

Notes and New Records of African Plants

by

Various Authors

ACANTHACEAE

Barleria (Sect. *Prionitis*) **ameliae** A. Meeuse, spec. nov., *B. delagoensi* Oberm. arcte affinis, sed bracteolis brevioribus, sepalis eglandulosis, sepalo postico sepalo antico excedens, praecipue differt.

Suffrutex erectus perennis paucè ramosus 30–60 cm altus. *Caules* subquadrangulati plus minusve puberuli vel sparsissime strigosi demum tereti, glabrescentes. *Folia* elliptica vel plus minusve ovato-elliptica vel subobovata firmiter herbacea in siccitate papyracea vel subpergamacea, breviter acuminata obtusa vel subacuta, pungentia, basi attenuata vel longe decurrentia, subglabra, 3–9 cm longa 2–5 cm lata, petiolis apice vel totus alatis ad 3 cm longis, spinis axillaribus paucis vel interdum nullis albescentibus 2–4 mm interdum ad 7 mm longis. *Flores* axillares subsessiles, in parte superiore ramorum in inflorescentias spiciformes aggregati, bracteolis linear-subulatis pungentibus minutissime aculeato-hirtellis 4–6 mm longis. *Sepala* in apices pungentes attenuata extus sparse intus subdense strigosa, eglandulosa, sepalo antico 11–13 mm longo 5–6 mm lato, sepalo postico 14–17 mm longo 4–5 mm lato, sepalis interioribus angustioribus 11–13 mm longis 1.5–2 mm latis. *Corolla* flava, extus minute molliter pubescens, tubo 12–14 mm longo, labio superiore 18–20 mm longo 4-lobato lobis subaequalibus obovato-ellipticis c. 13 mm longis, labio inferiore integro 10–11 mm longo. *Pistillum* glabrum. *Capsula* 14 mm longa 4 mm lata attenuato-rostrata plus minusve puberula.

SOUTH WEST AFRICA.—Caprivi Zipfel: Eastern area, Mpilila Island, under trees on rock outcrop near Chobe River bank, *Killick and Leistner* 3391 (PRE, holo.!, K,L,M, SRGH, Windhoek, isos.!).

SOUTHERN RHODESIA.—Wankie. *Levy* 150 (PRE), 1113 (PRE, SRGH); Wankie Game Reserve, vlei edge, *Wild* 4751 (PRE, SRGH). Nuanetsi: Lundi River, near rapids above big bend, in patches of woodland, *Davies* 2051 (SRGH).

Suffruticose erect perennial 30–60 cm high. *Stems* usually not much branched, when young green (drying brown) and quadrangular, somewhat puberulous and/or with very few strigose hairs, soon quite glabrous, ultimately terete and covered with a thin greyish-yellow to pale brown bark. *Leaves* elliptic or somewhat ovate or obovate-elliptic, firmly herbaceous drying papyraceous to somewhat pergamaceous, subentire, cuneate-attenuate to long-decurrent at the base, shortly acuminate into a blunt or subacute pungently mucronate apex, glabrous except a sparse strigose pubescence on the basal portions of midrib and main veins (mainly on lower surface) and along the subciliate margin, 3–9 cm long and 2–5 cm broad; cystoliths minute, inconspicuous; petioles winged by the decurrent leaf-base in upper part or throughout, up to 3 cm long, in the axils usually with straight to slightly curved whitish slender 2–4 mm, occasionally up to 7 mm long spines. *Flowers* subsessile in the axils of normal leaves and the uppermost ones in the axils of smaller floral leaves running into a terminal pseudo-spike; bracteoles linear-subulate, pungent, minutely scabrid-hirtellous, 4–6 mm long, pedicels very short, usually somewhat strigose. *Sepals* sparsely strigose outside, more densely so inside, subciliate, eglandular, attenuate into the pungent tips; of the outer oblong

lanceolate concave ones the anticous one is 11–13 mm long, 5–6 mm broad and usually with two adjacent small spines rarely a single spine at the apex, and the posticous one 14–17 mm long and 4–5 mm broad; inner sepals linear-lanceolate, 11–13 mm long and 1.5–2 mm broad. *Corolla* orange-yellow or creamy-yellow, on the outside finely and softly pubescent, more densely so on the 12–14 mm long tube; the upper lip 18–20 mm long, 4-lobed with subequal obovate-elliptic about 13 mm long lobes; the lower lip 10–11 mm long. *Pistil* glabrous. *Capsule* 14 mm long and 4 mm broad, greyish-brown, attenuate-beaked at the apex, somewhat puberulous.

This species is in habit exceedingly like *B. delagoensis* Oberm., a coastal species from Portuguese East Africa, but it differs constantly in the non-glandular sepals (with stipitate glands in *B. delagoensis*), of which the posticous one is the longest (it is the shortest in *B. delagoensis*), in the shorter bracteoles, in the usually shorter axillary spines; in the somewhat puberulous capsules (pilose in *B. delagoensis*) and in several other points. The leaves are more decurrent on the petiole and are relatively somewhat broader in *B. ameliae*, the cystoliths are inconspicuous (distinct in *B. delagoensis*), the sepals are shorter than in *B. delagoensis* (the three shorter ones up to 13 mm long, as against the longest three 17 mm long in *B. delagoensis*) and the relative lengths of the parts of the corolla are not the same: tube 12–14 mm long against 12 mm in *B. delagoensis*, the upper lip 18 mm long as against 21 mm; its lobes 13 mm against 15 mm and the lower lip 10–11 mm against 16 mm, i.e. a relatively longer tube and relatively (and absolutely) shorter limb in *B. ameliae* as compared with *B. delagoensis*. There are also differences in the degree and type of pubescence of stems, leaves and sepals. All these differences together indicate that in spite of the close resemblance the two forms are not of varietal status but represent two distinct species. This view is supported by the difference in ecology, *B. delagoensis* being a coastal plant found on alluvial soils near the sea-shore in an area with very mild winters, a high rainfall and a high humidity of the air almost throughout the year, whereas *B. ameliae* is a plant of the interior growing at altitudes between 1,000 and 3,000 ft. in areas with a lower annual rainfall and a pronounced dry winter season with low humidity and often low temperatures.

This species is named after Mrs. A. A. Mauve (née Obermeyer) who contributed so much to the knowledge of the genus *Barleria* in Southern Africa and kindly studied the cited material to confirm my views that the plant under discussion represents a hitherto undescribed taxon.

A. MEEUSE

***Barleria argillicola* Oberm. sp. nov., *B. bolusii* Oberm. affinis, sed floribus solitariis planta subglabra bracteis absentibus corolla 3.5 cm longa differt.**

Fruticulus parvus. *Rami e* rhizomate orti. *Folia* coriacea glabra nitida margine alba undulata integra vel parce spinosa. *Flores* solitarii. *Bracteae* absentes. *Corolla* 3.5 cm longa. *Stigma* capitata.

Small plants up to 20 cm high, deep rooted. *Stem* perennial, woody, rhizomatous giving off short annual shoots which are unbranched or form 1–2 short basal branches, minutely pubescent in the grooves, nodes bristly. *Leaves* lanceolate, ca 3 × 1 cm, coriaceous, glabrous, shiny, apex tipped with a short spine, tapered at the base into a short petiole, or sessile, margin white, wavy, entire or sparsely spinous. *Flowers* solitary, axillary, bractless. *Bracteoles* about as long as the leaves but narrower and with a prominent lateral nerve on each side of the midrib. *Calyx* with the posticous sepal broadly ovate, reticulate, spine tipped, about as long as the bracteoles; anticous similar to posticous but bispinous at the apex; lateral segments small, linear, 1 cm long. *Corolla* pale mauve, with a narrow tube 2 cm long, limb 5-lobed, regular, somewhat shorter than the tube. *Stamens* dissimilar, two protruding from tube, two smaller included, the fifth represented by a short filament only. *Ovary* glabrous, style filiform, stigma capitate. *Capsule* typical, 2 cm long.

NATAL.—Estcourt: Rensburg Spruit near Estcourt, eroded thornveld slopes, frequent in patches, in flower October 1944, *Acocks* 10701 (PRE, holo. NH iso); near Estcourt in Bushman's River Valley, eroded clay banks of Rensburg Spruit, with fruit, December 1943, *Acocks* 9968 (PRE, NH); *Edwards* 2458 (PRE).

The species comes under the section *Eubarleria*, *Pungentes*. The stigmas are confluent, capitate. Its nearest ally seems to be *B. bolusii* Oberm. (*B. mosdenensis* Oberm. is a synonym of *B. bolusii* Oberm.) but it is very different from this species. The flowers are solitary, the plant is glabrous except for a slight short pubescence on the stem and the corolla is 3.5 cm long. The narrow white leaf margin is a conspicuous character. Mr. D. Edwards who visited Acocks' locality in November 1959, found it there exclusively on the eroded, clayey neutral to alkaline soils. Excellent photographs and colour slides of the flowering plants were made by him.

Barleria saxatilis Oberm. sp. nov., *B. eleganti* S. Moore affinis, sed floribus minoribus dilute purpureis cymis parvifloris differt.

Suffruticosa. *Rami* strigosi et pilis brevibus patentibus dense pubescentes. *Folia* oblonga herbacea lamina inferiore pallide viridia. *Inflorescentiae cymae* unilaterales 1-4 florae; bracteoli lineares spinoso-dentati; sepalum posticum ovatum, spinoso-dentatum papyraceum reticulatum; sepalum anticum postico simile sed paulo minotius; corolla dilute purpurea, tubo angusto faucem versus gradatim paulo expanso 15 mm longo, limbo 5-lobato sub-regulari; stamina perfecta 2, exserta; stamina imperfecta breviter inclusa. *Capsula* glabra 1 cm longa 4 mm lata apiculata.

A straggling or erect shrub 30-150 cm tall. *Branches* woody white puberulous and strigose. *Innovations* densely strigose. *Leaves* variable in size, oblong to lanceolate, up to 3 cm long and up to 2 cm wide, usually smaller, apex obtuse, in 1-4 flowered sessile cymes. *Bracteoles* unequal, firm, spinoso-dentate, the lower smaller, linear, recurved from the base; the upper erect, lanceolate-acuminate. *Outer sepals* ovate, acuminate, up to 2 cm long including spine, 9 mm wide, with ca 16 marginal spines 1-3 mm long, reticulate, sparsely strigose, green at first, stramineous in fruit but apparently not enlarged. *Inner sepals* linear, 1 cm long. *Corolla* puberulous, bluish mauve; tube narrow, 15 mm long, slightly widened at the apex; limb 5-lobed ca 11 mm long. *Stamens* inserted in lower half of tube, the fertile ones well exerted, filaments linear; 3 sterile short, included, one represented by a minute filament only. *Ovary* glabrous, style filiform 2 cm long, with a ring of short hairs at the base; stigma short, filiform. *Capsule* glabrous, just exerted from the outer sepals, 1 cm long, 4 mm broad, apiculate.

Flowering. Period: March onwards.

Distribution: In the drier parts of the northern and eastern Transvaal, usually on rocky hillsides.

TRANSVAAL.—Soutpansberg: Sandrivier Poort, southern end, on a stretch 1-8 miles from main road bridge, *Meeuse* 10203 (PRE, holo.) Farm Soutpan, lower northern slopes of the Soutpansberge, *Obermeyer*, *Schweickerdt* and *Verdoorn* 130. About two miles south of Wyliespoort, *Meeuse* 9790. Pietersburg: *Rogers* 14151; Mokeetsi, *Obermeyer* TM 31977; two miles S.E. of Chuniespoort Hotel, *Obermeyer* and *Verdoorn* 13; Blaauwberg near Leipzig Mission Station, *Codd* 8713. Waterberg: Nylstroom Mountains north of Warmbad, *Obermeyer* TM 31978. Pilgrims Rest: Kruger National Park, Gorge, *van der Schijff* KNP 2294. Lydenburg: Rustplaats, *Taylor* 1943.

The species is closely related to *B. elegans* S. Moore but can be distinguished by its few flowered, mauve cymes, usually more dense pubescence and its thinner less rigid branches. The capsule of *B. elegans* usually reaches a length of 15 mm whilst that of *B. saxatilis* is only about 10 mm long. The calyx and bracteoles are also correspondingly smaller in *B. saxatilis*. It inhabits dry hot areas of the Transvaal

bushveld, where it has established itself very firmly, being dominant for miles in some parts. *B. elegans* occurs along the coast but is also found in more humid places in the Low Veld near rivers.

At Leipzig Mission Station Dr. Codd noticed that bunches of dried stems were tied round poles of grain stores to repel rats.

A. AMELIA OBERMEYER

Sclerochiton triacanthus A. Meeuse, spec. nov., *S. scissisepalo* C. B. Clarke affinis, sed inter alia ramulis pilosis, foliis minoribus angustioribus, bracteis fertilibus apice breviter trispinosus differt.

Frutex suberectus e basi ramosus 0.50–1.00 m altus. *Caules* subteretes lignosi breviter albo-pilosi, demum glabri, cinnamomei vel cinerascetes. *Folia* ad apicem ramulorum plus minusve aggregata, subcoriacea, subsessilia, nitida, oblongi-lanceolata vel lanceolato-lineararia, integra, convexa vel subplana margine deflexa vel revoluta, basin versus interdum ciliata, apice pungentia, subglabra, 2–5 cm longa, 4–9 mm, interdum ad 15 mm, lata, costa media subtus prominenti interdum subtus basin versus sparse pilosa, cystolithis inconspicuis. *Inflorescentiae* terminales vel laterales, subsessiles pauciflorae densae, ad 6 cm longae, bracteis bracteolisque firmiter herbaceis plus minusve concavis carinatis vel subcarinatis puberulis vel subglabris plus minusve ciliatis. *Bracteae* oblongae vel lineari-oblongae, inferiorae steriles parvae innocuae vel pungentes, fertiles majores 14 mm longae 4 mm latae spinulis 3 apicalibus pungentes. *Pedicelli* satis robusti, 3–5 mm longi, bibracteolati, bracteolis lineari-lanceolatis sparse puberulis 16–18 mm longis 3–4 mm latis spinulis 1–3 pungentibus. *Sepala* 5, acuta, pungentia, subglabra, plus minusve ciliata; sepalum posticum late lineare acutum infra medium ciliatum, apice unispinulosum vel interdum 2–3-spinulosum, 23–24 mm longum, 4–5 mm latum, sepala 2 antica lineari-lanceolata, 16–18 mm longa, 3 mm lata, sepala lateralia lineari-lanceolata, 15–17 mm longa, 2–2.5 mm lata. *Corolla* dilute azurea, coeruleo-venosa, tubo ca 7 mm longo, limbo ca 19 mm longo extus parce sericeo intus lineis 2 pilorum subpatentorum cincto, lobis subaequalibus obovato-oblongis apice rotundatis 4–5 mm longis. *Stamina* basin versus retrorse sericea, filamentis ca 11 mm longis, antheris hirsuto-pubescentibus ca 2 mm longis. *Ovarium* puberulo-velutinum, apice pilis erectis comosum, 3–4 mm longum, stylo basin versus pilis setaceis patentibus albido-fulvidis barbato 14–15 mm longo. *Capsula* anguste oblonga, glabra, ca 14 mm longa.

TRANSVAAL.—Barborton: Barborton, *Rogers* 24047 (PRE); about five miles from Barborton on road to Florence Mine, Mr. and Mrs. P. F. Clarke 12 (PRE, holo.!).

A somewhat straggly to erect low shrub, usually 40–60 cm tall but occasionally attaining about 1 m, branched from the base upwards, usually slender in habit, but in some cases forming a "bush" or thicket 1–2.5 m across. *Stems* subterete, woody, dark brown and shortly pilose with whitish patent hairs, usually rather densely so, later glabrescent and turning cinnamon-coloured or ashy-grey, forming a thin, nearly smooth or somewhat (longitudinally) wrinkled bark. *Leaves* more or less distinctly aggregated at the tips of the branches or on short side-shoots, subcoriaceous, subsessile, shiny, oblong-lanceolate to linear-lanceolate, entire, usually somewhat convex through the deflexed margins, glabrous or ciliate near the base, sometimes sparsely pilose on the midrib, narrowing at the base into the very short pilose petiole, subobtusate to acute at the spine-tipped apex, distinctly veined, 2–5 cm long and 4–9 mm (on young shoots occasionally up to 15 mm) broad; midrib prominent on lower surface; cystoliths indistinct or invisible. *Inflorescences* terminating the branches and short side-shoots, dense, few-flowered, up to about 6 cm long. *Bracts* oblong to linear-oblong, firm, green; lower sterile ones short, innocuous or pungent, fertile ones larger, about 14 mm long and 4 mm broad, more or less concave to boat-shaped and somewhat carinate, as are the bracteoles, puberulous or glabrous usually ciliate along the margins, especially about the middle, at the apex with three small spines. *Pedicels* rather stout, 3–5 mm

long, bibracteolate in the middle; bracteoles linear-lanceolate, with 1-3 small apical spines, sparsely puberulous, often somewhat ciliate, 16-18 mm long and 3-4 mm broad. *Sepals* 5, acute, pungent, subglabrous often somewhat ciliate; posticous sepal broadly linear, acute with 1-3 apical spines, 23-24 mm long and 4-5 mm broad; 2 anticous sepals linear-lanceolate, 16-18 mm long and 3 mm broad; 2 lateral sepals linear-lanceolate, 15-17 mm long and 2-2.5 mm broad. *Corolla* a light but bright blue with darker blue reticulate veins; tube about 7 mm long, glabrous; limb about 19 mm long, on the outside (lower side) silky pubescent, on the inside with two broad lines of hairs, its lobes subequal obovate-oblong rounded at the apex, 4-5 mm long. *Stamens* towards the base retrorsely silky pubescent; filaments about 11 mm long, anthers shortly hirsute-pubescent, 3-4 mm long. *Ovary* densely puberulous to velutinous and with a dense apical tuft of erect stiff, almost bristly hairs, 3-4 mm long; style 14-15 mm long towards the base with setaceous hairs which form an abaxial line becoming denser and broader towards the base, these hairs and those on the ovary yellowish and fawnish. *Capsule* narrowly oblong, glabrous, about 14 mm long.

This species was discovered by F. A. Rogers as early as 1921, but it was apparently not collected again till Mr. and Mrs. P. F. Clarke found it in the summer 1955/56. It is probably one of those local endemics in which the Barberton area is so rich. I am indebted to the collectors for the following extensive notes:

"The plant is a straggly, low-growing shrub, averaging about 2 ft. in height and possibly attaining a maximum of 3 ft. It is branched, usually slender, but in some cases forming a bush or thicket 3 or 4 ft. across. It is fairly common in the locality in which it was found, but we have not yet observed it elsewhere. It grows in shallow shaly soil, sloping steeply, on shale outcrops—a very well drained position, facing S.W. It occurs in fairly open bush consisting mainly of *Kirkia*, *Bauhinia galpinii*, *Peltophorum*, *Bowkeria*, *Acacia ataxacantha*, *Heteropyxis*, *Ziziphus*, *Acacia karroo*, *Dalbergia*, and in association with *Royena*, grasses, aloes, *Orthosiphon*, *Crossandra* and many other unidentified plants. The *Schlerochiton* is found in partial shade—where the bush is thick it does not occur. The flowers are clear blue in colour (see accompanying sketch). Unripe fruit are plentiful and a few ripe fruits were found."

Characteristic of the species are the narrow linear-oblong leaves with deflexed margins and the 3-spined fertile bracts, two characters which I have not found in any other species I have studied. The seeds in the capsules had all been eaten by insects and could not be described.

A. MEEUSE

APOCYNACEAE

ACOKANTHERA

When G. Don described the genus in his *Gen. Syst.* 4: 485 (1838), he explained that the name is derived from the Greek "acoce", a mucrone, referring to the mucronate anthers characteristic of *Acokanthera* spp. In writing the Greek word he translated the Greek *kappa* in both cases as a roman *c*, but he spelt the generic name *Acokanthera*. Subsequent authors have considered that, to be consistent, the genus should be spelt either *Acocanthera*, as was done by Endlicher, *Gen. Pl. Suppl.* 1: 1404 (1841), Pfeifer, *Nom. Bot.* 1: 29 (1873) and K. Schumann in *Pflanzenfam.* 4, 2: 126 (1895), or *Akokanthera*, as proposed by Walpers, *Rep.* 3: 122 (1845). Stapf retained the spelling *Acokanthera* in *Fl. Trop. Afr.* 4, 1: 92 (1902) and in *Fl. Cap.* 4, 1: 499 (1907) but, in *Kew Bull.* 29 (1922), he stated a preference for *Acocanthera* "in the place of the absurd and barbarous form *Acokanthera*, found in G. Don's *Generum Systema*, which is evidently due to a printer's error". There seems, however, equal reason for concluding that Don deliberately spelt the name *Acokanthera* and, unless there is clearer evidence to the contrary, this spelling should be retained.

Acokanthera is closely related to *Carissa*, under which genus it is placed in synonymy by Pichon in Mem. Mus. Nat. Hist. Paris, n.ser. 24: 132 (1948) and Bull. Jard. Bot. Brux. 22: 109 (1952). It is considered, however, that there are adequate reasons for maintaining it as distinct. In support of this view may be cited the essentially practical reason that species of *Acokanthera* have a characteristic facies, which permits the assignment of even sterile specimens without difficulty, even though the characteristics are not easy to define in words. Florally, the two genera are closely allied but, in *Acokanthera*, the inflorescence is axillary, not terminal or pseudo-axillary as in *Carissa*, and the stamens are situated at the apex of the corolla tube, with the tips of the anthers often exerted. In *Carissa*, the stamens are situated from about the middle of the tube to near the apex, with the mouth of the tube slightly constricted, so that the tips of the anthers are not visible. There are also small differences in the shape of anthers and stigma.

The genus *Carissa* (in the sense of Stapf in Flora Capensis and Flora of Tropical Africa) may be divided into two sections: Section *Carissa*, in which the corolla lobes overlap to the right; and Section *Arduina*, in which the corolla lobes overlap to the left (as in *Acokanthera*). Section *Carissa* includes armed and unarmed species, occurring in Africa, Madagascar, Asia and Australia. In Section *Arduina*, all species are armed (though occasional herbarium specimens may lack spines) and the species are limited to eastern and southern Africa. Thus, although the presence or absence of spines would not alone constitute a generic difference, the character may be used in conjunction with the direction of overlap of the corolla lobes to separate *Acokanthera* and *Carissa*. A further practical reason for keeping the two genera separate is that *Acokanthera* species all have a highly toxic substance in the sap, while this does not appear to be the case in species of *Carissa*.

Typification of the genus *Acokanthera*

As indicated by Phillips, Gen. S. Afr. Flow. Pl. ed. 2: 583 (1951), the type of the genus *Acokanthera* has been regarded as *A. venenata* G. Don, generally written *A. venenata* (Thunb.) G. Don. It is clear from what follows that this view can no longer be held without altering the circumscription of the genus. In order to retain the genus *Acokanthera* in its present sense, therefore, it is proposed that the type of the genus should be accepted as *A. lamarckii* G. Don, a superfluous name for *Cestrum oppositifolium* Lam., which is now combined in *Acokanthera*.

***Acokanthera oppositifolia* (Lam.) L. E. Codd, comb. nov.**—*Cestrum oppositifolium* Lam. in Tab. Encycl. Bot. 2: 5, t. 112, fig. 2 (1797). Type: Africa, *Sonnerat* (P). *C. venenatum* Burm. f., Fl. Cap. Prodr. 5 (1768), non *Acokanthera venenata* G. Don (1838). Type: South Africa, *Banks* (G). *C. venenatum* Thunb., Prodr. 1: 36 (1794); Fl. Cap. ed. Schult. 193 (1823), non *C. venenatum* Burm. f. (1768). Type: South Africa, *Thunberg* (U).

Sideroxylon toxiferum Thunb., Trav. ed. 3, 1: 156 (1795), nom. nud.

Acokanthera lamarckii G. Don, Gen. Syst. 4:485 (1838), nom. illegit. Type: as for *Cestrum oppositifolium* Lam. *A. venatorium* E. Mey. in Drege, Zwei Pfl. Doc 171 (1843); Sond. in Linnaea 23: 79 (1850); nom. nud. *A. venenata* sensu Stapf in F.T.A. 4, 1: 94 (1902); F.C. 4, 1: 500 (1907); Sim. For. Fl. Cape Col. 270, t.154, fig. 1 (1907); Marloth, Fl. S. Afr. 3, 1: t.17 (1932); Brenan & Greenw., Check-list Tang. Terr. 2: 47 (1949). *A. venenata* (Burm. f.) G. Don ex C. A. Smith in J. S. Afr. For. Ass. 20: 42 (1951), nom. illegit. var. *scabra* (Sond.) Markgf. in Notizbl. Bot. Gart. Berl. 8: 470 (1949).

Toxicophlaea thunbergii Harv. in Hook. Lond. Journ. Bot. 1: 24 (1842); Thes. Cap. 10, t. 16 (1859); Sond. in Linnaea, 23: 78 (1850). Type: as for *Cestrum venenatum* Thunb. *T. thunbergii* var. *scabra* Sond., l.c. Type: based on several syntypes. *T. cestroides* A.DC. in DC., Prodr. 8: 336 (1844). Type: as for *Cestrum venenatum* Thunb.

Carissa acokanthera Pichon in Mem. Mus. Hist. Nat. Paris, n.s. 24: 132 (1948). *C. oppositifolium* (Lam.) Pichon in Bull. Jard. Bot. Brux. 22: 109 (1952).

In the protologue to *Acokanthera venenata*, G. Don cites *Cestrum venenatum* Thunb. and *C. citrifolium* Retz. It may be assumed that his intention was to take up Thunberg's epithet in his genus *Acokanthera*. As pointed out by Mr. Dandy on p. 428 of this journal, however, *C. venenatum* Thunb. (1794) must be regarded as an illegitimate homonym of *C. venenatum* Burm. f. (1768) and therefore has no standing. The epithet *venenatum* Burm. f. cannot be taken up in *Acokanthera*, thus the next legitimate name which is available, namely, *C. oppositifolium* Lam. must be adopted.

