and I have also seen a thicket of them on the banks of a small stream where the same road crosses the farm Shafton.

S. odoratissimus has long been represented in herbaria, partly as *S. harveyanus*. C. B. Clarke (in Thiselton-Dyer, Fl. Cap. 5, 1: 37, 1912) confused the two species and cited material of both as *S. harveyanus:* 'corolla white' in his description refers of course to *S. odoratissimus*. In Kew herbarium, the white-flowered plant had been recognized as distinct, possibly by H. Bolus, who annotated *McKen* 5 to that effect. The sheet of *Baur* 200 (*S. harveyanus*) at Kew is particularly interesting. In Baur's hand is written "Corolla beautiful sky-blue!" An annotation in another hand, probably MacOwan's, reads "Scarcely anything else but *Sclerochiton harveyanus* Nees, a variable shrub. But the note as to colour is strange. On Boschberg the colour is always clear ivory-white with delicate brown pencilled lines." *MacOwan* 538, Boschberg (K) is *S. odoratissimus:* it is cited by Clarke as *S. harveyanus*.

We found a few specimens of *S. harveyanus* on Zungwini Mt. (*Hilliard & Burtt* 5859) and were thus able to compare the two species on the spot. There is little difference in their foliage, but the branches of *S. harveyanus* are more spreading and drooping than those of *S. odoratissimus* and carry fewer flowering shoots, so that *S. odoratissimus* is an altogether more floriferous shrub and potentially a good garden plant. The most striking difference, of course, is in the colour of the corolla: violet-blue in *S. harveyanus*, white in *S. odoratissimus* and only the white-flowered species is strongly scented. Among the hundreds of white-flowered shrubs there was one, however, in which the corolla had a pinkish tinge (*Hilliard & Burtt* 5861). It was otherwise indistinguishable from typical *S. odoratissimus*..

The corolla limb is flat and directed forwards in *S. harveyanus*, strongly deflexed in *S. odoratissimus*. The other major difference in floral morphology is more subtle: the bracteoles and sepals of the two species are very similar, but the corolla tube is so short (about 5 mm) in *S. odoratissimus* that the base of the cleft in the corolla is hidden by the calyx whereas it is usually visible in *S. harveyanus* (corolla tube about 7 mm).

Early in the investigation these two species also seemed distinguishable on the type of hairs at the base of the filaments in the corolla throat, but further study proved that this was not so. Those of *S. odoratissimus* are unicellular or 2-celled with a short basal cell, relatively stout, and about 650–1000μm in length, mixed with a few more delicate 2–3-celled hairs. In some material of *S. harveyanus* the hairs were primarily 6–7-celled, very long (about 1550μm) and slender, interspersed with a few much shorter unicellular hairs; in other material the hairs were scarcely distinguishable from those of *S. odoratissimus*.

There are three other species of *Sclerochiton* known in South Africa:

S. ilicifolius, *S. triacanthus* and *S. caeruleus*. The throat hairs of *S. ilicifolius* and *S. triacanthus* are much like those of *S. odoratissimus* but are longer. *S. caeruleus*, however, has brushes of short, stiff, hard trichomes at the bases of filaments. Each trichome consists of a single cell shaped like an assegai head with a short haft embedded in the tissue of the filament. The cell is about 375 μm long with a heavily thickened wall.

2. S. harveyanus [Nees in DC., Prodr. 11: 279 (1847)—nomen ex] Harv., Thes. Cap. 2: t. 145 (1842).

This is the type of the genus and it is also the most widespread species, ranging from about Kingwilliamstown in the eastern Cape through the Transkei, Natal, Swaziland and the eastern Transvaal as far as the eastern highlands of Rhodesia. It is a gregarious shrub in the understorey of forests near their margins. Representative specimens are:—

RHODESIA. Vumba Mts. *Ferrar* 4104 (PRE); Vumba, Elephant forest, *Chase* 5982 (PRE); Mt. Selinda, Chirinda forest, *Obermeyer* 2277 (PRE).

TRANSVAAL. Zoutpansberg, near Louis Trichardt, Hanglip, *Gerstner* 6001 (PRE); farm Lejuma, *Meeuse* 10312 (PRE). Pietersburg district, Haenertsburg, *Codd* 9425 (K, PRE). Letaba district, Duiwelskloof, *Scheepers* 1088 (K, PRE). Pilgrimsrest district, Graskop, *Rogers* 23588 (PRE); Mariepskop, *Meeuse* 9947 (K, PRE); near Klaserie, *van der Schijf* 4515 (K, PRE). Lydenburg district, Lydenburg, Horseshoe Falls, *Galpin* 13723 (K, PRE); Schoemanskloof, *Pole-Evans* 3935 (K, PRE). Barberton district, Moodies near Barberton, *Galpin* 964 (K, PRE). Sabie district, Mauchsberg, *Smuts & Gillett* 2341 (PRE).

SWAZILAND. Hlatikulu district, Hlatikulu, *Stewart* 38 (K). Lebombo Mts., Nsubane Pass from Ingwavuma to Gollel, *Hilliard & Burtt* 3281 (E, NU).

NATAL. Ubombo district, Lebombo near Jozini, *Edwards* 2907 (K, PRE, NU). Vryheid district, Zungwini Mt., c. 1500 m, *Hilliard & Burtt* 5859 (E, NU). Umvoti district near Ahrens, road to Lilani, *Hilliard* 3064 (E, NH, NU). Inanda district, Inanda, *Wood* 1212 (K, PRE, NH). Without precise locality, *Gerrard* 1678 (K).

CAPE. Transkei, Shawbury, *Baur* 200 (K). Mt. Frere district, 2 miles from Mt. Frere on Umtata road, *Hilliard & Burtt* 3708 (E, NU). Maclear district, Chenkwa valley (Ntywenka) south of Maclear, *Bolus* s.n. (PRE). Elliotdale district, Bashee river mouth, The Haven, *Theron* 1462 (K, PRE). Kingwilliamstown district, Pirie, *Taylor* 1812 (PRE). East London district, East London, *Batten* 2 (PRE). Willowvale district, Dwessa forest, *Britten* 7008 (PRE). Kentani district, Kentani, *Pegler* 114 (PRE). Komgha district, near Komgha, *Flanagan* 1237 (PRE). Without precise locality (cited as Kaffraria by Harvey), *Drège* 4037 (iso E, K).

3. S. caeruleus (Lindau) S. Moore in Journ. Linn. Soc. Bot. 40: 159 (1911). Syn.: *Pseudoblepharis caerulea* Lindau in Engler, Bot. Jahrb. 30: 111 (1901).

This is a plant of the Moçambique coastal plain and it is at the southern end of its distribution in Northern Zululand. It appears from herbarium records to be a scandent shrub in sand forest and has deep blue flowers arranged in leafless, spike-like clusters at the tips of the branches.

NATAL. Ingwavuma district, Ndumu Game Reserve, *Tinley* 413 (E, K, NU, NH, PRE); *ibidem*, Mukondo sand forest, *E. S. Pooley* (E, NU); 25 miles

from Sibayi on Ubombo road, *Moll* 3169 (K, PRE). Hlabisa district, False Bay, *Gerstner* 6846 and 6754 (PRE).

4. S. ilicifolius Meeuse in Bothalia 6: 535 (1956).

This species appears to be a Transvaal endemic. Meeuse records that "solid quartzite outcrops [form] its natural habitat". It is remarkable within the genus (vide Meeuse) for its "spine-toothed and pungent leaves, the pungent floral leaves and calyx segments and the glandular pubescence on the floral leaves and calyx". The corolla is white tinged with mauve and is nearly twice the size of that of *S. odoratissimus*.

