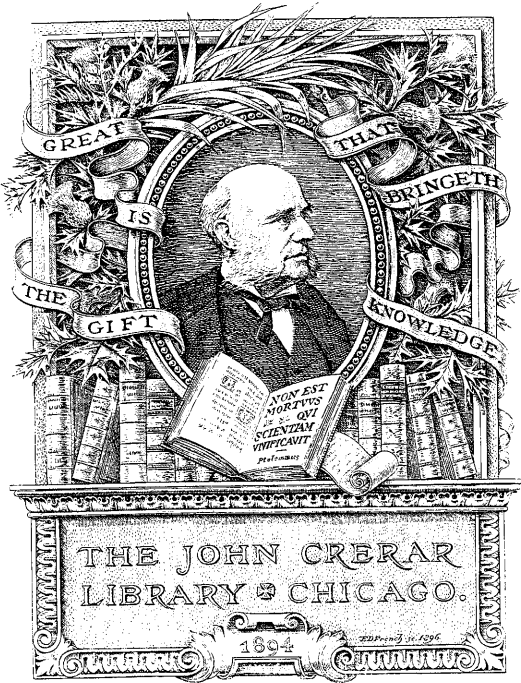


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THE ANNALS  
OF THE BOLUS HERBARIUM

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H. K. LEWIS & CO., LTD., 136, GOWER STREET, LONDON, W.C. 1  
WHELDON & WESLEY, LTD., 2-4, ARTHUR STREET, NEW OXFORD  
STREET, LONDON, W.C. 2

CHICAGO: THE UNIVERSITY OF CHICAGO PRESS  
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University of Cape Town

THE ANNALS  
OF THE  
BOLUS HERBARIUM

EDITED BY

H. M. L. BOLUS, B.A.

HON. CURATOR, BOLUS HERBARIUM

VOLUME III

WITH NINE PLATES AND TWO PORTRAITS

CAMBRIDGE

AT THE UNIVERSITY PRESS

1923..

PRINTED IN GREAT BRITAIN

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## NOVITATES AFRICANAE

Diosma Marlothii, Dummer. *D. obtusifoliae* affinis sed parce ramosa, et foliis carnosulis, numquam ovatis, marginibus carinaque haud rigide ciliolatis, floribus saepe 2- vel 3-natis, calycibus petalisque majoribus differt.

Fruticulus parceramosus, ad 0.3 m. altus, ramis fastigiatis atrobrunneis, ramulis florentibus brevibus minute puberulis; folia opposita, decussata, ascendentia, inferne adpressa, interdum subimbricata, lanceolata vel oblonga, apice subacuta vel obtusiuscula, circiter 3 mm. longa, 1-1.5 mm. lata (raro 6 mm. longa et 1 mm. lata), carnosula, supra concava, nitentia, dorso obtuse carinata vel convexiuscula, 6-5-punctato-glandulosa, utrinque minute puberula, margine minute pectinato-ciliolatae; flores 1-3-nati, carnei (in sicco), perbreviter pedicellati, ramulos terminantes, pedicellis glabris; calyx circ. 3 mm. longus, subscariosus, segmentis late deltoideis, subacutis cuspidatis, e basi 2 mm. latis, utrinque glabris, dorso obtuse carinatis, marginibus hyalinis, pectinato-pilosulis; petala perbreviter unguiculata, 6 mm. longa, 3-4 mm. lata, limbis late obovatis, rotundatis, utrinque glabris dorso punctato-glandulosis; stamina (5), minuta, in toto 1.5 mm. longa, glabra, antheris glandula magna deltoidea atropurpurea terminata; pistillum ignotum.

Cape Province: probably on the Matroosberg, *R. Marloth*, 7949.

This description is based on five specimens in Dr Marloth's Herbarium, without exact particulars as to place or date of collection. Its nearest ally appears to be *D. obtusifolia*, Sonder (based on Drege, 7144, Herb. Sonder, also without particulars as to place of collection, and not represented in S.A. Herbaria), from which it differs in its sparingly branching habit, the fleshy (never ovate) leaves without the rigid ciliolation of their margins and keels, the flowers often in pairs and threes, and the larger calyces and petals. (Pl. I, D.)

Barosma Bathii, Dummer. *B. crenatae* affinis sed ramulis petiolisque pubescentibus, foliis magis ellipticis, minus coriaceis, saepissime perpauca magnis glandulis praeditis, staminodiis stylisque glaberrimis, ceterisque differt.

Frutex unimetricus vel altior, parceramosus, ramis ascendentibus; ramulis pallide brunneis, patenter albo-pubescentibus; folia perbreviter petiolata, ascendentia, demum patula, internodiis aequilonga vel duplo longiora, elliptica, obtusa, 1.3-3 cm. longa, 7 mm.—1 cm. lata,

tenuiter coriacea, pallide viridia, supra vix nitentia, subtus pallidiora, elevato-costata, glandulis paucis, magnis, conspersa vel interdum fere eglandulosa, margine grosse denticulato-crenulata, basin versus minute ciliolata, petiolo complanato, puberulo; cymae axillares, 1—5-florae, racemoso-dispositae, pedunculis 0.5—1.5 cm. longis puberulis, apicem versus 2—3-bracteatis, bracteis verticillatis, foliosis; bracteolae basilares, vel medio positae, parvulae, ellipticae, rotundatae, 0.5—0.7 mm. longae, dorso convexae, ciliolatae; flores albae (sicco); pedicelli crassiusculi, 2—4 mm. longi, minute puberuli; calyx utrinque glaber viridisque, segmentis late ovatis, obtusis vel rotundatis, circ. 1 mm. longis dorso obtuse lato-carinatis, marginibus ciliolatis; petala sessilia, obovato-cuneata, rotundata, 4—5 mm. longa, 2 mm. lata, utrinque glabra, dorso purpureo, 2—4-punctato-glandulosa; stamina circ. 5 mm. longa, glaberrima; staminodia anguste-oblonga, apice purpureo-recurva, circ. 2 mm. longa, glabra; pistillum ubique glabrum, stylo filiformi, 3 mm. longo.

Cape Province: South-Western Region; Clanwilliam Div., Cedarberg Mountains, Forster *Bath* (Herb. Bolus, No. 15691).

A very interesting novelty among *Buchus*, the above description being based on material collected by Forester Bath and communicated by the Forestry Department in Oct., 1917.

Its relationship is with *B. crenata*, Kunze (*B. crenulata*, Lindley) from which it is at once distinguished by its hairy twigs and petioles, the more elliptic less coriaceous texture of the leaves, which are occasionally epunctate dorsally, more often with a few large scattered glands, the distant and more rough crenulation of their margins, in the relatively smaller flowers, differently disposed, in the petals markedly gland-dotted dorsally, and in the totally glabrous staminodes and styles.

The large size of the shrub and its large leaves suggest commercial possibilities, although the leaves do not possess many glands to the square inch. On the other hand pharmacologists assert that it is not merely the oil content of the leaves but also their mucilaginous properties, which give to them their intrinsic value. It is a species worth taking up experimentally, and every effort should be made to secure a fair quantity of the leaves and these submitted to careful analysis.

*Lebeckia elongata*, Hutchinson (*Leguminosae-Genisteae*); affinis *L. spinescenti*, Harv., et *L. microphyllae*, E. Mey., ab illa ramulis elongatis minus spinescentibus, ovario dense pubescente, ab hac petiolis multo longioribus differt.

Suffrutex laxè divaricatus, subdichotome ramosus; rami leviter costati, straminei; ramuli elongati, cinerei, graciles, laxissime foliati,

appresse sericeo-pubescentes, superne defoliati sed vix spinescentes; folia trifoliolata, longe petiolata; foliola sessilia, lineari-oblongata, subobtusata, 5—8 mm. longa, circiter 1.76 mm. lata, coriacea, appresse sericeo-pilosa; petioli plerumque circiter 1 cm. longi, subteretes, appresse pilosi, circiter 0.5 mm. crassi; flores pauci, apices ramulorum versus dispositi; pedicelli circiter 3 mm. longi, minute appresse pubescentes. Calyx 6 mm. longus; tubus late obconicus, minute appresse pubescens, lobis 5, subaequalibus, lineari-triangularibus, fere 2 mm. longis, parce pubescentibus. Corolla 1.2 cm. longa, alis vexillo et carina subaequalia brevioribus; ovarium hirtum; fructus non visus.

South West Africa. *H. H. W. Pearson* (Percy Sladen Mem. Exped. 1915—16, No. 9899).

This species is allied to *Lebeckia spinescens*, Harv., from which it differs in the usually longer and scarcely spinescent branchlets and very hairy ovary (and legume?). In the hairy ovary it resembles *L. microphylla*, E. Mey., but it may be at once distinguished from that species by its long petioles.

*Dolichos Pearsonii*, Hutchinson (*Leguminosae-Phaseoleae*); syn. *Dolichos Lablab*, var. *rhomboideus*, Schinz in Abh. Bot. Ver. Brand. xxx, 168 (1888), non *D. rhomboideus*, G. Hoffm.; affinis *D. Lablab*, Linn., et *D. gibboso*, Thunb., ab illo foliolis multo minoribus terminale hastato, leguminibus minoribus, ab hoc foliolis minoribus et leguminibus latioribus facile distinguitur.

Caules graciles laxè foliati, subscandentes(?) pilis brevissimis reflexis parce pubescentes. Folia trifoliolata, 3—5 cm. longa, usque ad 5 cm. lata, glabra vel parce puberula; foliolum terminale basi hastatum et truncatum vel brevissime et late cuneatum, foliolis lateralibus uno latere rotundato-hastatis, nervis utrinque conspicue elevatis; petioli circiter 1 cm. longi, graciles, parce puberuli; stipulae oblongo-ovatae, subacutae, circiter 2.5 mm. longae, extra conspicue nervosae, puberulae; stipellae oblongo-lineares, acutae, glabrescentes, 2 mm. longae; petioluli stipellis paullo breviores, minute setuloso-pubescentes. Racemi terminales, laxissime pauciflori; bractee subdeciduae, stipulis plus minusve similes; pedicelli (in fructu) vix 2 mm. longi; bracteolae binae, calyci adpressae, late obovatae, 3 mm. longae, dorso trinervatae, margine membranaceae, glabrae. Calyx bilabiatus, 6 mm. longus, glaber, lobis 2 adaxialibus fere ad apicem connatis, abaxialibus 3 liberis, anguste triangularibus, subacutis. Vexillum late orbiculare, 1.5 cm. longum, 1.7 cm. latum, basi appendice lato, apice bidentato, instructum; alae oblongo-obovatae, 1.8 cm. longae, 1 cm. latae, ungue 7 mm. longo; carina fere 2 cm. longa, acuta. Fructus compressus, ambitu oblique oblongo-oblongolatus, stylo uno latere hirsuto, persistente, longe

rostratus, 4 cm. longus, 1.8 cm. latus, marginibus incrassatis, muricatis. Semina immatura nitida, ellipsoidea.

South West Africa. Amboland: Oshando, *H. Schinz* (1886). Between Nauchas and Areb, on granite at banks of stream, corolla purple-blue, 3rd Jan., 1916, *H. H. W. Pearson* (Percy Sladen Memorial Expedition, No. 9019).

This is a very distinct species from the common and well known *Dolichos Lablab*, Linn. It differs from *D. Lablab* especially by the very slender stems, small hastate leaflets and smaller flowers and bracts. The fruits of the two species are very similar, but in our plant much smaller.

*Caesalpinia Pearsonii*, L. Bolus (*Leguminosae-Caesalpinioideae*); species foliis minimis bipinnatis, pinnis tribus, quasi digitatis, leguminibus valde falcatis aculeatis insignis.

Suffrutex rigidus, 15—40 cm. altus; rami patentes vel adscendentes, subteretes, spinellis sparsis, demum valde recurvis, validis, basi 0.3 cm. diam., armati, juniores adpresse argenteo-pubescentes, seniores glabrescentes, cortice pallido vel brunneolo, ad 0.6 cm. diam.; folia patentia vel saepius reflexa, sessilia, stipulis binis vel saepe tertio interjecto, basi concretis, spinescentibus, 0.3 cm. longis, 2-pinnata, 0.7—1.7 cm. longa, pinnis tribus, quasi digitatis, 5—8-jugatis, foliolis oppositis, sat crebris, ovalibus, obtusis vel subacutis, argenteo-sericeis, 0.3—0.4 cm. longis; flores paniculati, panícula parce ramosa, ramis brevibus aculeatis; bractae mox deciduae, argenteo-sericeae, vix 0.2 cm. longae; pedicelli rarius ad 0.2 cm. longi; calyx argenteo-sericeus, 0.5 cm. longus, segmentis erectis subovatis vel anteriore obovato-oblongo, tubo fere duplo longioribus; petala flava, 0.9 cm. longa, breviter unguiculata, apice fere truncata, delicatule undulata, anteriora 0.2 cm., lateralia 0.3 cm., posterius 0.4 cm. lata; filamenta dimidio inferiore ciliata, petala parum excedentia, inter se inaequilonga, antheris ovatis apiculatis; ovarium stipitatum setosum 2-ovulatum, stigmatibus concavo, margine ciliato; legumen indehiscens planum falcatum rubescens aculeatum, aculeis atro-rubris, 2.3 cm. longum, 1.5 cm. latum, semine unico plano, 0.8 cm. longo latoque.

South-West Africa; Ababes, breccia banks of the Tsondab River, below farm, Dec. 29, 1915, *H. H. W. Pearson* (Percy Sladen Memorial Expedition, No. 9162).

There is no other *Caesalpinia* at all like this amongst the old-world examples of the genus, and the habit is equalled only by certain of the microphyllous West Indian and South American species. (Pl. I, B.)

*Mesembrianthemum caespitosum*, L. Bolus (*Ficoideae-Mesembriaceae*) epapulose perenne caulescens, ramis elongatis prostratis caespitosis foliosis,

foliis basi tantum subconnatis, 3-quetris; floribus solitariis, meridie expansis, 5-meris; petalis roseis; staminibus confertis; stylis filiformibus, demum stamina parum superantibus.

Herba glaberrima ramosissima, ramis caespitosis gracilibus, ramulis floriferis adscendentibus vel erectis; folia patentia vel adscendentia, subfalcata, supra dimidium latissima, acute triquetra, acuta, basin versus complanata, glauca, 1 cm. longa vel ultra, ad 0.2 cm. diam. lataque; pedunculus teretis gracilis, ad 1 cm. longus; flores ad 2.2 cm. diam., sed saepissime minores; calyx obconicus, segmentis fere aequalibus, vel duobus longioribus, ovato-lanceolatis acutis, 0.4—0.6 cm. longis; petala subbiseriata, spathulata, ad 0.9 cm. longa, 0.3 cm. lata; staminodia perpauca; filamenta barbata viscida albida, apicem versus rosea, antherae luteae; discus annularis crenulatus, saturate viridis; ovarium supra convexum, stylis filiformibus, ad 0.5 cm. longis.

Cape Province: South-Western Region; Paarl Div., nr. Paarl, *J. Rohland* (National Botanic Gardens, No.  $\frac{1712}{14}$ ).

An epapulose perennial caulescent herb, with elongate prostrate leafy branches forming a dense mat; leaves somewhat connate at the base only, 3-quetrous; flowers solitary, open during the middle of the day, 5-parted; petals rose-pink; stamens collected; styles filiform, when mature slightly longer than the stamens.

A distinct species which does not fit satisfactorily into any of the established sections of the genus. The caespitose habit, slender branches, scarcely falcate leaves, solitary flowers, broad petals and filiform styles exclude it from the section *Falcata* to which it seems most nearly allied. It is a free flowerer (Oct.—March), and during the last five years has done exceedingly well at Kirstenbosch where it completely covers a rather shaded bank—a lovely sight with its profusion of brilliantly shining pink flowers on a back-ground of grey-green leaves.

*Mesembrianthemum* *Strubeniae*, L. Bolus. Floribus similibus illis sectionis *Sarmentosa*, sed habitu erecto et foliis subacinaciformibus ab omnibus ceteris sectionis differt.

Fruticulus erectus ramosus robustus glaber, 75 cm. altus; rami compressi purpurascens, internodiis folia excedentibus; folia breviter connata, matura subacinaciformia triquetra, lateraliter valde compressa, supra canaliculata vel plana, marginibus serrulatis, laete viridia, 4—6 cm. longa, 0.5—0.6 cm. lata, ad 1.2 cm. diam.; flores 5-meri, in cymas 2—3-ternatas dispositi, 3.2 cm. diam., omnes bracteati, bracteis basin calycis attingentibus vel parum brevioribus, 1.1—1.5 cm. longae; pedunculi 1.8—2.5 cm. longi; calycis tubus subcrateriformis, segmentis subaequalibus ovato-lanceolatis cauminatis, 0.6—0.9 cm.

longis; petala 2-seriata spathulato-lineararia, saepius acuta, rosea, medio purpureo-nervata, ad 1.5 cm. longa, ad 0.2 cm. lata; stamina collecta, staminodiis circumdata, filamentis basin versus albis, superne purpureis, antheris albidis; discus annularis crenatus; ovarium supra convexum 5-lobum, 0.7 cm. diam.; styli subulati acuminati purpurei, 0.25 cm. longi.

Cape Province: South-Western Region; exact locality unknown. Flowered in Miss E. Struben's garden, Rosebank, nr. Cape Town, Sept., 1917. (Bolus Herbarium No. 14004.)

Described from living specimens. The flowers are exactly those of the section *Sarmentosa*, but the erect habit, and the strongly incurved leaves separate this from all the other species of the section. *Mesembrianthemum purpureostylus*, L. Bolus. *M. forficato* affine, sed habitu reptante, foliis longioribus, minus connatis, apice saepius obscure denticulatis, floribus minoribus, petalis obtusis vel subacutis differt.

Suffruticosum, caulibus elongatis reptantibus compressis alatis, 0.5—0.7 cm. diam., nodis incrassatis, cortice brunneo vel juniore purpureo, ramulis erectis; folia erecta, basi connata, triquetra, valde compressa, apice subtruncata, obscure denticulata vel integra, nitidula, olivaceo-viridia, ad 6.5 cm. longa, saepius 3—4 cm. longa, 0.9 cm. lata, 1.6 cm. diam.; flores solitarii 5-meri, meridie expansi, ad 3 cm. diam., pedunculati, pedunculo teretiusculo, infra medium 2-bracteato, ad 0.8 cm. longo; calyx turbinatus, segmentis subaequilongis ovatis obtusis, ad 0.8 cm. longis; petala lineari-oblongata roseo-purpurea, basin versus pallida, medio purpureo-vittata, 1.2 cm. longa; stamina staminodiaque conferta, filamentis pallidis, antheris purpureis; discus annularis denticulatus; ovarium supra valde convexum, stylis perbrevibus triquetris acutis, capillis purpureis dense vestitis, vix 0.15 cm. longis.

Cape Province: South-Western Region; Swellendam Div., Bonny Vale, J. W. Mathews (National Botanic Gardens, No.  $\frac{3429}{15}$ ).

Allied to *M. forficatum*, Linn., but differs by the creeping habit, longer leaves which are less connate at base, usually only obscurely denticulate at the apex, smaller flowers, and the obtuse or rarely subacute petals.

Described from living specimens which flowered freely in the National Botanic Gardens, Kirstenbosch, May—June, in 1917, 1918 and 1919.

*Geigeria pilifera*, Hutchinson (*Compositae-Inuleae*).

*Radix* erecta, simplex, dura, pallide brunnea, leviter striata, apicem versus circiter 1 cm. crassa. *Rami* dense conferti, usque ad 7 cm. longi, dense foliati, in latere superiore capitula axillaria sessilia contigua



gerentes, crispato-pilosi. *Folia* basi imbricata, longe petiolata, late oblanceolata vel obovato-oblanceolata, apice conspicue mucronata, basin versus sensim attenuata, 1.5—3 cm. longa, 1—1.5 cm. lata, mucronato-dentata, coriacea, utrinque crispato-pilosa et dense foveolata; petioli straminei, subulati, circiter 1.5 cm. longi, parce pilosi. *Capitula* axillaria, sessilia, circiter 1.3—1.5 cm. longa, inferne ovoidea, medio constricta, 0.5 cm. diametro. *Involucri bracteae* purpurascens, 4—5-seriatae, apice in appendicem subulatam, 3—4 mm. longam attenuatae, parce pilosae. *Corollae tubus* anguste cylindricus, 5 mm. longus, parce puberulus; lobi lineares, acuti, 0.1 cm. longi, extra parce pubescentes. *Achaenia* anguste obovoidea, 0.3 cm. longa, albo-sericea. *Pappi squamae* 10, biseriatae, exteriores rotundatae, tenuissimae et hyalinae, apice undulato-dentatae, interiores in setam brevem scabridulam prolongatae.

South-West Africa: North of Aintsas, in sand, Dec., *H. H. W. Pearson* (Percy Sladen Memorial Expedition, No. 9240); between Tsondab and Great Fish Rivers, on shale slopes, common, Dec., *id. (id.)* (No. 9294).

This is a very distinct species with broader leaves than any described hitherto; the pappus scales when dry are remarkably thin and delicate as shown under a high power lens.

*Helichrysum viscidissimum*, Hutchinson (*Compositae-Inuleae*).

*Planta* circiter 18 cm. alta, multo ramosa, ramis dense albo-lanatis foliatis. *Folia* spatulato-oblanceolata, obtusa vel subacuta, ad basin longe attenuata, usque ad 1 cm. longa et 3 mm. lata, coriacea, utrinque glandulis breviter stipitatis dense viscidissima, 1-nervia. *Capitula* terminalia, solitaria, foliis superioribus suffulta, plus minusve campanulata, circiter 0.8 cm. longa. *Involucri bracteae* parte superiore patulae vel recurvatae, albae, lanceolatae, acutae, extra inferne glandulosae, superne glabrae, interiores lineari-oblanceolatae, glabrae. *Flores* circiter 30; corollae tubus anguste cylindricus, glaber. *Achaenia* turgida, brevissima, glandulosa. *Pappi setae* numerosae, albae, corollas superantes, minute barbellatae.

South-West Africa: Naukluft Mts., below Goas, river-bed of ravine. Dec., *H. H. W. Pearson* (Percy Sladen Memorial Expedition, No. 9066).

This species belongs to the group *Leptolepidea*, Moeser (Engl. Jahrb. XLIV, 300), and appears to be most closely related to *H. ceras-tioides*, DC., differing in its densely glandular (not woolly) leaves and smaller capitula; another near ally is *H. spiciforme*, DC., with the capitula arranged in close leafy spikes.

*Plumbago Pearsonii*, L. Bolus (*Plumbagineae*), habitu *P. tristis*, Ait., sed facile distinguitur foliorum circumscriptione, calyce dissimili, ceterisque.

Fruticulus erectus subrigidus, 25—30 cm. altus, ramis virgatis

striatis, dense foliatis, cum foliis creberrime albo-lepidotis, vetustioribus subnudis, ad 0.2 cm. diam.; folia adscendentia vel fere erecta, obovato- vel oblanceolato-oblonga, basin versus attenuata quasi petiolata, basi auriculata, auriculis amplexicaulibus, obtusa, leviter undulata, ad 4 cm., saepius 2.5 cm. longa, 1 cm. lata; pedunculus brevissimus, saepius e basi 2-ramificatus, cum axi florifero, 10—16 cm. longo, glanduloso-pubescentibus; bracteae ovatae, cum bracteolis linearibus, diu persistentes, ad 0.2 cm. longae; pedicelli vix 0.1 cm. longi; calycis segmenta fere libera erecta, demum divergentia, linearilanceolata acuminata, dorso carinata, glanduloso-setosa, 0.7—0.8 cm. longa; corolla “pink” (carnea? rosea?), tubo 2 cm. longo, 0.5 cm. diam., segmentis obovatis apiculatis, 0.5 cm. longis, 0.4—0.5 cm. latis; filamenta basi vera dilatata, tubo aequilonga, antheris 0.2 cm. longis; ovarium glabrum, stylo (in flore unico dissecto) 1.5 cm. longo; capsula demum e basi in 5 valvas lineares acutas subrigidas, 0.8 cm. longas disrupta, valvis interdum, ut videtur, cum corolla deciduis, semine lineari acuto, 0.5 cm. longo, persistente.

South-West Africa: Naukluft Mountains, river-bed between Goas and Kabiras, Jan., 1916, *H. H. W. Pearson* (Percy Sladen Memorial Expedition, No. 9080); Bull’s Mouth Pass, Dec. 1915, *id. (id. No. 8952)*.

A very distinct species, with the habit of *P. tristis*, Ait., but differing in the shape of the leaves, the less tubular calyx with much shorter glandular hairs, and in other characters. (Pl. I, c.)

*Solanum rigescentoides*, Hutchinson; affinis *S. rigescenti*, Jacq., sed ramulis et foliis glabris (nec dense stellato-pubescentibus) differt.

Suffrutex 0.85 m. altus; ramuli dense aculeati, flexuosi, virides, glabri, aculeis a ramulis angulo 90° abeuntibus, gracilibus, stramineis, usque ad 1.2 cm. longis. Folia longe petiolata, ambitu elliptica vel ovato-elliptica, profunde repando-lobulata, apice triangularia, subacuta, basi truncata vel brevissime cuneata, 2.5—5 cm. longa, 1.5—4 cm. lata, tenuiter chartacea, crasse repando-lobulata, lobulis obtuse triangularibus, utrinque glabra, costis interdum parce setosis exceptis; nervi laterales utrinsecus 3—4, a costa sub angulo 45°—60° abeuntes, prominuli; petioli graciles, 1.5—2 cm. longi, glabri vel parce aculeati. Pedunculi 2—3-flori, graciles, aculeati, foliis multo breviores. Calyx 5 mm. longus obconico-campanulatus, lobis lanceolatis acutis extra parce (plerumque 1—2) aculeatis. Corollae tubus 4 mm. longus, lobis 7 mm. longis, triangulari-lanceolatis, subacutis, extra breviter pubescentibus. Antherae exsertae, 6 mm. longae. Stylus corollae paullo longior. Bacca depresso-globosa, nitens, circiter 1 cm. diametro, pedicellis abrupte recurvatis. *S. rigescens*, C. H. Wr. in Dyer, Fl. Trop. Afr. IV, 2, 227, non Jacq.

South-West Africa: Windhuk, bush 2½ ft., flowers mauve; 15 Jan. 1916, *H. H. W. Pearson* (Percy Sladen Mem. Exped., 1915-16, No. 9772); Onanis, *Belck* 6.

*Clerodendron Teaguei*, Hutchinson (*Verbenaceae-Viticeae*); affinis *C. myricoides*, var. *discolore*, Baker, sed foliis basi conspicue auriculatis differt.

Caules (vel rami?) foliati, molliter laxe tomentosi, internodiis plerumque circiter 3 cm. longis. Folia sessilia, late ovata, sensim vel subabrupte acute acuminata, ad basin conspicue et late auriculatam attenuata, usque ad 15 cm. longa et 12 cm. lata, rigide chartacea, crasse et simpliciter serrata, supra scabra, infra molliter tomentella; nervi laterales utrinsecus circiter 6, supra leviter immersi, infra elevati, marginem versus conjuncti et ramosissimi; venae laxae, infra prominulae. Panicula terminalis, laxe foliata, subpyramidalis, circiter 10 cm. longa; cymulae circiter 3-florae, foliis subtendentibus paullo longiores, molliter pubescentes; pedunculi ad 1.5 cm. longi, graciles; bractee lineari-subulatae, 4 mm. longae; pedicelli laterales 1 cm. longi, terminales vix 3 mm. longi. Calyx late cupularis, extra appresse pubescens, 4 mm. longus, lobis triangularibus acutis marginibus subglabris. Corolla circiter 1 cm. longa, glabra. Stamina longe exserta, antheris 1.25 mm. longis. Stylus gracilis, bilobatus. Fructus trilobatus, niger, vix 1 cm. diametro, glaber.

Tropical Africa. Southern Rhodesia: Odzani River Valley, Manica Distr., 1915, *A. J. Teague*, No. 552.

This is a very handsome and striking species, differing from all the known forms of *Clerodendron myricoides* in its strikingly auriculate leaves.

*Homeria lilacina*, L. Bolus (*Irideae-Moraeae*), foliis productis 3, anguste linearibus, perianthio lilacino.

Herba glabra gracilis, ad 23 cm. alta; cormus globosus, tunica extima rigida, segmentis linearibus acuminatis, 1.5 cm. diam.; folia subrigida, setaceo-acuminata, unico radicali, duobus caulinis, 0.2—0.3 cm. lata, infima 30 cm. longa, suprema 15 cm. longa; cyma laxa; spathae valvae exteriores submembranaceae, flavidae, setaceo-acuminatae, 2.5—4 cm. longae; perianthium 3—3.5 cm. diam., segmentis apice rotundatis, purpureo-vittatis, laminae basi luteo-notatis, macula purpureo-cincta, 2 cm. longis, exterioribus cuneatis, interioribus oblanceolatis; antherae lineares, dimidio styli aequilongae; ovarium cylindricum; stylus filiformis, 1 cm. longus, ramis linearibus, apicem versus dilatatis, breviter bilobatis, lobis obtusissimis, dense ciliatis.

Cape Province: Karroo Region; nr. Matjiesfontein, *G. Beattie*, *F. Bolus* (Bolus Herbarium, No. 15186).

Described from living specimens which flowered at Kirstenbosch

in Sept. 1915—1918. The three narrow produced leaves together with the lilac perianth serve to distinguish this species. (Pl. II, A.)

*Homeria bifida*, L. Bolus, folio producto unico, perianthio luteo, styli ramis late oblongis bifidis.

Herba glabra, 40 cm. alta; cormus subglobosus, tunica extima sat tenui, fere integra, crebre tenuiterque nervata, 1.3 cm. diam.; folium longe vaginans, lineare subrigidum, sat conspicue nervatum, circa 50 cm. longum, ad 0.7 cm. latum; cyma densa; spathae valvae longe setaceo-acuminatae, 3—7 cm. longae, exteriores submembranaceae, interiores herbaceae; perianthium 2.2 cm. diam. segmentis breviter unguiculatis, laminae basi aurantiaco-notatis et minute viridi-maculatis, 1.5 cm. longis exterioribus oblongis, abrupte in unguem angustatis, obtusis apiculatis, 0.5 cm. latis, interioribus oblanceolatis acutis, ad 0.4 cm. latis; staminum tubus minute pubescens, antheris oblongis, 0.2 cm. longis; ovarium cylindricum, 0.6 cm. longum, stylo 0.6 cm. longo, apicem versus valde dilatato, ramis lato oblongis, 0.2 cm. longis, bifido, segmentis divergentibus, apice truncatis; capsula cylindrica, 1.2 cm. longa.

Described from three living specimens found growing on the "Aloe Kopje" in the National Botanic Gardens, Kirstenbosch, without note of origin, Sept. 1918 (Bolus Herbarium, No. 15185).

The distinguishing mark of this species is the broadly oblong bifid style-branches. (Pl. II, B.)

*Homeria speciosa*, L. Bolus, foliis productis 4, perianthio pallide lilacino, ovario muriculato, et capsula brevirostrata bene distinguitur.

Herba glabra robusta, ad 55 cm. alta, caule ad 0.8 cm. diam.; folia linearia, setaceo-acuminata, sat conspicue nervata, 22 cm. longa vel ultra, ad 2.3 cm. lata; cyma densissima, ad 30 cm. longa, 10 cm. diam., pedicellis 3—5 cm. longis; spathae valvae membranaceae, crebre tenuiterque nervatae, setaceo-acuminatae, 0.4—0.8 cm. longae; perianthium ad 6 cm. diam., segmentis obtusis, 3.5—4 cm. longis, exterioribus suboblongis, breviter lateque unguiculatis, ad 1.3 cm. latis, interioribus oblanceolatis basin versus gradatim angustatis, ad 1 cm. latis; antherae lineares, 1 cm. longae; ovarium cylindricum, stylo 1 cm. longo, ramis demum antheras parum excedentibus; capsula cylindrica, inconspicue muriculata, 1.4 cm. longa.

Cape Province: Karroo Region; near Prince Albert, alt. 2000 ft., fl. Sept., 1911, *A. M. Krige* (Bolus Herbarium, No. 13486).

Easily distinguished by the four produced leaves, pale lilac perianth, muriculate ovary, and shortly beaked capsule.

Described from dried specimens, in which the style-branches could not be seen satisfactorily. The leaves, with one exception, had

been eaten or broken off so that it is impossible to state the length attained by them. The flowers are among the most beautiful of the *Moraeae* known to me, but whether they are normally as large and fine as they were in the spring of 1911, which was remarkable for the luxuriant growth of the flora round Prince Albert, I have not been able to ascertain.

*Watsonia Galpinii*, L. Bolus (*Irideae-Ixieae*), ab omnibus ceteris sectionis "Eu-Watsonia" habitu graciliore, valvae spathis minoribus, perianthii tubo brevioris, et segmentis pro ratione longioribus distinguitur.

Cormus depresso-globosus, basi obliquus, 2 cm. diam., radices "ancorales" plurimas emittens, his tum apicem versus in radículas fibrosas ramosas, tunicis crebre nervosis atro-brunneis; caulis erectus, e basi ramosus, ad 75 cm. altus; folia radicalia 4—8, adscendentia vel fere erecta, linearia, acute acuminata, cum omnibus partibus, glaberrima, crebre tenuiterque nervosa, nervo medio marginibusque tantum subprominentibus, ad 35 cm. longa, 1—1.5 cm. lata; pedunculus 5 cm. longus; spica simplex vel ramosa, floribus laete rubris, valvae spathae omnino herbaceae vel apice vero submembranaceae, laete virides, apicem versus purpurascens, exteriore lanceolata, setaceo-acuminata, infima 3.2 cm., suprema 0.6 cm. longa, intermediis 1.5—2 cm. longis, interiore ovata vel late ovata acuminata, 0.8—1.4 cm. longa; perianthii tubus 2 cm. longus, dimidio inferiore fere stricto, filiformi, vix 0.15 cm. diam., dimidio superiore infundibuliformi, apice 0.7 cm. diam., segmentis patentibus, 1.5 cm. longis, exterioribus suboblongis subacutis, minute apiculatis, ad 0.8 cm. latis, interioribus oblongo-obovatis, 1 cm. latis; stamina fere ad apicem segmentorum attingentia, antheris 0.9 cm. longis, albidis, fissuris purpureis, polline albedo; ovarium subobconicum, circa 0.5 cm. longum, stylo, cum ramis primariis 0.9 cm. longis, 2.9 cm. longo, stigmatibus ipsis circa 0.2 cm. longis; capsula obconica, 1 cm. longa.

Cape Province: South-Western Region; river-edge, Lottering Bush, Zitzikama, circa 500 ft., fl. Sept., *E. E. Galpin*, 4698; Knysna, *A. V. Duthie*. Flowered in March, 1919, at the National Botanic Gardens, Kirstenbosch (No.  $\frac{239}{18}$ ).

Distinguished from the rest of the section "Eu-Watsonia" by the more slender habit, the smaller spathe-valves, the shorter perianth-tube and relatively longer segments.

*Antholyza Watsonius*, L. Bolus, nov. comb. = *Gladiolus Watsonius*, Thunb. *Antholyza Watsoniana*, Pax in Engl. and Prantl, *Natürl. Pflanzenf.* II, 5, 156 (1888), sphalm.

*Antholyza Gawleri*, L. Bolus, nov. comb. = *Antholyza revoluta*, Burm. (var.  $\beta$ , *Gawleri*, Baker; *Gladiolus Gawleri*, Klatt).

*Antholyza Muirii*, L. Bolus (*Irideae-Ixia*) *A. Watsonius* affinis sed cormi tunicis rigidioribus crassioribusque, folio producto ad 25 cm. longo, perianthii segmentis inferioribus lateralibus brevibus differt.

Erecta, omnino glabra, ad 55 cm. alta; cormus globosus, apicem versus in collum attenuatus, brunneus, 2—2.4 cm. longus, 1—1.7 cm. diam., tunicis in segmenta permulta imbricata lineari-lanceolata acuta fassis; folia saepissime 5, inferiora 2 ad vaginas reducta, tertium productum, vagina ad 16 cm. longa, lamina angustissime lineari, medio nervo marginibusque incrassatis, sulcis vix visis, ad 25 cm. longa, 0.15 cm. lata, superiora reducta, laminis 2.5—5 cm. longis; spica laxa secunda, 7—12 cm. longa, 2—4-fl., floribus patentibus vel rarius erecto-patentibus, rubentibus; spathae valvae lineares obtusae, tenue multi-nervosae, in siccis olivaceae, exteriores 3—5.4 cm. longae, interiores 2—3.4 cm. longae; perianthii tubus curvatus vel fere strictus, ad 3.2 cm. longus, basi 0.15, apice ad 0.6 cm. diam., segmentis acuminatis, saepissime apiculatis, summo inter lateralia porrecto, more *A. Cunonia*, obovato-spathulato, 1.9—2.2 cm. longo, lateralibus superioribus ellipticis, 1.7—1.9 cm. longis, lateralibus inferioribus obovatis, 1—1.3 cm. longis, infimo anguste elliptico, 1.4—1.5 cm. longo; stamina dimidium segmenti summi excedentia, antheris 0.8—1 cm. longis; stylus demum segmento summo fere aequilongus.

Cape Province: South-Western Region; Riversdale Div., hills behind Albertinia, fl. May, *John Muir*, 1348. Exhibited at the Caledon Wild Flower Show, Sept. 1915 (Bolus Herbarium, No. 14953).

Allied to *Antholyza Watsonius*, L. Bolus, but differs in having the tunics of the corm split up into rigid thick segments, the produced leaf much longer, the uppermost perianth-segment porrect between the lateral segments, and the lower lateral segments much shorter than the rest.

*Antholyza Guthriei*, L. Bolus, *A. quadrangulari* proxime accedit, sed foliis productis 4, brevioribus, marginibus haud conspicue incrassatis, distinguitur.

Erecta, omnino glabra, ad 55 cm. alta; cormus subglobosus, 1.3 cm. diam., tunicis demum in segmenta capillacea fassis; folia basalia 5, infimum ad vaginam reductum, producta 4, laminis linearibus acuminatis 3-nervatis, nervis marginibusque fere aequaliter prominentibus, ad 19 cm. longa vel ultra, ad 0.3 cm. lata, caulina 2, ad 5 cm. longa; spica laxa secunda, ad 20 cm. longa, 1—7-fl., floribus patentibus; spathae valvae lineares vel oblongae, acuminatae vel subobtusae, exteriores, in siccis, olivaceae vel rubentes, 2.5—4.5 cm., interiores 1.7—3.5 cm. longae; perianthii tubus leviter curvatus, parte inferiore ad 1.8 cm., superiore ad 2 cm. longa, segmentis inaequalibus obtusis,

summo obovato, 1.5—2 cm. longo, 1—1.4 cm. lato, lateralibus superioribus obovatis vel ellipticis, cum summo rubentibus, maculis lineisque saturioribus notatis, 1.4—1.8 cm. longis, 0.7—1 cm. latis, lateralibus inferioribus oblongo-obovatis 0.7—0.8 cm. longis, 0.4—0.5 cm. latis, cum infimo oblongo-elliptico, 1.1—1.2 cm. longo, aurantiacis; stamina saepius segmenti summi dimidium excedentia, antheris versatilibus, 0.4—0.5 cm. longis; stylus demum segmentum summum aequans.

Cape Province: South-Western Region; Elim, alt. 250 ft., fl. July, *F. Guthrie*, 3827. Exhibited at the Caledon Wild Flower Show, Sept. 1915 (Bolus Herbarium, No. 14954).

Very closely allied to *A. quadrangularis*, Burm., but is distinguished by having four produced leaves which are shorter and are not conspicuously thickened on the margins.

A. Sladeniana, Pole Evans (*Liliaceae-Aloineae-Serrulatae*); *A. variegata*, L., affinis, sed inflorescentiis ramosis, floribus minoribus, tenuioribusque differt.

*Herba* succulenta, acaulis. *Folia* imbricato-trifaria, lanceolata-acuta, supra concava, carinata, 7—9 cm. longa et 3—4 cm. lata, utrinque viridia maculisque albis oblongis confluentibus sub-fasciatim transverse variegata, marginibus carinaeque cartilagineis, superne minute denticulatis. *Pedunculus* erectus, supra medium in ramos 3 erecto-arcuatos subaequilongos divisus; racemi 12—20 cm. longi, sub-laxi; bracteae minutae, scariosae, deltoideo-acutae; pedicelli ca. 15 mm. longi, erecto-patuli. *Perianthium* miniatum, 20—23 mm. longum, distincte decurvatum, supra ovarium paullum constrictum et deinde inflatum, segmenta ca. 4 mm. longa, tri-nervia; filamenta haud exserta.

South-West Africa: Nauchas, on granite, Jan. 1916, *H. H. W. Pearson* (Percy Sladen Memorial Expedition, 1915–16, Keetmanshoop—Ababies—Windhuk. No. 9000). “Leaves irregularly but distinctly tristichous; flowers dull pink.”

Allied to *A. variegata*, L., but easily distinguished by its tall branched inflorescence and smaller and more delicate flowers.

*Apicra rubriflora*, L. Bolus (*Liliaceae-Aloineae*), perianthio rubro, et segmentis exterioribus reduplicato-valvatis bene distinguitur.

*Herba* erecta glabra rigida, ad 47 cm. alta, caule 7 cm. longo vel ultra, dense folioso; folia patentia, in 4 series disposita, ovato-triquetra pungenti-acuminata, supra concava, 2.5—4 cm. longa; pedunculus 3—4 foliis bracteiformibus distantibus onustus, ad 29 cm. longus; racemus subsecundus, sat densus, ad 12 cm. longus, floribus adscendentibus; bracteae lanceolatae acuminatae, saepius 0.6 cm. longae, pedicellis aequilongis vel parum longioribus; perianthium laete rubrum,

2—2·5 cm. longum, 0·5—0·6 cm. diam., tubo cylindrico, apice leviter constricto decurvatoque, segmentis conniventibus; stamina exteriora segmentis subaequilonga, interiora tubum vix excedentia; ovarium cylindricum 0·5 cm. longum, stylo (in flore unico dissecto) 1 cm. longo.

Cape Province: South-Western Region; Swellendam Div., Bonnie Vale, *Smith* (National Botanic Gardens, No.  $\frac{2}{17}$ ).

A very distinct species characterised by the red perianth and the reduplicate-valvate outer perianth-segments. Described from living specimens which flowered at Kirstenbosch, April, 1918. (Pl. II, D.)

*Agapanthus Walshii*, L. Bolus (*Liliaceae-Allieae*), ab *A. umbellato* distinguitur perianthii tubo 2—3-plo longiore segmentis.

Herba glabra, 60—70 cm. alta; folia saepe cum floribus non bene evoluta, linearia acuta subcoriacea, ad 19 cm. longa, 1 cm. lata; spatha non visa; umbellae ad 19-fl., floribus pendulis; perianthium 3—5·4 cm. longum, segmentis 1·4—1·5 cm. longis; capsula ignota.

Cape Province: South-Western Region; Caledon Div., nr. Steenbras Railway Station, alt. ca. 1800 ft., fl. Dec.—Jan., *A. Walsh* (Bolus Herbarium, No. 15675).

Described from several living specimens. Distinguished from *A. umbellatus*, L'Hérit., by the perianth-tube being 2—3 times longer than the segments. (Pl. II, c.)



FLOWERING PLANTS COLLECTED IN SOUTH-  
WEST AFRICA BY THE PERCY SLADEN  
MEMORIAL EXPEDITION, 1915-1916<sup>1</sup>

BY R. WORDSWORTH, J. HUTCHINSON, F. BOLUS,  
AND L. BOLUS.

MENISPERMACEAE.

*Antizoma angustifolia*, Meisn. Between Nauchas and Areb, on plains of granitic sand, 9014.

CRUCIFERAE.

*Sisymbrium garipepinum*, Burch. Between Hoffnungsfelde and Haris, in river-beds and low sandy places on plateau, 9538.

*Heliophila crithmifolia*, Willd. North of Nauchas, in granitic sand, 9007.

*Senebiera integrifolia*, DC. 8 km. north-west of Nomtsas, in mud in Usib River, 9315. At Tsubgaus, on sand-dunes of Leber River, 9202. Below Ababes, in bed of Tsondeb River, 9158.

*Lepidium linoides*, Thunb. Holoog, in drying sand in bed of Great Fish River, 9802.

*Lepidium ruderales*, Linn. River-bed between Hoffnungsfelde and Haris, 9547.

CAPPARIDACEAE.

*Cleome rubella*, Burch. Kuisib River bed, at Haris, 9514.

*Cleome diandra*, Burch. Little Karas Mountains, western foothills shale-slopes, at Holoog, 9732.

*Polanisia Paxii*, Gilg and Benedict. Great Fish River bed, 9278.

*Polanisia lutea*, Sond. South of Choaberib, among stones, 9453. Little Karas Mountains, western foothills, 9720. Great Fish River, in sand, 9261.

*Gynandropsis pentaphylla*, DC. Awas Mountains, at Aub, 9520. Holoog, 9816.

*Maerua arenicola*, Gilg. Ababes, common on plains and mountains, 9172. Between Gellap and Great Fish River, on dry shale-slopes and in sand of river-bed, 9288.

*Boscia foetida*, Schinz. Keetmanshoep, 9280.

<sup>1</sup> Percy Sladen Memorial Expedition in South-West Africa, Report No. 72. Acknowledgement is made here of the assistance received by the Trustees of the Bolus Herbarium towards the publication of this Report—viz. the sum of £25. 10s. 5d., being the balance of the Government Grants to the late Dr H. H. W. Pearson for Botanical Exploration in South-West Africa.

## POLYGALACEAE.

- Polygala leptophylla*, Burch. Ababes, on broken granite, 9179. Awas Mountains, 12 km. east of Windhuk, on quartzite, 9608. Between Haris and the Awas Mountains, on high plateau, 9685. Naukluft Mountains, at Kabiras, on granite, 9058. Little Karas Mountains, western foothills, on shale slopes near Holoog, 9751.
- Polygala abyssinica*, Fresen. Ababes, in bed of Tsondab River, 9161.
- Polygala virgata*, Thunb. var. *genistoides*, Harv. Nauchas, in Kam River bed, 9048. Naukluft Mountains, in river-bed below Goas, 9067.

## CARYOPHYLLACEAE.

- Dianthus micropetalus*, E. Mey. Sandy plains north of Areb, 9476.

## PORTULACEAE.

- Portulaca* sp. near *P. quadrifida* (material insufficient). Awas Mountains, on quartzite slopes 12 km. east of Windhuk, 9792.
- Anacampseros quinaria*, E. Mey. var. *Schmidtii*, Berger. At Kubib, on sandy plain, 9471. Hoffnungsfelde, on stony plateau, 9568.
- Talinum caffrum*, E. and Z. Between Haris and the Awas Mountains, on high plateau, 9677. Between Gamis and Bull's Mouth Pass, 8928. Nauchas, in granitic sand, 9498.

## MALVACEAE.

- Sida longipes*, E. Mey. Awas Mountains, on quartzite hills 12 km. east of Windhuk, 9783, 9784. Between Choaberib and Gurumanas, 9403.
- Abutilon pycnodon*, Hochr. Nauchas, 9006.
- Abutilon indicum*, Don. Awas Mountains, on quartzite hills, 12 km. east of Windhuk, 9607.
- Pavonia macrophylla*, E. Mey. Between Gamis and Bull's Mouth Pass, on banks of upper streams of Fish River, 8933. Klein Windhuk, 9617. 8 km. north-west of Nomtsas, on shale-banks of Usib River, 9326.
- Hibiscus calycinus*, Willd. Klein Windhuk, 9618.
- Hibiscus pusillus*, Thunb. Between Haris and the Awas Mountains, on high plateau, 9696. Awas Mountains, on quartzite slopes 12 km. east of Windhuk, 9796.
- Hibiscus Elliottiae*, Harv. Little Karas Mountains, western foothills, on sandy stream-banks and shale-slopes near Holoog, 9741. Ganaams, on shale-banks of Leber River, 9372. Ababes, stream-bed, 8908.
- Hibiscus micranthus*, Linn. Between Voigtsgrund and Brekdorn, among stones in minor stream-bed, 9350.
- Hibiscus intermedius*, A. Rich. Windhuk, on shale-slopes, 9641.
- Hibiscus pseudosida*, Ulbrich. Awas Mountains, 12 kilometres east of Windhuk on quartzite hills, 9781. Windhuk, on shale slopes, 9621.

*Fugosia* (*Cienfugosia pentaphylla*, Schum). Above Ababes, bed of Tsondab River, 9129, 9175.

STERCULIACEAE.

*Hermannia comosa*, Burch. var. *minor*. Nauchas, 9049, 9052. Naukluft Mountains, at Kabiras, 9064.

*Hermannia abrotanoides*, Schrad. Between Haris and the Awas Mountains, on a high plateau, 9688. Choaberib, 9595. At Kubib, in vlei-ground, 9487.

*Hermannia filipes*, Harv. Windhuk, shale-slopes, 9637.

*Hermannia affinis*, K. Schum. Below Ababes, bed of Tsondab River, 9151. Gamis, 8963.

*Hermannia spinosa*, E. Mey. Namseb, hard dry plain, 9337.

*Hermannia fruticulosa*, K. Schum. Little Karas Mountains, western foothills, near Holoog, 9765.

*Hermannia brachypetala*, Harv. Between Hoffnungsfelde and Haris, sandy places on plateau, 9546.

*Hermannia Helianthemum*, K. Schum. Hoffnungsfelde, 9590, 9591. Between Voigtsgrund and Brekdorn, among stones, 9355. North of Gurumanas, river-bed, 9573, 9571. Naukluft Mountains, at Kabiras, among granite, 9063. Nauchas, on granite, 9041. Kubib, 9488. Witkobus, on sandy banks, 8987. Plains south of Choaberib, 9446.

*Hermannia bipinnata*, Glover. Witkobus, river-flat, 8986.

*Hermannia coccocarpa*, Burt-Davy. Between Achterfontein and Gelwater, 9234.

*Hermannia abyssinica*, K. Schum. ex Schinz. Between Hoffnungsfelde and Haris, in river-bed, 9549.

*Hermannia grandiflora*, Ait. Naukluft Mountains, near Kabiras, on river-bank, 9093.

TILIACEAE.

*Grewia occidentalis*, Linn. Little Karas Mountains, western foothills near Holoog, 9762. Below Holoog Station in bed of Great Fish River, 9809.

*Grewia pilosa*, Lam. Windhuk, 9776.

*Grewia cana*, Sond. Between Nauchas and Areb, on granite, 9032. Little Karas Mountains, western foothills, on shale-slopes and in river-bed near Holoog, 9735. Klein Windhuk, 9787. Ganaams, shale-banks of Leber River, 9369. Great Fish River bed, 9267.

*Grewia* sp. (Specimen incomplete.) Ababes, on breccia banks of Tsondab River, 9145.

*Corchorus asplenifolius*, Burch. Near Noas, sandy ground, 9402. On the road to Tsubgaus, north of Freistadt, on high plateau, 9396.

## ZYGOPHYLLACEAE.

- Tribulus pterophorus*, Presl. South of Choaberib, on stony plains, 9461.  
Between Gibeon and Reistadt, on dry shale-rocks, 9212.
- Sisyndite spartea*, E. Mey. Between Gellap and Great Fish River, on dry shale-slopes, 9292.
- Zygophyllum simplex*, Linn. At outspan north of Aintsas, in sand, 9238.
- Zygophyllum suffruticosum*, Schinz. Great Fish River, on dry shale-banks, 9260. Keetmanshoep, 9283. South of Choaberib, in stony places, 9452. Little Karas Mountains, western foothills, shale-slopes near Holoog, 9748. Between Goas and Kabiras, on river-bank, 9088.
- Zygophyllum tenue*, Glover. Locality uncertain, 9817.
- Fagonia minutistipula*, Engl. (e descr.). Bull's Mouth Pass, 8951. Above Ababes, in dry ravine of Tsondeb River, 9193.
- Neoluderitzia sericeocarpa*, Schinz. Great Fish River, 9299.

## GERANIACEAE.

- Sarcocaulon Marlothii*, Engl. Near Ababes, on dry rocky slopes, 8906.  
Naukluft Mountains, 9104.
- Oxalis lateriflora*, Jacq. At Haris, in Kuisib River bed, 9561. Between Haris and the Awas Mountains, on high plateau and in river-bed, 9600.  
Awas Mountains, 8 km. east of Windhuk, in rock-crevices, 9613.

## RUTACEAE.

- Thamnosma africana*, Engl. Above Ababes, in bed of Tsondeb River, 9125.

## BURSERACEAE.

- Commiphora abyssinica*, Engl. var. *simplicifolia*. Naukluft Mountains, on rocks, 9109. Little Karas Mountains, western foothills, near Holoog, in sandy bed of stream, 9747. On hill behind Gamis Farm House, 8978.
- Commiphora namaensis*, Schinz (e descr.). Little Karas Mountains, western foothills, 9718.
- Commiphora hereroensis*, Schinz (e descr.). Bull's Mouth Pass, on middle and upper slopes, 8917. Ababes, on hill-slopes, 8909.
- Commiphora* sp. (material incomplete). Above Ababes, on banks of the Tsondeb River, 9134, 9178.

## CELASTRACEAE.

- Gymnosporia* sp. Naukluft Mountains, between Goas and Kabiras, 9072.

## RHAMNACEAE.

- Zizyphus mucronata*, Willd. Awas Mountains, pass between Haris and Aub, 9662. At Holoog, on banks of Great Fish River, 9812. At Ababes, common on banks of Tsondeb River, 9135.

SAPINDACEAE.

- Pappea capensis*, E. and Z. Little Karas Mountains, western foothills, near Holoog, 9746.  
*Aitonia capensis*, Linn. f. Voigtsgrund, limestone flat, 9365. 8 km. north-west of Nomtsas, on banks of Usib River, 9321. Below Ababes, on banks of Tsondab River, 9136.

AMPELIDACEAE.

- Cissus lanigera*, Harv. Windhuk, 9644. Between Goas and Kabiras, 9084. Plains north of Kubib, 9430.  
*Cissus Seitziana*, Gilg and Brandt. Naukluft Mountain between Ababes and Homnus, 9097, Areb, 9497.  
*Cissus hereroensis*, Schinz. Between Ukos and Choaberib, 9440. Ukos, 9438. Between Nauchas and Areb, 9013. Awas Mountains, on quartzite hills 12 km. east of Windhuk, 9780.

ANACARDIACEAE.

- Rhus lancea*, Linn. f. Between Aub and Windhuk, 9652. Between Nauchas and Areb, on river bank, 9031. Gurumanas, in stream-bed, 9423.  
*Rhus Marlothii*, Engl. Valley, a little east of Ababes, 8910. Bull's Mouth Pass, 8912.  
*Rhus* sp. Above Ababes, on bed of Tsondab River, 9181.  
*Rhus* sp. Between Ukos and Choaberib, 9428. Between Kubib and Ukos, 9436. Between Haris and the Awas Mountains, on plateau in sandy ground, 9507. Between Nauchas and Areb, on plains of granitic sand, 9010.  
*Heeria crassinervia*, Engl. Naukluft Mountains, near Homnus on rocks, 9108.  
*Heeria* sp. (material incomplete). Between Gellap and Great Fish River, 9284.

MORINGACEAE.

- Moringa ovalifolia*, Dtr. & Brge. Naukluft Mountains, near Homnus on granite slopes, 9107. West of Ababes, above Voigt's Farm, 8911.

LEGUMINOSAE.

- Lebeckia linearifolia*, E. Mey. Between Achterfontein and Gelwater, on sand-dunes, 9233.  
*Lebeckia elongata*, Hutch. locality? 9899.  
*Crotolaria distans*, Benth. Awas Mountains, in pass between Haris and Aub, 9674.  
*Crotolaria argyraea*, Welw. 8 km. north-west of Nomtsas, on sand-banks of Usib River, 9317. North of Choaberib, in river-bed and on plateau, 9596. Windhuk, on slopes, 9774.  
*Psoralea biflora*, Burch. Kubib Vlei, 9486.  
*Psoralea obtusifolia*, DC. At Tsubgaus, sand-dunes of river, 9204. Above

- Ababes, sandy banks of Tson-dab River, 9189. Great Fish River, 9274, 9280, 9210. At Holoog, on banks of Great Fish River, 9808.
- Indigofera cryptantha*, Benth. Naukluft Mountains, Homnus, in river-bed, 9115.
- Indigofera argyroides*, E. Mey. Little Karas Mountains, western foothills, near Holoog, on shale-slopes, 9754.
- Indigofera transvaalensis*, Bak. f. South of Choaberib, prostrate among stones in stream-bed, 9441.
- Indigofera alternans*, DC. Choaberib, sandy ground, 9597. Haris, 9515.
- Indigofera heterotricha*, DC. Little Karas Mountains, western foothills, near Holoog on sandy banks of river, 9743. Above Ababes, in bed of Tson-dab River, 9121, 9150. Gurumanas, in sand, 9575. 8 km. north-west of Nomtsas, among stones in Usib River bed, 9306.
- Sylitra biflora*, E. Mey. Ababes, in granitic gravel, 9166. Between Gamis and Bull's Mouth Pass, in stream-bed and on banks of Upper Fish River, 8935. Little Karas Mountains, western foothills east of Holoog, on shale-slopes, 9758. Between Voigtsgrund and Brekdorn, 9348.
- Tephrosia damarensis*, Engl. Little Karas Mountains, western foothills east of Holoog, 9757. Windhuk, on slopes, 9775. Between Gelwater and Great Fish River, on dry shales, 9222. Great Fish River, on dry shale-banks, 9263. Naukluft Mountains, between Goas and Koichas, 9078.
- Tephrosia semiglabra*, Sond. Hoffnungsfelde, in sand, 9582. Between Hoffnungsfelde and Haris, trailing on sand, 9528.
- Sutherlandia frutescens*, R. Br. 8 km. north-east of Nomtsas, on sandy banks of Usib River, 9313.
- Lessertia benguellensis*, Baker. Naukluft Mountains, between Goas and Koichas, in river-bed, 9077. At Homnus, in river-bed, 9114. 10 km. north-west of Nomtsas, in sand-bed of tributary of Usib River, 8983.
- Lessertia macrostachya*, DC. var.  $\beta$  *atomaria*. Great Fish River, 9298.
- Vigna Burchellii*, Harv. 8 kilometres north-west of Nomtsas, on banks of Usib River, 9320. Hoffnungsfelde Plateau, 9589. Awas Mountains, 12 km. east of Windhuk, on quartzite hills, 9788. South of Choaberib, common on stony plains, 9451. Between Aub and Windhuk, 9647.
- Vigna triloba*, Walp. Haris, Kuisib River bed, 9554. Between Haris and the Awas Mountains, on high plateau, 9683. Awas Mountains, 12 km. east of Windhuk, on quartzite slopes, 9605. Between Hoffnungsfelde and Haris, in sand of river-bed, 9524.
- Dolichos Pearsonii*, Hutch. Between Nauchas and Areb, on granite banks of stream, 9019.
- Rhynchosia Totta*, DC. var. *grandiflora*, L. Bolus. Windhuk, on shale-slopes, 9638. Little Karas Mountains, western foothills near Holoog, in stream-beds, 9744.
- Rhynchosia* sp. nearest *R. minima*, DC. Locality uncertain, 9818.

- Caesalpinia Pearsonii*, L. Bolus. Ababes, breccia-banks of Tsondab River, below farm, 9162.
- Hoffmanseggia lactea*, Schinz. Between Gamis and Bull's Mouth Pass, on sandy banks of stream of Upper Fish River, 8941. Little Karas Mountains, western foothills near Holoog, on shale-slopes, 9742. Naukluft Mountains, between Goas and Kabiras, 9062.
- Haematoxylon Dinteri*, Harms. Little Karas Mountains, western foothills east of Holoog Station, in sandy river-bed and in rock-crevices, 9717.
- Parkinsonia africana*, Sond. Between Gellap and Great Fish River, on dry shaly slopes, 9293.
- Cassia obovata*, Collad. North of Gelwater, on shale-plains, 9225. Naukluft Mountains, Kabiras, 9092.
- Cassia mimosoides*, Linn. Awas Mountains, 12 km. east of Windhuk, on quartzite hill, 9786.
- Bauhinia garipeensis*, E. Mey. North of Gelwater, on shale-plains, 9224. Between Gellap and Great Fish River, on shale-slopes, 9296. Between Gelwater and Great Fish River, 9221. Little Karas Mountains, western foothills near Holoog, 9736. Bull's Mouth Pass, 8914. Naukluft Mountains, north-east of Ababes, common on sandy plains, 9103.
- Elephantorrhiza* sp. (in fruit only). Bull's Mouth Pass, on steep slopes, 8919. Awas Mountains, pass between Haris and Aub, 9658.
- Xerocladia viridiramis*, Taub. Namseb, on clay and slightly saline flats, 9345.
- Acacia detinens*, Burch. Between Choaberib and Gurumanas, 9599. At Ababes, on banks and in bed of Tsondab River, 9120.
- Acacia glandulifera*, Schinz. At foot of Bull's Mouth Pass, abundant on the flats, 8945. Holoog, common on plateau and on banks of Great Fish River, 9814. Namseb, 9335. Gurinaris, in river-bed, 9256.
- Acacia spirocarpodes*, Engl. Above Ababes, in bed of Tsondab River, 9127.
- Acacia spinosa*, Marl. and Engl. Hills behind Gamis Farm House, 8977. Gibeon, on dry shale, 9207.
- Acacia Marlothii*, Engl. Windhuk, common on shale-slopes, 9629.
- Acacia dulcis*, Marloth. Windhuk, common on shale-slopes, 9624.
- Acacia hereroensis*, Engl. Between Hoffnungsfelde and Haris, on stony plateau, 9548.
- Acacia inermis*, Marloth and Engl. On hill behind Gamis Farm House, 8976. South of Great Fish River, on shaly slopes, 9297. Great Fish River, 9264.

ROSACEAE.

- Grielum Marlothii*, Engl. Between Achterfontein and Gelwater, 9227.

SAXIFRAGACEAE.

- Vahlia capensis*, Thunb. Between Tsubgaus and Ganaams, in minor stream-bed, 9387. At Tsubgaus, on sand-dunes of Leber River, 9205.

## HAMAMELIDACEAE.

*Myrothamnus flabellifolia*, Welw. Naukluft Mts., in clefts in granite, 9101.

## COMBRETACEAE.

*Combretum apiculatum*, Sond. Between Tsubgaus and Ganaams, on shale-cliffs on right bank of Leber River, 9391. Great Fish River Ravine, 9215. Awas Mountains, pass between Haris and Aub, 9656.

## ONAGRARIACEAE.

*Montinia acris*, Linn. f. Windhuk, 9633. Awas Mountains, pass between Haris and Aub, 9660. Hill behind Gamis Farm House, 8978. 8 km. north-west of Nomtsas, in river-bed, 9304.

## PASSIFLORACEAE.

*Adenia Pascanthus*, Harv. Between Haris and the Awas Mountains, on high plateau, 9690. Between Choaberib and Gurumanas, on sandy plains, 9407. Naukluft Mountains, at Kabiras, 9057.

## CUCURBITACEAE.

*Trochomeria debilis*, Hook. f. Between Nauchas and Aub, 9001. Awas Mountains, between Aub and Windhuk on slopes, 9651, 9654. Between Hoffnungsfelde and Haris, 9540. Between Haris and the Awas Mountains on high plateau, 9500.

*Cucumis africanus*, Linn. f. Holoog, in bed of Great Fish River, 9704. Hoffnungsfelde, 9586.

*Cucumis myriocarpus*, Naud. At Haris, in Kuisib River bed, 9510.

*Cucumis Melo*, Linn. Holoog, in bed of Great Fish River, 9705. South of Choaberib, on stony plain, 9459. At Ganaams, on banks of Leber River, 9375, 9374.

*Cucumis* sp. Between Hoffnungsfelde and Haris, in sandy places.

*Coccinea sessilifolia*, Cogn. Between Ukos and Choaberib, 9437. Awas Mountains, at Aub, 9663, 9521. Haris, on stony plateau, 9509.

*Corallocarpus Welwitschii*, Hook. f. Voigtsgrund, 9363. 8 km. north-west of Nomtsas, in bed of Usib River, 9303.

*Corallocarpus Schinzii*, Cogn. Awas Mountains, quartzite cliff over river-bed, 9616.

*Corallocarpus* sp. (material insufficient). Naukluft Mountains near Ababes, 9098.

## FICOIDEAE.

*Mesembrianthemum floribundum*, Ait. Naukluft Mountains, between Goas and Kabiras, on saline flats, 9090.

*Mesembrianthemum simile*, Sond. var. namaquense. Between Kabiras and Nauchas, in sandy places, 9034. Between Tsondab and Great Fish



- River, 9286. Above Ababes, in Tsondab River bed, 9184. At Tsubgaus, on sand-dunes of Leber River, 9398. Holoog, in bed of Great Fish River, 9703.
- Mesembrianthemum noctiflorum*, Linn. Between Achterfontein and Gelwater on sand-dunes, 9230.
- Mesembrianthemum uncinellum*, Haw. Between Haris and the Awas Mountains, on high plateau, 9681. Between Choaberib and Gurumanas, in stony places, 9405.
- Tetragonia spicata*, Linn. f. South of Choaberib, in stony places, 9457. Between Hoffnungsfelde and Haris, on plateau, 9525.
- Aizoon Burchellii*, N. E. Br. Between Haris and the Awas Mountains, on high plateau, 9687.
- Galenia papulosa*, Sond. Above Ababes, in bed of Tsondab River, 9126.
- Galenia crystallina*, Fenzl. Between Achterfontein and Gelwater, on sand-dunes, 9228.
- Galenia africana*, Linn. 8 km. north-west of Nomtsas, on sandy banks of Usib River, 9327.
- Trianthes crystallina*, Vahl. Between Gellap and Great Fish River, in sandy places, 9287. Between Achterfontein and Gelwater, on sand-dunes, 9231.
- Anisostigma Schenckii*, Schinz. Leber River, very abundant on dunes, 9258. Nomtsas, in Great Fish River sand-basin, 9333. North of Aintsas, 9246. Great Fish River at Holoog, 9806.
- Mollugo Cerviana*, Ser. var.  $\gamma$  *pusilla*. Great Fish River, 9800.
- Pharnaceum verrucosum*, E. and Z. At Witkobus, on river-flats, 8985. Between Hoffnungsfelde and Haris, in sand of river-bed, 9528.
- Pharnaceum* (*Hypertilis spergulacea*, E. Mey.). Little Karas Mountains, western foothills, on river-banks near Holoog, 9734.
- Gisekia pharnaceoides*, Linn. Holoog, in bed of Great Fish River, 9700.
- Gisekia Miltus*, Fenzl. Kuisib River bed at Haris, 9511.
- Limeum aethiopicum*, Burm. 8 km. north-west of Nomtsas, in sand in Usib River, 9305. Naukluft Mountains, between Goas and Kabiras in river-bed, 9069.