Nomenclaturally, because *C. venenatum* Thunb. is illegitimate, the name *Acokanthera venenata* G. Don becomes a synonym of *C. citrifolium* Retz. (for which it is a superfluous epithet), not of *C. venenatum* Thunb. *C. citrifolium* Retz. (1803) is based on a plant cultivated at Lund. The opportunity to study the type specimen was made possible by the kindness of the Keeper of the Lund Herbarium, Dr. Norlindh, who sent the holotype on loan to Pretoria. An examination of this specimen shows that it is not conspecific with *Cestrum venenatum* Thunb., as indicated by G. Don. It probably belongs to *Cestrum* or a closely allied genus and it is unlikely that it came originally from South Africa.

***Acokanthera oblongifolia* (Hochst.) L. E. Codd, comb. nov.**—*Carissa oblongifolia* Hochst. in Flora, 827 (1844). Type: Natal, Krauss (K). *C. spectabilis* (Sond.) Pichon in Mém. Mus. Hist. Nat. Paris, n.s. 24: 132 (1948). *Toxicophlaea spectabilis* Sond. in Linnaea, 23: 79 (1850). Syntypes: Port Natal, Gueinzus 37; 511. *Acokanthera spectabilis* (Sond.) Hook. f. in Bot. Mag. t. 6359 (1878); Stapf in Fl. Cap. 4, 1: 501 (1907). *A. venenata* var. *spectabilis* (Sond.) Sim, For. Fl. Cape Col. 270, t. 154, fig. 2 (1907).

Mr. W. Marais examined type material of *Carissa oblongifolia* Hochst. (1844) at Kew and reports it to be conspecific with *Toxicophlaea spectabilis* Sond. (1850). The former epithet must, therefore, be taken up. *A. oblongifolia* is closely allied to *A. oppositifolia*, but can usually be distinguished by the longer corolla tube, the large, plum-like fruits and the indistinct secondary nerves on the underside of the leaves.

***Acokanthera schimperi* (A. DC.) Schweinf. var. *rotundata* L. E. Codd, var. nov.**, sed a typo foliis majoribus rotundioribus plerumque scabridis differt.

Frutex vel arbor parvus ad 3 m altus, ramulis tomentosus vel puberulis. Folia coriacea scabrida late elliptica usque subrotunda 4–7 cm longa 3·5–5·5 cm lata, apice obtusa usque rotunda mucronata, basi obtusa usque rotunda, nerviis secundariis obscuris, petiolo robusto 2–6 mm longo. Inflorescentia multiflora subsessilis corymbosa, bracteis ovatis 1·5 mm longis caducis, floribus sessilibus. Calyx 2–2·5 mm longus puberulus usque tomentulosus, sepalis ovato-lanceolatis acuminatis. Corolla hypocrateriformis, tubo subcylindrato 8–9 mm longo pubescenti vel glabro, lobis 5 ovatis obtusis 4·4–5 mm longis 2 mm latis. Stamina 5 in faucibus corollae inserta leviter exserta, antheris ovatis pubescentibus breviter mucronatis. Ovarium integre 2-loculare, loculis 1-ovulatis, stylo filiforme 7–8 mm longo, stigmatate parvo conico apice bifido. Fructus baccatus globosus vel subglobosus 1·5–2 cm diam. Semina 1–2 late elliptica, endospermo carnosus.

TRANSVAAL.—Sibasa: Kruger National Park, 3½ miles N. of Klopperfontein, alt. 1,400 ft., flowering and fruiting March 1949, Codd 5432 (type, PRE). Pietersburg: Chuniespoort, Pole Evans H 19451. Nelspruit: Kruger National Park, Klokwene, van der Schijff 758.

S. RHODESIA.—Mangwe, Plowes 1308. Matoppo Hills, near Bulawayo, Galpin 7076; Eyles 6303; Miller 5162.

Shrub or small tree up to 3 m high: branchlets tomentose or puberulous. Leaves coriaceous, scabrid, broadly elliptic to subrotund, 4–7 cm long and 3·5–5·5 cm broad, apex obtuse to rounded, mucronate, base obtuse to rounded; secondary nerves obscure; petiole stout, 2–6 mm long. *Inflorescence* many-flowered subsessile, corymbose; bracts ovate, 1·5 mm long, caducous; flowers sessile. *Calyx* 2–2·5 mm long, puberulous to tomentulose; sepals ovate-lanceolate, acuminate. *Corolla* hypocrateriform, tube subcylindric 8–9 mm long; pubescent or glabrous; lobes 5, ovate, obtuse, 4–4·5 mm long and 2 mm broad. *Stamens* 5, situated in the corolla throat, slightly exserted; anthers ovate, pubescent, shortly mucronate. *Ovary* entire with 2 locules, 1 ovule in each locule; style filiform 7–8 mm long; stigma small conical, apex bifid. *Fruit* baccate, globose or subglobose, 1·5–2 cm in diameter. *Seeds* 1 or 2, broadly elliptic; endosperm fleshy.

The species of *Acokanthera* fall into three main groups, namely: (a) *A. schimperi*, *A. deflersii*, *A. ouabaio* and *A. friesiorum*; (b) *A. oppositifolia*, *A. longiflora* and *A. rhodesica*; and (c) *A. oblongifolia*.

The plant now described, with its subrotund leaves, indistinct secondary venation and more or less globose fruits clearly belongs to group (a). The material that has been seen of this group leads to the impression that there may be only one variable species involved. The oldest name is *A. schimperi* (A.DC.) Schweinf. and the other three may well be reduced to synonymy, or to varieties, as Stapf has already done with *A. deflersii*.

In its usually scabrid leaves, var. *rotundata* resembles *A. deflersii* from Arabia, while in leaf shape it is closer to *A. friesiorum*, though it differs in having larger and less glossy leaves. In distribution it is completely separated from the *A. schimperi* complex, which is recorded from Kenya to southern Arabia, but its characteristics are not sufficiently clear-cut to warrant separating it as a distinct species.

CARISSA

Carissa bispinosa (L.) Desf. ex Brenan in Mem. N.Y. Bot. Gard. 8: 502 (1954), aggregate species.

The *C. bispinosa* complex is distributed from the south-western Cape Province to Natal, Swaziland, Transvaal and Mocambique, extending northwards to Nyasaland and westwards to Bechuanaland and South West Africa. There is considerable variation in leaf size, shape and texture, size of spines, and situation of the anthers in the corolla tube.

Two main evolutionary trends are recognised and two varieties are upheld. The two varieties overlap geographically, especially in the southern and eastern Cape Province; here several intermediate specimens are found and it is for this reason that the two groups were regarded as not having the status of separate species.

(a) var. *bispinosa*.

Arduina bispinosa L., Mant. 1: 52 (1767). Type: the plate in Mill. Ic. 2: t. 300 (1760). *Lycium cordatum* Mill., Gard. Dict. ed. 8: No. 10 (1768). *Carissa bispinosa* (L.) Desf. ex Brenan, l.c., excl. specimen cited. *C. bispinosa* Desf., Tabl. Ecol. Bot. 78 (1804), nom. nud.; Desf. ex Steud., Nom. ed. 2: 298 (1841), in synonymy; Merxm. in Mitt. Bot. Munchen, 17–18: 399 (1957). *C. arduina* Lam., Dict. 1: 555 (1785); Stapf in Fl. Cap. 4, 1: 498 (1907), partly, excl. syn. *C. erythrocarpa*, *C. acuminata*, *C. haematocarpa*, *C. ferox*, and *C. oblongifolia*. *C. myrtoides* Desf., Cat. Hort. Paris, ed. 3: 398 (1829). *C. cordata* (Mill.) Fourc. in Trans. Roy. Soc. S. Afr. 21: 82 (1934). *C. cordata* Dinter in Fedde Rep. Beih. 53: 112 (1928), nom. nud. *C. dinteri* Markgf. in Notizbl. Bot. Gart. Berlin, 15: 750 (1942). *Jasminonerium bispinosum* (L.) O. Ktze., Rev. Gen. Pl. 2: 415 (1891).

A much-branched, twiggy shrub up to 3 m high. Leaves thickly coriaceous, 1-3 (rarely to 5) cm long, broadly ovate to ovate-elliptic. Spines robust, up to 5 cm long, bifurcate, twice bifurcate or simple. Anthers situated near the apex of the corolla tube. Style 3-4 mm long.

This variety is found in karroid scrub, bushveld and coastal scrub vegetation, usually in relatively hot, dry situations, in the southern and south-eastern Cape Province, central and western Transvaal and northern South West Africa.

In some specimens from the eastern Cape Province, the robust spines are twice bifurcate, while from the central and western Transvaal and South West Africa specimens are found with simple spines. *C. dinteri* Markgraf is based mainly on the presence of simple spines; in all other respects it is scarcely distinguishable from var. *bispinosa* and is therefore not worth upholding, even as a variety.

The significance of the position of the anthers and length of the style is discussed later under var. *acuminata*.

(b) var. *acuminata* (E. Mey.) L. E. Codd, stat. nov.

Arduina acuminata E. Mey., Comm. Pl. 191 (1837); K. Schum. in Pflanzenfam. 4, 2: 126 (1895). Type: between Umzimvubu and Umsikaba Rivers, near large Waterfall, Drege. *A. erythrocarpa* Eckl. in S.A. Quart. J. 4: 372 (1830). *Carissa acuminata* (E. Mey.) A.DC. in DC. Prodr. 8: 335 (1844). *C. erythrocarpa* (Eckl.) A.DC., l.c. *C. arduina* (non Lam.), Stapf in Fl. Cap. 4, 1: 498 (1907), partly, as to syn. *C. acuminata* and *C. erythrocarpa*. *C. megaphylla* Gdgr. in Bull. Soc. Bot. France, 65: 59 (1918). *C. bispinosa* [non (L.) Desf. ex Brenan], Brenan in Mem. N.Y. Bot. Gard. 8: 502 (1954), as to specimen cited.

Shrub up to 5 m high, often sparingly branched and sometimes semi-scandent. Leaves thinly coriaceous to coriaceous, ovate to ovate-lanceolate, 2.5-7 cm long. Spines slender, bifurcate, 0.5-2.5 (rarely to 3.5) cm long. Anthers situated near the middle or towards the apex of the corolla tube. Style 1.5-3 (rarely to 3.5) mm long.

This variety is found in fairly dense woodland such as forest margins and scrub forest in the southern and south-eastern Cape Province, Natal, Swaziland, eastern and northern Transvaal, eastern Southern Rhodesia and Nyasaland.

The anthers are situated near the middle of the corolla tube or towards the apex and, as the stigma accompanies the anthers, the style is shorter in this variety than in var. *bispinosa*. The distinction is more marked from the Transvaal northwards, rather than in the Cape Province and Natal, as is shown in Table I and II which summarise the distribution of style length on a geographical basis in 69 specimens examined.

TABLE I

Style length in 28 specimens of *C. bispinosa* var. *bispinosa*.

Province.	Style length in mm.							Total.
	1.5	2	2.5	3	3.5	4	4.5	
Cape.....	—	—	—	5	2	1	—	8
S.W. Africa.....	—	—	—	—	—	1	—	1
Transvaal.....	—	—	1	2	8	6	1	18
Mocambique.....	—	—	—	—	1	—	—	1
	—	—	1	7	11	8	1	28

TABLE II

Style length in 41 specimens of *C. bispinosa* var. *acuminata*.

Province.	Style length in mm.							Total.
	1·5	2	2·5	3	3·5	4	4·5	
Cape.....	—	2	7	5	1	—	—	15
O.F.S.....	—	—	—	1	—	—	—	1
Natal.....	—	2	4	4	—	—	—	10
Swaziland.....	—	—	1	—	—	—	—	1
Transvaal.....	7	4	—	1	—	—	—	12
S. Rhodesia.....	1	—	—	—	—	—	—	1
Nyasaland.....	1	—	—	—	—	—	—	1
	9	8	12	11	1	—	—	41

An unusual form occurs at high altitudes in the central Transvaal and is represented by the following specimens: Lydenburg District, summit of Lulu Mountains, 4,500 ft., Mogg 16963; Barnard and Mogg 995; Pietersburg District, Wolkberg, 6,000 ft., Gerstner 5657. In these specimens the branches are extremely twiggy with very numerous, relatively short, stout, bifurcate spines; the leaves are small, broadly ovate, almost cordate-based, 1-1·5 cm long; and the flowers are smaller than usual with styles 1·5-2 mm long. These specimens have been omitted from the above Tables. They may represent a distinct variety but, until more information is forthcoming, they are best regarded as a form of *C. bispinosa* var. *bispinosa*.

ADENIUM

Adenium obesum (Forsk.) R. and S. var. **multiflorum** (Klotzsch) L. E. Codd, stat. nov.—
A. multiflorum Klotzsch in Peters, Reise Mossamb. Bot. 279, t. 44 (1861). Type: Tette, Peters s.n.

I am indebted to Mr. W. Marais, our liaison officer at Kew, and Mr. Meikle, of the Kew staff, for examining the tropical African material of *Adenium* for me. They came to the conclusion that an excessive number of species names have been published and that the following must be regarded as one species complex: *A. obesum* (Forsk.) R. and S., Syst. Veg. 4: 411 (1819), based on *Nerium obesum* Forsk., Fl. Aegypt.-Arab. 205 (1775); *A. honghel* A.DC. in DC., Prodr. 8: 412 (1844); *A. multiflorum* Klotzsch, l.c.; *A. speciosum* Fenzl in Sitzungsber. Kais. Akad. Wiss. Wien, 51: 140 (1865); *A. arabicum* Balf. f. in Trans. Roy. Soc. Edinb. 31: 161 (1888); *A. micranthum* Stapf in Kew Bull. 334 (1894); and *A. coetanum* Stapf in Fl. Trop. Afr. 4, 1: 227 (1902). Of these, it is considered that only *A. multiflorum* is sufficiently distinct to be worth separating as a variety. It is fairly constant in having acute to acuminate corolla lobes with crisped margins, while the margins are a darker pink, almost scarlet in colour. The southern material has thicker leaves with more or less immersed veins, as against the thinner, markedly veined leaves of material from east and west tropical Africa.

TYPIFICATION OF *PACHYPODIUM SUCCULENTUM* AND *P. BISPINOSUM*

When Linn. fil. described *Echites succulenta* and *E. bispinosa* in his Suppl. 167 (1781), he mixed the characters of the two species. For instance, he describes *E. succulenta* as: "foliis linearibus subtus tomentosus, corollis infundibuliformibus" and *E. bispinosa* as: "foliis lanceolatis glabris, corollis hypoc crateriformibus". Actually, the species with leaves tomentose below has the hypoc crateriform corolla and *vice versa*.

Both species were based on *Thunberg* specimens "ad Cap. bonae Spei", and were transferred to the genus *Pachypodium* by A. de Candolle in DC. Prodr. 8: 424 (1844).

Thunberg in his Prodr. 37 (1794) and Fl. Cap. ed. Schult. 232 (1823) repeats the protologue verbatim but, in the latter work, he adds a more detailed description of the corolla of *E. bispinosa* which agrees with an infundibuliform, not a hypocrateriform, corolla.

E. Meyer, Comm. Pl. 188 (1837) created the genus *Belonites* to accommodate the above two species. He evidently realised the original discrepancy and placed the characters correctly, typifying the species as follows:

1. *Belonites succulenta*: "foliis subtus tomentosus, corollis hypocrateriformibus, limbi laciniis spathulatis. *Echites succulenta* Thunb."

2. *B. bispinosa*: "foliis subtus glabris, corollis infundibuliformibus, limbi laciniis basi latissimus. *Echites bispinosa* Thunb."

This emendation by E. Meyer was followed by Stapf in Flora Capensis 4, 1:517 (1907) and subsequent workers. It is, however, necessary to assess the available *Thunberg* specimens to discover if any specimens bear clear evidence that they were studied by Linn. fil. There are no relevant specimens in the Linnaean Herbarium, so the Directors of the Herbaria at Uppsala and Stockholm were approached. Uppsala Herbarium does not send *Thunberg* specimens on loan, but the Director informs me that there are three relevant sheets in the *Thunberg* Herbarium. One of these is named *Echites succulenta*. It has linear leaves, tomentose on the underside and the corolla is badly pressed but is probably hypocrateriform. This specimen bears a determination by N. E. Brown: "*Pachypodium succulentum* A.DC." The other two sheets are named *Echites bispinosa* and are designated α and β . The determination of the first one was confirmed by N. E. Brown. It consists of a specimen with lanceolate leaves which are sparingly hispid on the underside, while the flowers appear to be infundibuliform. On the second sheet, N. E. Brown has placed a note reading: "The specimen marked X is the only one of *E. bispinosa* on this sheet, all the others belong to *E. succulenta* and have probably been mounted here by mistake". None of the specimens bear any indication of having been studied by the younger Linnaeus.

The Director of the Stockholm Herbarium kindly sent us their specimens on loan. Five sheets were received, four of which consisted of solitary specimens collected by *Thunberg*, while the fifth was a mixed sheet with one *Thunberg* specimen and two Sparrman specimens. None of them show any annotation by Linn. fil. and therefore for purposes of selecting lectotypes they would have the same standing as the Uppsala specimens. As I have seen the Stockholm specimens, the following lectotypes are proposed:

Pachypodium succulentum (Linn. f.) A.DC. Lectotype: The sheet in Stockholm leg. *Thunberg*, Cap. b. Spei, on which is written at the back of the sheet: "*Echites (succulenta) aculeis binis extrafoliaceis, foliis linearibus subtus tomentosus, corollis infundibuliformibus*". The corolla of the specimen is, in fact, hypocrateriform, and matches what we have been accustomed to calling *Pachypodium succulentum*.

Pachypodium bispinosum (Linn. f.) A.DC. Lectotype: The sheet in Stockholm leg. *Thunberg*, Cap. b. Spei, on which is written at the back of the sheet: "*Echites (bispinosa) aculeis binis extrafoliaceis, foliis lanceolatis glabris, corollis hypocrateriformibus*". The corolla is, in this case, clearly infundibuliform and the specimen matches what we have been accustomed to calling *Pachypodium bispinosum*.

The other two Stockholm sheets consist each of a somewhat scrappy *Thunberg* specimen annotated *Echites bispinosa*, both of which are what we are calling *Pachypodium succulentum*. The sheets in Stockholm thus agree in essentials with those at Uppsala, i.e., two specimens (one of each species) are named in accordance with modern usage, while two are wrongly named. If the first two are selected as lectotypes, the

application of epithets will continue as at present, which agrees with the emendation made by E. Meyer. It is probable that the confusion in the published description by Linn. fil. resulted from an error in transcription and is not due to flowers of one species having been mounted in juxtaposition with a vegetative portion of the other species.

STROPHANTHUS

Strophanthus luteolus L. E. Codd, sp. nov., *S. petersiano* Klotzsch affinis, sed floribus parvioribus, calyce angustiori, ramulis calyce corolla pubescentibus differt.

Frutex sarmentosus 3–8 m altus, ramulis junioribus pubescentibus sparse lenticellatis. *Folia* brevissime petiolata ovato-elliptica vel oblongo-elliptica 2·5–4·5 cm longa 1–1·5 cm lata, apice acuta vel rotundata, sparse pubescentia deinde glabrescentia. *Cymae* in ramis abbreviatis terminales, tomentosae, 1–3-florae; bracteae lineares 9–10 mm longae. *Calyx* tomentosus; sepala lanceolato-lineararia 1–1·3 cm longa. *Corolla* luteola extus purpureo-striata dense puberula; tubi pars infra stamina cylindrata 6 mm longa, supra stamina infundibuliformis 7 mm longa 7–9 mm lata; lobi basi ovato-lanceolati in caudas lineares attenuati 5–8 cm longi; faucium squamae lanceolatae 2·5 mm longae. *Antherae* lanceolatae sagittatae acuminatae 3·5–4 mm longae. *Ovarium* dense pubescente. *Folliculi* anguste fusiformes fusco-brunnei lenticellati 22 cm longi 1·5 cm diam.

TRANSVAAL.—Soutpansberg: Wylliespoort, flowering September, 1960, *Hardy and Wells* 359 (PRE, holotype); near the Salt Pan, fruiting September, 1960, *Hardy* 350.

NATAL.—Ingwavuma: Maputaland, flowering June, 1914, *Maputa Expedition* in TM 14460; Mkuzi–Maputa areas, flowering December 1945, *Bell Marley* in NH 40920; Ndumu Game Reserve, flowering October 1959, *Tinley* 499.

Scandent shrub or climber 3–8 m high; branchlets shortly crisped-tomentose, glabrescent with age; bark reddish-brown, lenticellate. *Leaves* shortly petioled, drying dark green or brownish above, paler below, subglabrous or sparingly pubescent with scattered hairs along the midrib and margin, eventually glabrescent, ovate-elliptic to elliptic-oblong, 2·5–4·5 cm long and 1–1·5 cm broad, base obtuse to acute, apex acute to rounded, occasionally emarginate; margin incurved; secondary nerves 4–6 on each side, distinct; petiole 2–4 mm long; axillary glands small, tooth-like. *Inflorescence* terminal, usually on short lateral shoots, 1–3-flowered, pubescent; bracts linear, acute, 9–10 mm long, pubescent; pedicels 7–10 mm long, crisped-tomentose. *Flowers* yellowish with purple markings in the throat and on the outside of the tube. *Calyx* 1–1·3 cm long; sepals linear-lanceolate, tapering gradually to the apex, shortly pubescent. *Corolla* shortly and densely pubescent without and within; tube sub-cylindric for 6 mm then widening gradually to a funnel-shaped portion 7 mm long and 7–9 mm broad at the mouth; lobes lanceolate at the base, attenuate into linear-filiform appendages, pendulous, 5–8 cm long, shortly pubescent on both surfaces; throat scales lanceolate, 2·5 mm long. *Stamens* included; filaments thick, 1 mm long, pubescent; anthers connivent, lanceolate, 3·5–4 mm long, acuminate, shortly apiculate, sagittate, polliniferous in the upper half, hairy on the back. *Ovary* of two free carpels, densely pubescent; style 7–8 mm long; stigma enclosed by the anthers, capitate, with a reflexed frill at the base. *Follicles* narrowly spindle-shaped, reddish-brown, about 22 cm long and 1·5 cm in diam., lenticellate, tapering gradually then abruptly thickened at the apex.

Although superficially resembling *S. gerrardii* Stapf and *S. petersianus* Klotzsch, *S. luteolus* differs from both these species in the pubescent twigs and flower parts. From *S. gerrardii* it differs, in addition, in the longer calyx and erect, not recurved, sepals, while from *S. petersianus* it differs in the smaller, differently coloured corolla and the narrower sepals, as well as in leaf size and shape. It does not run to any species in Gilg's monograph on *Strophanthus* (Engler, Monogr. Afr. Pfl. Fam. vii, Stroph.,

1903), nor in Stapf's treatment in Flora of Tropical Africa. Among more recently described species, it appears to come nearest to *S. hirsutus* H. Hess in Ber. Schweiz. Bot. Ges. 62: 88 (1952), based on specimens collected in Angola, but differs in several important characters, for example, the longer calyx, the more funnel-shaped corolla tube and the pubescence of the leaves, which is never densely tomentose on both surfaces as in *S. hirsutus*. A duplicate of *Tinley* 499 was sent to Mr. Marais at Kew who reports that it is not matched in the Herbarium of the Royal Botanic Gardens.

The species is known from three gatherings in Maputaland, the north-eastern extremity of Zululand, and from recent gatherings in the Soutpansberg. In Maputaland it is found in coastal forest, climbing into the canopy, while in the Soutpansberg it grows on relatively dry, wooded hillsides, producing numerous slender stems which climb when they find the support of shrubs or trees. The older stems do not produce corky, winged out-growths, as is the case with *S. gerrardii*. The flowers are creamy-yellow, with a purplish tinge in the throat and on the outside of the corolla tube.

L. E. CODD

ARACEAE

Zantedeschia jucunda C. Letty, sp. nov., *Z. pentlandii* (Whyte ex Watson) Wittm. affinis, sed ita differt: folia trianguli-hastata dense maculata sub-conduplicata, spatha saturatior lutea interdum intus rugosa subregulariter infundibuliformis ad fauces valde aperta apice in acumen subulatum attenuata.

Planta decidua habitu rigido. *Folia* glabra, petiolis 24 cm longis glabris, laminis saturate viridibus maculatis 17–30 cm longis 5–15 cm latis trianguli-hastatis acutis apice subulatis subconduplicatis, lobis basalibus obtusis interdum acutis sursum patentibus ad 14 cm longis basi 7 cm latis. *Pedunculus* foliis aequalis vel longior glabrus viridis. *Spatha* 10–16 cm longa, intus saturate lutea leviter rugosa macula purpurea, extus saturate lutea, limbo subhorizontaliter patenti in acumen subulatum ad 1.5 cm longum attenuato. *Spadix* ad dimidium longitudinis spathae attingens cylindricus obtusus. *Ovaria* c.24 subglobosa angulata sessilia, stigmatibus 0.5 mm longo sessili discoideo, staminodiis nullis. *Antherae* luteae.

TRANSVAAL.—Lydenburg: Lulu mountains, Sekukuniland, *Barnard and Mogg* 991 (PRE, holotype); Schoonoord, west slope of Lulu mountains, *du Plessis* in PRE 28835; *Barnard* 180: summit of Lulu mountains *Barnard* 181; Magnet Heights, *Thompson* in PRE 28836 (cult).