TRANSVAAL. Zoutpansberg district, Schlesinger's Sawmill W of Louis Trichardt, *Gerstner* 5929 (PRE). Warmbaths district, hills west of Warmbaths, *Mogg* s.n. (PRE). Waterberg district, between Hermanusdoorns and Elmeston, *Meeuse* 9655 (holo PRE, iso K). Lydenburg district, S entrance to Erasmus Pass tunnel, *de Winter* 7804 (K, PRE).

5. S. triacanthus Meeuse in Bothalia 7: 446 (1961).

A low-growing, straggling shrub found in open woodland on shaly soil in the Barberton area. The flowers are a clear, bright blue, densely clustered at the tips of the twigs.

TRANSVAAL. Barberton district, 5 miles from Barberton along road to Florence Mine, *Clarke* 12 (PRE, holo); Barberton, *Rogers* 24047 (PRE); Barberton, Joe's Luck, Thomas's path, *Thorncroft* 598 (NH); hills near Barberton, *Thorncroft* 897 (NH).

Theron 1932 (PRE) from Loskop Dam on the Middelburg-Witbank district boundary is apparently the same species, but although most of the leaves are entire as described by Meeuse, some are spine-toothed as in *S. ilicifolius*.

BORAGINACEAE

6–13. Heliotropium Linn.

No *Heliotropium* was recorded from Natal by Bews (Flora of Natal and Zululand, 1921). We now know that at least eight species occur in the area. One of these, *H. ovalifolium*, had been collected before 1921, another *H. amplexicaule*, has escaped from cultivation. The remainder seem to be recent arrivals in Natal and it is noteworthy that, apart from *H. amplexicaule*, they are still known only from the country north of the Tugela river. All these species occur in the Transvaal and tropical Africa: some are already common further south than Natal, but also further west. It looks as though the area between the Drakensberg and the coast is now being invaded from the north. Some of the species certainly spread along roadsides, and road-making may well be the activity that is permitting the invasion. They are mostly plants of rather dry open ground and from the roadsides they no doubt spread into other suitable areas.

Key to species of Heliotropium in Natal

1a. Corolla lobes ending in a fine acuminate point . . . . 2.
1b. Corolla lobes rounded . . . . . 3.
2a. Hairs on stem appressed; hairs on outside of corolla evenly distributed . . . . . 6. *H. ciliatum*

2b. Hairs on stem spreading; hairs on outside of corolla in lines . . . . . 7. *H. subulatum*
3a. Leaves glabrous, glaucous, linear-oblanceolate or oblanceolate-elliptic, drying black. Plant of saline areas . 8. *H. curassavicum*
3b. Leaves distinctly hairy. Plants not of saline areas . . . 4.
4a. Leaves densely covered with long silvery appressed hairs 9. *H. ovalifolium*
4b. Leaves more sparsely hairy, not silvery. . . . . 5.
5a. Leaves triangular-ovate; fruits not invested by calyx, tips of carpels divergent in fruit . . . . . 10. *H. indicum*
5b. Leaves lanceolate to elliptic; fruits more or less invested by calyx, tips of carpels not divergent . . . . . 6.
6a. Corolla tube half as long again as the sepals . . . . 7.
6b. Corolla tube scarcely exceeding sepals . . 13. *H. strigosum*
7a. Corolla tube glandular hairy outside; stigma sessile 11. *H. amplexicaule*
7b. Corolla tube appressed pubescent outside; stigma stalked 12. *H. steudneri*

6. Heliotropium ciliatum Kaplan in Ann. Transvaal Mus. 12: 187 (1927).
Type: S Africa, Transvaal, Nelspruit, *Rogers* 23916 (21238 in Herb. Transv. Mus.—PRE).
Syn.: *Tournefortia tuberculosa* Cham. in Linnaea 4: 467 (1829); C. H. Wright in Fl. Cap. 4, 2: 7 (1904). Type: S Africa, *Mundt & Maire* (n.v.).
Heliotropium tuberculosum (Cham.) Gürke in Engl. & Prantl, Nat. Pflanzenfam. iv, 3A: 94 (1894)—non Boissier (1879).
H. ciliatum var. *lanceolatum* Kaplan, l.c. Type: Zululand, Umfulozi River, *Wager* (2239 in Herb. Transv. Mus.—PRE).
H. pustulatum Kaplan, l.c. Type: Orange Free State, Glen, *Rogers* (2952 in Herb. Transv. Mus.—PRE).
H. gibbosum M. Friedr. in Mitt. Bot. Staatss. München, 3: 616 (1960). Type as for *Tournefortia tuberculosa*.
NATAL. Ubombo distr., c. 2 miles S of Pongola R. on road to Mkuze, annual herb locally frequent in sandy grassveld, flowers white, 23 i 1966, *Hilliard & Burtt* 3690 (E, NU).
Distribution: Widespread in Orange Free State and Transvaal.

This species was long known as *Heliotropium tuberculosum* (Cham.) Gürke until M. Friedrich observed that this name was a later homonym of *H. tuberculosum* Boiss.: he accordingly proposed the new name *H. gibbosum*. However the literature of *Heliotropium* in South Africa includes a neglected paper by Miss D. Kaplan (cited in the species reference above) in which a number of allegedly new species were proposed. Two of these appear to be no more than the old *Heliotropium tuberculosum* of the South African flora and have no claim to separate specific rank: Dr. L. E. Codd has kindly examined the types at Pretoria and confirms that this is so. They were, however, validly published and render the new name *H. gibbosum* unnecessary. *H. cilatum* is here adopted. The author cited three specimens, one of them in the Herbarium of the Transvaal Museum; immediately

below she says the type is in the same herbarium: this specimen, *Rogers* 23916, is accordingly accepted as the type of the species.

7. Heliotropium subulatum (DC.) Vatke in Linnaea 43: 316 (1882).
Syntypes: Senegal, *Perrotet, Heudelot;* Abyssinia, *Schimper* 1285; Sudan, *Kotschy* 163.
Syn.: *Tournefortia subulata* [Hochst. ex] DC. Prodr. 9: 528 (1845).
[*Heliotropium zeylanicum* auctt.: Baker & Wright in Dyer, Fl. Trop. Afr. 4, 2: 31 (1905)—non (Burm. f.) Lam.]
NATAL. Zululand, Bekamuzi, 20 x 1939, *Gerstner* 3659 (PRE, K).
Distribution: also found in the Transvaal and common in tropical Africa, reaching through to West Pakistan and NW India.

The spreading setose hairs on the stem provide an easy field character to distinguish this species from *H. ciliatum*. It appears to have been collected only on the one occasion in Natal. Another feature pointed out by Dr. L. E. Codd is that the hairs on the corolla are spread evenly over the surface in *H. ciliatum* whereas in *H. subulatum* they are distributed in lines with glabrous patches in between.

8. Heliotropium curassavicum L., Sp. Pl. 1: 130 (1753); Wright in Dyer, Fl. Cap. 4, 2: 7 (1904).
Type: from Central America.
NATAL. Ingwavuma distr.: Nyamiti Pan, Ndumu, *Tinley & Ward* 36 (NH, NU, PRE); *Hancock* 35 (K, NU, PRE). Hlabisa distr.: False Bay Park, *Strey* 7345 (K, NH, NU, PRE); *Ward* 4217 (K, NH, NU, PRE).
Distribution: now widespread through the tropics and subtropics.