UMBELLIFERAE.

- Heteromorpha arborescens*, Ch. and Schl. Between Haris and the Awas Mountains, on high plateau, 9678.
- Pituranthos aphylla*, O. Kunze. Naukluft Mountains, at Homnus in river-bed, 9113. Namseb, limestone substratum, in sand, 9336. Gurumanas, on dry slopes, 9421. Between Haris and Aub, in stream-bed, 9017.

RUBIACEAE.

- Oldenlandia stricta*, K. Schum. At Kubib, on vlei-ground, 9480. Naukluft

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- Mountains, between Goas and Kabiras in river-bed, 9082. *Nauchas*, in Kam River bed, 9045.  
*Oldenlandia thymifolia*, O. Kunze. Windhuk, on shale-slopes, 9642. Little Karas Mountains, western foothills at Holoog, 9760.

DIPSACEAE.

- Scabiosa Columbaria*, Linn. Between Hoffnungsfelde and Haris, in river-bed, 9550. At Haris, in Kuisib River bed, 9557.

COMPOSITAE.

- Vernonia Kraussii*, Sch. Bip. Between Haris and the Awas Mountains, on high plateau, 9675.  
*Pteronia unguiculata*, Sp. Moore. Between *Nauchas* and *Areb*, on granitic plains, 9028.  
*Felicia muricata*, Nees. Between Haris and the Awas Mountains, on high plateau, 9697. Windhuk, on shale-slopes, 9773.  
*Felicia hyssopifolia*, Less. Between Hoffnungsfelde and Haris, in sandy and stony places on plateau and in river-beds, 9529. North of Gurumanas, on plateau, 9577. *Witkobus*, on sandy banks, 8961. Near *Gamis*, sandy banks of head waters of Great Fish River, 8966. *Kubib*, on vlei-ground, 9489.  
*Felicia gariepina*, L. Bolus (*Nidorella gariepina*, DC.). Between *Choaberib* and *Gurumanas*, 9404. South of *Choaberib*, on plains, 9445.  
*Nidorella resedaefolia*, DC. Between Haris and the Awas Mountains, on high plateau, 9695.  
*Nidorella resedaefolia*, DC. var. *rapunculoides*. *Gamis*, 8970. Below *Ababes*, in bed of *Tsondab River*, 9141, 9148.  
*Tarchonanthus camphoratus*, Linn. Between *Gurumanas* and *Haris*, on stony plateau, 9545.  
*Blumea gariepina*, DC. 8 km. north-west of *Nomtsas*, on sandy bank of *Usib River*, 9324. Below *Ababes*, in bed of *Tsondab River*, 9153.  
*Epaltes gariepina*, Steetz. *Naukluft Mountains*, between *Goas* and *Kabiras*, on river-banks, 9086.  
*Nicolasia heterophylla*, Sp. Moore. *Namseb*, on hard clay, 9339.  
*Helichrysum leptolepis*, DC. *Great Fish River* bed, 9279. Between *Nauchas* and *Areb*, on plains of granitic sand, 9024. Between *Kabiras* and *Nauchas*, on plains, 9038.  
*Helichrysum herniarioides*, DC. Between *Nauchas* and *Areb*, on plains of granitic sand, 9025.  
*Helichrysum viscidissimum*, Hutch. *Naukluft Mountains*, below *Goas*, in river-bed in ravine, 9066.  
*Helichrysum* sp. *Holoog*, on drying sand on bed of *Great Fish River*, 9803.

- Iphiona polygalifolia*, Benth. and Hook. Awas Mountains, 12 km. east of Windhuk, on quartzite hill, 9785.
- Pegolettia oxyodonta*, DC. Little Karas Mountains, western foothills, near Holoog on shale slopes, 9731. Above Ababes, sandy banks of Tsondab River, 9188.
- Pulicaria capensis*, DC. Ganaams, shale-slopes of Leber River, 9379, 9380.
- Geigeria passerinoides*, Harv. Between Kabiras and Nauchas, in sandy places, 9040.
- Geigeria passerinoides*, Harv. forma. Naukluft Mountains, between Bull's Mouth Pass and Ababes, on saline plain, 8902.
- Geigeria Schinzii*, O. Hoffm. Windhuk, shale-slopes, 9769.
- Geigeria pectidea*, Harv. North of Aintsas at outspan, in sand, 9243. Between Aintsas and Achterfontein at 2nd outspan, 9237. Nomtsas, 9332. Below Ababes, in bed of Tsondab River, 9156.
- Geigeria pilifera*, Hutchinson. Between Tsondab and Great Fish River, on shale-slopes, 9294. North of Aintsas at outspan, in sand, 9240.
- Ondetia linearis*, Benth. Bull's Mouth Pass, 8948. Between Tsubgaus and Ganaams, on shale-slopes, 9389.
- Eriocephalus pubescens*, DC. Between Haris and the Awas Mountains, on high plateau, 9686. Awas Mountains, 12 km. east of Windhuk, on quartzite slopes, 9603.
- Pentzia annua*, DC. (*Matricaria albida*, Fenzl.). Holoog, in bed of Great Fish River, on drying sand, 9801.
- Pentzia virgata*, Less. North of Areb, on sandy plains, 9475. At Kubib, 9490. 10 km. north-west of Nomtsas, on sandy banks of Usib River, 8982.
- Pentzia acutiloba*, Hutchinson. Great Fish River bed, 9278.
- Pentzia monocephala*, Sp. Moore. South of Choaberib, on stony plains, 9460. Naukluft Mountains, between Goas and Kabiras, on river-banks, 9074. Between Haris and the Awas Mountains, on high plateau, 9676.
- Pentzia lanata*, Hutchinson. Bull's Mouth Pass, 8946. Between Gamis and Bull's Mouth Pass.
- Senecio Marlothianus*, O. Hoffm. Windhuk, on shale-slopes, 9622. Below Ababes, on breccia-banks of Tsondab River, 9152. Above Ababes, in bed of Tsondab River, 9132.
- Tripteris microcarpa*, Harv. Bull's Mouth Pass, 8916.
- Tripteris pachypteris*, Harv. Between Nauchas and Areb, on granite in stream-bed, 9016.
- Osteospermum muricatum*, DC. Nauchas, in river-bed, 9047. Between Goas and Kabiras, in river-bed, 9085.
- Dimorphotheca polyptera*, DC. In bed of Great Fish River, 9276.
- Arctotis staechadifolia*, Berg. Nauchas, in river-bed, 9005.

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*Berkheya Schenckii*, O. Hoffm. Naukluft Mountains, near Homnus, in river-bed, 9112.

*Dicoma capensis*, Less. North of Freistadt on the road to Tsubgau, on high plateau, 9393.

CAMPANULACEAE.

*Wahlenbergia arenaria*, A. DC. Haris, in Kuisib River bed, 9513.

*Wahlenbergia* sp. (not in flower). Ababes, on broken granite, 9177.

*Prismatocarpus* sp. Naukluft Mountain, at Kabiras, on granite, 9060.

PLUMBAGINACEAE.

*Plumbago Pearsonii*, L. Bolus. Naukluft Mountains, in river-bed between Goas and Kabiras, 9080. Bull's Mouth Pass, 8952.

*Vogelia africana*, Lam. Above Ababes, in bed of Tsondab River, 9122.

EBENACEAE.

*Royena pallens*, Thunb. Keetmanshoep, common in sandy places, 9244. Kubib, 9491. 8 km. north-west of Nomtsas, on banks of Usib River, 9329.

*Euclea lanceolata*, E. Mey. Awas Mountains, 12 km. east of Windhuk, on quartzite slopes, 9611, 9799. Naukluft Mountains, conspicuous on north-eastern slopes, 9091. North of Nauchas, 9008. Awas Mountains, between Aub and Windhuk, 9655.

ASCLEPIADACEAE.

*Cryptolepis decidua*, N.E. Br. North of Geitsigubib, on dry shale-plains, 9257. Nomtsas, on dry shale-slopes, 9312. Between Satansplatz and Voigtsgrund, 9360. Little Karas Mountains, western foothills at Holoog, 9764.

*Raphionacme Burkei*, N.E. Br. Awas Mountains, 12 km. east of Windhuk, on quartzite-slopes, 9797. Between Choaberib and Gurumanas, on stony and sandy veld, 9417.

*Asclepias fruticosa*, Linn. Gurinaris, in sand of river-beds, 9248.

*Pergularia gariensis*, N.E. Br. Ganaams, on shale-banks of Leber River, 9382. Below Ababes, in bed of Tsondab River, 9142.

*Tylophora Fleckii*, N.E. Br. Naukluft Mountains, Kabiras, 9059.

*Orthanthera albida*, Schinz. Ababes, on rocks, 9199.

*Microlooma longituba*, Schltr. Gurumanas, 9422. North of Nauchas, on plains, 9009.

*Caralluma lutea*, N.E. Br. Nauchas, among granite, 9499.

*Caralluma*? n. sp. undeveloped. Nauchas, among granite, 9898.

HYDROPHYLLACEAE.

*Codon Royeni*, Linn. Naukluft Mountains, between Bull's Mouth Pass and Ababes, in river-bed, 9197.

## BORAGINACEAE.

- ? *Cordia* sp. (material very incomplete). Below Ababes, on breccia-banks of Tsondab River, 9147.
- Ehretia hottentotica*, Burch. Between Haris and the Awas Mountains, on high plateau, 9680. North of Hoffnungsfelde, on stony plateau, 9522. Gurumanas, on outcrop of quartz, 9424. 8 km. north-west of Nomtsas, on banks of Usib River, 9322.
- Heliotropium ovalifolium*, Forsk. Above Ababes, in bed of Tsondab River, 9124. Great Fish River, between Gibeon and Freistadt, in sand, 9211.
- Heliotropium strigosum*, Willd. Little Karas Mountains, western foothills near Holog, on shale-slopes, 9753. Below Ababes, on breccia-banks of Tsondab River, 9154.
- Heliotropium supinum*, Linn. Ganaams, on sandy bed of Leber River, 9373.
- Tournefortia tuberculosa*, Cham. Between Voigtsgrund and Brekdorn, among stones in minor stream-bed, 9354. 8 km. north-west of Nomtsas, shale-ledges in Usib River bed, 9301. South of Choaberib in stream-bed, 9443. Above Ababes, in bed of Tsondab River, 9128.
- Trichodesma africanum*, R. Br. Above Ababes, in bed of Tsondab River, 9123.
- Trichodesma angustifolium*, Harv. Between Hoffnungsfelde and Haris, on plateau, 9531. Naukluft Mountains, near Homnus, on dried mud banks of river, 9110.
- Welstedia Dinteri*, Pilger. Between Gellap and Great Fish River, on dry shale-slopes, 9291.
- Anchusa capensis*, Thunb. Nauchas, in river-bed, 9004.

## CONVOLVULACEAE.

- Ipomoea argyreoides*, Choisy. North of Gurumanas, in sand, 9572. Haris, 9560.
- Ipomoea fragilis*, Choisy. Awas Mountains, at Klein Windhuk, on quartzite-slopes, 9793.
- Ipomoea adenioides*, Schinz. 8 km. north-west of Nomtsas, in bed of Usib River, 9307. Below Ababes, in bed of Tsondab River, 9149. North of Areb, on sandy plains, 9472.
- Ipomoea Bolusiana*, Schinz. (*I. angustisecta*, Engl.). At Areb, on stony slopes, 9033. Awas Mountains, 12 km. east of Windhuk, on quartzite-slopes, 9604. Between Hoffnungsfelde and Haris, stony places on plateau, 9552. Between Haris and the Awas Mountains, on high plateau, 9691.
- Convolvulus ulosepalus*, Hall. f. Naukluft Mountains, between Goas and Kabiras in river-bed, 9983. Between Hoffnungsfelde and Haris, in river-bed, 9553. Kubib in vlei-ground, 9483. Nauchas, on banks of Kam River, 9043.
- Convolvulus* sp. Haris, Kuisib River bed, 9562.

*Convolvulus* sp. Ukos, 9427.

*Evolvulus alsinoides*, Linn. Awas Mountains, 12 km. east of Windhuk, on quartzite-slopes, 9794.

*Merremia palmata*, Hall. f. Between Hoffnungsfelde and Haris, in river-bed, 9532. Awas Mountains, 12 km. east of Windhuk, on quartzite, 9789.

#### SOLANACEAE.

*Solanum capense*, Linn. var. *tomentosa*, C. H. Wright. Above Ababes, in bed of Tsondeb River, 9131. Bed of Great Fish River, 9268.

*Solanum incanum*, Linn. Nauchas, 9051.

*Solanum rigescens*, Jacq. forma. Haris, on stony plateau, 9555.

*Solanum supinum*, Dun. var. *occidentale*, nov. var. *foliis multo minus divisis*. Between Haris and the Awas Mountains, on high plateau, 9693.

*Solanum coccineum*, Jacq. var. *inermis* nov. var. Windhuk, shale-slopes, 9639, 9771, 9770.

*Solanum rigescens*, Hutchinson. Windhuk, shale-slopes, 9772.

*Solanum* sp. At Ganaams, on banks of Leber River, 9376.

*Solanum* sp. At Ganaams, on shale-banks of Leber River, 9383. Little Karas Mountains, western foothills, at Holoog, 9763.

*Datura Metel*, Linn. Great Fish River, sandy bed, near farm, 9214.

*Lycium Schäferi*, U. Damm. (e descr.). South of Choaberib, on sandy plains, 9462.

*Lycium carnosum*, Poir. Namseb, on hard clay plain, 9338.

*Lycium karasbergense*, L. Bolus. At Witkobus, on saline flat, 8958.

*Lycium austrinum*, Miers. Awas Mountains, at Aub, 9518.

*Lycium namaquense*, U. Damm. Holoog, in sand, 9715.

*Lycium hirsutum*, Dun. 8 km. north-west of Nomtsas, on sandy banks of Usib River, 9325. At Kubib, on vlei-ground, 9479. North of Ukos, banks of stream-bed, 9429.

*Lycium* sp. Awas Mountains, at Aub, 9519.

*Lycium* sp. 8 km. north-west of Nomtsas, on banks of Usib River, 9319.

*Lycium* sp. Between Hoffnungsfelde and Haris, sandy places on plateau, 9533.

#### SCROPHULARIACEAE.

*Aptosimum arenarium*, Engl. Awas Mountains, 12 km. east of Windhuk, on quartzite-slopes, 9612.

*Aptosimum depressum*, Burch. Between Achterfontein and Gelwater, on sand-dunes, 9238. Between Nakop and Upington, on red sand, 9706.

*Aptosimum abietinum*, Burch. 8 km. north-west of Nomtsas, in Usib River bed, 9302. South of Gurinaris, on plains, 9254. Between Tsubgaus and Ganaams, in minor stream-bed, 9385.

*Aptosimum lineare*, Marl. and Engl. Little Karas Mountains, western foot-

- hills near Holoog, 9759. Between Hoffnungsfelde and Haris, on plateau, 9539.
- Aptosimum Steingroeveri*, Engl. Keetmanshoep, 9282.
- Aptosimum albomarginatum*, Marl. and Engl. Between Nauchas and Areb, 9002. At Kubib, on sandy plains, 9495.
- Peliostomum leucorrhizum*, E. Mey. Near Gamis, on sandy banks of head streams of Great Fish River, 8967. 8 km. north-west of Nomtsas, on sandy banks of Usib River, 9318. South of Choaberib, on sandy plains, 9455. Bull's Mouth Pass, 8949.
- Peliostomum origanoides*, E. Mey. North of Aintsas, 9239.
- Anticharis scoparia*, Hiern. Little Karas Mountains, western foothills, near Holoog, on shale-slopes, 9733.
- Nemesia lilacina*, N.E. Br. Haris, in Kuisib River bed, 9512. Nauchas, near Kam River, 9050.
- Freylinia* sp. Awas Mountains, on quartzite, 12 km. east of Windhuk, 9602. Awas Mountains, pass between Haris and Aub, 9657.
- Sutera atropurpurea*, Hiern. Between Nauchas and Areb, in stream-bed, 9018. Between Haris and the Awas Mountains, on high plateau, 9508. South of Choaberib, on sandy plains, 9442.
- Sutera sessilifolia*, Hiern. Little Karas Mountains, western foothills near Holoog, on shale-slopes, 9750.
- Sutera canescens*, Hiern. Between Tsubgaus and Ganaams, in minor stream-bed, 9380. South of Choaberib, on stony bank of stream-bed, 9449. Windhuk, on shale-slopes, 9626. Between Choaberib and Gurumanas, in river-bed, 9418. At Kubib, in vleiground, 9481. Naukluft Mountains, near Goas, in river-bed, 9073. Below Ababes, in bed of Tsondab River, 9157.
- Sutera* sp. Dry ravines on right bank of Great Fish River, 9217. Naukluft Mountains, river-bed between Goas and Kabiras, 9076.
- Sutera* sp. Locality uncertain, 9896.
- Manulea* sp. (material insufficient). Holoog, in bed of Great Fish River, on drying sand, 9804.
- Manulea* sp. Kuisib River bed, at Haris, 9516.

## BIGNONIACEAE.

- Rhigozum trichotomum*, Burch. Gamis, on plains, 8964.

## PEDALINACEAE.

- Harpagophytum procumbens*, DC. Between Gamis and Bull's Mouth Pass, 8930. North of Kubib, on plains of granitic sand, 9431. Between Choaberib and Gurumanas, on sandy plains, 9415. Windhuk, on shale-slopes, 9643.
- Rogeria longiflora*, Gay. Little Karas Mountains, western foothills near Holoog, on shale-slopes, 9749. At Holoog on banks of Great Fish River, 9805.

## ACANTHACEAE.

- Dyschoriste Guerkeana*, Schinz. Gurumanas, 9420.  
*Dyschoriste Fischeri*, Lindau. Between Nauchas and Aub, among granite blocks, 9021.  
*Petalidium Gossweileri*, Sp. Moore. Between Tsubgaus and Ganaams, in minor stream-bed, 9388. Between Gelwater and Great Fish River, on shale, 9223, 9295. Below Ababes, in bed of Tsondab River, 9140. Bull's Mouth Pass, 8950.  
*Blepharis diversispina*, C. B. Clarke. Between Gellap and the Great Fish River, on dry shale-slopes, 9289. Ababes, on granitic gravel, 9171.  
*Blepharis furcata*, Pers. Little Karas Mountains, western foothills near Holog, on shale-slopes, 9756.  
*Blepharis* sp. nearest *B. diversispina*, C. B. Clarke (material incomplete). Naukluft Mountains, between Ababes and Homnus, on plains of granitic sand, 9096.  
*Barleria irritans*, Nees. Awas Mountains, 12 km. east of Windhuk, on quartzite-slopes, 9795.  
*Barleria Prionitis*, Linn. Bull's Mouth Pass, 8918.  
*Barleria lancifolia*, T. Anders. Naukluft Mountains, Kabiras, in clefts in granitic block, 9056. Awas Mountains, 12 km. east of Windhuk, on quartzite-slopes, 9606. Between Bull's Mouth Pass and Ababes, in sandy river-bed, 8904.  
*Monechma divaricatum*, C. B. Cl. Between Bull's Mouth Pass and Ababes, in ravines, 8905.  
*Monechma spartioides*, C. B. Clarke. Great Fish River, on shale-banks, 9265.  
*Monechma molle*, C. B. Clarke. Little Karas Mountains, western foothills near Holog, sandy banks of minor stream, 9738.  
*Monechma genistaefolium*, C. B. Clarke. Great Fish River, on shale-slopes, 9266. North of Freistadt, on the road to Tsubgaus, on high plateau, 9394. Little Karas Mountains, western foothills, on shale-slopes, 9721. Outspan at Aintsas, 9242, 9241.  
*Monechma arenicola*, C. B. Clarke. Below Ababes, in bed of Tsondab River, 9146. Naukluft Mountains, between Goas and Nauchas, in river-bed, 9075. Bull's Mouth Pass, 8915.  
*Hypoestes Forskalei*, R. Br. Awas Mountains, between Aub and Windhuk, 9653.

## SELAGINACEAE.

- Selago albida*, Choisy? (material insufficient). At Kubib in vlei-ground, 9482.

## VERBENACEAE.

- Lantana salvifolia*, Jacq. Between Haris and the Awas Mountains, 9505.  
*Lippia* sp. Between Nauchas and Areb, 9026.  
*Lippia* sp. Haris, stony plateau, 9556.



*Bouchea glandulifera*, H. H. W. Pearson. Little Karas Mountains, western foothills, on shale-slopes, 9723. Between Gurinaris and Achterfontein, on sandy plains, 9247. Above Ababes, on sandy banks of Tsondab River, 9190.

*Bouchea pinnatifida*, Schauer. Between Gamis and Bull's Mouth Pass, in river-bed, 8942. West of Gamis Farm House, on hill, 8975. Awas Mountains, 12 km. east of Windhuk, 9609. Between Kabiras and Nauchas, 9039. Hoffnungsfelde, 9583.

LABIATAE.

*Salvia stenophylla*, Burch. Nauchas, on banks of Kam River, 9044.

*Salvia rugosa*, Thunb. Between Nauchas and Areb, in stream-bed, on granite, 9015.

*Ocimum fruticulosum*, Burch. Between Voigtsgrund and Brekdorn, in river-bed, among stones, 9351. Gamis, river-bed, 8980. Windhuk, shale-slopes, 9635. Hoffnungsfelde, sandy slopes, 9588.

*Stachys spathulata*, Burch. Between Nauchas and Areb, on sandy river-bed, 9012.

*Leucas altissima*, Engl. Gibeon, on dry hills, 9206. Naukluft Mountains, between Bull's Mouth Pass and Ababes, in sandy bed of river, 8903.

*Leucas altissima*, Engl. forma. Windhuk, shale-slopes, 9640.

*Leonotis* sp. 8 km. north-west of Nomtsas, on sandy banks of Usib River, 9323. Naukluft Mountains, between Goas and Kabiras, in river-bed, 9087.

NYCTAGINACEAE.

*Boerhaavia pentandra*, Burch. Awas Mountains, at Aub, 9517. Nauchas, 9046. At Kubib, on vlei-ground, 9494.

*Boerhaavia repens*, var. *diffusa*, Hook. f. Ababes, in broken granite, 9176.

*Phaeoptilon spinosum*, Radlk. North of Gibeon, in bed of Great Fish River, 9209.

*Microtea Burchellii*, N.E. Br. Between Voigtsgrund and Brekdorn, among stones in river-bed, 9352.

ILLECEBRACEAE.

*Corrigiola litoralis*, Linn. Between Haris and the Awas Mountains, on high plateau in sandy places.

AMARANTACEAE.

*Hermbstaedtia elegans*, Moq. South of Choaberib, among stones in river-bed, 9454.

*Sericocoma avolans*, Fenzl. Little Karas Mountains, western foothills at Holoog, 9761. Between Nakop and Upington, in red sand, 9707. Above Ababes, in Tsondab River bed, 9185.

- Aerva leucura*, Moq. Naukluft Mountains, between Goas and Kabiras, in river-bed, 9071.
- Calicorema capitata*, Hook. f. At Ababes, in bed and on banks of Tsonداب River, 9139. South of Ganaams, on dry shale, 9250. Bull's Mouth Pass, 8920.
- Marcellia Bainesii*, C. B. Clarke. Between Aub and Windhuk, on slopes, 9650. Bull's Mouth Pass, 8947. Little Karas Mountains, western foothills near Holoog, on shale-slopes, 9726.

## CHENOPODIACEAE.

- Chenopodium album*, Linn. Near Gamis, on sandy banks of head stream of Fish River, 8969.
- Atriplex Halimus*, Linn. At Witkobus, river-flats, 8984.
- Atriplex rosea*, Linn. Windhuk, 9777.
- ? *Kochia* sp. (no flowers). Witkobus, sandy saline river-banks, 8960.
- Suaeda fruticosa*, Forsk. Tsubgaus, sand-dunes of Leber River, 9203.
- Salsola aphylla*, Linn. f. Between Achterfontein and Gelwater, on sand-dunes, 9203.

## POLYGONACEAE.

- Polygonum aviculare*, Linn. At Ganaams, in sandy bed of Leber River, 9371.
- Polygonum* sp. Nauchas, bed of Kam River, 9042.
- Rumex Ecklonianus*, Meisn. At Kubib, vlei, 9493.

## LORANTHACEAE.

- Loranthus ovalis*, E. Mey. Great Fish River at Holoog, 9807.
- Loranthus undulatus*, E. Mey. Above Ababes, in Tsonداب River bed, 9183. Great Fish River, 8907. Between Gellap and Great Fish River, 9290.
- Loranthus oleaefolius*, Cham. and Schlecht. Windhuk, 9634.
- Viscum rotundifolium*, Linn. f. North of Kubib Vlei, 9434.
- Viscum MacOwani*, Engl. Bull's Mouth Pass, 8927. Between Gamis and Bull's Mouth Pass, Upper Fish River System, 8929.

## SANTALACEAE.

- Thesium lacinulatum*, A. W. Hill. Awas Mountains, 12 km. east of Windhuk, on quartzite, 9610.
- Thesium cruciatum*, A. W. Hill. North of Areb, on sandy plains, 9474. South of Choaberib, on plains, 9447.
- Osyris abyssinica*, Hochst. Between Haris and the Awas Mountains, on high plateau, 9679.

## EUPHORBIACEAE.

- Euphorbia glaucella*, Pax. Ababes, on granitic gravels, 9169, 9168. Above Ababes, on sandy banks of Tsonداب River, 9192, 9130.
- Euphorbia Pfeilii*, Pax. Naukluft Mountains, between Ababes and Homnus,

9106. North of Freistadt, on road to Tsubgaus, on high plateau, 9397. Ababes, on granitic gravels, 9167.
- Euphorbia indecora*, N.E. Br. North of Areb, on plains, 9477. Between Haris and the Awas Mountains, on high plateau, 9682. Between Gurumanas and Hoffnungsfelde, on plateau, 9587. Between Kabiras and Nauchas, 9036.
- Euphorbia gariiepina*, Boiss. Between Ukis and Choaberib, on quartzite, 9439.
- Euphorbia lignosa*, Marloth. Between Kabiras and Areb, 9473. Below Ababes, on banks and in bed of Tsondeb River, 9138.
- Euphorbia frutescens*, N.E. Br. Ababes, on breccia-banks of Tsondeb River, 9119, 9164.
- Phyllanthus Burchellii*, Müll Arg. Ababes, on granitic gravels, 9170. Windhuk, in rock-crevices, 9768. Between Voigtsgrund and Brekdorn, among stones in river-bed, 9353.
- Phyllanthus inaequilatera*, Sond. Gelwater, on dry shale, 9226. Great Fish River, 9278. Haris, in Kuisib River bed, 9559.
- Phyllanthus maderaspatensis*, Linn. Between Gamis and Bull's Mouth Pass, in sand on banks of stream, 8934. Windhuk, shale-slopes, 9636. Little Karas Mountains, western foothills near Holoog, on shale-slopes, 9728, 8 km. north-west of Nomtsas, among stones in bed of Usib River, 9328. South of Choaberib, in stream-bed, 9444.
- Phyllanthus Dinteri*, Pax. Below Ababes, in bed of Tsondeb River, 9144. Above Ababes, on sandy banks of Tsondeb, 9187.

MORACEAE.

- Ficus cordata*, Thunb. Above Ababes, on banks of Tsondeb River, 9137, 9186. Naukluft Mountains, in ravines, 9065. At Ganaams, on shale-cliffs of Leber River, 9381.
- Ficus Gürichiana*, Engl. Naukluft Mountains, Bull's Mouth Pass, 8901.
- Ficus gnaphalocarpa*, Steud. Near Ababes, river-bed in valley, 8900. Northern side of Bull's Mouth Pass, in stream-bed, 8926.

AMARYLLIDACEAE.

- Vellozia humilis*, Baker. North of Kubib Vlei, on plains, 9433.

LILIACEAE.

- Asparagus exuvialis*, Burch. North of Choaberib, on sandy plain, 9414. Between Kabiras and Nauchas, 9037. Gurumanas, 9425.
- Asparagus africanus*, Willd. var. *microphyllus*, Burch. Between Hoffnungsfelde and Haris, 9536. At Kubib, in vlei ground, 9478.
- Asparagus abyssinica*, Hochst. Little Karas Mountains, western foothills near Holoog, on shale-slopes, 9722.
- Asparagus* sp. Between Nauchas and Aub, 9003.

- Asparagus* sp. 8 km. north-west of Nomtsas, on Usib River, 9330.  
*Chortolirion subspicatum*, Berger. Between Haris and the Awas Mountains, on high plateau, 9692.  
*Aloe rubrolutea*, Schinz. Between Namseb and Nomtsas, on high plateau, 9331. Between Tsubgaus and Ganaams, on dry shale-slopes, 9392.  
*Aloe hereroensis*, Engl. Klein Windhuk, on quartzite-slopes, 9619. First valley north of Choaberib, 9401.  
*Aloe Sladeniana*, Pole Evans. Nauchas, on granite, 9000.  
*Eriospermum Burchellii*, Baker. Between Hoffnungsfelde and Haris, on sandy slopes, 9551.  
*Eriospermum bechuanicum*, Baker. North of Gurumanas, in river-bed, 9579, 9576, 9578. Voigtsgrund, on dry shale, 9359.  
*Eriospermum roseum*, Schinz. Between Gamis and Bull's Mouth Pass, on plains in the Upper Fish River basin, 8944. Voigtsgrund, on dry shale, 9357.  
*Anthericum* sp. Between Kabiras and Nauchas, 9035.  
*Dipcadi* sp. South of Choaberib, in sandy places, 9448. Between Gamis and Bull's Mouth Pass, on shale-plains, 8943.  
*Albuca Engleriana*, Krause and Dinter. Between Hoffnungsfelde and Haris, on plateau, 9535.  
*Ornithogalum dipcadoides*, Baker. Voigtsgrund, on dry shale, 9360.  
*Ornithogalum karasbergensis*, Glover. Between Gamis and Bull's Mouth Pass, 8931.  
*Ornithogalum* sp. Gamis, 8971.  
*Ornithogalum* sp. Gamis, 8972.  
*Ornithogalum* sp. Between Haris and the Awas, high plateau, 9503.  
*Ornithogalum* sp. Voigtsgrund, in limestone, 9349.

## COMMELINACEAE.

- Commelina albescens*, Hassk. Awas Mountains, at Aub, 9645.

## NAIADACEAE.

- Aponogeton Rehmanni*, Oliv. var. *major*, Glover. Witkobus, in pools, 8962.

## CYPERACEAE.

- Cyperus marginatus*, Thunb. (undeveloped): 8 km. north-west of Nomtsas, on the Usib River, 9314. Above Ababes, in bed of Tsondeb River, 9191.  
*Tetraria* sp. Above Ababes, in Tsondeb River bed, 9194.

## GRAMINACEAE.

- Andropogon annulatus*, Forsk. Ganaams, among rocks in bed of Leber River, 9370. Awas Mountains, in pass between Haris and Aub, 9601.  
*Cymbopogon hirtus* (Linn.), Stapf. Between Nauchas and Areb, in stream-bed, 9029.

- Cymbopogon excavatus*, Stapf. Awas Mountains, in pass between Haris and Aub, 9668, 9667, 9666, 9664. Between Nauchas and Areb, 9020.
- Panicum mesocomum*, Nees. Little Karas Mountains, western foothills near Holoog, on sandy banks of stream, 9740.
- Panicum nigropedatum*, Munro. Between Choaberib and Gurumanas, in dry river-bed, 9406. Between Haris and the Awas Mountains, on high plateau, 9506.
- Pennisetum cenchroides*, Rich. Windhuk, common on slopes, 9631. South of Choaberib, on stony plains, 9450. 8 km. north-west of Nomtsas, on sandy banks of Usib River, 9316. Hoffnungsfelde, 9592. Holoog, in sandy bed of river, 9713. Little Karas Mountains, western foothills near Holoog, in sandy river-bed, 9727. Naukluft Mountains, at Kabiras, among granite blocks, 9062. Windhuk, on slopes, 9632. Awas Mountains, between Aub and Windhuk, 9648.
- Anthephora pubescens*, Nees. Little Karas Mountains, western foothills near Holoog, on sandy bank of stream, 9739. Between Hoffnungsfelde and Haris, 9527. Between Haris and the Awas Mountains, 9502. Between Haris and Aub, on high plateau, 9670. Between Choaberib and Gurumanas, in dry stream-bed, 9406. At Kubib, on vlei-ground, 9485.
- Tricholaena setifolia*, Stapf. North of Choaberib, in dry stream-bed, 9412. Awas Mountains, pass between Haris and Aub, 9671. Awas Mountains, 12 km. east of Windhuk, on quartzite-slopes, 9798.
- Tricholaena arenaria*, Nees. Between Nauchas and Areb, on plains of granitic sand, 9022.
- Aristida congesta*, Roem. and Schult. Awas Mountains, in pass between Haris and Aub, 9669.
- Aristida barbicollis*, Trin. and Rupr. Between Hoffnungsfelde and Haris, on sandy plateau, 9542.
- Aristida stipoides*, Lam. Awas Mountains, in pass between Haris and Aub, 9661.
- Aristida ciliata*, Desf. Between Achterfontein and Gelwater, on sand-dunes, 9235. At Holoog, in bed of Great Fish River, 9811.
- Aristida namaquensis*, Trin. Holoog, in sandy river-bed, 9714. Between Choaberib and Gurumanas, 9416. Below Ababes, in bed of Tsondab River, 9155. Little Karas Mountains, western foothills near Holoog, on sandy banks of stream, 9745.
- Aristida lutescens*, Trin. and Rupr. Between Nauchas and Areb, on plains of granitic sand, 9023.
- Aristida obtusa*, Del. Between Gamis and Bull's Mouth Pass, in bed of Great Fish River, 8939. Between Achterfontein and Gelwater, on sand-dunes, 9229. Little Karas Mountains, western foothills near Holoog, in sandy river-bed, 9725. At Kubib, on vlei-ground, 9492, 9496. Between Choaberib and Gurumanas, in dry stream-bed, 9598.

- Aristida uniplumis*, Licht. Between Ganaams and Voigtsgrund, on dry plains, 9364. North of Choaberib, in dry stream-bed, 9413. Between Voigtsgrund and Brekdorn, 9350. Little Karas Mountains, western foothills near Holoog, in sandy river-bed, 9724. Awas Mountains, between Aub and Windhuk, 9649. Windhuk, on shale-slopes, 9628. Between Gellap and Great Fish River, in sandy places, 9285. Ababes, on granitic gravel, 9174. Between Tsubgaus and Ganaams, in minor stream-bed, 9390. Between Gamis and Bull's Mouth Pass, in river-bed of Upper Fish River, 8940. Above Ababes, in bed of Tsondab River, 9182. On hill behind Gamis Farm house, among rocks, 8973.
- Aristida geminifolia*, Trin. and Rupr. Between Kalkfontein and Nakob, in sandy places, 9709.
- Aristida* sp. Little Karas Mountains, western foothills near Holoog, shale-slopes, 9752. Awas Mountains, 12 km. east of Windhuk, 9791. Awas Mountains, pass between Haris and Aub, 9673.
- Phragmites communis*, Trin. 8 km. north-west of Nomtsas, on banks of Usib River, 9311.
- Sporobolus fimbriatus*, Nees. Between Nauchas and Areb, in stream-bed, 9030.
- Eragrostis Lehmanniana*, Nees. South of Choaberib, on stony plains, 9456. Between Choaberib and Gurumanas, in dry stream-bed, 9409. Between Haris and the Awas Mountains, on high plateau, 9504.
- Eragrostis chloromelas*, Steud. 8 km. north-west of Nomtsas, among stones in Usib River bed, 9308.
- Eragrostis porosa*, Nees. Between Hoffnungsfelde and Haris, in river-bed, 9537. Hoffnungsfelde, 9585. At Haris, in Kuisib River bed, 9558.
- Eragrostis bicolor*, Nees. Between Hoffnungsfelde and Haris, in sandy places on high plateau, 9534. Kubib, on vlei-ground, 9484.
- Eragrostis denudata*, Hack. Between Haris and the Awas Mountains, in Kuisib River bed, 9501.
- Eragrostis annulata*, Rendle. Little Karas Mountains, western foothills near Holoog, in sandy river-bed, 9729. Holoog, in bed of Great Fish River, 9702.
- Eragrostis superba*, Peyr. Awas Mountains, between Aub and Windhuk, 9646. Between Hoffnungsfelde and Haris, in sandy places, 9530. Between Hoffnungsfelde and Haris, on plateau and in river-bed, 9543.
- Eragrostis auriculata*, Hack. At Holoog, in bed of Great Fish River, 9815. On hills behind Gamis Farm house, among rocks, 8974. Between Gamis and Bull's Mouth Pass, in bed of Upper Fish River, 8936, 8937, 8938.
- Cynodon Dactylon*, Pers. Above Ababes, in bed of Tsondab River, 9196. Windhuk, 9778.

- Triraphis Fleckii*, Hack. Holoog, on banks of Great Fish River, 9813.
- Enneapogon scaber*, Lehm. Little Karas Mountains, western foothills near Holoog, 9716.
- Schmidtia bulbosa*, Stapf. Awas Mountains, in pass between Haris and Aub, 9659, 9665. Between Haris and the Awas Mountains, on high plateau, 9699. Between Hoffnungsfelde and Haris, on plateau, 9544. Holoog, in bed of Great Fish River, 9701. Awas Mountains, 12 km. east of Windhuk near Homnus, in dried mud on banks of river, 9111.

# NOTES ON THE FUNCTION OF THE STAMINAL AND STAMINODAL GLANDS IN THE FLOWERS OF *ADENANDRA*

BY R. MARLOTH, PH.D.

(With illustration on Plate I)

AMONG the various natural groups of plants which are entirely or principally confined to the south-western coast lands of the Cape one of the most important in several respects is the tribe DIOSMEAE, family RUTACEAE. The tribe consists of about 200 species, of which only one is a tree, viz. *Calodendron capense*, the Cape chestnut, all the others being shrubs or shrublets, mostly only a foot or two high and all bearing ericoid or myrtilloid leaves richly endowed with aromatic oils. Some of the species are so frequent on the flats or on the hills and mountains that sometimes whole valleys may be filled with their fragrant exhalation.

The best known representatives of the tribe are the Buchu plants, of which two are employed on a larger scale, viz. *Barosma betulina* and *B. crenulata*, the former being the more highly priced of the two.

Generally speaking the flowers are mostly small although often conspicuous through their number, as in the so-called Cape may (*Coleonema album*), but in the genus *Adenandra* they are quite showy, and several species indicate this in their vernacular name, viz. Shepherd's delight (*A. serpyllacea*), Klip sissie (*A. fragrans*), Kommetje teewater (*A. uniflora*), etc.

It is a peculiar feature in the structure of the flowers of this genus which forms the subject of these notes.

The flower possesses five perfect stamens and, alternating with them, five sterile stamens termed staminodes, the latter generally resembling the stamens but possessing no anthers. Each of these organs, stamens as well as staminodes, bears a gland at its apex which secretes a viscid fluid, and as the glands are also often bright red, it is not surprising to find that they have often been looked upon as organs of attraction for insect visitors, that is to say, as something in the nature of nectaries. As our observations will show, that is not their function, for the real nectaries which secrete a saccharine fluid for the attraction of insects are situated in the base of the flower and consist of little depressions just in front of the staminodes (Fig. A, 6). The question arises, what is the function of these conspicuous secretory organs?

An investigation of the chemical nature of the secretion of both kinds of



glands, viz. staminal as well as staminodal, shows that the secretion does not contain any sugar, but that it is a kind of balsam, similar in its nature to the viscid coating of the flowers of some heaths, e.g. *Erica blenna*, *E. regia*, *E. physodes* (white sticky heath of Table Mountain), etc., and the viscid secretion of the glands on the leaves of *Roridula dentata*<sup>1</sup>. But while in these cases the viscid fluid affords protection against creeping insects it has quite a different function in the flowers of *Adenandra*. The flowers are strongly protandrous. When the bud opens the staminodes connive towards the centre of the flower and their glands are viscid, while the stamens stand erect outside of the staminodes, their anthers being still closed and the apical glands erect and dry (Fig. A, 2). Then one stamen after another, with an interval of a day or two, moves its anther towards the centre, the anther-cells split open, the apical gland reclines on the back of the anther and becomes viscid, while the pollen is finally deposited on the top of the curved style, the stigma being at this stage undeveloped and pressed against the ovary (Figs. A, 4 and 7). When all the anthers have discharged their pollen, the secretion of viscid balsam ceases, staminodes and anthers shrivel up, the style begins to stretch itself until it is erect, and the stigma, large and fully developed, stands upright in the centre of the flower (Fig. A, 8). In *Adenandra uniflora* each flower requires several days or a week to complete this development, and it is obvious that the viscid fluid can serve only one purpose, viz. to act as an adhesive by means of which the pollen is firmly attached to the mouth-parts of the visiting insects while they force their head in between the stamens and staminodes in order to reach the honey in the base of the flower, thus compelling the visitor to carry the pollen to an older flower where the stigma is in its receptive stage.

The elaborate structure of the flower and the complicated movements during its anthesis are consequently the means of securing the cross-pollination of the flowers.

As far as our observations go, all species of *Adenandra* are constructed on more or less the same plan, although some less elaborately than others. The number of insects actually observed by us on the flowers of various species is, however, very small—an experience recurring in numerous other groups. It is extraordinary that on bright sunny days one may be among patches of *Adenandra uniflora* with perhaps hundreds of its brilliantly white flowers and not see a single insect visiting them. However, we have observed two kinds of flies with long proboscis (*Pangonia*) and two beetles, viz. *Anysonyx Ursus* and another one, and on one occasion also a bee, although such short-tongued insects could not reach the nectar at the base of the flower but would only gather the pollen.

<sup>1</sup> R. Marloth, *Trans. Roy. Soc. S.A.* 1910, p. 59.

## A NOTE ON, AND A DESCRIPTION OF FOUR NEW SPECIES AND TWO NEW VARIETIES OF THE GENUS *ADENANDRA*, WILLD.

BY R. A. DUMMER.

AN examination of the material of this genus was undertaken largely at the instigation of Mrs Bolus, Hon. Curator of the Bolus Herbarium. The material examined embraces that at the S.A. Museum and the Bolus Herbarium. The private collections of Drs W. Froembling and R. Marloth, and Mr J. Lamb have also been consulted. The S.A. Museum Herbarium is fairly rich in the types of Ecklon and Zeyher, not only of *Adenandra* but of *Agathosma* and allied genera, which has thus materially aided the work of comparison and identification. With the exception of *A. Kraussii*, Meisn., and *A. ciliata*, Sond., all the species maintained by Sonder are represented in the local Herbaria.

Recently described species are *A. Bodkinii* and *A. acuta*, of Schlechter, *A. Sonderi* and *A. Bolusii*, of Dummer, and *A. Villiersii*, Phillips.

The first and third are very distinct; the second may hereafter prove to be a variety of *A. cuspidata*, Mey., or *A. amoena*, B. and W. (the two species have been confused). *A. Bolusii* I am compelled to refer to *A. humilis*, E. and Z. (the type of the latter being in the S.A. Museum), and *A. Villiersii* is probably only a southern and smaller-leaved form of *A. coriacea*, Lichst. *A. macradenia*, Sond., as also *Diosma teretifolia*, Link., are referred to the genus *Acmadenia*. *A. Fryii*, *A. rotundifoliae* affinis, sed habitu nano, foliis patentibus, fere eglandulosus, floribus in capitulo paucioribus, calyce profunde partito, lamina petali brevioris, ceterisque distinguitur.

Fruticulus decumbens?, parce ramosus, ramulis brevibus, dense foliosis, obtuse angulatis, minute patenterque puberulis. Folia patentia vel recurva, petiolata, petiolo complanato adpresso; lamina interdum orbicularis, saepe elliptica, apice recurva, calloso-apiculata, 3—6 mm. longa, 2—3 mm. lata, crasse coriacea, pallide viridis, glabra, subtus pallidiora, eglandulosa, costa lata fere immersa, margine paullulo revoluta, distanter glanduloso-crenulata. Capitula 2—4-flora, 1.5 cm. diam., floribus subsessilibus, purpureo-albidis (sicco), bracteis foliosis, apicem versus coloratis, inferne ciliolatis. Calyx 7—8 mm. longus, utrinque glaber, purpureus (sicco), segmentis oblongis obtusis vel

rotundatis ecarinatis eciliolatisque. Petala spatulata, toto 8 mm. longa, 2—2.2 mm. lata, utrinque glabra, limbis ellipticis acutis. Stamina parce pubescentia; staminodia anguste oblonga, 4 mm. longa, alba-pilosa.

Cape Province: South-Western Region; Bredasdorp Div.; Wagenhuis Kraal, Marcus Bay, Feb.—June, 1900, *Harold Fry*, Herb. Bolus, 4951!

Allied to *A. rotundifolia*, E. and Z. (of which Ecklon and Zeyher's types are in the S.A. Museum, this rare plant not having been discovered within recent years), but at once distinguished by its more dwarf habit, and non-viscid nature, patently spreading recurved leaves which are glandless and almost nerveless dorsally, by its few-flowered heads (2—4 flowers), deeply cleft calyces and shorter petal limbs. The leaf-nerve, when apparent, is usually very broad and sunken.

*A. caledonensis*, *A. viscidæ* affinis, sed floribus minoribus, breviter pedicellatis, vix viscidis, calyce conspicue glanduloso-punctato, intus glabro, lamina petali basi fere truncata, unguibus latioribus, ceterisque differt.

Fruticulus gracilis, erectiusculus, ad 0.3 m. altus, ramis saepe simplicibus, e basi foliatis, inferne brunneis, superne griseo-citrinis, glabris. Folia inferne patentia, superne ascendentia, breviter petiolata, oblongiuscula vel elliptica, obtusa vel calloso-apiculata, 5—8 mm. longa, 2.5—3.5 mm. lata, crasse coriacea, utrinque glabra, pallide viridia, subtus eglandulosa et vix costata, margine incrassata-revoluta, obscure impresso-glandulosa. Capitula 2—5-flora, circiter 2 cm. diametro, floribus albidis (sicco); pedicelli breves, 2—3 mm. longi, glabri; bracteolae binae medio positae, cuneatae incrassato-apiculatae, concavae, glabrae, 3 mm. longae. Calyx 5—6 mm. longus, glaber, segmentis oblongo-triangularibus obtusiusculis, dorso purpureo-glanduliferis, apicem versus carinatis, purpureis. Petala late unguiculata, 8—10 mm. longa, limbis e basi cuneatis vel fere truncatis, late ovatis vel late obovatis, apice rotundatis, utrinque glabris, unguibus parcissime albo-pubescentibus. Stamina parcissime pubescentia, staminodia 4 mm. longa, patenter albo-hirsuta, glandulis exceptis.

Cape Province: South-Western Region; Caledon Div., sandy places near Hermanus, Oct. 1903, *H. Bolus*, 9680, in Herb. Bolus!

Nearest to *A. viscida*, but differing in its slightly more slender habit, creamy greyish twigs, relatively shorter elliptic (scarcely oblong) paler greenish leaves, with less prominent, at times almost obsolete dorsal midribs, in the relatively smaller shortly pedicelled flowers (not sessile and scarcely viscid), the conspicuously glandularly punctate calyx, glabrous and not sparsely pilose within, the limbs of the petals almost truncate basally, and scarcely cuneate, in their broader claws, and the less hirsute staminodes.

*A. viscida*, E. and Z., var. *ciliata*.

Folia valde revoluta, primo albo-ciliata, pilis saepissime 2 mm. longis. Calyx dorso purpureo-punctato-glandulosus, lobis pectinato-ciliatis. Staminodia hirsutulata.

Cape Province: South-Western Region; Bredasdorp Div., rocky hill towards Bredasdorp (Elim), 600 ft., July, 1895, *F. Guthrie*, 3847! (in Herb. Bolus).

A variety of *A. viscida*, E. and Z., distinguished by the more revolute leaves, the lower being conspicuously long-ciliate, the more markedly glandular punctation of the calyx, its ciliate lobes, and the less hirsute staminodes.

*A. Pottsii*, *A. uniflorae* affinis sed foliis viscidulis ovatis, apice uncinatis, marginibus haud revolutis, lobis calycis obtusioribus, conspicue reticulatis, ceterisque differt.

Fruticulus humilis, ad 15 cm. altus, parce divaricato-vel dichotomomramosus, inferne nudus, nigrescens, superne foliosus, ramulis brevibus, erectiusculis vel curvatis, circ. 3 mm. longis, imbricato-foliatis, citrinis, patenter pubescentibus. Folia imbricata, apice uncinato-recurva, subsessilia, viscidula; lamina ovata, subacuminata, 3—5 mm. longa, 2.5—3 mm. lata, coriacea rigidaque, utrinque glabra, supra viridis, subtus pallidiora, punctato-glandulosa, fere carinato-costata, margine incrassata paullulo crenulato-glandulosa. Flores solitaires, vel umbellae 2-florae, floribus pallide roseis (sicco), pedicellis foliosis ad 5 mm. longis, bracteis inferne ciliatis. Calyx 8 mm. longus, lobis late ovatis 4 mm. latis, cuspidato-acutis, intus parcissime adpresso-pubescentibus, extus glabris, obscure punctato-glandulosus, marginibus pectinato-ciliatis, apicem versus glabris, crenulatis. Petala breviter unguiculata, 1 cm. longa, glabra, limbo orbiculari vel fere reniformi, 8 mm. lato. Staminodia filiformia, 3.5—4 mm. longa, albo-pilosa.

Cape Province: South-Western Region; Stellenbosch Div., Stellenbosch, Oct., 1911, *Dr G. Potts*, 1390! (in Herb. Bolus).

Obviously related to *A. uniflora*, Willd., but differing in its branching system, imbricate to subimbricate relatively shorter and more ovate viscidulous leaves with a recurved hook-like apiculus, and not revolute though thickened margins, in the more rosy coloured flowers (often in twos), differently shaped bracts, more obtuse conspicuously reticulated calyx lobes, and more orbicular petal-limbs.

*A. biseriata*, Meyer, var. *gracilior*.

Folia vix coriacea, primo valde pilosa. Umbellae 1—2-florae, pedicellis gracilibus, ad 1.5 cm. longis glabris, medio bi-bracteolatis, bracteolis foliatis, 2—3 mm. longis. Calyx utrinque glaber, 6 mm. longus, lobis ovatis obtusiusculis, dorso vix glandulosus, apicem versus obtuse carinatis. Petala breviter unguiculata, 8 mm. longa, limbo

late obovato vel fere quadrato, 5 mm. lato, unguibus parce ciliolatis. *Staminodia* late filiformia, hirsutula.

Cape Province: South-Western Region; Caledon Div., on the northern slope of a mountain near Houw Hoek (a solitary specimen), 1700 ft., Oct., 1885, *H. Bolus* in Herb. Bolus, 7477!

A peculiar variant (if a variant?), differing from typical *A. biseriata* in its slender and laxer habit, pilose leaves, long-pedicelled much smaller flowers, with glabrous calyx, scarcely punctate-glandular dorsally, and differently shaped petals with stronger claws. The two rows of dorsal leaf-glands assign it to *A. biseriata*, but its laxer habit and smaller flowers suggest affinities with *A. serpyllacea* or one of its allies. Perhaps a natural hybrid!

A. Guthriei, *A. lasianthae* affinis, sed foliis dorsaliter omnino eglandulosis, brevioribus latioribusque, pedunculis gracilioribus, staminodiis per totam longitudinem parce pubescentibus, pilis patentibus, ceterisque differt.

Fruticulus gracilis, erectus, saepe eramosus, interdum superne parce verticillatim-ramosus, foliosus, 0.3 m. altus, ramuli citrini, parce patenter pubescentes. Folia ascendentia, imbricata vel subimbricata, elliptica, obtusiuscula, 6—8 mm. longa, 2.5—4 mm. lata, coriacea rigidaque, utrinque glabra, pallide ochraceo-viridia, dorso eglandulosa, obsolete complanato late costata, margine paullulo incrassata vix impresso-glandulosa. Umbellae 6—16-florae, 3—4 cm. diam., floribus albis purpureisque (teste Guthrie); pedicelli purpurei, patenter albo-villosi; bracteolae basilares, subulatae, albo-pubescentes, 2 mm. longae. Calyx 6 mm. longus, extus purpureus, albo-villosus, segmentis triangularibus, acutis, subscariosis, dorso vix carinatis, punctato-glandulosis, margine ciliatis. Petala breviter unguiculata, glabra, 9 mm. longa, limbis obovato-cuneatis apiculatis. Stamina 1.5 mm. longa, filamentis parce pubescentibus, staminodia 3 mm. longa, filamentis patenter albo-pubescentibus, glandulis nigro-purpureis glabris.

Cape Province: South-Western Region; Bredasdorp Div., rocky hill towards Bredasdorp (Elim), 300 ft., July, 1895, *F. Guthrie*, 3849! (in Herb. Bolus).

Differs from *A. lasiantha*, Sond. (which I only know from description, the specimen of Ecklon and Zeyher, so named in the S.A. Mus. Herb. being obviously incorrect) in the leaves being completely eglandular dorsally, and being relatively shorter and broader, and more elliptic or obovate-elliptic, in the more slender peduncles, the relatively smaller calyces, acute calyx-lobes, not so conspicuously glandular dorsally, in the relatively smaller petals, the limbs of which are more elliptic than suborbicular, and scarcely reddish at the back, and in the staminodes which are "not very hairy at the point," but sparingly patently pubescent throughout their entire length.

# A FURTHER CONTRIBUTION TO OUR KNOWLEDGE OF THE GENUS *AGATHOSMA*, WILLD., CONTAINING DESCRIPTIONS OF 23 NEW SPECIES AND 3 NEW VARIETIES

BY R. A. DUMMER.

MY former paper on the genus *Agathosma*, which was based on all the relevant material in the Kew Herbarium, the South Kensington Museum, and the Linnean collections, appeared in Fedde's *Repertorium*, xi, 1912, pp. 321-337 and 401-423. At that time no opportunity was afforded me of examining the rich collections in the S.A. Herbaria, notably that of the Bolus Herbarium, and of the S.A. Museum Herbarium at Cape Town. The following descriptions of novelties are therefore the result of the examination of these collections as well as those of the Albany Museum (Grahamstown), the University of Stellenbosch, and of Drs R. Marloth and W. Froembling, C. Town, and of Mr J. Lamb of the Observatory.

Primarily it had been my intention to monograph this genus, but owing to lack of time, and my early departure to Uganda, and the difficulty of procuring the necessary types from Europe at the present time (about 40 types not being represented in the local Herbaria) this project had reluctantly to be abandoned. Among the *rarae aves* which have recently come to light again are *A. struthioloides*, mihi, *A. Dregeana*, Sond., *A. gonaquensis*, E. and Z., *A. nigromontana*, E. and Z., *A. filipetala*, E. and Z., *A. linifolia*, Lichst., *A. blaeroides*, Cham., *A. pubescens*, Sond., *A. Burchellii*, mihi, *A. pilifera*, Schlecht., *A. craspedota*, E. Mey., *A. recurvifolia*, Sond., *A. punctata*, Sond., *A. mucronulata*, Sond., *A. martiana*, Sond., *A. propinqua*, Sond., *A. gibbosa*, mihi, *A. lancifolia*, E. and Z., *A. rubra*, Willd., *A. decumbens*, E. and Z., *A. asperifolia*, E. and Z., which records serve to indicate, that although apparently extremely local in their distribution, these species happily have not suffered extinction. Six novelties have been described since the appearance of my first paper; these are *A. Sladeniana*, Glover, and *A. Muirii*, *A. alta*, *A. Dummeri*, *A. rotundipetala*, and *A. giftbergensis* of Phillips, all of which are apparently distinct with the exception of the latter, which I can only regard as a form of my *A. microcalyx* from the same locality.

The genus as at present conceived, with the descriptions of the present novelties, therefore comprises about 170 species.

In conclusion I have pleasure in expressing my thanks to the authorities

of the respective institutions, where I have been privileged to work, and to the private persons, whose collections I have had the loan of for examination. *Agathosma humilis*, Sond., var. *capitata*.

Fruticulus *humilis*, ad 15 cm. altus, ramis magis minusve simplicibus, fastigiatis dense foliosis. Folia subulato-lanceolata, 4—5 mm. longa, 1—1.2 mm. lata, supra concava glabraque, dorso convexa, rugulosa, albo-pilosa. Umbellae capitatae, albidae, circiter 1 cm. diam., densiflorae; pedicelli breves, 1—1.5 mm. longi, bracteolis binis subulatis 1.7—2 mm. longis. Calyx circ. 2 mm. longus. Petala 5—6 mm. longa, limbis oblongiusculis, apice subcuculatis, glabris, unguibus pilosis; staminodia filiformia, circiter 2 mm. longa, glabra. Pistillum glabrum, stylo crasse filiformi, dense patenter pubescenti.

Cape Province: South-Western Region; Clanwilliam Div., in sandy and rocky places, Grootberg, Cedarbergen, Sept. 1898; *C. L. Leipoldt* 893! (S.A. Museum Herb.).

The material of this variety was distributed as *Agathosma hirta*, B. and W., but its north-westerly origin does not favour this identification; moreover it belongs to a wholly different section, viz. *Pseudostemon*, and apparently is only a variety of *A. humilis*, Sond. (which I only know from description), and from which it differs in its relatively taller habit, very shortly pedicelled flowers, slightly longer calyxlobes, much shorter petals and glabrous ovary, though the style is, as in the type, patently pubescent. It has certainly the superficies of the species with which it has been confounded, but in *A. hirta* the disposition of the flowers is more racemose.

*A. stilbeoides*, *A. humili* affinis, sed foliis brevioribus latioribusque, utrinque puberulis, umbellis densis capituliformibus, segmentis calycis late spatulatis differt.

Fruticulus ad 20 cm. altus, inferne aphyllus, superne verticillatim ramosus, viscidulus, faciei *A. imbricatae* similis. Folia ascendentia, imbricata, brevissime petiolata, ovata vel elliptica, obtusiuscula, paullulo incurva, 2—3 mm. longa, 1—1.8 mm. lata, crassiuscula, supra concava, nitentia, minute puberula, dorso convexa, albo-puberula, eglandulosa. Umbella capituliformis, hemisphaerica, confertiflora, 7—10 mm. diam., floribus albidis, pedicelli perbreves ebracteolati?, bracteolae foliosae. Calyx profunde partitus, 2.5 mm. longus, segmentis late spatulatis, cuculato-rotundatis subscariosis, intus concavis, dorso puberulis, obtuse carinatis, apice gibboso-glandulosus, marginibus pectinato-ciliatis. Petala longe unguiculata, 4—6 mm. longa, limbis obovato-cuneatis, 1.5 mm. longis, glabris, unguibus pilosulis. Stamina glabra; staminodia adnata, late filiformia, ad 2 mm. longa, apicale glandula notata, pectinato-pilosula. Car-

pellum superne albo-puberulum, stylo filiformi, 5—6 mm. longo inferne parcissime patenter-pilosulo.

Cape Province: South-Western Region; Clanwilliam Div., top of Sneeuwkop Mountain, 6000 ft; in rocky clefts, Jan., 1898, *Leipoldt*, 650! (in Herb. S.A. and Albany Museums, Bolus).

This plant, which mimics forms of *A. imbricata*, is assigned to the section *Pseudostemon* however, on account, of its staminodia being attached to the claws of the petals. Its affinity is with *A. humilis*, from which it differs in its shorter, broader, more elliptic leaves, which are moreover puberulous on both sides, in the dense-flowered capitate umbels, almost sessile flowers, and the broadly spatulate calyx-segments. The flowers I have examined are peculiar in maturing only one carpel.

The material was distributed as a form of *A. imbricata*, but the plant is distinguished from that species and its multifarious forms, by its relatively shorter, more thickish and more obtuse leaves, which are puberulous on both sides, have not the conspicuous dorsal gland-punctuation on the leaf nor the costate keel of the latter plant. *Leipoldt* states that the species is a low bush, very common, and has sweet smelling flowers.

Superficially not unlike a *Stilbe*, hence the specific name.

A. *Foleyana*, *A. humili* affinis, sed habitu decumbente, foliis glabris, pectinato-ciliolatis, floribus fere subsessilibus, calyce glabro, distinguitur.

Fruticulus decumbens, multipannosus, ad 20 cm. altus, ramis decumbentibus vel erectiusculis, simplicibus vel superne parce verticillatim ramosis, imbricato-foliosis, minute puberulis. Folia ascendentia vel fere adpressa, subimbricata, perbrevis petiolata, elliptica, obtusa, circiter 4 mm. longa, 1—1.5 mm. lata, supra profunde concava, subtus convexa et obscure verruculoso-glandulosa, crasse coriacea, utrinque glabra, margine creberrime pectinato-ciliata. Umbella capitata, 5—10-flora, rosea, circiter 1 cm. diametro, bracteis foliatis vel coloratis, bracteolae basiales, binae, segmentis calycis simulantes, ad 2.5 mm. longi; pedicelli 1 mm. longi, pubescentes. Calyx 3—3.5 mm. longus, rubro-purpureus, segmentis late oblongis, subscariosis, apice perbrevis cuspidatis, subcucullatis, intra concavis, extra carinatis, superne fere gibbosis, margine pectinato-ciliatis. Petala unguiculata, 5—6 mm. longa, laminis anguste obovato-ellipticis, glabris, unguibus parce pilosis. Stamina circiter 5 mm. longa, filamentis parcissime pilosis; staminodia adnata, lanceolata, circiter 2 mm. longa, inferne parce pilosa. Pistillum superne breviter strigillosum, stylo filiformi, 5—6 mm. longo, omnino patenter piloso.

Cape Province: South-Western Region; Ceres Div., Matroosberg,



near Laaken Vlei, 7000 ft., Jan., 1917, *Dr E. P. Phillips*, 1964! (Herb. S.A. Museum, No. 11764).

One of the section *Pseudostemon*, though mimicking decumbent forms of *A. alpina*, Schlechter, from which the closely pectinate-ciliolate leaves and more numerous dorsal leaf-glands distinguish it immediately. Its affinity apparently lies with *A. humilis*, Sonder, from which its decumbent habit, glabrous leaves with pectinate ciliation, almost sessile flowers, glabrous calyces with differently shaped lobes, and rose-coloured and shorter petals separate it.

*A. scaberula*.

Fruticulus robustus, viscidulus, rigidus, circiter 15 cm. altus, dense divaricato-ramosus foliosusque; ramuli ultimi congestis, breves, subimbricato-foliosi, breviter strigillosi. Folia subsessilia, patula apice incurvata, ovata, subacuto-cuspidata, 3—5 mm. longa, 2—3 mm. lata, valde coriacea rigidaque, viscidula, supra glabra, nitida, subtus denticulato-scaberula, incrassato-costata, apice fere gibbosa, margine vix incrassata, creberrime hyalino-denticulata. Umbella capituliformis, densiflora, 1—1.3 cm. diametro, bracteis foliosis, floribus brevioribus; flores albidi (sicco) subsessiles, bracteolis late filiformibus, 2—2.3 mm. longis, truncatis, pectinato-pilosulis. Calyx 3—3.5 mm. longus, segmentis oblongiusculis, 0.7 mm. latis gibboso-obtusis, dorso superne obtuse-carinatis, utrinque glabris, marginibus pectinato-ciliatis. Petala longe unguiculata, spatulata, 5 mm. longa, ungue albo-piloso, lamina oblongiuscula, 1.5 mm. longa, glabra. Stamina 5 mm. longa, filamentis parcissime strigillosis, staminodia petala simulantes eorumque unguibus adnata, sed limbis angustioribus et brevioribus, pilosis. Pistillum superne perbreviter et minute strigillosum; stylus crasse filiformis, glaber.

Cape Province: South-Western Region; Riversdale Div., Bo' plaats near Albertinia, Nov., 1913, *Dr John Muir*, 1255! (in Herb. Bolus and Albany Museum).

One of the members of the section *Pseudostemon*, with the aspect of a Lycopod, notably *L. saururus*, Linn., or of very coarse forms of *Agathosma imbricata*. It is distinct from any of the members of the section in which it is placed being characterised by its very coarse habit, subimbricate spreading, thick, apically incurved, broadly ovate leaves, with prominent dorsal gibbous midribs, and marginal and dorsal denticulations, the latter of a very peculiar nature.

*A. krakadouwensis*, *A. capituliformi*, var. *caledonensi* affinis, sed distinguitur ramulis pilosis, foliis subteretibus, vix carinatis, marginibus eciliatis, pedicellis pilosis, ceterisque.