Description.—Plant deciduous, up to 60 cm high, glabrous, fairly rigid in habit. *Leaves* with petiole 24 cm long; blade dark green, densely maculate with elongate-white translucent spots, 17–30 cm long, 5–15 cm broad, triangular-hastate, acute with a subulate tip, semi-folded along the midrib; basal lobes obtuse or sometimes acute, upwardly spreading, up to 14 cm long, 7 cm broad at the base often smaller and narrower. *Peduncle* as long as, or longer than, the leaves, glabrous, green. *Spathe* 10–16 cm long, deep yellow with a purple blotch, slightly rugose within, deep yellow without; limb sub-horizontally spreading, tapering to a subulate green tip up to 1.5 cm long. *Spadix* up to half as long as the spathe, sometimes longer, cylindric obtuse. *Ovaries* sub-globose angled from pressure, sessile about 24 in number; stigma 0.5 mm long, sessile, discoid; staminodes none. *Anthers* yellow.

Specimens of this most striking *Zantedeschia* from Sekukuniland have been sent, from time to time, to the National Herbarium, Pretoria, since 1934. The first arrived in November 1934 from Mr. W. G. Barnard (No. 180) and further material was received in January 1939, collected by Barnard and Mogg (No. 991). In 1954 living material was sent in by Miss S. Thompson of Haenertsburg, grown from plants collected at Magnet Heights. The Native Commissioner, Schoonoord, kindly supplied plants in

February 1955 which flowered in Pretoria in January 1956 and in December of the following year further material from Schoonoord was received from Mr. S. S. du Plessis.

The species has been named *Z. jucunda* because of the pleasing appearance of the plants with deep green copiously spotted leaves and the almost campanulate spathe being brilliant deep yellow both without and within. Its distribution seems restricted to the Schoonoord-Magnet Heights region of the Lulu mountains, Sekukuniland, where it flowers from November to January.

It is most nearly related to *Z. pentlandii* (Whyte ex Watson) Wittm. and *Z. tropicalis* (N.E. Br.) C. Letty. It differs from the former in having triangular-hastate copiously spotted leaves with upwardly spreading basal lobes and an acute tip, the spathe a deeper yellow without and within and sometimes rugose within, and in the limb more spreading and tapering to a subulate tip, whereas *Z. pentlandii* has immaculate (very rarely spotted) oblong lanceolate leaves, slightly constricted above the short sagittate rounded basal lobes, apex obtuse, sometimes acute, with subulate tip, the spathe regularly funnel-shaped, limb lighter in colour, greenish outside, more suddenly rounded into the subulate tip. *Z. jucunda* can be distinguished from *Z. tropicalis* in its less luxuriant growth, stiffer, more inwardly folded triangular leaves, but chiefly in the less tightly rolled, consistently more brilliantly yellow more tapering spathes, whereas *Z. tropicalis* shows white, cream or salmon pink colour variations, but is never deep yellow.

Zantedeschia tropicalis (N.E. Br.) C. Letty, stat. nov., *Richardia melanoleuca* Hook. f. var. *tropicalis* N.E. Br. in Fl. Trop. Afr. 8: 168 (1901). *Zantedeschia melanoleuca* Hook. f. var. *tropicalis* (N.E. Br.) Traub in Plant Life 4: 24 (1948). Lectotype: Nyasaland: Namasi, Cameron s.n. (K) (2 sheets).

On studying a series of plants of *Zantedeschia melanoleuca* var. *tropicalis* both in the veld and preserved, the differences between these plants and typical *Z. melanoleuca* seemed important enough to warrant raising the variety to specific rank. Whereas *Z. melanoleuca* seems to be restricted to the coastal regions of Natal, *Z. tropicalis* occurs from Nyasaland through Southern Rhodesia into the Transvaal to Potgietersrus, Letaba and Barberton and to the Mbabane district of Swaziland.

It differs from *Z. melanoleuca* in being more robust, petioles glabrous, leaf blades longer and more triangular-hastate, up to 30 cm long and 30 cm across the basal lobes from tip to tip, lobes spreading, obtuse; spathe larger, cream, pale yellow or suffused with red, up to 14 cm long, tube sub-cylindric, closed; spadix with many (up to 12 rows) of ovules. Its habitat is at forest margins or in bush in partial shade and its flowering reaches its peak during December and January.

NYASALAND.—Namasi, 1897, Cameron s.n. (K!); Nivera Hill, Benson 81.

SOUTHERN RHODESIA.—Mashonaland, Six mile spruit, Salisbury, *Lady Evelyn Cecil* in K. 149; Melsetter. *Crook* in PRE 28828; Mount Silinda, *Obermeyer* in PRE 28827.

TRANSVAAL.—Soutpansberg: 4½ miles N.E. of Louis Trichardt, *Codd* 8326; Entabeni Forestry Station, *Codd* 8400; four miles N. of Louis Trichardt on Messina road, *Admiraal* in PRE 28830; Pietersburg: one mile N. of Haenertsburg, *Codd* 8415; on farm Wellstead, *Thompson* in PRE 28826; Magoebaskloof, fld. Pretoria, *O'Connor* in PRE 28825; one mile E. of Haenertsburg, *Reynolds* 5806a; 5806b; Woodbush, *Mogg* in PRE 28832; Mohlakeng, Blaauwberg, *Codd* 9148; Letaba: Tzaneen, *Rogers*, 12501; Duivelskloof, *Haar* in PRE 28832; The Downs, *Murray*, PRE 28833; Barberton: Kaapmuiden, *Mogg* in PRE 28834; Louw's Creek, *Bragshaw* 110; eight miles S.E. of Barberton on Havelock Road, *Codd* 8159.

SWAZILAND.—Mbabane: Little Usutu valley, *Compton* 25405.

CYTHNA LETTY

EBENACEAE

NEW COMBINATIONS IN THE GENUS DIOSPYROS

In *Bothalia* 7, 1: 17–19 (1958) a number of new combinations were made in the genus *Royena*. A short while after these notes were submitted for publication and too late for withdrawal, it was discovered that White (Oxford Univ. Forest Soc. Journ. 4, 6: 31–34, 1958) had come to the conclusion that the genus *Royena* could not be regarded as distinct from *Diospyros*. After some correspondence the author decided to follow White in uniting the two genera. Characters previously used for distinguishing *Royena* from *Diospyros* have proved to break down when the latter is studied on a worldwide scale. As pointed out in *Bothalia* l.c., *Royena* cannot be regarded as truly hermaphrodite, and the main difference given in the keys by various authors thus cannot be used. Attempts were made to associate a number of characters which in combination could be used to distinguish the two genera. However, as pointed out by White, this results in a classification in which some closely related species will fall in separate genera even though not closely related to the other species in the genus in which they are placed. For these reasons the genus *Royena* is now united with *Diospyros*. The following combinations are necessary.

Diospyros acocksii (de Winter) de Winter comb. nov. *Royena acocksii* de Winter in *Bothalia* 7, 1: 18 (1958).

Diospyros austro-africana de Winter nom. nov. *Royena hirsuta* L. Sp. Pl. ed. 1: 397 (1753).

(a) var. ***austro-africana***. *Royena hirsuta* L. Sp. Pl. ed. 1: 397 (1753) non *Diospyros hirsuta* L. f. Suppl. 440 (1781); *Royena angustifolia* Willd. Sp. Pl. 2: 633 (1800) non *Diospyros angustifolia* Audib. ex Spach, Hist. Veg. Phan. 9: 405 (1843); *Diospyros hirsuta* Desf. in Ann. Mus. Par. 4: 449, t.62 f.2 (1805) non Linn. f. Suppl. 440 (1781).

(b) var. ***rugosa*** (E. Mey. ex A. DC.) de Winter comb. et stat. nov. *Royena rugosa* E. Mey. ex. A. DC. Prod. 8: 212 (1844) non *Diospyros rugosa* Sap. in Ann. Sc. Nat. 4, 17: 264, t.11 f.3 (1862) (fossil species). *Royena hirsuta* L. var. *rugosa* (E. Mey. ex A. DC.) Zahlbr. in Ann. Naturhist. Hofmus. Wien. 28: 397 (1903).

(c) var. ***microphylla*** (Burch.) de Winter comb. et stat. nov. *Royena microphylla* Burch. Trav. 1: 348 (1822) non *Diospyros microphylla* Bedd. Forest Man. 145 (1870); *Royena hirsuta* L. var. *microphylla* (Burch.) de Winter in *Bothalia* 7, 1: 18 (1958).

(d) var. ***rubriflora*** (de Winter) de Winter comb. nov. *Royena hirsuta* L. var. *rubriflora* de Winter in *Bothalia* 7, 1: 18 (1958).

As can be seen from the references under the varieties given above all the epithets available for re-combination in *Diospyros* were already occupied in this genus, and it was necessary to give a specific new name.

Diospyros galpinii (Hiern) de Winter comb. nov. *Royena galpinii* Hiern in F.C. 4, 1: 450 (1906).

Diospyros glabra (L.) de Winter comb. nov. *Royena glabra* L. Sp. Pl. 1: 397 (1753).

Diospyros glandulifera de Winter nom. nov. *Royena glandulosa* Harv. ex Hiern in Trans. Camb. Phil. Soc. 12: 89, t.2 (1873) non *Diospyros glandulosa* Lace in Kew Bull. 349 (1915).

Diospyros lycioides Desf. in Ann. Mus. Par. 6: 448, t.62 f.1 (1805).

(a) subsp. ***lycioides***. *Royena lycioides* (Desf.) A. DC. Prod. 8: 214 (1844).

(b) subsp. ***sericea*** (Bernh.) de Winter comb. et stat. nov. *Royena sericea* Bernh. ex Krauss in Flora 27: 824 (1844); *Royena lycioides* (Desf.) A. DC. subsp. *sericea* (Bernh.) de Winter in Fl. Pl. Afr. 32, 3: t.1262 (1958).

- (c) subsp. **guerkei** (O. Ktze.) de Winter comb. et stat. nov. *Royena guerkei* O. Ktze. Rev. Gen. Pl. 3, 2: 196 (1898); *Royena lycioides* (Desf.) A. DC. subsp. *guerkei* de Winter in Bothalia 7, 1: 17 (1958).
- (d) subsp. **nitens** (Harv. ex Hiern) de Winter comb. et stat. nov. *Royena nitens* Harv. ex Hiern in Trans. Cambr. Phil. Soc. 12: 87 (1872); *Royena lycioides* (Desf.) A. DC. subsp. *nitens* (Harv. ex Hiern) de Winter in Bothalia 7, 1: 18 (1958).

Diospyros ramulosa (E. Mey. ex A. DC.) de Winter comb. nov. *Royena ramulosa* E. Mey. ex A. DC. Prod. 8: 212 (1844).

Diospyros scabrada (Harv. ex Hiern) de Winter comb. nov. *Royena scabrada* Harv. ex Hiern. in Trans. Cambr. Phil. Soc. 12: 82 (1872).

(a) var. **scabrada**.

(b) var. **cordata** (E. Mey. ex A. DC.) de Winter comb. et stat. nov. *Royena cordata* E. Mey. ex A. DC. Prod. 8: 211 (1844) non *Diospyros cordata* (Hiern) Bakhuizen in Gard. Bull. Straits Settlm. 7: 167 (1933); *R. opaca* E. Mey. ex A. DC. Prod. 8: 211 (1844) non *Diospyros opaca* C.B. Cl. in Hook. f. Fl. Brit. Ind. 3: 567 (1882).

Both the epithets *cordata* and *opaca* are older than the epithet *scabrada*, but are already occupied in *Diospyros* hence the next available epithet *scabrada* was used. The epithet *cordata* has been used for the variety (b) to insure continuity and avoid more confusion although both varieties have cordate leaves.

Diospyros simii (O. Ktze.) de Winter comb. nov. *Royena simii* O. Ktze. Rev. Gen. Pl. 3, 2: 196 (1898).

Diospyros villosa (L.) de Winter comb. nov. *Royena villosa* L. Syst. Nat. 12, 2: 302 (1767).

var. **parvifolia** (de Winter) de Winter comb. nov. *Royena villosa* L. var. *parvifolia* de Winter in Bothalia 7, 1: 18 (1958).

D. whyteana (Hiern) F. White comb. nov. *Royena whyteana* Hiern in Trans. Linn. Soc. 2, 4: 25 (1894).

D. pallens (Thunb.) F. White comb. nov. *Royena pallens* Thunb. Prod. 80 (1794).

B. DE WINTER AND F. WHITE

GENTIANACEAE

CHIRONIA

Chironia stokoei Verdoorn sp. nov., *C. jasminoidei* affinis sed ab ea et ab aliis speciebus stigmatate peltato, praesertim floribus basi bi-bracteatis differt.

Suffrutex rigidus, adscendens, 30–50 cm altus; caules superne ramosi et foliolati inferne saepe nudi nodis prominentibus. *Folia* coriacea, paulo corrugata, elliptica nunc late nunc angustustate elliptica, interdum ovate vel lanceolati-elliptica, 1.7–3.5 cm longa, 0.5–1.8 cm lata, obtusa vel acuta, marginibus anguste revolutis. *Cymae* terminales, monochasiales, 3-florae vel ad florem solitarium reductae; pedicelli breves vel 0; *flores* basi bi-bractiati; bractee 6–18 mm longae basi 1.3–4 mm latae, acuminatae, obtusae vel acutae. *Calyx* 9–16 mm longus infra medium lobatus; lobi a basi acuminati, obtusi vel acuti, obscure carinati. *Corolla* “magenta pink” (perraro alba), 2.2–2.8 cm longa; tubus submembranaceus, c. 1.2 cm longus in faucibus leviter constrictus apice amplius; lobi elliptici vel subrotundi, basi breviter cuneato-unguiculares, 1.2–1.8 cm longi, 0.8–1.1 cm lati. *Stamina* paulo infra fauces inserta

filamentis c. 1 cm longis, antheris c. 4 mm longis non tortilibus. *Ovarium* c. 1 cm longum, in stylum attenuatum; stylus quam ovarium brevior c. 8 mm longus; stigmatibus peltatis apice crasse stigmatoso.

CAPE.—Somerset West: Sneeuwkop, *Stokoe* 7986 (BOL); between Sneeuwkop and Landdrost Kop, *Stokoe* 9211 (BOL). Caledon: Kogelberg, *Stokoe* 1003 (PRE, holo.); 1003b; *Stokoe* in Bol. Herb. 17705; *Stokoe* in S.A. Museum Herb. 66894; Palmiet River mountains. *Stokoe* 982; mountains S. of Sir Lowry's Pass, *Stokoe* in S.A. Museum Herb. 66893; Klein River mountains *Stokoe* in S.A. Museum 64199.

Rigid ascending suffrutices, 30–50 cm tall; stems leafy and branched above, leafless below with prominent nodes, branches and leaves notate with shiny, microscopic, subcutaneous cells. *Leaves* coriaceous, somewhat corrugated on both surfaces, from broadly to narrowly elliptic, sometimes oblong-, ovate- or lanceolate-elliptic, 1.7–3.5 cm long, 0.5–1.8 cm broad, rounded or acute at the apex, margins narrowly revolute. *Cymes* terminal, monochasial, 3-flowered or reduced to a solitary flower; pedicels short or 0; *flowers* bi-bracteate at the base; bracts 6–18 mm long, 1.3–4 mm broad at the base, gradually narrowing to an obtuse or acute apex. *Calyx* 9–16 mm long, divided beyond the middle; lobes gradually narrowing from a broad base to an obtuse or acute apex, obscurely carinate. *Corolla* “magenta pink” (rarely white), 2.2–2.8 cm long; tube rather thin textured, slightly narrowed in the throat and widened at the mouth, about 1.2 cm long; lobes elliptic to subrotund and cuneate into a claw-like base, usually obviously longer than broad, 1.2–1.8 cm long, 0.8–1.1 cm broad. *Stamens* inserted just below the throat; filaments about 4 mm long; anthers about 4 mm long, not spirally twisted. *Ovary* about 1 cm long, attenuating into the style; style shorter than the ovary, about 8 mm long, stigma peltate, thickly stigmatose on top.

When revising the genus *Chironia* for the Flora of Southern Africa this species was found to be represented in three herbaria, the Marloth Herbarium (now in the National Herbarium, Pretoria), the Bolus Herbarium and the Herbarium of the South African Museum (now at the Herbarium of the National Botanic Gardens, Kirstenbosch). All the specimens, nine in number, were collected by Mr. T. P. Stokoe over a range of about 30 years. The earliest date was August 1924 and the most recent September 1953. The specimens all came from mountainous country in the Somerset West and Caledon districts. Unfortunately Mr. Stokoe although a great collector, never claimed to have an eye for recognizing species. It was after his 91st birthday (3.3.1959) and just after he had returned from his last trip to the Hottentots Holland that he was informed of this new species and that it was to be called after him. Had he lived he would most probably have made a point of investigating it for us. But his great usefulness to botanists came to a regretted end when he died in April 1959.

Chironia stokoei differs from all the other species with simple styles and a terminal stigmatic surface, in that the flowers are bi-bracteate at the base. In general it is nearest *C. jasminoides* but can be distinguished by the calyx-lobes which are never long attenuate at the apex and the shorter and broader leaves besides the bracts at the base of the flowers. In the prominent nodes on the almost leafless lower portion of the stem it resembles *C. arenaria*, but besides having basal bracts it differs in the corolla-lobes being longer than broad and the leaves usually broadly elliptic.

CHIRONIA LINOIDES COMPLEX

C. linoides Linn. Aggregate species.

C. linoides Linn. subsp. *linoides*. Lectotype: specimen cited in Hort. Cliff. p. 54, No. 1.
C. linoides Sp. Pl. ed. 1: 189 (1753); Prain in Kew Bull. 1908: 349 and 353 (1908); Hill & Prain in F.C. 4, 1: 1103 (1909). Syntypes: specimen cited in Hort. Cliff. p. 54, No. 1; specimen in Roy. Lugab. 433; and figure in Breyn. Cent. p. 175, t. 90/1678.

[The lectotype is nominated on the evidence of Prain (Kew Bull. 1908: 353) that the two specimens mentioned still exist and are both typical of the species. The first mentioned by Linnaeus is here chosen.]

- Chironia linoides** Linn. subsp. **nana** Verdoorn, nom. nov. Type: Cape Flats, *Ecklon* 642 (SAM, holo.!).
- C. gracilis* Salisbury ex Prain in Kew Bull. 1908: 293 (1908), non Michx. (1803).
Syntypes: many specimens including *Ecklon* 642 from the Cape Flats.
- C. linoides** Linn. subsp. **macrocalyx** (Prain) Verdoorn, stat. nov., comb. nov. Lectotype: Cape Flats, *Ecklon* 644 (SAM, iso.!).
- C. gracilis* var. *macrocalyx* Prain in Kew Bull., 1908: 294 (1908). Syntypes: several specimens including *Ecklon* 644 from the Cape Flats.

C. linoides Linn. subsp. **emarginata** (Jarosz) Verdoorn, stat. nov.

C. emarginata Jarosz, Pl. Nov. Cap.: 11 (1821). Type: Peninsula, *Berg* s.n.

From the synonymy in the Flora Capensis (Vol. 4, 2: 1101–2, 1909) it can be seen that *C. emarginata* Jarosz and *C. gracilis* Salisb. ex Prain have both at some time or another been classified as *C. linoides* or a variety or form of that species or one of its synonyms. Hill and Prain separated these closely related specimens into four categories, *C. linoides*, *C. emarginata*, *C. gracilis* and *C. gracilis* var. *macrocalyx*. After examining the material now in the South African herbaria it was found that a fair percentage of this large number of specimens can, on sight, be sorted into one or other of these taxa. But there remains a significant assortment of intermediates (some may be hybrids) that do not fit exactly into any one of these. This seems to indicate that, to accommodate these intermediates, a far more workable treatment would be to look upon the whole group as belonging to one complex species, *C. linoides*, comprising four subspecies and their intermediates. The necessary combinations are made above.

The lectotype nominated for subsp. *macrocalyx* was selected because a duplicate of one of the syntypes of the species was seen in a South African herbarium and was found to answer very well to the original description.

CHIRONIA PALUSTRIS COMPLEX

C. palustris Burch., aggregate species.

C. palustris Burch. subsp. **palustris**. Type: Griquatown, *Burchell* 1925.

C. palustris Burch. Trav. 2: 226 (1824); Hill and Prain in F.C. 4, 1: 1106 (1909).
Type: Griquatown, *Burchell* 1925.—var. *foliata* (Griseb.) Prain in l.l. (1909).—
var. *radicata* (E. Mey.) Schoch in Bot. Centralbl. Beih. 14: 234 (1903). *Plocandra*
albens E. Mey. Comm. 182 (1837). Type: Between Kachu and Zandplaat, *Drege*.—
var. *radicata* E. Mey. l.c. (1837). Type: Mooyplaats, *Drege*. *P. palustris* (Burch.)
Griseb. in D.C. Prod. 9: 43 (1845).—var. *foliata* Griseb. in l.c. (1845). Type:
Caffraria, *Drege*.

C. palustris subsp. **rosacea** (Gilg) Verdoorn. Type: Cape, Pondoland, *Bachmann* 1038.
C. rosacea Gilg in Bot. Jahrb. 26: 104 (1899); Schoch in Bot. Centralbl. Beih. 14:
229 (1903) partly as to Natal specimen; Hill and Prain in F.C. 4, 1: 1105 (1909).

C. maxima Schoch in Bull. Herb. Boiss. 2nd ser. 2: 1014 (1902). Type: Tugela Riv.
Wood (Z).

C. palustris subsp. **transvaalensis** (Gilg) Verdoorn. Type: Lydenburg, *Wilm* 974.

C. transvaalensis Gilg in Bot. Jahrb. 26: 106 (1899); Schoch in Bot. Centralbl. Beih. 14:
227 (1903).

The specimens classified under *C. palustris* Burch., *C. rosacea* Gilg and *C. transvaalensis* Gilg, in the Flora Capensis are obviously closely related. The inflorescences

and flowers, especially, are very similar, the flowers varying only in size. After examining a large number of specimens in South African herbaria and investigating the living plants in the Transvaal the decision was made to reduce these taxa to subspecific rank. Reasoning on the following lines led to this decision.

Taking the species *C. palustris* and *C. transvaalensis* first, the main distinguishing features of the most southerly unit, *C. palustris*, are that it is usually smaller in stature, the basal leaves are persistent and the cauline usually much reduced while the taller Transvaal species has well developed cauline leaves and basal leaves which early disappear. In addition the anthers are strongly twisted in *C. palustris* and only slightly so in *C. transvaalensis*. This latter difference is usually a good auxiliary distinction but being a matter of degree only, there are cases where it is not of any help.

It was noted from herbarium material that the areas of distribution of these two "species" overlap in the Transvaal. A spot near Kempton Park was visited to examine the living plants. In the turfy ground along a water course the tall *C. transvaalensis* was found with erect pairs of glaucous, linear-lanceolate cauline leaves and, at this stage, bearing no basal leaves. Nearby in a hardened patch of turf grew the smaller plant with a rosette of basal leaves pressed flat on the hardened ground and on the stem were remote pairs of much reduced leaves. The stamens were a degree more twisted than in the taller plants. The possibility of the hard condition of the ground being responsible for the differences was considered. But in the main area of distribution of the plants with basal leaves, that is the eastern Cape, no examples of plants without basal leaves have been found although the conditions of soil they seem to require probably exist in those regions too. Also in the central areas, north of Kempton Park, the plants are mostly without basal leaves and with well developed cauline leaves although hard patches of turf, in all probability, abound. So there are two sets of specimens separable on some vegetative features with separate centres of distribution. This seems to indicate that taxonomically subspecific status would be more appropriate for these two "species". From the nomenclatural angle too this status would be an advantage for in many cases where the lower portion of the plant was not collected it is difficult to decide whether the cauline leaves are small "well developed leaves" or rather large "reduced leaves". This treatment would also provide a name for some specimens from the Victoria Falls which have the leaf characteristics of subsp. *palustris* but the anther-characters of subsp. *transvaalensis*.

The third "species" in this group for similar reasons is reduced to the same rank. *C. rosacea* Gilg agrees in habit with *C. transvaalensis* but differs in having larger flowers and broader leaves. These features are merely comparative but again the distribution is on the whole distinct. *C. rosacea* occurring in Natal and *C. transvaalensis* in the central regions. In Swaziland both are found and here intermediate specimens occur. In one case one portion of the same gathering has been identified as *C. transvaalensis* and another as *C. rosacea*. But on the whole the specimens are separable into the two categories.

From *C. palustris* *C. rosacea* differs in the well developed broad cauline leaves, the disappearance of the basal leaves and the larger flowers. It also has a separate centre of distribution and so bears a similar relationship to *C. palustris* as does *C. transvaalensis*. The necessary combinations for the subspecies are made above.

CHIRONIA PURPURASCENS COMPLEX

- C. purpurascens* (E. Mey.) Benth. and Hook. f., aggregate species.
- C. purpurascens* (E. Mey.) Benth. and Hook. f., subsp. **purpurascens**. Type: Natal, near Umkomaas, Drege 4923.
- C. purpurascens* (E. Mey.) Benth. and Hook. f., Gen. Pl. 2: 805 (1876); Hill and Prain in F.C. 4, 1: 1108 (1909).—var. *tysonii* (Gilg) Prain in Kew Bull. 1908: 350 (1908).

—var. *impedita* Prain lc. Type: Krook 2028. *C. bachmannii* Gilg in Bot. Jahrb. 26: 103 (1898). Type: Pondoland, *Bachmann* 1037. *C. tysonii* Gilg lc: 104 (1898). Type: near Clydesdale, *Tyson* 1290. *Plocandra purpurascens* E. Mey! Comm. 182 (1895).

C. purpurascens (E. Mey.) Benth. and Hook f. subsp. *humilis* (Gilg) Verdoorn stat. nov. Type: Pretoria, Aapies Riv. Zeyher 1193.