This is a plant of saline soils and therefore tends to have a coastal distribution: however, it has long been known from far inland in South Africa and occurs in the Orange Free State and Southern Transvaal. In Asia, inland records are comparatively recent (cf. Burtt in Notes R.B.G. Edinb. 26: 357, 1966).

9. Heliotropium ovalifolium Forsk., Fl. Aegypt.-Arab. cv et 38 (1775); Wright in Dyer, Fl. Cap. 4, 2: 8 (1904).
Type: Arabia, Hadie, montium regio inferior, 2–22 iii 1763, *Forsskål* (C).
NATAL. Ingwavuma distr.: Maputaland expedition, 1914, Herb. Transv. Mus. 14240 (PRE); Ndumu Game Reserve, *Tinley* 510 (PRE). Ubombo distr.: Mkuzi, *Galpin* 13703 (PRE). Hlabisa distr.: Hluhluwe, *Wells* 2118 (PRE); Hluhluwe dam, *Ward* 5617 (NU, PRE); False Bay Park, *Ward* 4167, 4218 (NH, NU, PRE). Eshowe distr.: Eshowe, *Gerstner* 3287 (PRE).
Distribution: now widespread in the warmer regions of the Old World, and long known from Cape, Orange Free State, Namaqualand and Transvaal.

Ward reports that at False Bay Park this species was growing in sand on the shoreline of the lake just above water-level. This is a characteristic habitat.

10. Heliotropium indicum L., Sp. Pl. 1: 130 (1753).
Type: probably from Ceylon.
NATAL. Ingwavuma distr.: Ndumu Game Reserve, *Tinley* 317 (NH, PRE); *Strey & Moll* 3719 (K); Dukuduku, *Strey* 6095 (NH, PRE). Ubombo distr.: Mkuzi Game Reserve, iv 1965 *Morgan* (NU 31115).
Distribution: widespread as a weed through the tropics and subtropics.

11. Heliotropium amplexicaule Vahl, Symb. Bot. 3: 21 (1794); I. M. Johnston in Contr. Gray Herb. 81: 21 (1928).
Type: Brasil, *Thouin* (C).
CAPE. Cultivated in St. George's Park, Port Elizabeth, 1 x 1930, *F. R. Long* 343 (K). Albany div.; frequent along National road between Port Elizabeth and Grahamstown, semi-prostrate, flowers purple, 9 i 1954, *Theron* 1664 (K). Alexandria div.: ½ mile from Bush bridge on Port Elizabeth road, 27 xi 1955, *Archibald* 6075 (PRE).
NATAL. Durban distr.: Umbogintwini, 29 i 1946, *Brooks* 22 (NH); Isipingo North, 14 iii 1968, *Ward* 6522 (NU).
TRANSVAAL. Pretoria, Rietondale Experimental Station, 24 xi 1960, *Schutte* s.n. (PRE, K); Wonderboom, on bank of Aapies river, mauve with yellow centre, 21 i 1969, *Jonker* 1 (K).
Distribution: a native of South America and very common in the Argentine.

In South Africa it is grown as a decorative plant in gardens and the above records suggest that there are at least three centres from which it has become naturalized and is spreading independently.

12. Heliotropium steudneri Vatke in Öst. Bot. Zeitschr. 25: 167 (1875).
Type: Ethiopia, Bogos, *Hildebrandt* 469.
Syn.: *H. eduardii* Martelli, Flor. Bogos 59 (1886). Type: Ethiopia, Keren, *Beccari* 145.
H. nelsonii C. H. Wright in Fl. Cap. 4, 2: 9 (1904). Syntypes: Colesberg, *Shaw;* Griqualand West, *Burchell* 1714, 1766; Transvaal, *Holub*, *Nelson* 219 (all K).
H. dissimile N. E. Br. in Fl. Trop. Afr. 4, 2: 42 (1906). Syntypes: Botswanaland, Kwebe Hills, *Lugard* 77, 139 (K).
H. rogersii Kaplan in Ann. Transvaal Mus. 12: 188, tab. 7 (1927). Type: Transvaal, Messina, *Rogers* 22604 (19653 in Herb. Transv. Mus.—PRE).
NATAL. Ubombo distr.: c. 2 miles S of Pongola river on road to Mkuze, 23 i 1966, *Hilliard & Burtt* 3682 (E, NU); 3–5 miles from Mkuze on Nongoma road, 26 iv 1964, *K. D. Gordon-Gray* 4698 (PRE, NU); main Zululand road near Biyela, 23 xi 1968, *Pooley* 138a (E, NU). Lower Umfolosi distr.: Umfolosi Game Reserve, 8 xi 1953, *Ward* 1661 (E, NU, NH, PRE); *ibidem*, *Ross* 2050 (PRE); *ibidem*, *Leibnitz*, *Fakude & Hancox* 6 (PRE, NH).
Distribution: widespread in Orange Free State, Transvaal and northwards to Ethiopia.

Judging by the above records this species is well established over a linear N–S distance of some 70 miles in NE Natal. All the collections are from roadsides, and Ward reported it as "very common amongst grasses in open road-side tree veld" in 1953.

13. Heliotropium strigosum Willd., Sp. Pl. 1: 743 (1798), sens. latiss. Annual form.

Syn.: *H. cordofanum* [Hochst. ex] DC., Prodr. 9: 546 (1845). Syntypes: Sudan, Cordofan, *Kotschy* 96, 116.

H. paniculatum auctt.; Hook. fil., Fl. Brit. Ind. 4: (1883), saltem p.p. — non R. Br.

H. zeylanicum (Burm. f.) Lam.?; Duthie, Fl. Upper Gang. Plain 2: 98 (1911) saltem p.p. — nomen confusum.

H. constrictum Kaplan in Ann. Transvaal Mus. 12: 186, tab. 3 (1927). Type: Zambesi R., *C. Wilde* 9058 in Herb. Transv. Mus. (PRE).

NATAL. Ubombo distr.: Jozini Ho-motel, stony slopes above Pongola River, white flowers, 13 xii 1965, *Hilliard & Burtt* 3217; c. 2 miles S of Pongola River on road to Mkuze, erect annual herb common in sandy grassveld along roadside, 23 i 1966, *Hilliard & Burtt* 3681 (E, NU). Lower Umfolosi distr.: Umfolosi Game Reserve, *Ward* 3310 (PRE, NH), *Ward* 4550 (PRE, NH). Hlabisa distr.: Hluhluwe Game Reserve, *Ward* 1740 (NH).

Distribution. This form is widely distributed and a selection of specimens is: Transvaal (*Vahrmeijer* 1364); Botswanaland (*Lugard* 149); Moçambique (*Faulkner* K. 408); Rhodesia (*Wild* 3734); Malawi (*Hilliard & Burtt* 4499); Tanzania (*Richards* 21270); Sudan (*Kotschy* 96); West Pakistan (*Burtt* 1150); no attempt has been made to plot the range in detail.

H. strigosum has long been known as a species name that is being used to cover a multitude of forms, and probably several distinct species. It is impossible to carry out a competent revision at present, but the following notes may be helpful to anyone wishing to pursue the matter.