Fruticulus gracilis, parcissime ramosus, pauciflorus, ad 0.7 m. altus,

ramis fastigiatis, superne verticillatim ramosis; ramuli angulati, citrini, pilosuli. Folia petiolata, ascendentia, subimbricata, interdum falcata, lanceolata, fere teretia, apice obtusiuscula, 4—5 mm. longa, 0·5 mm. lata, pallide viridia, tenuiter coriacea vel carnosula, primo albo-pilosula, mox glabrescentia, supra paullulo sulcata, dorso convexa, ruguloso-glandulosa, margine integra, eciliata. Inflorescentia capituliformis, sessilis, hemisphaerica, 7—10 mm. diam., floribus albidis (in sicco), confertis, bracteis folia simulantibus; pedicelli 1 mm. longi, pilosuli, superne bibracteolati, bracteolis filiformibus, pilosulis, 1·7 mm. longis. Calyx 1·7—2 mm. longus, utrinque parcissime pilosulus, segmentis oblongiusculis, obtusis, glandulosis, dorso obtuse carinatis, glanduliferis, subscariosis, marginibus albo-pilosis. Petala graciliter unguiculata, filiformi-spatulata, circ. 4 mm. longa, limbis obovato-cuneatis, dorso 1—3-glandulosis, unguibus inferne parce pilosis. Stamina glabra; staminodia filiformia vel oblanceolato-filiformia, 3·5—4 mm. longa, inferne parce pilosa. Stylus filiformis, circ. 5 mm. longus, parce patenter pilosus.

Cape Province: South-Western Region. Clanwilliam Div., on the Cedarbergen, Krakadouw Pass, 3000 ft., Oct., 1897, *H. Bolus*, 8959!

One of the section *Diplopetalum* with the facies of *A. capituliformis* v. *caledonensis*, mihi, or not unlike a slender growth form of *A. humilis* v. *capitata*, mihi (sect. *Pseudostemon*). Its alliance lies with the former variety, from which it is distinguished by its pilose twigs, the subterete pilose leaves, scarcely keeled dorsally, their non-ciliate margins, the pilose pedicels, the bracteoles which are almost at the base of the calyces, the smaller calyces, with pilose segments, the more slender petals and staminodes, and the patently pilose style.

*A. tulbaghensis*, *A. montanae* accedit, sed foliis acicularioribus, dorso satis convexis, glandulis magis conspicuis praeditis, pedicellis floribusque glabris, distinguitur.

Fruticulus saepe dichotomo-ramosus, ad 0·7 m. altus, ramulis florentibus ascendentibus, brevibus, dense foliatis, obscure verrucoso-glandulosis, parce pilosis. Folia ascendentia, subimbricata, interdum subfalcata, conduplicata, acicularia, acuta, 8—10 mm. longa, 0·7—1 mm. lata, coriacea, ochraceo-viridia, utrinque glabra, supra profunde canaliculata, dorso convexiuscula, verruculoso-glandulosa, margine primo creberrime et longe pectinato-ciliata, mox glabrescentia. Umbella 5—12-flora, 1—1·3 cm. diam., foliis vix superans, fructibus carneis, pedicellis 5—7 mm. longis, glabris, inferne bibracteolatis, bracteolis 0·5—0·7 mm. longis, minute ciliolatis. Calyx circ. 2 mm. longus, utrinque glaber, segmentis obtuse deltoideis, dorso convexiusculis, obscure punctato-glandulosis, margine eciliolatis. Petala obovato-cuneata, 3 mm. longa,

0·7—1 mm. lata, ubique glabra. Stamina glabra; staminodia petala simulantia sed paullo breviora glabraque. Ovarium cum stylo glabrum.

Cape Province: South-Western Region. Tulbagh Div., near summit of the Great Winterhoek, Nov. 1916, *Dr E. P. Phillips*, 1718! (in Herb. S.A. Mus. 11176). Stony places, Little Winterhoek, 1100 m. Dec. 1884, *Dr R. Marloth*, 493! (in Herb. Marloth).

At first sight this plant would appear to fall in the acicular-leaved group of the section *Euagathosmae* near *A. prolifera* or *A. adenocaulis*, but the petaloid staminodes suggest its inclusion in *Diplopetalum* near *A. montana*, Schlechtendahl, from which it is separated by the obscure glands which subtend the leaves, by its more acicular leaves more or less convex dorsally, with more prominent worted glands, and more closely comb-like marginal ciliation, and by the essentially glabrous pedicels and flowers.

Of *A. montana*, Schl., the S.A. Museum is only in possession of a small flowering twig about 8 cm. long.

A. decora, ab omnibus ceteris sectionis *Diplopetalum* distinguitur glandulis subtendentibus, foliis complanatis, brevibus ovatis, margine glandulis valde conspicuis praeditis.

Frutex gracilis, ad 1 m. altus, inferne nudus, superne dense verticillato-ramosus, ramulis fastigiatis, saepe simplicibus, brunneis, verrucoso-glandulosis, minute puberulis, foliis obtectis. Folia petiolata, ascendentia, subimbricata, interdum amplexicaulia, complanata, ovata vel late elliptica, obtusa vel obtusiuscula, 2·5—3 mm. longa, 1·7—2 mm. lata, coriacea, supra complanata vel subconcavia, nitida, supra rugulosa, ecostata, margine valde 3—5 punctato-glandulosa, inferne minute pectinato-ciliolata. Umbellae numerosae, confertiflorae, capitatae, hemisphaericae, roseae, circiter 1 cm. diam.; pedicelli glabri, circiter 1 mm. longi; bracteolae basilares, binae, 2·5 mm. longae, pectinato-ciliatae. Calyx 1·5 mm. longus, utrinque glaber, segmentis oblongo-triangularibus, dorso apice obtuse glandulosis, margine ciliolatis. Petala unguiculata, 3·5 mm. longa, glabra, limbis late obovatis. Stamina 4—5 mm. longa, glabra, antheris atrobrunneis; staminodia anguste cuneata vel oblanceolata, 3 mm. longa, glabra, apice glandula notata. Stylus filiformis, 4 mm. longus, patenter pubescens.

Cape Province: South-Western Region; Ceres Div., Matroosberg near Laaken Vlei, 5500 ft., Nov., 1917, *Dr E. P. Phillips*, 1965! (in Herb. S.A. Museum, 11765).

Var. Buchu.

Umbellae 5—7 mm. diam., albae. Petala 2·5 mm. longa. Stylus mox glabra.

Matroosberg; near Laaken Vlei, 5500 ft., Nov., 1917, *Dr E. P. Phillips*, 1966! (in Herb. S.A. Museum, 11766).

Var. *pseudohybrida*.

Frutex humilior, ad 0.3 m. altus. Folia imbricata, late ovata vel latissime elliptica, obtusa, 3.5—4 mm. longa, 2.5—3 mm. lata, margine superne sparse glanduloso-crenulata. Capitula 5—8 mm. diam. Flores rosei; pedicelli vix 1 mm.; bracteolae filiformes, ciliatae, circiter 2 mm. longae. Petala 4 mm. longa. Staminodia anguste spatulata, 3 mm. longa, glabra. Stylus filiformis, 5—7 mm. longus, inferne patenter pubescens.

Matroosberg, 6500 ft., Jan., 1897, *A. Bolus* (Herb. Guthrie, No. 4395!) (in Herb. Bolus).

The two or three large glands which subtend the individual leaves suggest this plant's alliance to *A. adenocaulis*, E. and Z., but the capitate inflorescences and petaloid staminodes place it in section *Diplopetalum* from whose members it is at once distinguished by its subtending glands, flattened and short ovate leaves and large marginal leaf-glands.

Both type and var. *Buchu* are robust plants, and the leaves when rubbed especially in the variety *Buchu* exhale a strong *Buchu*-like odour. Variety *pseudohybrida* is a much more dwarf plant, with more imbricate and larger leaves and with the facies of *A. imbricata* forms. I suspect it to be a natural hybrid between *A. alpina*, Schlechter, and *A. decora*, both of which grow together on the Matroosberg at approximately the same elevation. Dr E. P. Phillips, who examined the variety *Buchu*, in a ms. note mentions that the lower flowers in the inflorescences are perfect, whereas the upper are only male.

A. Sonderiana, *A. Burchellii* proxime accedit, sed distinguitur foliis glabris, pro ratione brevioribus latioribusque, rarius in tria dispositis, apice subacutis, pedicellis brevioribus, sepalis petalisque eglandulosis, his apice haud penicillio praeditis.

Fruticulus gracilis, dense divaricato-ramosus, partibus junioribus ubique puberulis, ramulis ultimis griseo-brunneis, gracilibus, dense foliatis. Folia ascendentia, vel patula, breviter petiolata, anguste elliptica, subacuta, 4—6 mm. longa, 1—2 mm. lata, coriacea rigidaque, utrinque puberula et eglandulosa, subtus costata, pallide viridia, margine saepe valde revoluta (sicco), incrassata, punctato-glandulosa. Flores rosei (sicco) axillares, interdum solitarii vel in umbellas terminales, 2—5-floras, dispositi, pedicellis ad 3.5 mm. longis, patenter puberulis, basi bracteolatis. Calyx parvulus, 1—1.5 mm. altus, minute puberulus, lobis anguste obovatis, dorso superne obtuse carinatis. Petala sessilia, obovato-elliptica, rotundata obtusave, ad 3 mm. longa, 1 mm. lata, glabra. Stamina 2—3 mm. longa, glaberrima. Staminodia anguste

elliptica, 1 mm. vix excedentia, parcissime pubescentia, vix capitato-glandulosa. Stylus cum ovario glaber, filiformis, ad 4 mm. longus.

Cape Province: South-Western Region; Mossel Bay Div., Montagu Pass, 3500 ft., Nov. 1894, *Schlechter*, 5812! (in Herb. Bolus and Albany Museum). A specimen in the Gill College Herbarium received Oct., 1904, from A. Kennedy in the neighbourhood of Humansdorp.

Apparently closely allied to *A. Burchellii*, mihi, but distinguished by the relatively shorter, broader, and glabrous leaves rarely disposed in threes, their subacute apices, shorter pedicels, eglandular sepals and petals, which latter have moreover not the tiny tuft of hairs at their apices. Like *A. Burchellii* it has the facies of *Barosma microcarpa*.

A. Marlothii, *A. planifoliae*, ut videtur, accedit, sed foliis ellipticis vel late lanceolatis, puberulis, pedicellis calycibusque glabris longioribusque, petalis brevioribus, ceterisque distinguitur.

Fruticulus erectus, vel paullo decumbens, ad 17 cm. altus, laxe ramosus, ramulis gracilibus puberulis. Folia patentia, vix ascendentia, complanata, elliptica vel late lanceolata, obtusa vel subacuta, basi cuneata vel cuneato-rotundata, petiolo ad 0.5 mm. longo, brunneo, planiusculo, suffulta, 5—8 mm. longa, 1.5—2.5 mm. lata, coriacea, utrinque minute griseo-puberula, olivaceo-viridescens, subtus punctato-glandulosa, ecostata, margine incrassata, valde punctato-glandulosa, minute ciliolata. Umbella hemisphaerica, laxe 5—multiflora, ad 2 cm. diam., floribus purpureis (*teste* A. Bolus), pedicellis gracilibus, ad 1 cm. longis, nudis, glabris. Calyx circiter 3 mm. altus, glaber, segmentis mox reflexis, late oblongis, extus valde punctato-glandulosus, apice obtusa vel rotundata. Petala breviter unguiculata, 3—3.5 mm. longa, 1.2—1.5 mm. lata, utrinque glabra, lamina late ovata vel ovato-elliptica vel elliptica, apice obtusa vel rotundata. Stamina 4—5 mm. longa, glabra. Staminodia parvula, elliptica, 1.5 mm. longa, medio parce pilosa, glanduloso-capitata. Stylus crasse filiformis, ad 3 mm. longus, cum ovario glaberrimus.

Cape Province: South-Western Region; Tulbagh Div., Great Winterhoekberg, Dec., 1896, *A. Bolus* in Herb. Bolus, 4187!

Related to *A. planifolia*, Sond., apparently (which latter has not been rediscovered since the time of Niven, and of which dried material is only in the Herbaria of Martius and Sonder), from which it differs in its elliptic or broadly lanceolate relatively longer but narrower puberulous leaves, glabrous and longer pedicels and calyces, the latter punctate-glandular, shorter petals (the petals are not much longer than the calyces), and other floral characters.

Specimens of this species are also in Dr Marloth's Herbarium, collected by him on Matroosberg at 6000 ft., Dec., 1895, Herb. No. 2223.

These were provisionally named by Schlechter as *Barosma Marlothii*, cf. Marloth, *Das Kapland*, *Wiss. Ergeb. Deutsch. Tief. Exp.* II, iii (1908), 175.

- A. *Keetii*, *A. Marlothii* accedit, sed facie glauciore, foliis minoribus, ovatis vel late ovatis, marginibus haud impresso-glandulosus, pedicellis calycibusque multo brevioribus puberulisque, ceterisque differt.

Fruticulus gracilis, superne verticillato-ramosus, ad 0.3 m. altus, ramulis florentibus gracilibus, dense griseo-pubescentibus, foliatis ad 10 cm. longis. Folia ascendentia vix subimbricata, mox patula, breviter petiolata, ovata vel late ovata, obtusa, 2—4 mm. longa, 1.5—2 mm. lata, coriacea, complanata, griseo-viridia, paullulo glaucescentia, subtus pallidiora, supra glabra, subtus parce griseo-pubescentia, mox glabrescentia, obscure punctato-glandulosa costataque, margine paullo incrassata, haud punctato-glandulosa, primo basin versus parce ciliolata, mox integra. Umbellae 3—7-florae, ad 1.5 cm. diam., floribus carneis (sicco); pedicelli 3 mm. longi, patenter puberuli. Calyx extra puberulus, circiter 2 mm. longus, lobis crassiusculis, oblongis, obtusis, dorso obtuse carinatis, marginibus ciliatis. Petala sessilia, obovata vel obovato-elliptica, obtusa vel rotundata, 4 mm. longa, 1.7—2 mm. lata, supra e basi margineque parcissime puberula. Stamina 3.5—4 mm. longa, glaberrima. Staminodia circiter 0.7—1 mm. longa, oblonga, parce pubescens, apice rotundata. Stylus filiformis, 3—4 mm. longus, cum ovario, glaber.

Cape Province: South-Western Region; Knysna Div., Plaatsbosch, Jan., 1917, *J. D. Keet*; Forestry Depart. Herb., 2386! (in Herb. Bolus).

Related to and with the habit of *A. Marlothii*, mihi, but with a more glaucescent or greyish aspect, smaller differently shaped leaves glabrescent above at maturity, and with their margins not impresso-glandular, much shorter and puberulous pedicels and calyces (the latter with marginal ciliation), and relatively longer petals.

- A. *perplexa*, *A. craspedotae* et *A. fraudulentae* accedit, sed ab illa petalis staminodiisque minutis, ab hac habitu, foliis ellipticis eglandulosis, pedicellis glabris, staminodiis minoribus, petalis eglandulosis differt.

Fruticulus decumbens, dense foliatus, ramis magis minusve simplicibus, ad 15 cm. longis, minute puberulis. Folia ascendentia, vel subpatula, breviter petiolata, complanata, elliptica vel late-elliptica, subacuta vel obtusa, 5—8 mm. longa, 2.5—3.5 mm. lata, coriacea, utrinque puberula et ochraceo-viridia, subtus obscure costata, epunctata, margine paullulo incrassata, magis minusve glanduloso-crenulata, ciliolata. Umbellae 4—5-florae, floribus roseis (sicco); pedicelli citrini, glabri, 5—7 mm. longi. Calyx 2.5—3 mm. longus, glaber, obscure

verrucoso-glandulosus, lobis concavis, late deltoideis vel fere orbicularibus, obtusis vel rotundatis. Petala parvula, perbreveiter unguiculata, 2—2·5 mm. longa, lamina ovale vel oblonga, rotundata, glabra, eglandulosa. Stamina glabra. Staminodia elliptica, 1 mm. vix excedens, apice glandula brunnea notata, margine pectinato-ciliolata. Pistillum glabrum.

Cape Province: South-Western Region; Ceres Div., Koude Bokkeveld; Skurfdebergen, Wagebooms Rivier, 6000 ft., Jan., 1897, *Schlechter*, 10163! (in Herb. Bolus).

This species superficially resembles decumbent forms of *A. craspedota*, but its minute petals and staminodes distinguish it immediately from that plant. It has been distributed as *Barosma foetidissima*, B. and W., but its umbellate inflorescences and alternate leaves (if the latter is a tenable character?) assign it to *Agathosma*.

Besides Sonder's description of *B. foetidissima* (Fl. Cap. I, 398 (1860)) does not tally with this plant. Specimens of the former do not appear to be in any of the S.A. Herbaria. The plant also approximates to *A. fraudulenta*, Sond., in its petals subequalling the calyx, but its habit, the eglandular elliptic leaves, glabrous pedicels, smaller staminodes, and eglandular petals separate it.

- A. Pillansiana, *A. piliferae* accedit, sed foliis margine revolutis, sine mucrone capillaceo, umbellis floribus paucioribus praeditis, pedicellis multo brevioribus, petalis longioribus differt.

Frutex gracilis, 0·5 m. altus, parce ramosus, ramis strictis vel ascendentibus, cinerascanti-brunneis, parce et laxe foliatis vel saepe nudis; ramulis florentibus saepissime verticillatim dispositis, 3—6 cm. longis, laxe foliatis, puberulis. Folia ascendentia vel patentia, petiolata, elliptica vel ovato-elliptica, acuta vel subacuta, basi subrotundata, 4—7 mm. longa, 1·5—2 mm. lata, crasse coriacea rigidaque, utrinque glabra, supra planiuscula, ochraceo-viridia, subtus incrassato-costata, margine incrassato, paullo recurva, creberrime glanduloso-punctata. Umbella pauciflora (3—6-fl.), 1—1·5 cm. diam., floribus carnis (sicco), pedicellis 3—4 mm. longis, parce puberulis. Calyx 2 mm. longus, lobis obtuse deltoideis, dorso incrassato-carinatis, extus parce puberulis, margine ciliolatis. Petala sessilia, obovato-cuneata, 4 mm. longa, supra parce puberula. Stamina petalis subaequilonga, glabra. Staminodia parvula, anguste elliptica, 1·5 mm. longa, parce pilosa. Pistillum glabrum, stylo filiformi, ad 5 mm. longo.

Cape Province: South-Western Region; Riversdale and Oudtshoorn Div., Herb. Bolus, No. 13759! Herb. S.A. Museum, No. 7554!

The ample material (two sheets) upon which this diagnosis is based was received from the Cape Town Wild-Flower Show in October, 1914,

from specimens from the Riversdale and Oudtshoorn Divisions; the precise locality remains unknown. It is a very floriferous though sparsely leafy plant, and shows an alliance to *A. pilifera*, Schlechtendahl, but the revolute-margined leaves, devoid of the hair-like mucro, fewer-flowered umbels, much shorter pedicels, and longer petals afford characters for discrimination. The species is named in compliment to Mr N. S. Pillans, attached to the staff of the Bolus Herbarium.

*A. craspedota*, E. Mey. var. *eglandulosa*.

Fruticulus laxe ramosus, ramis minutissime puberulis. Folia interdum dorso eglandulosa. Pedicelli glaberrimi, eglandulosi.

This variety is based upon two specimens in Dr Marloth's collection (7792) (without information as to locality or date of collection) and deviates from the type in the laxer habit, more minutely puberulous twigs, in the leaves being often epunctate dorsally, and in the glandless pedicels.

*A. Pattisonae*, *A. fraudulentae* valde affinis, sed foliis eglandulosis, marginibus haud incrassatis, floribus solitariis vel paucis in umbella, petalis multo longioribus, carpellis glabris differt.

Fruticulus nanus, parce vel divaricato-ramosus, ad 10 cm. altus, decumbens, ramulis florentibus brevissimis, citrino-brunneis, pubescentibus, dense foliatis. Folia majuscula, plana, breviter petiolata, magis minusve patula, obovata vel obovato-elliptica, subacuta vel rotundato-cuspidata, 5—7 mm. longa, circiter 3 mm. lata, coriacea, utrinque pallide viridia et parce albo-pubescentia, eglandulosa, supra costata reticulataque, margine haud incrassata vel punctato-glandulosa, pectinato-ciliolata. Umbellae pauciflorae (1—5-florae), floribus albidis (sicco); pedicelli graciles, 7—15 mm. longi, citrini, parce patenter albo-pubescentes. Calyx parvulus, 3 mm. longus, albo-pubescentis, lobis crassiusculis, anguste deltoideis, obtusis, dorso vix carinatis. Petala sessilia, oblongiuscula vel oblongo-cuneata, apice rotundata, 8—9 mm. longa, circiter 3 mm. lata, dorso glandulis majusculis, atrobrunneis (8—10) ornata, margine parcissime pilosula. Stamina 12 mm. longa, filamentis inferne parce pubescentibus. Staminodia late lanceolata, 5—6 mm. longa, apice glandula atrobrunnea notata, margine parce pilosa. Pistillum glabrum, stylo (immature?) crassiusculo, 2 mm. longo.

Cape Province: South-Western Region; Clanwilliam Div., Cedar-bergen, Dec., 1913, *Mrs R. Pattison* (Herb. Bolus, No. 13733!).

Obviously allied to *A. fraudulenta*, Sonder (of which the exact locality is unknown and of which dried specimens obtain only in the Sonder Herbarium), but distinguishable by its dwarfer and more stunted habit, eglandular leaves and not thickened margins, solitary flowers or few-flowered umbels, eglandular calyx-lobes, much longer



petals, which like *A. fraudulenta* are however gland-dotted, large staminodes, and glabrous carpels. It has also the habit of a *Barosma*, and the leaves the pleasant smell of "Buchu," but my interpretation of the two groups leads me to assign it to *Agathosma*. This plant may prove to be of pharmaceutical value, and hence its occurrence is brought to the notice of pharmacologists and those interested in the exploitation of the Buchu industry.

A. utilis, *A. craspedotae* affinis, sed foliis puberulis, lobis calycis saepissime reflexis, eciliolatis, petalis majoribus albisque, staminodiis brevioribus, ceterisque differt.

Frutex parce ramosus, 0.5 mm. altus, facie *A. denticulatae*, mihi similis, ramis inferne nudis, cinereo-griseis, superne brunneis, foliatis, puberulis. Folia ascendentia, magis minusve adpressa, subimbricata, petiolata, ovata vel ovato-elliptica vel late elliptica, obtusa vel subacuta, 5—8 mm. longa, ad 3 mm. lata, crasse coriacea, utrinque minute puberula, vix costata, dorso punctato-glandulosa, flavescenti-viridia, margine incrassata, punctato-glandulosa, ciliolata, superne irregulariter denticulata; petiolo complanato, circiter 1 mm. longo. Umbella majuscula 2—8-flora, ad 2 cm. diam., floribus albidis (sicco); pedicelli 5—7 mm. longi, stipitato-glandulosi. Calyx 3.5 mm. longus, extus parce stipitato-glandulosus, segmentis late oblongis (2 mm.) denticulato-truncatis, dorso obtuse scarioso-carinatis, marginibus hyalinis. Petala sessilia, obovato-cuneata, 5—6 mm. longa, 2—3 mm. lata, inferne parcissime puberula ciliolataque. Stamina petalis subaequilonga, filamentis basin versus parcissime pilosis; staminodia oblonga, 2 mm. longa, circiter 1 mm. lata, parce pilosa, apice glandula magna citrina instructa. Pistillum glabrum, stylo filiformi, 4—5 mm. longo. Carpella matura verrucoso-glandulosa, cornubus incurvatis, circiter 2 mm. longis.

Cape Province: South-Western Region; Clanwilliam Div., Cedarbergen, Dec., 1913, *Mrs R. Pattison* (Herb. Bolus, No. 13734!).

Allied to *A. craspedota*, E. Meyer, and with its facies and leaves, but differing in the puberulous leaves, differently shaped usually reflexed calyx lobes with no ciliolation, larger and white petals, shorter staminodes which are moreover tipped by a citron-coloured and not black gland. *Mrs R. Pattison* states that from the leaves "a kind of tea" is brewed.

A. mucronulata, Sond. var. Rudolphii.

Fruticulus parvulus, dichotomo-ramosus, ramis fastigiatis superne foliatis, castaneis, minute puberulis. Folia ascendentia, subimbricata, apice recurva, late elliptica, rigide et acute apiculata; lamina 4 mm. longa, 2.5—3 mm. lata, valde coriacea, utrinque glabra, supra brunneo-viridia, nitida, subtus pallidiora, valde punctato-glandulosa, vix

costata, margine haud incrassata, eglandulosa; petiolo complanato, citrino, ad 0.7 mm. longo, glabro. Umbella pauciflora (2—5-fl.), circiter 1 cm. diam., floribus carneis (sicco); pedicelli 3—3.5 mm. longi, puberuli. Calyx 4—4.5 mm. longus, tubo parvissime puberulo, lobis glabris, obovato-oblongis, setaceo-cuspidatis, dorso obtuse scarioso-carinatis, glandulis verrucosis notatis, marginibus glabris. Petala obovato-elliptica, obtusa vel rotundata, 5 mm. longa, 2—2.5 mm. lata, inferne parvissime puberula, mox glabrescentia. Stamina glabra. Staminodia crassa, anguste oblonga, circiter 2 mm. longa, ciliolata, apice glandula deltoidea notata. Pistillum glabrum, stylo crasse filiformi, ad 3 mm. longo.

Cape Province: South-Western Region; Willowmore Div., on the mountains near Swanepoelspoort, 4000 ft., Sept., 1905, *Marloth*, 4128! (in Herb. Marloth and Bolus).

Differs from typical *A. mucronulata*, Sonder, which also emanates from the same locality. From it, the more erect habit, essentially glabrous leaves, puberulous calyces (not velvety), longer calyx-lobes, longer petals, and glabrous ovary afford salient characters of distinction.

Burchell's specimens (No. 4999) Kew Herb. from a rocky hill near Haarlem and Avontuur (Uniondale Div.), March 14th, 1814, may belong here. Cf. Fedde, Repertorium, xi (1912), 403, under *A. mucronulata*, Sond. What I take to be good *A. mucronulata*, Sonder (*A. mucronata* in Sonder's key to the species of this group), is a specimen in the Albany Museum collected by Mrs T. V. Paterson in Nov., 1912 (3065), near Uniondale—the only dried specimen I am aware of in S.A. collections.

A. *Tugwelliae*, *A. sessilipetalae* affinis, sed foliis ellipticis glaberrimis, marginibus glanduloso-notatis, capitulis minoribus, pedicellis longioribus, calyce multo minore, lobis eglandulosis, petalis minoribus angustioribusque differt.

Fruticulus gracilis, multiramis, circiter 0.3 m. altus, ramis fastigiatis, griseo-puberulis, foliatis. Folia ascendentia, vix imbricata, late elliptica vel ovato-elliptica, subacuta, inferne in petiolum per brevem sensim attenuata, 4—7 mm. longa, 2—2.5 mm. lata, valde coriacea, glaberrima, nitidula, supra olivaceo-atroviridia, subtus pallidiora, parce punctato-glandulosa, costata, margine incrassata, punctato-glandulosa. Umbella pauciflora (2—5-flora), 0.7 cm. diametro, floribus roseis (sicco), pedicellis 4—5 mm. longis, puberulis. Calyx 6.5—6.7 mm. longus, segmentis deltoideis obtusis, dorso minute puberulis, obtuse carinatis, marginibus ciliolatis. Petala elliptico-oblonga, obtusa vel rotundata, 3—3.5 mm. longa, 1.5 mm. lata, e basi parvissime puberula. Stamina glabra. Staminodia elliptica,

1—1.5 mm. longa, apice glandula acuta notata, margine parce pubescentia. Pistillum glabrum, stylo filiformi, 3 mm. longo.

Cape Province: South-Western Region; Prince Albert Div., Prince Albert, June, 1908, *A. M. Krige* (Herb. Bolus, No. 13432!).

This species has the aspect of some of the smaller leaved *Adenandras* and dries a fresher green than the majority of the section *Barosmaepetalae*. Its nearest ally appears to be *A. sessilipetala*, mihi, but it is distinguished from it by its more dwarf habit, elliptic wholly glabrous almost shining leaves, their gland-dotted margins, smaller flower heads, longer pedicels, much smaller calyx, eglandular calyxlobes and smaller and narrower petals.

Named after the collector, now Mrs Tugwell.

- A. *Phillipsii*, ab omnibus sectionis *Barosmaepetalae* differt habitu nano caespitoso, foliis fere succulentis, floribus pilosis.

Fruticulus parvulus, prostratus vel decumbens, 9 cm. diametro, dense foliatus, ramis abbreviatis, cinerascens, glabris; ramuli florentes perbreves, brunnei vel rubescentes, albo-pubescentes. Folia perbrevis petiolata, ascendens vel subpatens, elliptica vel obovato-elliptica, apice obtusa vel subrotundata, basi attenuata, cum petiolo 3—4 mm. longa, 1.5—1.7 mm. lata, carnosula, ochraceo-viridia, supra sulcato-concava, subtus convexa, obscure punctato-glandulosa, ubique patenter pubescens, margine ciliata. Umbellae ramulos perbreves foliatis terminantes, 1—3-fl., floribus majusculis, albo-roseis, pedicellis 2—4 mm. longis, rubescentibus, patenter-pubescentibus, bracteolatis. Calyx ubique patenter-pubescens, lobis erectiusculis, oblongis, concavis, obtusis, 2—2.5 mm. longis. Petala sessilia, oblonga vel oblanceolato-oblonga, rotundata, 3—3.5 mm. longa, 1—1.5 mm. lata, ubique parce pilosa. Stamina 4 mm. longa, filamentis inferne parce pilosis, antheris citrinis. Staminodia anguste-elliptica, minuta, circiter 1 mm. longa, glanduloso-terminata, medio pilosa. Stylus crasse filiformis, 2.5—3 mm. longus, cum ovario patenter pubescens.

Cape Province: South-Western Region; Ceres Div., growing in holes in the face of weathered rocks; Matroosberg near Laaken Vlei, 4500 ft., Dec., 1917, *E. P. Phillips*, 1962! (in Herb. S.A. Museum, 11762).

Essentially an alpine type and differing from all the members of the section *Barosmaepetalae* by its dwarfed, stunted and cushion-shaped habit, almost succulent leaves, and pilose flowers. Named after the collector, Dr E. P. Phillips, whose name is intimately associated with botanical work in South Africa.

- A. *riversdalensis*, *A. Muirii* affinis, sed foliis ascendens, ovatis, glabris, dorso epunctatis, pedicellis eglandulosis glabris, ceterisque differt.

Fruticulus gracilis, multiramusus, inferne nudus, griseus, superne foliosus; ramuli ultimi imbricato-foliosi, breves, patenter pubescentes. Folia ascendentia, apice paullulo incurva, ovata, fere cordata, obtusiuscula, circ. 2 mm. longa, 1.5—1.7 mm. lata, coriacea, utrinque glabra, subtus fere epunctata et ecostata, apicem versus paullulo obtuse gibbosa, margine haud incrassata, integra, eciliolata. Umbella capitata, 5—10 mm. diam., floribus pallide carneis (sicco), pedicellis glabris, 1.5 mm. longis; bracteolis minutissimae, ciliolatis, medio positis. Calyx circiter 1 mm. longus, utrinque glaber, segmentis ovatis, apice rotundatis, dorso obtuse carinatis, marginibus pectinato-ciliolatis. Petala breviter unguiculata, obovato-oblongiuscula, 2.5—3 mm. longa, 1 mm. lata, unguibus parvissime pilosulis. Stamina glabra. Staminodia filiformia, circ. 2 mm. longa, medio valde inflata et pilosula, apice stipitato-glandulosa. Ovarium cum stylo glabrum.

Cape Province: South-Western Region; Riversdale Div., near Zoutpan, Sept., 1913, *Dr J. Muir*, 1103! (in Herb. Bolus). Melkhoutfontein on the Gauritz River, July, 1913, *Dr J. Muir*, 1111! (in Herb. Bolus).

Nearest to *A. Muirii*, Phillips (which should be transferred to the section *Barosmaepetalae* by rights), but differing in the ascending (not spreading or reflexed) more crowded, glabrous ovate leaves, epunctate dorsally, the slight dorsal callosity at the apex, eglandular glabrous pedicels, and floral characters. *Dr Muir's* No. 928 from Oude Tuin, Albertinia, collected in June, 1913, and in the S.A. Museum Herb. (4999) appears to be a transition stage between this species and *A. Muirii*, Phillips.

- A. formosissima, *A. adenandriiflorae* accedit, sed habitu robustiore, foliis majoribus, pedicellis villosis, segmentis calycis sine glandulis stipitatis, floribus multo majoribus differt.

Fruticulus 0.3 m. altus, inferne nudus, superne verticillato-ramosus, foliatus. Rami nigro-brunnei, glabrescentes; ramuli florati foliosi, breves, patenter puberuli, visciduli, rubidi. Folia majuscula, patula, petiolata, late elliptica, basi paullulo rotundata, apice recurvo-subacuta, circiter 1 cm. longa, 4—5 mm. lata, crasse coriacea, paullulo viscidula, complanata, supra atro-viridia, nitidula, subtus pallidiora, costata, obscure 5—10-glanduloso-punctata, utrinque minute puberula, margine recurva, vix incrassata, obscure punctato-glandulosa; petioli complanati, ad 1 mm. longi. Umbellae ramulos perbreves, foliatis, terminantes, 4—8-florae, floribus magnis, albo-roseis; pedicelli circiter 1 cm. longi, albo-pilosi, brunnei; bracteolae basillares (2—3), late obovato-oblongae, scariosae, circiter 3 mm. longae, obtuse deltoideae vel fere truncatae, dorso minute puberulae, valde costato-carinatae, margine

densissime ciliolata. Calyx 8—10 mm. longus, dorso lilacino-roseus, breviter albo-pilosus, segmentis oblongo-lanceolatis, obtuse acuminatis, complanatis, dorso obscure glanduloso-punctatis, marginibus albo-pilosis. Petala vix unguiculata, late oblanceolata, obtusa, 12—15 mm. longa, 2.5—3 mm. lata, utrinque parce pubescentia, margine paullulo pilosa. Stamina circiter 1 cm. longa, glabra. Staminodia filiformi-oblonga, apice truncato-glandulosa, crassiuscula, 7 mm. longa, 0.7 mm. lata, paullulo pilosula. Stylus filiformis, 10—12 mm. longus, glaber.

Cape Province: South-Western Region; Ceres Div., October, 1916 (Herb. Bolus, No. 15849!).

The largest-flowered of all the *Agathosmas*, and more like an *Adenandra* superficially. It is allied to *A. adenandriflora*, Schlechter, but differs in its more robust habit, larger leaves, villous pedicels, calyx-segments without stipitate glands, and much larger flowers. The specimens were secured at the Cape Town Wild-Flower Show, held in October, 1916.

- A. *cedrimontana*, *A. squamosae* affinis, sed habitu robustiore, foliis minus adpressis, pro ratione longioribus angustioribusque, capitulis majoribus, floribus pedicellatis, carpellis immaturis leviter barbatis differt.

Fruticulus 0.5 m. altus, habitu *A. squamosae*, B. et W., inferne nudus, griseus, superne multo dichotomo-ramosus, ramulis confertis, rectis, pallide brunneis, glabris, foliosis. Folia fere adpressa, subimbricata, perbreviter petiolata vel subsessilia, ovalia, obtusa, 2—2.5 mm. longa, 1—1.3 mm. lata, subcoriacea, utrinque glabra, supra concava, subtus convexa, obscure verruculoso-glandulosa, margine dense pectinato-albo-ciliolata, mox fere glabra. Umbellae numerosae, capitatae, 5—15-fl. (raro 1-fl.), 5—10 mm. diam., floribus albis; pedicelli breves, 1—1.5 mm. longi, glabri, medio bracteolati; bracteolae 1 mm. vix excedentes, ciliolatae. Calyx 1.5—1.7 mm. longus, utrinque glaber, segmentis triangularibus, obtusis, extra obtuse carinatis, marginibus pectinato-ciliolatis. Petala unguiculata, 4.5 mm. longa, glabra, lamina anguste obovata, vix 1 mm. lata. Stamina 5 mm. longa, glabra; staminodia lanceolata, minute glanduloso-capitata, medio pectinato-pilosula. Pistillum superne barbatulum, stylo filiformi glabro.

Cape Province: South-Western Region; Clanwilliam Div., Cedarbergen, Dec. 1913, *Mrs R. Pattison* (Herb. Bolus, No. 15832!).

Closely allied to *A. squamosa*, B. and W., of the section *Imbricatae*, from which its more robust habit, less adpressed relatively larger and narrower leaves, larger flower-heads, pedicellate flowers, longer petals and slightly bearded immature carpels, separate it.

- A. *Bodkinii*, ab omnibus sectionis *Imbricatae* habitu alpino, foliis utrinque minute pubescentibus, marginibus haud pectinato-ciliatis, floribus minimis, stylo pubescente differt.

Fruticulus pusillus, 6 cm. altus, e basi ramosus, caulibus numerosis, dense confertis, subdecumbentibus, puberulis, imbricato-foliatis. Folia elliptica, circiter 3 mm. longa, 1.5—2 mm. lata, obtusa, coriacea, utrinque minute pubescentia, supra concava, nitidula, subtus convexiuscula, margine integra, obscure punctato-glandulosa. Umbella capitata, parvula, circiter 5 mm. diametro, multiflora, floribus minutis albidis (sicco), bracteis foliaceis, bracteolis basilaribus, binis, 0.7 mm. longis, pedicelli 1.5—2 mm. longi, superne minute puberuli. Calyx 1.5—1.7 mm. longus, extra puberulus, segmentis oblongiusculis, concavis, obtusis, dorso obtuse carinatis. Petala unguiculata, spatulata, circiter 2 mm. longa, 0.7 mm. lata, omnino glabra. Stamina 3.5 mm. longa, glaberrima. Staminodia filiformia, 1.7 mm. longa, glabra, apice distincte glandulosa. Pistillum patenter puberulum, stylo crasse filiformi, inferne patenter pubescenti.

Cape Province: South-Western Region; Clanwilliam Div., Sneeuwkop, 4500 ft, Cederbergen, near Wupperthal, October, 1897, *A. Bodkin* (Herb. Bolus, No. 8958!).

One of the section *Imbricatae*, distinguished from all by its dwarf alpine habit, minutely pubescent leaves (on both surfaces) not pectinate-ciliate margins, very small flowers, their correspondingly smaller parts, and pubescent style.

- A. gracilipetala, *A. ciliatae* forsitan proxime accedit, sed distinguitur foliis multo minoribus, magis ovatis, fere cordatis, apice cuspidato-acuminatis, umbellis capitatis, minoribus, petalis gracillimis, ceterisque.

Fruticulus ad 0.5 m. altus, parce foliatus, superne verticillato-ramosus, paullulo divaricato-ramosus, ramulis citrinis, patenter pilosis. Folia patula, complanata, ovata vel late ovata, cuspidata vel acuminato-cuspidata, interdum basi subcordata, 4—5 mm. longa, 1.7—2.3 mm. lata, tenuiter coriacea, pallide ochraceo-viridia, supra glabra, subtus strigulosa, parcissime costato-ciliata, margine pectinato-ciliata. Umbella capitata, hemisphaerica, circiter 1 cm. diam., multiflora, floribus albidis (sicco), bracteis foliaceis, reflexis; pedicellis crassiusculis, 2—2.5 mm. longis, glabris, medio bracteolatis. Calyx 1.7—2 mm. longus, utrinque glaber, segmentis triangularibus, glanduloso-obtusis, dorso obtuse carinatis, margine paullulo pectinato-ciliatis. Petala longe unguiculata, 4 mm. longa, lamina obovato vel fere rotundata, parvula, circiter 1 mm. longa, glabra, unguibus inferne parcissime pilosis. Stamina ubique glabra. Staminodia longe spatulata, 2 mm. longa, unguibus patenter pilosis. Pistillum superne parce strigillosum, stylo crassiusculo, glabro.

Cape Province: South-Western Region; Caledon Div., hills near Caledon, 1000 ft., October, 1899, *H. Bolus*, 9152! (in Herb. Bolus, and Albany Mus.).

A species of the *Euagathosmae* group of Subsection A of Sonder, perhaps nearest to *A. ciliata*, Link, from which its more dwarf more divaricate habit, much smaller, more ovate, almost cordate, leaves (reflexed below the umbels) with cuspidate-acuminate tips, entire margins, epunctate dorsal surfaces, smaller capitate umbels, very slender petals, short staminodes in comparison with the calyx, separate it. Superficially it might be mistaken for a spreading leaved form of *A. imbricata*, v. *acuminata*.

A. bicolor, *A. capitatae* affinis, sed habitu, foliis longioribus, obtuse carinatis, parce pilosis, minute denticulatis, bracteolis basilaribus, petalis gracillimis, filiformibus, stylo infra medium patenter piloso differt.

Fruticulus decumbens, serpyllaceus, gracillimus, parce foliatus, ramis saepe 1.5 m. longis, ramulis atrobrunneis, paullulo pilosis. Folia patula, raro ascendentia, interdum falcata, lanceolata, subacuta, 5—10 mm. longa, 1.3—2 mm. lata, coriacea vel crasse coriacea, pallide viridia, supra sulcata vel concava, dorso carinata, utrinque sparse pilosula et minute denticulato-scaberula, margine minute denticulata. Umbellae capitatae, fere nudae, confertiflorae, hemisphaericae, circiter 1 cm. diam., floribus albidis (siccis); pedicellis 0.7—1 mm. longis, glabrescentibus; bracteolis basilaribus, subulatis, 1 mm. longis, pilosulis. Calyx 1.7 mm. longus, utrinque glaber, segmentis obtuse subulatis, dorso obtuse carinatis, marginibus pectinato-ciliatis. Petala unguiculata, filiformia, 4—4.5 mm. longa, 0.3 mm. lata, unguibus parce pectinato-ciliatis. Stamina glabra. Staminodia anguste filiformia, circ. 3 mm. longa, inferne pectinato-ciliata. Ovarium albobilosum, stylo filiformi, inferne patenter piloso.

Cape Province: South-Western Region; Clanwilliam Div., stony places, Packhuisberg, 2000 ft., August, 1897, R. Schlechter, 10803! (in Herb. Bolus and Albany Museum).

Another member of the section *Euagathosmae* of Group C of Sonder, nearest to *A. capitata*, Sond., but characterised by its creeping sprawling slender habit, slightly pilose twigs, scarcely trigonous, longer, obtusely keeled, sparsely pilose, minutely denticulate leaves, shorter pedicels with basilar bracteoles, very slender filiform petals, with slightly pilose claws, more slender staminodes, and style patently pilose below the middle.

Superficially it resembles a slender creeping form of *A. florida*, Sond. (*A. mollis*, Eckl. and Zeyh., but not of Bartling and Wendland). The very slender filiform petals are a characteristic of this species. In infancy the flower heads are red, eventually changing to creamy white.

A. paludosa, *A. erectae* forsitan proxime accedit, sed facile distinguitur ramulis glabris, foliis adpressis, dorso convexis, umbellis capitatis majoribus, fere orbicularibus, bracteis scariosis, pedicellis brevioribus.

*Fruticulus gracilis*, ad 0.5 m. altus, ramis paucis fastigiatis vel rectis, albidis, glabris. Folia adpressa, vix imbricata, fere amplexicaulia, demum ascendentia, perbreviter petiolata, lanceolata, paullulo callōso-obtusa, circiter 4 mm. longa, 1—1.3 mm. lata, coriacea, utrinque glabra, supra concava, subtus convexa, obscure punctato-glandulosa, margine primo laxe pilosa, mox glabra, integra. Umbellae capitatae, fere orbiculares, congestiflorae, 1.5 cm. diam., albae; bracteae late ovatis, fere rotundatis, circ. 2 mm. longis, concavis, scariosis, pectinato-ciliolatis; pedicellis 1—1.5 mm. longis, glabris, bracteolis binis, basilaribus elliptico-oblongiusculis, scariosis, 1.3 mm. longis, ciliolatis. Calyx 1.7 mm. longus, utrinque glaber, segmentis late deltoideis, obtusis, dorso obtuse carinatis, margine pectinato-ciliolatis. Petala unguiculata, 4—4.5 mm. longa, lamina late elliptica, rotundata, 1.7 mm. lata, glabra, unguibus medio parce pectinato-pilosis. Stamina glabra. Staminodia oblanceolata, 3—3.5 mm. longa, sub apice glandula notata, medio patenter pilosa. Pistillum superne longe albo-pilosum, stylo inferne albo-piloso.

Cape Province: South-Western Region; Ceres Div., nr. Laaken Vley, Matroosberg, 5000 ft.?, Nov., 1917, *Dr E. P. Phillips*, 1967! (in Herb. S.A. Museum, 11767).

One of the section *Euagathosmae* perhaps nearest to *A. erecta*, B. and W., and its forms, but easily distinguished by its glabrous twigs, relatively larger, adpressed, dorsally convex, less thickish leaves, the larger almost orbicular capitate umbels, the scarious bracts, the shorter glabrous pedicels, and floral distinctions.

*A. muizenbergensis*, var. *planitiensis*.

*Fruticulus robustus*, ad 0.5 m. altus. Folia lanceolato-subulata, obtusiuscula, ad 1.5 cm. longa, dorso costato-carinata, apicem versus paullulo gibbosa, margine primo parce pectinato-ciliata. Pedicelli pilosi, pilis ascendentibus, undulatis. Calycis lobi pilosi, 2 mm. longi.

Cape Province: South-Western Region; Cape Div., among short Restiaceae and bushes, in sandy flats east of Mowbray, 10th Aug., 1912, *N. Pillans*, 1901! (in Herb. Pillans, 1901).

A peculiar variant and new record for the Cape Peninsula Flora, distinguished from the type—a montane species—by its more robust habit, the leaves, when young, being marginally and dorsally pectinate-ciliate, and relatively longer, with a slight dorsal subapical gibbosity, by the pubescence of the pedicels which is of an ascending and wavy nature (and not stiff and patently spreading), by the ciliate calyx-lobes, and the slightly larger and flesh-coloured flowers. Superficially not unlike *A. Dummeri*, Phillips, from the French Hoek Mountains, but more dwarf.



## REVIEW

THE GRASSES AND GRASSLANDS OF SOUTH AFRICA. BY J. W. BEWS, M.A., D.Sc. *Pietermaritzburg, P. Davis and Sons, Ld.* (1918).

UNTIL the publication in 1898–1900 of the thorough and scholarly account of the South African Grasses by O. Stapf in the seventh volume of the *Flora Capensis*, workers on South African species of grasses had to rely in the main on Nees' treatise on S.A. Gramineae first published in 1841. Only one work of outstanding importance, dealing however only with one group, the Andropogoneae, had in the interval been issued by Hackel in the *Monographiae Phanerogamarum*, vol. VI (1889), edited by A. and C. De Candolle. After the issue of Stapf's work the late Dr J. M. Wood illustrated about 200 species in *Natal Plants*. On the whole the S.A. Grasses are now better known from a taxonomic point of view than most other families. The way was thus opened for their study from other points of view. Stapf led off by his interesting phytogeographical treatise *Die Gliederung der Graeserflora von Suedafrika* (Berlin, 1904). During more recent years Dr Bews has given us a series of most valuable studies of the plant-succession in S. Africa, special attention having been given to the grasslands and we are, therefore, very grateful to him that he has summarised some of these researches in the present book and added new observations and conclusions. The ecological study of such a large group of plants scattered over such a wide area under very diverse conditions naturally cannot be expected to yield anything like finality in a few years' work, but already it seems that much of what Dr Bews has written on the subject will at all events serve as a firm foundation for future investigation. Any criticism that the writer has to offer must, therefore, be looked upon as entirely overshadowed by the solid worth of the book which has been to him already a frequent source of instruction and even inspiration.

The book opens with an introduction dealing with a general description of grasses, with plant-succession and a glossary of botanical terms. The terminology used in the description of the spikelet is the same as that employed by British authors generally and unfortunately also in the *Flora Capensis* which altogether blurs the morphological interpretation and correlation of its parts. The terminology used by most continental botanists seems to be much simpler and more logical. It might have been advisable for Dr Bews to mention that he describes a typical spikelet and that deviations

from the type are not infrequent. In the ecological parts Clements' terminology has been adopted. Let us hope that these represent a "socioes" and not a "society" and that somebody will soon propose terms more acceptable than "prisere," "oxysere," etc.

The second chapter gives an artificial key to the genera and species of S.A. Grasses. There is certainly a need for such a key as even a professional botanist cannot always get satisfactory results with Stapf's keys in the *Flora Capensis*. Whether Dr Bews has succeeded where such a masterhand has not always given satisfaction can only be found out by prolonged use for which the writer has had no opportunity yet. Hackel has stated that amongst grasses "no single tribe, no large genus numbering over 50 species can be definitely characterised," and it seems, therefore, hopeless to expect a satisfactory key for the genera.

With the third chapter giving "ecological notes on the principal species in each genus" we leave the dry bones and enter upon a portion of the subject in which the author is particularly at home. This, like the two concluding chapters, will appeal to a wide circle of readers both in South Africa and abroad. The fourth is the longest chapter. It gives a "general sketch of the grasslands of South Africa and their development." In the last chapter "economic applications" are dealt with. This is followed by an appendix containing a list of English, Dutch, Zulu and Sesuto names of grasses.

The mass of facts in the three last chapters is very imposing. A few points only can be referred to here. Transverse sections of the leaves of a number of grasses are diagrammatically illustrated chiefly with a view to demonstrate the amount of sclerenchyma in them which the author correlates with the nutritive value of grasses as pasturage. This is a happy inspiration which no doubt gives useful indications, but a word of caution is required not to carry its application too far. In the first place the anatomy of grassleaves varies considerably according to locality (and perhaps also according to varying seasonal rainfall). Further it seems to the writer that the amount of silica in the leaves should be taken into account and lastly, stock do not only eat grassleaves but also grass-stems and their anatomy should be studied side by side with that of the leaves. *Danthonia purpurea*, a valuable pasturage grass although xerophytic, to which Dr Bews had introduced us in a previous publication, is again fully dealt with. No doubt we shall soon hear of its introduction into the more arid parts of America and Australia, after which our South African farmers will realise its value.

Some of the vital questions affecting the future prosperity of South Africa are grass-burning, overstocking and the attendant evil of soil-erosion. On all these Dr Bews gives most valuable information and it will always be to his credit that he was the first to show that, while in certain places and under certain conditions the burning of the veld should be stopped, in other places

and under other conditions it is not only advantageous but necessary. Once his ideas can be worked out in detail for large parts of South Africa and adopted by our farmers, a new era will have begun in many of the stock-farming districts of South Africa.

In conclusion we would express our appreciation of the manner in which the book has been turned out by the publishers. It is printed in clear type and there are remarkably few misprints in it.

S. S.

## EXPLANATION OF PLATES

## PLATE I

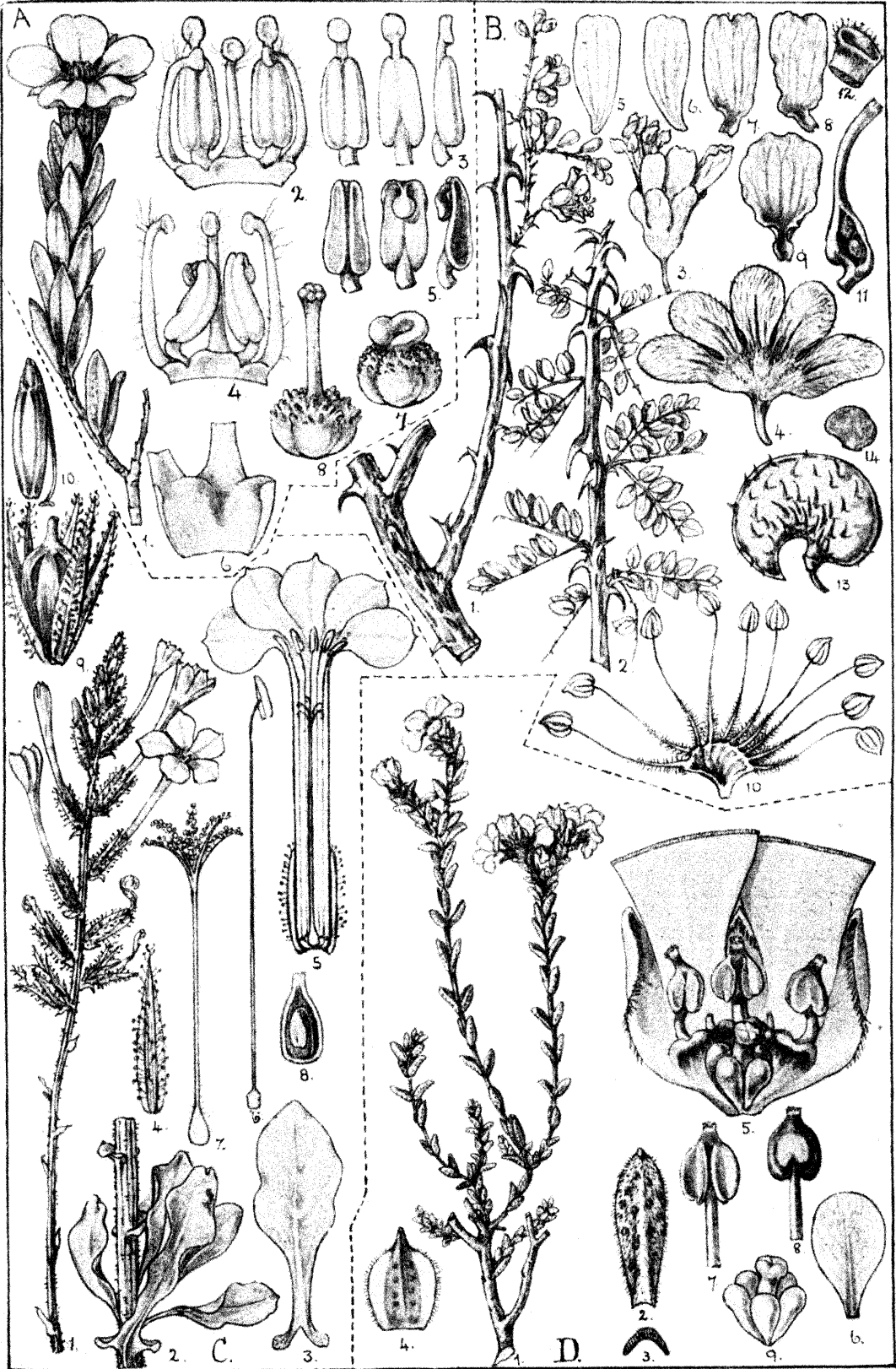
- A. *ADENANDRA UMBELLATA*, WILLD.    B. *CAESALPINIA PEARSONII*, L. BOLUS.  
 C. *PLUMBAGO PEARSONII*, L. BOLUS.    D. *DIOSMA MARLOTHII*, DUMMER.

- A. Fig. 1, sketch of branchlet, nat. size; 2, portion of disc with two stamens and three staminodes, from a young flower; 3, stamen from Fig. 2, front, back, and side view; 4, as in Fig. 2, but at a later stage of development; 5, a stamen from Fig. 4, front, back, and side view; 6, portion of disc with bases of stamen and staminode, showing nectariferous foveole; 7, gynaecium in a recently opened flower; 8, ditto, at a later stage—all variously enlarged.
- B. Figs. 1 and 2, portions of branches, nat. size; 3, flower; 4, calyx, laid open; 5—9, petals; 10, stamens with calyx-tube; 11, gynaecium, portion of ovary removed; 12, stigma—variously enlarged; 13, legume; 14, seed, nat. size.
- C. Figs. 1 and 2, portions of branches; 3, leaf, nat. size; 4, sepal; 5, flower, laid open; 6, stamen; 7, gynaecium; 8, section of ovary; 9, fruit; 10, seed—variously enlarged.
- D. Fig. 1, branch, nat. size; 2, leaf; 3, transverse section of ditto; 4, sepal; 5, longitudinal section of flower; 6, petal; 7, stamen, front view; 8, ditto, back view; 9, gynaecium.

## PLATE II

- A. *HOMERIA LILACINA*, L. BOLUS.    B. *HOMERIA BIFIDA*, L. BOLUS.  
 C. *AGAPANTHUS WALSHII*, L. BOLUS.    D. *APICRA RUBRIFLORA*, L. BOLUS.

- A. Fig. 1, outer perianth-segment; 2, inner ditto—from a small flower; 3, androecium and gynaecium; 4, style-branches—variously enlarged.
- B. Fig. 1, outer perianth-segment; 2, inner ditto; 3, androecium and gynaecium; 4, gynaecium—portion of ovary removed; 5, style-branches—variously enlarged.
- C. Fig. 1, apex of peduncle with one flower, nat. size.
- D. Fig. 1, flower; 2, ditto, laid open—enlarged.



M. M. Page

A. *Adenandra umbellata*, Willd.  
 C. *Plumbago Pearsonii*, L. Bolus.

B. *Caesalpinia Pearsonii*, L. Bolus.  
 D. *Diosma Marlothii*, Dummer.





M. M. Poore

A. *Homeria lilacina*, L. Bolus.  
 C. *Agapanthus Walshii*, L. Bolus.

B. *Homeria bifida*, L. Bolus.  
 D. *Apicera rubriflora*, L. Bolus.





## A NEW GENUS OF CRASSULACEAE

BY S. SCHONLAND.

PAGELLA nov. gen.

Herba nana carnosa, flore Crassularum tetramerarum, sed ovario syncarpo, apice valde applanato, stylis liberis minutissimis. Fructus capsularis, maturus ignotus, verisimiliter circumscissus, immaturus pericarpio tenuissimo.

*Species unica.*

*P. Archeri* n. sp.

Herba annua carnosa, radicibus fibrosis, caule primum obconico, deinde disciformi, dense foliis et floribus tecto. Folia ad marginem disci numerosa, dense rosularia, parva carnosa, inferne cuneata, sub-plana, pallide viridia, superne ampliata et incrassata, oblique truncata, papillosa, saturate viridia. Inflorescentia centralis plana multiflora, floribus sessilibus tetrameris haplostemonis, bracteis foliis similibus sed multo minoribus. Sepala basi parum connata, foliis similia sed minora, apice triangularia truncata papillosa, quam petala multo breviora. Petala basi connata, late obovato-cuneata, apice acutiuscula, parum corrugata, microscopice papillosa, suberecta, apicem versus incurva, primum saturate rubra, post anthesin pallide rosea, denique marcescentia sordide alba, persistentia. Stamina cum petalis alternantia, parte basilari iis adnata, quam petala breviora, filamentis abrupte incurvis, e parte inferiore dilatata subulatis, antheris dorsifixis oblongis. Ovarium 4-loculare depressum, summo applanatum microscopice papillosum, 4-sulcatum, in medio profunde excavatum, multiovulatum, stylis liberis minutissimis, stigmatibus minutissimis oblongis. Squamae quam ovarium parum longiores albae, anguste lineares, apice parum dilatatae. Fructus capsularis polyspermus, maturus ignotus sed verisimiliter circumscissus, immaturus pericarpio tenuissimo.

Plantae ad 21 mm. latae. Folia circ. 3 mm. longa. Flores  $1\frac{1}{2}$ —2 mm. lati. Sepala et stamina circ.  $\frac{1}{2}$  mm. longa. Petala circ. 1 mm. longa. Ovarium circ.  $\frac{1}{4}$  mm. altum.

Cape Province: South-Western Region; Montagu Div., frequentissima cum muscis inter Mesembrianthema prope "Montagu Baths." Mary M. Page, Aug. 1920 (Bolus Herbarium, No. 16645).

Karoo Region; Matjesfontein, fl. Sept. 1920, Archer (Bolus Herbarium, No. 16646).

I have taken the liberty of associating the discoverer of this most interesting and charming little plant, Miss Mary M. Page, with the generic name I have given to it. I owe the privilege of examining and describing it to the kindness of Mrs F. Bolus who has done so much already for the study of the South African Flora. When I first glanced at it, I thought Mrs Bolus had sent me a liverwort, but of course an examination of it showed at once that it was a crassulaceous plant not essentially different in floral structure from the species of *Crassula* with tetramerous flowers except by the decidedly syncarpous ovary. In many species of *Crassula* and other genera of *Crassulaceae*, the carpels are slightly united at the base. In *Diamorpha*, *Penthorum* and *Triactina* one finds even ovaries that can be considered syncarpous in the accepted sense of the term, but in none of them has syncarpy proceeded so far as in *Pagella* which cannot be placed into any of these genera. It is the only known crassulaceous plant in which a haplostemonous androeceum is associated with syncarpy, and it is moreover the only crassulaceous plant with syncarpous ovary known from the Southern Hemisphere. In adding an English description of the plant I will take the opportunity of making a few remarks here and there which are not included in the Latin diagnosis.

The roots are fibrous and there can be no doubt that the plant is an annual. The stem is succulent. Until the plant is about 7 mm. in diameter the stem is obconical, then it flattens out and in the older specimens the obconical shape has practically disappeared and the stem is disc-shaped. The older leaves have by that time withered and the disc bears on its top a large number of closely packed sessile flowers surrounded by 2-3 quasi-rows of also very closely packed foliage leaves, the whole resembling very closely a flat capitulum of some *Compositae*, except that in *Pagella* the inflorescence is evidently cymose, though, owing to the crowded state of the flowers, no further analysis of their relative position was possible. The largest plant I have seen was 1.8 by 2.1 cm. in diameter and about 3 mm. thick. Its surface area was, therefore, only a little over 3 sq. cm. and yet it bore over 60 flower-buds and flowers. The floral bracts are frequently suppressed. The foliage-leaves are about 3 mm. long. They have a thin, flat, smooth, cuneate basal portion (about  $1\frac{1}{2}$  mm. long) and an enlarged thickened deep green apical portion which is obliquely truncate and papillose at the top. The flowers are  $1\frac{1}{2}$ —2 mm. in diameter, tetramerous, haplostemonous, distinctly proterandrous. The sepals are slightly connate at the base, about half the length of the petals, somewhat similar to the foliage-leaves but much smaller, the truncate apical portion triangular. The petals are broadly obovate-cuneate, slightly contracted and a

little pointed at the apex, connate at the base, slightly crinkled, microscopically papillose, bent in the upper portion towards the centre of the flower, about 1 mm. long, persistent, in bud deep red, in the open flower paler, later marcescent and dirty white. Stamens alternating with the petals, attached to their basal connate portion, half their length, bent sharply inwards through the chinks between the posterior portions of the carpels. Filaments from a broadish base subulate. Anthers brown, dorsifixed, oblong. Pollen yellow. The ovary fills the interior of the flower touching the petals. It is 4-chambered, 4-sulcate, depressed, almost flat on the upper surface and here microscopically papillose. In the centre, where the four grooves meet, there is a deep depression, close to which there are the four extremely minute free styles each of which bears an extremely small oblong stigma. The ovary is pale green except round the bases of the styles, where there is a little suffusion of red. The "squamae" are a little longer than the height of the ovary, white, narrowly linear, slightly broadened towards the apex. It seemed to me that they are absent in some flowers, but on this point I could not quite make sure. The ripe fruits have not been seen yet. Fruits which were evidently nearly ripe were very slightly larger than the ovary in the open flower. They had a very thin pericarp which could easily be detached all round near the base of the ovary. It is, therefore, most likely that the fruit is a circumscissile capsule. The seeds are fairly numerous, oblong. They are attached to comparatively long funicles.

In conclusion a few words on the placentation which is somewhat peculiar. Unfortunately we know too little of the placentation of other crassulaceous plants, especially of the small *Crassulae* which I have united under the section *Tillaeoideae*, to express an opinion whether this placentation is unique in the order. In each chamber of the ovary there are two quite separate placentas on the upper portion of the lateral walls near the inner angles of each chamber. Their shape and position will be seen from the accompanying figures (13, 14). Each bears numerous ovules. (Pl. III, A.)

## NOVITATES AFRICANAE

*Impatiens Duthieae*, L. Bolus (Balsaminaceae), ab *I. capensis* floribus multo minoribus, petalis bilobis, auriculis rotundatis distinguitur.

Herba gracilis glaberrima diffusa, ramis elongatis decumbentibus, saepe reptantibus, ca. 0.3 cm. ad 0.5 cm. diam.; folia saepius patentia ovata, obtuse acuminata, in petiolum alatum 1—1.8 cm. longum angustata, crenata, crenaturis spinuliferis, nervo medio pagina superiore prominente, nervis primariis saepius 5-jugis, pagina inferiore prominentibus, lamina saepius 3—4 cm. longa; cymae 1—3-fl., pedunculis brevissimis, pedicellis gracilibus, demum ad 5 cm. longis; sepalum dorsale ovatum acutum concavum, 0.6 cm. longum, calcare gracillimo, 1.2 cm. longo, sepalis lateralibus linearibus vel lineari-lanceolatis, 0.3 cm. longis; petala lateralia 1.1 cm. longa, 0.7—0.8 cm. lata, erecta concava unguiculata, lamina late obovata, inaequaliter biloba, lobo anteriore rotundato, posteriore multo angustiore obtuso, auricula subrotundata, 0.2 cm. longa; petalum anterius concavum, ore oblongo, minute apiculatum, 0.7 cm. longum, 0.3 cm. latum; stamina 0.3 cm. longa; capsula acuminata, 1.6 cm. longa, medio 0.6 cm. diam., seminibus obovatis, 0.2 cm. longis.

Cape Province: South-Western Region; Knysna, *A. V. Duthie* (Bolus Herbarium, No. 15191). Flowered freely during the summer months for the last three or four years in the National Botanic Gardens at Kirstenbosch, where it grows on the edge of a pool, sending out branches which float in masses on the surface of the water.

Distinguished from *I. capensis*, Thunb. by the much smaller flowers, bilobed petals with rounded auricles.

*Dolichos Peglerae*, L. Bolus (*Leguminosae-Phaseoleae*), *D. Lablab* affinis, sed bracteolis minutis, mox deciduis, floribus majoribus (2.5 cm. longis), vexillo ovato galeato, carina haud rostrata facile distinguitur.