C. humilis Gilg in Bot. Jahrb. 26: 105 (1899); Baker and Brown in F.T.A. 4, 1: 555 (1904); Hill and Prain in F.C. 4, 1: 1107 (1909).—var. *wilmsii* (Gilg) Prain in Kew Bull. 1908: 350 (1908); Hill and Prain in F.C. 4, 1: 1107 (1909).—var. *zuluensis* Prain in Kew Bull. 1910: 55 (1910). Syntypes: Ginginhlovo *Wylie* in Herb. Wood 11, 355; without precise locality, Mrs. *McKenzie* s.n. *C. wilmsii* Gilg in Bot. Jahrb. 26: 105 (1899). Type: Bronkhorstspuit, *Wilms* 973.

A study of the species of *Chironia* shows that *C. purpurascens* (E. Mey.) Benth. and Hook. f. and *C. humilis* Gilg are more closely related to each other than to any of the rest of the species. In the Flora Capensis this is borne out by Hill and Prain who put these two "species" in a section by themselves. To the distinguishing characters which they use for the section, namely the deeply cut calyx, short corolla-tube, distinctly spirally twisted anthers and pointed fruits, may be added the following features shared by the two "species", the deep colour of the flowers (usually magenta pink); the acicular apical half of the calyx-lobes and bracts; and the central flowers of the cymes usually having a much shorter pedicel than those of the lateral. The features which separate these units are: the smaller stature of *C. humilis*, about 30 cm as against over 50 cm tall; the pedicel of its central flower usually being under 6 mm long as against being up to 25 mm long; and flowers frequently with a pair of bracts near the base of the calyx while in the taller plants they are only rarely present. These differences are principally in the size of the plant itself or certain parts of it; but the main area of distribution of the two groups is distinct; the taller plants come from the extreme eastern Cape, Natal, and Swaziland while the smaller plants are recorded from Zululand (northern Natal), the Transvaal and northwards to Southern Rhodesia.

These findings indicate that the relationship which the two groups bear to each other is rather subspecific than specific and *C. humilis* is therefore here reduced to a subspecies under *C. purpurascens* which is the older name.

ENICOSTEMMA

Enicostema hyssopifolium (Willd.) Verdoorn comb. nov. Type: specimen 328.30 (Fabricius) in Linnean Herbarium (L. lecto.; PRE, photo.).

Exacum hyssopifolium Willd. Spec. 1: 640 (1798). Name for *Gentiana verticillata* (non Linn.) Linn. f.

Gentiana verticillata (non Linn. 1753) Linn. f. Supple.: 174 (1781) applied when naming a Fabricius specimen from India; Vahl, Symb. 3: 46 (1794) partly as to Indian and Arabian references. *G. verticillaris* (sic) Linn. var. β . Retz. Obs. Bot. 2: 15 (1781) based on a König specimen.

Hippion hyssopifolium (Willd.) Spreng. Syst. 1: 589 (1824).

Enicostema littorale Blume, Bijdr. 848 (1826). Type: *Blume*, Java.

E. verticillare (Retz.) Baill. Hist. Pl. 10: 131 (1891) partly.

E. verticillatum Engl. in Pfl. Cat. Afr. C: 313 (1895) as to specimens cited.

Lepinema verticillata Raf., Fl. Tellur. 3: 26 (1837) partly as to Vahl reference.

Adenema hyssopifolium (Willd.) G. Don. Gen. Syst. 4: 201 (1837).

Slevogtia verticillata D. Don. in Trans. Linn. Soc. 17: 532 (1837) nom illeg. based on *Gentiana verticillata* Linn. fil.; *S. orientalis* Griseb. in DC. Prod. 9: 65 (1845), nom illeg.

Hippionum verticillatum O. Ktze. Rev. Gen. Pl. 428 (1891) for the greater part, excluding the American reference.

Lectotype: I nominate the Fabricius specimen No. 328.30 in the Linnean Herbarium as the lectotype of *Enicostema hyssopifolium* (Willd.) Verdoorn. Willdenow's first reference under *Exacum hyssopifolium* is "Linn. f. Suppl. 174", where the Fabricius specimen from India is described.

The first record of this species was that of Linnaeus filius in the Supplementum 1781 when describing a Fabricius specimen from India. It was classified by him as *Gentiana verticillata* Linn., an American species. Willdenow in 1798 recognized this as an error and not only distinguished between the American and Indian specimens but transferred them both to the genus *Exacum*. The American plants he placed under *Exacum verticillatum* (L.) Willd. and gave the name of *Exacum hyssopifolium* to the specimen recorded by the younger Linnaeus in Supplementum. No mention is made by Linnaeus or Willdenow of the unusual double hooded gland at the base of the filaments. This has proved to be a diagnostic character and in 1826 Blume described the genus *Enicostema* meaning "singular stamen" for a specimen from Java. Independently three other genera were described to take the same taxon, but *Enicostema* is the earliest legitimate generic name. This name is therefore combined above with the earliest legitimate specific epithet "hyssopifolium" of Willdenow.

I. C. VERDOORN

SEBAEA

Sebaea fourcadei W. *Marais* sp. nov. *S. ramosissimae* affinis sed inflorescentia compactiore, calycis segmentis stramineis fragilibus, corollae lobis quam tubum longioribus differt.

Herba annua, gracilis, erecta ad 25 cm alta. *Caulis* simplex vel basi ramosus. *Folia* ovato-orbiculata vel superne ovata, ad 1 cm longa, 1 cm lata, obtusa vel subacuta, paribus paucibus, internodiis longis. *Inflorescentia* corymbosa, pauci- vel pluriflora. *Calyx* 5-fidus; segmenta 4.75–5 mm longa, 1–1.5 mm lata, lanceolata vel elliptico-lanceolata, acuminata mucronata, carinata, marginibus membranaceo-opacis, fragilibus. *Corolla* flava; tubus 3–4 mm longus; lobi 2.75–3.5 mm longi, 1–1.25 mm lati, anguste-elliptici vel anguste ovato-elliptici, oblanceolati, obtusi, nonnumquam leviter cucullati. *Filamenta* 0.25 mm longa in faucibus inserta; anthera 0.875–1.25 mm longa, glandulis 3 parvis flavis globosis breviter stipitatis ornata. *Stylus* 2.75–3.75 mm longus, infra vel plus minus medio callo instructus stigmatibus capitato 2-lobato.

CAPE.—Knysna: Belvedere, *Duthie* 1175 (K). Humansdorp: Geelhoutboom. *Fourcade* 4880 (K, holo!).

Slender, erect, annual herbs, simple or branched near the base, up to 25 cm high. *Leaves* up to 1 cm long and 1 cm broad, ovate-orbicular or the upper ones ovate, obtuse or subacute, in relatively few pairs, the lower ones, soon dying off; internodes long. *Inflorescence* corymbose, few to several flowered. *Calyx* of 5 segments each 4.75–5 mm long, 1–1.5 mm broad, lanceolate or elliptic-lanceolate, acuminate-mucronate, their sides membranous-opaque, brittle and strawlike when dry, keeled. *Corolla* yellow; tube 3–5 mm long; lobes 2.75–3.5 mm long, 1–1.25 mm broad, narrowly-elliptic or narrowly ovate-elliptic to oblanceolate, rounded, sometimes slightly cucullate. *Filaments* 0.25 mm long, inserted in the corolla-sinuses. *Anthers* 0.875–1.25 mm long, each with three small round, shortly stipitate, pale yellow glands. *Style* and *stigma* 2.75–3.75 mm long, with a stigmatic swelling below or near the middle; stigma capitate, 2-lobed.

S. capitata Cham. et Schlechtld. var. **sclerosepala** (Schinz) *Marais*, stat. nov.

Basionym: *S. sclerosepala* Gilg ex Schinz in Mitt. Geogr. Ges. Lübeck 17: 23 (1903).

- S. micrantha** Cham. and Schlechtl. var. **intermedia** (Cham. and Schlechtl.) Marais, comb. nov.
 Basionym: *S. cordata* var. *intermedia* Cham. and Schlechtl. in *Linnaea* 1: 191 (1826).
- S. Zeyheri** Schinz subsp. **acutiloba** (Schinz) Marais, stat. nov.
 Basionym: *S. acutiloba* Schinz in *Bull. Herb. Bois.* 3: 412 (1895).
- S. Zeyheri** Schinz subsp. **cleistantha** (R. A. Dyer) Marais, stat. nov.
 Basionym: *S. cleistantha* R. A. Dyer in *K.B.* 1933: 461.
- S. pentandra** E. Mey var. **burchellii** (Gilg) Marais, stat. nov.
 Basionym: *S. burchellii* Gilg in *Bot. Jahrb.* 26: 89 (1898).
- S. sedoides** Gilg var. **confertiflora** (Schinz) Marais, stat. nov.
 Basionym: *S. confertiflora* Schinz in *Mitt. Geogr. Ges. Lübeck* 17: 51 (1903).
- S. sedoides** Gilg var. **schoenlandii** (Schinz) Marais, stat. nov.
 Basionym: *S. schoenlandii* Schinz in *Bull. Herb. Boiss ser 2, 6:* 741 (1906).

LECTOTYPES IN SEBAEA

Sebaea laxa N.E. Br. in *Kew Bull.* 1901: 128 (1901).

Syntypes: *Burchell* 7089 and *Galpin* 4337. Lectotype: *Galpin* 4337 (K).

On the sheet of *Galpin* 4337 which N. E. Brown examined there are some dissected flowers indicating that this specimen was studied in more detail than *Burchell* 7089.

Sebaea compacta Hill.

Lectotype: *Barber* 21 (K). Selected because it is the best of the syntypes as far as state of preservation and amount of material is concerned.

S. Zeyheri Schinz subsp. **acutiloba** (Schinz) Marais.

Lectotype: *Schlechter* 3045 (K).

Schinz cites two specimens with his description of *S. acutiloba* in *Bull. Herb. Boiss* 3: 415 (1895), namely, *Schlechter* 3045 and *Wood* 4950, both from Clairmont, Natal. As *Schlechter*'s specimens are usually represented in several herbaria and there is only a fragment of *Wood* 4950 in the Kew Herbarium, I select the Kew sheet of *Schlechter* 3045 as lectotype.

BELMONTIA AND EXOCHAENIUM SYNONYMOUS WITH SEBAEA

In the *Flora Capensis* (4, 2: 1057, 1909) Hill and Prain follow Schinz and sink *Belmontia* E. Mey. under *Sebaea* R. Br. while maintaining *Exochaenium* Griseb. as a distinct genus. Phillips in his *Genera of South African Flowering Plants* (1951) follows Bentham and Hooker who treat *Exochaenium* as being synonymous with *Belmontia*, which genus they maintain as distinct from *Sebaea*.

In my work on the "Flora of Southern Africa", I have come to the conclusion that both *Belmontia* and *Exochaenium* are inseparable from *Sebaea* and they will be treated as synonyms of the latter genus in the "Flora". Some of the reasons that led to this decision are as follows: The main distinguishing features between *Belmontia* and *Exochaenium* collectively on the one hand and *Sebaea* on the other, are, the presence in the former group of disc-glands between the calyx and the corolla, the style being without a two glandular swelling and the stamens included in the corolla-tube instead of being inserted in, or shortly below, the sinuses of the lobes and exerted from the tube. In several instances these characteristics have proved to be diagnostically unreliable. For instance, in the species *Sebaea thomasii*, disc-glands are sometimes present and sometimes not. Then again in *S. micrantha* and *S. exacoides*, while the stamens are included in the corolla-tube, a characteristic of *Exochaenium* and *Belmontia*, glandular swellings are present on the styles, features of *Sebaea*.

W. MARAIS

GESNERIACEAE

Streptocarpus rimicola Story, sp. nov., *S. pumilo* Burt affinis, sed stylo brevior et floribus albis differens.

Herba acaulis unifoliata, raro folio altero minimo. *Folium* plerumque c. 4×2 cm ($1.5 \times 1-6.5 \times 2.5$), late ovatum vel angustum et acuminatum, leviter serratum, chartaceum vel coriaceum, utrinque villis eglanduliferis, venis supra impressis subtus prominentibus, hypocotylo plerumque minutissimo, raro ad 1 cm longo. *Inflorescentia* villis glanduliferis et eglanduliferis, ad 7 cm alta, plerumque 3-4. *Pedunculi* numero ad 4 plerumque solitarii, quisque ad 9 plerumque 2-3 flores ferens. *Bracteae* minutae. *Pedicelli* 1 ad 2.5 cm longi interdum ramosi. *Calyx* ad basin partitus, lobis 2×0.5 mm. *Corolla* alba 1 cm longa; tubus cylindricus basi saccatus, leviter supinus, 8 mm longus 2-3 mm diam., intus glaber (crista villorum eglanduliferorum pellucidorum vel purpureo-tinctorum super antheris excepta); limbus vix obliquus, lobis orbicularibus c. 3 mm longis et latis. *Orbis* annularis leviter lobatus viridis. *Androecium* staminibus corollae basi ab 1 mm insertis; filamenta glabra pellucida 4 mm longa; staminodia 3, pariter basi ab 1 mm inserta, 2 c. 1 mm longa, 1 brevius. *Gynoecium* ovario 2-2.5 mm longo; stylus 3-3.5 mm longus, apicem versus glaber et subito deflexus; stigma capitatum, paulum ultra antheras eminens. *Capsula* robustior, 8-10 mm longa, ad 2.5 mm lata; stylus persistens 3-3.5 mm longus.

TRANSVAAL.—Warmbaths district: Farm Groothoek 1246, western extremity of Waterberg mountains, steep south-facing mountain side, under overhanging ledges, 6,000 ft., Codd 3974; Codd 6486 (PRE, holo.); Story 6517.

A stemless unifoliate herb, rarely with a second much smaller leaf. *Leaf* dark green above, paler and sometimes reddish below, usually about 4×2 cm (in flowering specimens ranging from 1.5×1 to 6.5×2.5), sometimes broadly ovate, sometimes narrowly oblong and acuminate, often withered at the tip, slightly serrate, chartaceous to coriaceous, with non-glandular hairs on both surfaces, veins sunken above, prominent below, hypocotyl usually not noticeable, rarely up to 1 cm long. *Inflorescence* with glandular and non-glandular hairs, up to 7 cm high but usually 3 to 4. *Peduncles* up to four but usually solitary, each bearing up to nine but usually two or three flowers. *Bracts* minute. *Pedicels* 1-2.5 cm long, sometimes branched. *Calyx* lobed to the base, lobes 2×0.5 mm. *Corolla* white, 1 cm long; tube saccate at base, slightly curved upwards, 8 mm long, 2-3 mm diam., glabrous within except for a patch of light purple or colourless 2-celled smooth-walled; eglandular hairs above the anthers; limb scarcely oblique, lobes rounded, about 3 mm long and as wide. *Disc* annular, fleshy, slightly lobed, light green. *Androecium* with stamens inserted 1 mm from the base of the corolla-tube; filaments glabrous, colourless, 4 mm long; anthers colourless; staminodes 3, inserted 1 mm from the base of the tube, two of them about 1 mm long, the third smaller. *Gynoecium* in freshly-opened flower with ovary 2-2.5 mm long; style 3-3.5 mm long, glabrous near the tip which is sharply bent down; stigma capitate, projecting a little beyond the anthers. *Capsule* erect, fairly stout, 8-10 mm long, up to 2.5 mm wide; style persistent, 3-3.5 mm long.

The highest peak in the Waterberg (6,841 feet) is at the western edge of the range, which at this point falls abruptly away into the sandy flats of the north-western Transvaal and the Bechuanaland Protectorate. According to available records, *Streptocarpus rimicola* occurs only on this peak, and even here the plants are apparently restricted to the southern aspect and to the sheer cliffs which make up the last three hundred feet or so. There is an annual rainfall of about 30 inches which falls mainly in summer, but the plants depend less on direct rainfall than on seepage and mist, for they grow mostly in deep shelter under rock ledges. They have so far not been found near the bottom of the cliffs, although there are as many crevices and ledges there and these provide apparently ideal conditions for their growth. Presumably there is less mist

near the bottom and therefore not enough moisture for them. It was interesting to find that the only other member of the genus recorded from this locality also has a very small altitudinal range. Below the cliffs are steep grassy slopes covered with boulders of all sizes, and a little way above the trees which clothe the lower slopes of the mountain is a narrow zone of *Streptocarpus vandeurei* growing on the shady side of the boulders wherever there is shelter and a little soil. The plants occupy about 200 yards of mountain slope, roughly 300 feet of altitude.

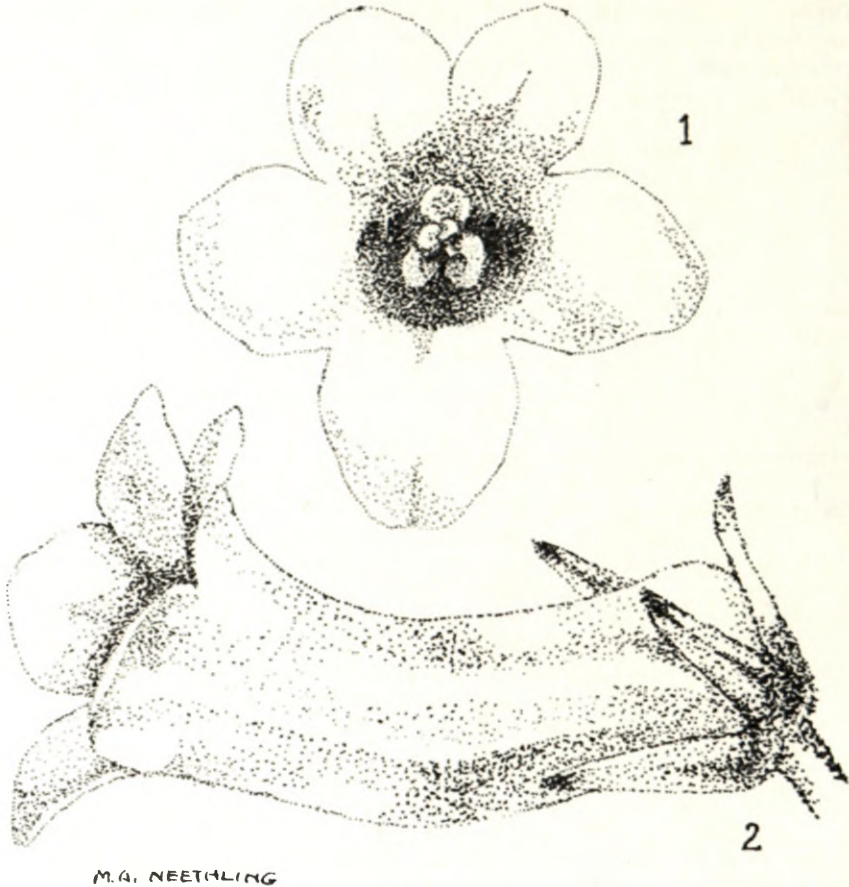


FIG. 1.—*Streptocarpus rimicola*; 1, front view of flower; 2, side view, both $\times 8$.

Streptocarpus rimicola is often massed together in small irregular patches, but as it blooms sporadically it does not make a show. By about the middle of April the flowering season is over. The flower is tilted upwards and has the anthers only lightly connivent and often separate by the time it is fully open.

The plant is about the same size as *Streptocarpus pumilus*, and closely related. Flower colour is a rather unreliable character in the genus but the specific rank of *Streptocarpus rimicola* appears justified by the other differences which are set out in tabular form at the end of this paper. The hypocotyl is as a rule imperceptible when the plant is growing and the bracketed figure in the table gives the length of the only one of that size seen among the hundreds of plants which were examined. Our only

specimen of *Streptocarpus pumilus* indicates also that it has a more slender capsule than *Streptocarpus rimicola* and a narrower corolla-tube. This last point was confirmed by Mr. B. L. Burtt, the author of *Streptocarpus pumilus*, who kindly reported on a specimen sent to him.

Streptocarpus pumilus

1. Flower mauve.
2. Hypocotyl up to 3 cm long.
3. Stamens inserted 6 mm from base of corolla tube.
4. Ovary 2 mm long, style 8 mm long.

Streptocarpus rimicola

1. Flower white.
2. Hypocotyl less than 0.5 cm long (rarely up to 1 cm).
3. Stamens inserted 1 mm from base of corolla tube.
4. Ovary 2-2.5 mm long, style 3-3.5 mm long.

R. STORY

GRAMINEAE

Digitariella de Winter, genus novum, affinis *Digitariae*, sed ita differt: spicula basi in pseudo-callum producta, gluma inferior ab superiore internodio distincto separata, gluma superior et lemma inferius in apicem attenuatum subaristatum sensim producta.

Annual, culmis ramosis ascendentibus, nodis villosis, vaginis nodis superantibus, ligula brevi truncata membranacea, laminiis linearibus vel lineari-lanceolatis glabris margine crenulatis. *Inflorescentia* 2-3 racemis spiciformibus digitate confertibus. *Spiculae* binae vel solitariae. *Gluma* inferior parva, squamiformis, enervis, longe infra glumam superioram inserto internodio distincto separata. *Gluma* superior anguste lanceolata 3 mm longa et 0.75 mm lata, sensim in apicem subaristatum 2.5 mm longum producta, 7-nervis cum linea pilorum inter nervos uterque latere costae mediani et ad margines. *Flos inferior* ad lemma reductus. *Lemma* inferius 3 mm longum 0.75 mm latum anguste lanceolatum 5-nerve, haud aristatum. *Flos superior* fertilis, lemmate coriaceo lanceolato-naviculari 2.5 mm longo, breve mucronato, palea coriacea naviculari 2-nervi, lodiculis truncatis, cuneatis enervibus. *Stamina* 3, antheris basi obtuse sagittatis oblongo-ellipticis 0.5-0.6 mm longis, ovario glabro stylis distinctis stigmatibus plumosis. *Caryopsis* libera ambitu oblanceolato-elliptica; embryo 1.3-3.5 longitudinis caryoptidis; hilum subbasale, ellipticum.

Species unica, Africae tropicae austro-orientalis incola.

Digitariella remotigluma de Winter, sp. nov.

Annual with ascending branched culms, often rooting at the nodes. *Nodes* sparsely villous. *Leafsheaths* exceeding the nodes, striate, slightly keeled, glabrous. *Ligule* a short membrane. *Collar* glabrous. *Leafblade* linear to linear-lanceolate, glabrous; margin distinctly undulate-crenulate. *Inflorescence* consisting of 2-3 digitately arranged spikelike racemes; racemes 2.5-6 cm long. *Spikelets* usually in pairs, one shortly pedicelled, the other pedicel longer, very occasionally single, abaxial in relation to the axis. *Lower glume* a small nerveless, membranous scale, distant from the upper, clasping the calluslike prolongation of the base of the spikelet. *Upper glume* produced downwards into the callus, connate with it, narrowly lanceolate, gradually produced into an awn-like apex 2-2.5 mm long, 7-nerved, body of the glume about 3 mm long and 0.75 mm wide, nerves on each side of the midnerve approximate, with a line of hairs between them and along the margin; margins somewhat inflexed. *Lower floret* reduced to the lemma. *Lower lemma* narrowly lanceolate, 3 mm long and 0.75 mm wide, acuminate, not awned, 5-nerved, hairy between the lateral nerves, and on the margins.

Upper floret fertile. *Upper lemma* coriaceous, white, lanceolate in outline, boat-shaped, 2.5 mm long and 1 mm wide when spread out, acuminate and shortly mucronate. *Palea* coriaceous, lanceolate in outline, boat-shaped with inflexed margins, 2-nerved. *Lodicules* truncate, cuneate, nerveless. *Stamens* 3; anthers bluntly sagittate at the base, oblong-elliptic in outline, about 0.5–0.6 mm long. *Ovary* glabrous; styles distinct; stigmas plumose, purple. *Caryopsis* tightly enclosed by the lemma and palea but free, oblanceolate-elliptic, whitish, opaque; embryo about 1/3–3/5 the length of the grain; hilum sub-basal, narrowly elliptic, brownish.

SOUTH WEST AFRICA.—Okavango Native Territory: Junction of Mpungu Omuramba and Okavango River between Tondoro and Lupala, soft annual with yellow-green inflorescences on swampy edges of lagoon, 17–12–1955, B. de Winter No. 3978 (PRE, holo; K.M.B, BM, SRGH, Windhoek, iso.); River flats below visitors camp at Runtu, peaty black soil, annual grass growing in moist places on floodplain of river, 22–12–1955, B. de Winter No. 4037. Eastern Caprivi: Mpilila Island, frequent on banks of Zambesi River, Killick and Leistner 3370.

This interesting new genus belongs in the somewhat loosely defined group of the Paniceae sometimes referred to as the *Digitariastrae*. The *Digitariastrae* are characterised as follows: fertile valves thinly chartaceous to cartilaginous with margins hyaline to subhyaline, inflexed but not inrolled, and the position of the spikelet abaxial in relation to the rhachis (upper glume and upper lemma with their surfaces adjacent to the axis).

The closest affinity of *Digitariella* is *Digitaria* as implied by the name. It agrees with *Digitaria* in the loosely paired spikelets, the digitate inflorescence and the approximate lateral nerves of the lower lemma with a line of hair between them. The main differences are the elongated calluslike prolongation of the base of the spikelet and the much attenuated awnlike apices of the lower glume and lemma.

It also agrees in general in the structure of the spikelets with genera such as *Oryzidium* and *Louisiella*. These genera however differ in the adaxial orientation of the spikelet, that is the lower glume and lower lemma are turned towards the axis. Though allied to these genera the affinity is obviously less close than to the members of the *Digitariastrae*.

The basal prolongation of the spikelet of *Digitariella* is not a true callus but is formed by the fusion of the base of the upper glume and rhachilla. This calluslike prolongation strongly reminds one of that found in the South American genus *Chaetium* from which *Digitariella* differs by the orientation of the spikelet and by the minute remote lower glume. In *Chaetium* the callus is formed by the fusion of the rhachilla and the bases of both the glumes. The glumes moreover are large and equal or exceed the spikelets in length. *Chaetium* cannot therefore be regarded as very closely allied to *Digitariella*.