This erect annual form, if distinct from true *H. strigosum*, should probably be known as *H. cordofanum*. It is, however, not easy to be clear what the true West African *H. strigosum* is. The difference between annuals and perennials may not always be distinct in *Heliotropium* (especially in the herbarium), and there are perennials which die down to ground level in the unfavourable season and others which form dwarf bushy plants. One of us (B.L.B.) collected two species growing side by side in West Pakistan, between Rawalpindi and Jhelum: one (*B.* 1149) was a perennial with stems ascending from the base; the other (*B.* 1150) was an erect annual, the branches, if any, rising well above the base. These plants were at the time named respectively *H. strigosum* Willd. and "*H. paniculatum* R. Br. (the true *H. zeylanicum* Lam.)". The latter plant is the one now under discussion. The name *H. zeylanicum* should not be adopted for it (even if correct) because it has become hopelessly confused by long use for *H. subulatum* (DC.) Vatke. The Australian *H. paniculatum* R. Br. is almost certainly a different plant. *H. cordofanum* is therefore the most likely name for this plant, but critical comparison with Sudanese material is needed before it is adopted: the type specimens examined have a distinctive yellowish-green colour in contrast to the heavy grey-green of the Pakistan and southern African plant. *H. constrictum* Kaplan represents the latter form. In north-east Africa *H. bicolor* Hochst. & Steud. is another perennial form of this group, but its long slender inflorescences and smaller flowers suggest it may be distinct from the perennial collected near Rawalpindi. *H. minutum*

Kaplan, from the northern Transvaal, belongs to this part of the complex, which does not yet seem to have reached Natal.

COMPOSITAE

14. Aster quinquenervius Klatt in Bull. Herb. Boiss. 4, 6: 459 (July 1896). Type: Natal, *Wood* 4771 (Z). The Zürich sheet is labelled Van Reenen's Pass, under which locality it must have been received at Kew and thence distributed to Zürich. The sheet in Natal Herbarium, Durban, is however labelled Polela (which is in the Underberg district far to the South).
Syn.: *A. woodii* Klatt in Bull. Herb. Boiss. 4, 12: 830 (Dec. 1896).
Type: cited by Klatt as *Wood* 4521, but the Zürich sheet is *Wood* 5133, which is annotated "=4521". The locality is given correctly as Nottingham Road. *Wood* 4521 (NH) is, however, from Van Reenen.
NATAL. Alfred distr., Mt. Ngeli, c. 1830 m, in damp ground in alcove of rocks, pale magenta rays, 8 i 1969, *Hilliard & Burtt* 5814 (E, NU).

Klatt does not, in his discussion, compare these two plants and the only apparent difference between them to be culled from his descriptions is that the leaves of *A. quinquenervius* are 5-nerved, those of *A. woodii* 3-nerved. This distinction does not hold: the number of veins varies with the width of the leaf and, indeed, *Wood* 4771 (NH) has the leaves 3-nerved, *Wood* 4521, 5-nerved.

Non-flowering rosettes lifted on Mt. Ngeli in January flowered in Edinburgh the following summer and have formed vigorous clumps.

15. Athanasia acerosa (DC.) Harv. in Harv. & Sond., Fl. Cap. 3: 199 (1865).
Syn.: *Pentzia stenocephala* Thellung in Vierteljahrsschr. Nat. Ges. Zürich 61: 456 (1916). Syntypes: Natal: Inanda, *Wood* s.n.; Umgeni, ad catarrhactam, *Rehmann* 7472; Karkloof, *Rehmann* 7417; "Vildshill" [Field's Hill], Pinetown, *Rehmann* 7977; "Intschanga" [Inchanga], *Rehmann* 7896 (all at Z).

The above 5 sheets in the Zürich herbarium, cited by Thellung as syntypes of his new species *Pentzia stenocephala*, all bear F. W. Klatt's determination "*Pentzia pinnatifida* Oliv." Thellung, recognizing them as distinct from *P. pinnatifida*, gave them a name in *Pentzia* and overlooked the fact that the plant already had a name in *Athanasia*. The receptacle is characteristically paleate in *Athanasia*, epaleate in *Pentzia*. The heads of *Athanasia acerosa* are few-flowered (c. 5–12). The innermost flowers are nude, while the outer appear to be embraced by the innermost involucral bracts. Harvey, following de Candolle, interpreted these as marginal paleae. The involucre of *Pentzia pinnatifida* is very similar to that of *Athanasia acerosa* and the inner bracts embrace some of the outer flowers as they do in *A. acerosa*, but the heads are much larger and the receptacle is clearly nude. Apart from the size of the flower heads, *Pentzia pinnatifida* and *Athanasia acerosa* seem to be related to one another: it is a moot point to which genus *A. acerosa* should be referred, and the boundary between them is being further investigated.

16. Cotula radicalis (Killick & Claassen) Hilliard & Burtt, **comb. nov.**
Type. Natal: Underberg distr., Sani Pass, 2670 m, *Killick & Vahrmeijer* 3760 (holo PRE).

Syn.: *Schistostephium radicale* Killick & Claassen in Bothalia 10: 68, fig. 3 (1969).
NATAL. Estcourt distr., Giant's Castle Pass, 2700 m, *Killick* 3907 (PRE); summit Bushman's River Pass, 2895 m, *West* 1735 (NH). Mpendhle distr., Highmoor Forest Reserve, spur running SE from Giant's Castle, c. 2500 m, *Wright* 405 (NU); *ibidem*, *Hilliard & Burtt* 5685 (E, NU).
LESOTHO. Drakensberg summit plateau, upper Injasuti, 3350 m, *Trauseld* 923 (NU, PRE).

We already had a description of this plant in manuscript as a new species of *Cotula*, before seeing its publication as *Schistostephium radicale*. The authors of this name relate the plant to *Schistostephium griseum* (Harv.) Hutch., a possible affinity which we too had carefully considered. But the resemblance here is purely superficial: only the long pedunculate heads (restricted to *S. griseum* in *Schistostephium* but normal in *Cotula*) lend it any credence. The involucral bracts of *S. griseum* are 3–4 seriate and lack the marked scarious margin of the new species, the receptacle is markedly conical, not flat, and though the outer achenes may be somewhat flattened they are not winged and the inner ones are distinctly tetragonal. The 3–7-partite leaves of *S. griseum* and its virgate habit merely confirm the gulf between the two species. The habit, leaves, involucre, receptacle and achenes of the newly described plant are all those of *Cotula* as much as or more than of *Schistostephium* and we accordingly append our discussion of its affinities as originally written.

One point needs to be disposed of first. Killick & Claassen describe the capitula as heterogamous, the outer flowers being female but (and this is surely unusual in Compositae) without any difference in corolla form from the inner hermaphrodite flowers. The plants we have examined came from the spur running SE from Giant's Castle and from the upper Injasuti area: both have all the flowers hermaphrodite.

Comparison may be made with two other species that occur in the Drakensberg, *Cotula hispida* (DC.) Harv. and *C. sericea* Thunb.; we cannot be certain however, that there is a true affinity here. These species were regarded as more properly placed in *Cenia* than in *Cotula* by Bentham (Gen. Pl. 2: 1873) and there is no doubt that they do show the characteristic inflation of the top of the peduncle. Even if the view is accepted that *Cenia* and *Cotula* are not generically distinct (cf. O. Hoffmann in Engl. & Prantl, Nat. Pflanzenfam. 4, 5: 280 (1894) and M. R. Levyns in Journ. S. Afr. Bot. 7: 133, 1941—and we concur), the difference remains an impediment to the idea of a close affinity. Furthermore *C. sericea* and *C. hispida* both have the base of the corolla tube bulging over the top of the ovary; this feature is quite lacking in *C. radicalis*.