Suffruticosus, caule volubili hispido, setis reflexis; foliola rhomboideo-ovata subobliqua acuta apiculata, terminalia lateralibus majora, 3—7 cm. longa, 2—4.5 cm. lata; pedunculus subrobustus nudus, 7—20 cm. longus; axis floriferus 4—14 cm. longus, nodulosus, nodis 5—7 flores purpureos emittentibus, internodiis 0.3—3 cm. longis vel ultra; pedicelli 0.2—0.9 cm. longi, erecti vel adscendentes, apicem versus decurvati, apice articulati et bracteolis binis lineari-oblongis, ca. 0.15 cm. longis onusti; calyx basi subintrusus, hispidulus, ad 0.5 cm. longus; labium superum emarginatum, demum fere integrum, labium inferum

breviter 3-dentatum; vexillum ovatum galeatum, supra medium carinatum, basi auriculatum, auriculis crassis, lamina ad 2.3 cm. longa, ungue vix 0.2 cm. longo, callis oblongis, apice rotundatis, ad 0.3 cm. longis; alae oblique ovatae, lamina ad 1 cm. longa, ungue ad 0.4 cm. longo; carina obtusa, ca. 2 cm. longa; filamenta stylo aequilonga, antheris simillimis, 0.1 cm. longis; ovarium stipitatum lineare hispidulum, saepius 5-ovulatum, stylo flexu dilatato glabro, deinde tereti, dense barbato, stigmatum capitato; legumen immaturum subfalcatum, 4 cm. longum.

Cape Province: South-Eastern Region; Transkei, Kentani, along streams, fl. Feb.—March, *Alice Pegler*, 1178. Flowered freely for several years during March at Kirstenbosch from seeds sent by Mr Stayner from Enkazini Forest, Natal (National Botanic Gardens, No.  $\frac{2159}{15}$ ).

Allied to *D. Lablab*, but is easily distinguished by the minute bracteoles which are deciduous at a very early stage, by the larger flowers (2.5 cm. long), ovate galeate vexillum, and the non-rostrate carina.

This is probably the handsomest of the South African species of *Dolichos*. The petals on first opening are a reddish purple, the vexillum having an M-shaped clear-yellow blotch at the base of the blade, bordered by a narrow band of deep purple. Later in the day the colour changes to a beautiful mauve, and the yellow grows fainter, finally becoming a bluish white. The gradation of shades, therefore, that is to be found in a flower-cluster is very varied and gives a most charming effect to the whole.

*Mesembrianthemum Peacockiae*, L. Bolus (*Ficoideae-Mesembricae*), sectioni "Scabrida" convenit, sed ab omnibus ceteris caule graciliore reptante, foliis semiteretibus, floribus solitariis distinguitur.

Caulis gracillimus reptans flexuosus, ramis erectis, saepissime ad 3 cm. altis (pedunculo excluso); folia adscendentia, deinde patula, basi connata, semiteretia acuta purpureo-apiculata, glauca vel in cultis viridescens, punctata, punctis ad lucem pellucidis, 0.6—0.9 cm. longa, basi vix 0.2 cm. lata; pedunculi erecti graciles, medio vel infra 2-bracteati, bracteis foliis paullo majoribus, 1-fl., floribus 5-meris, 2.5—3 cm. diam.; calyx clavatus punctatus, segmentis subaequilongis lanceolatis acuminatis, duobus late membranaceo-marginatis, membrana atrobrunnea, 0.4—0.5 cm. longis; petala stricte radiata, 1-seriata, saepissime obtusa, basin versus gradatim attenuata, pallide rosea, apicem versus marginibusque purpurascens, 1—1.2, rarissime ad 2 cm. longa, vix ad 0.2 cm. lata; stamina conferta, ca. 0.3 cm. longa, filamentis basi barbatis albidis, superne purpurascens, antheris luteis;

discus annularis crenulatus; ovarium convexum, stylis erectis, apice patentibus subulatis setaceo-acuminatis, 0.25 cm. longis.

Cape Province: South-Western Region; near Darling, fl. Sept., *W. Peacock* (National Botanic Gardens, No. 1459); Malmesbury Div., near Kalabas Kraal, fl. Sept., *L. Bolus* (Bolus Herbarium, No. 15192). Cape Peninsula, Lion Mountain, *L. Guthrie*.

Allied to the section "Scabrida" on account of its punctate leaves and the general look of the flower, but differs from all the other species in this section in its more slender creeping stem, semi-terete leaves, and solitary flowers.

Described from living specimens which flowered freely at Kirstenbosch during the spring, 1918—1920.

*Mesembrianthemum Watermeyeri*, *L. Bolus*, caulescens epapulosum, glaberrimum, foliis basi perbreviter connatis vel fere liberis, semiteretibus, apicem versus obscure carinatis, floribus saepius 3-natis, 5-meris.

Fruticulus erectus robustus rigidus, 25 cm. altus vel ultra; rami teretes vel juniores subcompressi, ad 0.7 cm. diam., folia erecto-incurva, vel suprema patentia, acuta, 2—3.5 cm. longa, 0.5—0.6 cm. diam. lataque; pedunculi omnes bracteati vel rarius intermedii ebracteati, ad 4 cm. longi; calyx turbinatus, segmentis inaequalibus, basi ovatis, apicem versus teretibus acuminatis, duobus conspicue membranaceo-marginatis, 1.3—1.6 cm. longis; petala ca. 3-seriata acuta alba, ad 2.5 cm. longa, 0.1—0.2 cm. lata; stamina leviter incurva vel erecta, filamentis flavidis, basi barbatis, 0.6 cm. longis, antheris minutis luteis; discus annularis, minute crenulatus; ovarium supra convexum, stylis crassis ovatis setaceo-apiculatis, ad 0.35 cm. longis.

Cape Province: Upper Region; Calvinia Div., Nieuwoudtville, *E. B. Watermeyer* (National Botanic Gardens, No. 2256).

Caulescent epapulose, quite glabrous, the leaves very shortly connate at the base or almost free, semi-terete, obscurely keeled towards the apex, the flowers usually 3-nate, pentamerous.

Described from living specimens which flowered at Kirstenbosch, in Oct.

*Erica plena*, *L. Bolus*, *E. campanulatae* affinis, sed foliis brevioribus, bracteis longioribus angustioribusque, corollis longioribus et pro parte angustioribus, filamentis longioribus, antheris oblique ovatis differt.

Fruticulus erectus ca. 40 cm. altus; rami ramulique graciles, juniores tenuiter tomentosi, dense foliosi; folia 4-nata, adscendentia, dense imbricata, anguste linearia, subobtusa glabra, praeter petiolum brevem ciliatum, 0.3—0.4 cm. longa, ca. 0.05 cm. lata; flores solitarii, ramulos crebros breves terminantes; pedunculi adscendentes glabri, 0.25 cm. longi, bracteis 3 infra medium positis, anguste linearibus, ciliatis, ad

0.3 cm. longis; sepala ovata caudato-acuminata colorata, 0.4 cm. longa; corolla tubularis glabra, 0.9 cm. longa, segmentis erectis, apice rotundatis, 0.2 cm. longis; stamina inclusa, apicem tubi corollae vix attingentia, antheris muticis vel filamento minute denticulato, oblique ovatis, obtusis, vix 0.1 cm. longis, poro dimidio lobi aequilongo; ovarium obovatum glabrum, vix 0.2 cm. longum, stylo fere apicem corollae attingente, stigmatate capitellato.

Cape Province: exact locality unknown.—Obtained by Mr N. S. Pillans at the Caledon Wild Flower Show, Sept. 1910 (*Pillans*, 1678).

Allied to *E. campanulata*, Andr., but differs in having shorter leaves, longer and narrower bracts, longer and proportionately narrower corollas, longer filaments, and obliquely ovate anthers.

Described from dried specimens. No record of the colour of the living flowers has been made, but they appear to have been a flame-colour. The specific name is given in reference to the richly-flowered branches. (Pl. III, c.)

*Erica* Eustacei, L. Bolus, *E. spectabili* affinis, sed pedunculis brevioribus, antheris cristatis, cristis liberis, ovario villosa, ceterisque distinguitur. Fruticulus rigidus, ramis ad 30 cm. longis, junioribus tomentosus; folia erecta 3-nata subconcaeva, dorsaliter convexa, pagina superiore tenuiter pubescentia, pectinato-ciliata, 0.2—0.3 cm. longa, internodios aequantia vel excedentia; flores 3-nati; pedunculi saepius decurvati, minute glanduloso-pubescentes, 0.2 cm. longi, bracteis duobus approximatis, tertia medio posita, lanceolato-oblongis, 0.15 cm. longis; sepala ovata acuminata ciliata, 0.2 cm. longa; corolla globose suburceolata, basi 4-sulcata, glabra, leviter viscidula, 0.3 cm. longa, segmentis erectis obtusis, ca. 0.1 cm. longis; stamina inclusa, antheris triangulari-ovatis, lobis distinctis subdivaricatis, ca. 0.05 cm. longis, cristatis, cristis angustis integris, lobo brevioribus, poro dimidium lobi parum excedente; ovarium depresso globosum villosum, stylo incluso, staminibus aequilongo, stigmatate simplice.

Cape Province: Karroo Region; mountains on Tweedside Farm between Matjesfontein and Constable, fl. Sept., *Eustace Pillans* (*Pillans*, 1609).

Near *E. spectabilis*, Kl., but may be distinguished by the shorter peduncles, crested anthers with the crests free, villous ovary, and by other characters.

Described from dried specimens. "Flowers very pale pink." (Pl. III, d.)  
*Erica* Stokoei, L. Bolus, *E. irregulari* affinis, sed foliis brevioribus, dense imbricatis, floribus aggregatis (more *E. seriphifoliae*) minoribus, bracteis duobus, ovario hispidulo differt.

Fruticulus rigidus humilis, ad 21 cm. altus, ramis dense foliosis,

senioribus cicatricibus foliorum delapsorum conspicue notatis; folia 4-nata erecta, dense imbricata, linearia subacuta, ad 0.5 cm. longa, petiolo 0.1 cm. longo; flores 4-nati, ad apices ramulorum aggregati; pedunculi decurvati, tenuiter tomentosi, 0.6 cm. longi, bracteis 2, medio vel supra medium positis, ad 0.3 cm. longis; sepala ovata subapiculata pectinato-ciliolata colorata, 0.3 cm. longa; corolla subcyathiformis ore vix contracta, basi tetragona, sulcis sepalis oppositis, glabra vel puberula, 0.35 cm. longa, segmentis oblongis, apice rotundatis, tubum aequantibus vel parum excedentibus; stamina inclusa, antheris suboblongis obtusis, basi obliquis, fere 0.1 cm. longis, anguste cristatis, poro dimidium lobi excedente; ovarium depresso globosum hispidulum, praecipue apicem versus, stylo corolla brevior, stigmatibus capitato.

Cape Province: South-Western Region; Caledon Div., Stanford, fl. Nov., *T. P. Stokoe* (Bolus Herbarium, No. 16070).

Allied to *E. irregularis*, Benth., but differs in having shorter and more densely imbricate leaves, flowers collected towards the end of the branches (as in *E. seriphiifolia*, Salisb.) and smaller, two bracts, and the ovary hispidulous.

Described from dried specimens. Flowers pink. (Pl. IV, D.)

*Erica* Goatcheriana, L. Bolus, *E. lanipedi* affinis, sed robustior, foliis crassioribus subglaucis, ramis ramulisque dense tomentosis, pedunculis multo brevioribus crassioribusque, corolla angustiore, segmentis multo brevioribus basi vix cordatis.

Fruticulus erectus robustus, ramis dense foliosis, ad 30 cm. longis, 0.3 cm. diam., cum ramulis pedunculisque dense cano-tomentosis, capillis barbellatis; folia adscendentia vel erecta, linearia subacuta glabra, minute ciliolata, subglauca, dense imbricata, 0.4—0.9 cm. longa; pedunculi decurvati, 0.8 cm. longi, bracteis duobus medio, tertia parum infra medium positis, obovato-oblongis apiculatis glabris, 0.6 cm. longis; sepala obovato-oblonga vel ovalia, 0.6—0.7 cm. longa; corolla elongato-urceolata, ad os gradatim angustata, glabra, 1 cm. longa, segmentis leviter patentibus vel suberectis, apice rotundatis, 0.15 cm. longis; stamina inclusa, filamentis complanatis, 0.3 cm. longis, fere 0.1 cm. latis, antheris lineari-lanceolatis acutis, basi obliquis, 0.25 cm. longis, cristatis, cristis rotundatis crenulatis, poro lobi dimidio aequilongo; ovarium globosum glabrum, stylo incluso, stamina parum excedente, stigmatibus simplicibus.

Cape Province: South-Western Region; Ceres Div., fl. Oct. (Bolus Herbarium, No. 16653). Obtained at the Cape Town Wild Flower Show, Oct. 1920.

Allied to *E. lanipes*, Guthr. and Bolus, but may be distinguished by the more robust habit, thicker, rather glaucous leaves, tomentose



branches and branchlets, much shorter and thicker peduncles, narrower corolla, with much shorter segments, which are scarcely cordate at base.

Described from dried and living specimens. Flowers cream, usually flushed with a purplish pink. Named in honour of Mr A. W. Goatcher, for long a resident at Ceres and keenly interested in the preservation of its beautiful flora. (Pl. IV, c.)

*Klattia Stokoei*, L. Guthrie (*Irideae-Sisyrrinchieae*), *K. partitae* valde affinis, sed foliis patentioribus latioribusque, perianthii tubo multo brevioribus, segmentis angustioribus, lamina rubra, capsula majore distinguitur.

Suffruticosa glabra, ca. 0.6 met. alta; rami ancipites, reliquis foliorum delapsorum conspicue notati; folia equitantia ascendentia, ad apices ramulorum aggregata, linearia, apicem versus angustata, acuta mucronata, rigida, crebre nervosa, nervis in vivo inconspicuis, superiora fere omnino rubra, 9—15 cm. longa, 0.8—1.4 cm. lata; flores in capitula terminalia aggregati, capitulis ca. 8-fl., spathatis, spathae foliis 2, saturate rubris, inaequalibus, exterioribus 5.6 cm. longo, 2.5 cm. lato, interioribus 2.3 cm. longo, 1.5 cm. lato, apice rotundatis, carinatis, carina apicem versus dilatata, excurrente; bractee lanceolatae papyraceae albae, 1.8—2.2 cm. longae, 0.4 cm. latae; perianthii tubus brevissimus, ca. 0.15 cm. longus, 0.2 cm. diam., segmentis inter se inaequalibus, 5.6—6.2 cm. longis, lamina lineari, ca. 1.6 cm. longa, in unguem filiformem gradatim attenuata; stamina ad os tubi affixa, fere perianthio aequilonga, antheris sagittatis, 0.6 cm. longis; ovarium turbinatum rostratum, 0.3 cm. longum, 0.2 cm. diam., loculis 1—2-ovulatis; capsula 1.3 cm. longa, rostra 0.2 cm. longa, valvis ad 0.25 cm. latis; semina linearia anteriore concava, posteriore 2-sulcata argentea, 0.8 cm. longa, 0.2 cm. lata.

Cape Province: South-Western Region; Caledon Div., Steenbraas River Valley, eastern mountain-slopes, among stones, fl. Jan. 1921, *T. P. Stokoe* (Bolus Herbarium, No. 16906).

Very closely allied to *Klattia partita*, Baker, but may be distinguished by the more spreading and broader leaves, much shorter perianth-tube, narrower perianth-segments with the blade red, and by the larger capsule.

Described from living material supplied by Mr T. P. Stokoe.

*Watsonia Pillansii*, L. Bolus (§ *Euwatsonia*) [*Irideae-Ixieae*], *W. Merianae* affinis, sed caule saepissime simpliciter, spica densiore, vaginis, foliorum reductorum haud ventricosis, staminodiis adeuntibus, ceterisque differt.

Erecta, omnino glabra, ad 2 met., saepius 1.25 met. alta; cormus depresso globosus; folia radicalia circa 4—5, linearia, ad apicem atten-

uata, tenuiter nervata, marginibus haud conspicue incrassata, 0·70 met.—1·10 met. longa, ad 2·5 cm. lata; spica simplex, densa, ad 37 cm. longa; bracteae oblongae obtusissimae, 1·7—2·7 cm. longae, ad 1·2 cm. latae; bracteolae fere ad apicem connatae, acutae, 1·9 cm. longae; perianthium testaceum, ca. 7·3 cm. longum, tubo fere 5 cm. longo, basi 0·2 cm., apice 1 cm. diam., segmentis vix patentibus, ovalibus, exterioribus medio 1·1, interioribus 1·3 cm. latis; staminodia 3, 1·2 cm. longa, apice vera ab perianthio libera; stamina 6·5 cm. longa, filamentorum parte libera 3·9 cm. longa, antheris 1 cm. longis; stylus 5·3 cm. longus, ramis primariis 1—1·2 cm. longis, secundariis 0·5—0·6 cm. longis; capsula cylindracea, basin versus parum angustata, 2·3 cm. longa, apice 1 cm. diam.; semina subtriangularia, oblique alata, pallide brunnea, 0·7 cm. longa.

Cape Province: South-Western Region; George Div., Montagu Pass, *N. S. Pillans* (National Botanic Gardens, No.  $\frac{1549}{14}$ ).

Allied to *W. Meriana*, Mill., but may be distinguished by the usually unbranched stem, denser spike, the sheathing base of the reduced leaves not being ventricose, the presence of staminodes, and by other characters.

Described from many living specimens which flowered in the National Botanic Gardens. The colour of the perianth is a pale terra-cotta.

*Tritonia Mathewsiana*, L. Bolus (*Irideae-Ixieae*), *T. Pottsii* affinis sed foliis latioribus, magis conspicue plicatis, ramis axis florentis curvatis, floribus secundis differt.

Erecta glaberrima, 1·5 met. alta vel ultra; folia adscendentia vel fere erecta, plicata, radicalia ca. 4, caulina ca. 10, ensiformia, nervis primariis ca. 13, 35 cm. longa, 4 cm. lata; pedunculus ad 15 cm. longus, folio supremo reducto ad 6 cm. vaginatus; spica ramosa, ramis divaricatis, axi florente flexuoso, satis denso, floribus secundis, demum axi perpendicularibus; bracteae oblongae acutae, 0·3—0·5 cm. longae juniores herbaceae; bracteolae fere ad apicem coalitae, acutae, bracteis aequilongae; perianthium rubro-aurantiacum, 3—3·5 cm. longum, tubo infundibuliformi, ad 1·8 cm. longo, basi 0·15 cm., apice 0·5 cm. diam., segmentis demum patentibus, ovato-oblongis obtusis, exterioribus 1·3 cm. longis, 0·5 cm. latis, interioribus 1·5 cm. longis, 0·6 cm. latis, supremo 1·7 cm. longo, 0·7 cm. lato; stamina plus minusve arcuata, filamentis 1·3 cm. longis, antheris 0·5—0·7 cm. longis; stylus 2·3 cm. longus, ramis 0·5 cm. longis; capsula subglobosa, obtuse triangularis, 0·8 cm. longa, seminibus pluribus subtriangularibus, 0·4 cm. longis.

Transvaal: Graskop, Pilgrims' Rest, *Mrs H. M. Wood* (National Botanic Gardens, No.  $\frac{542}{16}$ ).

Allied to *T. Pottsii*, Benth., but differs in having broader and more plicately-folded leaves, branches of the flowering-axis curved, and the flowers unilateral.

Described from living specimens which flowered at Kirstenbosch during Feb. of the years 1918—1921. Named in honour of Mr J. W. Mathews, Curator of the National Botanic Gardens.

*Synnotia Metelerkampiae*, L. Bolus (*Irideae-Ixieae*), *S. variegatae* affinis sed perianthii segmentis brevioribus angustioribusque, parte superiore tubi perianthii 0·5—0·7 cm. diam. differt.

Herba glaberrima, 16—25 cm. alta; cormus ovoideus, 1·6 cm. longus, 1·2 cm. diam., tunicis rigidis, prominenter nervatis, nervis reticulatis; caulis erectus, foliis equitantibus vestitus; folia producta 6—7, adscendentia linearia, obtusa, apiculata vel acuta, nervis inconspicuis, 5—8 cm. longa, 1—1·2 cm. lata; spica e basi ramosa, laxe 9—12-fl., floribus fere erectis; bracteae circumscriptione ovatae, ca. 2 cm. longae, bracteolis ultra medium coalitis, setaceo-acuminatis, bracteis fere aequilongis; perianthium atro-violaceum, segmentis inferioribus miniatis, tubo filiformi, 0·1—0·2 cm. diam., apicem versus oblique ampliato, ad 0·7 cm. diam., 4—4·5 cm. longo, segmentis exterioribus ovato-oblongis subacutis, 1·2 cm. longis, 0·4—0·6 cm. latis, interioribus subunguiculatis obtusis, marginibus obscure undulatis, supremo ovato, 1·4 cm. longo, 0·8 cm. lato, inferioribus 0·5 cm. latis; filamenta 1·2 cm. longa, antheris cum polline purpureis, 0·3—0·5 cm. longis; stylus 4·6 cm. longus, ramis spathulatis, 0·3 cm. longis; capsula cylindrica, 1·5 cm. longa, seminibus plurimis subglobosis, 0·2 cm. diam.

Cape Province: South-Western Region; Clanwilliam Div., near Eendekuil, *Mrs F. Metelerkamp* (Bolus Herbarium, No. 16039).

Allied to *S. variegata*, Sweet, but differs in having the perianth-segments shorter and narrower, and the upper part of the perianth-tube 0·5—0·7 cm. in diameter. The arrangement of colour on the perianth is also different.

Described from living specimens which flowered in Mr F. Metelerkamp's garden.

*Gladiolus Blackwellii*, L. Bolus (§ *Eugladiolus*) [*Irideae-Ixieae*], *G. salmoneo* affinis sed foliis crassioribus latioribusque, et perianthio roseo, tubo multo brevior differt.

Cormus depresso globosus, 2—3 cm. longus, 4—5·5 cm. diam., tunicis crebro satisque tenuiter nervosis, pallide brunneis vel interdum purpureis; caulis robustus, saepissime glaber, ad 1 met. altus, nodis 5; folia rigide adscendentia, vel superiora fere erecta, longe vaginantia, vaginis 18—30 cm. longis, laminis ensiformibus, conspicue nervosis, nervis 5—7, magis prominentibus, omnino tenuiter pilosa, 15—62 cm.

longa, 1—6 cm. lata, folio infimo vaginiformi purpurascente, ad 14 cm. longo; pedunculus 5—6 cm. longus; spica simplex vel ramosa, disticha, multiflora, ad 46 cm. longa, ramis ad 26 cm. longis; bracteae herbaceae ovato-oblongae setaceo-acuminatae, crebro nervosae, tenuiter pilosae, 1.5—4.5 cm. longae, bracteolis fere ad apicem coalitis, parte libera setaceo-acuminata, ad 0.4 cm. longa, 1—3.2 cm. longis; perianthium ad 7.5 cm. longum, tubo ad 2.5 cm. longo, inferne 0.2 cm., apice 0.7 cm. diam., segmentis ovato-oblongis obtusis, marginibus undulatis, roseis, inferioribus vittatis, vitta angustissima carminea, supremo 2 cm. lato, lateralibus 2.5, inferioribus interioribus 1.6, exterioribus 2.1 cm. latis; filamenta 2 cm. longa, antheris 1.3 cm. longis; stylus 5 cm. longus, ramis 0.8 cm. longis.

Cape Province: South-Eastern Region; Tembuland, *T. E. Blackwell* (R. Marloth, 7793).

Allied to *G. salmones*, Baker, but differs in having thicker and broader leaves, the perianth rose-pink, and by the much shorter perianth-tube.

Described from living specimens which flowered in February in Dr R. Marloth's garden and in Mr N. S. Pillans' garden. Flowered also in the National Botanic Gardens, March 1921.

*Strumaria Watermeyeri*, L. Bolus (*Amaryllideae-Amaryllleae*), foliis 2, hysteroanthiis, basi in vagina infundibuliformi truncata haud inclusis, filamentis inter se liberis, perianthii segmentis planis distinguitur.

Bulbus ovoideus, in collum breve productus, 2.3 cm. longus, 1.6 cm. diam.; folia 2, hysteroanthia linearia subacuta, basin versus quasi in petiolum angustata, apicem versus marginibusque papillata, 4.5—5.5 cm. longa, ad 1.2 cm. lata; pedunculus ca. 7-fl., floribus roseis, 9—11 cm. longus, basi 0.3, apice 0.2 cm. diam.; spatha 2-foliata, foliis oblongo-lanceolatis acuminatis, ad 2.5 cm. longis; pedicelli adscendentes vel patentes, 1.7—2.7 cm. longi; perianthii tubus brevissimus, 0.15 cm. longus, segmentis erectis, a medio vel supra recurvis, linearibus obtusis, basin versus gradatim attenuatis, 1.5 cm. longis, 0.2—0.3 cm. latis, exterioribus apice cucullatis, papillatis; stamina interiora segmentorum apicem fere attingentia, exteriora breviora, filamentis 0.6—0.8 cm. longis, antheris 0.2 cm. longis; ovarium demum globose ovoideum, oculis ca. 3-ovulatis; semina pyriformia, laete viridia, lucida, 0.7 cm. longa.

Cape Province: Upper Region; Calvinia Div., Nieuwoudtville, *E. B. Watermeyer* (National Botanic Gardens, No.  $\frac{227}{16}$ ). Flowered two or three times at Kirstenbosch in April.

The following characteristics, viz. the two hysteroanthous leaves, not enclosed in a truncate funnel-shaped tube at the base, the filaments

not united to one another and the flat, not undulate, perianth-segments, when taken together serve to distinguish this species from all the others in the genus.

Named after the sender, Mr E. B. Watermeyer, to whom the Gardens are indebted for many interesting plants.

*Nerine Frithii*, L. Bolus (*Amaryllideae-Amarylleae*), *N. appendiculatae* affinis, sed foliis subfiliformibus, pedicellis glabris, floribus minoribus paucioribusque distinguitur.

Omnino glabra; bulbus ovoideo-globosus, 2 cm. longus, 1.7 cm. diam.; folia synanthia, saepissime 2, subflaccida, subfiliformia, supra canaliculata, ad 15 cm. longa, 0.1—0.15 cm. lata; pedunculus teretis, ad 20 cm. longus; spathae folia oblonga, longe attenuata, 2.5—3 cm. longae; bracteae capillaceae membranaceae, 1—1.5 cm. longae; flores 5—7, pedicellis ad 3 cm. longis; perianthium roseum, segmentis patentibus, deinde recurvis, linearibus acutis, marginibus undulatis, 1.5 cm. longis, 0.4 cm. latis; stamina declinata, filamentis brevioribus 0.35, longioribus 0.6 cm. longis, appendicibus oblongis, 0.3 cm. longis, parte superiore laceratis, lobis duobus ceteros multo excedentibus; antherae purpureae, ad 0.4 cm. longae; ovarium obovatum, loculis 2-ovulatis; capsula globosa, 0.8 cm. diam.

Cape Province: Kalahari Region; Griqualand West, without precise locality, fl. April, *M. Wilman* (Bolus Herbarium, No. 13934); Kimberley Div., Riverton, *M. Wilman* (National Botanic Gardens, No.  $\frac{13933}{14}$ ); Orange Free State, Hoopstadt, fl. March, *Mrs D. M. Robertson* (Bolus Herbarium, No. 13976). Without precise locality, *Frith* (National Botanic Gardens, No.  $\frac{22928}{14}$ ).

Allied to *N. appendiculata*, Baker, but may be distinguished by the almost filiform leaves, glabrous pedicels, smaller flowers, with fewer to each umbel.

Described from living specimens which have flowered freely at Kirstenbosch for several years from plants sent by Miss Wilman and Mr Frith.

*Cyrtanthus Guthrieae*, L. Bolus (*Amaryllideae-Amarylleae*), ab omnibus ceteris speciebus generis floribus sessilibus, perianthii segmentis late patentibus, tubo aequilongis, tubo pro parte magis graciliore differt.

Glaberrimus, bulbo globoso-ovoideo, 3 cm. longo, 2.5 cm. diam.; folia hysternanthia, haud visa; pedunculus curvatus, ca. 11 cm. longus, 1-, rarissime 2-fl.; spatha 2-foliata, foliis lanceolatis, longe attenuatis, 3.3 cm. longis; perianthium laete rubrum, tubo curvato, parte inferiore cylindrica, superiore gradatim ampliata, 4.3 cm. longo, basi 0.4 cm., apice 1.1 cm. diam., segmentis obovato-oblongis acutis, inter se aequalibus, 4.3 cm. longis, 1.9 cm. latis; stamina 3—3.5 cm. longa, antheris

0.3—0.5 cm. longis; capsula (immatura) cylindrica, 1.5 cm. longa, 0.7 cm. diam., seminibus atro-brunneis, 0.7 cm. longis.

Cape Province: South-Western Region; Bredasdorp, fl. April, communicated by *Miss L. Guthrie* (Bolus Herbarium, No. 16907).

A very distinct species, differing from all the rest in having sessile flowers, widely spreading perianth-segments which are as long as the tube, while the tube itself is proportionately much more slender. The spread of the perianth and the relatively long tube are more characteristic of *Vallota* than *Cyrtanthus*, but there is no doubt the two genera are very closely related, and *C. Guthrieae* may almost be considered a connecting link. In *Vallota* the filaments are often adnate to the perianth-segments. It is interesting to note that the hybrid between *C. sanguineus* and *Vallota* has flowered at Kirstenbosch.

Described from dried specimens and paintings of the living plant made by Miss L. Guthrie, after whom the species is named. The colour is a bright red with a "golden glitter."

*Agapanthus pendulus*, L. Bolus (*Liliaceae-Allieae*), *A. Walshii* affinis, sed foliis deciduis herbaceis latioribus, pedicellis longioribus, floribus saepius minoribus, perianthii segmentis haud vel vix patentibus, staminibus haud declinatis differt.

Folia linearia, obtusa vel subacuta, ad 36 cm. longa, 3.5 cm. lata; pedunculus teretis multiflorus, floribus pendulis, ad 46 cm. altus; spatha non visa; pedicelli adscendentes, apicem versus decurvati, 5 cm. longi; perianthium leviter curvatum, atro-purpureum extus, pallidius intus, 2.5—3.4 cm. longus, basi 0.5 cm., apice 1.4 cm. diam., segmentis ad 1.4 cm. longis, exterioribus haud patentibus, 0.5 cm. latis, interioribus parum latioribus, leviter patentibus, obtusissimis, obscure undulatis; filamenta stricta, uno perianthium parum excedente, uno perianthio brevioribus, ceteris idaequantibus antherae; oblongae, ca. 0.2 cm. longae, polline viridi; ovarium cylindricum, ca. 1 cm. longum, stylo fere 2 cm. longo; capsula acute 3-angularis, 2.1 cm. longa vel ultra, seminibus apice ampliate alatis.

Transvaal: Lydenburg, *A. S. Barnett* (National Botanic Gardens, No.  $\frac{1056}{16}$ ).

Allied to *A. Walshii*, mihi, in having the tube of the perianth longer than the segments, but is distinguished by the deciduous herbaceous broader leaves, the longer pedicels, usually much smaller flowers, the perianth-segments not or scarcely spreading, and the straight filaments.

Described from living specimens which flowered at Kirstenbosch, Feb. 1921. (Plate III, B.)

*Restio* MacOwani, Pillans (*Restiaceae-Restioideae*), *R. folioso* affinis, sed caulibus simplicibus, inflorescentia brevioribus, spiculis minoribus differt.

Stems scattered, simple, straight, rigid at the base, slender in the upper parts, terete, smooth, 6—10 dm. high; leaf-sheaths closely convolute, oblong-lanceolate, acuminate, subulate-aristate, smooth, coriaceous, membranous and lacerate at the upper margins, purplish, 1.5—2.5 cm. long; male spikelets numerous, in paniced cymes; cymes rather lax, more or less secund and pendulous, in pairs or several, rarely solitary, at each of the upper nodes, mostly 3.5—5 cm. long, together forming a plume-like inflorescence 1—2 dm. long; spikelets oblong-ovate, obtuse, 6—8-flowered, about 5 mm. long; spathes ovate, acuminate, mucronate, with the midrib prominent on the apical half, coriaceous in the lower half, white-membranous in the upper, 2—3 mm. long; barren bracts 1—2; fertile bracts loosely convolute, ovate, acute or obtuse, mucronulate, membranous at the margins, 3—4 mm. long; flowers subsessile, ovate, obtuse, 2 mm. long; outer perianth-segments linear-lanceolate, acute, cartilaginous, glabrous, reddish; the lateral obtusely keeled; the anterior dorsally rounded; inner segments oblong-lanceolate, obtuse, membranous, reddish, slightly shorter than the outer; female spikelets many, in spicate cymes, lanceolate-ovate, acute, 1-flowered, 6—8 mm. long, forming a narrow inflorescence 6—10 cm. long; spathes convolute at the base, spreading in the upper part, ovate, acuminate, coriaceous in the lower part, white-membranous and lacerate in the upper, filiform-aristate, 7—10 mm. long; barren bracts 3—4, closely convolute, ovate, acute, mucronate, cartilaginous, with white-membranous margins, 3—4 mm. long; the fertile bract similar, but usually smaller; flowers subsessile, lanceolate, acute, exerted beyond the bracts, 4.5—6 mm. long; outer perianth-segments alike, oblong, acute, dorsally rounded, cartilaginous, glabrous, reddish; inner segments ovate-oblong, acute, cartilaginous, slightly shorter than the outer; ovary 3-celled, obtusely 3-lobed, ovate or globose; styles 3, distinct, densely plumose to the base; capsule 3-seeded; seeds smooth.

Cape Province: South-Western Region; Caledon Div., Koude River, Schlechter, 10461, ♂! 10462, ♀! Uniondale Div., Uniondale, F. Paterson, 3009, ♂! Uniondale Road, Tugwell in Herb. Bolus, 14288, ♂! F. Paterson, 3013, ♀! Steytlerville, F. Paterson, 19, ♂! South-Eastern Region; Grahamstown Div., mountains near Grahamstown, MacOwan, 1361, ♂! Grahamstown, M. Daly and M. Sole, 36, ♂! G. White, 34, ♂!

This species is chiefly distinguished from its ally, *R. foliosus*, N.E.Br., in having simple stems, shorter inflorescence and smaller spikelets.

The more or less secund and plume-like male inflorescence might well be mistaken for that of a *Thamnochortus*, but the spikelets are smaller than any known species in that genus.

*Restio tabularis*, Pillans, *R. compresso* affinis, sed caulibus teretibus brevioribusque, spiculis minoribus, ovario abortione 1-loculari distinguitur.

Stems scattered, erect, slender, terete, sparingly branched from near the base to the summit, obscurely tubercled and wrinkled on the lower parts, nearly smooth on the upper, with yellowish spots, 3—5 dm. high; leaf-sheaths closely convolute, except at the ramifications, oblong, tapered to an acute apex, with a straight subulate mucro, coriaceous, nervose-striate, membranous at the margins, red-brown, yellow-speckled, mostly 1.5 cm. long; male spikelets solitary, rarely in pairs, erect, linear-cylindric, acuminate, ultimately oblong, many-flowered, without barren bracts, 2—2.5 cm. long; spathes like the upper leaf-sheaths; bracts loosely convolute, linear-oblong, acuminate, with a slender mucro, coriaceous, nervose-striate, narrow-membranous along the margins, pale reddish brown, 1—1.3 cm. long; flowers on short stipes, linear-oblong, obtuse, 3.5 mm. long; outer perianth-segments cartilaginous, light brown; the lateral navicular, linear-oblong, acute, slightly villous on the upper part of the carina, the left segment larger than the right; anterior segment lanceolate, obtuse, dorsally rounded, glabrous; inner segments linear-oblong, obtuse white-hyaline, very thin; about equaling the outer; female spikelets solitary, rarely in pairs, erect, linear-cylindric, acute, becoming linear-oblong, truncate, many-flowered, with one barren bract, 2—2.5 cm. long; spathes as in the male, about 1.3 cm. long; bracts as in the male, but slightly larger; flowers on short stipes, obliquely oblong, obtuse, 4 mm. long; outer perianth-segments cartilaginous, scabrid on the outside, light brown; the left segment navicular, linear-oblong, acute, villous-carinate; the right segment linear-oblong, acute, obtusely keeled and villous on the upper half, smaller than the left; anterior segment linear-oblong, obtuse, dorsally rounded, glabrous; inner segments oblong-lanceolate, obtuse, membranous, brownish, slightly shorter than the outer; ovary by abortion 1-celled, narrow-ovate; styles 3, free, adjacent, very slender.

Cape Province: South-Western Region; Cape Div., lower plateau on Table Mountain, Pillans, 3904, ♂ and ♀!

Allied to *R. compressus*, Rottb., but differs in having terete and shorter stems, smaller spikelets and the ovary 1-celled by abortion.

*Restio similis*, Pillans, *R. Browniano* affinis, sed spiculis majoribus, ovario 3-loculari, stylis adjectis differt.

Stems caespitose at the base, erect, slender, terete, sparingly branched from the base upwards, slightly rough, with raised whitish spots on a somewhat iridescent brownish ground, 25—30 cm. high, less than 1 mm. in diam. at the base; leaf-sheaths closely convolute except at the ramifications, oblong, obtuse, with a stout erect-spreading mucro,



coriaceous, nervose-striate, scarcely membranous on the upper margin, red-brown, mostly 8—10 mm. long; male spikelets 2—3, occasionally solitary, in spicate cymes, oblong to ovate-oblong, shortly tapered at the base, obtuse, many-flowered, 8—12 mm. long; spathes closely convolute, oblong, obtuse, subulate-mucronate, coriaceous, brown-membranous along the side margins, 4—6 mm. long; bracts closely enveloping the flowers, ovate, obtuse, mucronulate, coriaceous, smooth, straw-colour except at the chestnut-brown apex, 4—5 mm. long; flowers on short reddish stipes, oblong-oblongeolate, obtuse, 3·5—4 mm. long; outer perianth-segments oblong-lanceolate, obtuse, cartilaginous; the lateral navicular, villous-carinate; the anterior dorsally rounded, glabrous; inner segments lanceolate, truncate, hyaline; female spikelets resembling those of the male plant, but 1-flowered and slightly smaller; spathes as in the male, but 3—4 mm. long; bracts closely convolute, oblong-ovate, obtuse, mucronulate, coriaceous, smooth, straw-colour except at the chestnut-brown apex, about 3·5 mm. long; flowers on short red stipes, ovate 3·5 mm. long; perianth-segments oblong-lanceolate, obtuse or subacute, cartilaginous, subequal; the outer lateral segments navicular, villous on the upper half of the carina; the other segments dorsally rounded, glabrous; ovary 3-celled, ovate; styles 3, adjacent, free; capsule 2-celled; seeds cylindrical, studded with white tubercles.

Cape Province: South-Western Region; Caledon Div., Houw Hoek, Schlechter, 5483, ♀! 7382, ♂!

Allied to *R. Brownianus*, Pillans (*Hypolaena Browniana*, Mast.), but differs in having larger spikelets, the ovary 3-celled and the styles adjacent.

*Restio Marlothii*, Pillans, *R. fraterno* accedit, sed caulibus tuberculatis, perianthii segmentis florum ♀ quaternis differt.

Stems caespitose at the base, erect, sparingly branched from the middle upwards, rarely simple, terete, rather slender, firm, rough with crowded tubercles, yellowish green, 30—50 cm. high, 1 mm. in diam. on the lower portion; leaf-sheaths closely convolute, oblong, acute, tapered into a straight subulate awn, coriaceous, nervose-striate, deeply white-membranous from the upper margin to near the apex of the awn, red-brown, about 1 cm. long; female spikelets solitary, oblong to ovate-oblong, obtuse, 3—5-flowered, 10—12 mm. long; spathes tightly convolute, oblong, with a cartilaginous wing along each side, otherwise like the upper sheaths; bracts similar to the spathes, but paler, 5—6 mm. long; flowers on woolly stipes, oblong or broadly wedge-shaped, 4—5 mm. long; perianth-segments 4, deltoid-lanceolate, acute, cartilaginous, equal; the lateral villous-carinate; the anterior dorsally

rounded, glabrous; the posterior segment similar to the anterior; ovary 2-celled, broadly ovate, compressed; styles 2, united to shortly above the base, long, slender in the upper parts; capsule 2-seeded.

Cape Province: Karroo Region; Laingsburg Div., on the Witteberg near Matjesfontein, Marloth, 3146, ♀!

Allied to *R. fraternus*, Kunth, from which it chiefly differs by tubercled stems and the female flowers having 4 perianth-segments.

*Restio aridus*, Pillans, *R. ferruginoso* affinis, sed caulibus brevioribus, vaginis foliorum arcte convolutis, spiculis ♂ minoribus, spiculis ♀ paucioribus differt.

Stems caespitose at the base, erect, slender, rigid, terete, sparingly branched from the base upwards or simple, with filiform branchlets, finely tubercled, 3—4 dm. high, about 1 mm. in diam. below the middle; leaf-sheaths closely convolute, oblong, acute, subulate-aristate, coriaceous, membranous at the margins, smooth, red-brown, often with exerted woolly scales in the axils, 6—8 mm. long; male spikelets numerous, in sparsely-branched spicate cymes, cylindric-oblong, acute, many-flowered, 4—5 mm. long; spathes closely convolute, oblong, obtuse, subulate-mucronate, coriaceous, narrow-membranous at the margins, red-brown, about 3 mm. long; bracts closely imbricate, spathe-like, but thinner, 2 mm. long; flowers shortly stipitate, lanceolate, acute, equalling the bracts; perianth-segments linear-oblong, acute, membranous, subequal; the outer lateral villous-carinate; the anterior slightly villous on the midrib; female spikelets 1—3, in lax spicate cymes, narrow-cylindric, acute, tapered at the base, ovoid when in fruit, 4—5-flowered, 7—8 mm. long; spathes closely convolute, oblong, obtuse, subulate-aristate, coriaceous, smooth, red-brown, 3—4 mm. long; bracts closely imbricate, ovate-oblong, obtuse, subulate-mucronate, coriaceous, smooth, membranous at the margins, 3 mm. long; flowers shortly stipitate, lanceolate, acute, about equalling the bracts; perianth-segments membranous; the outer oblong-lanceolate, acute; the lateral villous-carinate; the anterior dorsally rounded, slightly villous on the midrib; the inner segments oblong-ovate, acute, shorter than the outer; ovary 2-celled, subglobose, compressed; styles 2, united to shortly above the base; capsule 2- or, by abortion, 1-seeded; seeds oblong-ovate, subtrigonus, smooth, shiny, spotted purple-brown.

Cape Province: Karroo Region; Worcester Div., hills at Touws River, Bolus, 7456, ♀! 9210, ♂ and ♀!. Marloth, 3157, ♂ and ♀!.

Allied to *R. ferruginosus*, Link, but differs with shorter stems, closely convolute leaf-sheaths, smaller male spikelets and fewer female spikelets.

*Restio humilis*, Pillans, *R. trifloro* accedit, sed rhizomatibus reptantibus, caulibus levibus, spiculis paucioribus distinguitur.

Stems of female plants erect from a creeping rhizome, slender, simple or rarely sparingly branched at the base, terete, smooth, buff with minute purple specks, 2—3 dm. high, about 1 mm. in diam. at the base; leaf-sheaths closely convolute, oblong, obtuse, subulate-mucronate, coriaceous, with narrow-membranous margins, buff, densely purple-speckled, 8—12 mm. long; spikelets 2—6, sometimes solitary, in linear spicate cymes, linear-lanceolate, acute, 4—6-flowered, 6—8 mm. long; spathes tightly convolute, oblong, obtuse, mucronate, coriaceous, with narrow-membranous margins, marked like the sheaths, 3—5 mm. long; bracts closely convolute, oblong, obtuse and pale-membranous at the upper margin, mucronulate, cartilaginous 3—3.5 mm. long; flowers shortly stipitate, lanceolate, acute, 3 mm. long; outer lateral perianth-segments lanceolate, acute, villous-carinate, cartilaginous; the anterior segment lanceolate, obtuse, dorsally rounded, cartilaginous, glabrous, slightly shorter than the lateral; inner segments oblong-lanceolate, obtuse, membranous, distinctly shorter than the outer; ovary 2-celled, ovoid, tapered above into a minutely puberulous stylopodium; styles 2, slender, united to shortly above the base; capsule 2-seeded, broadly ovoid.

Cape Province: South-Western Region; Caledon Div., Houw Hoek, Schlechter, 7416, ♀! Ceres Div., near Klein Vley, Skurfdebergen, Koude Bokkeveld, Schlechter, 10218, ♀!

Allied to *R. triflorus*, Rottb., but differs in having creeping rhizomes, smooth stems and fewer spikelets.

- Restio Brownianus*, Pillans, comb. nov. = *Hypolaena?* *virgata*, Mast., Journ. Linn. Soc. x, 268 (1868). *H. Browniana*, Mast., Fl. Cap. vii, 132 (1897). *H. subtilis*, Mast., Engl. Bot. Jahrb. xxix, Beibl. 66, p. 15 (1900).
- Restio conspicuus*, Pillans, comb. nov. = *Hypolaena?* *conspicua*, Mast., Engl. Bot. Jahrb. xxix, Beibl. 66, p. 15 (1900).
- Restio Dодii*, Pillans, comb. nov. = *Hypolaena membranacea*, Mast., Engl. Bot. Jahrb. xxix, Beibl. 66, p. 14 (1900).
- Restio Schlechteri*, Pillans, comb. nov. = *Hypolaena Schlechteri*, Mast., Engl. Bot. Jahrb. xxix, Beibl. 66, p. 15 (1900).
- Restio cymosus*, Pillans, comb. nov. = *Leptocarpus cymosus*, Mast., Engl. Bot. Jahrb. xxix, Beibl. 66, p. 10 (1900).
- Restio brachiatus*, Pillans, comb. nov. = *Leptocarpus brachiatus*, Mast., Engl. Bot. Jahrb. xxix, Beibl. 66, p. 9 (1900).

NOTES ON *ACMADENIA*, B. AND W., WITH  
A DESCRIPTION OF ONE NEW SPECIES  
AND ONE NEW VARIETY

BY R. A. DUMMER.

*Acmadenia barosmoides*, Dummer, in Journ. Bot. (1912), 221. This very rare plant was originally described by me from material at the British Museum, collected by Niven, one of the earlier botanical collectors, in Alpine stony places in Lange Kloof (Uniondale Div.).

More recently Dr Marloth has collected this plant again but unfortunately the three specimens in his Herbarium have no particulars as to locality and date of collection. These specimens do not quite agree with my original description in that the flowers are in pairs instead of being solitary, and the leaves more markedly glandular-denticulate, but I have no hesitation in assigning them to this species. As far as I am aware these specimens comprise the only dried material in S.A. Herbaria.

A. Marlothii, sp. nov. *A. barosmoidi* affinis, sed foliis late ovatis vel late ellipticis, glabris, marginibus haud incrassatis, floribus staminodiis praeditis, filamentis fertilibus pilosulatis, ceterisque distinguitur.

Fruticulus multiramis et dense foliosus, ramis ascendentibus brevibus; ramuli conferti breves subangulati albo-pubescentes, pallide brunnei, subimbricato-foliosi. Folia perbreviter petiolata ascendentia subimbricata, late ovata vel late elliptica, obtusa, 3—4 mm. longa, 2—4 mm. lata, planiuscula, supra nitentia, pallide viridia, subtus pallidiora, obscure 5—16-glanduloso-punctata, ecostata, utrinque mox glabra, coriacea, margine vix incrassata, glanduloso-crenulata, petiolo complanato puberulo; flores solitares carnei (in sicco), perbreviter pedicellati, ramulos breves terminantes; calyx 2·5 mm. longus, transparente scariosus, segmentis deltoideis cuspidato-acuminatis, dorso carinatis, marginibus pilosulis; petala breviter unguiculata, 6—7 mm. longa, 3 mm. lata, elliptica obtusiuscula ebarbata glabra, dorso glandularum seriebus binis instructa; stamina 4—5 mm. longa, filamentis inferne pilosulis; staminodia oblonga, medio paullulo inflata, circa 3 mm. longa, 0·5—0·7 mm. lata, glabra, apice glanduloso-rotundata; stylus crasse filiformis, inferne pilosulus, stigmato truncato.

Cape Province: South-Western Region; Matroosberg, 6400 ft., *R. Marloth*, 7948.

This species is obviously allied to *A. barosmoides*, mihi, from which, however, it is at once distinguished by its smaller, broadly ovate or broadly elliptic glabrous leaves, not thickened at the margins, and with crenulate dentition, by the smaller flowers with dorsal glands on their petals, by the presence of staminodia, the pilosulate filaments of the fertile stamens, and the sparingly pilose style. The leaves recall those of *Agathosma decora*, mihi, also from the Matroosberg.

*Acmadenia macradenia*, comb. nov.

Sonder, in his original description of *Adenandra macradenia* fails to describe the petals and essential organs of this plant. In 1895 Bolus gathered a twig with two flowers at Piquetberg, which, though not wholly in agreement with the species, is sufficiently close, to regard as a variety of this long-lost plant, and which, on dissection of a flower, shows that they are devoid of staminodes, and have only five stamens, which therefore assigns it to *Acmadenia*.

*A. macradenia* var. *borealis*, var. nov.

Fruticulus pusillus?, ramulis brevissimis pubescentibus imbricatofoliosis. Folia late elliptica vel late obovata, apice rotundata, 5—8 mm. longa, 3·5—4·5 mm. lata, crasse coriacea, utrinque glabra, pallide viridia, complanata, haud convexa, dorso conspicue albido elevato-glandulosa, costata, margine incrassata, primo pilosula, apicem versus glanduloso-denticulata. Flores solitaires, albidis (sicco), pedicellis 2—3 mm. longis, albopilosis, ebracteolatis? Calyx 5—6 mm. longus, inferne albo-pilosus, segmentis longe-triangularibus, obtusiusculis, dorso roseo-purpureis, nitidis, carinato-costatis, costis primo ciliatis, marginibus creberrime pilosis, apicem versus glanduloso-denticulatis. Petala unguiculata, 1 cm. longa, limbo orbiculari, 7—8 mm. lato, dorso apice paullulo barbata, unguibus glabris. Stamina (5) 2·3 mm. longa, glabra. Pistillum ignotum.

Cape Province: South-Western Region; Piquetberg Div., Piquetberg, Oct. 1895, *H. Bolus*, 8420!

Differs from the type (*Adenandra macradenia*, Sond. of which Ecklon and Zeyher types, labelled *A. coriacea*, E. and Z. are in the S.A. Museum, Cape Town), by its dwarfer habit (if the specimen quoted (8420) is representative of a dwarf plant?), by its flat and not concave leaves, relatively broader and more coriaceous, and with a more prominent dorsal midrib.

*A. teretifolia*, comb. nov. *Diosma teretifolia*, Link.; Sonder, in *Flora Cap.* 1, 376, 1860. As Dr E. P. Phillips has pointed out (in MSS.), this plant is to be referred to *Acmadenia*, hence this new combination is proposed. Phillips states that the flowers are pink, though they dry a white. The following are more recent records not quoted in the *Flora*.

Cape Province: South-Western Region; Clanwilliam Div., *Leipoldt*, 651! in Bolus Herb. and S.A. Mus., near Wupperthal, Oct. 1897, *A. Bodkin* (Herb. Bolus, No. 8957!). Ceres Div., Tafelberg, Koude Bokkefeld, near Ceres, 6200 ft., Jan. 1897, *Dr R. Schlechter*, 10098! in Herb. Bolus, and S.A. Mus. Matroosberg, near Laaken Vlei, 7000 ft., Jan. 1917, *Dr E. P. Phillips*, 1968! (S.A. Mus. Herb. No. 11768). On the Skurfdebergen, Gydouw, near Ceres, Dec. 1891, *H. Bolus*, 7576! Matroosberg, 7400 ft., Jan. 1897, *Alfred Bolus* (Herb. Bolus, No. 6360!).  
 Var. *glabrata*, *Diosma teretifolia*, Link. var. *glabrata*; *Acmadenia obtusata*, E. and Z.

This variety was originally collected in the Winterhoeksberg by Ecklon and Zeyher, and is reputed to differ from the type only in the twigs and leaves being glabrous or nearly so. If such is the case, then Dr Marloth's collections from the Matroosberg, about 6500 ft., in Jan. 1897, No. 2343 (= 1995) in his Herbarium and Bolus Herb. are referred to this variety. It is upon this that Schlechter based his *Acmadenia c—a* (an unpublished name). Marloth describes the bush as stunted, about  $\frac{1}{2}$  met. high, and growing on rocks. *A. Bolus*, 3968, from the same mountain at 5000 ft. elevation, and *A. Bolus*, 4188, from the Great Winterhoeksberg, and also referred to this variety. Of the latter specimens the collector states that the flowers are purple, and the height of the bush 4—5 ft.

# THE TYSON COLLECTION OF MARINE ALGAE

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THERE are two collections of marine Algae in the Bolus Herbarium, that of Dr H. Becker including specimens from all over the world and that of the late Mr W. Tyson, acquired in 1913, composed almost entirely of specimens from the shores of the Cape Province and Natal, chiefly from Algoa Bay, the Kowie, the Kei mouth, and the Cape Peninsula.

The sheets of the Tyson collection have now been arranged by us in accordance with the classification of Engler and Prantl<sup>(5)</sup> (*Nat. Pflanz. Fam.* 1897) and a list of specimens drawn up with a view to facilitating the use of the collection by future workers. Incorporated in the lists are such personal observations as we have been able to make on the herbarium and also on fresh material during the course of the work. Both of us have made observations at intervals on the seashore from April to December of this year (1920), but in compiling the lists one of us undertook the Green and Brown Algae (M. R. Michell) and the other (E. M. Delf) undertook only the Red Seaweeds.

As this is the first list of the kind to appear in a South African Journal, it may not be out of place to give some account of the present position of our knowledge of South African seaweeds. It is hoped that the information thus brought together though meagre, may serve as a basis for future work.

A short historical summary of the development of our knowledge of S. African seaweeds is given by Miss Barton<sup>(1)</sup> (*Journ. Bot.* xxxi, pp. 53, 81, 111, 139, 171, 202, 1890) from which the following facts are taken:

“The earliest preserved Alga from the Cape is a specimen of *Amphiroa* which is too much broken to determine the species; it was collected by Dr Hermann in 1672, and is preserved in the British Museum. The next collector appears to have been John Staremburgh who at some date prior to 1703 sent some dried Algae to Petiver and these are also preserved in the British Museum, where I have seen specimens of *Macrocystis pyrifera*, J. Ag., an Iridea, and

an Alga which is probably *Pachymenia carnosa*, J. Ag. In later times we have collections made by Harvey containing a large proportion of the total number of species recorded from the Cape; by Pappe on whose specimens Kützinger founded many of his Cape species. A large collection of Algae was made in 1889—1890 by Mr L. Boodle and presented to the British Museum;... An unnamed collection of Corallineae from the Cape still remains in the British Museum Herbarium collected by Bowerbank, Mr Boodle and others; there are also unnamed specimens of Chaetomorpha and Cladophora." From these various sources Miss Barton compiled the list already mentioned. Other articles have appeared from time to time since the publication of the original list, adding further details of genera, or further records of Algae as additions to the original list. These are noted in the present list as far as possible.

The Tyson collection includes a considerable variety of forms in which the preponderance of red seaweeds is at once noticeable. The same impression is made on even a cursory examination of the flora of the coast, at least round about the Cape Peninsula, which is the only region which we have ourselves observed.

It is well known that the temperature of the waters on the east and west sides of the coast of S. Africa is very different. According to Miss Barton, "On the East there is a strong warm current flowing southward from the Indian Ocean, bringing with it the tropical and subtropical forms (i.e. of Algae) to Natal and even to Cape Agulhas; while another branch of the same current flows direct from Mauritius, where the Algae are...very similar to those at the Cape, though the two places are in such different latitudes. On the west coast...there is a cold current which comes up from the south,...and this has naturally a marked effect on the Algae all up this coast. Indeed,...the genus *Laminaria* is recorded from Walfisch Bay, within the tropics, the only place in the world, so far as I know, where this is known to occur." A similar difference is found between the waters on the two sides of the Cape Peninsula with which we are here more especially concerned, and is reflected to some extent in the distributions recorded in the following lists. Other factors, however, must also play their part in determining the distributions of the different forms, and one of these is probably the formation of the foreshore, which has rocks mainly of sandstone on the eastern side (especially in False Bay) and often of granite on the colder western side. The sandstone offers a rougher surface and is more easily eroded by the waves making many deep pools and clefts in which the smaller forms can find shelter. The granite, however, affords but little assistance to the hapterons of marine plants, and in many places are bare of covering, in others only partly covered with *Porphyra* which may be found even in exposed places, impossible for any other Algae. The slate which adjoins the granite at Sea Point appears to be also a better substratum for Algae than is the granite. The Algae of the west coast are,



however, less accessible, and have not been worked sufficiently to make a fair comparison of the east and west coast at present possible.

In the following lists, the distributions first recorded are the localities mentioned on the herbarium sheets. In brackets are added any other localities mentioned by Miss Barton in her papers of 1893 (or in subsequent papers when specified), and finally any additional localities observed by ourselves.

## CYANOPHYCEAE.

## 1. CHROOCOCCACEAE.

*Note.* We have found a member of this family (probably a species of *Aphanocapsa*) on granite rocks at Sea Point.

## 2. CHAMAESIPHONACEAE.

*Note.* Tyson has no representative of this family in his collection. *Dermocarpa prasina*, Born. is given by Miss Barton<sup>(1)</sup> as occurring on *Rhizoclonium* at Knysna and on *Cladophora rupestris* at the Cape.

## 3. OSCILLATORIACEAE.

10. *Lyngbya majuscula*, Harv.

No locality given. We have found this species at Kalk Bay and Sea Point. Miss Barton<sup>(2)</sup> records it from the mouth of the Kei.

*Note.* In addition to *L. majuscula* the following species have been recorded by Miss Barton<sup>(1, 2)</sup>: *L. semiplena*, J. Ag. from Sea Point, and *L. aestuarii*, Liebman, from the Cape. Besides these we have found at Glencairn a species, golden brown in colour and which appears to be near to *L. ferruginea*, Ag.

## 5. SCYTONEMATACEAE.

2. *Scytonema* sp. (provisionally placed as *Scytonema*).

Sea Point, Kalk Bay, Glencairn.

*Note.* This alga was not represented in Tyson's collection, but has been added to it by us. It is very abundant in the localities mentioned in rock pools near the high tide level. The plants, except in the very young stages, are brownish in colour.

## 7. RIVULARIACEAE.

4. *Calothrix confervoides*, Dill. (on *Chaetomorpha*).

Cape Morgan.

*Note.* *C. crustacea*, J. Ag. is recorded from Kalk Bay (Barton<sup>(1)</sup>) and *C. aeruginea*, Thur. also from Kalk Bay (Barton<sup>(2)</sup>).

## 7. ULVACEAE.

## CHLOROPHYCEAE.

2. *Ulva lactuca*, L.

Three Anchor Bay, Cape Morgan.

## THE TYSON COLLECTION OF MARINE ALGAE

(Robben Island, Kalk Bay, Knysna, Port Elizabeth, Port Natal.  
Barton (1).)

*U. fasciata*, Del.

Kei mouth, Cape Morgan.

(Cape Point, Kalk Bay. Barton (1).)

*U. uncialis*, Suhr.

Table Bay.

(Robben Island, Cape Agulhas. Barton (1).)

*Note.* Miss Barton (1) recognises a variety of *U. lactuca*, viz. *U. lactuca* var. *rigida*. Amongst Tyson's specimens of this species at least two distinct forms may be recognized. One has a dark green frond of a somewhat leathery texture, and judging from Harvey's figure and description (6) is his *U. latissima*, Linn. Possibly this is Miss Barton's *U. lactuca* var. *rigida*. The other form is much more delicate in texture and is a pale yellowish green.

3. *Letterstedtia insignis*, Aresch.

Kowie.

(Port Natal, Port Elizabeth, Port Alfred. Barton (1, 2).)

*Note.* In one of our Kalk Bay collections there was a small piece of a plant which was obviously a *Letterstedtia*. We have not been able to determine the species. Possibly it is a new one as there is no record of any *Letterstedtia* on the Cape Peninsula.

4. *Enteromorpha compressa*, Kütz.

Table Bay, Cape Morgan.

(Sea Point, Knysna. Barton (1).)

*E. intestinalis*, Link.

Cape Morgan.

(Cape Agulhas, Cape. Barton (1).)

*E. rhacodes*, Holmes.

Kowie.

*E.* sp. (very near *E. percursa*, (Ag.) Harv., if not a rather coarse form of that species.)

Cape Morgan.

*Note.* In addition to the above, Miss Barton (1) has records of the following species: *E. flexuosa*, J. Ag., Cape; *E. bulbosa*, Kütz., Robben Island, Table Bay, Sea Point, Cape Point, Kalk Bay, Knysna; *E. Linza*, J. Ag., Cape; *E. clathrata*, Roth., mouth of the Olifants River, Algoa Bay. A sheet containing a young specimen of *E. rhacodes* shows a second species mixed up with it. This species is a slender branched one and is probably *E. clathrata*. One sheet in the collection has two distinct specimens on it. The top one is a large flat thallus which on sectioning shows itself not to be

tubular but rather like an *Ulva* in structure. The other specimen on the sheet is *E. compressa*.

We have made the following observations: *E. compressa* is by far the most common species of *Enteromorpha* on the Cape Peninsula, and is almost universally present. In one pool at Kalk Bay we found *E. compressa* and *Bryopsis setacea* growing together. On examination it was seen that the *Enteromorpha* established itself when young on the *Bryopsis*, gradually killing off the latter, though in nearly all cases we were able to find the original *Bryopsis* plant on which the *Enteromorpha* had first obtained its footing.

We have found *E. percurva* at Three Anchor Bay and Glencairn; *E. intestinalis* at Kalk Bay, and *E. Linza* at Sea Point.

#### 14. CLADOPHORACEAE.

*Note.* Miss Barton(2) records *Urospora penicilliformis*, Aresch. growing on *Chaetangium saccatum* at Kalk Bay.

##### 2. *Chaetomorpha clavata* (Ag.) Kütz.

Table Bay, Camps Bay, Sea Point, Port Nolloth.  
(False Bay to Algoa Bay, Cape Point. Barton(1).)

##### *C. Natalensis*, Harv.

Cape Morgan, British Kaffraria.

##### *C. crassa*, Kütz.

Cape Morgan, Kei mouth.

*Note.* Miss Barton(1) records the following species in addition to the above: *C. Linum*, Kütz., Port Natal; *C. aerea*, Kütz., Kalk Bay.

We have confirmed the presence of *C. aerea* at Kalk Bay, and have found *C. littorea* in pools on granite at Sea Point.

*Note.* There are no specimens of *Rhizoclonium* in Tyson's collection. Miss Barton(1), however, records three species, viz. *R. riparium*, Harv., Knysna; *R. arenosum*, Kütz., Cape; and *R. tortuosum*, Kütz., Knysna.

##### 4. *Cladophora Eckloni* (Suhr), Kütz.

Walfisch Bay, Table Bay, Sea Point.

(Robben Island, Cape Agulhas. Barton(1).)

##### *C. hospita*, (Mert.) Kütz.

Table Bay, Robben Island, Sea Point.

(Green Point, Cape Point, Cape Agulhas, Knysna. Barton(1).)

##### *C. catenifera*, Kütz.

Table Bay, Kowie, Cape Morgan, Green Point.

(Kalk Bay, Algoa Bay, Port Alfred. Barton (1, 2).)

##### *C. flagelliformis*, (Suhr.) Kütz.

Table Bay, Sea Point.

(Olifants River to Algoa Bay, Robben Island, Kalk Bay, Cape Point, Knysna. Barton(1).)

*C. nuda*, Kütz.

Green Point.

(Cape Agulhas. Barton(1).)

*C. sp.*

Cape Morgan.

*Note.* Miss Barton(1) records the following additional species: *C. mediterranea*, Kütz., Cape Agulhas; *C. spinulosa*, Kütz., Cape Agulhas; *C. glomerata*, Kütz., Port Natal; *C. afra*, Kütz., Knysna; *C. rupestris*, Kütz., Cape; *C. trichotoma*, Kütz. (doubtful record), between Omsamcolo and Omcomas; *C. virgata*, Kütz., Table Bay. She also records the following doubtful species: *C. capensis*, Ag., Cape; *C. aculeata*, S., Algoa Bay; *C. radiosa*, S., Algoa Bay, mouth of the Zwadtkap.

All the species represented in Tyson's collection are large and it is quite evident that several of the smaller species of *Cladophora* will have to be added to the collection. We have found at least two of these smaller species, one of which we have identified as *C. rupestris*, Kütz.

Near the train terminus at Sea Point we found abundant material of *C. Eckloni* and *C. flagelliformis* and noted the following points. The latter is by far the coarser of the two and is blue green in colour while the former is a bright green. *C. Eckloni* is found in shallow pools, further from the shore than *C. flagelliformis* which usually frequents somewhat deeper pools.

#### 19. BRYOPSIDACEAE.

##### 1. *Bryopsis setacea*, Her.

Sea Point, Table Bay.

(Kei mouth, Port Natal. Barton(1).)

*B. caespitosa*, Suhr.

Cape Morgan.

(Seal Island, shore of British Kaffraria. Barton(1).)

*B. Flanaganii*, E. L. B.

Mouth of the Kei.

*B. sp.*

Cape Morgan.

*Note.* In addition to these, Miss Barton(1) records the following: *B. africana*, Aresch., Saldanah Bay to False Bay; *C. plumosa*, Ag., Kalk Bay, Cape Point, Camps Bay.