Eragrostis aristata de Winter, sp. nov., aff. *E. crassinervi* Hack. sed lemmatibus 3-lobatis, nervo mediano in aristam brevem terminanti, nervis lateralibus in mucrones breves excurrentibus, omnibus nervibus et carinis palearum spinis brevibus hyalinis scaberrimis, gluma superiore 3-nervata.

Annua 30–75 cm alta. *Vaginae* internodiis breviores, carinatae, carinis cum glandulis minutis demersis vel crateriformibus. *Ligula* pilis longis hyalinis ciliata. *Lamina* infra galbra, nervis glandulosis scabridis exceptis. *Panicula* ad 30 cm longa 15 cm lata, ramis primariis patentibus, spiculis in ramis secundariis, subdense aggregatis, ramis rhachidibusque scabridis glandulosis. *Spiculae* breve pedicellatae vel sessiles ca. 6 mm longae 4 mm latae. 5–12-florae. rhachilla persistenti, glumis inequalibus, inferioribus 1-nervatis, superioribus 3-nervatis, frequenter plusminusve 3-lobatis, ad nervos glandulosis, lemmatibus 3-lobatis, nervo mediano in aristam ad 1.5 mm longam excurrenti, nervis lateralibus in mucrones terminantibus, nervis scabridis glandulosis,

paleis carinis scabridis bicarinatis. *Stamina* 3, antheris oblongis 0.5–0.6 mm longis. *Ovarium* glabrum. *Lodiculae* truncatae glabrae. *Caryopsis* oblonga lateraliter leviter compressa.

SOUTH WEST AFRICA.—Omaruru: Namib, Brandberg, annual, along river bed, abundant, *Schweickerdt* 2252 (PRE, holo. K. iso); Brandberg, Hungarob ecke, *Wiss* 1504; Brandberg valley, *Liebenberg* 5019.

Annual, 30–75 cm high. with soft erect or geniculate 2–4-nodes culms. *Sheaths* pallid, fairly tight. usually shorter than the internodes, soft, glabrous, distinctly ribbed with small sunken or crateriform glands on the ribs especially below the collar and above the nodes. *Ligule* a fringe of long hyaline bristly hairs; auricles glabrous. *Leafblade* flaccid, glabrous below, with sunken glands on the nerves, scabrid on the nerves on upper surface, usually flat; margin scabrid and with small crateriform glands. *Panicle* exerted when mature, up to 30 cm long and 15 cm wide, primary branches spreading, not whorled, single or opposite, spikelets clustered on the short secondary branchlets, axis and branches ribbed with small crateriform glands on the ribs and scabrid with short hyaline spines. *Spikelets* shortly pedicelled or sessile on the secondary branchlets, about 6 mm long and 4 mm wide, green to deep purple in colour, 5–12-flowered, breaking up from below, paleas usually persistent on the rachis. Florets hermaphrodite. *Glumes* unequal to subequal, lower one-nerved, about 1 mm long, upper 3-nerved, often somewhat tri-lobed at apex, 1–1.75 mm long, usually with raised glands on or near the nerves, nerves usually scabrid. *Lemmas* tri-lobed, 2–3.5 mm long, ovate, 3-nerved, midnerve excurrent into an awn up to 1.5 mm long, lateral nerves very shortly awned to mucronate, body of lemma 1.5–2 mm long, strongly keeled along midrib and lateral nerves, scabrid on the nerves and with small raised glands. *Palea* strongly curved, bi-keeled, keels scabrid with hyaline spines. *Stamens* 3; anthers oblong, 0.5–0.6 mm long, yellow. *Ovary* glabrous; styles free; stigma plumose. *Lodicules* somewhat fleshy, truncate, glabrous. *Caryopsis* oblong, somewhat laterally compressed, pale to deep brown; embryo about 1/2–3/5 the length of the caryopsis; hilum punctiform, basal.

This species has so far only been collected in the vicinity of the Brandberg in South West Africa. It can be expected to occur in the marginal Namib desert right up to the Kunene and possibly a little way beyond into Angola, this area offering similar ecological conditions as those encountered at the Brandberg.

At the first glance *E. aristata* can hardly be recognised as a species of *Eragrostis*, especially when the specimens are not fully mature. It is so obviously related with *E. crassinervis* Hack. however that including it in the same genus as the latter is the only logical way to treat it. *E. crassinervis* has the nerves of the lemmas excurrent into very short mucros, and the awns of *E. aristata* can only be regarded as a further development in this direction. Except for the awned lemmas and 3-nerved upper glume, all the other characteristics agree with those of typical *Eragrostis* species. Three-nerved glumes occur also in *E. bergiana*, *E. truncata* and several other species.

***Eragrostis glandulosipedata* de Winter, sp. nov., aff. *E. porosae* Nees, sed spiculis majoribus, lemmatibus latioribus et longioribus, pedicello glanduloso differt, necnon affinis *E. omahekensi* de W. sed ab ea lemmatibus brevioribus apice obtusis vel subobtusis recedit.**

Annua vel *subperennis* 4–100 cm alta. *Culmi* erecti geniculati vel adscendentes, simplices vel ramosi, 2–4 nodosi. *Vaginae* internodiis breviorae, laxae, glabrae vel sparse pilosae, costis glandulosis. *Ligulae* dense ciliatae. *Laminae* flaccidae plerumque planae, glabrae vel sparse pilosae. *Panicula* angusta, plus minusve contracta vel laxa, ramis basi verticillatis apicem versus solitariis vel binis vel ternis plerumque prope basim glandulis immersis. *Spiculae* 6–10-florae, 4–6 mm longae 1.5–2 mm latae, glumis inaequalibus, 1-nervatis acutis, carinis scabridis. *Stamina* 3, antheris 7–10 mm longis. *Caryopsis* oblonga vel late oblonga, subtranslucens.

TRANSVAAL.—Potgietersrus: Roedtan, *Barenbrug* s.n.; Singapore Cash Store, Grass Valley, *de Winter* 2332 (holotype, PRE, isotype, K, BM, M, B, SRGH, EA, BOL); Roedtan, *de Winter* 2224; Roedtan, *de Winter* 2290.

SOUTH WEST AFRICA.—Grootfontein: Awagobib, *Volk* A. 11; Asis, *Volk* A. 60 and 656; Hairabib, *Volk* 504; Auros, *Volk* 616 and 633 (635); Ossa, *Volk* 669; 23·5 m, E. of Otavi on rd. to Grootfontein, *de Winter* 2865; Rietfontein, *Schweickerdt* 2091; Kumkauas, *Kinges* 2797; Auros, Schoenfelder S 563. Okahandja: Teufelsbach, *de Winter* 2694; Okakuja, *Grossarth* s.n.. Tsumeb: Etosha Pan, *de Winter* 2965; Between Tsumeb and Namutoni, *de Winter* 2950. Outjo: Gainatzeb, *Volk* 2670.

KENYA.—Nairobi, Bogdan A.B. 3119 (K).

Annual 4–100 cm high, culms erect, geniculate-ascending or the lower internodes prostrate but not rooting at the nodes, simple or branched, 2–4 noded, internodes hollow, compressible, with a glandular ring just below the nodes, ultimate internode long exerted when mature. *Sheaths* shorter than the internodes, lax, glabrous or hairy with bulbous-based hairs, shiny, glandular on the ribs, especially on the midrib above the node and below the junction of the blade and sheath. *Collar* with a fringe of stiff hyaline hair. *Ligule* a short dense fringe of hair. *Leafblade* linear, flat or somewhat rolled, distinctly veined below, striate above, scaberulous on the striae, glabrous or sparsely hairy, glandular on the midrib or without glands, tapering to a fine point. *Panicle* rather dense or lax, narrowly ovate-oblong to narrowly-oblong, branches whorled at the base, three or two together or single towards the apex, not spreading and somewhat appressed to the rachis; rachis glabrous, often glandular below the lower whorls of branches. *Spikelets* pedicelled, 6–10-flowered, 4–5 mm long and 1·5–2 mm broad, blackish or greenish grey to ashgrey in colour; rhachilla tardily disarticulating between the florets. *Florets* awnless, hermaphrodite. *Glumes* 1-nerved, unequal, lanceolate in side view, membranous, acute, scabrid on the keels; lower about 1 mm long, upper about 1·5 mm long. *Lemmas* 1·5–1·7 mm long, broadly elliptic to broadly oblong-ovate, scabridulous especially near the apex, 3-nerved, nerves rather prominent, apex obtuse to subacute. *Palea* as long as lemmas, membranous, hyaline, bi-keeled, scaberulous. *Lodicules* truncate, cuneate, small. *Stamens* 3; anthers 0·7–1 mm long, cultrate, yellow. *Ovary* glabrous; styles free; stigmas 2, plumose. *Caryopsis* oblong to broadly oblong, 0·6–0·9 mm long, pallid to brownish, semitranslucent; embryo half the length of the grain, brownish green; hilum punctiform, basal.

E. glandulosipedata has an interesting distribution. It is common in the Grootfontein, Tsumeb and Outjo districts of South West Africa and has also been recorded from the sandy parts of the Springbuck Flats near Roedtan and Grass Valley in the Transvaal. One specimen which undoubtedly also belongs here, was collected by Bogdan at Nairobi, Kenya. Although very interrupted this distribution follows a pattern observed in the case of a number of other species, such as *Tetrapogon tenellus*, *Eragrostis pseudo-sclerantha* and others. Like in many other annual grasses there is a great variation in the size of the individuals of this species. In good years they may reach a height of over 1 m while the author has collected specimens barely reaching 10 cm growing on dry brackish soils at Namutoni. The spikelets however remain characteristic and show little variation even in size.

Eragrostis kingesii *de Winter*, sp. nov., aff. *E. procumbenti* Nees, sed ab ea spiculis minoribus, lemmatibus brevioribus, carinis et nervis lateralibus scabridioribus recedit.

Annua, decumbens vel suberecta, parva. *Culmi* geniculati, 2–4 nodosi, ramosi, glabri. *Vaginae* glabrae, carinis costisque glanduloso-punctatis. *Ligula* ciliata. *Lamina* plana, costa media glanduloso-punctata. *Panicula* subdense contracta, ramis solitariis el binis vel ternis e basi ramosis, omnibus glandula subbasali, pedicellis apice glandula annulari. *Spiculae* plumbeae ca 5 mm longae 1–1·5 mm latae, 7–14-florae paleis persistentibus, glumis et lemmatibus post maturitatem deciduis, glumis subaequalibus

quam lemma superius brevioribus, lemmatibus depresso cymbiformibus late ellipticis ambitu oblongis scabridis ad nervos cum glandulis paucibus demersis, paleis quam lemmata brevioribus. *Stamina* 3, antheris globosis 0.3 mm longis. *Caryopsis* late oblongo-elliptica. subtranslucens.

SOUTH WEST AFRICA.—Luederitz: Farm Klein-Aus, decumbent annual around farm houses. 12 5 49. *Kinges* 2236 (holotype, PRE: isotypes, K, M, BM, Windhoek); 8 m. W. of Aus on rd. to Luederitz. *de Winter* and *Giess* 6083.

Decumbent or semi-erect *annual*, only a few cm high. *Culms* geniculate, 2–4-noded, freely branched, internodes often exposed, semi-terete to flattened, distinctly grooved, glabrous, with an annular glandular ring just below the node. *Sheaths* chartaceous, lax and slipping from the culms, glabrous, ribbed, dotted with sunken glands on the ribs and keel, margins subhyaline, membranous. Ligule a fringe of short stiff hairs. *Collar* glabrous, auricles bearded with long stiff hyaline hairs. *Leafblade* up to 2 cm long and 3.0 wide, soft, more or less flat, subglabrous, dotted with sunken glands on the midrib, secondary veins and margin. *Panicle* fairly densely contracted, rigid, erect, 4–5 cm long and 2–2.5 cm wide, branches single or 2–3 together, divided from the base, branchlets and peduncles short, all divisions with a gland below each branching point, and an annular gland on each pedicel. *Spikelets* leadgrey, about 5.0 mm long and 1–1.5 mm broad, narrowly lanceolate-cultrate in shape, 7–14-flowered, breaking up from below upwards, paleas persistent, lemmas and glumes falling after maturity. *Glumes* subequal, shorter than the subtended lemma, one-nerved, boat-shaped: lower about three-quarters the length of the upper, lanceolate and acute in profile, keel scabrid occasionally with one or two glands; upper obliquely ovate in profile, keel scabrid. *Lemmas* shallowly boatshaped, broadly elliptic-oblong in dorsal view, 3-nerved, scabrid and with a few sunken glands on the nerves. *Pales* about three-quarters the length of the lemmas, strongly bikeeled, scabrid on the keels, persistent. *Lodicules* truncate, cuneate, 0.2 mm long, fleshy. *Stamens* 3, anthers subglobose, small, 0.3 mm long, yellow. *Ovary* glabrous, styles distinct, stigmas plumose. *Caryopsis* semi-translucent, finely striate, broadly oblong-elliptic in ventral view. *Embryo* half the length of the grain. *Hilum* punctiform, basal.

This species prefers disturbed soil and is usually found on roadsides or around farm houses where it grows as a weed. Like other annual semi-desert species it shoots up after rain, flowers and fruits within a few weeks and dies. It is quite an amazing sight to see these little plants hanging by thin taproots from the side of a bone dry sandbank and still being fresh and green.

This small annual is closely related to *E. procumbens*, which likewise occurs in the dry areas of the Free State, Cape and South West Africa. It differs from the latter as set out in the description and is a smaller plant with less dense inflorescences. *E. procumbens* has as yet not been recorded from the coastal Namib and the areas of distribution therefore do not overlap.

***Eragrostis lamprospicula* de Winter, sp. nov., *E. membranaceae* Hack. affinis, sed perenni, cetera spiculis minoribus, inflorescentia minus ramosa ab ea distinguenda.**

Perennis, erecta. *Culmi* simplices 2–5-nodosi, ad 65 cm alti, infra nodos annulo glanduloso, nodis glabris. *Vaginae* glabrae carinatae, glanduloso-punctatae. *Ligula* brevis ciliata. *Laminae* lineares 5–10 cm longae. *Panicula* laxa, sparse ramosa, ad 12 cm longa 6 cm lata, ramis gracilibus flexuosis, pedicellis 5–12 mm longis apice glandula annulari, spiculis ovato-ellipticis ad anguste oblongis 6–15 mm longis, 6–25-floris, glumis subcoriaceis inaequalibus, uninervatis, lemmatibus coriaceis levibus nitidis latissime ovatis acutis 2–2.5 mm longis 1.75–2 mm latis nervis 3 inconspicuis, palea elliptica 2 mm longa bicarinata truncata membranacea, lodiculis 2 carnis cuneiformibus 2–3-nervatis, staminibus 3, antheris anguste oblongis 1 mm longis, ovario oblongo stylis 2. *Caryopsis* lateraliter compressa, 1.5 mm longa opaca; embryo dimidio quam granum longiore.



FIG. 2.—*Eragrostis omahekensis* de Winter; a, habit $\times 1$; b, spikelet $\times 10$.

TRANSVAAL.—Waterberg: Mosdene Farm near Naboomspruit; bare brack flats, occasional, 65 cm high, *de Winter* 734 (PRE, holo, K. BM, B, M, BOL. SARH, NY, iso.).

SOUTHERN RHODESIA.—Salisbury: Mrs. Kimpton s.n.

Erect and usually somewhat geniculate *perennial*. Culms simple, flattened towards the base, up to 65 cm high, glabrous, 2–5 usually 3-noded; internodes gradually decreasing in length downwards, exerted from the sheaths, with a ring of glands below the nodes; nodes glabrous usually purplish. *Leafsheaths* striate, glabrous, lower ones often tinged with purple, compressed and keeled, usually dotted with glands on the midrib below the collar and above the nodes, glabrous, bearded at the mouth, outer margin hairy with bulbous-based hairs. *Ligule* shortly ciliate. *Collar* inconspicuous, sometimes purplish, glabrous. *Leafblade* linear, up to 10 cm long, smooth and glabrous on lower surface, grooved and scaberulous on the nerves on upper surface. *Inflorescence* rather lax, sparsely branched, elliptic to ovate in outline, up to 12 cm long and 6 cm wide; basal branches subtended by a glandular patch, 2–4 together but not in a true whorl, paired and opposite or single upwards, fine and flexuous, purplish, bearing the spikelets on long fine alternating pedicels; pedicels 5–12 mm long with an annular often conspicuous gland below each spikelet. *Spikelets* ovate-elliptic to narrowly oblong, 6–15 mm long 6–25-flowered, pallid to gunmetal grey in colour. *Glumes* subcoriaceous, unequal, one-nerved; lower lanceolate, more or less 2 mm long, upper ovate-lanceolate, about 2·5 mm long. *Lemmas* coriaceous, shiny, broadly boatshaped, very broadly ovate in outline, acute, 2–2·5 mm long and 1·75–2 mm wide, 3-nerved, nerves inconspicuous. *Palea* elliptic in outline, 2 mm long, 2-keeled, membranous, margins inflexed, apex truncate. *Lodicules* 2, fleshy, truncate-cuneate, 2–3-nerved. *Stamens* 3; anthers narrowly oblong, about 1 mm long, yellow or purplish. *Ovary* shortly stalked, oblong; styles 2, distinct; stigmas plumose. *Caryopsis* somewhat laterally compressed, 1·5 mm long, obliquely ovate in profile; pericarp swelling and becoming mucilaginous when placed in water; endosperm whitish, quite opaque; embryo half the length of the grain, greenish.

E. lamprospicula is only known from two collections, one from Salisbury in Southern Rhodesia and the other from the Waterberg district of the Northern Transvaal. In spite of our scant records it is doubtful whether the species is rare. It is more likely that it has been overlooked due to its superficial similarity to *E. racemosa*.

The specific name is derived from lampro = shiny and spicula = spikelet an illusion to the glossy spikelets of the species.

Eragrostis omahekensis *de Winter*, sp. nov., affinis *E. horizontali* Peter, sed paniculis multo contractis lemmatibus longioribus et acutioribus glumis chartaceis olivaceis differt.

Herba annua caespitosa, culmis erectis vel ascendentibus. *Vagina* glabra vel sparse villosa, glandulosa vel eglandulosa. *Ligula* fimbriata. *Folia* plana, apice setacea. *Panicula* contracta, ramis glandula subbasali, brevibus, spiculis ramis appressis. *Spiculae* angustae oblongae, 5–7 mm longae 1·5 mm latae, 4–9-florae, lemmatibus et glumis deciduis. *Glumae* subequales, 1·5–2 mm longae. *Lemmata* chartacea, oblique lanceolata carinata, acuta, nervis lateralibus prominentibus. *Stamina* 3, antheris oblongis 5 mm longis. *Caryopsis* obovato-oblonga subtranslucens levis.

SOUTH WEST AFRICA.—Gobabis: 12·7 m. W. of Gobabis; *de Winter* 2498 (holotype, PRE, isotype, K, M, BM, Windhoek); 25 m. W. of Gobabis, *de Winter* 2498; near Steinhausen Police Station, *de Winter* 2435; Okasondana, *Schwerdtfeger* 4136; do *Liebenberg* 4560, 4663; Babibabi, *Liebenberg* 4663. Okahandja: *Bradfield* 387; Teufelsbach, *de Winter* 2695; Oukongo, *Dinter* 3364. Otjiwarongo: Quickborn, *Bradfield* 425 and 365.

Erect caespitose annual. *Culms* straight or somewhat geniculate at the base, single or branched, hollow, 2–4 noded, ultimate internode long exerted. *Leafsheaths* lax, mostly shorter than the nodes, keeled, finely to strongly ribbed, glabrous or sparsely

hairy with bulbous-based long hairs, gland-dotted on the keel and ribs with a short transverse fringe of stiff hyaline hairs below the auricles. *Ligule* a dense fringe of short hairs. *Leafblade* usually flat, somewhat flaccid, linear, up to 15 cm long and 0.5 mm broad, tapering to a fine point, glabrous or hairy with long bulbous-based hairs; veins slightly raised below, upper surface striate, scaberulous. *Panicle* usually contracted, very narrowly oblong to narrowly oblong-elliptic, 6–20 cm long 2–5 cm wide; branches short with spikelets densely clustered on them, ascending or more or less appressed to the rhachis; rhachis angular or nearly smooth, branches each with a gland at the base. *Spikelets* very narrowly oblong 5–7 mm long and 1.5 mm broad, dark-grey, 4–9-flowered, rhachilla not disarticulating, lemmas caducous after fruiting, paleas and glumes persistent on the rhachis. *Florets* hermaphrodite. *Glumes* subequal, one-nerved, lanceolate, scaberulous on the keels, 1.5–2 mm long. *Lemmas* chartaceous, obliquely lanceolate in profile, keeled, acute, 3-nerved, nerves prominent. *Lodicules* fleshy, cuneate, truncate, about 0.3 mm long. *Stamens* 3. *Anthers* 0.5 mm long, yellow. *Ovary* glabrous, styles distinct, stigma plumose. *Caryopsis* obovate-oblong, semi-transparent when mature, smooth; embryo $\frac{2}{5}$ the length of the grain; hilum basal, punctiform.

This annual grass is almost exclusively found on disturbed places especially along roadsides. On old lands it often forms extensive, practically pure stands. Where present in large quantities it should make an excellent hay.

E. omahekensis can fairly easily be confused with *E. horizontalis* but the much more contracted inflorescence, the longer and more pointed lemmas, as well as the firmer grey-green glumes makes it fairly easy to distinguish.

The specific name is derived from the Herero word "Omaheke" a term used to describe the sandy tree savannah of north-east South West Africa. Up to the present the species has not been recorded outside of this region.

***Eragrostis* × *pseud-obtusa* de Winter, sp. nov. (*E. obtusa* Munro × *E. echinochloidea* Stapf.)**

Planta perennis, caespitosa. *Culmi* 2–3-nodosi, 20–60 cm alti. *Vaginae* striatae, carinatae, carinis saepae glanduloso-punctatis. *Ligula* dense et breviter fimbriata. *Lamina* 5–14 cm longa, 2–3 mm lata, anguste spicata. *Paniculum* plerumque ovato-oblongum, ramis solitariis, angulis glanduloso-punctatis. *Pedicelli* spicularum orbi glanduloso. *Spiculae* late ovato-oblongae, 3–5 mm longae, 2.5–3.5 mm latae, 8–20-florae, olivaceae, lateraliter compressae, rhachilla disarticulata. *Glumae* subaequales, inferiores 1-nervatae superiores 3-nervatae, carinis glanduloso-punctatis. *Lemmata* late et profunde cymbiformia, prominenter 3-nervata. *Palea* 2-carinata, carinis sub media parte anguste alatis. *Stamina* 3, antheris anguste oblongis 0.7–0.8 longis. *Caryopsis* elliptica, 1 mm longa, bis vel ter quam embryo longior, hilo basali punctiformi.

CAPE.—Hopetown: Liebenberg 4150. Kimberley: Moran s.n. (Bolus H. No. 13905); Kameelhoek, Bruckner 21; Kenilworth, Levy s.n. (Galpin Herb. No. 6324); Swan s.n.; Wilman s.n. (N.H. No. 28349). Barkly West: Newlands, Wilman s.n. (Bolus H. No. 25457); Wilman s.n. (N.H. No. 28336); Acocks 140; Brueckner 823. Vryburg: Tiger Kloof, Brueckner 320 (PRE, holo); Armoedsvlakte, Mogg 3960; Mogg 3668; Stent s.n. (H. 21516); Benauwdheidsfontein, Marloth 863.

ORANGE FREE STATE.—Fauresmith: C. A. Smith 3879. Kroonstad: Bothaville, Schweickerdt 1113. Jacobsdal: Schweickerdt 1149.

TRANSVAAL.—Christiana: Burt Davy 11411. Bloemhof: Lombard Nature Reserve, Leistner 91. Wolmaransstad: Sutton 68.

Cultivated specimens.—Prinshof Experimental Station: Story 1940; de Winter 710. Johannesburg: ex Prinshof Experimental Station, R. de V. Pienaar s.n. (sp. 16 plant 4 and plant 2).

Dense erect caespitose *perennial*, culms straight, or geniculate at the base, mostly simple, occasionally branched, 2–3-noded, 20–60 cm high, nodes mostly exerted from the sheaths. *Sheaths* pallid often hairy on the margins, striate, keeled, finely gland-

dotted on the keel. *Auricles* softly bearded. *Ligule* a dense line of short hairs. *Leaf-blade* rolled or flat, linear, 5–14 cm long and 2·0–3·0 mm broad when flattened, primary nerves raised below, slightly raised above and scaberulous, tapering to a fine point, midnerve often finely gland-dotted below. *Panicle* lax to dense, more or less ovate-oblong in outline, branches divided once or twice, spikelets densely crowded on the branches, divisions angular, densely gland-dotted on the angles, pedicels of spikelets often with a glandular ring. *Spikelets* broadly oblong-ovate, 8–20-flowered; pallid or grey to gunmetal grey, rather plump, laterally compressed, 3–5 mm long and 2·5–3·5 mm broad; rachilla readily disarticulating above the glumes and between the florets. *Florets* hermaphrodite falling entire. *Glumes* sub-equal boatshaped, keeled dark metallic green, darker in colour than the glumes, obliquely lanceolate in side view, keels distinctly gland-dotted, apex acute to subacute; lower 1–3-nerved; upper 3-nerved. *Lemmas* broadly and deeply boatshaped, chartaceous, broadly elliptic in back view (not flattened), 3-nerved, nerves green, raised. *Palea* elliptic-oblong, slightly shorter than the lemmas, 2-keeled, keels narrowly winged below, shortly ciliate on the keels and less so on the wings, apex emarginate or more or less truncate to rounded, wings and keels firmer in texture. *Lodicules* small, oblong-cuneate, truncate, 0·5 mm long. *Stamens* 3, anthers 0·7–0·8 mm long, cultrate, yellow. *Caryopsis* elliptic, 1 mm long, brown, slightly dorsally flattened; embryo one-third to half the length of the grain; hilum basal, punctiform.