Nevertheless it is clear that in Harvey's arrangement the species must be classified in section *Disco-cotula* Harv. (in Fl. Cap. 3: 178, 1865) on account of its homogamous heads, and in that section only *C. sericea* and *C. hispida* are perennials. The remainder are annuals, as is the only recent addition to the section, *C. pedicellata* Compton (in Journ. S. Afr. Bot. 7: 189, 1941): these are all plants of the winter rainfall area of the Cape. Even if the fact that all the flowers are hermaphrodite is ignored, there is no obvious affinity for the new species. It is tempting to look at some of the more antarctic

members of the genus, for instance *C. plumosa* Hook. f. from Kerguelen and other southern islands: the very distinctive structure of the outer (female) flowers (cf. Hook. fil., Fl. Antarctica i, t. 20—as *Leptinella plumosa*) and the functionally male flowers of the disc are major differences, but *C. plumosa* also has a sharply conical receptacle, whereas in *C. radicalis* it is flat. Taken together these features must outweigh the obvious vegetative resemblance.

For the time being, then, *C. radicalis* remains an isolated species of no certain affinity. Technically it is referable to section *Disco-cotula* Harv., but the creation of sections such as this in a regional flora has little meaning. There is no competent subdivision of the genus as a whole: O. Hoffmann's recognition of three sections, *Pleiogyne* (C. Koch) O. Hoffm., *Eucotula* Harv., and *Cenia* (Juss.) O. Hoffm. (including the earlier sectional name *Disco-cotula* Harv.) does less than justice to the complexities of the genus.

17. Felicia linearis N.E. Br. in Kew Bull. 1895: 146.
Types: Natal: top of Mt. Erskine, 1830–2130 m, *Evans* 372 (K); summit of Mt. Amawahqua, 1830–2130 m, *Wood* 4631 (K). Cape: Faku's territory (Pondoland), *Sutherland* (K).
Syn.: *F. lingulata* Klatt in Bull. Herb. Boiss. 4: 831 (1896). Type: Cape: Mt. Insizwa, *Schlechter* 6491 a (Z).
NATAL. Bergville distr., Hlolela, "The Cavern", c. 2130 m, *L'Ange* 42 (NU). Estcourt distr., Highmoor Forest Reserve, spur running SE from Giant's Castle, c. 2440 m, *Hilliard* 4811 (NU); Giant's Castle Game Reserve, upper Injasuti, 3350 m, *Trauseld* 544 (NU); southern face of Giant's Castle massif, c. 2225 m, *Wright* 201 (NU). Alfred distr., Ngeli Mt., c. 2130 m, *Hilliard & Burtt* 5824 (NU).

Both epithets given to this plant draw attention to what is perhaps its most striking feature: the fine linear leaves, which may be as long as 8 cm but are scarcely 2 mm broad. It is a tufted rhizomatous herb bearing solitary heads about 2 cm across (including the rays) on bracteate peduncles from about 4 to 15 cm high. The rays are pink, the disc yellow.

It grows socially in marshy ground and rock flushes or sometimes in drier grassland on the summit plateau of the Drakensberg at an altitude of about 3300 m and in the mountainous parts of Natal and the eastern Cape down to about 1800 m above sea level.

Although this species is locally common, it has seldom been collected and only the type specimens have previously been identified.

18–19. Heteromma Benth. in Benth. & Hook., Gen. Pl. 2, 1: 286 (1873).
Syn.: *Chrysocoma* subgenus *Heteropsis* Harv. in Harv. & Sond., Fl. Cap. 3:95 (1865).
Pentheriella O. Hoffm. & Muschler in Ann. Nat. Hofmus. Wien 24: 316 (1910).

18. H. decurrens (DC.). O. Hoffm. in Ann. Nat. Hofmus. Wien 20: 55 (1905).
Type: Cape, Witteberg, *Drège* (G-DC n.v.).
Syn.: *Chrysocoma decurrens* DC., Prodr. 5: 354 (1836).
C. pterocaula DC., Prodr. 5: 354 (1836). Type: Cape, Leeuwenspruit, between Kraai river and Witteberg, *Drège* (G-DC n.v.).
Senecio evansii N.E. Br. in Kew Bull. 1895: 147. Type: Natal, on the Drakensberg, *Evans* 366 (K, NH).

19. H. simplicifolium Wood & Evans in Journ. Bot. (London) 35: 488 (1897).
Type: Natal: Drakensberg Mts. near Polela river, 6–7000 ft., *Evans* 648 (K).
Syn.: *Pentheriella krookii* O. Hoffm. & Muschler in Ann. Nat. Hofmus. Wien 24: 316, t. 7 (1910). Type: Natal, Van Reenen's Pass, *Krook* in *Plantae Pentherianae* No. 1447 (W).

Pentheriella proves to be the same as *Heteromma simplicifolium* and there seems no reason to doubt that *H. simplicifolium* and *H. decurrens* are congeneric.

H. decurrens is a tall (c. 2 m) rank herb with coarsely-cut leaves. It grows in thick stands on forest margins and along streamsides and is widespread in Lesotho (Basutoland), neighbouring mountainous parts of the Orange Free State (Fouriesburg, Clarens, Witzieshoek and Harrismith), the face of the Natal Drakensberg from the upper reaches of the Tugela river to Ngeli mountain on the Natal-Cape border and as far south as the Witteberg north of Barkly East.

H. simplicifolium is an herbaceous perennial, half the height of *H. decurrens* and with simple leaves. It seems to be more a plant of forest margins and possibly has much the same distribution as *H. decurrens*, but herbarium records are so scanty that it seems worth quoting them in full.

ORANGE FREE STATE. Harrismith distr., near Harrismith, *Sankey* 109 (K); Platberg, *Kotze* 886 (PRE); *ibidem*, 1980 m, *Puttrill* s.n. (PRE); Van Reenen, *Wood* 10765 (NH); *ibidem*, *Bews* s.n. (NU 2978 and 2979).

NATAL. Bergville distr., Cathedral Peak Forest Station, 1950 m, *Killick* 1948 (PRE); Hlolela, "The Cavern", 1524 m, *L'Ange* 13 (NU). Newcastle distr., Normandien Pass, 1950 m, *Hilliard* 1008 (NH, NU).

20–22. Hypochoeris L.

Two European species, *H. glabra* and *H. radicata* were listed by Bews (Flora of Natal & Zululand, 226, 1921). A South American alien is now recorded from South Africa for the first time: *H. brasiliensis*, originally determined for us by Mr. A. J. C. Grierson (Edinburgh).

Key to species of Hypochoeris in South Africa

1a. Pappus hairs in a single series, all long and plumose; achene 5-ribbed . . . . . 20. *H. brasiliensis*
1b. Pappus hairs in two series, the outer of short setae, the inner longer and plumose; achene 10–12-ribbed . . . 2.
2a. Leaves more or less glabrous; corolla only equalling the involucre; outer achenes truncate (not beaked). Annual 21. *H. glabra*
2b. Leaves hairy; corolla longer than the involucre; achenes all beaked. Perennial . . . . . 22. *H. radicata*

20. Hypochoeris brasiliensis (Less.) Griseb. in Goett. Abh. 24: 217 (1879)—not seen; Baker in Martius, Fl. Bras. 6, 3: 334, tab. 90, dext. (1884); Cabrera, Fl. Buenos Aires, 6, Compuestas, 400 (1963).
Syntypes: Brazil: Rio Raquaquer, *Beyrich;* St. Catharina, *Chamisso;* Rio Pardo, *Sellow* (not seen).