## 22. CAULERPACEAE.

1. *Caulerpa Ligulata*, Harv.  
Cape Morgan, Kalk Bay, Somerset Strand.  
(Simon's Bay, Cape Agulhas, Cape Recife, Algoa Bay, Kei mouth  
Natal. Barton(1).)
  - C. Bartoniae*, G. Murr.  
Kowie, Cape Morgan.  
(British Kaffraria. Barton(2).)
  - C. Holmesiana*, G. Murr.  
Kowie, Cape Morgan.  
(Algoa Bay, Kei mouth. Barton(1).)
  - C. Zeyheri*, Kütz.  
Kowie, Cape Morgan.  
(Algoa Bay, Kei mouth. Barton(1).)
  - C. racemosa* (Forsk.) W. van Bosse. Var. *clavifera*.  
Isipingo, Durban. (Also Umkomaas, Delf.)
- Note.* Miss Barton (1, 2) adds the following species to the above.  
*C. clavifera*, J. Ag., Knysna and Natal; *C. chemnitzia*, Lam., Port  
Natal; *C. plumaris*, Ag., Kowie and Cape Morgan.

## 23. CODIACEAE.

6. *Udotea conglutinata* (Soland) Lam.  
Durban, Isipingo.
- Note.* Miss Barton(2) records *U. Desfontainesii*, Dcne, from Natal, but  
does not mention *U. conglutinata*.
7. *Halimeda cuneata*, Hering.  
Algoa Bay, Cape Morgan, Kei, Kowie.  
(Natal. Barton(1).)
  8. *Codium tomentosum*, Ag.  
Cape Morgan, Algoa Bay, Knysna, Bomvanaland coast, Table  
Bay.  
(From the mouth of the Olifants River to Port Natal, Sea Point,  
False Bay. Barton(1).)
  - C. tenue*, Kütz.  
Kowie, Kei, Cape Morgan, Hagahaga mouth.  
(Cape Agulhas. Barton(1).)
  - C. Lindenbergii*, Bind.  
Algoa Bay, East London, Kowie, Cape Morgan, False Bay.
- Note.* Miss Barton(1, 2) adds the following to the above: *C. Bursa*, Ag.,  
Natal; *C. mucronatum*, J. Ag., Sea Point, Cape; *C. adhaerens*, Ag.,  
Knysna and Port Elizabeth.
- We have one record of *C. Bursa* being washed up at Camps Bay  
after rough weather.

*Pseudocodium de Vriesii*, Web. von Bosse.

Cape Morgan, Kei.

(Isipingo. Barton(2).)

*Note.* This genus is not mentioned in Engler and Prantl, but as both West<sup>(11)</sup> and Oltmanns<sup>(7)</sup> recognize the genus it is added at the end of the Codiaceae, together with the next genus, *Codiophyllum*, which Engler and Prantl<sup>(5)</sup> place at the end of the family as being of doubtful systematic position.

*Codiophyllum natalense*, Gray.

Kowie.

#### 24. VALONIACEAE.

3. *Apjohnia rugulosa*, Murray.

Cape Morgan, Kowie, Kei mouth.

(Algoa Bay, Cape, Natal. Barton(1).)

5. *Chamaedoris annulata*, Mont.

Durban.

(Table Bay. Barton(1).)

11. *Anadyomeme stellata*, Ag.

Durban.

#### PHAEOPHYCEAE.

##### 1. ECTOCARPACEAE.

*Note.* In all the collections made between S. James' and Glencairn during October and November of this year we have found a brown filamentous alga which we have placed provisionally in the genus *Pylaiella*.

2. *Ectocarpus*, sp.

Cape Morgan.

*Note.* Miss Barton<sup>(1)</sup> records the following species: *E. parvulus*, Kütz., Cape Agulhas; *E. confervoides*, Le Jol., Kalk Bay; *E. simpliciusculus*, Ag., Kalk Bay; *E. siliculosus*, Lyngb., Cape, South Africa; *E. granulatus*, Ag., Cape.

We have found several species of *Ectocarpus* between Kalk Bay and S. James' during October and November. Certain of the smaller species may have been overlooked earlier in the year, but we suspect that their development may be seasonal. The only species that we have named with certainty is *E. siliculosus*, Lyngb. The other species we have named provisionally: *E. confervoides*, Le Jol. (this is an extremely large species reaching as much as three feet in length in the small bathing pool at Kalk Bay); *E. simpliciusculus*, Ag. (epiphytic on various other Algae), and *E. Hincksiae*, Harv. (represented by one small specimen only).

*Note.* Miss Barton<sup>(2)</sup> records another genus of the Ectocarpaceae, viz. *Streblonema Codii*, n. sp. from Knysna.

## 3. SPHACELARIACEAE.

- 8.
- Phloiocaulon squamulosum*
- , Geyler.

Kowie.

(Port Natal, Cape Agulhas, Algoa Bay. Barton(1).)

- 9.
- Anisocladus congestus*
- , Reinke.

Table Bay.

*Note.* Miss Barton(1) records several members of this family not represented in Tyson's collection. The following are taken from her list: *Sphacelaria tribuloides*, Menegh., Port Natal; *S. furcigera*, Kütz. on *Suhria vittata* and *Ecklonia buccinalis*; *Stypocaulon paniculatum*, Kütz., Port Natal; *S. scoparium*, Kütz., Table Bay, Robben Island, Cape Point, Cape Agulhas, Port Natal; *S. funiculare*, Kütz., Table Bay, False Bay.

The only one of these which we have found is *Sphacelaria furcigera*, epiphytic on *Plocamium coccineum* at Glencairn.

## 4. ENCOELIACEAE.

- 12.
- Phyllitis fascia*
- , Kütz. var.
- undulata*
- .

Cape Morgan.

(Kaffraria. Barton(2).)

- 14.
- Asperococcus bullosus*
- , Lamour.

Cape Morgan.

(Cape. Barton.)

*Note 1.* Miss Barton(1) records the following species of *Asperococcus* in addition to the one recorded above: *A. sinuosus*, Roth., Cape Point, Knysna, Port Natal; *A. compressus*, Griff., Cape; *A. clathratus*, Bory., Mostert's Bay.

*Note 2.* We have found at Camps Bay and in the small bathing pool at Kalk Bay a plant which belongs to neither of the genera mentioned above. We have named it provisionally *Scytosiphon lomentarius* (Lyngb.), J. Ag., but this determination has still to be verified.

## 6. DESMARESTIACEAE.

- 2.
- Desmarestia ligulata*
- , Lamour, var.
- herbacea*
- .

Table Bay, Three Anchor Bay.

(Camps Bay. Barton(1).)

*Note.* Miss Barton(1) records the following additional members of the family: *Desmarestia ligulata* var. *firma*, from the Cape; and *D. aculeata*, Lam., from the Cape.

## 10. CHORDARIACEAE.

- 8.
- Myriocladia capensis*
- , J. Ag.

Sea Point.

(Cape. Barton(1).)

14. *Leathesia difformis*, (L.) Aresch.

No locality given.

(Cape Point, Cape, Sea Point. Barton(1).)

*Note.* We have found this species very generally distributed on the shores of the Cape Peninsula. It is frequently epiphytic on *Pycnophycus brassicaeformis*.

16. *Mesogloia vermicularis*, Ag. = *Mesogloia vermiculata* (Engl. Bot.),  
Le Jol.

No locality given.

*Note.* Miss Barton(1) records *Mesogloia virescens*, Carm. (*Eudesme virescens*, Carm.), J. Ag. from Cape Point and the Cape.

18. *Chordaria capensis*, Kütz.

Table Bay.

(Sea Point, Cape Point, Kalk Bay, Knysna. Barton(1).)

*Note.* Miss Barton(1) records the following species in addition to *C. capensis*: *C. flagelliformis*, Ag., Camps Bay, Table Bay, Knysna; *C. sordida*, Bory., Table Bay, South Africa.

11. STILOPHORACEAE.

2. *Stilophora rhizoides*, J. Ag.

Hagahaga mouth.

13. SPOROCHNACEAE.

6. *Carpomitra chytraphora*, Kütz.

Cape Morgan, British Kaffraria, Kei mouth, Bomvanaland coast.  
(Natal. Barton(2).)

14. RALFSIACEAE.

2. *Ralfsia verrucosa*, (Aresch.) J. Ag.

Locality not given.

(Sea Point, Kalk Bay, Knysna. Barton(1).)

15. LAMINARIACEAE.

9. *Laminaria pallida*, Grev.

Table Bay.

(Walfisch Bay. Barton(1).)

11. *Ecklonia buccinalis*, (L.) Hornem.

Table Bay.

(Camp's Bay, Gordon's Bay, False Bay, Cape. Barton(1).)

*E. radiata*, (Turn.) J. Ag.

Cape Morgan.

*Note.* *E. exasperata*, J. Ag. given by Miss Barton(1) in her paper is synonymous with *E. radiata*.

Miss Barton(1) includes in her list a plant named *Pinnaria fastigiata*, Endl. et Dies., which according to de Toni(4) should be included in *Ecklonia*.



Miss Barton(1) records *Lessonia nigrescens*, Bory. from Cape Agulhas.

21. *Macrocystis pirifera*, (Turn.) Ag.

Table Bay.

(Sea Point, Cape. Barton(1).)

*Note.* Miss Barton(1) records two other species, viz. *M. planicaulis*, Ag., Cape and *M. pelagica*, Aresch., Cape. De Toni(4) includes both of these in *M. pirifera*.

On examination of plants of *M. pirifera*, collected at Camp's Bay on the 26th November, we found that certain fronds at the base of the plant were fertile and bore sporangia in indefinite sori.

19. FUCACEAE.

4. *Splachnidium rugosum*, (L.) Grev.

Table Bay, Algoa Bay.

(Seal Island, False Bay, Sea Point, Knysna, Natal, Cape. Barton(1).)

7. *Fucus constrictus*, Harv.

Table Bay, Camp's Bay.

(Green Point, Cape. Barton(1).)

*Note.* Miss Barton(1) records two other species of *Fucus*, viz. *F. serratus*, L. and *F. vesiculatus*, L., both from the Cape.

14. *Scaberia*.

*Note.* There is no representative of *Scaberia* in Tyson's collection, but *S. Aghardi*, Grev. is recorded by Miss Barton(1) from Natal.

15. *Bifurcaria brassicaeformis*, Stackh. (= *Pycnophycus brassicaeformis*, Kütz.)

Table Bay.

(Cape Town, Cape Point, Sea Point, Muizenberg, Algoa Bay, Natal. Barton(1).)

*Note.* Miss Barton(1) also gives *B. tuberculatus*, Stackh., Table Bay, Cape Agulhas, Knysna, Cape, and *B. levigatus*, Kütz., Cape Agulhas.

16. *Cytoseira*.

*Note.* Tyson's collection has no representative of *Cytoseira*. Miss Barton(1) gives two species: *C. triquetra*, Ag., Cape; and *C. ericoides*, J. Ag., Cape Agulhas.

24. *Turbinaria*, sp.

Isipingo.

*Note.* Miss Barton(1) records *T. decurrens*, Bory. from Port Natal.

25. *Carpophyllum scalare*, Suhr.

Kowie.

(Cape. Barton(1).)

- Note.* Miss Barton<sup>(1)</sup> includes in her list a plant, *Contarinia australis* Endl. and Dies., which she thinks may be the same as *Carpophyllum scalare*.
26. *Sargassum longifolium*, Ag.  
Cape Agulhas, British Kaffraria, Cape Morgan.  
(Simon's Bay, Port Alfred, Natal, Cape. Barton<sup>(1)</sup>.)
- S. heterophyllum*, Ag.  
Kowie, Kei, Algoa Bay, S. Sebastian's Bay.  
(Port Natal. Barton<sup>(1)</sup>.)
- S. lendigerum*, Kütz.  
False Bay, Algoa Bay, Kowie.  
(Port Natal. Barton<sup>(1)</sup>.)
- Note.* Miss Barton<sup>(1)</sup> records a number of species which are not represented in Tyson's collection. The following are the species: *S. elegans*, Suhr., Cape; *S. incisifolium*, Ag., Saldanah Bay, Table Bay, Kalk Bay, Cape Agulhas, mouth of Swart Valley, Knysna, Plettenberg Bay, Algoa Bay, Cape; *S. incisifolium* var. *nullipora*, Table Bay; *S. vulgare*, Ag., Knysna, Algoa Bay, Cape; *S. vulgare* var. *tenuifolium*, Port Natal; *S. affine*, J. Ag., Cape; *S. pyriforme*, Ag., Port Natal; *S. linifolium*, J. Ag., Swellendam (as Swellendam is inland, this locality is probably given in error); *S. bacciferum*, Ag., Cape.

## DICTYOTALES.

## DICTYOTACEAE.

2. *Stoechospermum Suhrii*, Kütz.  
Algoa Bay.
- Note.* In Miss Barton's list this is given as *Zonaria marginata*, Suhr.
4. *Zonaria lobata*, (Ag.) J. Ag.  
Algoa Bay, Bomvanaland coast, Natal.  
(Knysna. Barton<sup>(1)</sup>.)
- Z. interrupta*, (Lamour) J. Ag.  
False Bay, Kowie, Kei.  
(Table Bay, Cape Agulhas, Plettenberg Bay, Algoa Bay, Port Alfred, Port Natal, Cape. Barton<sup>(1)</sup>.)
- Z. sp.*  
Cape Morgan.
- Note.* Miss Barton<sup>(1)</sup> records *Z. plumbea*, Aresch. from Natal Bay.
5. *Padina Commersonii*, Bory.  
Cape Morgan, Isipingo, Durban.
- Note.* Miss Barton<sup>(1)</sup> records *P. pavonia*, Gaill. from Port Natal.
6. *Haliseris serrata*, Aresch.  
Kowie.  
(Port Natal. Barton<sup>(1)</sup>.)

*H. ligulata*, Suhr.

Kowie.

Table Bay, Algoa Bay, Algoa Bay to Natal. Barton(1.)

*H. macrocarpa*, Aresch.

Kowie.

(Port Natal. Barton(1).)

*Note.* Miss Barton(1) records the following additional species: *H. dichotoma*, Suhr., Omsamcolo, Port Natal; *H. polypodioides*, Ag., Algoa Bay, Port Natal; *H. delicatula*, Lam., Port Natal.

7. *Dictyota naevosa*, Suhr.

Kalk Bay, Plettenberg Bay, Kowie, Cape Morgan.

(Algoa Bay to Port Natal, Kei. Barton(1).)

*D. fasciola*, (Roth.) Lamour.

Kei, British Kaffraria.

(Cape Agulhas. Barton(1).)

*D. dichotoma*, J. Ag.

Kei, Cape Morgan, British Kaffraria.

(Cape Point, Kalk Bay, Algoa Bay, Port Natal. Barton(1).)

*D.* sp. (very like *D. Bartayresiana*, ex Herb. E. M. Holmes in Dr Becker's collection).

Simon's Bay, Algoa Bay.

*D.* sp. (appears to be close to *D. liturata*, J. Ag.).

Locality of the specimens in Tyson's collection uncertain. Either Algoa Bay or the Kowie.

*Note.* Miss Barton(1) records several species not represented in Tyson's collection, viz. *D. dichotoma* var. *implexa*, Cape Agulhas; *D. linearis*, Ag., Port Natal; *D. inscripta*, J. Ag., Kalk Bay; *D. denticulata*, Ag., Cape; *D. liturata*, J. Ag., Kalk Bay; *D. Pappeana*, Kütz., Kalk Bay; *D. polycarpa*, Sond., Simon's Bay. (This last species is given as being doubtful.)

*Homoeostrichus multifidus*, (Harv.) J. Ag.

Kalk Bay.

(Cape. Barton(1).)

*Note.* In Engler-Prantl(5) this genus is included in *Zonaria*, and we are following de Toni in placing it in a separate genus.

## I. Bangiales.

### RHODOPHYCEAE.

#### 1. BANGIACEAE.

*Porphyra vulgaris*, Ag.

Sea Point. (Also recorded from Robben Island, Table Bay, Kalk Bay.

Barton(1).)

*P. laciniata*, Ag.

Table Bay, Three Anchor Bay, Algoa Bay, Kowie. (Also recorded from Seal Island, Knysna, Port Natal. Barton<sup>(1)</sup>; and Kalk Bay. Delf.)  
*P. capensis*, Kütz. Regarded by some as a form of *P. laciniata*.

Table Bay.

*P. Augustineae*, Kütz.

Sea Point. (Also Robben Island. Barton<sup>(1)</sup>.)

*Note on the Genus Porphyra.*

The species of *Porphyra* are somewhat ill defined, and require further investigation. The genus is of general occurrence on the shores of the Peninsula, and is very abundant at the high tide level on the rocks and boulders of both east and western coasts. We find that in *P. laciniata*, the larger fertile fronds bearing carpospores occur high on rocks, whilst smaller paler fronds bear monospores and are found lower down or beneath the larger purplish fronds.

## II. Florideae.

(a) NEMALIONALES.

### 3. HELMINTHOCLADIACEAE.

3. *Chantransia*, sp. ? *secundata*.

*Note.* There was no specimen of this genus in the Tyson collection, but we have found a specimen bearing monospores thickly coating the stipe of an old frond of *Ecklonia buccinalis* thrown up on the shore at Hout Bay. (*C. secundata* on *Laminaria* is recorded by Barton<sup>(1)</sup> from "near Cape Town.")

6. *Nemalion furcellatum*, n. sp. Reinbold.

Cape Morgan. One specimen.

*Note on Nemalion furcellatum.*

This seems to be an exceedingly rare form. It has been seen "only at Three Anchor Bay as an annual and seldom after the New Year." The specimens are all sterile, and were described by Tyson<sup>(9)</sup> (Journ. Bot. June 1921, LI, p. 200).

7. *Helminthostachya anstantio*, J. Ag.

Cape Morgan. One specimen.

*Note.* Miss Barton<sup>(1)</sup> records also *Helminthora divaricata* as occurring at the Cape.

### 4. CHAETANGIACEAE.

1. *Scinaia furcellata*, (Thurn.) Bivon.

Cape Morgan, Great Kei mouth. (Also Cape Point. Barton<sup>(1)</sup>.)

*S. salicornioides*, Kütz., J. Ag.

Submerged rocks, Sharks Bay, Kowie. (Also Port Natal. Barton.)

3. *Galaxaura obtusata*, (Soland) Lamour.

Isipingo, Natal. (Also Port Elizabeth, Algoa Bay, Port Natal. Barton<sup>(1)</sup>.) One specimen.

*G. Beckeri*, Schmitz.

Submerged rocks, Kowie. One specimen.

*G. marginata*, (Lam.) (*Brachycladia marginata*, Soland; *Zanardinia marginata*, J. Ag.).

Kowie, Port Alfred.

*Note on genus Galaxaura.*

Miss Barton<sup>(1)</sup> records *G. umbellata* from Natal (*vide* Kützing).

5. *Chaetangium saccatum*, (Lamour) J. Ag.

Tide washed rocks, Table Bay, Sea Point, Green Point. (Also Kalk Bay. Barton<sup>(1)</sup>.)

*C. ornatum*, (L.) Kütz.

Pools and rocks, Table Bay, Walfisch Bay. (Also Seal Island, Simon's Bay, Cape Point, Cape Agulhas. Barton<sup>(1)</sup>, 1893; and Kei mouth. Barton<sup>(2)</sup>, 1896.)

*Note on the genus Chaetangium.*

The species *C. ornatum* is very abundant on the coast of the Cape Peninsula, and from previous records is evidently of wide distribution. It is a common form in the mid-tidal regions in pools and on rock ledges on both the east and west shores.

*C. saccatum*, on the other hand, is less abundant, and occurs at lower tidal levels, in shallow rock pools, or occasionally growing on a bare rock face. It is most abundant on the west coasts, and grows at Camp's Bay in association with *Splachnidium*, fruiting freely, but at Sea Point it is less common and at Kalk Bay we have only seen small dwarfed plants, sterile and growing in small clusters usually on the flat tops of high rocks left with shallow pools at low tides. According to Barton, *C. Zeyheri*, Kütz. also occurs on the Cape coasts.

5. GELIDIACEAE.

4. *Wrangelia purpurifera*, (Harv.) J. Ag. (= *Callithamnion purpuriferum*).

Table Bay, Sea Point rocks, Three Anchor Bay, on *Anisocladus*, etc.

8. *Gelidium cartilagineum*, (L.) Grev. Gaill.

The Kowie, Cape Morgan, Kei, rock pools and ledges, False Bay. (Also Robben Island, Kalk Bay, Camp's Bay, Cape Agulhas, Knysna. Barton<sup>(1)</sup>.)

*G. pinnatifidum*, (J. Ag.) Schmitz.

Kowie. Two specimens.

*G. pristioides*, J. Ag., Kütz. (= *Suhria pristioides*, J. Ag.).

False Bay, Port Alfred, Simon's Bay Rock, deep water, Cape Agulhas, Kowie.

*G. rigidum*, Kütz.

Cape Morgan, Kowie.

*G. corneum*, Ag.

Cape Morgan, Kei mouth. (Also Algoa Bay, Port Alfred, Mossel Bay, Natal, Sea Point. Barton(1).)

*G. crinale*.

Cape Morgan. (Also Kalk Bay. Delf.)

*G. serratum*, Kütz. (= *Thysanocladia Africana*, Schmitz).

Kowie. Two specimens.

*Note on the genus Gelidium.*

In our experience, the two species *cartilagineum* and *pristioides* are by far the most common of the above genus. *G. cartilagineum* is especially common and abundant on the coast of False Bay, and lines the vertical faces of the rocks at Kalk Bay at or near the low water level in low spring tides. We have found it fertile early in June. *G. pristioides* is often epiphytic on *Ecklonia* stipes. Both are exposed only at low tides.

10. *Suhria vittata*, (L.) J. Ag.

On stem of *Ecklonia buccinalis*, Table Bay. (Also Robben Island, Muizenberg, Cape Point, Sea Point, Gordon's Bay, Kalk Bay, Camp's Bay, and Cape Agulhas. Barton.)

*Note on the genus Suhria.*

*S. reptans*, Grun. is recorded for the Cape, but Grunow thinks it may be simply a dwarf or young form of *S. pristioides*. *S. vittata* according to a note on one of Tyson's specimens is the alga alluded to in the *Swiss Family Robinson* as made into a jelly by Cape Colonists who call it "chinchow." We have not met with this custom here.

12. *Ptilophora spissa*, (Suhr.) Kütz.

Kei mouth. One specimen.

(b) GIGARTINALES.

7. GIGARTINACEAE.

3. *Irideae capense*, J. Ag.

Pools and rock ledges, Table Bay. (Also Seal Island, Simon's Bay. Barton(1); also Camp's Bay. Delf.)

*I. elongata*, Suhr.

Pools and rock ledges, Table Bay to Walfisch Bay. This species is not mentioned by Barton.

*Note on the genus Irideae.*

We have only found these plants exposed at low tide level in spring tides. The fronds in the Tyson collection are either sterile or tetrasporic forms. We have found carposporic fronds of *I. capense* in deep pools at low water, Camp's Bay, Nov. 1920.

Miss Barton mentions several other species as belonging to the Cape:

*I. orbitosa*, *Augustineae*, *Agathoicus*, *serratifolia*, *cordata*, *curvata*, *cornea*, *laminarioides*, *undulata*, *gigantea* and *insignis*. The fronds are very variable in form and size, and we have not found it possible to distinguish these.

4. *Gigartina radula*, Ag.

Pools and rock ledges, Table Bay; a smaller form also from Knysna. (Also Robben Island, Kalk Bay, Sea Point. Barton(1); and Camp's Bay. Delf.)

Nearly all the specimens are either sterile or carposporic fronds, but one tetrasporic frond also occurs.

*G. stiriata*, J. Ag.

Submerged rocks, Table Bay. (Also Kalk Bay, Sea Point, Cape Point, Cape Agulhas. Barton (1); and Camp's Bay. Delf.)

All the specimens appear to be sterile or carposporic.

*G. Burmanni*, J. Ag.

Submerged rocks, Table Bay. (Also Simon's Bay, Sea Point. Barton(1); and also Three Anchor Bay, Hout Bay and Camp's Bay. Delf.)

*G. fastigiata*.

Rock pools and ledges, Table Bay. The specimens show sterile, carposporic and tetrasporic plants. (Also Robben Island, Sea Point, Cape Point, Kalk Bay and Natal. Barton(1).)

*G. pistillata*, (Gmel.) Stackh.

Algoa Bay, Kowie.

*G. Teedii*, Lam.

Cape Morgan, Walfisch Bay. (Also Port Alfred. Barton(1).)

*G. insignis*, Schmitz (syn. *Irideae insignis*, Endl. and Dies.).

Deep water, Kowie. (Also Port Natal. Barton.) One specimen.

*G. Tysoni* n. sp., Reinbold.

Camp's Bay, Sea Point, Three Anchor Bay. This is probably a deep water form as it has only been found as a "wash-up" of occasional occurrence (Journ. Bot. June, 1912).

*Notes on the genus Gigartina.*

The species of *Gigartina* are very variable in form, and apparently hybridisation may occur between *G. Teedii* and *G. pistillata* (Barton, Journ. Bot. May and Nov. 1896).

*G. radula* is very variable in size; the smaller sterile fronds are sometimes inflated. In the herbarium specimens, this is indicated by a stuffing with cotton wool. We have only seen this in nature on bright warm days; examination of the inflated fronds suggests no sign of disease but rather an accumulation of gaseous products of assimilation. Nearly all the material is carposporic, only two sheets showing specimens with tetraspores. We have found both forms growing side by side

at Sea Point (August 22, 1920), but the tetrasporic plants were much less numerous as well as less conspicuous.

*G. Burmanni* and *G. stiriata*, are both abundant especially on the west coast and around Table Bay. They are commonly found together at low tide levels, and are often exposed by neap as well as spring tides. All the specimens of *G. Burmanni* in the Tyson collection as well as all those we have seen growing, are either sterile or tetrasporic, whilst all the specimens of *G. stiriata* are also either sterile or carposporic<sup>1</sup>. The structure of the young sterile fronds seems to be identical, but the carposporic fronds become papillate whilst the tetrasporic remain smooth. It seems very probable that these two "species" are in reality simply the sexual and asexual generations of the same plant. Both these occur in association with *G. radula*, which is also abundantly represented.

7. *Gymnogongrus dilatatus*, (J. Ag.).

Low tide Table Bay, rocks and ledges. (Also Green Point, Cape Point, Gordon's Bay. Barton(1).)

*G. capensis*, (Ag.).

Green Point, Table Bay. (Also Cape Point, Kalk Bay, Cape Agulhas and Knysna. Barton(1).)

*G. polycladus*, (Kütz.), Ag.

Cape Morgan. (Also Kalk Bay. Barton(1).)

*Note.* According to Barton, another species, *G. corymbosus*, occurs at Cape Point and at False Bay.

8. *Actinococcus aggregatus*, Schm.

Cape Morgan.

This is parasitic on *Gymnogongrus vermicularis* and on *G. dilatatus*. I have found it on *G. dilatatus* at extreme low tide at Camp's Bay (Oct. 1920).

10. *Mychodea episcopalis* (Harv.).

Cape Morgan. One specimen.

13. *Callophyllis discigera*, J. Ag.

Not given. (At Table Bay, False Bay, Knysna. Barton(1).)

*C. Hombroiana* (?).

Waterloo Bay. One sterile specimen.

*Note.* According to Barton(1), *C. laciniata* occurs at Batterie Amsterdam, and *C. fastigiata* at Cape Agulhas.

15. *Callymenia dentata*, J. Ag.

Three Anchor Bay, Great Kei mouth. (Also Cape Agulhas, Algoa Bay. Barton(1).)

*C. schizophylla*, Harv.

<sup>1</sup> This appears to be true also of specimens of these species in the Harvey Collection (Cape Town) and in the British Museum (S. Kensington).



Small form, on *Gigartina* sp. Table Bay; larger fronds, deep water, Table Bay. (Also Port Natal. Barton(1).)

*C. Harveyana*, J. Ag.

Deep water, Table Bay. (Also Cape Point. Barton(1).)

16. *Glaphrymenia Porphyroides*, J. Ag.

Submerged rocks, Shark's Bay, Kowie. One specimen. (Also the Cape, Barton(2), 1896.)

8. RHODOPHYLLIDACEAE.

7. *Meristotheca Natalensis*, J. Ag.

Near Cape Morgan. (Also Port Natal. Barton.) This specimen has been examined by Reinbold and also Barton. Both judge it to be *M. Natalensis*, but neither had the opportunity of comparing it with the type specimen.

14. *Rhodophyllis capensis*, Kütz.

Deep water, Table Bay, Kalk Bay. Two specimens formerly labelled "*Pollexfenia laciniata*" have been renamed *R. capensis* by Tyson.

16. *Rhabdonia Natalensis*, Reinbold, n. sp.

Near Cape Morgan. This species was described in Journ. Bot. 1912. There are two specimens, both in the tetrasporic stage. (*R. violacea* occurs at the Cape according to Barton.)

22. *Thysanocladia Africana*, Schmitz (= *Gelidium serratum*, Kütz.).

(c) RHODYMENIALES.

9. SPHAEROCOCCACEAE.

1. *Phacelocarpus echinatus* (Suhr.).

The Kowie, submerged rocks, Hagahaga mouth.

*P. epipolaeus* (Holmes) (= *P. disciger*, Holmes and Batters).

The Kowie, Cape Morgan. (See Trans. Bot. Soc. Edinburgh, 1893, p. 79.) (Also Port Alfred. Barton(2), 1896.)

*P. tortuosus* (Endl. and Dies.).

Port Alfred. One specimen. (Also Cape Agulhas, Port Natal. Barton.)

*P. semitortus*, Schmitz.

Locality not recorded. One specimen.

Note. Two other species are recorded by Barton(1)—*P. tristichum* from Port Alfred, and *P. Labillardieri*, (Ag.), Port Alfred.

3. *Heringia mirabilis*, Ag.

Submerged rocks, Shark's Bay, Kowie. (Also Robben Island, Table Bay, Gordon's Bay, Sea Point, Cape Point, Camp's Bay, Knysna, Algoa Bay, Port Alfred. Barton(1).)

9. *Sarcodia capensis*, Ag.

The Kowie. (Also the Cape. Barton(1).)

10. *Trematocarpus flabellatus*, (J. Ag.) (= *Dicurella flabellatus*).  
Kowie, rock pools and ledges, Table Bay, Dyer's Island. (Also Cape Point, Sea Point, Cape Agulhas. Barton(1).)  
*T. fragilis*, J. Ag. (= *Dicurella fragilis*).  
Rock pools and ledges, Table Bay. (Also Cape Point, Robben Island, Cape Agulhas, Knysna, Algoa Bay, Port Alfred. Barton.)  
*T. affinis*, J. Ag. (= *Dicurella affinis*, Ag.).  
Sea Point, rock pools, Table Bay. (Also Robben Island, Kalk Bay, Cape Point. Barton(1).)
15. *Gracilaria confervoides*, (L.) Grev.  
Table Bay, Rogge Bay landing. One specimen marked "cosmopolitan."  
*G. dentata*.  
Over Gordon Bluff, Durban. One small faded specimen.  
*G. capensis*, (Schmitz).  
Port Alfred, the Kowie.  
*G. denticulata*, Schmitz.  
Submerged rocks, Shark's Bay, Kowie.
16. *Corallopsis aculeatus*.  
Submerged rocks, Kowie. (Annals. Bot. VIII).
17. *Calliblepharis fimbriata*, J. Ag.  
Submerged rocks, Kowie, Cape Morgan. (Also Cape Agulhas, Algoa Bay, Port Alfred, the Cape. Barton(1).)
- 17 a. *Tyleiophora Beckeri*, Ag.  
Rock ledges, Kowie. (Also Port Alfred, the Cape. Barton(1), 1893, and Algoa Bay, British Kaffraria. Barton(2), 1896.)
- Note. This species is not mentioned by Engler (Nat. Pfl.), but is very close to a *Calliblepharis* (Kütz.) both in structure and in form of nemathecia. If the former species is dropped, this should presumably be named *Calliblepharis Beckeri*.
19. *Hypnea spicifera*, J. Ag.  
The Kowie, Cape Morgan.  
These are large specimens, 1—2 ft. in length. Smaller specimens, 4—7 ins. are from False Bay. We have found this form in abundance at Kalk Bay, on rocks at low spring tides. (Also Table Bay, Cape Point, Simon's Bay, Cape Agulhas, Knysna, Algoa Bay, Port Alfred. Barton(1).)
- H. musciformis* (Wulf).  
Epiphytic on various Algae, Shark's Bay, Kowie, Cape Morgan, submerged rocks, British Kaffraria. (Also Cape Agulhas. Barton(1).)

*H. Eckloni* (Suhr.).

On various Algae, Table Bay, Walfisch Bay, Three Anchor Bay, Somerset West, Strand. (Also Port Alfred. Barton(1).) On one specimen, Tyson has written "united with *H. musciformis*."

*Note on the genus Hypnea.*

Other species mentioned by Miss Barton are: *H. episcopalis*, the Cape; *H. ceramioides*, (Kütz.), the Cape; *H. spinella*, Natal and *H. armata*, Simon's Bay.

## 10. RHODYMENIACEAE.

4. *Hymenocladia kallymenioides*, (Holm) Schmitz.

On *Gelidium cartilagineum*, Shark's Bay, Kowie. A similar specimen from Becker's Herbarium is labelled *H. Kowiensis*, and *Microcoelia kallymenioides* (Journ. Bot. 1896, xxxiv, p. 196).

*Note.* *H. polymorpha*, J. Ag. is reported by Barton for Port Alfred.

5. *Rhodymenia capensis*, (Grev.) J. Ag.

Walfisch Bay. Only one specimen. (Also Port Alfred, Isipingo. Barton(2), 1896.)

*Note.* *R. palmetta*, J. Ag. from Algoa Bay is recorded by Miss Barton(1).

7. *Epymenia stenoloba*, Schmitz.

Walfisch Bay, Cape Morgan. Submerged pools and rocks, Shark's Bay, Kowie.

*E. obtusa*, (Grev.) Kütz.

At base of *Ecklonia buccinalis*, Table Bay. (Also Muizenberg. Barton(1), 1890; and Walfisch Bay. Barton(2), 1896.)

11. *Chrysimenia Uvaria*, (L.) J. Ag.

Submerged rocks, Shark's Bay, Kowie.

Three sheets are labelled *Myrioglossa Beckeriana*, Holmes, from Kowie Beach and Cape Morgan. This is the same as *Myriophylla Beckeriana* (Holmes(7), Ann. Bot. VIII, 342), and according to de Toni (4) (vol. IV, sec. II, p. 550), this genus is indistinguishable from the genus *Chrysimenia* in structure and in the cystocarps. It seems better therefore to arrange these specimens with the genus *Chrysimenia*.

13. *Lomentaria capensis*, (Harv.) Endl.

Pools and ledges, low tide, Table Bay. (Also Muizenberg, Simon's Bay, Kalk Bay. Barton(1).)

*L. patens*, Kütz.

Walfisch Bay. One specimen.

*L. corallina*, Kütz.

Cape Morgan, Kowie.

These specimens have been variously named as *Gastridium corallinum*, *L. corallina*, and *Erythroclonium corallinum*.

*Note.* A specimen labelled *Caloglossa Leprieurii*, Harv., seems to belong here as some species of *Lomentaria*.

14. *Champia compressa*, Harv.

Shark's Bay, Kowie. (Also Kalk Bay, Muizenberg, Cape Agulhas, Kynsna, Algoa Bay and Port Alfred. Barton(1).)

We found very young fronds of this alga at Kalk Bay at low spring tides near the water's edge on June 20; when quite fresh they had an iridescent appearance.

*C. lumbricalis*, (Roth.) Lamour.

Rocks and ledges, low tide, Table Bay. (Also Robben Island, Sea Point, Cape Point, Cape Agulhas. Barton.)

*Note.* This alga is fairly abundant at Camp's Bay where we have found it fertile, exposed only at low spring tides, usually on flat rock surfaces. The tetrasporic and carposporic plants are almost indistinguishable until the cystocarps are well developed. It is comparatively rare in our experience at Kalk Bay.

17. *Plocamium corallorhiza*, (Turn.) Harv.

Deep water, Table Bay, Kowie, Cape Morgan. (Also Robben Island, Cape Point, Cape Agulhas, Cape Recife, Port Alfred, Kei mouth and Natal. Barton(1).)

I have found this only at low water during low spring tides on rocks at Kalk Bay. In June the plants were all fertile bearing tetraspores.

*P. Robertsiae*, Schmitz.

The Kowie. Only two specimens, from Becker's Herbarium.

*P. cornutum*, (Turn.) Harv.

Kalk Bay, Three Anchor Bay. (Also Table Bay, Sea Point, Camp's Bay, Cape Agulhas, Natal. Barton(1).)

*P. rigidum*, Kütz.

Three Anchor Bay in pools. (Also Muizenberg. Barton(1), 1893; and Kowie. Barton(2), 1896.)

*P. condensatum*, Kütz.

Cape Agulhas.

*Note.* On one specimen Tyson has written that *P. rigidum* and *P. condensatum* are identical forms. On examination of the specimens, we found that the former species are all carposporic and the latter are all tetrasporic plants, which may possibly account for the slight differences between them.

*P. coccineum*, Lingb.

Cape Morgan. (Also Table Bay, Kalk Bay, Algoa Bay, Natal. Barton(1).) We have also found this form at Glencairn (Oct. 1920).

*P. Fulleri*, Schmitz.

Submerged rocks, Kowie. Only one specimen.

*P. glomeratus*, J. Ag.

Rock pools, Sea Point, Nov. 1895. One specimen. (Also Table Bay, False Bay. Barton<sup>(2)</sup>, 1896.)

*P. nobile*, J. Ag.

Submerged rocks, Table Bay. One specimen. (Also Simon's Bay, Cape Recife. Barton<sup>(1)</sup>, 1890; and Kowie, Natal. Barton<sup>(2)</sup>, 1893.)

*P. leptophyllum*.

Waterloo Bay, and Kowie. The sheet is marked "Reinbold scripsit."

*Note on the genus Plocamium.*

Other species are mentioned by Barton as occurring in the Cape region: *P. subfastigiatum*, Kütz., Natal; *P. Mertensii*, J. Ag.; and *P. procerum* at the Cape and Algoa Bay.

## 11. DELESSERIACEAE.

1. *Martensia elegans*, (Her.).

Durban Bluff, 1907; Isipingo, 1912. (Also Port Natal. Barton<sup>(1)</sup>.)

3. *Nitophyllum venosum*, Harv.

Deep water, Table Bay, Rogge Bay; small form from Three Anchor Bay.

*N. fissum*, (Grev.).

Base of *Ecklonia* fronds, Table Bay. (Also Camp's Bay and Knysna. Barton<sup>(1)</sup>.)

*N. uncinatum*, (Turn.) J. Ag.

Sea Point, Durban. (Also Kei mouth. Barton<sup>(1)</sup>.)

*N. reptans*, Cru.

Durban. (Also Cape Point. Barton<sup>(1)</sup>.)

This is regarded by Tyson as possibly a smaller form of *N. uncinatum*.

*N. maculatum*.

On various algae, Kowie, Knysna, East London, Port Alfred, Durban.

*N. Kowiensis*, Schmitz.

The Kowie. One specimen.

*Note on the genus Nitophyllum.*

Other species recorded by Miss Barton are: *N. Platycarpum*, Robben Island, Table Bay, Cape Point, Green Point, Camp's Bay, Cape Agulhas, Knysna, Algoa Bay; *N. undulatum*, Simon's Bay; *N. capense*, Table Bay; *N. acrospermum*, the Cape; *N. pinnatifidum*, Algoa Bay; *N. serratum*, the Cape.

6. *Botryoglossum platycarpum*, (Turn.) Kütz.  
Pools at low tide, Table Bay. This is a monotypic and endemic plant.
8. *Neuroglossum Binderianum*, Kütz.  
Deep water, Table Bay, Three Anchor Bay, Port Nolloth, Robben Island. This is a monotypic and endemic form.

11. *Delesseria rusCIFolia*.  
Not represented. (Recorded at Sea Point and coast of Natal. Barton(1).)  
We found this plant in low tide pools at Sea Point, bearing carpospores, Sept. 1920.

*D. Bartoniae*, Schmitz.

Submerged rocks, Kowie.

*Note.* Two other species are mentioned by Barton(1): *D. imbricata*, Port Alfred, and *D. ovifolia*, Kütz., the Cape.

12. *Botryocarpa prolifera*, Grev.  
At base of *Ecklonia buccinalis*, Table Bay. This is also a monotypic endemic form.

16. *Sarcomenia miniata*, J. Ag.  
Deep water, Table Bay, Three Anchor Bay, Cape Morgan. Sheets marked "fide Reinbold." (According to Barton, *S. miniata*, J. Ag. = *Polysiphonia clathrata*, Suhr., and occurs also from Algoa Bay. Barton(3), 1896.)

*Note on the genus Sarcomenia.*

*S. intermedia* is recorded from the Cape by Barton.

*Holmesia capensis*, (J. Ag.).

Shark's Bay, Kowie.

*Note.* This genus is not mentioned by Engler, but it is placed by Barton in the Delesseriaceae, and seems to be close to the genus *Delesseria*. Two specimens.

## 12. BONNEMAISONIACEAE.

3. *Delisea Suhrii*, J. Ag.  
Deep water, False Bay, St Sebastian's Bay. (Also Cape Agulhas, Algoa Bay. Barton(1).)

## 13. RHODOMELACEAE.

1. *Laurencia virgata*, Ag.  
Submerged rocks, Shark's Bay, Kowie. (Also Seal Island, Cape Agulhas. Barton(1).)
- L. flexuosa*, J. Ag.  
Submerged rocks, Shark's Bay, Kowie. (Also Cape Agulhas, Knysna. Barton(1).)

- L. pinnatifida*, Lam.  
Plettenberg Bay. (Also Seal Island, Algoa Bay. Barton(1).)
- L. elata*, Harv.  
Port Alfred, Kei mouth, Waterloo.
- L. hybrida*, J. Ag.  
Kei mouth.
- L. obtusa*, Lam.  
Kowie, Somerset Strand, False Bay, Cape Morgan. (Also Cape Agulhas, Algoa Bay. Barton(1).)

*Note on the genus* Lauréncia.

Other species mentioned by Barton are: *L. corymbosa*, Ag., the Cape; *L. Botryoides*, Ag., Muizenberg, Kalk Bay, Cape Agulhas; *L. divaricata*, Ag., the Cape; *L. Forsteri*, Ag., the Cape; *L. papillosa*, Grev., Cape Recife, Algoa Bay, the Cape; *L. moriformis*, Kütz., the Cape; *L. concinna*, Mont., Port Natal; *L. laxa*, Grev., the Cape, Natal Bay.

6. *Chondria capensis*, (Harv.) J. Ag.  
Rock ledges, Table Bay to Walfisch Bay.
13. *Pachychaeta brachyarthra*, Kütz.  
Shark's Bay, Kowie, Port Beaufort.
- Note.* *P. griffithsioides* is also mentioned by Barton(1).
15. *Polysiphonia virgata*, (Ag.) Spreng.  
On stem of *Ecklonia buccinalis*, Table Bay, Robben Island, Mouille Point. (Also Camp's Bay, Kalk Bay, Cape Agulhas, Kynsna. Barton(1).)
- P. atrorubescens*, Grev.  
Rogge Bay. (Also Table Bay. Barton(1).)
- P. sertularioides*, J. Ag.  
British Kaffraria, Cape Morgan. (Also Port Elizabeth. Barton, 1896 (2).)
- P. cloiophylla*, Ag.  
Cape Morgan. (Also Camp's Bay. Barton(1).)  
This is represented by two specimens named by Flanagan, but renamed by Tyson *Pterosiphonia cloiophylla* var. *patens*. These specimens have therefore been placed with the genus *Pterosiphonia*.
- P. urbana*, Harv.  
Tidal rocks, Sea Point (labelled "Fide Miss Barton"), Three Anchor Bay.
- P. urceolata*, (Lightf.) Grev.  
Algoa Bay, U.S.A. (Also Table Bay. Barton(1).)
- P. tenebrosa*, (Harv.).  
Sand covered rocks and pools, Table Bay. Sea Point, Three Anchor Bay. (Also Muizenberg. Barton(1).) We have found

\* this plant occasionally at Sea Point and also Kalk Bay in similar habitats.

*P. corymbosa*, (Ag.) Harv.

*P. corymbifera*, Ag. Harv.

Sea Point in pools on *Codium tomentosum*.

Note on the genus *Polysiphonia*.

Other species recorded by Miss Barton are: *P. fasciculifera*, Kütz., the Cape; *P. Acanthina*, J. Ag. (*Rhytiphlea dumosa*, Harv.), False Bay; *P. prorepens*, Harv., Algoa Bay, Port Elizabeth; *P. Heringii*, Harv., Algoa Bay; *P. corymbifera*, Ag., Table Bay, Natal; *P. arenaria*, Houts Bay, and Muizenberg; *P. incompta*, Harv., Muizenberg, Kalk Bay, Simon's Bay; *P. Stangeri*, Harv., Port Natal; *P. monocarpa*, Montag., the Cape; *P. Gaudichaudi*, Ag., the Cape; *P. parasitica*, Grev., the Cape; *P. nana*, Kütz., Table Bay; *P. falcata*, Kütz., the Cape; *P. Pappiana*, Kütz., the Cape; *P. juncea*, Kütz., the Cape; *P. linocladia*, Kütz., the Cape.—According to Miss Barton (1), p. 176): “Grunow finds no specific difference between *P. virgata*, (Ag.), *complanata* Sp., *Gaudichaudi*, J. Ag., and *fasciculifera*, Kütz. I entirely agree with him, except *P. complanata* which seems to me to resemble more nearly *P. cloiophylla*, Ag.”

In our experience the species of *Polysiphonia* are not frequently met with excepting *P. urbana* in tetrasporic form from Glencairn, Kalk Bay, and St James, i.e. on the sandstone of False Bay. *P. virgata* is the only species we have observed at Camp's Bay.

34. *Bostrychia mixta*, (Harv.), and Hook.

Sheltered spots, rock crevices, Algoa Bay, Port Elizabeth. (Also Muizenberg, Cape Point, Simon's Bay, Kalk Bay, Knysna. Barton(1).) We have found this plant on sheltered vertical rock faces about mid-tide level at Kalk Bay.

Note. *B. tenella*, J. Ag. and *B. Binderi* are recorded by Miss Barton as both occurring at Port Natal and False Bay.

41. *Rhodomela botryocarpa*, Harv.

Cape Morgan, Port Nolloth. This is also named *Caulacanthus ustulatus*, Kütz.

Note. *R. subfusca* is also recorded by Barton as occurring at Table Bay and Cape Point.

45. *Herposiphonia Heringii*, (Harv.).

On various algae, Table Bay, Port Natal.

*H. prorepens*.

On *Amphiroa Ephedrae*, Table Bay.

50. *Placophora Binderiana*, J. Ag.

On *Codium*, Algoa Bay, Kowie. (Also Port Elizabeth, on *Amphiroa* and *Codium*. Barton(1).)



52. *Polyzonia elegans*, (Suhr.).  
Cape Morgan, Kei mouth on *Gelidium* and *Polysiphonia*, Kowie.  
(Also Algoa Bay, Port Alfred, Port Natal. Barton(1).)
58. *Vidalia serrata* (Suhr.).  
Kei mouth. (Also Port Natal. Barton(1).)
65. *Heterosiphonia dubia*, (Suhr.).  
On various small algae, Table Bay, Three Anchor Bay. On one  
sheet is the note that *H. dubia* = *Dasya dubia* = *H. crispa*.  
*H. pellucida*, (Harv.).  
Cape Morgan. (Also Muizenberg. Barton(1).) One specimen.  
On the sheet is written "The real plant of Harvey often con-  
founded with *H. dubia* (*D. dubia*, Suhr.) Reinbold."
67. *Dasya scoparia*, Harv.  
Submerged rocks, Kowie, Cape Morgan. (Also Green Point, Kei  
mouth, Port Natal. Barton(1).)

## 14. CERAMIACEAE.

5. *Griffithsia corallina*, Lightf. Ag.  
Rock pools, low tide, Sea Point, Three Anchor Bay. (Also Table  
Bay. Barton(1).) We found this species at Glencairn bearing  
tetraspores, Oct. 1920.  
*G. secunda*, Harv.  
Sea Point. (Also Muizenberg. Barton.)  
*Note.* *G. caespitosa*, Harv. is recorded for False Bay (Barton).
9. *Monospora*, (Solier) = *Corynospora ramulosa*, J. Ag.  
Submerged rocks near Kei mouth.
10. *Pleonosporium Harveyanum*, (J. Ag., de Toni) = *Halothamnion  
Harveyanum*, (J. Ag.).  
Submerged rocks, British Kaffraria; low tide rocks, Table Bay.  
*P. Tysoni*, Barton.  
On *Gigartina radula*, Table Bay, Three Anchor Bay. I have  
found this plant at St James (False Bay) at half tide on plants of  
*Cladophora hospita*. For a description of this plant see Barton(2),  
Journ. Bot. xxxiv, p. 195, 1896.
11. *Callithamnion stuposum*, (Suhr.).  
Submerged rocks, Algoa Bay, Kowie. One specimen from  
Flanagan's herbarium named *Dasya scoparia* has been renamed  
by Tyson, *C. stuposum*.  
*C. verticillatum*. No locality given.  
*C. purpuriferum*, Ag. (= *Aristothamnion purpuriferum*).  
Not recorded. (Cape Point, Kalk Bay, Table Bay. Barton(1).)  
*Note.* Other species recorded by Barton are: *C. constrictum*, Port Natal;  
*C. gracile*, Simon's Bay; *C. variegatum*, Algoa Bay; *C. densum*,

- the Cape; *C. sertularioides*, Table Bay; *C. striatum*, the Cape.
15. *Haplolegma Africanum*, Kütz.  
Isipingo, Natal. Only two specimens.
  18. *Ptilota cryptocarpa*, Holmes.  
Cape Morgan.
  19. *Euptilota Pappeana* (*Ptilota Pappeana*), Ag.  
Deep water, Table Bay. (Also Kalk Bay. Barton(1).)
  24. *Ballia Beckeri*, Schmitz.  
Shark's Bay, Kowie.
  30. *Spyridia cupressina*, Harv.  
Submerged rocks, Kowie.  
*S. horridula*.  
Cape Morgan. One specimen.  
*S. glomulifera* (Bracebridge).  
Cape Morgan. One specimen.  
*S. filamentosa*, Harv.  
Cape Morgan. (Also Port Natal. Barton.)  
*S. plumosa*, Schmitz.  
Submerged rocks, Kowie.
- Note.* *S. squalida*, J. Ag., Port Alfred, and *S. insignis*, J. Ag., Port Alfred, and Port Natal are also recorded by Barton(1), 1893, and *S. squalida* by Barton(2) from Kowie, 1896.
31. *Carpoblepharis flaccida*, (Turn.) Kütz.  
On fronds of *Ecklonia buccinalis*, Table Bay, Camp's Bay, Sea Point, Three Anchor Bay, Walfisch Bay, Port Nolloth. (Also Robben Island, Green Point, Kalk Bay, Knysna. Barton(1).)  
*C. minima*, Barton.  
On *Laminaria pallida*, Table Bay. Two specimens.  
*C. pinnatifolia*, Kütz. (*Dasyopsis pinnatifolia*, Suhr.).  
Algoa Bay. One specimen.
  32. *Ceramium gracillimum*, Harv.  
On *Corallina* sp., Cape Morgan. (Also Cape Point, Kalk Bay and Knysna. Barton(1).)  
*C. diaphanum*, Lightf. Roth.  
Woodstock Beach, Walfisch Bay, Bomvanaland coast.  
*C. miniatum*.  
On *Plocamium corallorhiza*, Cape Morgan. One specimen. We have found a similar form at St James epiphytic on *Cladophora hospita*.  
*C. cancellatum*, Ag.  
Table Bay, on various Algae. (Also Cape Point, Cape Agulhas. Barton(1), 1893; and Port Nolloth. Barton(2), 1896.)

*C. obsolatum*, Ag.

Cape Morgan. (Also Robben Island, Seal Island, Table Bay, Cape Agulhas, Kynsna. Barton<sup>(1)</sup>, 1893; and Walfisch Bay, British Kaffraria. Barton<sup>(2)</sup>, 1896.)

*C. rubrum*, Ag.

Three Anchor Bay, Sea Point, on *Codium tomentosum*. (Also Cape Point, Natal. Barton<sup>(1)</sup>.)

*C. clavulata*, Ag.

On various algae, Table Bay.

(This may be the same form as "*Centroceras clavulata*" of Barton<sup>(1)</sup>, Seal Island, Robben Island, Table Bay, Sea Point, Cape Point, Kalk Bay, Muizenberg and Knysna.)

*C. flexuosum*.

Three Anchor Bay.

*Note.* Other species mentioned by Barton<sup>(1)</sup> are: *C. strictum*, Robben Island; *C. capense*, the Cape; *C. circinnatum*, Cape Point; *C. pulchellum*, Table Bay on *C. cancellatum*; and *C. Poeppigeanum*, Grun., Port Natal.

40. *Thamnocarpus glomeruliferus*, J. Ag.

Cape Morgan.

## (d) CRYPTONEMIALES.

## 16. GRATELOUPIACEAE.

1. *Halymenia*.

The Kowie. This species is unnamed, but resembles *H. ligulata*.

2. *Aeodes ulvoides*, Schmitz.

Submerged rocks, Kowie. (Also Natal. Barton<sup>(2)</sup>, 1896.)

*Ae. orbitosa*, Suhr.

Not recorded. (Also the Cape. Barton<sup>(2)</sup>, 1896.)

*Ae. digitata*, Schmitz (*Halymenia palmatifida*, Becker).

Cape Morgan, Kowie.

3. *Cyrtymenia cornea*, Kütz. Schmitz.

Pools and deep water, Table Bay.

*C. hieroglyphica*, J. Ag. Schmitz.

Pools and deep water, Table Bay.

*Note.* According to sheets from Becker's herbarium, *C. cornea*, Schmitz is synonymous with *Pachymenia rugosa*, Holmes, and *Iridea cornea*, Kütz.

4. *Grateloupia filicina*, J. Ag.

Rock pools, Table Bay. (Also Sea Point, Cape Point, Kalk Bay, Cape Agulhas and Knysna. Barton<sup>(1)</sup>.)

*G. hieroglyphica*, J. Ag.

Three Anchor Bay. One specimen. (Also Table Bay. Barton(1).)

5. *Pachymenia carnosa*, J. Ag.

Pools and deep water, Table Bay, and Cape Agulhas. (Also Camp's Bay. Barton(1).)

8. *Prionitis nodifera*, (Her.) Barton.

Rock pools, Shark's Bay, Kowie.

9. *Polyopes constrictus*, (Turn.) J. Ag.

Pools and submerged rocks, Table Bay. (Also Cape Point. Barton(1).)

11. *Carpopeltis Beckeri*, Schmitz.

The Kowie. One specimen.

12. *Cryptonemia* (?) *capensis*.

Submerged rocks, Kowie. This specimen was previously named *Kalymenia capensis*, but was re-named as above "fide Barton."

#### 18. NEMASTOMACEAE.

2. *Schizymenia apoda*, J. Ag. Locality not given.

*S. erosa*, J. Ag.

Simon's Bay.

*S. undulata*, J. Ag.

Rock pools, Table Bay, Rogge Bay, Green Point.

*S. obovata*, J. Ag.

Three Anchor Bay, Table Bay.

*Note.* Enclosing some specimens is a paper with the following note in Miss Barton's writing, "The Cape *Schizymenias* are not surely cleared and fixed. *S. erosa* is distinct enough, but *S. apoda*, *obovata* and *undulata* show many transitions and it is not sure if they are valuable species. It is necessary to make observations on the growing plants."

8. *Nemastoma lanceolata*, (Harv.), J. Ag.

Deep water, Table Bay. These specimens are very variable in form; two have the words "red currant jelly" written on them, referring possibly to the colour and consistency when fresh.

#### 19. RHIZOPHYLLIDACEAE.

4. *Chondrococcus Hornemanni*, (Kütz.) Schmitz = *Desmia Lambertii*, Suhr.

Deepwater, False Bay, Cape Morgan, Kowie. (Also Cape Agulhas, Algoa Bay, Port Alfred, Port Natal. Barton(1).)

*C. tripinnata*, Schmitz (= *Desmia tripinnata*, J. Ag.).

Deep water, False Bay. (Also Natal, St Sebastian's Bay. Barton(1), 1893; and British Kaffraria. Barton(2), 1896.)

## 20. SQUAMARIACEAE.

6. *Peysonniella major*, Kütz.

Submerged rocks, Shark's Bay, Kowie.

*P. replicata*, Kütz.

Kowie.

## 21. CORALLINACEAE.

4. *Mastophora hypoleuca*, Harv.

Isipingo, Natal, Durban, The Bluff. (Also Port Natal. Barton(1).)

*Note.* *M. spelligera* is also recorded by Barton from Port Natal.

6. *Lithothamnion corticiformis*, Kütz.

Cape Morgan, overspreading *Laurencia* sp. (Also on *Gelidium cartilagineum*, Robben Island, Sea Point, Port Alfred. Barton(1).)

*Note.* *L. brassica-florida*, and *L. polymorphum* are also recorded by Barton from Algoa Bay.

7. *Amphiroa Ephedra*, (Lamk.) Decne.

Durban Bluff, Kei mouth. (Also Kalk Bay, Cape Agulhas, Knysna, Cape Recife, Algoa Bay, Port Natal. Barton(1).)

*Note.* Other species mentioned by Barton as occurring at the Cape are: *A. anceps*, Decne; *A. firma*, Kütz.; *A. multifida*, Kütz.; *A. capensis*, Aresch.; *A. heterocladia*, Kütz.; *A. Bowerbanki*, Harv.; *A. contracta*; *A. involuta*, Kütz.; *A. dubia*, Kütz.; *A. exilis*, Harv.; *A. Lamourouxiana*, Decne; and *A. dilatata*, Lam.

8. *Cheilosporium cultratum*, Aresch.

British Kaffraria. (Also Kalk Bay, Knysna, Algoa Bay, Port Natal. Barton(1).)

*Note.* Other species mentioned by Barton are: *C. Stangeri*, Aresch., Port Natal; *C. sagittatum*, Aresch., Algoa Bay, Natal; and *C. flagellatum*, Aresch., Port Natal.

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## W. TYSON, F.L.S.

BY S. SCHONLAND.

WILLIAM TYSON was born at Port Royal, Jamaica, in March 1851. His father was a Wesleyan missionary. He started the study of Medicine but relinquished it in consequence of loss of tactical sensibility in the hand, no doubt due to rheumatism which later deformed both his hands, a great handicap throughout life. He came with his parents to Cape Colony and became a teacher, holding successively positions in the S. Afr. College School, Capetown, at Kokstad, at Donald Strahan's place, S. John's River, then at Dale College, Kingwilliamstown. He resided for a time at Kimberley and in 1888 was appointed Secretary to the Comte de Vasselot, the head of the Forest Department of Cape Colony. About 1893 he left the Forest Department and was attached to the Agricultural Department as librarian and sub-editor of the *Agricultural Journal*. In 1904 he was retired on pension and about 10 years ago he began to reside at Port Alfred. In September 1919 he proceeded to Coffee Bay on the Pondoland coast and returned to Grahamstown in a moribund condition in April 1920. He passed away April 13th.

He was one of the most indefatigable of recent botanical collectors. The later volumes of the *Flora Capensis* bear testimony to the large extent and value of his collections. Many new species discovered by him were named after him and also one genus, *Tysonia* (Boraginaceae). The chief stations where his collections were made are Port Elizabeth (Ap.—Nov. 1877), Murraysburg (July 1886—Dec. 1887), Western districts, chiefly Cape Town and Hex River (Jan. 1880—June 1882), Griqualand East and Pondoland (his most extensive sets, July 1882—July 1886), Kingwilliamstown (July 1886—Dec. 1887), and in recent years Port Alfred. He disposed of his herbarium to the Cape Government Herbarium in 1892, retaining only Marine Algae which he continued collecting for a number of years chiefly for the British Museum under the direction of Dr George Murray and Miss Ethel Barton who published an account of his collections in the *Journal of Botany*, 1893. The choice of Port Alfred as his place of residence during recent years was largely determined by the richness of the Marine Algal Flora in its neighbourhood. He prepared a number of sets of S. African Marine Algae for sale. Two fascicles each containing 50 species were issued by him, but circumstances connected with the war and probably also increasing infirmity prevented the completion of further issues.

Tyson was very well read. He had a splendid memory for plants and their



WILLIAM TYSON, F.L.S.





names. He was of a cheerful disposition and, on occasions, a brilliant conversationalist. If sometimes he showed a little bitterness and even recklessness one could not help excusing it on account of the harsh manner in which fate had dealt with him.

*Note.* In 1913 Mr Tyson's "study-set" of marine algae was purchased by the Bolus Herbarium, and at his request is known as "The Tyson-Collection of Marine Algae." This is now available for the use of students, having been arranged in systematic order by Dr Delf and Miss Michell, whose account of the Collection appears in this Part.

## EXPLANATION OF PLATES

## PLATE III

A. *PAGELLA ARCHERI*, SCHONL. B. *AGAPANTHUS PENDULUS*, L. BOLUS.  
C. *ERICA PLENA*, L. BOLUS. D. *ERICA EUSTACEI*, L. BOLUS. E. *ERICA BRACHYSEPALA*, GUTHR. AND BOLUS.

A. Fig. 1, plant viewed from above; 2, do., from below; 3, longitudinal section through young plant; 4, do., older plant; 5, upper portion of leaf; 6, bud; 7, do., from above; 8, flower; 9, do., from above; 10, petals and stamens; 11, hypogynous scale; 12, gynaeceum, with scales; 13, do., longitudinal section; 14, do., transverse section—variously magnified.

B. Portion of peduncle, with one flower, nat. size.

C, D, E. Fig. 1, node; 2, leaf; 3, flower; 4, bracts and calyx; 5, sepal; 6, corolla; 7, stamen, side view; 8, do., front view; 9, gynaeceum—variously enlarged.

## PLATE IV

A. *ERICA CYATHIFORMIS*, SALISB. *CYATHIFORMIS*. B. *ERICA FLAVISEPALA*, GUTHR. AND BOLUS. C. *ERICA GOATCHERIANA*, L. BOLUS. D. *ERICA STOKOELI*, L. BOLUS.

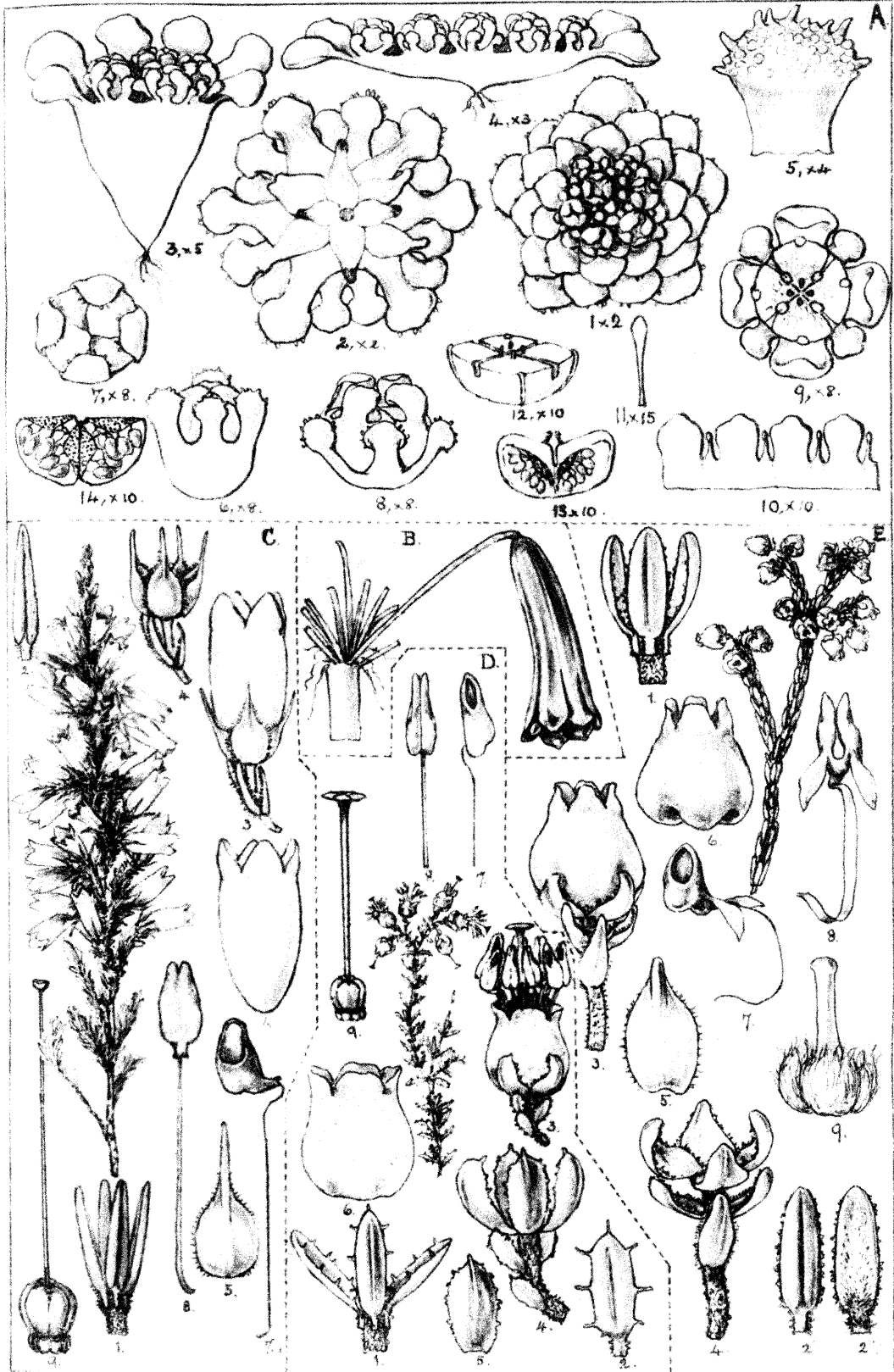
A, B, C, D. Fig. 1, node; 2, leaf; 3, flower; 4, bracts and calyx; 5, sepal; 6, corolla; 7, stamen, side view; 8, do., back view; 9, gynaeceum—variously enlarged.