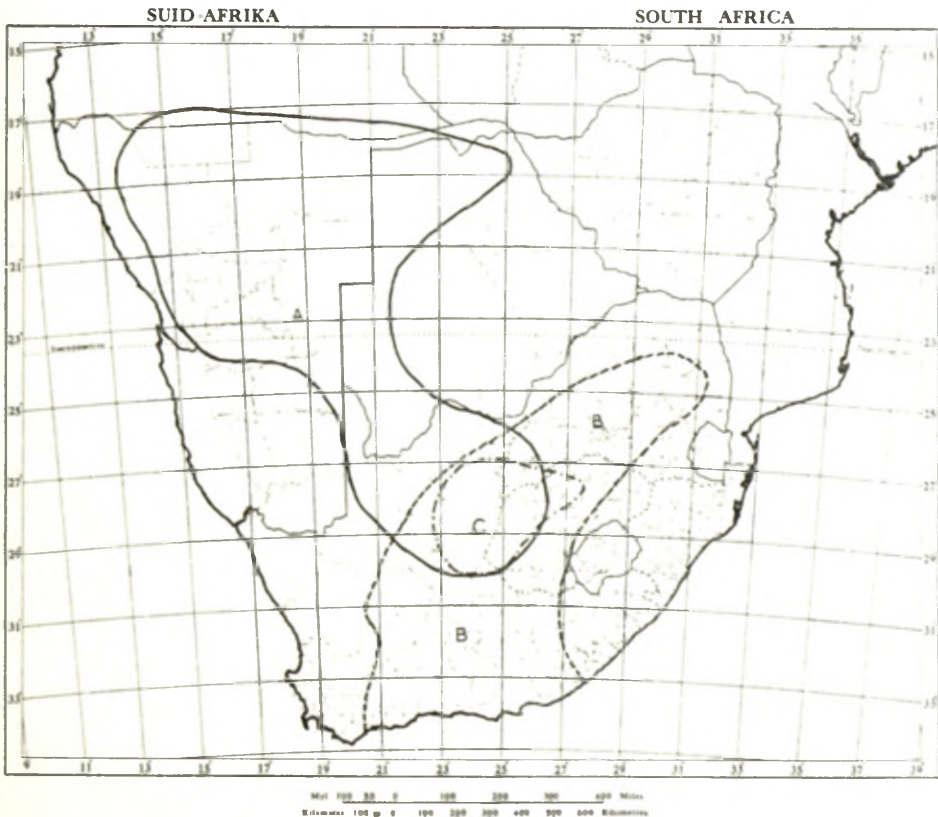


FIG. 3.—Distribution of: A, *Eragrostis echinochloidea*; B, *E. obtusa*; C, *E. x pseud-obtusa* (*E. echinochloidea* × *E. obtusa*).



FIG. 4.—*Eragrostis pseud-obtusa*; a, habit, $\times 1$; b, spikelet, $\times 10$; c, anther, $\times 10$; d, caryopsis, $\times 10$; e, palea of *E. pseud-obtusa*, $\times 10$; palea of *E. obtusa*, $\times 10$; f, palea of *E. echinochloidea*, $\times 10$.

E. pseud-obtusa occupies an intermediate position between *E. obtusa* and *E. echinochloidea*. The intermediates form a distinct group, situated, when judged on spikelet characters, halfway between the two species. No evidence could be found that these three species naturally grade into one another, in spite of the fact that a large number of specimens of each was available for study. From the rather limited distribution which almost completely covers the area where *E. obtusa* and *E. echinochloidea* overlap (fig. 3), as well as from the completely intermediate character of the spikelet (fig. 4) one can only conclude that the origin of *E. pseud-obtusa* must have been that of a hybrid between the former two species. There is no evidence however that introgressive hybridization has taken place. What the mechanism genetically separating *E. pseud-obtusa* from its parents is, is not clear. It probably is not stabilisation due to doubling of chromosomes, since *E. echinochloidea* and *E. pseud-obtusa* (as sp. aff. *obtusa*) are both reported to have $2n = 40$ by R. d. V. Pienaar in Grasses and Pastures of South Africa 561 (1955). The genome of *E. obtusa* is still unknown.

The great majority of specimens of *E. pseud-obtusa* have in the past, been referred to *E. obtusa*. This is no doubt due to the fact that *E. pseud-obtusa* more strongly resembles *E. obtusa* in the external appearance of the inflorescence and the spikelets than it does *E. echinochloidea*. When the spikelet is examined the winged palea is immediately evident so that the specimens can easily be distinguished from *E. obtusa*. Due to the very strongly congested branches of the inflorescence, as well as the acuminate glumes of *E. echinochloidea*, *E. pseud-obtusa* cannot easily be confused with it (fig. 4).

The following key will facilitate the identification of the species.

Pales shortly ciliate on the symmetrically rounded keels..... *E. obtusa*.
Pales with a small flap or wing in the lower half of the keels, upper part of keels scaberulous or shortly ciliate.

Branches of the inflorescence secund, very densely contracted with the spikelets densely clustered; glumes distinctly acuminate with the apices diverging and not appressed to the spikelet; flap or wing in the lower half of the keels of the palea usually with a short tooth on the upper part; upper part of keels scaberulous.... *E. echinochloidea*.

Branches of the inflorescence more or less secund, fairly strongly contracted or somewhat lax with the spikelets laxly to fairly densely clustered; glumes acute to subacute mostly appressed to the spikelet, flap or wing on the lower half of the keels of the palea without a tooth on the upper part; upper part of keels very shortly ciliate. *E. pseud-obtusa*.

Eragrostis remotiflora de Winter, sp. nov., aff. *E. micranthae*, sed ab ea lemmatibus brevioribus haud imbricatis, antheris late ovato-oblongis, caryopsis oblonga dorso canaliculata praecipue differt.

Annua vel *subperennis* 10–55 cm alta. *Panicula* plerumque basi vaginata, demum exserta, 5–20 cm longa 3–14 cm lata ambitu late ovata, laxa, ramis patentibus inferioribus subverticillatis, superioribus solitariis vel binis, rhachide et ramibus primariis saepe glanduloso-punctatis. *Spiculae* solitariae ca 5 mm longae 1 mm latae cinereo-virides vel plumbeae, 4–8-florae, lemmatibus haud vel paucè imbricatis, glumis valde inaequalibus, 1-nervatis, lemmatibus late ovato-oblongis. *Stamina* 3; antherae 0.3–0.4 mm longae. *Caryopsis* oblonga dorsaliter canaliculata.

TRANSVAAL.—Pretoria: in depressis humidis prope Apiesrivier, Jan., 1894. *Schlechter* 4164 (K); Kaalfontein, *Mogg* 3741. Bloemhof: Christiana, *Burt Davy* 12803 and 12795.

ORANGE FREE STATE.—Boshoff: 16 m. W.S.W. of Dealesville, *Acocks* 14016. Fauresmith: *Pole Evans* 1583. Bethulie: $7\frac{1}{2}$ m. N.W. of, *Acocks* 13521 (PRE. holo. K, M, B, BM, BOL, iso). Bloemfontein: *Potts* 2423, 2522.

CAPE.—Cradock: $12\frac{1}{2}$ m. N.N.W. of, *Acocks* 15764. Tarka: N.N.E. of Tarkastad. *Acocks* 17953. Middelburg: *Acocks* 15807. Barkly West: Danielskuil, *Esterhuizen* 2019 and 1061; Danielskuil *E. Ferrar* 62. Vryburg: Dry Hartz, *Mogg* 8500; Progress, *Mogg* 9007; Armoedsvlakte, *Mogg* 3960.



FIG. 5.—*Eragrostis remotiflora*; a, habit, $\times 1$; b, spikelet, $\times 10$; c, anther, $\times 30$; (Acocks 13521).

Annual or subperennial, glabrous, 10–55 cm high, culms erect or sprawling and geniculate, 1–4-noded, slender, rather soft. *Sheaths* pallid, pinkish or purplish, weakly striate, usually exceeding the internodes but lax and stripping from the culms, occasionally shorter, chartaceous especially when withered, keeled, glandular on the keels, margins membranous. *Ligule* a very short dense hairy rim: auricles bearded. *Leafblade* linear, glabrous, flaccid, flat or somewhat rolled, up to 17 cm long and 3 mm wide, midrib prominent below, often dotted with glands, primary nerves prominent below, smooth, upper surface finely striate, scaberulous on the striate, blade tapering to a fine point. *Panicle* usually sheathed at the base by the uppermost sheath, finally exerted, as long as or longer than the rest of the plant, 5 × 3 cm to 20 × 14 cm usually broadly ovate in outline, lax, branches patent or spreading at slightly less than a right angle, subwhorled at the base, single or in two's upwards, axils glabrous or with a few hairs, rhachis and primary branches often dotted with sunken glands especially towards the base of the panicle. *Spikelets* solitary, pedicelled, linear, about 5 mm long and 1 mm wide, greenish-grey to lead-grey, occasionally suffused with purple, 4–8-flowered, lemmas usually not overlapping the florets above on the same side or only shortly overlapping at the base. *Florets* hermaphrodite, lemmas and paleas both falling, but not together leaving the undulating rhachis intact. *Glumes* very unequal, lower one-nerved, lanceolate, 0.5 mm long; upper one-nerved, about 1.5 mm long, lanceolate. *Lemmas* broadly ovate-oblong, sub-membranous, 3-nerved. *Pales* equal to or slightly shorter than the lemma, bifid at the apex. *Lodicules* truncate-cuneate. *Stamens* 3: anthers purple, broadly-oblong, 0.3–0.4 mm long. *Ovary* glabrous, styles free; stigmas plumose. *Caryopsis* oblong, brown, finely longitudinally striate, slightly grooved on the back; embryo two-thirds the length of the grain; hilum punctiform, basal.

E. remotiflora resembles *E. pilosa* but can be distinguished from this species by the shorter broader lemmas which do not overlap the base of the lemma directly above it. The lemmas of *E. pilosa* are lanceolate in profile, acute and overlap the base of the lemmas directly above. The grains of *E. remotiflora* are grooved on the back and the embryo is about two-thirds the length of the grain while those of *E. pilosa* taper towards the apex, are rounded on the back and the embryo is about half the length of the grain.

This species is often found growing in association with *E. homomalla* Nees = (*E. hygrophila*. Hubb. and Schweick.) and like the latter is a hygophilous grass growing in wet or damp soil on the edge of pans and vleis, in the semi-arid areas of the Cape, Transvaal and Orange Free State. It shows a superficial resemblance with *E. homomalla* but can easily be distinguished by the laxer panicle and the smooth nerves of the lemmas which are prominent and gland dotted in the latter.

Its closest relative probably is *E. micrantha* which differs by longer lemmas which overlap each other, the larger cultrate anthers and the long narrow grain. The inflorescence moreover, although lax is much more branched and not nearly as scanty as in *E. remotiflora*.

Kaokochloa de Winter, genus nov., *Schmidtiae* aff. sed lemmatibus 2–3-aristatis, duobus nervium lemmatis lateralium (interdum necnon nervo mediano) in aristam planam rectam excurrentibus, apice lemmatis inflexo inter aristas in lobos 2 breves latos nigros membranaceos producto praecipue differt.

Annua. *Culmi* erecti geniculati vel prostrati, ad nodos radicanes. *Vaginae* internodiis breviores. *Ligula* longe ciliata. *Laminae* planae. *Panicula* satis densa, ramis solitariis villosis breve glanduloso-pubescentibus, spiculis 3–6-floris. *Glumae* 9–11-nervatae subaequales late ellipticae velova to-ellipticae. *Flores* hermaphroditi, lemmatibus 9-nervatis late cymbiformis in parte inferiore inter nervos pubescentibus apice inflexo saepe nigro, nervis lateralibus duobus, interdum necnon nervo mediano, in aristam planam rectam excurrentibus, paleis ambitu ellipticis marginibus inflexis carinis fimbriatis. *Lodiculae* 2 cuneatae apice truncatae. *Stamina* 3, antheris lineari-oblongis flavis. *Ovarium* glabrum, stylis 2 liberis, stigmatibus plumosis. *Caryopsis*

obovata, basibus stylorum asymmetricè insertis coronata; embryo $4/5$ longitudinis caryoptidis attingens; hilum basale, punctiforme. Species unica: *Kaokochloa nigrirostris* de Winter, spec. nov.

Kaokochloa has up to the present only been found in the Northern Kaokoveld, where it inhabits the more western dryer parts of the territory. It often forms large dense stands. The grazing value is unknown but probably is fairly high since the grass is a soft annual.

Kaokochloa nigrirostris de Winter, sp. nov.

Annual, 20–60 cm high. *Culms* erect, geniculate or prostrate at the base, and rooting at the nodes, nodes 3–7. *Sheaths* shorter than the internodes, striate, villous with gland-tipped hairs. *Ligule* a fringe of long stiff hyaline bristles. *Auricles* villous. *Leafblade* linear to linear-lanceolate, 5–12 cm long and 5–10 mm wide, tapering to a fine tip, flat, pilose with long slender hairs mixed with shorter gland-tipped hairs. *Panicle* rather dense and contracted, branches single, rhachis and branches grooved, densely villous with a mixture of long villous hairs and shorter gland-tipped hairs. *Spikelets* shortly pedicelled or subsessile and clustered on the rather short branches, sub-globose, about 6 mm wide and 7 mm long, with 3–6 florets. *Florets* hermaphrodite. *Glumes* 9–11-nerved, subequal, equalling the spikelet, broadly boatshaped, 6–7 mm long, broadly elliptic or ovate-elliptic, subacute, villous with long thin hairs mixed with shorter pinshaped glandular hairs. *Lemmas* elliptic in outline, broadly boatshaped, 5 mm long and 3 mm wide, coriaceous, densely hairy in the lower half between the nerves, 9-nerved, one lateral nerve on each side and occasionally the central nerve excurrent in a broad flat straight scabrid awn; lateral awns 4–6 mm long; central awn usually much shorter, 1–3 mm long or not developed; awns usually much shorter or absent in the immature and apical florets; apex of the lemma glabrous, incurved, ending in an awn flanked by two broad short membranous lobes or awn absent and ending in two lobes, lobes usually black in colour. *Palea* elliptic in shape, about 5 mm long and 2 mm wide, thinly coriaceous shallowly concave on the back, keels somewhat thickened, densely fimbriate with short stiff bristles, margins membranous, inflexed, long villous at the base. *Lodicules* 2, somewhat fleshy, wedge-shaped with a more or less truncate apex. *Stamens* 3, anthers linear-oblong, 3–4 mm long, yellow. *Ovary* glabrous, obovate-cuneate in outline, styles 2, stigmas plumose. *Grain* obovate in outline, crowned by the asymmetrically attached base of the style, somewhat convex dorsally and usually flat on the other side; embryo four-fifths the length of the grain, obovate in outline; hilum basal, punctiform, brownish to black.

SOUTH WEST AFRICA.—Kaokoveld: 18·5 miles West of Otju (Otjihu), mica schist hillocks and mountain slopes with coarse quartz and limestone gravel, de Winter and Leistner 5679 (PRE, holo; K, BM, M, B, BOL, Windhoek); do. 5679a, cult. at Division of Botany from seed of 5679 (K, BM, M, B, BOL, Windhoek, NY); Warmbad (Warmquelle) near Sesfontein, dolomite slope with quartz intrusions, erect annual forming large almost pure stands, de Winter and Leistner 5848 (K, BM, M, Bolus, NY).

The specific epithet is an allusion to the characteristic black apices of the lemmas.

B. DE WINTER

HYPOXIDACEAE

Rhodohypoxis palustris Killick, sp. nov. *R. baurii* (Bak.) Nel affinis, sed ita differt: folia conduplicata semi-carnosa rigidula marginibus exceptis glabra flores semper purpureo-rubicundi.

Cormus globosus 5–7 mm diam. tunicis apice copiose setosis. *Folia* erecto-arcuata anguste linearia acuminata 2·5–10 cm longa 2–3 mm lata conduplicata semi-carnosa nonnihil rigida flavo-viridia marginibus pilis longis albis alioqui glabra. *Pedicelli* 1–2

simplices erecti graciles 1–6 cm longi sericei. *Perianthium* purpureo-rubicundum tubo 5 mm longo sericeo segmentis oblongis 7–11 mm longis. *Stamina* 6 antheris 2 mm longis. *Ovarium* turbinatum 3 mm longum stigmatе trilobato.

CAPE PROVINCE.—Maclear District: seepage on upper eastern slopes of Drakensberg, locally frequent, 8,000 feet, Naude's Nek Pass, *Acocks* 12183; boggy slopes, Naude's Nek, 20.5 miles N.E. of Rhodes, *Marais* 1372.

NATAL.—Bergville District: locally abundant among small stones in shallow stream, 6,050 feet, Cathedral Peak Forest Influences Research Station, *Killick* 956; locally common among small stones in stream in Catchment 1, 6,015 feet, Cathedral Peak Forest Influences Research Station, *Killick* 1602 (PRE, type). Estcourt District: Giants Castle, 8,000 feet, *Symons* 156. Impendhle District: locally abundant in vlei with roots in water, 6,000 feet, "Tillietudlam", *Huntley* 460.

A perennial herb with a globose corm 5–7 mm diam. with fleshy roots and crowned with persistent bristles. *Leaves* radical, erecto-arcuate, narrowly linear, 2.5–10 cm long, 2–3 mm wide, sheathing at base, conduplicate, semi-succulent, somewhat rigid, margins with long white hairs, otherwise glabrous, yellowish green. *Pedicels* 1–2, simple, erect, 1–6 cm long, sericeous. *Perianth* purplish-pink, tube 5 cm long, sericeous; segments oblong, 7–11 mm long, 3–4 mm wide. *Stamens* 6, arranged in two series; anthers 2 mm long. *Ovary* turbinate, 3 mm long; stigma minute, trilobed.

This small plant from the Drakensberg Mountains is an attractive addition to *Rhodohypoxis*, a genus of only two species. For nearly fifty years this plant has passed as *R. baurii* (Bak.) Nel, but it can be distinguished on the following grounds:—

A.—The leaves are conduplicate, semi-succulent, yellowish-green, rather rigid and only hairy on the margins, whereas in *R. baurii* they are more or less flat with a median groove, coriaceous, greyish-green and hairy all over. The leaves of *R. palustris* are narrower than those of typical *R. baurii*, but about equal to those of *R. baurii* var. *millioides*. B.—The flowers are purple-pink, red or crimson. In *R. baurii* they vary from white in forma *platypetala* to red in the typical form. C.—*R. palustris*, as its name indicates, is a vlei or marsh plant, whereas *R. baurii* occupies comparatively dry habitats, for example mountain grassveld and rock outcrops.

D. J. B. KILLICK

LILIACEAE

Allium rotundum L. Sp. Pl. ed. 2: 423 (1762).

A. ampeloprasum var. B. Gawler in Curt. Bot. Mag. t. 1560 (1813); Thunb. Prod. 65 (1794). *A. dregeanum* Kunth, Enum. 4: 382 (1843); Fl. Cap. 6: 407 (1897). Type: Cape, Queenstown, Stormberg Range *Drège* 8660a (K?).

In the Flora Capensis Baker accepted Kunth's species, *A. dregeanum*, as the only indigenous species found in South Africa. He rejected Regel's conclusion that it should be sunk under an old well-known European species, *A. scorodoprasum* L. (cf. Monogr. All. 42 1875). Recently material of this species was sent to Munich where it was identified as *A. rotundum* L. a native of central and southern Europe and the near East.

Ornithogalum seineri (Engl. and Krause) Oberm. comb. nov. *Bulbine seineri* Engl. and Krause in Engl. Bot. Jahrb. 45: 124 (1910). Type: Bechuanaland, Litauani, on grey sand rich in humus between limestone, *Seiner* II, 98 (B, holo.! PRE, photo). *Anthericum seineri* (Engl. and Krause) Poelln. in Fedde, Rep. 53: 136 (1944).

Ornithogalum filibracteatum Oberm. in Ann. Transv. Mus. 17: 194 (1937). Type: Transvaal, Letaba: Mbayinbayi, 28 m. south-west of Punda Maria, Lang TM 31099 (PRE, holo!). *O. wilmaniae* Leight. in Journ. S.A. Bot. 11: 168 (1945). Type: South West Africa, Gobabis district, Sandfontein, Wilman in BOL 15280 (holo) in KMG 1599 (iso).

Urginea langii Brem. in Ann. Transv. Mus. 15: 237 (1933). Type: Transvaal, Pietersburg: Brak Rivier vlei, Bremekamp and Schweickerdt 25 (PRE, holo!).

This *Ornithogalum*, like many others, may look deceptively different in the herbarium because of several factors. In a wet season the uppermost flowers develop, giving the raceme a cylindrical appearance but in dry conditions these remain sterile thus giving it the pyramidal shape so typical of *Urginea langii*. The type of *O. filibracteatum* shows a very young inflorescence with short pedicels and long filiform bracts protruding far beyond the buds. As the pedicels lengthen only during anthesis none had attained their maximum length when the specimen was preserved. The long filiform bracts giving the young raceme a brushlike appearance, seem characteristic but it was seen in other species, for instance *O. pulchrum* Schinz, that they may be long or short in specimens found in the same area; moreover the thin upper part of the bract often dries up at an early stage.

Bremekamp had classified this species as an *Urginea* because of the flat round seeds. The seed of *Urginea* however is very different; it is long, narrow-elliptic, with a narrow, often winged membrane around its perimeter. There are moreover some other very good characters which typify the genus *Urginea* and which are absent in our species; (a) the inflorescence and the often hysteranthous leaves evolve from different buds whilst in *Ornithogalum* the central raceme terminates the leafy rosette; (b) the lowest or central bracts are spurred; (c) the bulb consists of loose scales. Dr. J. M. J. de Wet who studied the chromosome pattern of *Ornithogalum wilmaniae* Leight. (cf. Cytologia 22: 145-159, 1957) found that it possessed large chromosomes with the number $n = 10$ and they showed affinity to other South African species of *Ornithogalum*. Dr. de Wet suggested that it might form a stepping stone between *Urginea* and *Ornithogalum*.

The type of *Bulbine seineri* Engl. and Krause has no underground parts preserved but Seiner described it as a bulbous plant. The filaments are described as "tenua", and are not bearded.

The species is found in the warmer parts of the Kruger National Park, in the Transvaal Bushveld, the Kalahari region and the northern districts of South West Africa.

***Ornithogalum pulchrum* Schinz.** In her revision of the South African species of *Ornithogalum* [J.S.A. Bot. X: 169 (1944)], Leighton mentions that *O. pulchrum* Schinz [Verh. Bot. Ver. Prov. Brandenb. 31: 221 (1890)] might be the same as *O. wilmaniae* but as she had not seen the type and as it had no leaves, she hesitated to associate her species with *O. pulchrum*. The Director of the Zürich herbarium kindly sent us the Schinz type on loan. *O. pulchrum* is a tall plant, not identical with *O. seineri* (*O. wilmaniae*) and the following specimens at PRE match the type.

SOUTH WEST AFRICA.—Grootfontein: Tsumeb, Naegelsbach 9. Omaruru: Spitzkopje, Boss TM 36006. Kaokoveld: Kaoko-Otavi, de Winter and Leistner 5573. Okavango Native Territory: near Okavango River at Mupini, de Winter and Marais 4497 (with shorter bracts).

SOUTHERN RHODESIA.—Sabi-Lundi River Junction, Wild 3490.

Baker in the Flora of Tropical Africa 7: 545 (1898) placed *O. pulchrum* under *O. longibracteatum* Jacq. This species comes from the eastern Cape and *O. caudatum* Jacq. is a synonym. The length of the bracts varies and is unimportant.

Some differences between *O. pulchrum*, *O. longibracteatum* and *O. seineri* are as follows

<i>O. pulchrum</i>	<i>O. seineri</i>	<i>O. caudatum</i>
Tall plants up to 2½ m.	Plants up to 50 cm.	Plants up to 1 m.
Leaves up to 70 cm long.	Leaves up to 30 cm long.	Leaves up to 70 cm long.
Raceme cylindrical bearing ca 300 flowers; usually with sterile apical flowers.	Raceme usually pyramidal bearing ca 100 flowers; usually with sterile apical flowers.	Raceme cylindrical bearing ca 80 flowers; no sterile apical flowers seen.
Scape 200 cm high, straight.	Scape ca 20 cm high arcuate.	Scape ca 80 cm, straight.
Bracts up to 7 cm long (occasionally shorter).	Bracts 2 cm long (occasionally longer).	Bracts variable in length, 2–4 cm long.
Pedicels slender, up to 2·5 cm in fruit.	Pedicels sturdy, up to 6 cm in fruit.	Pedicels slender up to 1·2 cm in fruit.
Perianth segments lanceolate, 20 mm long.	Perianth segments lanceolate, 17 mm long.	Perianth segments ovate, 10 mm long.
Filaments ovate, attenuated to the apex.	Filaments linear-lanceolate, acute near the apex.	Filaments ovate, attenuated to the apex.
Ovary oblong, 3-lobed.	Ovary oblong, 3-lobed.	Ovary rounded.
Capsule 3-angled.	Capsule 3-angled.	Capsule rounded.
Seeds discoid, elliptic, 8 mm long.	Seeds discoid, round, 11 mm in diam.	Seeds angled, narrow-oblong in outline.
Solitary plants.	Gregarious plants.	Solitary or in clumps, producing bulbils
Sweet smelling.	Faintly scented.	Said to be scentless.
Northern South West Africa, Southern Rhodesia.	Northern Transvaal, Kalahari Region, central and northern South West Africa.	Eastern Cape, Natal.
Usually in rocky crevices.	Sandy flats.	In shady kloofs and grassy valleys.

The type of *Urginea dimorphantha* Bak. [Bull. Herb. Boiss. 2nd Ser. No. 8, p. 663 (1903)] from South West Africa. Ovamboland, Ondonga, *Rautanen* (Z. holo PRE, photo), kindly sent on loan to us by the Director of the Zürich Herbarium, proved to be a synonym of *Ornithogalum pulchrum* Schinz. Baker had placed this specimen under *Urginea* as the seeds are discoid.