Syn.: *Porcellites brasiliensis* Less. in Linnaea 6: 103 (1831).
Seriola tweediei Hook & Arn. in Comp. Bot. Mag. 1: 31 (1835). Type: Argentina, Buenos Aires, *Tweedie* (K, E).
Hypochoeris brasiliensis (Less.) Griseb. var. *tweediei* (Hook. & Arn.) Baker in Martius, Fl. Bras. 6, 3: 334, tab. 90, sinistr. (1884).
Hypochoeris tweediei (Hook. & Arn.) Cabrera in Not. Mus. La Plata, 2: 203 (1937) et Fl. Buenos Aires, 6, Compuestas, 400 (1963).
ORANGE FREE STATE. Lindley distr., 7 miles NE of Lindley, common in damp hollow, c. 1600 m, 14 xi 1939, *Acocks* 20818 (K).
NATAL. Dundee distr., Dundee, herb to 18 inches, flowers yellow, stream-bank, 31 x 1964, *Shirley* (NU 31, 858). Lions River distr., Nottingham Road Vlei, 1455 m, occasional in damp ground on margin of vlei, flowers yellow, xi 1963, *Hilliard* 1969 (E, NU); old Pietermaritzburg-Estcourt road near turning to Dargle, roadside, plentiful, narrow heads of yellow flowers, fruiting head spherical with white pappus, 10 xii 1965, *Hilliard & Burtt* 3203 (E, NU). Estcourt distr., Estcourt Pasture Research Station, weed in nursery, occasional, 4 iv 1945, *Acocks* 11395 (NH). Richmond distr., near Richmond, Enon estate, 1170 m, occasional on roadside through forest, 16 xi 1963, *Hilliard* 2033 (NU). Umzinto distr., Mtwalume Mission Reserve, NW boundary, weed in old field, 22 xii 1965, *Hilliard & Burtt* 3395 (E, NU); Umgai, 435 m, erect branched herb, garden ruderal in sandy loam, 28 i 1968, *Ward* 6364 (E, NU).

The early records of this species in South Africa are interesting. Acocks collected it first in the Orange Free State in 1939; but of its further spread there we have no information. The same collector found it as an occasional nursery weed at Estcourt Pasture Research Station in 1945 and it is very tempting to regard this as the centre from which it has become dispersed in Natal. The five stations where it was collected between 1963 and 1965 are spread over some 150 miles and it is now very well established: further extensions of range should be carefully watched.

H. brasiliensis is native to south-eastern South America (Argentine, Uruguay, S Brazil). Recently Cabrera has kept *H. brasiliensis* and *H. tweediei* as distinct species, but there seems little to differentiate them. The involucral bracts are typically glabrous or with slight development of wool in *H. brasiliensis* and bristly in *H. tweediei*. In populations around Pietermaritzburg both conditions occur and we have therefore reverted to the earlier view that the two names should be treated as conspecific.

21. Hypochoeris glabra L., Sp. Pl. 2: 811 (1753); Harv. in Harv. & Sond. Fl. Cap. 3: 525 (1865).
NATAL. Durban Flat, 30 m, 1883, *Wood* s.n. (E, NH); roadside near Durban, 1884, *Wood* 1930 (K).
Also long known from Cape Province.

Compared with *H. radicata*, *H. glabra* has a more coastal and southerly distribution in South Africa: this tallies with its more southerly centre of distribution in Europe.

22. Hypochoeris radicata L., Sp. Pl. 2: 811 (1753).
NATAL. Now apparently widespread but not below about 600 m. The first

record for Natal seems to be: Mt. Gilboa, Karkloof range, 11 v 1900, *Wood* 7809 (NH).

23. Macowania conferta (Benth.) Phillips in Journ. S. Afr. Bot. 16: 21 (1950); Henderson in Kirkia 1: 115 (1961).

Type: Cape, Pondoland (Faku's Territory), *Sutherland* (K, fragment in PRE).

Syn.: *Homochaete conferta* Benth. in Hook., Ic. Pl. t. 1110 (1872).

NATAL. Alfred distr., Ngeli Mt., c. 1830 m, 1 i 1966, *Hilliard & Burtt* 3472 (E, NU); *ibidem*, c. 1830 m, 4 i 1969, *Hilliard & Burtt* 5807 (E, NH, NU).

These appear to be the first records of this plant since Sutherland collected it about 100 years ago. It is also the first localized record; nevertheless it may be reasonably close to the place where Sutherland found it, for the boundary between the Cape (Pondoland) and Natal runs along the summit of Ngeli range.

Macowania conferta is a dwarf shrub forming compact rounded cushions on the rock outcrops of the steep upper grass slopes of the mountain. The rays are bright golden yellow, the disc rather darker, contrasting pleasingly with the dark green, very glandular foliage. The bushes are starred with heads about 2 cm across, each one terminating a short leafy shoot.

We concur with Phillips in considering that *Homochaete* cannot be kept separate from *Macowania*. Our plant agrees well in all details including those of the style branches with the plate in Hooker's Icones and with the type specimen at Kew. We examined a specimen of *M. revoluta* Oliver (Cape, Kingwilliamstown, Pirie Mt., *MacOwan* 2013, E), which is the type species of the genus, and found that the style branches of the disc flowers are obtuse, not truncate as illustrated by Oliver (Hooker's Ic. Pl. t. 1062, 1870). The curious thing is that Oliver describes the stigma of the disc flowers as very shortly and obtusely bilobulate and says that the flowers are functionally male. The plate however clearly shows hermaphrodite flowers and those we examined were also hermaphrodite, though the style branches appeared to be shorter than those illustrated.

24. Senecio basutensis Thellung in Vierteljahrsschr. Nat. Ges. Zürich 56: 267 (1912). et in Vierteljahrsschr. Nat. Ges. Zürich 71: 153 (1926), non Thellung in Vierteljahrsschr. Nat. Ges. Zürich 66: 245 (1921) p.p.

Type: Lesotho (Basutoland), 1903, *Dieterlen* (herb. Montpellier n.v.).

CAPE. Qacha's Nek, *Jacottet* 4 (B 151) (Z).

NATAL. Near Newcastle, 1219 m, 1893, *Schlechter* s.n. (Z); near Volksrust, 1493 m, 1893, *Schlechter* 3428 (Z). Estcourt distr., ridge opposite the Kamberg Nature Reserve camp, c. 2130 m, *Hilliard & Burtt* 5717 (NU). Dundee distr., Dundee & Glencoe Townlands, *Shirley* 103 (NU).

We saw this *Senecio* forming large colonies in short stony grassland on the high ridge above the upper reaches of the Mooi river. It is an insignificant plant with a basal rosette of leaves pressed flat on the ground. These leaves are characteristic: up to 5 cm long and not quite as broad, rhomboid to suborbicular in outline and narrowed at the base into a short broad clasping petiole, rather thick in texture and quintuplinerved, the margin more or less entire.

The inflorescence, a few- (about 5-) headed corymb with the discoid capitula borne on long peduncles, may be 30 cm tall, but is often only half that height. The individual flowers are dull yellow or whitish, the lobes dark-tipped.

25. Senecio mbuluzensis Compton in Journ. S. Afr. Bot. 33, 4: 301 (1967).
Type: Swaziland, Black Mbuluzi valley, c. 1050 m, *Compton* 32180.
NATAL. Vryheid distr., summit Ngwibi Mt., c. 1520 m, *Hilliard & Burtt* 5911 (E, NU). Mhlabatini distr., Ceza, c. 1200 m, *Hilliard & Burtt* 3299 (E, NU).