## PLATE V

A. *RESTIO MACOWANI*, PILLANS. B. *RESTIO ARIDUS*, PILLANS. C. *RESTIO TABULARIS*, PILLANS. D. *RESTIO SIMILIS*, PILLANS. E. *RESTIO HUMILIS*, PILLANS. F. *RESTIO MARLOTHII*, PILLANS.

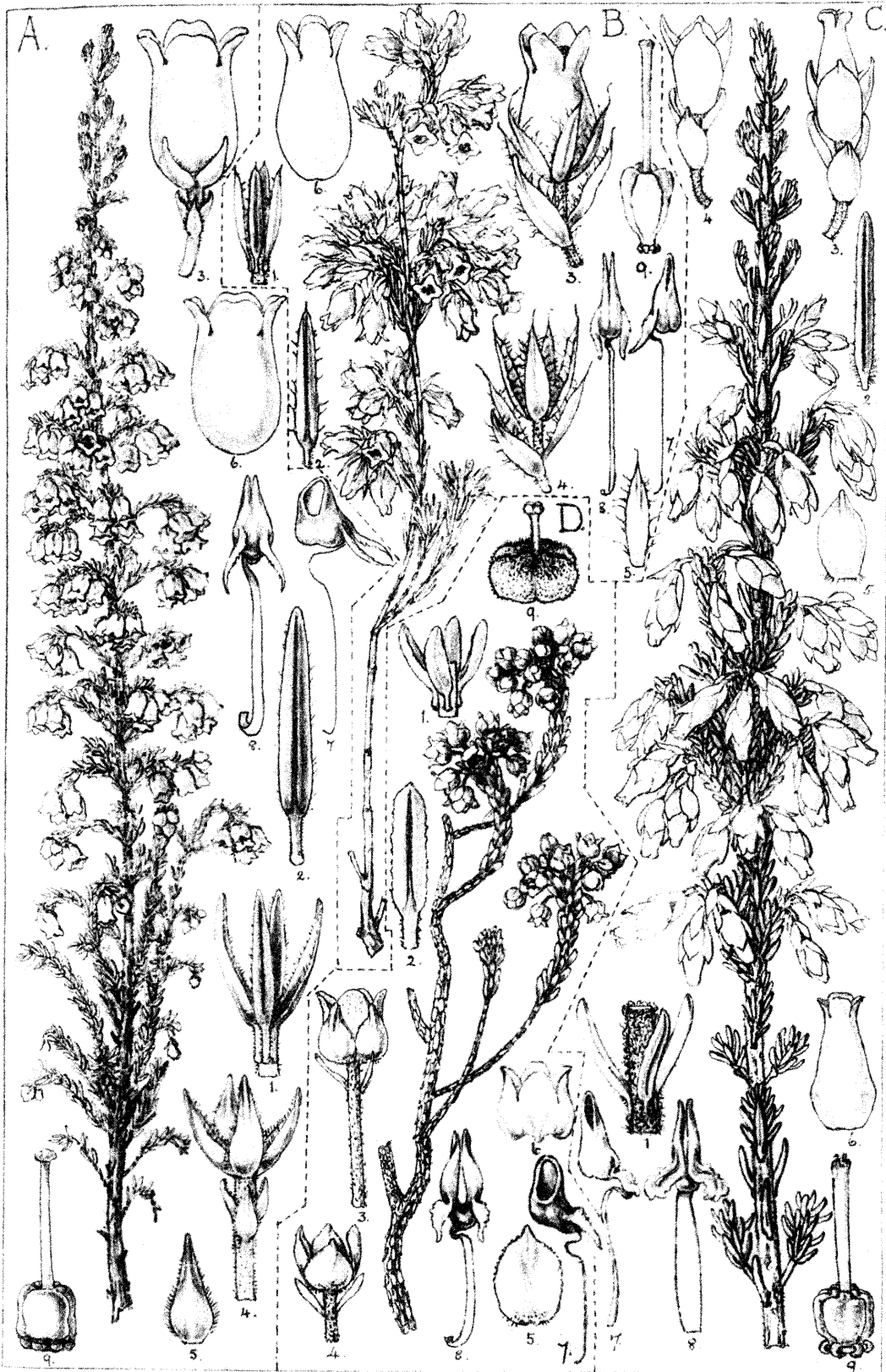
A, B, C, D. Fig. 1, male inflorescence, nat. size; 2, spikelets or spikelet of do.; 3, flower of do.; 4, spathe; 5, bract—variously enlarged; 6, female inflorescence, nat. size; 7, spikelets or spikelet of do.; 8, flower of do.; 9, gynaeceum; 10, spathe; 11, bract—variously enlarged.

E, F. Fig. 1, female inflorescence, nat. size; 2, spikelets or spikelet of do.; 3, flower; 4, gynaeceum; 5, spathe; 6, bract—variously enlarged.



A. *Pagella Archeri*, Schonl.      B. *Agapanthus pendulus*, L. Bolus.  
 C. *Erica plena*, L. Bolus.      D. *Erica Eustacei*, L. Bolus.  
 E. *Erica brachysepala*, Guthrie and Bolus.

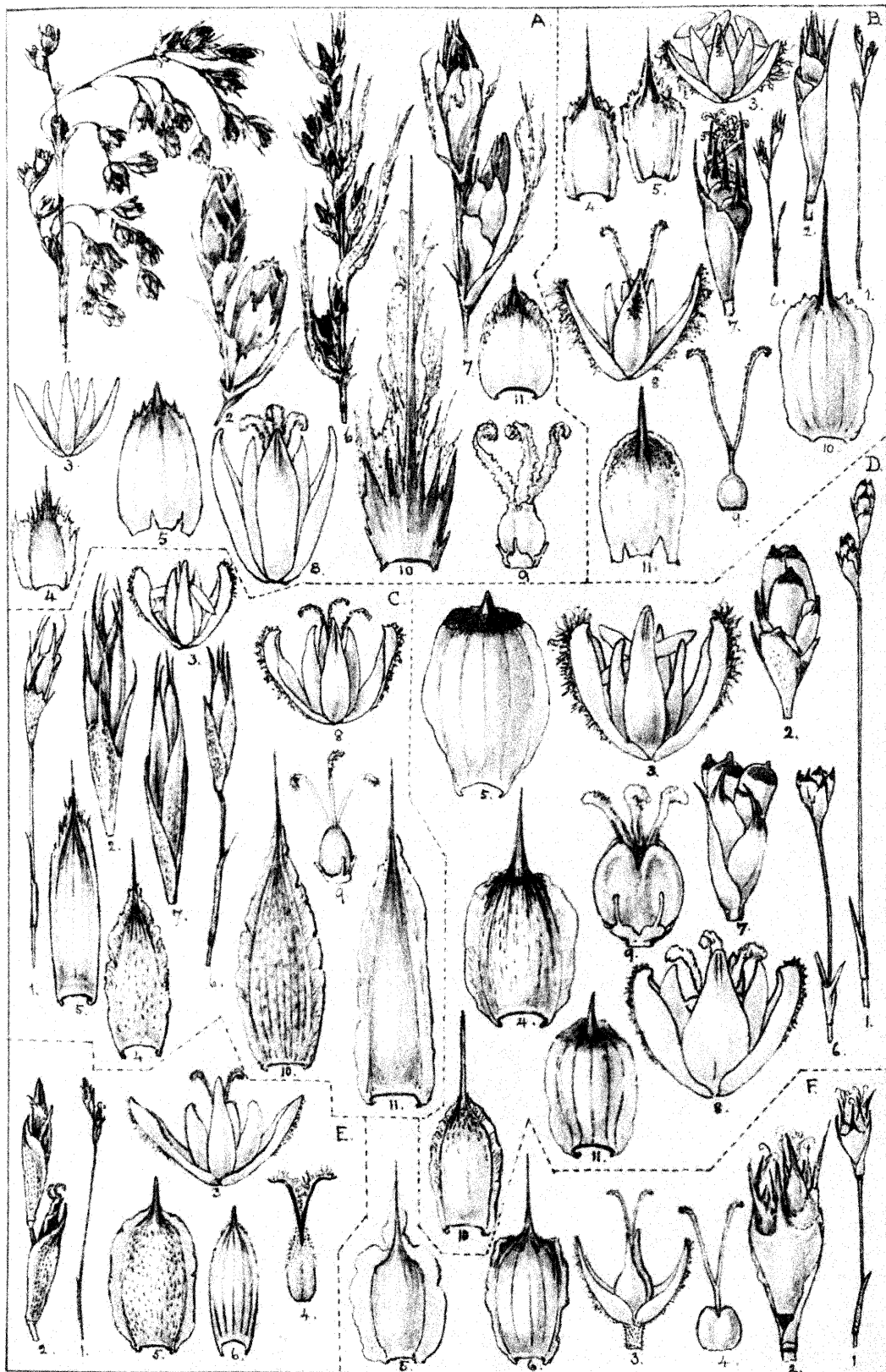




A. *Erica cyathiformis*, Salisb.  
C. *Erica Goatcheriana*, L. Bolus.

B. *Erica flavisepala*, Guth. and Bol.  
D. *Erica Stokoei*, L. Bolus.





A. *Restio MacOwani*, Pillans.  
 C. *Restio tabularis*, Pillans.  
 E. *Restio humilis*, Pillans.

B. *Restio aridus*, Pillans.  
 D. *Restio similis*, Pillans.  
 F. *Restio Marlothii*, Pillans.





## NOVITATES AFRICANAE

*Mesembrianthemum ausense*, L. Bolus (§ *Ringentia*), ab omnibus ceteris sectionis petalis albis, stylis 10 differt.

Folia obovato-spathulata, supra fere plana, subtus e medio carinata, marginibus carinaque 3—6-dentata, dentibus patentibus, glauco-viridia, ad 3 cm. longa, 1.3—1.5 cm. lata, 1 cm. diam.; flores solitarii, breviter pedunculati, 4.3 cm. diam.; calyx turbinatus, segmentis 4, inaequalibus, duobus carinatis, 1.5 cm. longis, duobus ovatis acutis, late membranaceo-marginatis, 1 cm. longis; petala linearia obtusa, ad 2 cm. longa, 0.2 cm. lata; stamina numerosa collecta, apice subdiffusa, 0.8—1 cm. longa, filamentis albidis ebarbatis, antheris 0.1 cm. longis, lobis luteis, connectivo notate conspicuo, viridi lucidoque; discus annularis crenulatus; ovarium supra planum, 0.5 cm. diam., stylis 10, filiformibus, 1.1 cm. longis, basi pro 0.2 cm. longitudinis connatis.

South-West Africa: Aus, *C. W. Lewis* (National Botanic Gardens, No.  $\frac{543}{18}$ ); *G. C. Phillips* (*id.* No.  $\frac{381}{19}$ ).

A very distinct species in the section *Ringentia* by reason of the white petals and the ten styles.

Described from a specimen which flowered at Kirstenbosch in June 1919.

*M. Vermeuleniae*, L. Bolus, epapulosum, nanum glabrum caudice tuberoso, ad 1.5 cm. diam., apice ramoso, ramis abbreviatis crassis, ramulis confertis saepissime 4-foliatis; folia fere erecta vel patienti-incurvata, basi semiteretia, supra medium valde compressa carinataque, acuta vel acute acuminata, glauco-viridia, saturate viridi-punctata, 2—3 cm. longa, basi 1 cm., medio 0.6 cm., apicem versus 0.3 cm. lata, 0.4—0.7 cm. diam.; flores solitarii 5-meri, 2.5—3 cm. diam.; calyx turbinatus, segmentis inter se fere aequilongis, ovato-lanceolatis acutis, tribus membranaceo-marginatis, ad 0.9 cm. longis; petala 2—3-seriata linearia obtusa, basin versus parum angustata, alba, inter se fere aequilonga, vel 1—2 intima multo breviora; ad 1.1 cm. longa, 0.2 cm. lata; stamina multi-seriata, mox diffusa, 0.3—0.4 cm. longa, filamentis barbatis, antheris luteis, staminodiis 2—3-seriatis, apice recurvis; glandulae discretae, crenulatae; ovarium supra valde convexum, stylis erectis, demum patulis, subulatis acuminatis, ad 0.45 cm. longis.

Kalahari Region: Griqualand West; Niekerk's Hoop, April 1921, *M. Wilman* (Bolus Herbarium, No. 15194).

Described from a living specimen which flowered in my garden in September 1921.

*M. Beswickii*, L. Bolus, *M. acutipetalo* affine sed foliis glaucis, floribus 6-meris, petalis pallide roseis differt.

Caudex subtuberosus, ramis abbreviatis, ramulis confertis, saepius 6-foliatis; folia paris cujusque fere aequilonga, adscendentia vel patentia, apice incurva basi connata, medio obtuse, apicem versus acute, triquetra, acuta glabra viridi-punctata, infima 2.5 cm. longa, basin versus 1 cm. lata, cetera 3.3 cm. longa, basin versus 0.7—0.8 cm. lata; flores solitarii, fere sessiles, 3.5 cm. diam.; calyx fere semi-globosus, segmentis inaequilongis triquetris acuminatis, duobus ad 1.5 cm. longis, ceteris lato membranaceo-marginatis, 1—1.2 cm. longis; petala numerosissima 2—3-seriata, acuta vel obtusa, basi pallidiora vel alba, ad 1.4 cm. longa, 0.125 cm. lata; staminodia recurva numerosa, circa 3-seriata, exteriora 1 cm. longa; stamina conferta vel exteriora subrecurva, 0.3—0.8 cm. longa, filamentis glabris, vel interioribus parce barbatis, antheris luteis; discus annularis crenulatus, 0.1 cm. diam.; ovarium supra convexum, stylis lineari-subulatis acuminatis, 0.5 cm. longis.

Kalahari Region: Transvaal; near Johannesburg, collector unknown (National Botanic Gardens, No.  $\frac{218}{20}$ ).

Allied to *M. acutipetalum*, N. E. Br., but differs in having the leaves glaucous and the two of each pair almost equal in length, by the 6-parted flowers, and the pale rose petals.

Described from a living specimen which grew in Mr Beswick's garden in Queenstown and which was given to the National Botanic Gardens where it flowered in Dec. 1921.

*M. velutinum*, L. Bolus, caule crasso, multo abbreviato, ramulis brevissimis confertis 2—4-foliatis; folia cum pedunculo calyceque velutina, sat polymorpha, alterum paris altero longius vel multo longius, patentia vel adscendentia, basi connata, oblonga, supra subconcava, superne triquetra, valde compressa vel breviora leviter compressa, interdum apice carinata, breviora subdimidiata, glaucoviridia, 2—4.5 cm. longa, basi ad 1.8, medio ad 1.5 cm. lata, ad 1.4 cm. diam.; flores solitarii, 6-meri, 4 cm. diam., pedunculo crasso, cum calyce valde compresso, 2.3 cm. longo, apice circa 1 cm. diam.; calyx subcrateriformis, segmentis inter se inaequalibus, oblongis vel linearibus, acutis vel apice carinatis, duobus dorsaliter carinatis, ad 1.9 cm. longis, ceteris 0.9—1.4 cm. longis, tribus membranaceo-marginatis; petala erecto-patentia 2-seriata lineari-spathulata obtusa, dilute rosea, saturate roseo-vittata, 1.8—2 cm. longa, 0.2 cm. lata; stamina collecta, filamentis parce barbatis, pallidis, ad 0.7 cm. longis, antheris pallidis; glandulae nectariferae dis-

cretae, transverse oblongae; ovarium supra globose convexum, insigniter profunde lobatum et verticale et horizontale, stylis e basi segmentorum orientibus, globose subulatis, 0.3 cm. longis.

South Africa. Locality uncertain, but probably from the neighbourhood of Robertson. Flowered at the National Botanic Gardens, Kirstenbosch, October 1917 (Bolus Herbarium, No. 15195). On the first day the flower opened about 4 p.m. and soon closed. The following two days it kept open all day, closing in the evening. Only one flower was produced.

- M. Frithii, L. Bolus, epapulose glabrum, circa ad 6 cm. altum, ramosum, ramis decumbentibus, ad 9 cm. longis, 0.6 cm. diam., reliquis numerosis foliorum delapsorum onustis; folia parva cujusque subinaequilonga adscendentia vel folium brevius patenti-erectum vel patenti-incurvatum, basi connata, triquetra acuta apiculata vel acuminata, integra vel rarissimo marginibus dentatis, glauco-viridia, 2.5—4 cm. longa, 0.8 cm. lata; flores solitarii 5-meri, 2.5 cm. diam.; calyx turbinatus, segmentis inter se valde inaequalibus, duobus elongatis carinatis, 1.1 cm. longis, tribus ovato-oblongis membranaceo-marginatis, vix 0.6 cm. longis; petala circa 3-seriata linearia obtusa, basin versus gradatim attenuata, aurea, 0.6—1.2 cm. longa; stamina multiseriata cylindrico-collecta, apice recurva, flava, interioribus basi dense barbatis, 0.5—1 cm. longa; glandulae nectarii discretae integrae; ovarium supra planum vel levissime convexum, stylis filiformibus, stamina demum excedentibus, 1 cm. longis.

Aberdeen Road, *F. Frith* (National Botanic Gardens, No.  $\frac{431}{18}$ ). Grootfontein, *V. S. Peers* (*id.* No.  $\frac{279}{19}$ ).

Described from living specimens which flowered at Kirstenbosch in 1919. The flowers open late in the afternoon.

- M. Englishiae, L. Bolus (§ Veruculata), glaberrimum, ramis prostratis elongatis, ad 50 cm. longis, ramulis erectis, dense foliatis, 0.3 cm. diam.; folia patentia vel saepius patenti-incurvata, basi connata, semiteretia obtusa, laevia nitentiaque vel interdum subpruinosa, ad 3.5 cm. longa, saepius 1.7 cm. longa, basi 0.7, medio 0.5 cm. lata; flores 4-meri, 3-nati vel abortione solitarii, pedunculati, pedunculis in calycem gradatim abeuntibus, more *M. defoliati*, saepius 1—1.6 cm. longis; calyx clavatus, segmentis basi pro 0.3 cm. coalitis, inter se valde inaequalibus, duobus ad 1 cm. longis, ceteris ad 0.5 cm. longis; petala connata pro tertiam partem longitudinis, linearia obtusa, basin versus angustata, integra vel inaequaliter dentata, albida, ad 0.2 cm. longa, 0.1—0.15 cm. lata; stamina multiseriata, tubo corollae adnata, exteriora radiate patentia, fere dimidium petalorum attingentia, ad 1.2 cm. longa, interiora collecta, 0.4 cm. longa vel ultra, filamentis ebarbatis, antheris luteis;

discus annularis crenulatus; ovarium conico-convexum, stylis subulatis acuminatis, 0·3 cm. longis.

Cape Province: South-Western Region; Robertson, *Miss N. English* (National Botanic Gardens, No.  $\frac{2313}{17}$ ).

Described from living plants which grew luxuriantly and flowered freely at Kirstenbosch during November and December of 1919.

M. Wordsworthiae, L. Bolus, *M. curvifolio* affine, sed ramis elongatis prostratis, saepissime reptantibus, petalis pluri-seriatis, staminibus subdiffusis differt.

Glaberrima, caule abbreviato, ad 3 cm. alta, ramis primo caespitosis, dense foliosis, demum elongatis, internodiis ad 4·5 cm. longis; folia basi connata, erecto-incurvata, apice recurvata, vel patentia, vel recurvata, semi-teretia, acuta vel acuminata, rubro-apiculata, 1·5—2·8 cm. longa, 0·3—0·5 cm. lata; flores 5-meri solitarii, ad 2·7 cm. diam., brevissime pedunculati; calyx turbinatus, segmentis subaequilongis ovatis acuminatis, tribus ampliate membranaceo-marginatis; petala pluriseriata, interioribus paullo brevioribus, linearia obtusa, e medio attenuata, ad 1·1 cm. longa, ad 0·2 cm. lata; staminodia pauciora, staminibus aequilongis; stamina numerosa, filamentis medio vel infra medium barbatis, antheris luteis; discus annularis crenulatus; ovarium valde convexum, stylis subulatis acuminatis, 0·3 cm. longis.

Cape Province: South-Western Region; Caledon Div., Sir Lowry's Pass, alt. ca. 1500 ft., *R. Wordsworth* (National Botanic Gardens, No.  $\frac{1899}{17}$ ).

Allied to *M. curvifolium*, Haw. but differs widely in habit of growth, the creeping branches elongating considerably, as well as by the petals being in several series and the somewhat diffuse stamens.

Described from specimens which have flowered freely at Kirstenbosch in May, June and even July for the last three years.

M. Vanzijliae, L. Bolus, glabrum, ramis elongatis reptantibus, internodiis 1·5—6 cm. longis, ramulis abbreviatis confertis, dense foliatis; folia patentia vel patentia-erecta, apice incurva, triquetra acuminata viridia, inconspicue pellucido-punctata, ad 5·5 cm. (saepius 3—4 cm.) longa, medio 0·6, infra medium 1 cm., lata; flores solitarii 5-meri, ad 6 cm. diam., pedunculati, pedunculis teretibus, 3—5 cm. longis; calyx turbinatus, segmentis subaequilongis lanceolatis acutis, tribus membranaceo-marginatis, 1—1·1 cm. longis; petala 4-seriata linearia acuta, inferne gradatim attenuata, saturate aurantiaca, 1—2·5 cm. longa, 0·1—0·3 cm. lata; stamina conferta, filamentis glabris atro-rubris, antheris luteis; discus inconspicuissimus; ovarium supra concavum, stylis incurvis, globose subulatis, saturate rubro-purpureis, 0·15—0·2 cm. longis; capsula globose turbinata, supra convexa, 2·1 cm. longa diametroque.

Cape Province: South-Western Region; Worcester, *Dorothy van Zijl* (Bolus Herbarium, No. 17141).

Described from plants which flowered freely during the spring of 1920 and 1921 in Mrs Dorothy van Zijl's garden, Claremont, near Cape Town.

The flowers of this species are among the most richly coloured known to me. The deep orange-red of the petals has the glow of burnished copper, and the dark red filaments and yellow anthers enhance the brilliancy.

*M. brakdamense*, L. Bolus, *M. sessili* affine, ut videtur, sed caule decumbente, ramulis 2—4 foliatis, foliis longioribus, supra haud concavis, differt.

Fruticulus rigidus glaberrimus ramosissimus, ramis ramulisque decumbentibus confertis, ad 23 cm. longis vel ultra, 0.6 cm. diam., ultimis brevissimis 2-foliatis vel, 2 foliis junioribus additis, 4-foliatis; folia connata per dimidium longitudinis, medio subteretia, apicem versus triquetra, apiculata, supra plana vel subconvexa, viridia, saturate viridi-punctata, ad 0.7 cm. longa, medio 0.4 cm. lata, 0.5 cm. diam.; flores solitarii 5-meri, ad 1.3 cm. diam., pedunculis ad 0.3 cm. longis; calyx turbinatus, segmentis inter se subaequilongis, ovatis, vix 0.4 cm. longis, tribus membranaceo-marginatis apiculatis; petala 1—2-seriata subaequilonga linearia, apicem versus vix ampliata, obtusa vel subacuta, roseo-purpurea, ad 0.5 cm. longa; staminodia staminaque conferta, filamentis albis, interioribus medio dense barbatis, 0.2 cm. longis, exterioribus infra medium barbatis, 0.3 cm. longis, antheris luteis; discus annularis crenulatus; ovarium supra convexum, stylis subulatis acuminatis, 0.1 cm. longis.

Brakdam, *N. S. Pillans*, 5757.

This appears to be near *M. sessile*, Thunb., unknown to me except from the description given by Sonder in the *Flora Capensis*. The longer leaves which are not concave above and which are usually in solitary pairs on the ultimate branchlets, and the decumbent stems (or branches) distinguish this species.

Described from specimens which flowered in Mr N. S. Pillans' garden, Rosebank, June 1921.

*M. amicorum*, L. Bolus (§ *Tumidula*), epapulosum glaberrimum, 30—40 cm. altum; rami ramulique adscendentes, 0.5 cm. diam. vel ultra, internodiis 0.6—1.5 cm. longis; folia fere erecta, vel unum paris incurvum, connata per 0.3—0.4 cm., fere teretia, supra plana, acuta apiculata, basi leviter angustata, glauco-viridia, saepe purpurascens, 2.5—4 cm. longa, medio 0.5 cm. lata, 0.7 cm. diam.; flores bi-ternati 5-meri, ad 1.5 cm. diam., odorati, pedunculis 1—1.5 cm. longis, omnibus supra medium 2-bracteatis; calyx globose turbinatus, segmentis inter se subaequilongis,

ovatis, 0.3—0.4 cm. longis, duobus membranaceo-marginatis; petala 1—2-seriata lineari-spathulata, acuta vel obtusa, roseo-purpurea, 0.5—0.6 cm. longa, 0.15 cm. lata; staminodia staminaque collecta, filamentis roseo-purpureis, inferne pallidioribus, parce, vel interioribus dense, barbatis, 0.2—0.3 cm. longis, antheris luteis; discus annularis crenulatus; ovarium supra convexum, stylis anguste subulatis acuminatis, 0.3 cm. longis; capsula subpyriformis, ad 0.8 cm. diam.

Cape Province: South-Western Region; Montagu Div., nr Montagu, *Kensit* and *Caporn* (National Botanic Gardens, No.  $\frac{261}{14}$ ). Same locality, *I. Arbuthnot* (National Botanic Gardens,  $\frac{1224}{16}$ ).

Described from living specimens which have flowered at Kirstenbosch during the winter months of 1914—1921.

- M. carolinense, L. Bolus, epapulosum glaberrimum, caule multo abbreviato, ramis ramisque dense confertis, reliquis induratis foliorum vetustiorum onustis, ramulis ultimis 4—6-foliatis; folia densa adscendentia connata, vagina circa 0.2 cm. longa, turgide triquetra, supra plana, acuta glauco-viridia, saturate viridi-punctata, ad 2.5 cm. longa, medio 0.6 cm. lata diametroque; flores solitarii 6-meri, ad 4 cm. diam., pedunculis ad 1 cm. longis, ultra folia haud exsertis; calyx turbinatus, segmentis inter se inaequalibus oblongo-lanceolatis acuminatis, 0.7—1.2 cm. longis, 4 membranaceo-marginatis; petala multi-seriata alba, demum apicem versus discolorata, linearia acuta, 0.5—1.8 cm. longa, ad 0.15 cm. lata; staminodia staminaque subdiffusa, filamentis ebarbatis albis, 0.3—0.6 cm. longis, antheris albidis, polline aureo; discus annularis crenulatus; ovarium supra convexum, stylis anguste subulatis, longissime setaceo-acuminatis, aurantiacis, 0.8 cm. longis, ultra stamina exsertis.

Transvaal; Carolina, alt. ca. 5500 ft., *F. A. Rogers*, *C. L. Leipoldt* (National Botanic Gardens, Nos.  $\frac{1823}{17}$ ,  $\frac{2819}{17}$ ).

Described from specimens which flowered at Kirstenbosch in November 1918. The flowers open late in the afternoon.

- M. ventricosum, L. Bolus, epapulosum glaberrimum humile, ramis confertis, ad 4—5 cm. longis, reliquis induratis vaginantibus foliorum vetustiorum vestitis, ramulis ultimis 2—4-foliatis, axillis saepe ramuliferis, basi reliquis cinereis chartaceis foliorum vaginatis; folia adscendentia, ad 9 cm. longa, saepissime 4—8 cm. longa, medio 1.3—1.7 cm. lata, 1—1.3 cm. diam., basi connata, vagina ad 1.8 cm. longa, subturgide triquetra, supra medio plana vel levissime convexa, obtusa vel acuta, glauco-viridia vel glauca vel canescentia; flores solitarii 5-meri, ad 5.4 cm. diam., pedunculis 3—3.5 cm. longis, supra medium bracteatis, vagina bractearum ventricosa; calyx clavatus, segmentis inter se inaequilongis, lineari-lanceolatis, acutis vel apiculatis, 1.3—1.8 cm.

longis, tribus anguste membranaceo-marginatis; petala 3—4-seriata, spathulata acuta vel lineari-spathulata acuminata, roseo-purpurea, basin versus purpureo-vittata, 1.5—2.5 cm. longa, 0.2—0.4 cm. lata; stamina subdiffusa vel intima incurva, filamentis ebarbatis roseis, 0.5—1 cm. longis, antheris luteis; discus annularis crenulatus; ovarium supra convexum, stylis late subulatis, abrupte apiculato-acuminatis, 0.3 cm. longis.

Cape Province: South-Western Region; near Clanwilliam, Sep. 1908, *N. S. Pillans*, 1595 (National Botanic Gardens, No.  $\frac{475}{16}$ ).

Described from living specimens which have flowered at Kirstenbosch during June and July during the last five years. Through the summer months the plant is completely at rest. About April growth is renewed, and by June the leaves are full-grown, and have split the encasing sheaths of the previous year's leaves apart.

- M. Caroli, L. Bolus (§ *Tumidula*). Fruticulus glaberrimus ramis elongatis decumbentibus vel rarius adscendentibus, 0.5 cm. diam. vel ultra, internodiis saepius 1—2 cm. longis, supremis 3 cm. vel ultra longis: folia basi patentia, deinde erecta vel fere erecta, apice saepe recurva, connata per 1—1.2 cm., vagina sulcata more *M. tumiduli*, obtuse 3-quetra, supra plana, acuta, glauco-viridia viridi-punctata, ad 10 cm. longa, saepius 3—5 cm. longa, 0.4—0.5 cm. lata, 0.5—0.6 cm. diam.; flores bi-ternata 5-meri, 2—2.3 cm. diam., alabastris acuminatis, pedunculis 1.5—2.5 cm. longis, omnibus 2-bracteatis; calyx subcrateriformis, segmentis inter se subaequilongis, ovato-lanceolatis acutis, 0.5—0.6 cm. longis, tribus membranaceo-marginatis; petala 2—3-seriata, lineari-spathulata obtusa rosea vittata, vitta roseo-purpurea, 0.5—1 cm. longa, 0.15—0.2 cm. lata; staminodia superne roseo-purpurea cum staminibus inferne albidis, collectis barbatis, 0.3—0.5 cm. longis, antheris luteis; discus annularis crenulatus; ovarium supra convexum, stylis subulatis setaceo-acuminatis, 0.3—0.4 cm. longis.

Cape Province: South-Western Region; Clanwilliam Div., nr Clanwilliam, *L. Pattison* (National Botanic Gardens, No.  $\frac{570}{14}$ ). Robertson, *Dr Melle* (*id.* No.  $\frac{3418}{4}$ ). Montagu Baths, common, Aug. 1920, *M. M. Page* (Bolus Herbarium, No. 16631). Exact locality uncertain, *Charles F. Juritz*.

Described from numerous living specimens which flowered at Kirstenbosch and in Dr Juritz's garden, Three Anchor Bay. The species is named after him.

- M. Mallesoniae, L. Bolus. Fruticulus epapulosus glaberrimus, ca. 15 cm. altus, caule basi 1 cm. diam.; rami ramulique adscendentes, juniores 4-goni, internodiis ad 1.7 cm. longis; folia connata per 0.2—0.3 cm., falcata, turgide triquetra, medio supra subconcaeva obtusissima, apiculata,

apiculo saepe recurvo, atro-purpureo, basin versus angustata, laete viridia, dilute viridi-punctata, marginibus carinaque saepe purpurascens, 1—1.5 cm. longa, 0.5 cm. lata, 0.6 cm. diam.; flores solitarii, 5-meri, ad 2 cm. diam.; calyx subcrateriformis, segmentis inter se inaequalibus, ovatis vel lato ovatis, 0.3—5 cm. longis, tribus membranaceo-marginatis; petala 3-seriata lineari-spathulata obtusa roseo-purpurea, ad 0.7 cm. longa, 0.15 cm. lata; staminodia staminaque collecta, filamentis inferne albidis barbatis, 0.4—0.5 cm. longis, antheris luteis; discus annularis crenulatus; ovarium supra concavum, apicem versus leviter convexum, stylis linearibus acuminatis, 0.4 cm. longis; capsula supra 1 cm. diam.

Cape Province: South-Western Region; Ceres Div., hills near Ceres, *J. W. Mathews* (National Botanic Gardens, No.  $\frac{273}{17}$ ). Same locality, *Una Malleson*.

Described from a specimen which flowered at Kirstenbosch, September 1919.

- M. *Muelleri*, L. Bolus (§ *Tumidula*), glaberrimum, 50 cm. altum vel ultra, ramis strictis teretibus, cortice tenui cano vestitis, ad 1.3 cm. diam., internodiis 2.5—3 cm. longis, ramulis adscendentibus glauco-viridibus, internodiis 1—6 cm. longis; folia patenti-erecta connata, vagina 0.4—0.5 cm. longa, fere teretia, apicem versus gradatim attenuata, glauco-viridia, 3.5—5 cm. longa, medio 0.5 cm. lata, ad 0.6 cm. diam.; flores tri-ternati 5-meri, 1 cm. diam., pedunculis gracilibus, apicem versus incrassatis, lateralibus bibracteatis, 2—2.5 cm. longis, terminalibus ebracteatis, 0.7—1.2 cm. longis; calyx subcrateriformis, segmentis inter se subaequilongis, lanceolatis vel ovato-lanceolatis, 0.4 cm. longis, tribus membranaceo-marginatis; petala 1-seriata subspathulata obtusa saturate rosea, basin versus rubro-vittata pallidaque, 0.4 cm. longis; staminodia superne saturate rubra, inferne aurantiaca, cum staminibus collecta, dimidio infero barbata; stamina 0.3—0.4 cm. longa, filamentis barbatis, antheris pallidis, polline aureo; discus annularis dentato-crenulatus; ovarium supra conico-convexum, stylis lineari-subulatis acuminatis, 0.3 cm. longis.

South-West Africa: Lüderitzbucht, *Müller* (National Botanic Gardens, No.  $\frac{27}{14}$ ).

Described from living specimens grown at Kirstenbosch where the plants have hitherto not flowered. Last year in July, however, a cutting from one of the specimens flowered in Mr N. S. Pillans' garden at Rosebank.

- M. *bifoliatum*, L. Bolus, caule subterraneo ramoso, ramis 2.5—3 cm. longis, ad 0.7 cm. diam., ramulis ultimis confertis binatis bifoliatis, omnino vaginatis; folia ad 3.5 cm. longa, connata, vagina 1.8 cm. longa, ore



pustulata, turgide triquetra, apicem versus divergentia attenuata apiculata, apiculo recurvo, supra plana; flores solitarii, ad 2.4 cm. diam., pedunculo circa 1.2 cm. longo, parte exserta 0.5 cm. longa, 0.3 cm. diam.; calyx disciformis, segmentis 4, acutis, duobus elongatis carinatis compressis, ad 0.8 cm. longis, duobus ovatis, 0.5 cm. longis; petala pauciora 1-seriata linearia obtusa roseo-purpurea, 1 cm. longa; stamina numerosa, filamentis incurvis, deinde e medio patente-recurvis, barbatis roseo-purpureis, ad 0.6 cm. longis; discus annularis, irregulariter crenulatus; ovarium supra globose convexum, stylis 6, basi per tertiam partem longitudinis coalitis, linearibus acuminatis, apicem staminum attingentibus, 0.5 cm. longis.

Cape Province: South-Western Region; *N.-S. Pillans* (National Botanic Gardens, No.  $\frac{3686}{15}$ ).

Described from a specimen which flowered at Kirstenbosch in April 1917. The species is quite unlike any other known to me. The plant consisted of some 6 or 7 subaerial branchlets, each of which comprised the withered remains of a pair of leaves with the hardened remains of a peduncle and flower between them, and from the axil of each withered leaf sprang the year's growth, viz. the ultimate branchlet of two leaves ensheathing the stem and a solitary flower, as described above.

*M. Peersii*, L. Bolus. Fruticulus erectus epapulosus glaberrimus, circa 30 cm. altus, ramis adscendentibus, 15—20 cm. longis, internodiis 2—4 cm. longis; folia patenti-erecta vel alterum paris adscendentia, triquetra acuta glauco-viridia, apice purpurascentia, 2—4 cm. longa, 0.4 cm. lata diametroque, omnia ramulifera, ramulis 2—2.5 cm. longis; flores ternati 5-meri, 3.5—4.4 cm. diam., pedunculis omnibus medio 2-bracteatis, 4—4.5 cm. longis vel lateralibus ad 6 cm. longis; calyx turbinatus, segmentis inter se subaequilongis, ovatis vel ovato-lanceolatis acuminatis, 0.9—1 cm. longis, duobus late brunneo membranaceo-marginatis; petala adscendenti-recurva numerosissima multi-seriata, primo saturate aurantiaca, deinde rubicunda, demum roseo-purpurea, 0.5—1.8 cm. longa; staminodia filiformia, petalis concoloria; stamina conico-collecta, ad 0.6 cm. longa, filamentis pallidis, antheris aureis; glandulae nectariferae semi-lunatae contiguae; ovarium supra planum, stylis 0.5 cm. longis, basi viridibus, dense papillatis, in caudam glabram setaceo-acuminatam purpuream 0.35 cm. longam abeuntibus.

Cape Province: South-Western Region; Clanwilliam Div., Graaff Water, *V. S. Peers* (National Botanic Gardens, No.  $\frac{3002}{15}$ ).

Described from specimens which flowered at Kirstenbosch during September 1917—1919.

*M. Kolbei*, L. Bolus. Fruticulus erectus, ramis visis ad 24 cm. longis, 0.5 cm. diam., rigidis, vaginis foliorum delapsorum notatis, internodiis saepius

3—5 cm. longis; folia patenti-erecta vel adscendentia, connata, vagina ad 0.5 cm. longa, fere teretia vel supra subplana, obtusa vel subacuta, cum pedunculo calyceque minute denseque papillosa, laete viridia vel seniora pallidiora, 2—3.5 cm. longa, 0.8—0.9 cm. diam.; flores solitarii lateraliter 5-meri, ad 6 cm. diam., pedunculis ad 2.5 cm. longis, 0.5 cm. diam., in calycem gradatim abeuntibus; calyx turbinatus, segmentis valde inaequalibus, duo longioribus ad 2.3 cm. longis, ceteris 1.1—2 cm. longis, tribus latissime membranaceo-marginatis; petala flaccida pluri-seriata, anguste linearia, albis, ad 2.5 cm. longa, circa 0.1 cm. lata; stamina diffusa, ad 0.5 cm. longa, filamentis albidis barbatis, antheris pallidis; nectarium forsitan e fossis minutis intra lobos ovarii compositum; ovarium supra convexum, stylis tomentosissimis subulatis acuminatis, 0.3 cm. longis.

Cape Province; near Vanrhynsdorp, fl. Oct. 1917, *F. C. Kolbe* (National Botanic Gardens, No.  $\frac{2388}{17}$ ).

Described from fresh material consisting of four branches given by Monsignor Kolbe.

- M. Britteniae, L. Bolus, epapulosum glaberrimum, ramis rigidis elongatis, 20—30 cm. longis, 0.3 cm. diam., internodiis 2—2.5 cm. longis, patentibus, apicem versus ad terram decurvis, latere superiore ramulos floriferos 4—5-nodosos, 4—9 cm. longos emittentibus, ramulis saepius defoliatis, ramulis ultimis 2—4-foliatis; folia adscendentia, basi vix connata, turgide triquetra, abrupte acuta, minute apiculata, glaucoviridia, saturate viridi-punctata, 1—1.6 cm. longa, medio 0.4 cm. lata diametroque; flores ternati, ad 2.8 cm. diam., pedunculis omnibus infra medium 2-bracteatis, 1.3—1.7 cm. longis, fructiferis ad 4 cm. longis; calyx globose turbinatus, segmentis 5, inter se subaequalibus, ovatis vel ovato-lanceolatis, 0.6 cm. longis, 3 vel etiam 4 membranaceo-marginatis; petala 2—3-seriata spathulata saepius emarginata, roseo-purpurea, ultra medium purpureo-vittata, 0.7—1.2 cm. longa, apice 0.2 cm. lata; stamina subdiffusa, filamentis barbatis, superne purpureis, 0.4—0.5 cm. longis, antheris pallidis; discus annularis crenulatus; ovarium supra conico-convexum, stylis 10, lineari-subulatis acuminatis, 0.5 cm. longis; capsula subglobosa 10-sulcata, medio 0.9 cm. diam.

Cape Province: South-Eastern Region; near Grahamstown, *L. Britten* (Botanical Survey, No. 1802; Bolus Herbarium, No. 17142). *C. F. Juritz*, 77.

Described from living specimens received from the Director of the Botanical Survey, and from specimens from a plant which flowered in Dr Juritz's garden, Three Anchor Bay, in September 1921.

- M. sociorum, L. Bolus, epapulosum glaberrimum, ramis elongatis reptantibus, 25 cm. longis vel ultra, 0.2 cm. diam., internodiis curvatis, 2—3 cm.

longis, ramulis floriferis erectis, 2—4 cm. altis; folia adscendentia vel subfalcata, basi vix connata, turgide triquetra vel fere semi-teretia, supra leviter concava, acuta, basin versus parum angustata, glaucoviridia, 1—2.5 cm. longa, ad 0.3 cm. lata diametroque; flores solitarii 5-meri, 3—3.5 cm. diam., pedunculis 0.6—2 cm. longis; calyx clavatus, segmentis ovatis vel lanceolatis, 0.3—0.5 cm. longis, tribus late membranaceo-marginatis; petala 2—3-seriata spathulata, acuta vel obtusa, rosea, basin versus roseo-purpurea, ad 1.8 cm. longa, ad 0.25 cm. lata; staminodia apice recurva, superne roseo-purpurea; stamina conico-collecta, filamentis inferne pallidis barbatis, superne luteis, ad 0.4 cm. longis, antheris aureis; discus annularis, inaequaliter grosseque crenulata; ovarium supra leviter concavum, stylis lineari-subulatis acuminatis, 0.4 cm. longis.

Cape Province: South-Western Region; Darling, Sep. 1917, *W. Peacock* and *L. Bolus* (National Botanic Gardens, No.  $\frac{1666}{17}$ ). Near Tulbagh, Sep. 1917, *W. Peacock* and *L. Bolus* (*id.* No.  $\frac{1922}{17}$ ). Riversdale, *J. La Grange* (*id.* No.  $\frac{4584}{14}$ ).

Described from living specimens which flowered freely at Kirstenbosch during September and October for several years.

- M. cinctum*, *L. Bolus*, epapulosum glaberrimum, ramis decumbentibus elongatis, 20 cm. longis vel ultra, internodiis 1—2 cm. longis, ramulos floriferos 2—6 cm. longos emittentibus; folia adscendentia, apice uncinato-recurva, triquetra, supra medio plana, acuta, marginibus carinae saepius minute serrulatis, glaucoviridia, apicem versus rufescentia, ad 2 cm. longa, 0.5 cm. lata, 0.6 cm. diam.; flores saepissime solitarii, 5-meri, 2—2.2 cm. diam., pedunculis gracilibus 0.7—1.2 cm. longis (partem ultra folia suprema vel bracteas exsertam metiente); calyx subcrateriformis, segmentis inter se subaequilongis, oblongis, abrupte apiculato- vel setaceo-acuminatis, tribus membranaceo-marginatis, 0.4 cm. longis; petala 1-seriata spathulata obtusa rosea, marginibus purpureo-cincta, 0.9—1 cm. longa, vix ad 0.2 cm. lata; staminodia staminaeque collecta, filamentis omnibus barbatis roseo-purpureis, 0.2—0.4 cm. longis, antheris pallidis; discus annularis crenulatus; ovarium supra elliptico-convexum, stylis crassis, late subulatis, acuminatis luteis, 0.2 cm. longis.

Cape Province: South-Western Region; near Riversdale, *N. S. Pillans*, 2016 (National Botanic Gardens, No.  $\frac{423}{16}$ ).

Described from specimens which flowered freely at Kirstenbosch during August and September.

- M. excavatum*, *L. Bolus*, papillosum, papillis oblongis nitentibus, ramosum, ramis adscendentibus, ad 20 cm. longis, ad 0.5 cm. diam., internodiis 1—1.4 cm. longis, vel senioribus ad 3 cm. longis; folia adscendentia vel

patentia, spathulata, supra excavata, apice rotundata, crassa, laete viridia, demum lutescentia, 1—1.5 cm. longa, apice ad 0.5 cm. lata, saepissime alternatim disposita; flores solitarii, ultimos ramulos terminantes, 5-meri, 1.5 cm. diam., pedunculis ab calyce vix distinctis, 0.5—1 cm. longis; calyx lineari-clavatus, segmentis inter se valde inaequalibus, duobus foliaceis, ad 0.7 cm. longis, ceteris minoribus, 0.3—0.4 cm. longis, tribus late membranaceo-marginatis; petala pauciora 1-seriata linearia obtusa, saturate lutea, 0.6 cm. longa, 0.1 cm. lata; stamina pauciora diffusa, filamentis ebarbatis pallidis, ad 0.4 cm. longis, antheris pallidis; discus non visus; ovarium supra conico-convexum, stylis subulatis luteis, 0.1 cm. longis.

Cape Province: Upper Region; near Beaufort West, *J. W. Mathews* (National Botanic Gardens, No.  $\frac{2322}{17}$ ).

Described from specimens which flowered at Kirstenbosch in October 1917.

*M. integrum*, L. Bolus (§ *Uncinata*). Fruticulus glaberrimus rigidus, 20—30 cm. altus, caule basi ad 1.3 cm. diam.; rami ramulique adscendentes vel erecti, 6—15 cm. longi, 0.2 cm. diam. vel juniores ad 0.4 cm. diam.; folia adscendentia uncinato-recurva connata, vagina saepius 0.5 cm. longa, medio fere semi-teretia, apicem versus triquetra, supra plana, glauco-viridia, marginibus cum carina integra rubescentibus, parte libera 0.5—0.8 cm. longa, medio 0.3 cm. lata; flores solitarii, ad 1.8 cm. diam., pedunculis brevissimis inclusis; calyx turbinatus, segmentis 5, inter se inaequilongis, lineari-lanceolatis acuminatis, 0.5—0.8 cm. longis, duobus carinatis, tribus membranaceo-marginatis; petala multiseriata spathulata, obtusa vel acuta, basin versus papillata, saturate roseo-purpurea, 0.4—0.7 cm. longa, ad 0.15 cm. lata; staminodia staminaque rigide conferta modo sectionis “*Bracteata*,” staminodiis exterioribus teretibus, apice recurvis, inferne papillatis, purpureis, interioribus albidis, filamentis barbatis, antheris luteis; discus haud visus; ovarium supra concavum, stylis 8 subulatis minutis, vix 0.1 cm. longis; capsula leviter convexa, 8-sulcata, ad 1 cm. diam.

Cape Province: South-Western Region; Robertson Div., Ashton, fl. Nov. 1921, *F. A. Rogers* (Bolus Herbarium, No. 17175).

Described from ample living material sent by the Venerable F. A. Rogers.

*M. dependens*, L. Bolus, glaberrimum, ramis elongatis decumbentibus, teretibus vel junioribus tetragonis, ad 0.3 cm. diam., internodiis 1—5.5 cm. longis; folia patentia vel recurvata, basi connata leviterque gibbosa, medio teretia vel fere teretia, acuta, minute papillosa, nitentia, obscure albopunctata, laete viridia, subtranslucentia, saepius 3.5—5.5 cm. longa, 0.3—0.4 cm. diam.; flores 3-nati vel abortione 1—2-nati, ad 6 cm. diam.,

pedunculis omnibus bracteatis saepius 3—4.5 cm. longis, bracteis 1—2.4 cm. longis; calyx turbinatus, pellucide punctatus, segmentis inter se valde inaequalibus acutis, 0.5—1.2 cm. longis, tribus ampliate membranaceo-marginatis; petala pluri-seriata linearia, basi immo angustata, saepissime inaequaliter dentata, lilacina, exteriora ad 2.5 cm. longa, 0.2 cm. lata, interiora 0.8—1.1 cm. longa, vix 0.1 cm. lata; staminodia staminaque collecta, filamentis albis, omnibus basi barbatis, 0.2—0.4 cm. longis, antheris minutis albidis, polline luteo; discus annularis crenulatus atro-viridis; ovarium supra planum vel demum leviter convexum, 5-lobum, 0.6 cm. diam., stylis late subulatis setaceo-acuminatis, 0.2 cm. longis.

Cape Province: South-Western Region; Robertson Div., hanging over damp cliffs in Cogman's Kloof and in the Cave, near Montagu Baths, fl. Oct. 1921, *M. M. Page* (Bolus Herbarium, No. 17156).

A very beautiful plant whose mauve or lilac petals are rare in the genus.

*M. uniflorum*, L. Bolus, epapulosum glaberrimum ramosum, ramis elongatis, decumbentibus vel adscendentibus, saepe inter frutices scandentibus, tetragonis, ad 40 cm. longis, ad 0.4 cm. diam., internodiis saepius 3—4.5 cm. longis; folia patenti-incurva vel patentia vel decurva, apicem versus incurva, basi connata leviterque gibbosa, teretia obtusa, laete viridia, 2—2.8 cm. longa, medio 0.3—0.4 cm. diam.; flores solitarii 5-meri, 2—2.4 cm. diam., pedunculis ebracteatis gracilibus, 0.7—3.3 cm. longis; calyx turbinatus, apice tubi subconstrictus, segmentis inter se inaequilongis, ovato-oblongis, 0.3—0.5 cm. longis, tribus membranaceo-marginatis; petala 2—3-seriata lineari-spathulata acuta roseo-purpurea, 0.7—1.1 cm. longa, ad 0.2 cm. lata; staminodia staminaque collecta, filamentis 0.3—0.4 cm. longis, interioribus dense barbatis; discus annularis crenulatus; ovarium supra convexum, stylis subulatis, longe caudato-acuminatis, 0.5 cm. longis.

Cape Province: Karroo Region; Beaufort West Div., Klipbank, May 1921, *F. A. Rogers* (Bolus Herbarium, No. 17066).

Described from ample living material sent by the Venerable F. A. Rogers.

The main axis of each shoot terminates in a slender peduncle, and from the axil of each of the last pair of leaves normally arises a robust branch which carries on the growth. I cannot recall any previously described species with exactly this method of flowering.

*R. Schlechter*, 11334, from Concordia, Little Namaqualand, September 19, 1897, appears to be this species.

*M. induratum*, L. Bolus (§ *Uncinata*). Humile, caule prostrato rigido, 0.5 cm. diam., ramis confertis, ramulis ultimis 4-foliatis, internodiis brevissimis

inclusis; folia adscendentia connata, vagina ad 3 cm. longa, triquetra, medio supra concava, subspinose apiculata, carina infra apicem rigide 1-denticulata, glauco-viridia, saturate viridi-punctata, parte libera 0.8—1 cm. longa, medio ad 0.3 cm. lata; flores solitarii 5-meri, 1.8—2 cm. diam., pedunculis gracilibus, basi 2-bracteatis, saepius 1.5 cm. longis, accrescentibus ad 2.5 cm. longis vel ultra, induratis vel subspinescentibus; calyx turbinatus, segmentis inter se subaequilongis, lanceolatis acutis, 0.4—0.5 cm. longis, 3—4 membranaceo-marginatis; petala 1—2-seriata lineari-spathulata acuta rosea, 0.7—0.8 cm. longa, vix 0.1 cm. lata; staminodia staminaque collecta, filamentis basi parce barbatis albidisque, superne roseis, ad 0.4 cm. longis, antheris luteis; glandulae nectariferae fere discretas, crenulatas; ovarium supra globose convexum, profunde lobatum, stylis erectis, demum conspicue radiantibus, lineari-subulatis, longe acuminatis, luteis, ad 0.45 cm. longis.

Cape Province: Karroo Region; Steytlerville, anno 1905, *Eustace Pillans* (Pillans, No. 1277; National Botanic Gardens, No.  $\frac{283}{16}$ ). Beaufort West, Oct. 1917, *J. W. Mathews* (National Botanic Gardens, No.  $\frac{2393}{17}$ ). Upper Region; Steynsburg, *H. de Villiers* (*id.* No.  $\frac{266}{16}$ ).

Described from living material which has flowered at Kirstenbosch for several years during October and November.

*M. viatorum*, L. Bolus. Fruticulus epapulosus glaberrimus, 15 cm. altus vel ultra, ramosus, ramis ramulisque patentibus vel saepius adscendentibus, ultimis floriferis 4—9 cm. longis, 0.2 cm. diam.; folia adscendentia vel erecto-patentia, rarius recurva, connata, vagina 0.2—0.3 cm. longa, triquetra obtusa aristulata, 1—2 cm. longa, 0.4 cm. diam.; flores solitarii, 2.3 cm. diam., pedunculis 3—4 cm. longis, medio vel supra 2-bracteatis; calyx clavatus, segmentis 5—6, inter se subaequalibus, lanceolatis acutis, 0.6—0.7 cm. longis, duobus anguste membranaceo-marginatis; petala 2—3-seriata spathulata, obtusa vel acuta, rosea, 1 cm. longa, apice 0.1—0.15 cm. lata; stamina erecto-patentia, 0.2—0.4 cm. longa, filamentis infra medium barbatis; discus annularis crenulatus; ovarium supra conico-convexum, 0.5 cm. diam., stylis 5—6, erecto-patentibus lineari-subulatis setaceo-acuminatis, 0.45 cm. longis.

Western Region: Namaqualand; between Bitterfontein and Stinkfontein, Dec. 1910, *H. H. W. Pearson* (Percy Sladen Memorial Expedition, No. 5575).

Described from living specimens which flowered in Mr N. S. Pillans' garden, Rosebank, near Cape Town.

*M. solidum*, L. Bolus, caule brevi, 2 cm. alto, 0.5 cm. diam., ramis decumbentibus, apicem versus adscendentibus, rigidis, 15—20 cm. longis vel rarius ad 40 cm. longis, internodiis 1.5—2 cm. longis, reliquis induratis

vaginantibus foliorum onustis, ramulis ultimis floriferis saepius 2-foliatis, 3—5 cm. longis; folia adscendentia connata, vagina 0.3—0.5 cm. longa, fere teretia, supra plana, obtusa laevissima glaucoviridia, saturate viridi-punctata, ad 2.5 cm. longa, 0.7 cm. lata; flores ternati vel bi-ternati vel rarius abortione solitarii, 5-meri, ad 2 cm. diam., pedunculis 1—2.5 cm. longis, lateralibus bibracteatis, bracteis vaginantibus, parte libera ad 0.3 cm. longa; calyx subcrateriformis, segmentis inter se subaequilongis ovato-lanceolatis acutis, 0.4—0.5 cm. longis, tribus membranaceo-marginatis; petala 1—2-seriata lineari-spathulata acuta roseo-purpurea, 0.7—0.8 cm. longa; staminodia staminae collecta, filamentis medio barbatis; roseis, 0.3—0.5 cm. longis, antheris pallidis; discus annularis crenulatus; ovarium convexum, stylis subulatis acuminatis luteis, 0.2 cm. longis.

Cape Province: Vanrhynsdorp Div., Nieuw Rust, Dec. 1911, *N. S. Pillans*, 2421 (National Botanic Gardens, No.  $\frac{487}{16}$ ).

Described from living specimens which have flowered at Kirstenbosch for several years.

*M. Juritzii*, L. Bolus (§ *Acinaciformia*). Folia adscendentia vel patentia, basi connata, triquetra, valde compressa, supra medio plana, lateribus leviter canaliculata, glaucoviridia, sat mollia, ad 8 cm. longa, medio ad 0.9 cm. lata diametroque; flores solitarii, ad 6 cm. diam., saepius circa 5.5 cm. diam., pedunculis 2 cm. longis; calyx turbinatus, segmentis 5, inter se inaequalibus, acutis, duobus foliis simillimis, ad 2.5 cm. longis, tribus lineari-lanceolatis membranaceo-marginatis, ad 1.6 cm. longis; petala circa 2-seriata linearia obtusa, laete roseo-purpurea, basin versus alba, 2—2.5 cm. longa, ad 0.2 cm. lata; stamina collecta vel exteriora subdiffusa, filamentis albis, basi barbatis, 0.3—0.7 cm. longis, antheris pallidis, polline luteo; discus annularis, minute crenulatus, inconspicuus; ovarium supra concavum, in medio vero elevatum, stylis 10, radiatis subulatis, 0.2 cm. longis; fructus subglobosus, 1.7—2 cm. longus, 2 cm. diam.

Cape Province: exact locality uncertain, *C. F. Juritz*, 23, National Botanic Gardens, No.  $\frac{827}{19}$ . Natal; Durban, The Bluff, fl. June 1920, *N. S. Pillans* (Bolus Herbarium, No. 15196).

Described from several specimens which flowered in Dr Juritz's garden and at Kirstenbosch.

*M. Mellei*, L. Bolus (§ *Acinaciformia*). Folia patentia-adscendentia, basi connata, subacinaciformia glauca vel glaucoviridia, 7—8 cm. longa, ad 1 cm. lata, ad 1.5 cm. diam.; flores solitarii, 5.5 cm. diam., pedunculis 4.5 cm. longis, supra medium 2-bracteatis, bracteis 2.5 cm. longis; calyx clavatus, lateraliter compressus, 2.2 cm. longus, 1.9 cm. diam., segmentis 5, inter se valde inaequilongis, late ovatis, acuminatis cari-

natis, 1.1—2.3 cm. longis, duobus latissime membranaceo-marginatis; petala 2—3-seriata linearia, acuta vel obtusa, rosea vel pallide rosea (almost shell-pink), ad 2 cm. longa, vix ad 0.2 cm. lata; stamina subdiffusa, filamentis interioribus basin versus barbatis, exterioribus glabris, 0.6—0.7 cm. longis; discus inconspicuus annularis, minute crenulatus; ovarium supra leviter convexum, stylis 10, lineari-subulatis, longe acuminatis, 1.1 cm. longis, ultra stamina bene exsertis; fructus clavatus, 3 cm. longus, 2 cm. diam.

Cape Province: South-Western Region; Robertson, *Dr Melle* (National Botanic Gardens, No.  $\frac{3275}{14}$ ).

Described from living specimens which have flowered for several years at Kirstenbosch during September.

The long styles and the pale rose or almost shell-pink colour of the petals distinguish this from any other species in this section known to me.

*M. Muirii*, L. Bolus (§ Acinaciformia). Folia fere erecta, adscendentia vel late patentia, juniora apice incurva, basi connata, saepius viridia modo *M. edulis*, 5.5—7 cm. longa, 0.6 cm. lata, ad 0.7 cm. diam.; flores 6.5—9 cm. diam., pedunculis medio vel supra medium 2-bracteatis, saepius 3—4 cm. longis; calyx globose turbinatus, ad 2.5 cm. diam., segmentis inter se valde inaequalibus carinatis, tribus membranaceo-marginatis, 1.3—2 cm. longis, fructu ad 2.5 cm. longis; petala circa 3-seriata linearia obtusa, basin versus angustata, roseo-purpurea, ad 3 cm. longa, 0.2 cm. lata; stamina erecta vel subdiffusa, filamentis basin versus barbatis roseis superne pallidis, ad 1 cm. longis, antheris luteis; discus vix visus; ovarium supra concavum, stylis 15, subulatis acuminatis, 0.4 cm. longis; fructus 2—2.5 cm. longus, apice 1.8—2.2 cm. diam., basi subrotundus, 2—2.5 cm. longus, apice 1.8—2.2 cm. diam., basi subrotundatus, circa 1.2 cm. diam.

Cape Province: South-Western Region; Riversdale Div., Zoutpan, near Albertinia, fl. Oct., *Dr John Muir*, 759 (National Botanic Gardens, No.  $\frac{1516}{14}$ ). Bo'plaats, fruiting specimens, Dec. *id.* 2423.

Described from several living specimens received from Dr Muir who pointed out to me that this species was entirely distinct from *M. edule* and another which is known as "t'gaukum" in the Riversdale Div. The latter has flowered and fruited at Kirstenbosch and appears to be a very good species, hitherto undescribed. Careful drawings are being made of as many of the forms as are available, and I hope to complete a description of the "t'gaukum" at its next flowering period.

Dr Muir writes that this species (*M. Muirii*, mihi) "is called 'Zuur vijgen' or 'sour figs.' Only eaten when dried. They are collected when they have dried on the plant. These dried ones make a very nice jam



and are exported from here to Cape Town and elsewhere in great quantities in sacks. They cost about 2*d.* per lb. here."

The narrow leaves serve to distinguish this species at sight from the rest of the section.

*Aristea ensifolia*, Muir. [Irideae-Sisyrrinchieae-Aristeae.] Herba glaberrima, rhizomate radículas multas fibrosas tenues emittente, ad 58 cm. alta; folia basalia disticha, circiter 5, ensiformia acuta, modice rigida, basi vaginantia, nerviis multis conspicuis, paullo angustata inferne, in medio parte 1.3—2 cm. lata, 30—55 cm. longa; caulis simplex, valde anceps, strictus vel sub-flexuosus superne, 0.6 cm. diametro, 20—58 cm. altus (cum inflorescentia), 2—3 foliis reductis ornatus, foliis reductis, viridibus rigidis lanceolato-acuminatis, 0.6—2.5 cm. longis, sursum gradatim attenuatis; inflorescentia laxe racemosa, 10—20 cm. longa, e spathis circiter 5, bifloris composita, spathis bractea magna viride rigida integra lanceolato-acuta, ad 7 cm. longa subtensis; spathae valvae 0.9—1.8 cm. longae, superiores minores, basi dilute virides, apicem versus dilute brunneae, angustissime membranaceo-marginatae, lanceolato-acutae; pedicelli 0.9—1.3 cm. longi, exteriores longiores; perianthii segmenta cyanea speciosa, mox marcescentia, exteriora obovata obtusa, 1.4 cm. longa, 0.8 cm. lata, subtus pallido-carinata, interiora 1.4 cm. longa, 0.5 cm. lata, subtus viridicarinata; perianthii tubus cylindricus, 0.2 cm. longus; stamina basi segmentorum interiorum inserta, antheris erectis, filamentis 0.5 cm. longis; ovarium leviter incurvum, triquetrum, lateribus uni-nervatis; stylus cylindricus 0.7 cm. longus, ramis brevibus rotundatis planis patentibus; capsula triquetra, ad 3.5 cm. longa, 3-locularis, pedicellis 2 cm. longis; seminibus crebris, superpositis angulatis, saturate brunneis.

Cape Colony: South-Western Region; Riversdale Div., near Albertinia, in rich black wet soil, alt. 30.5 met., fl. Oct.—Nov., *Dr John Muir*, 2458.

*Watsonia Versfeldii*, Mathews and L. Bolus (Irideae-Ixieae), *W. roseae* affinis sed floribus multo majoribus, segmentis pro portione longioribus angustioribusque, staminibus arcuatis, ceterisque facile distinguitur.

Erecta, ad 1.65 met. alta; cormus depresso globosus, 2.5 cm. longus, 5 cm. diam., tunicis e fibris, inferne tenuibus, superne crassioribus, compositis; folia radicalia 7, ensiformia, ad 85 cm. longa, 5 cm. lata, infimo superioribus parum longiore, nervis inconspicuis, caulina 2, haud ventricosa, breviter imbricata, inferiore ad 41 cm. longo, vagina 15 cm. longa, superiore 13 cm. longo, saepissime sine parte libera; inflorescentia 87 cm. longa, sublaxe multiflora, internodiis 1.3—2 cm. longis, infra medium ramosa, ramis erectis vel suberectis; bractee

obtusae, dimidio superiore membranaceo, 1.6 cm. longae, bracteolis fere ad apicem coalitis, parte libera 0.2 cm. longa, bracteis aequilongis; alabastrum acuminatum; perianthium laete roseum, tubo intus purpureo-vittato, ad 10 cm. longum, primo fere erecto, demum decurvato, parte filiformi 2.6 cm. longa, vix .02 cm. diam., parte cylindracea 3 cm. longa, ore 0.8 cm. diam., segmentis subdependentibus obtusis, 4.4 cm. longis, exterioribus oblongis, 1.2 cm. latis, interioribus crispulatis, 1.5 cm. latis; stamina arcuata, ad dimidium segmentorum attingentia, filamentis 2.5 cm. longis, antheris albidis, mox purpurascentibus, 1.1 cm. longis; stylum stamina parum excedens, ramis 0.5 cm. longis, stigmatibus 0.25 cm. longis; capsula cylindrica, ad 2.5 cm. longa, saepius 2—2.3 cm. longa, 0.8—1 cm. diam., seminibus 1—1.5 cm. longis, alis ad 0.8 cm. longis.

Cape Province: South-Western Region; Piquetberg Div., mountains near Piquetberg, *W. Versfeld* (National Botanic Gardens, No.  $\frac{2971}{16}$ ).

Allied to *W. rosea*, Ker, but is easily distinguished by the much larger flowers, by the proportionately longer and narrower segments, the arcuate stamens, and by other characters.

Described from several living specimens which have flowered freely at Kirstenbosch during November for the last five years.

*Watsonia Versfeldii*, var. *alba*, Mathews and L. Bolus, floribus albis. Same locality and collector (National Botanic Gardens, No.  $\frac{2970}{16}$ ).

*W. bulbifera*, Mathews and L. Bolus, *W. Merianae* affinis sed caule elatiore robustioreque, foliis latioribus, inflorescentia laxiore, praecipueque foliis superioribus vaginantibus bracteisque bulbiferis differt.