A. AMELIA OBERMEYER

MALVACEAE

Abutilon flanaganii A. Meeuse, sp. nov., *A. pseudocleistogamo* Hochr. affinis, sed inter alia floribus majoribus, petiolis longioribus differt.

Frutex ramosus 25–40 cm altus verisimiliter perennis. *Caules* teretes cinereo-velutini. *Folia* late ovato-cordata, interdum indistincte 3-lobata, plus minusve acuminate, obtusa minutissime mucronata, irregulariter crenata vel sinuata vel subserrata interdum subintegra, supra intense viridia minutissime stellato-velutina, subtus cinerea, stellato-velutina, nervis subtus prominentibus; lamina 2–5 cm longa 1·5–4 cm lata, petiolis gracilibus cinereo-velutinis interdum parce pilosis 2–5 cm longis, stipulis subulatis 4–6 mm longis. *Pedicelli* graciles axillares, solitarii, cinereo-velutini, ad 60 m longi apicem versus articulati. *Calyx* cinereo-velutinus, 5-fidus, tubo cupuliformi c. 3 mm longo, lobis lanceolatis vel lanceolato-deltaideis carinatis aristato-apiculatis c. 7 mm longis. *Petala* flava subglabra basi dense ciliata c. 20 mm longa. *Columna staminalis* apice stellato-hirsuta. *Infructescencia* discoidea, 4–5 mm alta, c. 9 mm diam., mericarpiis 9–13 monospermis subquadratis muticis vel minute mucronatis stellato-hirsutulis c. 4 mm longis 5 mm latis. *Semen* minutissime punctato-verruculosum c. 2 × 1·5 mm.

CAPE PROVINCE.—Komgha: near Komgha, *Flanagan* 340 (PRE, holo.!, NBG, iso.!).

A low much-branched shrub 25–40 cm tall apparently perennial, covered on the vegetative parts, pedicels and calyces with a short smooth velvety tomentum which is canescent except on the upper leaf-surface, in addition longer more or less patent pilose hairs are sometimes found at the very base of the lower leaf-surface, stems, on the petioles and on the pedicels, more often in tufts at the apex of the petiole. *Stems* terete, slender but firm to wiry, glabrescent, the bark ultimately somewhat wrinkled. *Leaves* broadly ovate-cordate, sometimes very faintly 3-lobed, shortly acuminate obtuse and generally minutely mucronate, irregularly crenate, repand or serrate to subentire, 2–5 cm long and 1.5–4 cm broad, dark green (drying dark olive brown) and very shortly velvety above, the paler lower surface with fine prominent main veins; petioles slender, 2–5 cm long; stipules subulate, 4–6 mm long. *Flowers* solitary, axillary; pedicels slender, up to 5 cm long articulated in upper 10 mm. *Calyx* deeply dissected; tube cupuliform, about 3 mm long, lobes lanceolate to triangular-lanceolate, carinate by the prominent midrib, apiculate-aristate, about 7 mm long. *Petals* yellow, glabrous or nearly so except the densely ciliate narrow base. *Staminal column* stellate-hirsute at the apex of the conical dilated basal portion. *Fruit* discoid, 4–5 mm high and about 9 mm in diam., of 9–13 subquadrate 1-seeded, 3–4 mm high and 5 mm broad mericarps which are horizontally truncate at the upper edge forming an acute or somewhat mucronate angle of about 90° with the dorsal side, are rounded at the basal dorsal angle and have a subterminal ventral tooth which is almost level with the apical edge. *Seed* finely punctate-verruculose, about 2×1.5 mm.

This species differs from all other African species in the small mericarps which are broader than they are high. The only other species with similar mericarps is *A. pseudocleistogamum*, a Madagascan species from which it differs in several respects, especially in the much larger flowers and considerably longer petioles. In habit it is not unlike *A. fruticosum* and *A. sonneratianum*, but its small 1-seeded mericarps distinguish it at once. *A. flanaganii* is named after Henry G. Flanagan, who contributed so much to our knowledge of the flora of the Eastern Cape Province, mainly of the Komgha and surrounding districts, through his extensive collections of neatly prepared herbarium specimens of which the main set is in the National Herbarium, Pretoria.

A. flanaganii is apparently a very local and rare species, because only the single cited gathering was found among all the material from the South African and some European herbaria.

A. galpinii *A. Meeuse*, sp. nov., *A. grantii* *A. Meeuse* (*A. indico* sensu Harv., non Don)* et *A. piloso-cinereo* *A. Meeuse* (vide infra) arcte affinis, sed mericarpis minoribus, foliis majoribus caudato-acuminatis praecipue differt.

Suffrutex ramosus c. 75 cm altus, breviter stellato-tomentosus vel subvelutinus in partibus junioribus sparse glandulosus. *Caules* interdum breviter stellato-pilosi. *Folia* late ovato-cordata vel cordato-suborbicularia, 3–16 cm longa 2–12 cm lata, abrupte acuminato-caudata, subtriloba, margine irregulariter dentata, crenata vel subserata, supra intense viridia in siccitate atrobrunnea dense strigoso-subvelutina demum glabrescentia et scabrida, subtus pallidiora subarachnoideo-tomentosa, petiolis laminis subaequilongis, stipulis lineari-lanceolatis ad 6 mm longis. *Flores* solitarii, axillares, pedicellis gracilibus ad 5 cm sub fructu ad 7 cm longis. *Calyx* cupuliformis, infra medium lobatus, molliter stellato-tomentosus 9–12 mm longis, lobis ovatis vel ovato-deltaideis apiculato-caudatis, apiculo subulati-filiformi ad 2.5 mm longo. *Petala* lutea vel dilute ochracea, glabra, basi ciliata, 11–13 mm longa. *Columna staminalis* basin versus subsparse stellato-hirsutula. *Infructescentia* breviter cylindrato-semiglobosa interdum subcampanulata, apice truncato-concava, c. 10 mm longa 12–14 mm diam. *Mericarpia* c. 16, 3-sperma, oblique truncata, dorso et apicem versus subsparse molliterque stellato-pubescentia 8–10 mm longa 5–6 mm lata, acuta vel mucronata. *Semina* 2.5×2 mm, atrobrunnea, minute verrucoso-punctata.

* Vide Meeuse in Fl. Zamb. part 2 (1960), in press.

TRANSVAAL.—Barberton: Barberton, Umvoti Creek, *Galpin* 767 (PRE, holo.!, GRA, iso.!), Valley near Edwin Bray Battery, *Galpin* 1197 (PRE); Barberton without precise locality, *Williams* s.n. = TRV 7671 (PRE).

SWAZILAND.—Bremersdorp, *P. Hutchinson* 8 (PRE).

PORTUGUESE EAST AFRICA.—Lourenco Marques Distr.: Goba, Lebombo escarpment, *Fidalgo de Carvalho* 257 (LM, PRE).

NATAL.—Lower Tugela: Tugela Valley below Sans Souci, *Edwards* 1688 (NU, PRE).

Suffrutex attaining a height of at least 75 cm, much branched in upper portion, covered with a short stellate-tomentose to velvety pubescence on vegetative parts, pedicels and calyces; the youngest parts, apical portions of pedicels and calyx-tube sometimes also somewhat glandular. *Stems* slender, wiry, terete, rather soon woody, glabrescent, the pubescence sometimes somewhat pilose. *Leaves* broadly ovate-suborbicular with cordate base and a triangular long-attenuate to acuminate or caudate apex, often abruptly narrowed into the acumen from a broad base which gives the blade a low, but distinct, 3-lobed appearance; the tip of the acumen subobtusate to acute, minutely mucronate; the basal sinus more or less triangular, usually rather deep; basal lobes rounded, the small lateral lobes, if present, more or less triangular, obtuse or acute; the margin irregularly dentate, serrate or crenate, generally shallowly so to subtire but the apical portion of the acumen always entire; upper surface deep green often drying a dark olive-brown, when young densely velvety strigose, later sparsely stellate-strigose, glabrescent and turning slightly scabrid, lower surface distinctly paler, dirty greyish-yellow, sometimes faintly glaucous, at first very densely stellate-tomentose, later with a cob-webby stellate tomentum; petioles terete, in young leaves tomentose, later usually with short spreading to deflexed somewhat stiff stellate hairs especially near the apex, a little shorter to a little longer than the 3–16 cm long and 2–12 cm broad blades; stipules linear-lanceolate, up to 6 mm long. *Flowers* solitary, axillary on main stems and/or on short lateral shoots; pedicels slender, terete, in flower up to about 5 cm, in fruit up to about 7 cm long, articulated near the apex. *Calyx* cupuliform, lobed to a little beyond the middle, 9–12 mm long, with ovate to ovate-triangular acute lobes each terminating in a subulate to filiform, up to 2.5 mm long, apiculus. *Corolla* described as orange-yellow and buff; petals 11–13 mm long, glabrous or nearly so, the narrowed base ciliate. *Staminal column* rather coarsely and sparsely beset with many-rayed stellate-hairs in basal, conical portion. *Fruit* shortly subcylindric to semi-globose or slightly campanulate about 10 mm high, 12–15 mm in diam., truncate-concave at the apex; mericarps about 16, 3-seeded, 8–10 mm long measured along the back and 5–6 mm broad; much compressed, papery, softly and rather sparsely stellate-pubescent along the back and apical portion; the back straight or somewhat bulging in lower half, then inwardly rounded into the truncate base, the apical edge convex or nearly straight, slanting upwards towards the shortly toothed mucronate dorsal apical angle, ventral tooth small. *Seeds* 2.5 × 2 mm, dark brown, finely verruculose-punctate with minute, usually orange-brown protuberances.

The much compressed relatively broad, and papery mericarps indicate that this species is related to *A. grantii* (= *A. indicum* sensu Harv. in Fl. Cap., non Don) and *A. piloso-cinereum*, and consequently to *A. sonneratianum*, but the mericarps are very much smaller, the leaves larger and caudate-acuminate and the calyx-lobes have a subulate-filiform up to 2.5 cm long apiculus.

This species remained unrecognised for a long time although it was collected by *Galpin* as early as 1896. *Burt Davy*, in his *Manual Fl. Transv.* 2: 275 (1932), refers *Galpin* 767 to *A. mauritianum* (Jacq.) *Medic.* to which it is not remotely related, and *Galpin* 1197 to "*A. indicum*" (= *A. grandiflorum* Don) which it does not resemble.

The species under discussion seems to be mainly restricted to the Barberton area and the Lebombo range. It is found in light shade on lower mountain slopes between 600–1,200 m altitude.

A. piloso-cinereum *A. Meeuse*, spec. nov., *A. grantii* *A. Meeuse* (= *A. indico* sensu Harv. non Don) arcte affinis, sed plantis canescentibus ceteris caulibus petiolis pedicellisque pilis longis patentibus subsparsis obiectis praecipue differt.

Suffrutex probabiliter annuus paucè ramosus ad 1.50 m altus. *Caules* stellato-tomentosi vel subvelutini, pilis longis patentibus subsparsis pilosi. *Folia* late ovato-cordata vel suborbiculari-cordata ad triangulato-cordata, interdum plus minusve 3-lobata, apice acuminata vel attenuata, margine subregulariter serrata vel crenato-dentata, supra saturate viridia minute adpresse stellato-pubescentia demum glabrescentia, subtus molliter velutinosa albido-canescens conspicue prominenter venosa, 2–7 cm interdum ad 15 cm longa, 1.3–5 cm interdum ad 10 cm lata, petiolis laminis subaequilongis tomentosus vel subvelutinis pilis patentibus sparse pilosis. *Flores* axillares solitarii, pedicellis tomentosus vel subvelutinis pilis patentibus sparse pilosis. *Calyx* campanulato-cupuliformis, infra medium lobatus, 9–12 mm longus, dense velutinus, lobis ovato-lanceolatis vel oblongo-lanceolatis acutis vel acuminatis vel breviter apiculatis. *Petala* flava 14–18 mm longa, glabra. *Infructiscentia* subcylindrato-semiglobosa, 10–12 mm longa, 15–20 mm diam. *Mericarpia* 10–18, 3-sperma, 10–12 mm longa, 6–7 mm lata, apice oblique subtruncata angulo dorsali dentato vel rostrato, dorso et apicem versus stellato-pubescentia vel tomentosa. *Semina* c. 2 × 2 mm, minute verruculosa.

TRANSVAAL.—Pietersburg: Chunies Poort Police Station, *Meeuse* 10352 (PRE, rolo., BM, BOL, EA, K, L, LD, M, SRGH, isos.). Potgietersrust: near Potgietersrust, *Maguire* 1499 (NBG). Waterberg: farm Mosdene near Naboomspruit, *Galpin* M 23. Brits: Hartebeespoort, *Lotsy and Goddijn* 348 (L); Hekpoort, *J. Phillips* 519. Pretoria: 18 m N.E. of Pretoria near Roodeplaat, *Repton* 4309; about 12 miles from Pretoria on road to Zeekoegat (Roodeplaat), *Repton* 979; Pretoria North, *Crawley* PRE no. 5181; Pretoria, Arcadia, *Leendertz* 463 (L, PRE); Pretoria, Curtis' Hill, *Pole Evans* 75; Pretoria, *Esterhuysen* h. no. 26321 (BOL); Fountains Valley, *Repton* 223; Hennopsrivier, *Bremekamp* TRV no. 29048. Krugersdorp: Waterval Kloof, *Mogg* 20353 (J, PRE). Vereeniging: Kaalplaats, *Mogg* 10222. Klerksdorp: Klerksdorp, "Convent" 67 (GRA). Rustenburg: Zwartruggens Ridge, *Sutton* 827, 849; Witkranskloof, *Rose Innes* 41. Marico: Zeerust, *Leendertz* h. no. 11312.

ORANGE FREE STATE.—Kroonstad: Kroonstad, *Pont* 681; Fauresmith: Fauresmith, *Verdoorn* 946, 1180, *Verdoorn* in herb. *Henrici* 2396, *Smith* 3980, *Henrici* 2008, *Leistner* 1104 (KMG, PRE). Bloemfontein: Bloemfontein, *Bolus* 11047 (BOL), *Wasserfall* 842 (NBG); Naval Hill, *Potts* 8022; Glen, *Potgieter* 60. District unknown: "Sepani", *Brierley* 21 (BM).

CAPE PROVINCE.—Aliwal North: Ruigtefontein, *Theron* A1795 (NH, PRE).

(All specimens, if not otherwise indicated, in PRE).

A low suffrutex or soft shrub usually scantily branched (from the base or only higher up), probably annual, covered on stems, petioles and pedicels with a short dense tomentose or velutinous pubescence which is usually greyish or whitish and interspersed with long thin patent hairs. *Stems* terete, ultimately somewhat woody with a rather large pith and a thin somewhat wrinkled grooved bark. *Leaves* in outline suborbicular cordate or broadly ovate-cordate to triangular-cordate, sometimes faintly 3-lobed by projecting lateral lobules near the middle of the blade, acuminate or gradually attenuate at the apex, rather regularly crenate-dentate to serrate but usually only shallowly so, 2–7 cm, occasionally up to 15 cm long and 1.3–5(–10) cm broad; upper surface dark green, minutely adpressed-stellate pubescent, glabrescent, the lower surface canescent, softly tomentose to velutinous with prominent nervation; petioles about as long as the corresponding blades; stipules subulate, tomentose or velutinous. *Flowers* axillary, solitary; pedicels in flower up to 7 cm long, in fruit up to 9 cm. *Calyx* cupuli-

form-campanulate, densely velutinous and the tube sometimes with additional patent hairs, greyish, grey-green or canescent, deeply lobed, 9–12 mm long; the lobes oblong-lanceolate to lanceolate, acute, shortly acuminate and/or shortly apiculate. *Petals* yellow, 14–18 mm long, glabrous. *Staminal column* stellate-pubescent. *Fruit* semi-globose-subcylindric, 10–12 mm long and 15–20 mm in diam. *Mericarps* 10–18, 3-seeded, 10–12 mm × 6–7 mm, the apical edge somewhat convex, slanting upwards and outwards and meeting the dorsal side at an acute angle, produced into a tooth or subulate up to 2 mm long awn; the ventral tooth small, the keel on the back and the apical edge with a row of many-rayed stellate hairs flanked on either side by a zone which is rather sparsely tomentose or stellate-pubescent with adpressed, smaller and fewer-rayed stellate hairs. *Seeds* about × 2 mm, minutely verruculose-punctate.

This plant is obviously closely related to *A. grantii*, a coastal species, which it resembles very much in the morphology of the mericarps. It differs in a number of points such as in the leaf-shape which is usually abruptly acuminate in *A. grantii* from a broad basal portion and hence more distinctly 3-lobed, in the leaf-margin which is usually more entire in *A. grantii* and in the pubescence of the lower leaf-surface which is very short and smoothly velutinous in *A. grantii*, more loosely stellate-velutinous in *A. piloso-cinereum*, but mainly in the presence of long patent hairs which are never numerous in *A. grantii* (and restricted to the very young parts and the apices of the petioles), conspicuous in *A. piloso-cinereum*, and in the colour of the stems which are not canescent and often dark purple in *A. grantii*, canescent in the other species and later brownish or greyish but never dark.

A. grantii is a perennial and *A. piloso-cinereum* apparently an annual, but this difference is not always evident from herbarium specimens. *A. piloso-cinereum* is by no means rare; the numerous cited specimens also indicate that it is wide-spread. The specimens were lying in the herbaria usually under *A. sonnerati* or "*A. indicum*".

It is a plant of rocky slopes in areas with a fairly low annual rainfall, found at altitudes between 900 and 1,200 m and its ecology is, therefore, quite different from that of *A. grantii* which is a plant of coastal bush and lowland forests below 300 m altitude, not usually found on rocky soil but generally on alluvial deposits.

Pavonia transvaalensis (Ulbr.) A. Meeuse, stat. nov.—*P. schumanniana* Gürke var. *transvaalensis* Ulbr. in Engl. Bot. Jahrb. 57: 178 (1921). Type of variety: Transvaal, Magalakwin River, *Schlechter* 4270 (B, holo.†, PRE, iso.!).

P. schumanniana Gürke var. *parviflora* Schinz in Bull. Herb. Boiss. 2me sér. 3: 829 (1903). Syntypes of variety: Transvaal, Pretoria Distr., *Rehmann* 4185, 4365, 4938; Potgietersrust Distr., *Rehmann* 5492 (all in Z).

P. commutata Conr. in Kew Bull. 1908: 220 (1908); Schinz in Vtljschr. Naturf. Ges. Zürich 68: 428 (1923); Burt Davy, Man. Flow. Pl. Transv. 2: 278 (1932), non Garcke. Type: Transvaal, Pretoria, *Conrath* 42 (K, holo.!).

The status and synonymy of *Pavonia commutata* Conr. in relation to some other species of *Pavonia*, especially *P. clathrata* Mast. (= *P. schumanniana* Gürke), was cleared up and discussed by Schinz (1923), but this author overlooked the fact that the epithet *commutata* was pre-occupied in *Pavonia*. The epithet selected from the two varietal names cited above is not the oldest, but the epithet "*parviflora*" is inappropriate, whereas "*transvaalensis*" is very suitable for this species which has not been recorded from outside the Transvaal.

A. MEEUSE

PLUMBAGINACEAE

LIMONIUM

In Flora Capensis 4, 2: 419 (1906) Wright retained the generic name *Statice* for the species from southern Africa. Sprague in Journ. Bot. 62: 267 (1924) reaffirmed that *Limonium* should be restored to generic status and gave a fairly comprehensive index to relevant literature. The result of the restoration of *Limonium*, excludes *Statice* from the indigenous flora of southern Africa. However, for convenience of discussion, existing names will be used in the following notes.

The distribution of *Limonium* species is generally accepted as being predominantly maritime. It is interesting to note, therefore, that one variable species, *L. dregeanum* (Presl.) O.K., has a wide distribution inland and extends to relatively high altitudes in the central Karoo. On the other hand no species occurs on our coast further east than about Kentani in the Cape Province.

In working on the genus for the Flora of Southern Africa the usual crop of problems had to be faced and I wish to thank very sincerely the Curators and Directors of the several institutions which supplied material for study. These include K, UPSV, S, SBT, G, M, BOL, GRA, STE, SAM and NBG.

As regards the generic description of *Limonium*, in none of the southern African herbarium material dissected could I distinguish a measurable corolla tube and all petals appeared to be free to the base and to have the filaments of the stamens attached slightly above the base. The anthers of all material dissected were divided up to the point of attachment of the filament and in no case was this appreciably less than half the length of the anther. The ovary was invariably five-angled with five free styles, one from the margin of each angle at the top.

An early problem was the identity of *Statice perigrina* Bergius, Descript. Pl. Cap. 80 (1767), which has priority of publication over all other names, including *S. purpurata* L. in his Mantissa, also published in 1767 (see Sprague in Kew Bull. 1929: 88). Boissier in DC. Prod. 12: 667 (1848) regarded *S. perigrina* Berg. as a synonym of *S. rosea* Smith (1819) and Wright F.C. l.c. 420, followed suit but they chose to retain the epithet *rosea*. Smith, however, when describing his *S. rosea* place, *S. perigrina* doubtfully under *S. purpurata* L. thus indicating that he excluded it from his *S. rosea*. Photographs and notes from Stockholm prove that *S. perigrina* does not agree specifically with *S. purpurata*. One of the features of *S. purpurata* is the smoothness of the leaves, whereas those of *S. perigrina* are in fact roughish on both surfaces, although Bergius described them as glabrous on the upper surface and scabrid on the lower. My research supports the taxonomy of Boissier and Wright but the epithet *perigrina* must be restored to priority.

The position is complicated further by the presence in Malmesbury district, with the above-mentioned species, of *S. longifolia* Thunb. (1794), which was regarded by Boissier (1848) as a variety of *S. purpurata* L. Unlike the others, *S. longifolia* is constant in having dense adpressed hairs almost to the tips of the calyx ribs. A specimen, Compton 19361, from Bellville Division, nearest *S. purpurata* L. has a few hairs near the tips of the calyx ribs and another, Acocks 19785, from Clanwilliam, regarded by me as a form of *S. perigrina* also has a few hairs towards the tips of the calyx ribs. In this feature they indicate some relationship with *S. longifolia*, which has a wide range of distribution along the Cape western districts.

With *S. longifolia* Thunb. in the picture, it seems that *S. purpurata* falls somewhere between the more common and more widely spread species *S. perigrina*, a leafy shrub, and *S. longifolia* a more tufted subcaulescent perennial.

It could be suggested that *S. purpurata* arose by hybridisation between *S. longifolia* and *S. perigrina* but at this stage proof is lacking.

A broad view is taken of the variation within the species *S. longifolia* Thunb. which results in the loss of specific status of *L. fergusonae* Bolus. The distribution range is from the coastal districts of the west via the mountainous region of Worcester and Robertson to Riversdale on the south coast and omitting the intervening coastal area of the Peninsula to Swellendam.

The type specimen of *L. amoenum* (C. H. Wright) R. A. Dyer, collected at Touws River by Bolus (BOL 1080) has not been matched exactly by other collections from neighbouring districts but several are regarded as specifically equal. A feature of the main specimen on the type sheet is the straight scape with up to 15 sessile spikelets. The scapes in most specimens are more branched and somewhat flexuous and with only about five spikelets. The type was obviously grazed short before it produced the new inflorescences and it is assumed that this caused the variation in habit. This view is supported by the habit of an isotype in the Kirstenbosch herbarium.

L. decumbens (Boiss.) O.K. was based on a specimen collected by Drege, no. 9374, without exact locality. Boissier stated that it was probably a monstrous form of an incompletely known species. It has fascicles of leaves on the inflorescence. No subsequent collection has been found to agree with it exactly. It is said to be distinctive in the pubescence of short tufted hairs on the scape and spikelets, while the calyx is described as quite glabrous. It seems that it is mainly the proliferous character which distinguishes it from *L. equisetum* (Boiss.) R. A. Dyer but in view of the circumstances no good purpose would be served by speculating further on the relationship between them.

As regards *L. scabrum* (Thunb.) O.K., I tried to establish a clear division between it, *L. corymbulosum* (Boiss.) O.K., *L. avenaceum* (C. H. Wright) R. A. Dyer and *L. penicillatum* Adamson, but failed to do so after the examination of a large number of specimens. However, because of the wide difference between extreme forms, three varieties are recognized.

On the other hand several specimens collected in S.W.A. in the vicinity of Luderitz and Angra Pequena and previously regarded as forms of *L. scabrum* appear sufficiently distinct to warrant specific rank. They differ from *L. scabrum* in the almost completely membranous bracts on mature scapes and their branches, in having 3-4-flowered spikelets and pedicellate flowers. In these latter characters and the pedicellate flowers the species shows an affinity with *L. dregeanum* but again the bracts are distinctive. The specimens are described under the new name *L. membranaceum*.

Other unusual specimens associated with *L. scabrum* and producing tufts of leaves on the flowering scapes, have been described under the name *L. foliosum* R. A. Dyer. Compton (18168) refers to the tufts of leaves within the inflorescence as a form of "vivipery". This feature is found occasionally in other species also, such as *L. scabrum*. Had *L. kraussianum* (Buchnig ex Krauss) O.K. been recorded with *L. scabrum*, I would have been tempted to suggest that hybridisation had been at play to produce *L. foliosum*.

In the case of *S. linifolium* (L.f.) O.K., two varieties are recognized. The identity of the specimen described by L.f. has not been confirmed, but the specimen in Thunberg's herbarium (?type) matches several specimens collected later in the Port Elizabeth-Uitenhage districts. But this, the probable nomenclatural type form has a limited distribution, and the second variety given the name *maritimum* is far more widespread and occurs further east in the Cape (Transkei) than any other species. The two varieties cover much the same field of distribution as *L. scabrum*. The inter relationship between *L. linifolium* and *L. scabrum* is obscure but there are specimens, for instance Britten 5022, and others collected by South and Compton, at Port Alfred (Kowie) which seem to have some characters of both, with a greater leaning to *L. scabrum*.