These records extend the known range of the species into Natal. The elevated areas where they were found lie south of the Barberton–Swaziland highlands whence Compton described the plant: his most southerly record was Hlatikulu (Swaziland), nearly 60 miles north of Ngwibi.

26. Senecio ulopterus Thellung in Vierteljahrsschr. Nat. Ges. Zürich 71: 148 (1926).
Type. Lesotho (Basutoland), Fikalamotho, *Jacottet* 752–832 (Z).
NATAL. Vryheid distr., Ngwibi Mt., c. 1520 m, 11 i 1969, *Hilliard & Burtt* 5912 (E, NH, NU). Alfred distr., Ngeli Mt., c. 1220 m, 2 i 1966, *Hilliard & Burtt* 3496 (E, NU); *ibidem*, c. 1400 m, 1 i 1969, *Hilliard & Burtt* 5751 (E, NH, NU).

A single-stemmed herb up to about a metre tall, some of the roots swollen to ellipsoid tubers; it bears a loose corymb of nondescript discoid heads about 1·5 cm long and nearly as broad. Its most striking feature is the conspicuous undulate stem-wings developed from the decurrent leaf bases. The radical leaves are long-petioled, the blade elliptic-lanceolate to about 10 × 2·5 cm, with callus-dentate margins.

We first saw the plant at the side of a road through the pine plantations on Ngeli Mt., then again, and plentifully, in a firebreak on the same mountain. Ngeli, on the Natal-Cape border, is about 100 km in a straight line from Fikalamotho (near Qacha's Nek) whence came the original specimen. The paucity of herbarium records is remarkable, for we also found the plant some 350 km from Ngeli, on the summit of Ngwibi Mt. not far from the Natal-Transvaal border. Here it grew gregariously in overgrazed grassland on forest margin.

27. Spilanthes decumbens (Sm.) A. H. Moore in Proc. Amer. Acad. 42: (Contr. Gray Herb. N.S. 33: 549. 1907); Cabrera, Fl. Prov. Buenos Aires 6: 219 (1963).
Type. Monte Video, *Commerson* (LINN).
Syn.: *Rudbeckia decumbens* Sm. in Rees, Cyclopaedia 30: Rudbeckia No. 11 (1815).
NATAL. Mahlabatini district, junction of Melmoth and Nhlazatshe roads south of Mahlabatini, 17 xii 1965, *Hilliard & Burtt* 3325 (E, NU, NY). Umvoti district, Pietermaritzburg to Greytown road, 6 i 1965, *Burtt* 3025 (E). Estcourt district, near Mooi River, 23 xii 1963, *Hilliard* 2317 (NH, NU). Pietermaritzburg district, Pietermaritzburg, vi 1947, *Huntley* 272 (PRE). Camperdown district, Harrison Flats near Cato Ridge, 4 ii 1964, *Hilliard* 2672 (NU). Ixopo district, 5 miles from Eastwolds on the Creighton road, 2 i 1964, *Hilliard* 2480 (NU).

CAPE. East London district, East London, xii 1926, *C. A. Smith* 3693 (PRE); Selborne, waste ground, v 1927, *Rattray* 1367 (PRE); East London, Scenery road, in stream-bed heavily shaded by stream-bank forest, one clump only, 12 i 1966, *Hilliard* 3536 (NU, E).

We were originally indebted to Dr. A. Cronquist, New York Botanic Garden, for the suggestion that this plant was very probably *S. decumbens*. With that help it has been possible to go back to the Smith herbarium, at the Linnean Society of London, and examine the type specimen: it seemed particularly worthwhile to do this as A. H. Moore was only working from Smith's description when he made the combination under *Spilanthes* in his revision of that genus.

Smith's type sheet has two pieces of material on it. The right-hand one closely agrees with the Natal specimens. The left-hand one is a horizontal rooting stem producing tufts of linear leaves only c. 15 mm long and it has a single head borne on an erect leafless peduncle. This plant, one might guess, was growing in a rock crack: as the label has on it "in rupestribus" perhaps it was: it is a much more compact plant than the right-hand one. Smith's description clearly covers both specimens and there is no adequate reason to doubt that they are the same species.

Moore in his key designates typical *S. decumbens* as a plant with a basal rosette of leaves. Smith's specimens show no signs of this, nor does our South African material. It may be a feature of *S. arnicoides* DC., and Moore's reduction of that species to *S. decumbens* perhaps requires confirmation. These are, however, S American problems beyond our scope.

It is interesting to note that this species first appeared around East London as long ago as 1926, but the earliest record found for Natal is 1947.

DIPSACACEAE

28. Scabiosa drakensbergensis B. L. Burtt, **species nova** adhuc cum *S. africana* L. et *S. tysonii* L. Bolus confusa; ab ambabus habitu herbaceo caule crasso fistuloso ad 1·5 m alto, ab illa setis calycinis brevioribus ab hac foliis capitulisque majoribus facile distinguitur.

Syn.: [*S. africana* auctt.: Medley Wood, Handb. Fl. Natal 63 (1907) et in Trans. S. Afr. Phil. Soc. 18, 2: 115 (1917); Bews, Introd. Fl. Natal & Zululand 200 (1921)—non Linn.]

Herba robusta ad 1·5 m alta; caulis basi 1 cm diametro, fistulosus, primum pubescens demum pilis circum noda retrorsis exceptis glabratus. *Folia* opposita petiolis brevissimis basi circum caulem conjunctis; lamina inferiorum lyrato-pinnatifida, ambitu late elliptica, pinnis 2–3-jugis parvis usque ad 2 × 1·5 cm, acutis vel obtusis dentatis, segmento terminali multo majore, c. 8 × 4·5 cm, apice obtusa, marginibus crenatis vel (praecipue ad basin) crenato-dentatis, utrinque breviter pubescens; superiora gradatim redacta et suprema integra. *Pedunculi* usque ad 30 cm longi, superne pilis retrorsis breviter pubescentes, inferne subglabri. *Capitula* c. 2·5–3 cm diametro; flores albi siccitate plerumque rosei. *Bracteae involucrales* c. 8, lanceolatae, c. 1 cm longae, molliter pubescentes praecipue ad basin versus. *Receptaculum* inter flores pilosum; bracteae receptaculi 3·5–5 mm longae, leviter oblanceolatae et carinatae, pubescentes, apicibus ciliatis. *Corolla* florum exteriorum tubo 8–8·5 mm longo extra et in fauce pubescente; lobi posteriores 2·5–3

mm longi, laterales 2–4·5 mm, anticus 3–5·5 mm, omnes oblongi apice rotundati extra apicibus ipsis exceptis tenuiter pubescentes. *Stamina* filamentis c. 4·5 mm longis glabris; antherae 1·5 mm. *Stylus* 9–13·5 mm, glaber. *Fructus* involucello tubo 8-carinato 3 mm longo, corona 1 mm longa, setis calycinis persistentibus c. 3·5 mm (raro ad 5 mm) longis.
NATAL. Klip River distr., Van Reenen's Pass, 1500–1800 m, 14 iii 1895, *J. Medley Wood* 5613 (holo K; iso E, NH); *ibidem*, *Schlechter* 6961 (BOL), *Phillips* s.n. (PRE). Bergville distr., Royal Natal National Park, path to Tugela Gorge, *Dyer & Codd* 2789 (PRE), *Trauseld* 166 (PRE), *McLean & Bayer* (K, NU, PRE), *Burtt* 3414 (E); Mahai valley, Mont aux Sources, *Schelpe* 1535 (NU); Cathedral Peak area, *Killick* 1528 (NU, PRE), *Esterhuysen* 15481 (PRE), *Schelpe* 427 (NU), *Hilliard & Burtt* 3428 (E, NU). Mooi River distr., *Evans* 475 (NH). Estcourt distr., Bushman's River Pass, *Evans* 67 (NH); Giants Castle Game Reserve, Injasuti area, *Trauseld* 387 (PRE), s.n. (NU, E); near Champagne Castle hotel, *Acocks* 10073 (PRE); Kamberg, *Wright* 825 (E, NU).