Glaberrima stricta, ad 2.1 met., saepius circa 1.8 met. alta, caule 0.9—1.1 cm. diam.; cormus subplacentiformis, 7 cm. longus, 4 cm. diam., tunicis e fibris crassis compositis; folia radicalia 5—6, ensiformia, 52—63 cm. longa, ad 6 cm. lata, caulina 3—5, vagina ad 23 cm. longa, parte libera ad 14 cm. longa, suprema ad 6 cm. longa; inflorescentia 49.5—64 cm. longa, laxa, internodiis 3—4 cm. longis, ramosa, ramis parum divergentibus, inferioribus ad 53 cm., superioribus ad 8 cm. longis, paucis 1-fl. ramis superne additis; bracteae demum dimidio superiore membranaceae, 2.2—1.7 cm. longae; bracteolae omnino coalitae, bracteis aequilongae; perianthium erecto-patens rubro-testaceum, extus pallidius, margine saturata, tubo intus albo-vittato, 6.7 cm. longum, apice explanato 3.4 cm. diam., tubo inferne filiformi, fere erecto, 1.8 cm. longo, 0.3—0.5 cm. diam., superne cylindraceo patenti, ad 2.5 cm. longo, ore 1 cm. diam., segmentis vix patentibus concavis, 2.4 cm. longis, exterioribus oblongis, 1.3 cm. latis, interioribus obovatis, basi subauriculatis, 1.4 cm. latis; stamina arcuata, filamentis 3.2 cm. longis, antheris exsertis atro-purpureis, 1 cm. longis, polline pallide

purpureo; stigmata demum exserta; capsula cylindracea, ad 3 cm. longa, 0.6 cm. diam., rarissime producta; bulbillae oblique globosae rostratae, ad 2.4 cm. longae, basi 1.5 cm. diam., in fasciculis (ad 28 in fasciculo) in axillis foliorum superum caulinarum bractearumque, fere ad apicem axis floriferi, dispositae.

Cape Province: South-Western Region; Paarl Div., Joostenberg (National Botanic Gardens, No.  $\frac{707}{13}$ ).

Allied to *W. Meriana*, Mill., but differs in having a taller and more robust stem, broader leaves, laxer inflorescence, and especially by the upper sheathing leaves and bracts being bulbilliferous.

Described from many living specimens which have flowered freely in the National Botanic Gardens for several years. The habit of producing cormlets is rare in the genus, occurring only in two or three species, and in none are the cormlets so numerous as in this. The few capsules that form (usually with one or more cormlets in the same axil) contain very few (1 or 2) seeds which are perfect.

*W. tabularis*, Mathews and L. Bolus, *W. bulbilliferae* affinis, sed bulbillis abeuntibus, foliis longioribus vaginis multo brevioribus, floribus majoribus, perianthii segmentis interioribus longioribus quam exterioribus differt.

Erecta, fere ad 2 met. alta; folia radicalia 4—5, ad 1.1 met. longa, 4.8 cm. lata, vix equitantia, vagina brevissima, ad 12 cm. longa, nervis, praeter medium prominentem, praecipue inconspicuis, marginibus haud incrassatis subpellucidis, caulina 2—3, infimo immo basi caulis oriente, 18 cm. longo, vagina 13 cm. longa, ceteris spathiformibus, 22 cm. longis; spathae 2—3, 21—8 cm. longae; spica subdisticha, floribus convergentibus, 2—3-ramosa, parte terminali circa 24-fl., ad 71 cm. longo, axi florifero 48 cm. longo, ramis gracilibus, 8—14-fl., ad 57 cm. longis; bracteae ovato-oblongae, 1.8—1 cm. longae, bracteolis paullo longioribus, ad apicem fere coalitis; flores patentes, mox nutantes, perianthii tubo corallino, 4.3 cm. longo, apice 1 cm. diam., segmentis exterioribus subpatentibus oblongis obtusis, basi parum angustatis, extus corallinis, intus salmoneis, ad 3.1 cm. longis, 1.6 cm. latis, interioribus obovatis, 3.5 cm. longis, 2.3 cm. latis, salmoneis, postico porrecto subconcano; stamina arcuata, filamentis 4.6 cm. longis, antheris atrocyaneis, 1.4 cm. longis, polline albedo; stylus stamina paullo excedens, ramis 0.8 cm. longis, stigmatibus gracillimis, 0.4 cm. longis; capsula cylindracea, basin versus angustata, ad 3.5 cm. longa, apice 0.8 cm. diam., seminibus 1—1.3 cm. longis, alis 0.4—0.6 cm. longis.

Cape Province: South-Western Region; Cape Div., Table Mountain, upper slopes and lower plateau frequent, less frequent nearer the summit, fl. Dec.—Feb.; lower eastern slopes at Kirstenbosch, in

swampy ground, and Klassenbosch Valley, *J. W. Mathews* (Bolus Herbarium, No. 15193).

Allied to *W. bulbilifera*, Mathews and L. Bolus, but differs in not having bulbils, and in having longer leaves with much shorter sheaths, and larger, differently coloured flowers of which the inner perianth-segments are longer than the outer ones.

Described from several living specimens which have flowered during December at Kirstenbosch for the last four or five years.

*Gladiolus Mostertiae*, L. Bolus, *G. Pritzellii* forsitan affinis, sed foliis pubescentibus, perianthii colore, tubo canaliculato intus, segmento antico concavo, ceterisque distinguitur.

Erectus, ad 25 cm. altus; cormus globosus, ca. 1 cm. longus, 1.1 cm. diam., tunicis e fibris tenuissimis brunneis compositis; folia radicalia 4, duo vaginiformibus, 1.4—2.9 cm. longis, tertio producto, prominenter 3-nervato, lineari, longe attenuato, pubescente, 24.5 cm. longo, vagina 3 cm. longa, 0.4 cm. lato, quarto 16.5 cm. longo, vagina 8 cm. longa, caulina duo pubescentia, inferiore 8.3 cm. longo, vagina 4 cm. longa, superiore 3.9 cm. longo, vagina 2 cm. longa; pedunculus glaber, 9.4 cm. longus, e basi ramosus; flores 5 subsecundi, ore 1.8 cm. longi, 1.4 cm. lati; bracteae oblongae obtusae glabrae, 1.4—1 cm. longae, ad 0.5 cm. latae, bracteolis ad 1.1 cm. longis, fere ad apicem coalitis, parte libera 0.1 cm. longa; perianthium subtransparens, laete saturateque carneum, tubo bracteae subaequilongo, postice 0.6 cm., antice 1.5 cm. longo, intus 3-caniculato, segmentis apiculatis, exterioribus lateralibus apicem versus recurvatis, oblique rhomboideo-orbicularibus, postice 1.4 cm., antice 0.6 cm. longis, 1 cm. latis, segmento inferiore sub-orbiculari concavo, 0.9 cm. longo, segmento interiore postico porrecto obovato-oblongo galeato, 2 cm. longo, 1.2 cm. lato, ceteris unguiculatis, unque 0.5 cm. longo, carneo, saturatis maculis notato, lamina sub-orbiculari, 0.6 cm. longa, albida, medio macula viridi-lutea notata; filamenta 1.6 cm. longa, antheris 0.5 cm. longis; stylus 2.1 cm. longus, stigmatibus 0.3 cm. longis.

Cape Province: Western Region; Vanrhynsdorp Div., Cloudskraal, *Miss Lettie Mostert* (National Botanic Gardens, No.  $\frac{1609a}{20}$ ).

A very distinct species, the nearest ally being, perhaps, *G. Pritzellii*, Diels. The pubescent leaves, colour of the perianth, channelled tube, concave anticous segment, as well as other characters readily distinguish it.

Described from one living specimen which flowered at Kirstenbosch, December 1921.

*Restio paludosus*, Pillans, *R. tenuissimo* affinis, sed caulibus minus flexis, spiculis semper 1-floris, et perianthio semper completo differt.

Stems caespitose, clothed at the base with chartaceous, brown scales, erect, straight or slightly curved, sparingly branched or less often simple, slender, smooth, pale green, 5—15 cm. high, .5—75 mm. in diam.; leaf-sheaths tightly convolute, oblong, obtuse, with a subulate or often foliaceous mucro, coriaceous, membranous along the upper margins, striate below the apex, 5—10 mm. long; male inflorescence not seen; female inflorescence linear-spiciform, with 1—5 spikelets, 10—15 mm. long; spathes tightly clasping the spikelets, oblong, obtuse, with a comparatively stout mucro, coriaceous, membranous along the upper margins, 3.5—4 mm. long; spikelets sessile, linear, 1-flowered, 4.5—5.5 mm. long; bracts 2, closely convolute, oblong-lanceolate, acute, cartilaginous in the lower half, membranous in the upper, about 4 mm. long; perianth sessile, linear, terete, 3—4 mm. long; segments closely convolute, lanceolate, acuminate, dorsally rounded, membranous, glabrous; the inner distinctly shorter than the outer; ovary oblong, 2-celled; styles 2, united nearly half their length, corkscrew-twisted in their upper part.

Cape Province: South-Western Region; Cape Div.; marsh on plateau north-west of Paul's Berg, Pillans, 4145, ♀!

Allied to *R. tenuissimus*, Kunth, but differs in having the stems less bent, the constantly 1-flowered spikelets and the complete perianth.

Dovea Marlothii, Pillans, *D. aggregatae* valde affinis, sed inflorescentia paniculato-cymosa, spathis brevioribus, spiculis majoribus distinguitur.

Stems caespitose, erect, simple, rigid, finely wrinkled, 6—7 dm. high, 2—2.75 mm. in diam. at the middle; leaf-sheaths soon falling, oblong, acute, mucronate, coriaceous, striate, chestnut-brown, 2.5—3.5 cm. long; male inflorescence paniculate-cymose, oblong, densely many-flowered, 3—4 cm. long; spathes subsistent, oblong, acute, mucronate, coriaceous, smooth, chestnut-brown, about 1 cm. long; spathellae inconspicuous, ovate; spikelets ovate, compressed, 2—5-flowered, 4—6 mm. long; barren bracts 3—4, ovate, smaller than the fertile; fertile bracts closely convolute, broadly ovate, acute, cartilaginous, minutely pitted on the upper part, 3 mm. long; perianth sessile, oblong, rounded on the dorsal side and flattened on the ventral side, 4—4.5 mm. long; outer segments ovate, subacute, cartilaginous; the lateral slightly carinate; inner segments oblong, obtuse, coriaceous, twice as long as the outer; female inflorescence resembling that in the male plant, but broader; spathes as in the male; spathellae ovate, acute, about 3 mm. long; spikelets approximate, shortly pedicellate, ovate, 2—3-flowered, 6—7 mm. long; barren bracts about 3, smaller than the fertile; fertile bracts broadly ovate, obtuse, bluntly mucronulate, coriaceous, 3—3.5 mm. long; perianth ovate, rounded on the dorsal

side and flattened on the ventral side, 4—5 mm. long; segments ovate, subacute, coriaceous, thinner at the margins; the outer-lateral keeled, sometimes shortly and sparsely villous on the keel; inner segments exceeding the outer by about 1 mm.; ovary oblong, obtusely 3-lobed, 3-celled; styles separated at the base.

Cape Province: South-Western Region; Malmesbury Div., without precise locality, Marloth, 10158, ♂ and ♀!

Closely allied to *D. aggregata*, Mast., but may be distinguished by its paniculate-cymose inflorescence, shorter spathes and larger spikelets.

*D. chartacea*, Pillans, *D. paniculatae* affinis, sed caulibus robustioribus, spiculis pluri-floris, segmentis exterioribus perianthii aristatis, seminibus minoribus differt.

Stems caespitose, erect, simple, terete, rigid, smooth, about 4 dm. high, 2.5—2.75 mm. in diam. at the middle; leaf-sheaths loosely convolute, broadly oblong, obtuse, mucronate, coriaceous, thinner at the margins, prominently nervose-striate, dull green, with golden iridescence, pale brown at the caducous apex, 2—2.5 cm. long; male inflorescence not seen; female inflorescence spiciform, densely many-flowered, linear-oblong, about 6 cm. long; spathes persistent, loosely convolute or erect-spreading and flattened, linear-oblong at the base to oblong-lanceolate at the apex, acute, chartaceous, nervose, soon lacerate, buff or light brown, mostly 2—2.5 cm. long; spikelets usually 2 in the axil of each spathe, subsessile, conical, compressed, 4—6-flowered, 12—15 mm. long; bracts closely convolute in their lower part, erect-spreading upwards, oblong-lanceolate, long-attenuate, filiform-aristate, long-fimbriate and white-membranous at the margins, otherwise cartilaginous and chestnut-brown, 12—15 mm. long (including the awn); perianth distinctly stipitate, oblong-lanceolate, triquetrous, straight or slightly curved in the upper part, dark chestnut-brown, 9—10 mm. long; perianth-segments oblong-lanceolate, acuminate, cartilaginous; the outer slender-aristate, membranous at the margins, nearly twice as long as the inner; the lateral slightly carinate; ovary oblong, 3-lobed, 3-celled, chestnut-brown; styles 3, apart at the base; capsule deeply 3-lobed, 3-seed; seeds elliptic, smooth, with a depressed-conical funicle, 1.75 mm. long.

Cape Province: South-Western Region; Stellenbosch Div., summit of Sneuwkop, Marloth, 3635, ♀!

Allied to *D. paniculata*, Mast., but distinguished by its stouter stems, several-flowered spikelets, aristate outer perianth-segments and smaller seeds.

*Elegia lacerata*, Pillans, *E. asperiflorae* proxime accedit, sed bracteis segmentisque perianthii laceratis facile distinguitur.

Stems caespitose or scattered on creeping rhizomes, erect, simple, slender, terete or occasionally slightly compressed, finely wrinkled, punctulate, 4—7 dm. high, 1.5—2 mm. in diam. at the middle; leaf-sheaths 3—5, remaining during the flowering period, ultimately deciduous, loosely convolute or expanded, linear-oblong, acute, subulate-mucronate, coriaceous, nervose at the apex, red-brown, membranous and paler at the margins, mostly 3—4 cm. long, up to 5 cm. long; male inflorescence paniculate-cymose, ovate to oblong, densely many-flowered, 1.5—3 cm. long; spathes persistent, expanded, oblong-lanceolate, slender-mucronate, chartaceous, red-brown, membranous and horn-colour at the margins, the lower mostly 2—3 cm. long; spathellae inconspicuous, lanceolate, aristate, membranous, mostly 4—5 mm. long with the awn; spikelets ovate or broadly wedge-shaped, compactly 3—10-flowered, 3—5 mm. long; bracts broadly ovate, acute, with a scabrid awn, cartilaginous, membranous and lacerate at the margins, dorsally scabrid, 3.5—4 mm. long (including the awn); perianth oblong, compressed, 1.75—2 mm. long; outer segments ovate-lanceolate, mucronate, membranous, finely lacerate at the margins, dorsally scabridous, red-brown; inner segments oblong, acute, lacerate along the upper margins, membranous, scarcely twice as long as the outer; female inflorescence resembling the male; spathellae as in the male; spikelets ovate to oblong, about 4-flowered, 4—5 mm. long; bracts ovate, acute, aristate, cartilaginous, membranous and lacerate at the margins, dorsally scabrid, 3—5 mm. long (including the awn); perianth compressed-trigonous, oblong, 1.75—2 mm. long; outer segments oblong, acute, slightly keeled, with a scabrid mucro, cartilaginous, membranous and lacerate at the margins, dorsally scabrid; inner segments, spathulate-oblong, acute, membranous, lacerate at the upper margins, about equal with the outer; ovary ovate, sharply 3-angled, smooth; styles 3, arising from a stylopodium.

Cape Province: South-Western Region; Worcester Div., Du Toit's Kloof, Bolus, 16997, ♂! Prince Albert Div., Zwartberg Pass, Bolus, 11661, ♂! Albany Div., stony hills near Graham's Town, MacOwan, 1360, ♂! 1359, ♀! King William's Town Div., summit of Perie Mt., Galpin, 5944, ♂! Stutterheim Div., Dohne Hill, Sim, 2843, ♂!

Most nearly allied to *E. asperiflora*, Kunth, but easily distinguished by its lacerate bracts and perianth-segments.

*E. pectinata*, Pillans, ab omnibus ceteris distinguitur caulibus densis, regulariter dispositis, modo dentum pectinae, rhizomatibus reptantibus.

Stems closely arranged like the teeth of a comb along a creeping rhizome, erect, often slightly curved, slender, simple, terete, solid, wrinkled and pitted, 10—20 cm. high, .75—1 mm. in diam. at the middle;

leaf-sheaths subsistent on the lower parts of the stems, deciduous on the upper, loosely convolute, oblong, acute to obtuse, mucronate, coriaceous, chestnut-brown, chartaceous and paler at the apex and margins, striate on the upper half, 1—1.5 cm. long; male inflorescence paniculate-cymose, oblong, densely many-flowered, mostly 1—2 cm. long; spathes soon falling, lanceolate-oblong, acute, mucronulate, cartilaginous, chestnut-brown, the lower 1—1.5 cm. long; spathellae minute, membranous; spikelets oblong with 2 flowers or transversely trigonous with 3 flowers, 3—3.5 mm. long; bracts ovate, obtuse, hyaline-membranous, 1.5 mm. long; perianth oblong, subterete, 2.75—3 mm. long; outer segments oblong-ovate, acute, membranous, with prominent midrib; inner segments oblong, subacute, cartilaginous, twice as long as the outer; female inflorescence spicate-cymose, linear-oblong, few-flowered, 1—2 cm. long; spathes persisting during the flowering period, sheath-like, but smaller; spathellae minute or absent; spikelets obliquely oblong, 1—2-flowered, 2.5—3.5 mm. long; bracts deltoid, acute, membranous, with rigid midrib, 1.5—2 mm. long; perianth oblong, trigonous, 2—2.5 mm. long; outer segments oblong, acute, cartilaginous; the lateral navicular, keeled; the anterior with prominent midrib; inner segments ovate-oblong, subacute, cartilaginous, equal with the outer; ovary pear-shaped; styles 3.

Cape Province: South-Western Region; Cape Div., on dry clay slopes, Lion's Head, Pappe in Herb. Mus. Austr.-Afr., 12850, ♂ and ♀! 12975, ♀! On clay slopes, north aspect on Devil's Peak, Pillans, 3401, ♂ and ♀! Above Oude Kraal, Pillans, 3403, ♂ and ♀! Caledon Div., on clay slopes, Sir Lowry's Pass, L. Guthrie in Herb. Bolus, 16622, ♀! Zwartberg, near Caledon, L. Guthrie in Herb. Bolus, 16016, ♂!

Distinguished from all other species by its closely and evenly arranged stems, like the teeth of a comb, along creeping rhizomes.

- Restio tuberculata*, Pillans, comb. nov. = *Leptocarpus divaricatus*, Mast., Engl. Bot. Jahrb. xxix, Beibl. 66, p. 9 (1900).  
*Dovea nuda*, Pillans, comb. nov. = *Elegia nuda*, Kunth, Enum. III, p. 462 (1841).  
*Elegia thyrsoides*, Pillans, comb. nov. = *Dovea thyrsoides*, Mast., Journ. Linn. Soc. x, p. 251 (1867).  
*Leptocarpus gracilis*, Pillans, comb. nov. = *Hypolaena gracilis*, Nees mss. in herb. Sonder; *Hypolaena? gracilis*, Mast., Journ. Linn. Soc. x, p. 266 (1867); DC. Monog. Phan. I, p. 375 (1878); *Hypolaena gracilis*, Mast., Fl. Cap. VII, p. 135 (1897).



## THE POLLINATION OF *SATYRIUM BICALLOSUM*, THUNB.

By S. GARSIDE.

As comparatively few observations have yet been made upon the pollination of South African orchids, the following account should be of interest to those who are in a position to make further and much needed contributions to the subject. In the literature I have consulted, I have found no record of an insect having been seen to enter an orchid flower, and remove the pollinia from any South African orchid. Considering that many of the very numerous species of orchids which occur in the south-western region of South Africa are very common, this lack of information is somewhat remarkable. The possibility that many of the highly scented greenish orchids might be pollinated by night-flying insects might account for our scant knowledge of these. However, observation of such a brightly coloured orchid as the scarlet *Satyrium coriifolium*, Sw., a species with both attractive colour and abundant nectar, shows that the visits of diurnal insects are by no means frequent. An examination of the anther of this species usually gives evidence of insect visits, as the pollinia are frequently removed from the lower and older flowers in a spike. As this paper will indicate, cross-pollination may, in certain cases, occur only during a very few hours in the day, so that a patient watch would have to be kept before the pollinating insect would be discovered.

For a few South African orchids, we already have several scattered observations, in the nature of records of the capture or observation of insects carrying distinctive pollinia of known origin. The observations of several botanists have also proved that for several species, the pollinia are quite regularly removed, but the full story of the method of cross-pollination has not, so far, been available for a single South African orchid.

As the literature relating to pollination is very scanty, the results so far obtained can be briefly reviewed here.

Trimen<sup>1</sup> says that in *Disa grandiflora* (*D. uniflora*) insect visits are rare. The brilliant colour indicates that day-flying lepidopterous or hymenopterous insects are the visitors. He also notes that the pollinia are very infrequently removed. Marloth<sup>2</sup> records the capture of a butterfly, *Meneris tulbaghia*, with a pollinium of *Disa grandiflora* attached to its body. A figure of the insect, with the pollinium attached to the proboscis is given<sup>3</sup>.

<sup>1</sup> Trimen, 1864.

<sup>2</sup> Marloth, 1895.

<sup>3</sup> *Id.* 1915, Plate 59, Fig. 12.

He also records<sup>1</sup> that *Disa graminifolia* bears seed regularly, and concludes that it must be visited by insects, although after many years' observation, he has only noticed the visits of two insects; one a fly, *Pagonia angulata*, and the other a small butterfly, *Lycaena asteris*. In the case of *Disa ferruginea*, Marloth<sup>2</sup> states that the flowers are regularly visited by the butterfly *Meneris*. Finally, for *Satyrium coriifolium*, Marloth<sup>3</sup> figures a bee, *Lasioprosopa bigoti*, Macq., as the visitor, although no mention is made of this insect in the text. Weale<sup>4</sup>, who observed Lepidoptera with pollinia attached, says: "In the spring of 1865, near the Koonap river, I caught several specimens of the smaller variety of *Pieris gidica*, and likewise of *Pieris charina*, with pollinia of some unknown species of orchid loosely attached to the sternum. On searching the neighbourhood, a new species of *Bonatea* (*B. Darwinii*) was discovered." The stigmatic surfaces were seen to be thickly covered with pollen, and the flowers, which secrete honey abundantly, were observed to be frequently visited by insects.

In the other papers dealing with pollination, the actual pollinating insect was not observed. Trimen<sup>5</sup> described the structure of the flower of *Bonatea speciosa*, from plants procured at Knysna, but grown in a conservatory in Capetown. He says: "I am unable to supply any details as to the extent to which insect fertilisation is effected in this orchid, having had no opportunity of observing the plant in its natural localities."

Weale<sup>6</sup> describes the structure of a species of *Disperis*, in which he suggests that the tarsi of insects cause the removal and transport of the pollinia, as in the case of Asclepiadaceae. The orchid concerned produces numerous fertile capsules, but insect visits are not recorded. There is a note to this paper to the effect that this and two other papers sent to the Linnean Society were accompanied by drawings. These drawings were not published, and the Secretary of the Linnean Society informs me that the drawings are not now available. Weale does not state the specific name of the *Disperis* he examined, and without the drawings, the account is of little value. In another paper<sup>7</sup>, he mentions that in *Disa macrantha*, the flowers are of a bright colour, with strong scent, and of conspicuous size, though he did not observe insect visits or insects with pollinia attached. He suggests that insect visits occur, as the plant bears an abundance of seed, but he also observed that self-pollination was very frequent. He says: "A jerk will detach pollinia and bring them into contact with the stigma. This in nature is not unseldom the case, as I have repeatedly found many flowers thus fertilised."

In a following paper, Weale<sup>8</sup> gives some notes upon some South African species of *Habenaria*. He says: "The plant does not appear to be visited by diurnal insects, but must be very attractive to nocturnal ones, as, although

<sup>1</sup> Marloth, 1915, p. 59.

<sup>4</sup> Weale, 1869.

<sup>7</sup> *Id.* pp. 45-47.

<sup>2</sup> *Id.* p. 189.

<sup>5</sup> Trimen, 1867.

<sup>8</sup> *Id.* pp. 47-48.

<sup>3</sup> *Id.* Plate 56, C 7.

<sup>6</sup> Weale, 1873, pp. 42-45.

each spike bears many flowers, and the plant itself grows in considerable abundance on the open grassy flats, almost every flower that I have examined has been fertilised."

Bolus<sup>1</sup> has made observations upon the frequency of the removal of the pollinia in *Disperis capensis* and *D. villosa*, possibly by night-moths. He observed no insect visits.

My attention was first directed to *Satyrium bicallosum*, Th. by a remark made by Dr Bolus<sup>2</sup>. He says: "In the structure of the column this species differs from any other known to me. The anther, instead of hanging vertically under the rostellum with its glands pointing forward, as is the typical structure in the genus, appears as if pushed up against the apex of the column, so as to lie nearly horizontal, with the glands turned to the back of the flower, and the stigma completely covered and hidden from view. The economy of its pollination is a puzzle to me, for the appearance is as if the process were carefully prevented....But I have not had the opportunity of watching it, and have never seen any insect or trace of insect-work on the plant." These remarks led me to suppose that possibly this was a case in which self-pollination occurs, particularly as the flowers are rather small and inconspicuous, although belonging to a genus with typically large and brightly coloured flowers. Through the kindness of Miss Watermeyer, of Jonkers Hoek, Stellenbosch, I was able to secure a large number of inflorescences for examination, and also to make observations upon the plants growing under natural conditions. The first group of inflorescences examined showed evidence of insect visits. Quite regularly, the lower flowers on a spike were found to have both pollinia removed, whereas open flowers in the upper part of the spike had only one pollinium extracted. This observation at once indicated that cross-pollination might occur, and that a search would have to be made for the stigmatic surface, which Dr Bolus supposed to be completely hidden from view. As the account and figures of the column of this flower were made by Dr Bolus for purposes of systematic work, the results of a more detailed examination of the structure must now be given. As the structure of the column is intimately correlated with that of the perianth and bract, the latter will be first described. The inflorescence is a spike, from 3 to 10 cms. long, with the flowers arranged in a crowded spiral, and each flower in the axil of a large, curved bract. The acuminate apex of the bract reaches to the galeate posterior petal, and, as the blunt tip of the petal (labellum) is somewhat depressed, each flower has two lateral entrances (Plate VI, Fig. 12). This great depression of the galea, forming two eye-like openings, together with short bracts in the upper part of the spike, constitutes the variety *ocellatum* Bolus<sup>3</sup>. It is obvious, owing to this peculiarity of structure, that only one pollinium (the right hand or the left hand one) can be removed at once, thus accounting for the numerous cases

<sup>1</sup> Bolus, 1918, p. 42.

<sup>2</sup> *Id.* p. xxii.

<sup>3</sup> *Id.* p. 41.

in which I observed recently opened flowers with only one pollinium removed. In most species of *Satyrium*, the three sepals and the two lateral petals form a median resting place for insects, and there is only a single entrance to the flower. In this type, the simultaneous removal of the pollinia is possible. In *S. bicallosum*, each entrance to the flower has an alighting place formed of a lateral petal and a lateral sepal (Fig. 7), and each aperture leads almost directly into one of the two short saccate spurs of the galea. In the specimens studied by me, the flowers were of a dull greenish-yellow colour, but on the galea, and just above the spurs, there were lurid purple spots, one above each spur; this coloration often extended to the spurs themselves. When viewed from the front, the two purple "eyes" in the depths of the flower have a striking appearance, and no doubt form one of the features attractive to insects. The dull yellow and purple coloration, uncommon in *Satyrium*, but found in a few species such as *S. pumilum*, Thunb. and *S. Lindleyanum*, Bolus, indicate a fly pollinated flower; such coloration being frequent in *Stapelia* and other fly flowers. I was unable to detect any scent however.

The column itself is of an unusual type. Instead of being slender and arcuate, as in most *Satyria*, it is very short and condensed, and almost hidden from view behind the depressed apex of the galea (Fig. 7).

The stigmatic lobe of the column is formed of two curved, finger-like processes, directed towards the front of the flower; immediately underneath the processes, the stigmatic surface is situated (Figs. 1 and 2). The finger-like processes are depressed to such an extent that the stigmatic surface is almost divided into two lateral portions, each one abutting upon the adjacent passage leading to the spur (Fig. 6). These surfaces are viscid when receptive, and that they are definitely stigmatic is proved by the ease with which I was able to germinate the pollen masses upon them. I also observed the very numerous pollen tubes penetrating the tissues. Many flowers were examined in which pollen had been placed on the stigma by insect agency, and in these cases the pollen grains had also germinated.

The anther is of the usual type in *Satyrium*, but, as Dr Bolus notes, the entire anther is tilted upwards in such a fashion that the two viscid discs are directed towards the back of the flower.

The adhesive disc of each pollinium, however, projects somewhat laterally into the adjacent passage to the spur (Fig. 6). When mature the pollinia lie rather loosely in the anther cells, and are easily removed. Each pollinium consists of from 40 to 50 massulae, loosely held together, the entire mass being pear-shaped, and cleft almost into two portions (Fig. 4). The caudicle is rather short, and the adhesive disc circular. Just below each anther lobe is a white callosity, composed of a mass of cells which disintegrate, soon after the flower opens, to form a fluid mass. These callosities are considered to be rudimentary stamens. They probably do not function at any time as food

bodies for insects, as I found the cells of which they are composed to be full of fine raphides of calcium oxalate (Figs. 1, 2 and 3).

From the above description, it will be realised that each half of the flower has its own entrance, with its alighting place for insects; its own pollinium, with adhesive disc projecting laterally into the passage, and its own stigmatic surface, placed just above the adhesive disc. Each half of the flower also has its own spur. The possibility of the separate functioning of the halves of a zygomorphic flower is of great interest. In the case of actinomorphic flowers, we have *Iris*, with three "entrances," but instances of zygomorphic flowers with separately functioning halves are very rare. It will be of value, for purposes of comparison, to determine the pollination mechanism in *S. Lindleyanum*, Bolus, in which species the flower is not so completely divided into distinct halves, and in which the viscid discs are directed towards the front of the flower.

After the above structural details had been observed, it became necessary to seek for the pollinating insects. As there was a possibility of insect visits at night, and the plants were growing upon a steep mountain side, several miles from a house, it seemed likely that a prolonged watch would have to be kept.

I was fortunate enough to discover the insect in a fashion which conveys a useful suggestion to those interested in orchid pollination, and which is therefore worth recording here. The plants were growing in a moist place where there was a trickle of water through the soil, from the mountains behind. I noticed numerous plants of *Drosera hilaris*, Ch. and Schl. in the same locality, and it occurred to me that if I could find a *Satyrium* plant in the centre of a group of *Drosera*, I might find the pollinating insect already captured. I soon discovered the required combination; a fine *Satyrium*, almost entirely surrounded by *Drosera*. On examining the leaves of the latter, no less than a dozen small black flies were seen to have become stuck to the tentacles, each fly with one, two, or even three pollinia attached to it.

I am indebted to Mr T. R. Edwards, of the British Museum, for the identification of this insect. He informs me that it is a species of *Sciara*, of the Family Sciaridae. The larvae live in rotting wood and decaying vegetable matter.

After a further search in the vicinity of the *Satyrium* flowers, I discovered two other specimens of the fly, one bearing two pollinia on the left side of the thorax at the base of the wing, and one bearing three pollinia in the corresponding position.

The insects were running rapidly over the ground, and did not take flight even when disturbed. No doubt they were overburdened by the pollinia, which are large in comparison with the insects bearing them. These observations were made at 12.30 p.m., October 2nd, 1920, the weather at that time

being warm, but dull and cloudy. Later, on the same day, at 2.30 p.m., I saw another fly running up the spike of a *Satyrium*, amongst the bracts and the bases of the ovaries. Presently, it ascended a flower, and entered the left hand opening. The fly was evidently exploring the spur, and, as it stood in the opening, it placed itself at an angle of about  $45^\circ$  to the horizontal. This tilted position is exactly that required to bring the base of the wing into contact with the viscid disc. After a few seconds, the fly withdrew, bearing a pollinium attached to the thorax. I have removed numerous pollinia artificially, but have never observed any subsequent curvature or movement of the caudicle.

Indeed, owing to the position of the stigmatic surface immediately above the horizontally placed anther lobe, scarcely any subsequent movement of the caudicle is needed. When a fly bearing a pollinium, say on its right shoulder, enters the right half of a flower, the pollen mass will almost inevitably come into contact with the stigmatic surface. It seems probable that the curved lobes which over-arch, and are in intimate contact with the stigmatic surfaces, will help in this matter, as, when a fly bearing a pollinium on the correct side withdraws from the passage, the hooked process will retard the pollen mass, and cause it to strike the stigmatic surface. Self-pollination is avoided, as the pollinium is not withdrawn from the pollen sac until the fly is leaving the flower.

As regards the food substance which attracts the fly, I have made the following observations. No honey is secreted at any time within the spur, and an examination of the internal surface always showed this to be quite dry. The base and sides of the spur are studded with numerous papillate, or shortly clavate hairs (Fig. 6), and these unicellular hairs contain abundant protoplasm and cell-sap (Figs. 8 and 9). In some cases, the hairs are elevated upon small humps of tissue (Fig. 8). Small drops of a highly refractive, oily substance are to be observed on the outside of each hair. The flies of the genus *Sciara* have a comparatively short proboscis, consisting of two muscular pads, adapted for sucking up liquids; they have no hard mouth parts with which to bite or perforate. It does not seem probable that the insects bite or puncture the clavate hairs in order to suck out the cell sap; they are more probably attracted by, and lick up, the oily extra-cellular secretion on the surfaces of the hairs. This is a matter somewhat difficult to investigate, as it is impossible to observe the fly when actually at work inside the flower. I did not determine the exact origin of the oily secretion, and the question of the attractive food substance, and the mode of obtaining it is still somewhat problematical.

For purposes of comparison, I studied the structure of the spur of *Satyrium coriifolium*, Sw., a species in which, as is well known, honey is secreted abundantly. I found the interior surface of the spur in newly opened flowers, to be quite dry, but covered with elongated, juicy hairs (Fig. 5). The hairs are longer towards the opening of the spur. In a slightly older flower, the epidermis

at the apex of the spur was shedding its cuticle, and below this, the epidermal cells were secreting a sugary liquid. In a still older flower, the spurs were more than half filled with honey, and the few hairs remaining had their cell contents disintegrated. The cuticle had become entirely detached from the epidermis. Secretion of honey, in this species is sub-cuticular, and occurs after the flowers have opened. Honey is most abundant in the lower flowers of a spike, i.e., in those flowers in which the stigmatic surfaces are receptive. It thus appears that the spurs of *Satyrium bicallosum* remain throughout the life of the flower in a condition comparable to that found only in newly opened flowers of *S. coriifolium*. It will be remembered that Darwin<sup>1</sup> found no free honey in the spurs of *Orchis morio*, *O. maculata* and *O. pyramidalis*, and concluded that the visiting insects penetrate the membranes lining the spur, in order to obtain the sugary juice beneath.

During the daytime, the flies concerned in the pollination of *S. bicallosum* are not frequently seen, but at dusk they appear in large numbers, and fly fairly actively. It seems probable that cross-pollination takes place most frequently at nightfall, and that once a fly has a pollinium attached, it does not usually again take flight, but runs from flower to flower, and from inflorescence to inflorescence. Almost all flowers from the lower part of the spike have both pollinia removed after the flower has been open for a night, and, as the plants set seed abundantly, cross-pollination must be very effectively carried out.

I saw no other insect visitors, though aphides are occasionally seen at the bases of the ovaries; they play no part in pollination.

Members of the genus *Satyrium* are fairly abundant in the south-western district of South Africa, but, although some species are so common, practically nothing is known as to their mode of pollination. From their structure and colouration, *S. pumilum*, Thunb. and *S. saxicolum*, Bolus, would appear to be particularly interesting types; while the very remarkable structure of the column in *S. rhynchanthum*, Bolus would well repay further study. It is to be hoped that those in a position to carry out field observations will continue this work.

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<sup>1</sup> Darwin, 1904.

154 THE POLLINATION OF *SATYRIUM BICALLOSUM*, THUNB.

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## REVIEW

LICHENS. BY ANNIE LORRAIN SMITH, F.L.S., Acting-Assistant, Botanical Department, British Museum. Pp. xxviii + 464, with 135 figures in the text. *Cambridge: at the University Press, 1921.* Price: 55s. net.

ALTHOUGH a few lichens from the Cape of Good Hope were described by pre-Linnean botanists, and three or four by Linnaeus himself, or by his son, the first important account of the Cape lichens is that given by Carl Thunberg in his *Prodromus* (Pars posterior, 1800).

The list of species is a short one and the descriptions are in the brief style of that day. A fuller account of the same thirty-nine species is, however, given in Thunberg's *Flora Capensis* of 1823 (Edition Schultes), where the localities from which Thunberg's specimens were obtained are mentioned.

A striking feature of this list is that it contains a number of endemic species which still remain amongst the most interesting members of the South African lichen flora; although since Thunberg's day our knowledge has been very considerably extended.

Of the botanists of a later date who have collected lichens in South Africa, perhaps no one was more enthusiastic than the late Professor MacOwan. Though not himself a lichenologist, he collected a large number of new species which he forwarded to Europe, where they were subsequently described, for the most part by continental botanists.

Unfortunately for the South African lichenologist, scarcely a trace of all this work is to be found in any South African museum; the type specimens are scattered through the European herbaria, and the duplicates are mostly in private hands.

Before any complete account of the South African lichen flora can be given, the records of over one hundred and twenty years' work must be correlated: a task presenting obvious difficulties for reasons already stated.

What is required before much further progress can be made is the establishment of collections of lichens in the larger herbaria, and only in this way will the material for a monographic account of South African lichens again become available.

It is in this connection that Miss Lorrain Smith's work will be of very considerable value to the South African collector and student of lichens, as, since the publication of Schneider's *Text Book of General Lichenology* in 1897, no other work has appeared giving an account of the group in the English language.

After a brief introduction, in which collecting methods, and the uses of chemical reagents in lichenology are described, a short history of the subject is given. The structure of the lichen thallus is then treated in a very comprehensive manner; over one hundred and twenty pages are devoted to this and to vegetative reproduction.

In about fifty more pages, an account is given of the methods of reproduction by spores, and the results of many researches as to sexuality and the origin of the fruit body in lichens, are summarised. There is a chapter on cell products and general physiology, and subsequently the subject of the origin and evolution of lichens receives adequate treatment.

The section dealing with classification will be particularly useful to the South African worker, as it enables the genera to be identified. No doubt many overseas botanists will wish that this part of the work could have been elaborated, and the entire lack of illustrations of the genera will be much regretted.

An error occurs on p. 324, where *Combea*, one of the endemic Cape Roccellaceae, is said to have "gonidia absent from the hypothecium." This is the character of *Pentagenella*, *Combea* having a well defined gonidial layer below the hypothecium. The same error occurs in Zahlbruckner's account of the Lichens in Engler and Prantl, *Nat. Pfl.* 1, 1\* (key to the genera of Roccellaceae), from which it has crept into several works.

On p. 323, the apothecia of all Roccellaceae, except those of *Roccellina*, are said to be lateral. *Combea* is, of course, characterised by its large, terminal apothecia.

The genus *Dermatiscum* (p. 330), is said to have two species, one in Europe, the other in America. The sulphur coloured, endemic *Dermatiscum Thunbergii*, Nyl., of Olifant's Bad and the Montagu Pass is not mentioned, though of considerable interest to South African students, owing to the quaint history of its "discovery" by Leighton in the Burchell herbarium at Kew, four years after the death of the famous collector. Leighton described and figured it as a new species, but it was subsequently identified by Nylander as being the "Lichen Thunbergii" of Thunberg's *Flora Capensis*, and had been described by Acharius no less than eighty years before.

A very important feature of the present work is the section devoted to ecology, as it is in exactly this field that the South African worker can make much needed contributions to the science. The Cape Peninsula is almost unique in the variety of habitat which it affords in a very limited area, and a thorough study of the growth forms assumed by a single species under varied conditions of altitude, rainfall, and exposure to light would be of more than local interest.

The ecological section is the most complete of its kind, containing a full account of almost all previous work on the subject.

A bibliography, covering twenty-five closely printed pages, concludes the

work. As all these books and papers are alluded to in the text, and in many cases rather fully summarised, the detailed nature of the work will be realised. This latter feature will make it invaluable in a country with limited library facilities, and such a consideration should serve to counterbalance the somewhat high cost of the work.

The book is bound in the style of West's *Algae* in the same series, though the illustrations do not, in many cases, do justice to the plants they picture. Lichens are always difficult subjects for the photographer, and no doubt many of the photographs used to illustrate the text have suffered in reproduction.

It is to be hoped that the work will afford a much needed stimulus to lichenology in South Africa, and all botanists will owe a debt of gratitude to Miss Lorrain Smith for the exceedingly able manner in which she has presented and made readily accessible a vast fund of information.

S. G.

## EXPLANATION OF PLATE

## PLATE VI

- Figs. 1, 2 and 3. Three views of the column of *Satyrium bicallosum*, Thunb. All  $\times 20$ .  
Fig. 4. A pollinium of *S. bicallosum*, Thunb.  $\times 60$ .  
Fig. 5. A hair from the interior of the nectar spur of *S. coriifolium*, Sw.  $\times 100$ .  
Fig. 6. Side view of a flower of *S. bicallosum*, Thunb., with a portion of the posterior petal removed.  $\times 10$ .  
Fig. 7. Front view of a flower of *S. bicallosum*, Thunb.  $\times 10$ .  
Figs. 8 and 9. Glandular hairs from the interior of the spur of *S. bicallosum*, Thunb.  $\times 500$ .  
Fig. 10. The pollinating insect (a species of *Sciara*), with two pollinia attached to the thorax.  $\times 8$ .  
Fig. 11. Back view of the flower of *S. bicallosum*, Thunb., showing the two saccate spurs.  $\times 7$ .  
Fig. 12. Front view of the flower of *S. bicallosum*, Thunb., with the bract in position.  $\times 7$ .

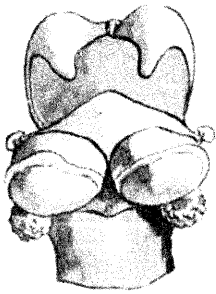


Fig. 1

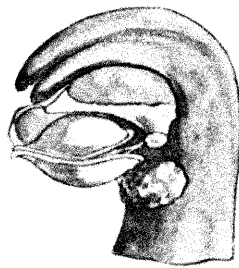


Fig. 2

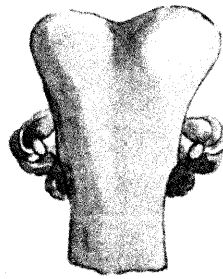


Fig. 3

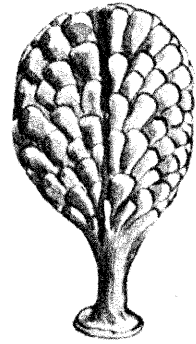


Fig. 4

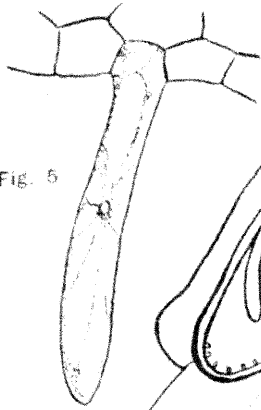


Fig. 5

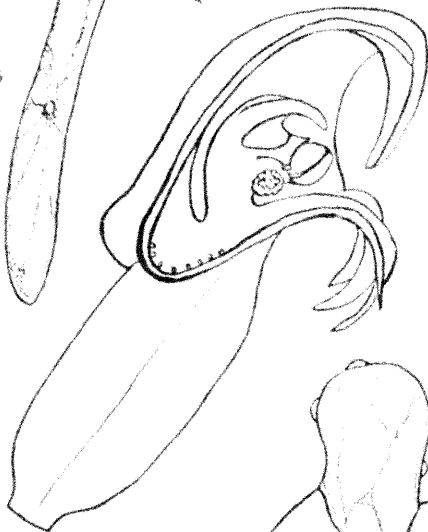


Fig. 6

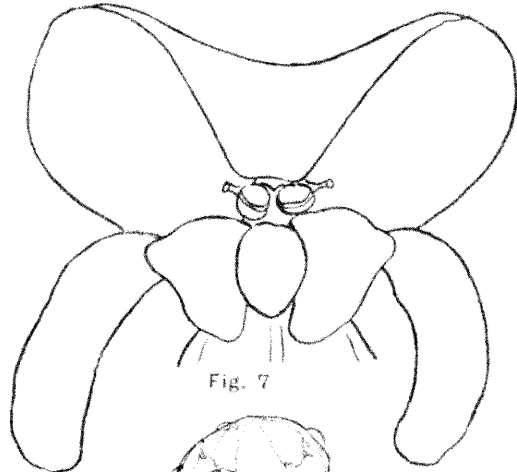


Fig. 7

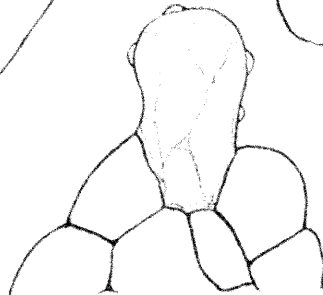


Fig. 8

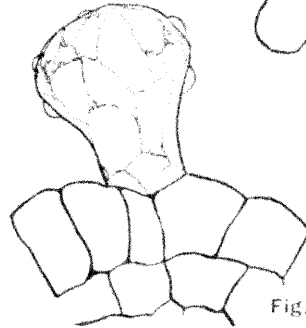


Fig. 9

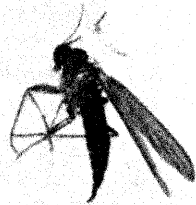


Fig. 10

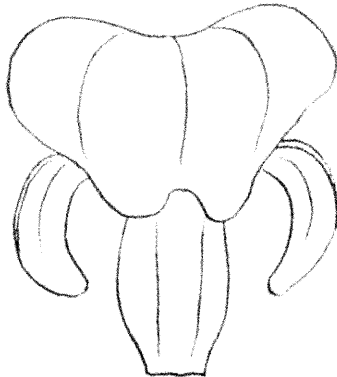


Fig. 11

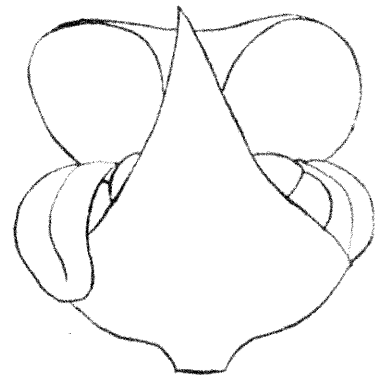


Fig. 12



## NOVITATES AFRICANAE

*Mesembrianthemum cupreum*, L. Bolus. Glabrum, ramis confertis, saepius dense 4-foliatis, folia connata, vagina ad 1·4 cm. longa, juniora (par secundum) 3-quetra, apice fere truncata leviterque serrulata, ad 3·5 cm. longa, 0·4 cm. lata, seniores (par primum) turgide 3-quetra, supra plana, obtusissima vel subtruncata, laevia, alterum adscendens, alterum recurvum, ad 2·8 cm. longa, 0·8 cm. lata; pedunculus teres, 5·5—7·5 cm. longus, basi 2-bracteatus, bracteis alte connatis, 2—2·5 cm. longis, gemmiferis, floribus lateralibus tardissime evolutis; flores meridie expansi, 3·8 cm. diam.; calyx depresso crateriformis, tubo apice constricto, 0·4 cm. longo, segmentis 4, inter se leviter inaequalibus, ovato-oblongis, 0·8—1 cm. longis, duobus membranaceo-marginatis; petala pluri-seriata lineari-spathulata acuta integra, supra medium rubro-cuprea, inferne pallida, basi aurea, pagina inferiore roseo-purpurea, 1·3—1·7 cm. longa; stamina erecta, in diam. 1 cm. metientia, filamentis aureis, intimis parce barbatis, 0·2—0·5 cm. longis, antheris subnigris, polline albedo; discus annularis crenulatus; ovarium leviter convexum, stigmatibus 12, subrectis lanceolatis acuminatis, stamina extima attingentibus, 0·4 cm. longis.

Cape Province: Western Region; Vanrhynsdorp, *E. B. Watermeyer* (National Botanic Gardens, No.  $\frac{122}{3}$ ).

Described from a specimen which flowered at Kirstenbosch, June 1923.

*Mesembrianthemum anemoniflorum*, L. Bolus, *M. dubio* affine, sed foliis saepius brevioribus, basin versus angustatis, calyce fere turbinato, petalis salmoneis, et staminibus effusioribus, inter se inaequilongis, differt.

Glabrum, ramis sarmentosis, internodiis 1·5—2·5 cm. longis, ramulis floriferis erectis, 2—6-foliatis, saepius 2—4 cm. longis; folia basi connata, adscendentia vel alterum patens alterumque incurvum, medio subteretia, apicem versus triquetra, abrupte angustata, apiculata, basin versus gradatim angustata, glauco-vidua purpurascencia laevia, 2—2·5 cm. longa, ad 0·5 cm. lata; pedunculus teres, infra medium 2-bracteatus, 1·5—2 cm. longus; flores meridie expansi, ad 6 cm. diam.; calyx fere turbinatus, circa 1·4 cm. longus, segmentis 5, inter se subaequilongis, ovatis acutis, ad 0·9 cm. longis, tribus membranaceo-marginatis; petala 2—3-seriata lineari-spathulata, saepe subacuta, integra, basin versus pallide, apicem versus saturate, salmonea, extima

circ. 2.5 cm. longa, 0.3 cm. lata; stamina diffusa, in diam. circ. 1.7 cm. metientia, filamentis albis, ad 0.6 cm. longis, intimis obscure barbatis stigmata excedentibusque, antheris pallidis, polline aureo; discus inconspicuissimus; ovarium conico-convexum, stigmatibus 10—18, adscendentibus vel ovario adpressis, subulatis aureis, 0.2 cm. longis, stamina intima leviter excedentibus.

Cape Province: South-Western Region; Caledon Div., nr. Hermanus, *Mrs Strangman* (National Botanic Gardens, No.  $\frac{2597}{16}$ ).

Allied to *M. dubio*, How., but differs in having usually shorter leaves gradually narrowed towards the base, an almost turbinate calyx, salmon-coloured petals, and more effuse stamens of which the innermost are much shorter than the outer ones.

Described from specimens which flowered for several years at Kirstenbosch during September.

*Mesembrianthemum primulinum*, L. Bolus (§ Corniculata). Glabrum, ramis sarmentosis, saepe 25 cm. longis vel ultra, internodiis 2—7 cm. longis, ramulis dense 4—6-foliatis, vel floriferis 2-foliatis; folia suberecta vel subincurva, connata, vagina 0.3—0.4 cm. longa, dorso rotundata, supra plana, subpallide, sed tamen laete, viridia, laevia, ad 6 cm. longa, basi 0.7 cm., medio 0.5 cm., lata; pedunculus ebracteatus, superne parum dilatatus, ad 9 cm., saepius 6—8 cm., longus; flores meridie expansi, ad 6.5 cm. diam.; calyx depressus, tubo 0.4—0.5 cm. longo, segmentis inter se valde inaequalibus, 0.6—2 cm. longis, vel ultra, duobus late membranaceo-marginatis; petala sublaxa 3-seriata spathulata integra, inferne pallida, superne primulina, ad 3 cm. longa, ad 0.4 cm. lata; stamina erecta, demum diffusa, in diam. circ. 1 cm. metientia, filamentis pallidis, inferne barbatis, 0.3—0.4 cm. longis, antheris albis; discus annularis crenulatus; ovarium conico-convexum, stigmatibus 10, adscendentibus vel patentibus, subulatis acuminatis, 0.3 cm. longis.

Cape Province: Vanrhynsdorp Div.; Bakhuis, Dec. 1910, *H. H. W. Pearson* and *N. S. Pillans* (Percy Sladen Memorial Expedition, No. 5480; Pillans, No. 2035, National Botanic Gardens, No.  $\frac{426}{16}$ ).

Described from numerous living specimens. This species has grown freely in Mr Pillans' garden for the last twelve years, flowering in August and September.

*Mesembrianthemum curtophyllum*, L. Bolus (§ Corniculata). Glabrum, ramis decumbentibus, in pedunculum terminantibus, 8—13 cm. longis, internodiis 1—2.5 cm. longis, ramulis dense 4—6-foliatis; folia connata, vagina 0.3—0.4 cm. longa, erecta vel alterum incurvum alterumque recurvum, subteretia acuta, saepius apiculata, saepe e medio superne dilatata, laevia, laete viridia, ad 2.3 cm. longa, ad 0.6 cm. lata, caulina ad 3.5 cm. longa, in hoc sectione breviora; pedunculus teres, prope



basin 2-bracteatus, 4.5—5 cm. longus; flores meridie expansi, 3.7 cm. diam.; calyx depresso crateriformis, tubo 0.4 cm. longo, segmentis inter se subaequilongis, 0.5—0.7 cm. longis, duobus late membranaceo-marginatis; petala 2-seriata vel, extimis brevioribus additis, 3-seriata, linearia, obtusa vel acuta, ad basin parum angustata, roseo-purpurea, inferne dilute purpurea obscureque vittata, 0.5—1.4 cm. longa, ad 0.2 cm. lata; stamina erecta vel subdiffusa, in diam. 0.7 cm. metientia, filamentis albis, basi barbatis, inter se subaequilongis, ca. 0.4 cm. longis; discus annularis vel glandulis plus minusve discretis; ovarium conico-convexum, stigmatibus 10, subulatis acuminatis, 0.3 cm. longis.

Locality and collector unknown (National Botanic Gardens, No.  $\frac{386}{186}$ ).

Described from a plant which flowered at Kirstenbosch in June 1921.

*Mesembrianthemum platycalyx*, L. Bolus (§ *Corniculata*). Glabrum, ramis sarmentosis, internodiis 3—5 cm. longis, ramulis patentibus, 4—6-foliatis; folia connata, vagina subtumidula, ad 0.6 cm. longa, matura dorso rotundata, supra plana, acuta vel obtusa, 5—7 cm. longa vel caulina ad 10 cm. longa, medio ad 0.6 cm. lata; pedunculus 7—9 cm. longus, prope basin vel supra medium 2-bracteatus, bracteis interdum floriferis, floribus lateralibus tardissime evolutis; flores meridie expansi, fere ad 6 cm. diam.; calyx praecipue depressus, tubo circ. 0.3 cm. longo, segmentis 5, inaequalibus, tribus foliis similibus, duobus membranaceo-marginatis, 0.8—1.5 cm. longis; petala linearia acuminata, supra medium latissima, inferne gradatim angustata, integra, inferne albis vel pallide roseis, superne saturate roseis, inter se subaequilonga, ad 2.8 cm. longa, ad 0.25 cm. lata; stamina erecta vel subdiffusa, in diam. metientia 1.3 cm., filamentis albidis, 0.3—0.5 cm. longis, interioribus barbatis, antheris brunneo-purpureis, polline pallido; discus annularis inconspicuus; ovarium convexum, stigmatibus 12—13, erectis, apice recurvis, demum patentibus, acuminatis ramentaceis, 0.3 cm. longis.

Cape Province: Karroo Region; near Matjiesfontein, *N. S. Pillans* (Bolus Herbarium, No. 15946).

Described from living specimens which flowered in Mr Pillans' garden, Rosebank, near Cape Town, in June and August.

*Mesembrianthemum Schollii*, Salm Dyck—var. *caledonicum*, L. Bolus. Rami breves densi, plantam compactam formantes, rarissime elongati procumbentes; folia adscendentia connata, vagina ad 1 cm. longa, triquetra acuta apiculata, supra plana, lateribus leviter convexis, angulis, carina praecipue, cartilagineo-serrulatis, saturate viridia, 3.5—8 cm. longa, ad 1 cm. lata; flores 5-meri, meridie expansi, 2.5—3.2 cm. diam., ternati vel bi-ternati, vel in cymam, regulariter ramosam, subcongestam, 8 cm. longam, 6 cm. diam., dispositi, pedunculis 1.5—3 cm. longis, lateralibus bracteatis, bracteis supra sat profunde concavis, carina cartilagineo-

serrulata, marginibus integris, late membranaceis; alabastrum acuminatum; calyx subturbinatus, tubo circa 0.4 cm. longo, segmentis ovatis acuminatis, vel interioribus lanceolatis, omnibus membranaceo-marginatis, 0.4—0.7 cm. longis; petala inter se subaequilonga, linearia obtusa integra, inferne leviter angustata, roseo-purpurea, saturatius vittata, ad 1.1—1.5 cm. longa, fere 0.2 cm. lata; stamina collecta, staminodiis purpureis filiformibus circumdata, in diam. 0.4—0.5 cm. metientia, filamentis incurvis, basin versus albis, superne purpureis, omnibus barbatis, 0.2—0.5 cm. longis, antheris pollineque luteis; discus annularis, crebre profundeque fissus; ovarium supra convexum, stigmatibus crassis subulatis setaceo-acuminatis, 0.35 cm. longis.

Cape Province; South-Western Region; Caledon Div., hillsides, near Caledon, fl. Sept., *M. M. Page* (National Botanic Gardens, No.  $\frac{2273}{16}$ ). Sir Lowry's Pass, fl. July, *R. Glover* (*id.* No.  $\frac{1901}{17}$ ).

Described from living plants which have flowered at Kirstenbosch for seven years from July to October.

*Mesembrianthemum* Duthieae, L. Bolus (§ Sarmentosa). Glabrum, ramis reptantibus, internodiis 2—3.5 cm. longis, ramulis floriferis erectis, 7—10 cm. longis, saepius inferne dense 6-foliatis, axillis gemmiferis, superne pedunculoideis, foliis supremis bracteiformibus; folia suberecta connata, vagina ad 0.6 cm. longa, 3-quetra vel angulo carinale medio rotundato, angulis integerrimis, supra concava, acuta viridia laevia, 2—8 cm. longa, ad 0.7 cm. lata, ad 0.8 cm. diam.; flores 5-meri, rite 3-nati, interdum solitarii, lateralibus demum tardissime evolutis, meridie expansi, 2.4 cm. diam., pedunculis omnibus medio 2-bracteatis, 2—3 cm. longis; calyx turbinatus, tubo circa 0.4 cm. longo, segmentis ovatis acutis, 0.6—0.7 cm. longis, interioribus membranaceo-marginatis; petala inter se aequilonga oblanceolata obtusa, inferne pallidiora, superne roseo-purpurea, saturatius vittata, 0.8 cm. longa, 0.2 cm. lata; stamina collecta, staminodiis setaceo-filiformibus circumdata, in diam. apice 0.3 cm. metientia, filamentis incurvis, omnibus barbatis, albidis, superne purpureis, 0.3—0.5 cm. longis, antheris albis; discus annularis crenulatus; ovarium supra convexum 5-lobum, stigmatibus crassis subulatis setaceo-acuminatis, fere 0.3 cm. longis.

Cape Province: South-Western Region; Knysna, *A. V. Duthie* (National Botanic Gardens, No.  $\frac{171}{15}$ ).

Described from living specimens which have flowered at Kirstenbosch for several years during August and September.

*Mesembrianthemum* Comptonii, L. Bolus. Tenuissime papillosum glaberrimum caulescens, 15—23 cm. altum, diffuse ramosum, ramulis subcompressis, 2.5—3.5 cm. longis; folia basi vix connata, adscendentia, interdum subfalcata, demum late patentia, turgidissime triquetra, dorso

basin versus rotundata, superne carinata, supra medium parum dilatata, apice subtruncata vel obtusa, purpureo-apiculata viridia, ad 4 cm. longa, 0.6 cm. lata, 1 cm. diametroque; flores 5-meri tri-ternati, meridie expansi, 2.7 cm. diam., pedunculis ad 3 cm. longis, omnibus, praeter ultimum, medio 2-bracteatis; calyx turbinatus, tubo 0.3 cm. longo, segmentis acutis, inter se inaequalibus, 0.5—1 cm. longis; petala inter se subaequilonga linearia, basin versus leviter angustata, alba, inferne inconspicue roseo-vittata, 1.1 cm. longa, 0.15 fere ad 0.25 cm. lata; stamina conico-collecta, staminodiis pallidis, superne rubro-purpureis, circumdata, filamentis pallidis, superne rubicundis, supra medium barbatis, ad 0.35 cm. longis; discus e 5 glandulis discretis semi-lunatis crenulatus compositus; ovarium supra convexum, stigmatibus subulatis setaceo-acuminatis, 0.2 cm. longis.

Cape Province: South-Western Region; Klaver, fl. July 1923, *R. H. Compton* (National Botanic Gardens, No.  $\frac{295}{2}$ ).

Allied to *M. lunatum*, Willd., but very distinctly, though finely, papillose and with an apple-green tint, very different from the glaucous-green of its ally. The leaves are far more turgid and less falcate and the whole plant less woody.

*Mesembrianthemum Edwardsiae*, L. Bolus. Epapulosum glabrum caulescens, ad 25 cm. altum, crebre ramosum, ramis ramulisque dense foliatis; folia 3-quetra, lateraliter forte compressa, saepissime falcata, rarius patentia, oblonga vel rarius supra medium ampliata, apiculata, apiculo interdum recurvo, glauca laevissima, ad 2.5 cm. longa, medio ad 0.2 cm. lata, 0.7 cm. diam., ea in ramulis floriferis saepius 1.5 cm. longa, 0.15 cm. lata, 0.5 cm. diam.; flores 5-meri, rite bi-ternati, ad 1.2 cm. diam., meridie expansi, pedunculis, praeter ultimum, medio 2-bracteatis, in calycem haud gradatim transeuntibus; calycis tubus subcrateriformis, basi subtruncatus, medio leviter constrictus, 0.2 cm. longus, segmentis ovatis acutis, inter se aequilongis, 0.3 cm. longis, tribus membranaceo-marginatis; petala inter se subaequilonga, spathulata, acuta vel rarius obtusa, rosea, marginibus saturatioribus, 0.4 cm. longa, 0.1 cm. lata; stamina conico-collecta, staminodiis longe barbatis, inter se intertextis, circumdata, filamentis pallidis, medio vel apice barbatis, ad 0.2 cm. longis, antheris luteis; discus conspicuus annularis, irregulariter partitus; ovarium supra planum, sive in medio vero elevatum, stigmatibus lineari-filiformibus, 0.2 cm. longis.

Cape Province: South-Western Region; Clanwilliam Div., Oliphant's River Valley, anno 1914, *G. Edwards* (National Botanic Gardens, No.  $\frac{2600}{14}$ ).

Allied to *M. lunatum*, Willd., but readily distinguished by the strongly compressed leaves and smaller flowers.

Described from living specimens which have flowered during July and August at Kirstenbosch for the last nine years.

*Mesembrianthemum amplexicaule*, L. Bolus. Epapulosum caulescens glabrum, ramis decumbentibus rigidis, fere ad 0.4 cm. diam., internodiis 1—2 cm. longis, ramulis floriferis fere erectis, cum floribus 4—7 cm. longis; folia amplexicaulia, haud connata, subfalcata, turgide 3-quetra, obtusa apiculata, supra leviter convexa, basi amplexiculae dilatata, glauco-iridia laevia, 1.2—3 cm. longa, 0.65 cm. lata, 0.5 cm. diam., pedunculis teretibus, 0.7—1.4 cm. longis, omnibus medio vel inferum bracteatis; calycis tubus brevis, segmentis 5, inter se subaequilongis, ovato-oblongis subacutis, 0.6—0.7 cm. longis, omnibus membranaceo-marginatis; petala 1-seriata linearia, basin versus parum angustata, acuta vel obtusa, purpureo-rosea, inferne pallidiora obscureque purpureo-vittata, ad 1.2 cm. longa, vix ad 0.2 cm. lata; stamina subdiffusa, 0.7 cm. diam. metientia, filamentis purpurascens, basi barbatis, 0.3—0.5 cm. longis, antheris pallidis pollineque luteo; discus annularis crenatus; ovarium supra conico-convexum, stigmatibus 10, lanceolatis, longe setaceo-acuminatis, apice recurvatis, luteo-iridibus, 0.5 cm. longis; capsula subglobosa, 0.7 cm. diam.

Cape Province: exact locality unknown.

Flowered in Mr N. S. Pillans' garden at Rosebank, near Cape Town, June 1921 (Bolus Herbarium, No. 17045).

*Mesembrianthemum flaccidum*, L. Bolus (§ Aurea). Glabrum, ad 20 cm. altum, ramis, cum foliis, flaccidis, internodiis ad 4 cm. longis; folia adscendentia vel patentia, vix connata, oblique 3-quetra, acuta, laete iridia, 2—4 cm. longa, 0.4—0.5 cm. lata diametroque; flores 5-meri solitarii, meridie expansi, 3.5 cm. diam., pedunculis teretibus, 5—6 cm. longis, medio 2-bracteatis; calyx turbinatus, segmentis acutis, inter se inaequilongis, 0.5—1 cm. longis, tribus membranaceo-marginatis; petala ca. 4-seriata lineari-spathulata integra aurea, interiora saturatius mediana linea ornata, 0.6—1.6 cm. longa, ad 0.25 cm. lata; stamina conferta vel subdiffusa, apice 0.5 cm. diam. metientia, filamentis aureis ebarbatis, 0.3—0.8 cm. longis, antheris luteis; discus obscurus; ovarium supra planum, stigmatibus subulatis acuminatis, superne purpurascens, 0.25 cm. longis.

Cape Province: South-Western Region; Montagu Div., open veld between Montagu and Montagu Baths, scrambling among bushes of *M. micans*, *M. M. Page* (Bolus Herbarium, No. 17258).

Described from a specimen which flowered in Miss Arbuthnot's garden, Wynberg, September 1922.