The circumscription of *L. dregeanum* (Presl.) O.K. and *L. pedicellatum* (Wallr. ex Boiss.) O.K. entailed similar difficult decisions. Specimens described by Boissier under the name *Statice pedicellata*, were at one time considered to be specifically distinct

from *L. dregeanum* because of the differences in the branching of the scapes and general habit, one tufted and the other mainly cushion-shaped, but after several changes in opinion *L. dregeanum* alone has been maintained.

The taxonomy of the genus *Limonium* in southern Africa seems to bristle with problems, most of which require intensive field work to crystalize them out, let alone discover their explanation. Hybrid populations are suspected as occurring frequently on the south western coast. *L. anthericoides* (Schlechter) R. A. Dyer seems unique among the species. Although it exhibits a considerable degree of morphological variability, it does not seem to have been involved in any of the reproductive problems of any of its several neighbours in the rich Caledon, Bredasdorp, Swellendam region.

The new names and name changes consequent on the above notes are summarized below in alphabetical order.

Limonium depauperatum R. A. Dyer, comb. nov., stat. nov., *Statice equisetina* var. *depauperata* Boiss. in DC. Prod. 12: 658 (1847); Wright in F.C. 4, 1: 422 (1906).
Type: Cape; *Burchell* 512 (G, lects.).

L. linifolium (*L. f.*) O.K. var. ***linifolium***.

L. linifolium var. ***maritimum*** (*E. and Z. ex Boiss.*) R. A. Dyer, comb. nov.
Statice linifolia var. *maritima* E. and Z. ex Boiss. in DC. Prod. 12: 657 (1848); Wright in F.C. 4, 1: 421. *S. linifolia* var. *brachyphylla* Boiss. in DC. Prod. 1.c. 657; Wright in F.C. 1.c. 421.

L. longifolium (*Thunb.*) R. A. Dyer, comb. nov.
Statice longifolia Thunb. Prod. 54 (1794). Type: Cape: Swartland, Thunberg (UPSV, holo.).
S. purpurata L. var. *longifolia* Boiss. in DC. Prod. 12: 667 (1848); Wright in F.C. 4, 1: 420 (1906) as to citation of *S. longifolia* Thunb.
Limonium fergusonae L. Bolus in J. S.A. Bot. 24: 124 (1934). Type: Riversdale, *Ferguson* BOL 20081 (holo.).

Limonium membranaceum R. A. Dyer, sp. nov., *L. scabro* (Thunb.) O.K. affine, sed bracteis scapi et ramulorum scapi fere omnino membranaceis, spiculis 3–4-floris differt.

Perenne caespitosum demum basi lignosum. *Folia* obovata vel oblanceolata vel lineari-oblanceolata, 2–4 cm longa 4–10 mm lata, obtusa, supra tuberculis centro punctato-impressis scabra, subtus levis vel tuberculis similibus paucis. *Scapi* nonnulli, tuberculis centro punctato-impressis scabri, patentes 10–20 cm longi, erecti etiam infra medium ramos steriles articulatum multifidos primum breves sursum sensim ampliatis edentes, superioribus floriferis dense fastigiato-corymbosis, articulis omnium densis brevibus strictis. *Spiculi* 3–4-flori, bractea exterior 3.5–4 mm longa, obtusa, margine membranacea glabra, pedicellis persistentibus 0.5–0.75 mm longis, truncatis. *Calyx* 4 mm longus, subcylindricus glaber 5-costatus, limbo membranaceo, lobis 5, c. 5 mm longis. *Petala* caerulea oblineari-lanceolata, plus 1 cm longa.

Endemic in southern South West Africa.

SOUTH WEST AFRICA.—Luderitz: *Pole Evans* H 19355; *Kinges* 2031; *Merxmüller* 2251 (PRE, holo. M, iso.). Angra Pequena: *Marloth* 1160; *Galpin* and *Pearson* 7490.

This species is allied to *L. scabrum* (Thunb.) O.K. and is distinguished by the almost completely membranous bracts on the scape, by the 3–4-flowered spikelets and pedicellate flowers. It is distinguished from *L. dregeanum* (Presl.) O.K. also by the membranous bracts, by the dense asperities on the scape, and by the broader leaves with dense asperities on the upper surface.

L. perigrinum (*Bergius*) R. A. Dyer comb. nov.
Statice perigrina Bergius, Descr. Pl. Cap. 80 (1767) excl. syn. Type C.B.S. Grubb. (SBT, holo) [collected by Auge fide Thunb. Fl. Cap. VII (1823)].

L. scabrum Thunb. var. **avenaceum** (C. H. Wright) R. A. Dyer.

Statice avenacea C. H. Wright in Fl. Cap. 4, 1: 423 (1906). Type: Bredasdorp, Ratels River Mouth, Bolus 8576 (K, holo. BOL iso!).

Limonium avenaceum (C. H. Wright) R. A. Dyer in Kew Bull. 1932: 155.

L. scabrum (Thunb.) O.K. var. **corymbulosum** (Boiss.) R. A. Dyer.

Statice corymbulosa Boiss, in DC. Prod. 12: 658 (1848). Type: Camps Bay, Krauss (G, holo!).

Limonium corymbulosum (Boiss.) O.K. in Rev. Gen.: 2: 395 (1891).

L. penicillatum Adamson in S.A., Journ. Bot. 7: 202 (1941); Fl. Cap. Penin. 666 (1950)
Type: Cape; Chapmans Peak, Adamson 859 (BOL holo).

L. scabrum (Thunb.) O.K. var. **scabrum**.

L. scabrum (Thunb.) O.K. Rev. Gen. Pl. 2: 396 (1891). Type: Cape; Thunberg (UPSV holo.).

Statice scabra Thunb., Prod. 54 (1794).

R. A. DYER

SCROPHULARIACEAE

Sutera dentatisepala Overkott, sp. nov., a *S. cooperi* Hiern planta annua minore, foliis non rigidis neque pallidis neque cordati-rotundatis, tubo corollae longiore lobis emarginatis; a *S. pristisepala* Hiern foliis non pinnatifidis, floribus maioribus non purpureis, lobis emarginatis differt.

Radix annua, fibrosa, griseo-brunnea. *Herba* foetida (teste coll.) ad 22 mm alta e basi multiramosa. *Caules* decumbentes vel ascendentes, foliosi, basin versus saepe radicantes, leviter quadranguli, superne fere teretes et florigeri; ubique pilis satis longis, perspicuis, glandulosis, fuscis-capitulatis et paucis pilis simplicibus obtecti. *Folia* membranacea, opposita, omnia breviter petiolata, petiolis planis ad 6 (–12) mm longis, glandulosi-pilosis, in axillis saepe ramulos parvos foliosos gerentia, rotundati-triangulara, basi late cuneata, margine irregulariter dentata vel leviter pinnatisecta, utrinque glandulosa, ad 10 (–20) mm longa, ad 8 (–17) mm lata, nervis alternantibus pinnatis, superne immersis, subtus prominentibus, pilos conspicuos gerentibus. *Internodia* 12–27 mm longa. *Flores* plerumque alternantes, albi vel rosei, lutei-ocellati in axillis bractearum foliis similium quamquam minorum. *Pedicellus* ad 5 mm longus, calyce brevior. *Calyx* ad 7 mm longus, ut caules intus et extus glandulosi-pilosus, ad basin fere divisus. *Sepala* cuneata, apice 1–7 dentata vel mucronata. *Tubus corollae* calyce 2·5-plo longior, ad 18 mm longus, extus glandulosi-pilosus, apice leviter ampliatus. *Limbus* pro rata latus, subtus glandulis sessilibus insitus, lobis obcordatis, leviter vel distincte emarginatis, ad 5·5 mm longis, ad 3 mm latis. *Faux* glandulosa et pilosa. *Stamina* inclusa. *Antherae* reniformes inter se aequales, superiores paulo minores. *Thecae* confluentes. *Filamenta* glandulosa, superiora breviora, ad 1·2 mm, inferiora ad 2 mm longa et in tubus decurrentia, omnia in parte tertia superiore tubi inserta. *Ovarium* angustum, ad 2·5 mm longum, apice dense glandulosum. *Stylus* crassus, plerumque glaber, apice brevissime bilobatus, longe persistens. *Fructus* non vidi.

NATAL.—Bergville District: on boulder bed of Tseketske River, Cathedral Peak Forestry Station, 6,700 feet, Killick 1827 (PRE, holo.). Estcourt District: Giants Castle, Symons (Transvaal Museum No. 25157, PRE).

BASUTOLAND.—Likoloberg, grassy gravelly patch on hill, 9,300 feet, *Guillarmod* 716 (PRE); Mamalapi, streambank, 8,000 feet, *Guillarmod* 677 (PRE); Mamalapi, streambanks, 9,000 feet, *Compton* s.n. (NBG); Machochi, *Seligman* s.n. (BM); without precise locality, *Staples* 259 (PRE).

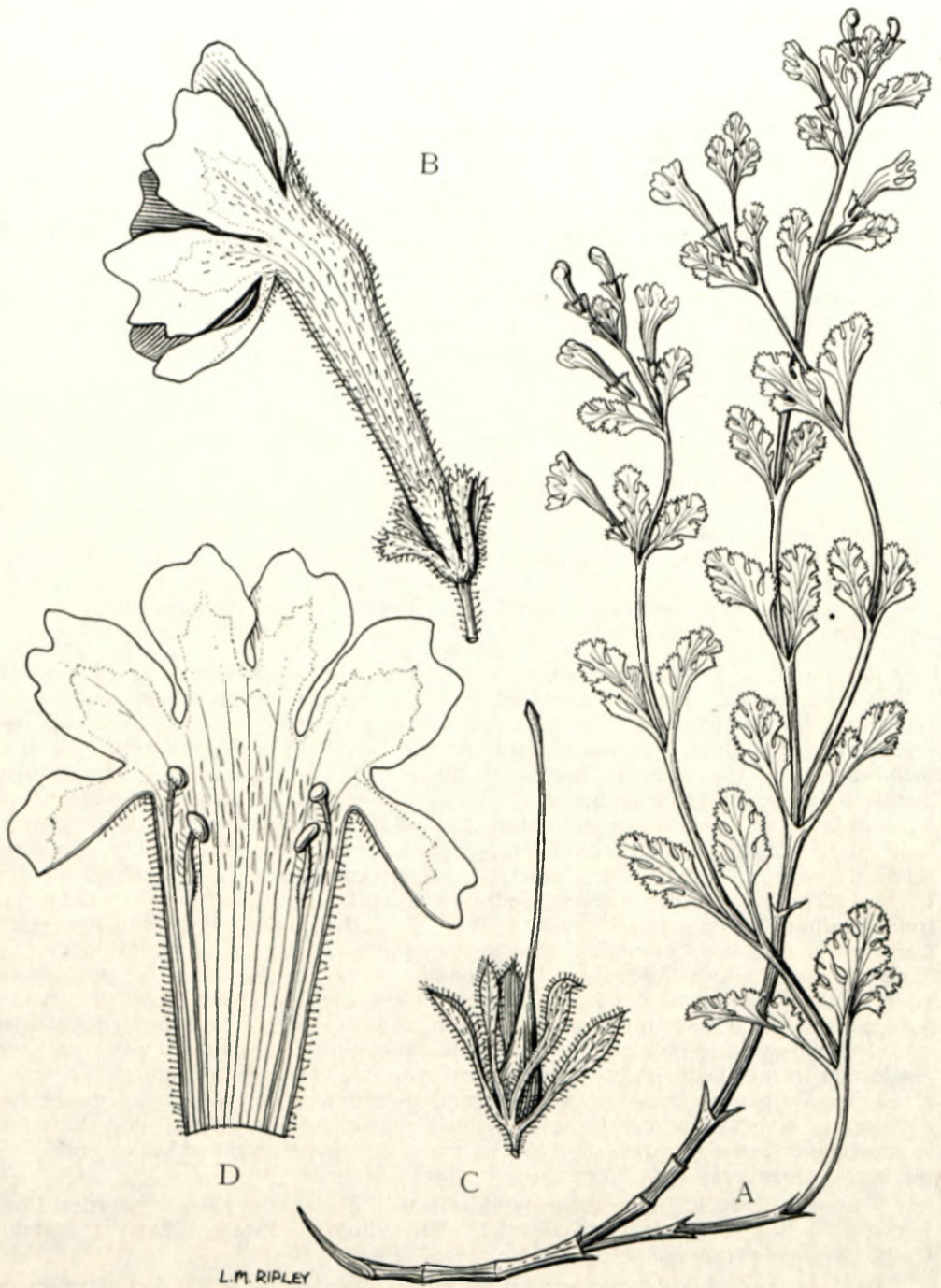


FIG. 6.—*Sutura dentatisepala* Overkott; A, habit, $\times \frac{1}{3}$; B, flower, $\times 3$; C, calyx and pistil, $\times 3$; D, flower opened out, $\times 3$.

Decumbent or ascending, probably annual herb, about 25 cm high, much branched from the base. *Leaves* opposite, rotundate-triangular, broadly cuneate at the base; petioles shorter than the leaves, sometimes bearing short foliate branchlets in the axils. *Bracts* leaflike, but smaller. *Flowers* white or mauve with orange centres, alternate, axillary, subterminal, not very numerous; peduncles shorter than the bracts; calyx deeply 5-cleft, segments cuneate at the base, with one to seven teeth at the ends, as branches and leaves covered on both sides with short, gland-tipped hairs and globose sessile glands; tube about 18 mm long, glandular puberulous outside, lobes \pm emarginate; *Stamens and style* enclosed in the tube; filaments glandular, the upper one shorter than the lower ones. *Ovary* small, with numerous sessile glands; style stout, persistent.

O. OVERKOTT

TURNERACEAE

Turnera thomasii (Urb.) Story, comb. et stat. nov. *T. ulmifolia* L. var. *thomasii* Urb. in Engl. Bot. Jahrb. 25 Beibl. 60: 11. *Loewia thomasii* (Urb.) Lewis in Kew Bull. 1953: 431.

Turnera oculata Story, sp. nov., *T. ulmifoliae* L. et *T. thomasii* (Urb.) Story a ffinitis ita differens: a *T. ulmifolia* ramis rigidibus, a *T. thomasii* petalis flavis, indumento breviori, antheris multo crassioribus.

Frutex erectus tenuis ad 2 m altus, foliis ramulisque junioribus villis simplicibus stellatisque dense pubescentibus. *Folia* alternantia simplicia; lamina ad 3 cm longa 2 cm lata, obovata vel late elliptica, apice rotundato vel acuto, praeter basin cuneatam serrata, pinninervata, nervis utrinque plus minusve 6, basi saepe glandulis prominentibus 1 vel 2; petiolus ad 1 cm longus; stipuli minuti. *Inflorescentia* terminalis. *Bracteae* 2 lineares 1 cm longae, superne profunde canaliculatae. *Flos* axillaris solitarius, pedicello petiolo adnato. *Calyx* intus paene glaber; tubus 1.2 cm longus 3 mm diametro, nervis 10; lobi tubo calycino interdum aequilongi saepius longiores, acuminati, basi 3 mm lati, interdum margine tenue pellucido ad 2 mm lato. *Corolla* in faucibus tubi calycini inserta; petala alterna ac lobi calycini, obovata, apice acuto, imbricata, 2.5 cm longa, in parte latissima 1.8 cm lata, superne laete flava, inferne saturate rubri-brunnea, glabra. *Androecium* staminibus 5, fertilibus; filamenta lobis calycinis opposita, circiter 3 mm infra calycis fauces inserta, villis basi paucis alibi glabra, 2.2 cm libera, inferne 1 cm tubo calycino adhaerentia; antherae c. 7 mm longae, basi emarginatae, paulo super basin dorsifixae summum filamentum saepientes. *Gynoecium* stylis 3 glabris liberis quam stamina paulo longioribus; stigma fimbriatum; ovarium superius cylindratum apice obtuso, in siccitate 5-costatum, ovulis ad 120 in placenta stipatis. *Capsula* 3-valvata, valvis ovatis 9 mm longis in parte latissima 5 mm latis, placenta parietali; funiculus prope basin seminis affixus; semina matura curvata, 4 mm longa; arillus incisus membranaceus, semen superans.

SOUTH WEST AFRICA.—Kaokoveld: sandy bed of watercourse 12 miles south of the Kunene River, latitude 17° 22' longitude 12° 30' Story 5778; sandy banks of Kunene River at Otjinungua, de Winter and Leistner 5770 (PRE, holo.).

An erect slender shrub up to 2 m high, younger parts densely pubescent with simple and stellate hairs, branches sometimes abbreviated, with crowded small leaves, afterwards deciduous or elongating and permanent. *Leaves* velvety, dull light green, simple, very variable in size; lamina up to 3 cm long and 2 cm broad, obovate to broadly elliptic, rounded or acute at the apex, apiculate-serrate except at the cuneate base, alternate, divergent, pinnately nerved with about six pairs of nerves more prominent below, often with one or two conspicuous hollow glands (2 × 1 mm) on the margin at the base; petiole up to 1 cm long; stipules minute, free, exuding a drop of resin

from the glandular tip. *Inflorescence* terminal: bracts 2, linear, 1 cm long and deeply channelled adaxially, with sometimes one or several glands like those found on the leaves but much smaller. *Flower* axillary, solitary, with pedicel fused to petiole and thus at first sight apparently sessile and borne at the distal end of the petiole. *Calyx* almost glabrous within; tube about 12 mm long and 3 mm in diameter, widening at the throat, and with 10 veins of which five continue down the centres of the lobes and five fork between the bases of the lobes to form two marginal veins; lobes sometimes as long as the calyx tube, but more often 3 or 4 mm longer, acuminate, 3 mm wide at the base, sometimes with a thin translucent margin up to 2 mm wide. *Corolla* inserted in the throat of the calyx tube; petals alternating with the calyx lobes, obovate, acute at the apex, abruptly narrowed below, imbricate, 2.5 cm long, 1.8 cm wide at the widest part, bright yellow above, dark red-brown towards the base, glabrous. *Androecium* of 5 stamens, all fertile; filaments inserted about 3 mm below the throat of the calyx tube and alternating with the petals, glabrous except for a few hairs near the base, free for about 2.2 cm, below this with thin transparent margins adherent to the calyx-tube and a thicker central part free to the base, this fixed portion being about 1 cm long; anthers 7 mm long, narrowly oval, emarginate at the base, dorsifixed a little above the base and enclosing the tip of the filament; thecae dehiscing longitudinally.

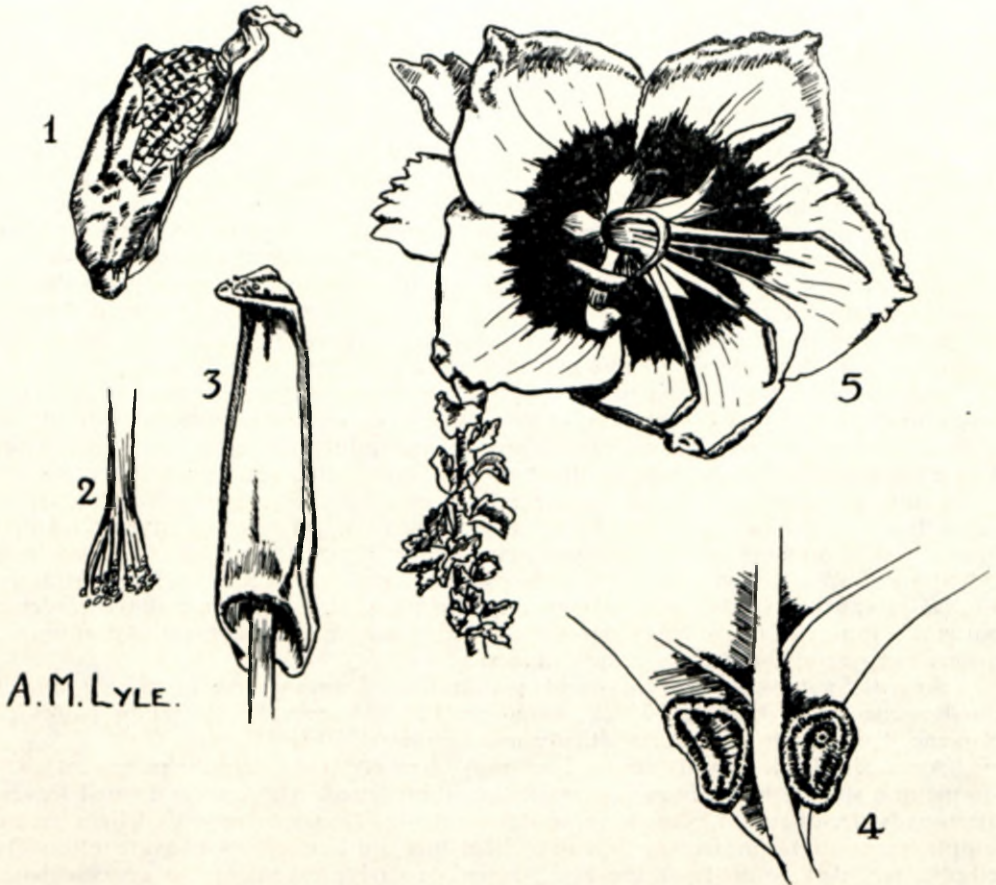


FIG. 7.—*Turnera oculata* Story; 1, seed, $\times 10$; 2, stigma, $\times 10$; 3, anther, $\times 10$; 4, leaf-glands, $\times 10$; 5, flower, $\times 1.5$.

Gynoecium with 3 glabrous free styles a little longer than the stamens; stigma fimbriate; ovary superior, cylindric, obtuse, 5-ridged when dry, ovules up to 120, crowded on the placenta. *Capsule* 3-valved; valves ovate, 9 mm long, 5 mm broad at the broadest part, thickened on the margin, reticulate within, with parietal placenta; funicle attached just above the base of the seed and remaining on the placenta after the seed is shed, thickened near the hilum; mature seeds curved, 4 mm long, with hilum near base on concave side, abortive seeds conspicuous by reason of the rudimentary aril; aril lobed, incised, membranous, roughly triangular, with one lobe overtopping the seed on the concave side and two almost encircling the base.

This plant was first recorded in 1956 in a sandy gully about 12 miles south of the Kunene River in South West Africa at longitude $12^{\circ} 30'$, latitude $17^{\circ} 22'$, and has so far been found only in that vicinity. It is not common and usually occurs in small patches of a dozen or so. It has been found in bloom in May and August, conspicuous because of the large bright flowers and silvery leaves and erect habit. As one of the several young plants collected in the field has survived a severe winter in Pretoria and seems well established, it is likely that *Turnera oculata* could be cultivated fairly widely in the Union.

The plant runs to *Turnera* in Thonner's key and its other characters are also strongly in support of its inclusion under *Turnera*, and I therefore do not feel justified in placing it in the closely related genus *Loewia*, even though *Loewia* is upheld in the Flora of Tropical East Africa (Lewis 19/2/54, l.c.: 1 et seqq.). The two genera are separable as follows:—

1. *Turnera* has a 10-nerved calyx-tube, *Loewia* has the calyx-tube traversed by 35-40 bundles of very slender vessels (Urban 1897, Ann. R. Inst. Bot. Rom. 6: 189).
2. *Turnera* has no secretory hairs, *Loewia* has tubercles secreting resin (Urban l.c.). (These "tubercles" are resin-like nodules, probably swollen hair-bases.)
3. *Turnera* has the stigma fimbriate—"capillaceo-multifidum"—(Linn. Gen. ed. 2: 105 para. 297), *Loewia* according to Urban (l.c.), Thonner, and Hooker (Icon. 3015) has it capitate or with the margin sub-entire. (Lewis says of *L. tanaensis* that the stigma is fimbriate but shows it lobed in the sketch.)

In all these characters the plant here described agrees with *Turnera*. Additional reasons for keeping it separate from *Loewia* are as follows:—

1. In *Loewia* the calyx-tube is about two-thirds the length of the whole calyx, in this plant it is less than half the total length.
2. *Loewia* has the seeds bi-seriate on the placenta (Urban l.c.), this plant has them crowded.
3. *Turnera* may have the pedicels fused with the petioles (R. Hort. Soc. Dic. of Gard. 1951 Vol. 4: 2170; Hooker's Jour. Bot. 4, 1842: 115), in *Loewia* they are free. This plant has them fused.
4. *Turnera* may have conspicuous hollow glands on the basal margins of the leaves, in *Loewia* they are absent. This plant has them, though not consistently so.

Two inconsistencies in the literature should be pointed out. They are as follows:—

1. Urban (l.c.) says that in *Loewia* the margin of the aril is sub-entire, but Hooker (Icon. 3015) says of Urban's species *L. tanaensis* that the margin is lacerate. Hooker's statement has been checked at Kew and found to be correct.
2. Lewis (Flor. Trop. E. Afr. 1954) says the pits on the seed of *Loewia* are two-pored, Urban (l.c.) says they have no pores. The specimens at Kew indicate that Urban is correct.

For the following reasons I am including *Loewia thomasii* (Urb.) Lewis under *Turnera*:—

1. It has no secretory hairs.
2. The calyx is tubular for less than half the total length.
3. The pedicels are fused with the petioles.
4. There are conspicuous hollow glands on the basal margins of the leaves.
5. The calyx-tube is 10-nerved.
6. The stigma is fimbriate (described incorrectly by Urban as very shortly lobed).

The available records indicate that *Turnera thomasii* has been collected only twice. The first collection is by F. Thomas (No. 47) from Witu in the Lamu district of Kenya, and is the type. The holotype was destroyed in Berlin, and there remains only the isotype, which is at Kew. The second collection is by P. Bally (No. 2092) at Mahoney Road, near Muddo Gasha in the Northern Province of Kenya, and is represented in the Kew and Nairobi herbaria.

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R. STORY