The name *S. drakensbergensis* was given to the type specimen many years ago and has long passed into herbarium use, but it has not hitherto been validly published. The species is now well-known over a wide area from Van Reenen's pass along the face of the Drakensberg to the Giant's Castle Game Reserve in Estcourt district. Kamberg, which supplies the most southerly record, is an isolated hill standing a few miles away from the main range.

Typically *S. drakensbergensis* is a plant of stony places, often marginal to patches of shrubs: this contrasts with *S. columbaria* L. (or *S. austro-africana* Heine if that be distinct) which in the same areas is a plant of grassland. The lyrate leaves of *S. drakensbergensis* are very characteristic and were spotted on Kamberg at Christmas 1968 when the stems were only a few inches high; it was later collected for us in flower by F. B. Wright in February 1969; it grew between boulders all up the north face of the mountain. In altitude, *S. drakensbergensis* seems to range between 1500 and 2000 m.

The following two specimens probably belong here:—Rhodesia. Inyanga distr., on banks of Tumbri-Tedyer R., 1800 m, *Hopkins* (11687 in SRGH, K); Nuza plateau, *Gilliland* K 1615 (K). As the calyx-setae are up to 8 mm long, further material is needed before this interesting extension of range can be accepted with confidence.

IRIDACEAE

29. Romulea longituba L. Bolus var. **alticola** B. L. Burtt in Bot. Mag. N.S. tab. 515 (1968).
Type. Lesotho, coll. *Mrs. Milford*, cult. Sir Frederick Stern (K).

When originally publishing this variety I mentioned some herbarium specimens that belonged to it and I failed to make it unequivocally clear that the type of the variety was the cultivated plant illustrated: the plant, in fact, that I had set out to discuss. That publication of the varietal name may be deemed invalid according to the strictest letter of the Code. I now formally associate the previously published description with its type specimen. Although I think this step is desirable (the varietal name has been proposed

and its validity should therefore be put beyond dispute), I am now less certain that the varietal name is needed; as will be seen.

In response to my request, Mr. R. Schurr, at that time in charge of the Forestry Station at Weza, went up Mt. Ngeli in March of last year and was successful in re-collecting *R. longituba* in its type locality near the summit. Hitherto there has only been Tyson's original but scanty collection available for study. The new collection is therefore of considerable value in understanding the species. Mr. Schurr tells me that hundreds of plants were in flower, but only in quite a narrow zone of some 50 ft in altitude just below the summit. He noted, and sent specimens to exemplify, a very wide range in flower size, from that of the original type down to that of var. *alticola*. With this information I should certainly not have proposed a new variety for the Lesotho plant. However, while we now know something of the variability on Ngeli, we do not yet know that large forms occur amongst the plants referred to var. *alticola*. The problem of the relationship of these plants to *R. macowanii* Baker still requires further elucidation and this is under investigation by Dr. M. de Vos, Stellenbosch, who has long been engaged on a general study of the South African species of *Romulea*.

LABIATAE

30. Scutellaria racemosa Pers. Syn. 2: 136 (1806); Epling, Univ. of Calif. Pub. Bot. 20: 19 (1942).
Type: South America, Uruguay, Montevideo, *Commerson* (P, n.v.).
TRANSVAAL. Middelburg distr., Klein Olifants River, growing on river bank, 6 xi 1933, *Young* (PRE). Middelburg–Witbank distr. boundary, Loskop Dam, Scheepersloop, highwatermark, 31 x 1968, *Theron* 1903 (PRE). Pretoria distr., below bridge over Jukskei river on Pretoria–Krugersdorp road, Jan. 1961, *M. de Winter* s.n. (PRE).
CAPE. Elliotdale distr., Bashee river mouth, The Haven, north bank Bashee river, 14 x 1966, *J. L. Gordon-Gray* 808 (NU).

The genus *Scutellaria* is readily recognized by the structure of its calyx which resembles a compressed pouch, the lips being equal and entire. The upper lip is produced into a small erect hood that becomes more pronounced as the fruit matures. The genus is found in most parts of the world but is not native in South Africa and this introduction is the only species recorded there. It is a glabrous herb with weak stems, thin hastate leaves about 10 mm long and flowers about 5 mm long solitary in the axils of the upper leaves. The collectors variously described the flowers as "red", "dull red above, pale pink and mottled red below", "purple" and "white with purple spots".

LEGUMINOSAE

31. Lespedeza cuneata (Du Mont) G. Don, Gen. Syst. 307 (1832).
Origin unknown, probably eastern Asia.
Syn.: *L. sericea* Miq. in Ann. Mus. Lugd. Bat. 3: 49 (1867).
NATAL. Pietermaritzburg distr., Pietermaritzburg, Town Hill, 9 iii 1966, *Hilliard* 3888 (E, NU, NH).

Recently S.I. Ali (in Biologia (Lahore) 12: 43, 1966), dealing with the genus in West Pakistan, has classified this as "*L. juncea* L. f. var. *sericea* (Thunb.) Lace & Hemsley" under a general heading *L. juncea* & *L. cuneata* complex. As the Thunberg basionym was an illegitimate name, the varietal nomenclature needs reinvestigation. It seems more practical at present to record this plant under the species name that must replace the better known "*L. sericea*" if it is given specific rank.

L. cuneata is one of three species of *Lespedeza* that are widely used in agriculture in the United States. It is not, however, used in Natal, though it has been grown experimentally at the Tabamhlope Pasture Research Station, Estcourt (pers. comm. Mr. B. Mappledoram), so it is interesting that it should have established itself on the outskirts of Pietermaritzburg. It was found along the old route of the main railway line from the coast to the Transvaal, which suggests a possible source of introduction.

VIOLACEAE

32. Hybanthus parviflorus (L. f.) Baill., Bot. Med. 2: 841 (1884).
Type: Central America, *Mutis*.
Syn.: *Viola parviflora* L. f., Suppl. 396 (1781).
NATAL. Bergville distr., Oliviershoek Pass, *Acocks* 23832 (PRE). Pietermaritzburg distr., Pietermaritzburg, Nov. 1965, *Hilliard* 3147 (E, NU, PRE); World's View, 30 x 1964, *Tunnington* s.n. (NU). Durban distr., Isipingo Flats, 16 x 1968, *Ward* 6634 (NU).

This plant, a native of Central and South America, has established itself as a weed on road verges in the Durban and Pietermaritzburg areas and has been found as far inland as Oliviershoek on the Natal–Orange Free State border. It is a spreading, inconspicuous herb with minute white flowers (limb of labellum scarcely 2 mm long). These distinguish it from the native species, which have relatively showy flowers, the limb being at least 5 mm long, usually pink or blue, sometimes whitish.