*Mesembrianthemum miserum*, L. Bolus. Epapulosum caulescens glabrum, ca. 37 cm. altum, laxe ramosum, ramis adscendentibus gracilibus teretibus, internodiis 1.5—3 cm. longis; folia adscendentia, interdum subfalcata,

connata, vagina ad 0.2 cm. longa, subturgide 3-quetra, supra plana, abrupte acuta, apiculata, inferne parum angustata, laevia, ad 1.7 cm. longa, 0.25 cm. lata; flores 5-meri, in cymam inaequaliter ramosam, ad 6 cm. longam, dispositi, vel 1—3-nati, 0.7 cm. diam., pedunculis medio 2-bracteatis, 0.8—1.5 cm. longis; calyx turbinatus, segmentis patentibus oblongo-ovatis, inter se aequilongis, 0.4 cm. longis; petala abeuntia; stamina subconico-collecta, staminodiis anguste linearibus, basi ampliatis, circumdatis, filamentis albidis, apicem versus lutescentibus, basi vel medio barbatis, 0.2—0.3 cm. longis; discus annularis crenulatus; ovarium supra conico-convexum, stigmatibus subulatis setaceo-acuminatis, 0.2 cm. longis.

Cape Province: South-Western Region; exact locality unknown, but said to come, probably, from the Clanwilliam Div. Flowered for the last three years in Mrs H. S. van Zijl's garden, Claremont, near Cape Town, during September and October.

This is the first instance which has come under my observation of a *Mesembrianthemum* entirely devoid of petals.

*Mesembrianthemum crateriforme*, L. Bolus. Epapillosum subcaulescens glabrum, ramulis 2-foliatis, foliis connatis, corpusculum 3.3 cm. longum, apice 3.3 cm., basi 0.9 cm., latum formantibus, vagina 1.2—1.9 cm. longa, oblique obtusissimeque 3-quetris, apice subtruncatis, deinde rotundatis, basin versus parum angustatis, a pagina superiore visis subrhomboides, glauco-viridibus laevibus; pedunculus inclusus, basi 2-bracteatus, bracteis connatis, cum vagina 0.7 cm. longa, 2 cm. longis, superne cucullatis; flos solitarius; calyx subclavatus, in tubum crateriforme ultra ovarium productus, apice tubi subconstrictus, segmentis 6, ovatis obtusis, inter se subaequilongis, 0.4—0.5 cm. longis, quattuor membranaceo-marginatis; petala numerosa pluri-seriata lineari-spathulata, e supra dimidium inferne gradatim angustata, roseo-purpurea, 0.4—1.5 cm. longa, ad 0.15 cm. lata; stamina interiora inflexa, in tubum pendentia, 0.4 cm. longa, exteriora fere erecta, 0.3 cm. longa, filamentis omnibus barbatis, cum antheris pollineque albis; discus annularis multifidus, segmentis acutis; ovarium supra planum, stigmatibus 14, radiate patentibus, ovario arcte adpressis, vix 0.1 cm. longis.

Cape Province: Vanrhynsdorp, *E. B. Watermeyer* (National Botanic Gardens, No.  $\frac{227}{23}$ ).

Flowered at Kirstenbosch, June 1923.

The produced calyx-tube and inflexed stamens are very similar to those of *M. brevipes*, Schltr. (*Roodia digitifolia*, N.E.Br.), *M. Pillansii*, Kensit, and most of the species in the § *Bracteata*.

*Mesembrianthemum cyathiforme*, L. Bolus (§ *Haworthiana*). Glabrum, ad 22 cm. altum vel ultra, ramis fere erectis, internodiis 1.5 cm.—2.5 longis; folia patentia vel decurvata, subflaccida, juniora adscendentia, vix con-

nata, dorso rotundata, apicem versus obscure carinata, supra plana vel basin versus concava, acuta, dilute viridia, laevia, 2·5—3·2 cm. longa, ad 0·4 cm. lata diametroque; flores 5-meri, meridie expansi, ad 4·4 cm. diam., solitarii vel apice ramulorum 3-nati, pedunculis teretibus, 1·5—5 cm. longis, medio 2-bracteatis, bracteis a foliis non differentibus; calycis tubus cyathiformis, ad 1·4 cm. longus, apice ad 1 cm. latus, segmentis inter se valde inaequalibus, ovatis acuminatis, 0·5—1·4 cm. longis, tribus ampliate membranaceo-marginatis; petala 3-seriata lineari-spathulata obtusa, integra vel inaequaliter 2-dentata, roseo-purpurea, basin versus alba, ad 2 cm. longa, 0·3—0·4 cm. lata, intima linearia pallida, 0·8 cm. longa; stamina sat pauca, collecta incurvata, staminodiis filiformibus pallidis, basi barbatis, circumdata, 0·3 cm. diam. metientia, filamentis albis, basi barbatis, 0·4—0·6 cm. longis, antheris pollineque dilute luteis; discus annularis crenatus; ovarium supra convexum 5-lobum, stigmatibus suborbicularibus setaceo-apiculatis luteo-viridibus, 0·2 cm. longis; capsula supra purpurascens, 1·3 cm. diam.

Cape Province: exact locality unknown (Bolus Herbarium, No. 17255).

Described from living specimens which flowered in Miss Arbuthnot's garden, Wynberg, September 1922.

*Mesembrianthemum explanatum*, L. Bolus. *Epapulosum glaberrimum* caulescens, ramis elongatis reptantibus, 45 cm. longis vel ultra, vix ad 0·2 cm. diam., internodiis 1·5—3·5 cm. longis, ramulis floriferis erectis, 1—8 cm. longis, dense foliatis; folia adscendentia vel suberecta connata, vagina ad 0·15 cm. longa, seniores fere semi-teretia, juniora plus minusve obtuse carinata, acuta glauco-viridia, ad 2·3 cm. longa, 0·2 cm. lata diametroque; flores 5-meri, solitarii vel rarius 2-nati, meridie expansi, 4·4 cm. diam., pedunculis medio 2-bracteatis, 1·5—3·5 cm. longis; calyx clavatus, segmentis inter se subaequilongis lanceolatis acutis, intimis late membranaceo-marginatis, 0·5—0·6 cm. longis; petala pluri-seriata, exteriora lineari-spathulata acuta, interiora linearia acuminata, omnia utrinque laete lutea, ad 2·1 cm. longa, 0·2 cm. lata; stamina explanata, in diam. 1·6 cm. metientia, filamentis stramineis ebarbatis, 0·2—0·7 cm. longis, antheris luteis; discus inconspicuus subannularis; ovarium supra leviter convexum, stigmatibus crassis subulatis setaceo-acuminatis luteis, 0·25 cm. longis.

Cape Province: South-Western Region; Cape Flats (National Botanic Gardens); Cape Peninsula, slopes of Muizenberg, above Lakeside, fl. Sept., *M. M. Page* (Bolus Herbarium, No. 15200); Somerset West Div., Somerset Strand, fl. Oct., *M. M. Page* (Bolus Herbarium, No. 15201).

*Mesembrianthemum angustipetalum*, L. Bolus. *Epapulosum glaberrimum*

caulescens, ad 12·5 cm. altum, ramis adscendentibus vel diffusis, ramulis floriferis 4-foliatis; folia sat pallide viridia laevia connata, turgide 3-quetra, carina obscura, inferiora apice subrecurva, ad 1·4 cm. longa, vagina 0·6 cm. longa, superiora acuta apiculata, lamina 1·8 cm. longa, 0·4 cm. lata diametroque, vagina ad 0·9 cm. longa; flores solitarii 5-meri, per totam diem expansi, etiam per noctem vix clausi, 4·6 cm. diam., pedunculo tereti, basin versus 2-bracteato, bracteis 2·3 cm. longis sine vagina 0·6 cm. longa; calycis tubus subcrateriformis viridi-punctatus, 0·4 cm. longus, 0·8 cm. diam., segmentis lineari-lanceolatis vel oblongis acuminatis, 1·1—1·7 cm. longis; petala angusta, laxe disposita, inter se subaequilonga, linearia, acuta vel rarius subobtusa, alba vel pallide rosea, ad 2·1 cm. longa, 0·1—0·15 cm. lata; stamina conico-collecta, staminodiis numerosis albidis, superne luteis vel pallidissime roseis, circumdata, cono circa 1 cm. alto, filamentis pallidis, parce barbatis, 0·4—0·8 cm. longis; discus inconspicuus annularis, obscure crenulatus; ovarium supra fere planum vel interdum leviter convexum, stigmatibus 10, linearibus, longe attenuatis, 1 cm. longis, demum ultra stamina bene exsertis.

Cape Province: South-Western Region; Clanwilliam Div., fl. July 1923, *Dorothy van Zijl* (Bolus Herbarium, No. 15199).

*Mesembrianthemum diutinum*, L. Bolus. Epapillosum glaberrimum caulescens, ramis elongatis, nodis radicanibus, ramulis floriferis adscendentibus vel erectis, compressis, anguste alatis, sine pedunculo saepius 3·5—8 cm. longis, internodiis 1—2·5 cm. longis; folia adscendentia vel patentia, interdum subfalcata, connata, vagina ad 0·15 cm. longa, 3-quetra, e medio superne leviter dilatata, acuta purpureo-apiculata viridia laevia, ad 2 cm. longa, 0·25 cm. lata, 0·35 cm. diametroque; flores 5-meri solitarii vel 2-nati, meridie expansi, ad 4·8 cm., saepius 4 cm., diam., pedunculis medio 2-bracteatis, 3—6 cm., rarissime 1·5 cm., longis; calyx subclavatus, tubo 0·6 cm. longo, segmentis ovato-oblongis, inter se subaequilongis, 0·5—0·6 cm. longis, intimis late membranaceo-marginatis, membranis brunneis; petala pluri-seriata, exteriora spathulata, apice irregulariter denticulata, roseo-purpurea, 1·8—2 cm. longa, fere ad 0·3 cm. lata, interiora pauca linearia, acuminata vel acuta, 0·7—1·3 cm. longa; stamina erecta vel subdiffusa, in diam. 0·7 cm. metientia, filamentis albis ebarbatis, 0·2—0·4 cm. longis, antheris polineque luteis; discus conspicuus annularis, obscure crenulatus; ovarium supra planum, stigmatibus subulatis crassis, 0·2 cm. longis.

Cape Province: South-Western Region; Riversdale Div., *Dr J. Muir*, 2670 (National Botanic Gardens, No.  $\frac{1587}{14}$ ).

This species has flowered at Kirstenbosch for the last nine years. It has a long flowering-period, from July to November, and remains open

until later in the day than many other species. The name, *divinum*, refers to these characteristics.

*Mesembrianthemum politum*, L. Bolus (§ *Bracteata*). Erectum glaberrimum, 18—25 cm. altum; rami adscendentes substricti, 2·5—12 cm. longi, internodiis 1—2 cm. longis; folia adscendentia connata, vagina 0·2 cm. longa, 3-quetra, supra plus minusve concava, acuta vel acuminata, interdum apiculata, apiculo recurvato, polita luteo-viridia, 1·5—2 cm. longa, 0·3—0·5 cm. lata diametroque; flores 5-meri solitarii, ad 2 cm. diam.; pedunculi 0·8—1 cm. longi, bracteis foliis simillimis, fere basi calycis positus; calyx cylindricus, basin versus attenuatus, tubo ultra ovarium producto leviterque constricto, 5-angulatus, angulis duobus acutis, ceteris obtusis vel rotundatis, 0·8—1 cm. longus, sine segmentis duobus foliaceis, ad 0·7 cm. longis, tribus ampliate membranaceo-marginatis, 0·5—0·6 cm. longis; receptaculum intra dilatatum, supra ovarium extendens; petala laxa pluri-seriata linearia, acuta vel acuminata, intima obtusa in staminodia transeuntia, rosea, 0·3—0·9 cm. longa, 0·1 cm. lata vel parum latiora; staminodia conferta, apicem versus erecta, exteriora alba, limpide papillata, teretiuscula, acuta vel subobtusa, interiora purpurea setaceo-acuminata, ad 0·2 cm. longa; stamina pauca incurvata, itaque antherae supra stigmata dependentes, filamentis purpureis, antheris orbicularibus, cum polline, albidis; discus inconspicuus annularis; ovarium supra planum, stigmatibus subulatis setaceo-acuminatis, vix 0·1 cm. longis; capsula demum obconicum, 5-angulatum, ad 1 cm. diam.

Cape Province: South-Western Region; Ladismith Div., Muiskraal, alt. 1400 ft., fl. Sept. 1923, *Dr John Muir* (Bolus Herbarium, No. 17417).

Distinguished from all the other species of the section *Bracteata* by the polished leaf-surface.

*Mesembrianthemum Henricii*, L. Bolus. Epapillosum glabrum, fruticosum, ramis adscendentibus rigidis, ad 25 cm. longis, 0·4 cm. diam., ramulis floriferis gracilibus, 1—4 cm. longis; folia connata, vagina 0·1 cm. longa, subfalcata, subclavata, turgide triquetra vel carina plus minusve obscura, glauco-viridia laevia, ad 0·9 cm. longa, 0·25 cm. lata, 0·3 cm. diametroque; flores 5-meri, solitarii vel 2-nati vel rarius 3-nati, meridie expansi, 1·2 cm. diam., pedunculis gracilibus, omnibus medio 2-bracteatis, laterilibus 0·5 cm. longis, mediano ad 0·8 cm. longo; calyx subturbinatus, basi fere truncatus, circa 0·25 cm. diam., tubo 0·35 cm. longo, apice subconstricto, segmentis inter se aequilongis, lanceolatis vel ovato-lanceolatis, acutis, 0·4 cm. longis, interioribus late, exterioribus anguste, membranaceo-marginatis; petala pluri-seriata roseo-purpurea, basin versus pallidiora, marginibus saturatis, inter se subaequilonga, 0·5 cm. longa, 0·15 cm. lata; stamina non bene visa, ? conferta, filamentis superne purpureo-notatis, parum infra medium barbatis, antheris pallidis; discus prominens



annularis luteo-viridis partitus, segmentis acutis; ovarium supra convexum, 0.3 cm. diam., stigmatibus erectis lineari-filiformibus, 0.15 cm. longis.

Cape Province: South-Western Region; Clanwilliam Div., Koudeberg, near Wupperthal, alt. ca. 3000 ft., fl. Oct., *H. Bolus*, 9006. Karroo Region; Witteberg, near Matjesfontein, *R. H. Compton* (National Botanic Gardens, No.  $\frac{762}{23}$ ).

*Mesembrianthemum saturatum*, L. Bolus. Epapulosum glaberrimum caulescens erectum, circa 25 cm. altum, e basi ramosum, ramis adscendentibus, inferne dense, superne laxe, foliatis, internodiis 1.5 cm. longis vel brevioribus, ad 4.5 cm. longis; folia adscendentia vel late patentia connata, vagina ad 0.25 cm. longa, vel juniora fere discreta, seniora semiteretia vel fere teretia, juniora plus minusve obtuse carinata, supra plana, omnibus acuta laevisissima subflaccida glauco-viridia, ad 4 cm. longa, 0.4—0.5 cm. lata, ad 0.6 cm. diam.; flores solitarii 5-meri, meridie expansi, ad 5.6 cm. diam., pedunculis medio bracteatis 5—9 cm. longis; calyx clavatus, tubo 1 cm. longo, segmentis lanceolatis acuminatis, intimis late membranaceo-marginatis, 1.1—1.6 cm. longis; petala pluri-seriata, laetissime roseo-purpurea, subtus et basin versus pallidiora, spathulata, apice obscure denticulata, 2.6 cm. longa, ad 0.4 cm. lata, interiora linearia acuminata; stamina diffusa, in diam. 1.3 cm. metientia, filamentis saturate rubris, 0.5—0.9 cm. longis, intimis dense barbatis, antheris pollineque luteis; discus obscurus annularis; ovarium supra elevatum, apice subtruncatum, profunde 5-lobum, lobis medio longitudinaliter sulcatum, stigmatibus crassis subulatis setaceo-acuminatis, vix 0.25 cm. longis.

Cape Province: exact locality uncertain, but said to come from Vanrhynsdorp Div. Comm. *Mrs H. S. van Zijl*, July 1923.

Described from cultivated specimens. The name refers to the deep colouring of the filaments.

*Mesembrianthemum Marianae*, L. Bolus. Epapulosum glaberrimum caulescens suffruticosum, circa 31 cm. altum vel ultra; folia adscendentia connata, vagina 0.7—1.5 cm. longa, vix tumidula, turgide 3-quetra subacuta apiculata, angulis integris, glauco-viridia laevia, 5—10 cm. longa, 0.4—0.7 cm. lata; flores 5-meri, 3-nati vel bi-ternati, meridie expansi, 4 cm. diam., pedunculis omnibus bracteatis, bracteis concavo-cucullatis, late membranaceo-marginatis, 1.3 cm. longis; calyx turbinatus, tubo 0.6 cm. longo, segmentis omnibus membranaceo-marginatis ovato-oblongis, 0.7—1 cm. longis, ca. 0.8 cm. latis; petala multi-seriata obovato-spathulata, inter se fere aequilonga, vel 2—3 minoribus, 1.2—1.5 cm. longis additis, lacerato-denticulata, splendide coccinea, ad 1.9 cm. longa, 0.5 cm. lataque; stamina collecta, apicem versus leviter patentia, apice

0.7 cm. diam. metientia, filamentis rubris ebarbatis, antheris pollineque aureis, 0.5—0.9 cm. longis; discus inconspicuus annularis crenulatus; ovarium supra convexum, distincte 5-lobum, stigmatibus erectis subulatis acuminatis, 0.4 cm. longis.

Cape Province: Western Region; Nieuwoudtville. Flowered in Dr R. Marloth's garden, Cape Town, July 1923.

A remarkably beautiful species, whose broad, bright scarlet petals serve to distinguish it from its allies in the § *Tumidula*. Named after Mrs R. Marloth, an ardent cultivator of South African plants.

*Mesembrianthemum cymosum*, L. Bolus (§ *Tumidula*). Glabrum, 20—40 cm. altum vel ultra, crebre ramosum; rami rigidi, ad 0.4 cm. diam., internodiis 2.5—4 cm. longis, ramulis saepius 4—6-foliatis, axillis gemmiferis, superne pedunculoideis; folia adscendentia, saepius fere erecta, apicem versus haud recurva, dorso rotundata, supra leviter convexa, sat abrupte acuta, obscure apiculata, glauco-viridia, 2—4.5 cm. longa, ad 0.4 cm. lata diametroque, vagina ad 0.5 cm. longa; flores 5-meri numerosi, meridie expansi, 1.8—2 cm. diam., in cymam latam, ad 12 cm. diam., saepius 4-furcatam, dispositi, ramis senioribus rigide patentibus, junioribus adscendentibus, pedunculis persistentibus, induratis vel etiam subspinescentibus, ultimis 1—2 cm. longis, omnibus 2-bracteatis, bracteis patentibus connatis crassis obtusis, 0.3—1 cm. longis; calyx turbinatus, segmentis inter se subaequilongis, ovato-lanceolatis acutis, ad 0.4 cm. longis, tribus ampliate membranaceo-marginatis; petala 1-seriata linearispathulata integra purpureo-rosea, ad 0.8 cm. longa, 0.1—0.15 cm. lata; stamina subdiffusa, 0.4—0.5 cm. diam. metientia, filamentis dilute roseis, basi barbatis, 0.15—0.3 cm. longis, antheris pallidis, polline luteo; discus annularis crenulatus; ovarium supra convexum, stigmatibus subulatis, longe attenuatis, 0.2 cm. longis.

Cape Province: South-Western Region; Montagu Div., Montagu Baths, very common, fl. Oct. 1921, *M. M. Page* (Bolus Herbarium, No. 17168). Oudtshoorn Div., The Brook, near Oudtshoorn, fl. Dec. 1905, *H. Bolus*, 11903.

*Mesembrianthemum Lerouxiae*, L. Bolus. Epapulosum caulescens glabrum, ramis decumbentibus vel subadscendentibus, 0.3 cm. diam., internodiis 1.5—3 cm. longis, ramulis fere erectis compressis, anguste alatis, 2—4-foliatis; folia fere erecta connata, vagina sat tumidula, 0.3—0.5 cm. longa, triquetra vel turgide 3-quetra, acuta apiculata, supra plana, laevia glauco-viridia, ad 6 cm. longa, 0.4—0.8 cm. lata, 0.6—0.8 cm. diam.; flores 5-meri, die expansi, ad 5.6 cm. diam., 3-nati, pedunculis in calycem gradatim abeuntibus, 3—6 cm. longis, omnibus medio 2-bracteatis, bracteis foliis multo minoribus, basi concavis, 1.1—1.7 cm. longis; calyx turbinatus, tubo 0.5—0.6 cm. longo, segmentis lanceolatis acutis, inter

se leviter inaequalibus, 0.8—1 cm. longis, tribus membranaceo-marginatis; petala pluri-seriata lineari-spathulata obtusa, integra vel interiora irregulariter dentata, purpureo-rosea, inferne obscure purpureo-vittata, 1.8—2.5 cm. longa, 0.2—0.3 cm. lata; stamina subdiffusa, 1 cm. diam. metientia, mox late diffusa, 1.6 cm. diam. metientia, filamentis rubro-purpureis, interioribus barbatis, 0.4—0.7 cm. longis, antheris pollineque laete luteis; discus annularis crenatus; ovarium supra conico-convexum, profunde lobatum, stigmatibus rubro-brunneis vel viridibus, subulatis vel subulato-lanceolatis, 0.25—0.3 cm. longis.

Cape Province: Namaqualand: Nababeep, fl. Aug. (1923), *Mrs Olive le Roux* (Bolus Herbarium, No. 15197).

*Mesembrianthemum intermedium*, L. Bolus (? § *Aspericaulia*). Rami gracilissimi elongati flexuosi reptantes, nodis insigne incrassatis, brevissime hispiduli, demum glaberrimi vel etiam politi, internodiis 0.8—5 cm. longis, ramulis floriferis, cum flore, 2—5 cm. longis; folia minute papillosa gracillima, fere erecta, connata, vagina 0.1 cm. longa, supra leviter concava, dorso rotundata, acuta, interdum apice recurvata, 0.7—1.5 cm. longa, saepius 0.1 cm. diam.; flores 5-meri, meridie expansi, solitarii, ad 2.5 cm. diam., pedunculis brevissime papilloso-hispidulis, 0.7—1.5 cm. longis; calyx turbinatus, tubo brevissime papilloso-hispidulo, segmentis inter se subaequilongis, lanceolatis vel ovato-lanceolatis, 0.4 cm. longis, tribus membranaceo-marginatis; petala inter se subaequilonga, linearia obtusa roseo-purpurea, subtus saturatiora, 1.1 cm. longa, ad 0.2 cm. lata; stamina conico-collecta, in diam. 0.2 cm. metientia, filamentis inferne albidis barbatis, superne purpurascens, 0.2—0.3 cm. longis; discus conspicuus, e glandulis 5 trilobulatis compositus; ovarium supra conico-convexum, stigmatibus subulatis, longe setaceo-attenuatis, stamina bene excedentibus, 0.4 cm. longis.

Cape Province: South-Western Region; Mossel Bay Div., Mossel Bay, fl. Aug., *F. A. Rogers*, 4248, 2031; hills near Gouritz River, *Dr John Muir*, 986. Riversdale Div., in sand at Zwartklip, near Albertinia, *id.*

This is intermediate between the two sections, *Aspericaulia* and *Hispida*, having the habit of growth of the latter but with the papillae of the former.

*Mesembrianthemum aberdeenense*, L. Bolus (§ *Crassulina*). Humile, minute papillosum, papillis in setam patentem abeuntibus, ob has omnibus partibus herbaceis pubescentibus, ramis confertis, demum diffuse decumbentibus, hispidis glabrescentibus, internodiis 1—2.5 cm. longis; folia adscendentia, dorso rotundata, supra plana, acuta, 0.4—2 cm. longa, ad 0.5 cm. lata diametroque; flores 5-meri, die expansi, 3-nati, 1.5 cm. diam., pedunculis 0.4—1 cm. longis, lateralibus infra medium bracteatis; calycis tubus crateriformis, segmentis lanceolatis acutis, inter

se subaequilongis, 0.5 cm. longis, tribus membranaceo-marginatis; petala pluri-seriata linearia obtusa, basin versus parum angustata, rubro-purpurea, 0.6 cm. longa, ad 0.1 cm. lata, interiora in staminodia gradatim abeuntia; stamina collecta incurvata, staminodiis apice recurvatis circumdata, filamentis inferne pallidis, superne purpurascensibus, interioribus barbatis, ad 0.2 cm. longis, antheris luteis; discus e glandulis 5, transverse linearibus, compositus; ovarium supra planum, sine medio vero parum elevato, stigmatibus subulatis, longe setaceo-acuminatis, 0.15 cm. longis; capsula 0.7 cm. diam.

Cape Province: Karroo Region; Aberdeen Road, *F. Frith* (National Botanic Gardens, No.  $\frac{436}{18}$ ).

Described from living specimens which have flowered for several years at Kirstenbosch during December and January.

*Erica Nevillei*, L. Bolus (§ Pleurocallis), *E. purpureae* affinis, sed pedunculis longioribus, corolla supra ovarium constrictum, antheris terminalibus, ceterisque differt.

Fruticulus robustus humilis, ad 32 cm. altus vel ultra in locis protectis, ramis decumbentibus vel ad saxa adpressis; folia adscendentia vel patentia, 5-nata vel rarissime 6-nata, dense imbricata linearia acuta, angustissime sulcata, glabra, 0.9—1.4 cm. longa, 0.1 cm. lata, petiolo 0.15 cm. longo, internodiis 0.2—0.5 cm. longis; pedunculi adscendentes pubescentes, pilis patentibus brevissimis, cum bracteis sepalis corollaque viscidis, ad 1.2 cm. longi; bractee 3, lineares, infima supra medium posita, 0.3 cm. longa, superiores calyci adpressae, 0.5 cm. longae; sepala foliacea subulata, 0.5—0.65 cm. longa; corolla tubiformis subobliqua, supra ovarium constricta, superne gradatim ampliata, rubra, 2.5 cm. longa, faucibus 0.5 cm. diam., segmentis demum subpatentibus, late ovatis, 0.3 cm. longis; antherae subexsertae vel saepe demum exsertae, terminales oblongo-lineares acutae, basi obliquae, muticae, lobis ad basin distinctis divergentibus, poro dimidio lobi aequilongo, 0.25 cm. longae; ovarium subpyriforme glabrum, 0.3 cm. longum, stylo exserto capitellato.

Cape Province: South-Western Region; Cape Peninsula, southwestern slopes of Noord Hoek Mountain, fl. Jan.—Feb., *Neville S. Pillans*, 4124.

Allied to *E. purpurea*, but may be distinguished by the longer peduncles, corolla constricted above the ovary, terminal anthers, and in other ways. *Erica quadrisulcata*, L. Bolus (§ Pleurocallis), *E. Nevillei* affinis, sed sepalis angustioribus longioribusque, corolla basin versus profunde 4-sulcata, stylo basin versus dilatato, facile disarticulato, differt.

Fruticulus robustus humilis, ad 25 cm. altus; rami saepius decumbentis, ad 37.5 cm. longi, 0.4 cm. diam.; folia adscendentia vel patentia, rite

5-nata, rarius 4-nata, dense imbricata, linearia acuta, angustissime sulcata, glabra, lamina ad 1.4, saepius 1.1 cm., longa, petiolo 0.2 cm. longo; flores in 1—3 verticillos apice ramulorum dispositi; pedunculi adscendentes, minute pubescentes, 0.6 cm. longi; bracteae 3, approximatae vel infima interdum medio posita, foliis simillimae, 0.7—0.8 cm. longae; sepala e basi lato (0.2 cm.) linearia acuminata, 1 cm. longa; corolla tubiformis subobliqua, basin versus acute tetragona, 2.8 cm. longa, cum segmentis patentibus rotundatis, 0.3 cm. longis; antherae inclusae terminales lineares obliquae subacutae, lobis ad basin distinctis, denticulatis, 0.25 cm. longis, poro dimidium parum excedente; ovarium 4-loculare cylindricum glabrum, 0.4—0.45 cm. longum, stigmatibus exserto capitellato.

Cape Province: South-Western Region; Cape Peninsula, neck between Signal Mountain and Zwart Kop, Klaver Valley, near Simonstown, fl. Jan., *N. S. Pillans*, 3944.

Allied to *E. Nevillei*, L. Bolus, but differs in having longer and narrower sepals, corolla deeply grooved towards the base, and the style thickened towards the base and disjuncting readily.

Described from two specimens.

*Erica fervida*, L. Bolus (? § *Evanthe*). Erecta, ramis adscendentibus virgatis pubescentibus, ad 32 cm. longis, ramulis floriferis, saepius 0.5 cm., rarius ad 2 cm., longis; folia fere erecta vel patentia imbricata 4-nata linearia acuta, sulco angustissimo, breviter pubescentia, ad 0.3 cm. longa, sine petiolo 0.2 cm. longo; flores 1—4-nati, breves laterales ramulos terminantes, inflorescentiam densam, ad 14 cm. longam, formantes; pedunculi adscendentes vel leviter decurvati, pubescentes, 0.2 cm. longi; bracteae 3 lineares, remotae vel superiores medio posita, ad 0.1 cm. longae; sepala ovata vel oblongo-obovata acuta, breviter pubescentia, rubra, 0.2 cm. longa; corolla tubiformis, faucibus vix contracta, sat quadrangularis, angulis rotundatis, brevissime denseque pubescens, laete rubra, ad 0.7 cm. longa, segmentis 0.2 cm. longis; antherae manifestae dorsifixae oblongae, ca. 0.1 cm. longae, aristatae, aristis poroque dimidium lobi parum excedentibus, filamentis rubris; ovarium subobovatum e medio superne dense villosum, pilis erectis albidis, stylo corollae aequilongo vel parum brevior, stigmatibus capitellato.

Cape Province: South-Western Region; ? Caledon Div., sold in Cape Town, fl. Oct., *Bolus*, 13408.

This has the same glowing, or fervid, red colour of *E. Pillansii*, Bolus, both of the calyx and corolla, and is remarkably like it in other ways. The distinction lies in the corolla, which is much shorter, somewhat tetragonous and quite symmetrical (*i.e.* without the curve which many of the ornithophilous heaths have). The corolla-lobes are relatively longer and the sepals proportionately broader.

*Erica coruscans*, L. Bolus (§ *Euryloma*). Rami stricti vel substricti, glabri, 11–17 cm. longi; folia erecto-patentia, dense imbricata, 4-nata linearia viscidula glabra, sat distanter ciliata apiceque penicillata, pilis longis (ad 0.3 cm. longis) griseis, e tuberculis parvis orientibus, 0.5–0.7 cm. longa, cum petiolo ad 0.2 cm. longo, ad 0.2 cm. lata; flores 12–16, apice ramorum aggregati; pedunculi pilis adscendentibus longis albidis dense vestiti, 0.7 cm. longi; bracteae 3, lineares glabrae, dense ciliatae, pilis longis, infima parum infra medium posita, ceterae subapproximatae, 0.8–0.9 cm. longae; sepala linearia acuta glabra, conspicue penicillata, rubescentia, ad 0.7 cm. longa; corolla ampullacea viscidissima coruscansque, tubo purpureo-rubro, colore saturatiore faucibus cincta, ad 2.8 cm. longa cum lobis stellato-patentibus, pallide roseis, 0.35 cm. longis; antherae inclusae dorsifixae ovato-oblongae muticae, pallide brunneae, 0.22 cm. longae, filamentis apicem versus conspicue dilatatis, tubo corollae fere aequilongis, poro dimidium lobi aequante; ovarium elongatum stipitatum glabrum, 0.35 cm. longum sine stipite 0.4 cm. longo, stylo tubo corollae parum longiore, stigmatibus capitellato.

Var.  $\beta$ , minor. Corolla 1.8 cm. longa, ceteraque partes minores.

Cape Province: South-Western Region; Caledon Div., Klein River Mountains, near Stanford, fl. July 1920, *T. P. Stokoe* (Bolus Herbarium, No. 16944). Var.  $\beta$ , near the summit of the Klein River Mountains, alt. 2500–3000 ft., *id.* (*id.* No. 16202).

*Erica Eylesii*, L. Bolus (§ *Pyronium*). Rami sat graciles, pilis simplicibus ramentaceisque pubescentes, ad 20 cm. longis, ramulis floriferis ad 1.5 cm. longis; folia erecta vel fere erecta, internodiis aequilonga vel parum longiora, 3-nata lineari-lanceolata, cum sepalis bracteisque distanter ciliata, pilis saepe ramentaceis, sulco angusto vel subaperto, 0.1–0.15 cm. longa; flores 3-nati vel abortione 1–2-nati, inflorescentiam densam, 12 cm. longam, apice ramorum formantes; pedunculi graciles pubescentes, pilis simplicibus ramentaceisque, ad 0.4 cm. longi; bracteae 3, infra medium, vel superiores medio, positae, ad 0.15 cm. longae, sepala ovato-lanceolata, apice saepe pilo glandulifero onusta, 0.2 cm. longa; corolla cyathiformis, faucibus leviter contracta, glabra, 0.4 cm. longa, segmentis obtusis, 0.1 cm. longis; antherae subexsertae vel demum exsertae, dorsifixae ovato-oblongae, basi leviter obliquae, ca. 0.1 cm. longae, anguste cristatae, cristis poroque dimidio lobi subaequilongis; ovarium depresso globosum villosum, pilis erectis, stylo bene exserto, stigmatibus capitellato.

Rhodesia: Melsetter, fl. Oct. 1920, *F. Eyles*, 2755.

*Erica cincta*, L. Bolus (§ *Ephebus*). Fruticulus erectus, ad 24 cm. altus, e basi ramosus, ramis ramulisque adscendentibus glabris viscidulis elongatis ad 14 cm. longis, floriferis ad 4 cm. longis; folia saepius erecto-patentia

imbricata 3-nata linearia acuta apiculata, anguste sulcata, viscida glabra, cum bracteis sepalisque pectinato-ciliata, ciliis glanduliferis, 0.3—0.4 cm. longa cum petiolo 0.1 cm. longo; flores 3-nati, vel saepius 6-nati, quasi ramulos terminantes; pedunculi plus minusve pubescentes, pilis crispulatis, glanduliferis interjectis, ad 0.5 cm. longis; bractee 3, infima infra medium, ceterae supra medium, positae, cum sepalis corollaeque viscidae, ad 0.25 cm. longae; sepala linearia rubra, 0.25 cm. longa; corolla globoso-urceolata pubescens, albida vel dilute rosea, faucibus rubro-cincta, 0.4 cm. longa, segmentis erecto-patentibus, ca. 0.1 cm. longis; antherae inclusae dorsifixae subovatae, basi obliquae, pallide brunneae, breviter aristatae, aristis basin versus de filamentis decurrentibus, poro dimidium lobi excedente; ovarium obovatum stipitatum glabrum, stylo corolla parum brevior, stigmate capitellato.

Cape Province: South-Western Region; Hottentotsholland Mountains, Kogelberg, alt. 3500 ft., fl. Jan., *T. P. Stokoe* (Bolus Herbarium, No. 17201).

*Erica fontana*, L. Bolus (§ Ephebus). Fruticulus erectus, 23—35 cm. altus, ramis ramulisque adscendentibus, junioribus cano-pubescentibus, floriferis ad 2.2 cm. longis; folia saepissime fere erecta, dense imbricata, 4-nata linearia acuta, anguste sulcata, tenuiter cano-pubescentia, 0.4—0.6 cm. longa; flores saepius solitarii, rarius 2-nati; pedunculi pubescentes, ad 0.2 cm. longi; bractee 3, infima basali, ceterae remotae, suprema longissima, pedunculo aequilonga; sepala e basi lato linearia acuta pubescentia, 0.3—0.4 cm. longa; corolla tubiformis pubescens, pilis brevissimis, dilute rosea, 0.8—1 cm. longa, lobis ovatis subacutis, 0.1—0.18 cm. longis; antherae inclusae dorsifixae muticae suboblongae obtusae, 0.1 cm. longae, poro lobi dimidium aequante; ovarium subcylindricum, breviter stipitatum, glabrum, stylo exserto, basin versus dilatato, stigmate capitellato.

Cape Province: South-Western Region; Cape Peninsula, marshy ground, plateau 1 mile west of Buffels Bay, fl. Nov., *N. S. Pillans*, 4115.

This may be readily distinguished from *E. cyrillaeflora*, Salisb., by its more robust and erect habit, longer sepals and corolla, exserted style, and by other characters.

*Erica limosa*, L. Bolus (§ Ephebus). Fruticulus gracillimus, 50—75 cm. altus, ramis ramulisque adscendentibus flexuosis filiformibus, glabris vel minute pubescentibus; folia saepius recurvata, rarius patentia vel adscendentia, 3-nata, linearia acuta, glabra vel parce pubescentia, anguste sulcata, 0.3—0.4 cm. longa, internodiis foliis brevioribus vel ad 1.2 cm. longis; flores solitarii, rarius 2-nati, breves ramulos, saepius decurvatos, terminantes; pedunculi glabri, ca. 0.1 cm. longi; bractee 3, infima basali, ceterae remotae, pedunculo breviores; sepala late ovata acuminata glabra ciliata, pilis glanduliferis interjectis, 0.1 cm. longa;

corolla crateriformis, parce pubescens, dilute rosea, 0.25 cm. longa, tubo inconspicue quadrisulcato, segmentis patentibus, late ovatis, tubo fere aequilongis; antherae inclusae vel manifestae, dorsifixae muticae oblongae, basi subprolatae, obtusae, poro dimidio lobi minore; ovarium depresso globosum glabrum, stylo corolla multo brevior, stigmate capitellato.

Cape Province: South-Western Region; Cape Peninsula, Steenberg, "plentiful among Restionaceae and other plants in the marsh above the reservoir," fl. Oct., *N. S. Pillans*, 4108.

*Erica paludicola*, L. Bolus (§ Ephebus). Fruticulus gracillimus, ad 1 met. altus vel ultra, saepius 0.2—0.3 met. altus, ramis adscendentibus, cum ramulis filiformibus, glabris brunneis; folia adscendentia, patentia vel recurvata, rite 3-nata, anguste linearia, acuta glabra, 0.3—0.5 cm. longa, sine petiolo 0.05 cm. longo, internodiis saepius foliis parum brevioribus; flores solitarii vel rarius 2-nati, sat pauci, ramulos laterales breves terminantes; pedunculi minute pubescentes, 0.2 cm. longi; bractee 3, minutae, infima basalis, superiores parum supra basin posita; sepala subulata acuta, minute pubescentia, 0.2 cm. longa; corolla cyathiformis, breviter parceque pubescens, rosea, 0.5 cm. longa, cum segmentis erectis, late ovatis, obtusis, 0.15 cm. longis; antherae inclusae dorsifixae muticae ovato-oblongae acutae, scaberulae, saturate brunneae, 0.12 cm. longae, poro minore dimidio lobi; ovarium subobovatum glabrum, 0.12 cm. longum, stigmate exserto capitellato.

Cape Province: South-Western Region; Cape Peninsula, marshy ground, middle part of Silver Mine Valley, fl. March, *N. S. Pillans*, 4126.

Described from several dried specimens. The general appearance of the plant is similar to that of *E. cyrillaeflora*, Salisb., from which, however, it differs in several respects.

*Erica utriculosa*, L. Bolus (§ Ceramia). Nana, e basi ramosa, interdum caespitosa, ramis decumbentibus vel prostratis, pubescentibus, pilis glanduliferis intermixtis, ad 8 cm. longis, internodiis 0.1—0.7 cm. longis; folia saepius patentia 3-nata utriculoso-inflata, suborbicularia vel ovata vel oblongo-ovata, marginibus veris recurvatis, breviter denseque ciliatis, falsis distanter glanduloso-ciliatis, interdum paucis pilis glanduliferis pagina sparsis, aliter glabra, 0.2—0.3 cm. longa, sine petiolo ad 0.1 cm. longo; flores rite 3-nati, saepius solitarii vel 2-nati, apicem versus ramorum dispositi; pedunculi brevissime pubescentes, glandulis stipitatis interjectis fere ad 0.5 cm. longi; bractee 3, parvae, infima basali, ceterae infra medium posita; sepala ovato-lanceolata acuta glanduloso-ciliata, 0.2 cm. longa; corolla subcyathiformis, obscure tetragona, glabra, cum lobis brevibus obtusis 0.25 cm. longa; antherae inclusae dorsifixae sub-



ovatae, basi conspicue obliquae, aristatae, aristis poroque dimidio lobi aequilongis; ovarium subglobosum, apicem versus hispidum, stylo exserto, stigmatate simplice.

Cape Province: South-Western Region; Caledon Div., "in shaded damp rock-crevices," near Stanford, fl. April, *T. P. Stokoe* (Bolus Herbarium, No. 15935).

Allied to *E. physophylla*, Benth., but distinguished by having shorter hairs on the leaves, longer peduncles, two bracts, both being remote and much smaller, exserted style, and hispid ovary.

*Erica saxatilis*, L. Bolus (§ Orophanes). *Nana gracilis*, 8—12 cm. alta, ramis ramulisque adscendentibus pubescentibus, ad 4 cm. longis; folia patentia vel adscendentia, 4-nata, dense imbricata, lineari-lanceolata griseo-pubescentia, demum glabrescentia, saepe apice pilo glandulifero onusta, leviter inflata, sulco basin versus parum ampliato, ad 0.25 cm. longa; flores rite 4-nati, abortione pauciores; pedunculi adscendentes gracillimi pubescentes, pilis glanduliferis longioribus intermixtis, 0.4—0.6 cm. longi; bracteae 3, remotae, infima subspathulata, ad 0.25 cm. longa, ceterae minores; sepala lineari-lanceolata acuta, parce pubescentia, ciliata pilis distantibus longis glanduliferis, 0.3 cm. longa; corolla tubiformis, faucibus leviter contracta; glabra, ex siccis sordide carnea, 1 cm. longa, lobis rotundatis, vix 0.2 cm. longis; antherae manifestae vel subexsertae, dorsifixae lineares acutae, basi obliquae, 0.2 cm. longae, aristatae, aristis latis, tertium lobi parum excedentibus, poro dimidio lobi minore; ovarium obovatum, apice concavum, glabrum vel apicem versus parce albo-pubescentia, stylo exserto, stigmatate capitellato.

Cape Province; South-Western Region; Ceres Div., Mitchells Peak, Mitchells Pass, "growing on rocks, rare," alt. 4500 ft., fl. Dec. 1920, *T. P. Stokoe*, 66.

*Erica montana*, L. Bolus (§ Orophanes). Rami ramulique adscendentes, fere erecti, pubescentes, ad 27 cm. longi; folia saepissime erecta, internodiis parum longioribus, 4-nata linearia acuta, anguste sulcata, glabra, 0.4—0.7 cm. longa, cum petiolo 0.1 cm. longo; flores solitarii vel 2-nati, apicem versus ramorum, ramulos perbreves terminantes, dispositae; pedunculi minute pubescentes, 0.7 cm. longi; bracteae 3, infima remota, ceterae parum infra medium positae, vix 0.1 cm. excedentes; sepala lanceolata acuta, glabra vel rarius minute pubescentia, ciliata rubra, 0.2 cm. longa; corolla suburceolata glabra rosea, 0.7—0.8 cm. longa, segmentis ovatis obtusis, 0.12 cm. longis; antherae inclusae dorsifixae ovatae, 0.12 cm. longae, aristatae, aristis latis ciliatis, lobo fere aequilongis, poro tertium lobi aequante; ovarium obovatum glabrum, interdum imperfecte 8-loculare, stylo exserto, stigmatate capitellato.

Cape Province: South-Western Region; mountains between Wor-

cester and Robertson, fl. May 1919, *T. P. Stokoe* (Bolus Herbarium, No. 15940).

*Erica autumnalis*, L. Bolus (§ Orophanes). Erecta, sat robusta, ad 32 cm. alta, ramis ramulisque substrictis pubescentibus, ad 25 cm. longis; folia fere erecta vel patentia, dense imbricata, 4-nata linearia acuta, sulco obscuro, glabra vel parce pubescentia, 0·2—0·4 cm. longa sine petiolo, ad 0·1 cm. longo; flores 1—4-nati, in brevibus lateralibus ramulis dispositi, saepe inflorescentiam densam, 8—15 cm. longam formantes; pedunculi demum decurvati glabri, 0·3 cm. longi; bracteae 3, infima parum infra medium, ceterae supra medium, positae, ciliatae, 0·15 cm. longae; sepala lanceolata, longe acuminata, ciliata, foliacea vel basin versus colorata, 0·3—0·4 cm. longa; corolla suburceolata, faucibus vix contracta, glabra rosea, 0·5 cm. longa, lobis rotundatis, 0·15 cm. longis; antherae inclusae dorsifixae subovatae scaberulae, ca. 0·075 cm. longae, aristatae, aristis latis ciliatis, lobo fere aequilongis, poro dimidium lobi aequante; ovarium obovatum glabrum purpureum, ca. 0·1 cm. longum, stylo corolla parum brevior, stigmate capitato.

Cape Province: South-Western Region; exact locality unknown, sold in Cape Town, Feb. Comm. *N. S. Pillans* (Bolus Herbarium, No. 16784).

*Erica Duthieae*, L. Bolus (§ Orophanes). Erecta, ad 30 cm. alta, ramis ramulisque adscendentibus, sat gracilibus, glabris vel junioribus tenuiter pubescentibus, ad 17 cm. longis; folia fere erecta vel rarius patentia, saepius dense imbricata, rarius internodiis elongatis, ad 1 cm. longis, 4-nati linearia acuta, apice interdum brevissime penicillata, sulco obscuro, glabra, 0·3—0·5 cm. longa, sine petiolo ad 0·1 cm. longo; pedunculi adscendentes vel decurvati glabri, ad 0·3 cm. longi; bracteae 3, infima remota, ceterae medio positae, ciliatae, ad 0·12 cm. longae; sepala ovato-lanceolata, longe acuminata, glabra, obscure ciliata, 0·2 cm. longa; corolla urceolata, faucibus leviter contracta, subtetragona glabra, 0·4 cm. longa, segmentis rotundatis, ca. 0·15 cm. longis; antherae inclusae dorsifixae subovatae, basi obliquae, ca. 0·05 cm. longae, aristatae, aristis poroque dimidio lobi aequilongis; ovarium obovatum, apicem versus hispidulum, stylo corolla parum brevior, stigmate capitellato.

Cape Province: South-Western Region; near Stellenbosch, fl. Oct., *A. V. Duthie*, 950; *S. Garside*, 1307.

This is very closely allied to *E. intervallaris*, Salisb., and is, perhaps, not more than a variety of that species.

*Erica barrydalensis*, L. Bolus, *E. Fairii* forsitan accedit, sed pedunculis longioribus, sepalis brevioribus, cum bracteis haud viscidis, corolla laete rubra, ceterisque differt.

Fruticulus rigidus, ramis strictis, adpresse cano-pubescentibus, pilis, praeter eos in axillis foliorum, saepius reflexis, ad 20 cm. longis, ad

0.25 cm. diam.; folia erecta 4-nata, dense imbricata, in longitudinem 8 definitas series formantia, linearia acuta sulcata, sulco angustissimo, glabra glauco-viridia, saepius 0.8 cm. longa cum petiolo 0.15 cm. longo; flores 4-nati, in ramis adscendentibus brevibus lateralibus, ad 1 cm. longis, dispositi, 4—6 foliis expansis roseis viridi-apiculatis bracteiformibus, ad 0.5 cm. longis, involucrati; pedunculi saepius decurvati, pubescentes, pilis brevissimis, 0.8—1.2 cm. longi; bractee 3, roseo-rubrae, infima oblongo-ovata acuta, 0.7 cm. longa, parum supra dimidium posita, ceterae subapproximatae lanceolatae, 0.6 cm. longae; sepala erecta ovata roseo-rubra, 0.3—0.4 cm. longa; corolla urceolata rubra viscidissima, 0.8—0.9 cm. longa, cum segmentis patentibus rotundatis, 0.15—0.2 cm. longis; stamina inclusa, filamentis sub antheris extensis, basi conspicue dilatatis, 0.5 cm. longis, antheris linearibus subacutis aristatis, arista poroque dimidium lobi aequantibus, 0.2 cm. longis; ovarium globosum glabrum, 0.2 cm. diam., stigmatibus capitellato, apicem corollae fere attingente.

Cape Province: South-Western Region; Barrydale, mountains, fl. Aug. 1923. Comm. *G. H. Lewis* (Bolus Herbarium, No. 15198).

*Erica sociorum*, L. Bolus (§ Trigemina). Nana, sat robusta, ramis decumbentibus, ad 20 cm. longis, ramulis adscendentibus, minute pubescentibus, floriferis 1—4 cm. longis; folia adscendentia vel patentia recurvata, saepe falcata, dense imbricata, 3-nata linearia acuta, rigide apiculata, glabra luteo-viridia subcoriacea, sulco angustissimo, ad 0.2 cm. lata, 0.7—1.3 cm. longa sine petiolo ad 0.2 cm. longo; flores rite 3-nati vel abortione pauciores, terminales; pedunculi fere erecti, minute pubescentes, ad 0.6 cm. longi; bractee 3, lineares acutae pallidae, ad 0.5 cm. longae, infima remota, ceterae parum infra medium posita; sepala lanceolata, longe acuminata, glabra pallida, 0.7—0.8 cm. longa; corolla subtubiformis, faucibus leviter contracta, glabra, pallidissime viridis, ad 1 cm. longa, segmentis erectis rotundatis, vix 0.1 cm. longis; antherae inclusae dorsifixae lineares acutae, basi obliquae, 0.2 cm. longae vel ultra, aristatae, aristis dimidio lobi aequilongis vel parum brevioribus, poro dimidium excedente; ovarium obovatum glabrum, stylo bene exserto, stigmatibus capitellato.

Cape Province: South-Western Region; Cape Peninsula, krantzies on south side of Noord Hoek Mountain, fl. Feb., *N. S. Pillans*, 4130; *E. L. Stephens*.

*Blaeria Muirii*, L. Guthrie, *B. dumosae* affinis, sed ramis puberulis, corollae lobis circa stamina conniventibus, ovario pubescente, differt.

Fruticulus ca. 35 cm. altus, ramis adscendentibus puberulis; folia erecta adpressa 3-nata lineari-oblonga glabra, marginibus hyalinis, minute ciliolatis, breviter petiolata, 0.15—0.23 cm. longa, ca. 0.07 cm.

lata; flores 1—5, apicibus brevium lateralium ramulorum dispositi; pedunculi puberuli, 0.1 cm. longi; bractee 3, glabrae ciliolatae, infima approximata, superiores calyci adpressae et eo breviores, 0.05 cm. longae; calyx 4-partitus, segmentis ovatis acutis ciliolatis pallidis, 0.1 cm. longis, ad 0.07 cm. latis; corolla urceolato-tubiformis, obtuse 4-angularis, glabra, 0.37 cm. longa, 0.14 cm. diam., 4-loba, lobis erectis obtusis, 0.05 cm. longis; stamina 4, exserta, filamentis 0.35 cm. longis, antheris atro-brunneis scaberulis, infra medium bipartitis, basin versus angustatis, aristatis, aristis divergentibus brevissimis; ovarium ovatum obtusum 4-lobum pubescens, 0.04 cm. longum, 0.02 cm. diam., loculis 1—3-ovulatis, stylo 0.55 cm. longo, stigmati simplici.

Cape Province: South-Western Region; Mossel Bay Div., foot of Goliath's Berg, alt. 1000 ft., fl. May, *Dr John Muir*, 2174.

Allied to *B. dumosa*, Wendl., but may be distinguished by its puberulous branches, connivent corolla-lobes, and pubescent ovary. It is also a larger and more robust shrub.

*Philippia pallida*, L. Guthrie. Fruticulus erectus, ca. 38 cm. altus, ramis adscendentibus numerosissimis, dense albo-pubescentibus, pilis patentibus vel reflexis; folia erecta 3-nata, oblonga vel ovato-oblonga, obtusa sulcata crassa glabra, minute ciliata, 0.1—0.2 cm. longa, 0.05—0.08 cm. lata; flores saepius 3-nati terminales; pedunculi dense albo-pubescentes, 0.1 cm. longi; sepala erecta, late ovata, minute ciliata, alba viridi-carinata, 0.1 cm. longa lataque, duo ceteris parum majora; corolla globosa glabra alba, 0.2 cm. longa diametroque, lobis incurvis obtusis, 0.05 cm. longis, 0.1 cm. latis; filamenta libera curvata, antheris aequilonga, antheris inclusis, prope basin dorsifixis, muticis, lobis connatis fere ad apicem, scabridis, albis, demum aureo-brunneis, 0.08 cm. longis, 0.05 cm. latis, poro dimidio lobi aequilongo; ovarium globosum pubescens, 0.05 cm. longum, basin versus 0.07 cm. latum, stylo flexuoso, 0.08 cm. longo, stigmati peltato-crateriformi, 0.08 cm. diam., albo, demum brunneo.

Cape Province: South-Western Region; Riversdale Div., Kampsche Berg, alt. 1200 ft., fl. Jan., *Dr J. Muir*, 2542.

Most nearly allied to *P. tristis*, Bolus. The whiteness of its closely massed flowers gives it a distinct appearance.

*Thoracosperma Muirii*, L. Guthrie, *T. interrupto* affine, sed ramis prostratis, foliis imbricatis, ovario saepius 4-loculare, ceterisque distinguitur.

Fruticulus humilis, ramis prostratis, ad 20 cm. longis, ad 0.4 cm. diam., ramulis adscendentibus griseo-pubescentibus, ultimis floriferis 1—2 cm. longis; folia erecta vel patentia, 4-nata imbricata obtusa, profunde sulcata, juniora griseo-pubescentia, seniora scaberula; flores solitarii vel plures, apicibus ramulorum dispositi; pedunculi pubescentes,

0.5 cm. longi; bractea solitaria pubescens, pilis longioribus apicem versus, calyci adpressa et aequilonga; calyx pubescens, 0.13 cm. longus, 0.1 cm. diam., lobis lanceolatis, inter se aequalibus, tubo aequilongis; corolla glabra obliqua, basin versus tetragona, superne ampliata, faucibus leviter vel vix constricta, 0.32 cm. longa, ad 0.15 cm. diam., lobis erectis obtusis, 0.05 cm. longis, 0.1 cm. latis; stamina exserta, filamentis filiformibus, 0.33 cm. longis, antheris basifixis, lobis ad basin distinctis, 0.1 cm. longis, aristatis, aristis basalibus brevibus; ovarium ovatum glabrum, immaturum 3—4-angulare, saepius 4-loculare, vel abortione loculis paucioribus, semper 1-ovulatis, stylo gracillimo, 0.5 cm. longo, stigmate simplice, atro-purpureo.

Cape Province: South-Western Region; Riversdale Div., prostrate over exposed rocks on summit of hills at Kanka, fl. April, *Dr J. Muir*, 848.

Allied to *T. interruptum*, N.E.Br., but differs by its prostrate habit of growth, imbricate leaves, and the usually 4-celled ovary.

*Thoracosperma radicans*, L. Guthrie, *T. Muirii* affine, sed viscidum et ramis saepe radicanibus, bractea spathulata, corolla regulari, ceterisque differt.

Fruticulus diffusus procumbens, ramis gracilibus, saepe radicanibus, ad 30 cm. longis, ad 0.2 cm. diam., ramulis pubescentibus, folia erecta vel patentia, 4-nata vel rarius 3-nata, saepius internodiis aequilonga, oblonga obtusa crassa glabra, minute glanduloso-ciliata, sulcata, 0.2 cm. longa, 0.1 cm. lata; pedunculi pubescentes, 0.05 cm. longi; bractea solitaria spathulata glabra, minute glanduloso-ciliata, calycem aequans vel parum excedens; flores solitarii vel plures, apicibus ramulorum dispositi; calyx obtuse quadrangularis, 0.15 cm. longus, 0.1 cm. diam., lobis ovatis, marginibus revolutis puberulis, nervo medio sat conspicuo, corollae adhaerentibus ob glandulas viscidas, tubo aequilongis; corolla quadrangularis tubiformis purpurea, 0.25 cm. longa, ad 0.1 cm. diam., lobis erectis obtusis brevissimis; stamina exserta, filamentis 0.3 cm. longis, antheris basifixis, 0.12 cm. longis, 0.05 cm. latis, minute aristatis, lobis fere ad basin distinctis; ovarium cylindricum, immaturum quadrangulare, 4-loculare glabrum, 0.08 cm. longum, 0.04 cm. diam., stylo 0.45 cm. longo, stigmate simplice.

Cape Province: South-Western Region; Riversdale Div., alt. 100 ft. fl. April, *Dr J. Muir*, 2405.

Allied to *T. Muirii*, L. Guthrie, but differs by being viscid and in having rooting branches, spathulate bracts, regular corollas, and in other ways.

*Gladiolus Muirii*, L. Bolus. Cormus elongatus, anguste pyriformis, tunicis exterioribus in permulta capillacea segmenta divisus, interioribus interdum crassis, reliquis foliorum veterum conspicue coronatus, ad 3.5 cm.

longus, 1.8 cm. diam.; caulis gracilis sat rigidus, glaber, cum spica ad 60 cm., saepius circa 40 cm., altus; vaginae immaculatae, inferior 3.5—5 cm. longa, superior ad 15 cm. longa; folia producta 4, anguste linearia, glabra, infimum ad 27 cm. longum, sine vagina ad 27 cm. longa, cetera caulina, gradatim brevioribus, omnia laminam, 2 cm. longam vel ultra, ferentia; spathae valva exterior linearis, acute vel obtuse acuminata, 4.2—3 cm. longa, 0.7—0.6 cm. lata, interior parum brevior, saepe 2-dentata; flores 1—3, perianthio griseo-violaceo vel griseo-lilacino, segmentis inferioribus luteo-notatis, notis eis *G. recurvi* similibus, 3.5—4.5 cm. longo, tubo posteriore ad 1.5 cm., anteriore ad 2 cm., longo, segmentis oblongo-obovatis obtusissimis, superioribus ad 3.2 cm. longis, 1.5 cm. latis, inferioribus lateralibus ad 1 cm. latis, mediano ad 1.4 cm. lato; stamina ad dimidium segmentorum attingentia, stylo ea parum excedente.

Cape Province: South-Western Region; Riversdale Div., *Dr J. Muir*, 1412. Hills at Zoetmelksfontein overlooking Kafir Kuil's River, alt. 800 ft., fl. July 1923, *H. M. Bartlett* (*Dr J. Muir*, 2552).

Very closely allied to *G. recurvus*, Thunb., but differs in the shape of the corm, the rather rigid, "restioid" stem, the unspotted basal sheaths, and by the scent of the flowers, which is that of the sweet-smelling *Babiana plicata*, and not at all of orris-root.

*Gladiolus crispulatus*, L. Bolus. Cormus ovatus, 1.5 cm. longus, 1 cm. diam., tunicis tenuibus, in segmenta capillacea divisus; caulis gracilis glaber, cum spica 30—42 cm. altus; vaginae 2.3—5 cm. longae; folia producta 4, linearia glabra gracillima, nunc setacea nunc ad 0.2 cm. lata, infimum, cum vagina 11 cm. longa, ad 48 cm. longum, cetera caulina, 30—3 cm. longa cum vaginis 10—2 cm. longis; spathae valva exterior acuminata crebre tenuissimeque nervata, 3.7—2.5 cm. longa, interior parum brevior, interdum 2-dentata; flores 1—3, fere erectae, perianthio roseo, segmentis lateralibus exterioribus anguste rubro-vittatis, inferioribus nota rubra, oblonga vel lineari, ultra dimidium attingente, ornatis, faucibus lineis rubris interruptis additis, 4.5—5 cm. longo, segmentis crispulatis, exterioribus cuspidatis obtusis, ad 3 cm. longis, 0.8—1.5 cm. latis, interioribus 1—1.7 cm. latis; stamina ad dimidium segmentorum attingentia, stylo cum ramis ea bene excedente.

Cape Province: South-Western Region; Riversdale Div., Corente River Farm, fl. Dec. 1908, *Dr John Muir* (Galpin, 5369); foot of the Langebergen above Corente River, alt. 1200 ft., and slopes of the Langebergen above Witte Els, 2000—2500 ft., fl. Oct.—Nov., *Dr John Muir*, 810.

*Gladiolus Louiseae*, L. Bolus. Cormus ignotus; caulis gracillimus, cum spica 29—50 cm. altus; vagina una sola visa glabra, ad 8 cm. longa; folia producta 3, linearia, nervo medio marginibusque prominentibus, saepius

quasi totam laminam formantibus, vagina laminaeque sat dense pubescentes, pilis patentibus vel reflexis, brevissimis, folium infimum ad 23 cm. longum cum vagina 7.5 cm. longa, vix 0.15 cm. lata, secundum caulinum, 28—41 cm. longum cum vagina 24—34 cm. longa, tertium sine lamina, spathiforme glabrum, 0.8—1.5 cm. longum; rhachis flexuosa, floribus 2 vel saepius 3, laxe dispositis; spathae valva exterior oblonga obtusissima, crebre nervosa, glabra, 1.5—2.2 cm. longa, interior 1.3—1.9 cm. longa; perianthium dilute purpureo-lilacinum, faucibus aureis, segmentis inferioribus lateralibus medio purpurea macula, 0.4 cm. longa, notatis, infimo nota lanceolata lutea, purpura circumdata, ornato, tubo posteriore 1.5 cm., anteriore 1.3 cm., longo, segmentis exterioribus subacutis, lateralibus 2.2 cm. longis, 1.1 cm. latis, infimo 0.6 cm. lato, interioribus subobtusis, supremo 1.2 cm. lato, lateralibus 0.7 cm. latis; stamina 1.9 cm. longa, parum ultra dimidium segmentorum attingentia; stylum cum ramis 3.3 cm. longum.

Cape Province: South-Western Region; Ceres Div., exact locality unknown. Exhibited at the Cape Town Wild Flower Show, Oct. 6th, 1921. Comm. *Miss Louise Guthrie* (Bolus Herbarium, No. 14195).

*Gladiolus Blommesteinii*, L. Bolus. Cormus ad 2.5 cm. longus, 1.7 cm. diam., tunicis rigidis crassis, similibus eis *G. gracilis*, vestitus, reliquis setaceis foliorum veterum coronatus; caulis gracillimus glaber, cum spica ad 43 cm. altus; vagina inferior 2.5 cm., superior 4.4—7 cm., longa; folia producta 4, linearia, nervo mediano prominente, marginibus dilatatis, infimum ad 28 cm. longum, sine vagina 22 cm. longa, 0.15 cm. latum, secundum caulinum, lamina 7 cm., vagina 11 cm., longa, lamina tertii quartique 5—2.5 cm. longa; flores 1—4, saepius solitarii, adscendentes; spathae valva exterior crebre nervosa acuta, 2.3—3.2 cm. longa, interior obtusa 1.8—2.2 cm. longa; perianthium dilute lilacinum, segmentis inferioribus ultra dimidium luteis, lineis interruptis roseo-purpureis notatis, tubo posteriore 1.5 cm., anteriore 1.9 cm., longo, segmentis 2—3.5 cm. longis, 1—1.9 cm. latis; stamina 1.8 cm. longa, dimidium segmentorum attingentia, stylum ea parum excedens.

Var.  $\beta$ , major. Perianthium explanatum ad 6 cm. longum, pallidum, segmentis cuspidatis, angustioribus pro longitudine.

Cape Province: South-Western Region; Caledon Div., Elgin, fl. Sept., *G. van Blommestein* (Bolus Herbarium, No. 15202). Exhibited at the Caledon Wild Flower Show, Sept. (Bolus Herbarium, Nos. 14786, 14790, 16912). Var.  $\beta$ , Caledon Wild Flower Show, Sept. (*id.* 14791).

*Eucomis Pillansii*, L. Guthrie, *E. nanae* affinis, sed foliis brevioribus, latius spathulatis, humi arcte adpressis, pedunculo racemoque minoribus, differt.

Bulbus circa 12.5 cm. longa, 7.5 cm. diam.; folia 7—8, obovato-

spathulata, lamina conspicue multi-nervata, marginibus purpurascensibus lacerato-membranaceis, ad 23·5 cm. longa, ad 14·5 cm. lata, parum infra medium subabrupte angustata; pedunculus clavatus, 6 cm. longus, 2 cm. diam., superne purpureo-notatus; racemus circa 20-fl., 4 cm. longus diametroque, floribus sessilibus; coma e foliis circa 30, lanceolatis acutis subundulatis, marginibus purpureis membranaceis, composita; perianthii segmenta oblonga obtusissima viridia, interdum purpureo-notata, 1·25 cm. longa; stamina stylo incurvata, 0·6 cm. longa, filamentis lanceolatis; ovarium obovatum, 0·5 cm. longum, 0·6 cm. diam., stylo 0·3 cm. longo.

Cape Province: Western Region; Namaqualand, Bowesdorp, *N. S. Pillans* (Bolus Herbarium, No. 16633).

Allied to *E. nana*, Ait., but differs in having shorter and more broadly spathulate leaves, pressed closely to the ground, and a smaller peduncle and raceme.

Described from a living specimen which flowered in Mr N. S. Pillans' garden, Rosebank, near Cape Town, August 1920.

## EXPLANATION OF PLATES

### PLATE VII.

- A. *Erica fontana*, L. Bolus. B. *Erica Nevillei*, L. Bolus. C. *Erica limosa*, L. Bolus. D. *Erica quadrisulcata*, L. Bolus. E. *Erica paludicola*, L. Bolus.  
A, B, C, D, E. Fig. 1, node; 2, leaf; 3, flower; 4, bracts and calyx; 5, sepal; 6, corolla; 7, anther, side view; 8, anther, back view; 8a, anther, front view; 9, gynaeceum—variously enlarged.

### PLATE VIII.

- A. *Erica saxatilis*, L. Bolus. B. *Erica cincta*, L. Bolus. C. *Erica montana*, L. Bolus. D. *Erica coruscans*, L. Bolus. E. *Erica coruscans*, L. Bolus, var. *minor*. F. *Erica utriculosa*, L. Bolus.  
A, B, C, D, E, F. Fig. 1, node; 2, leaf, back view; 2a, leaf, front view; 3, flower; 4, bracts and calyx; 5, sepal; 6, corolla; 7, anther, side view; 8, anther, back view; 8a, anther, front view; 9, gynaeceum.

### PLATE IX.

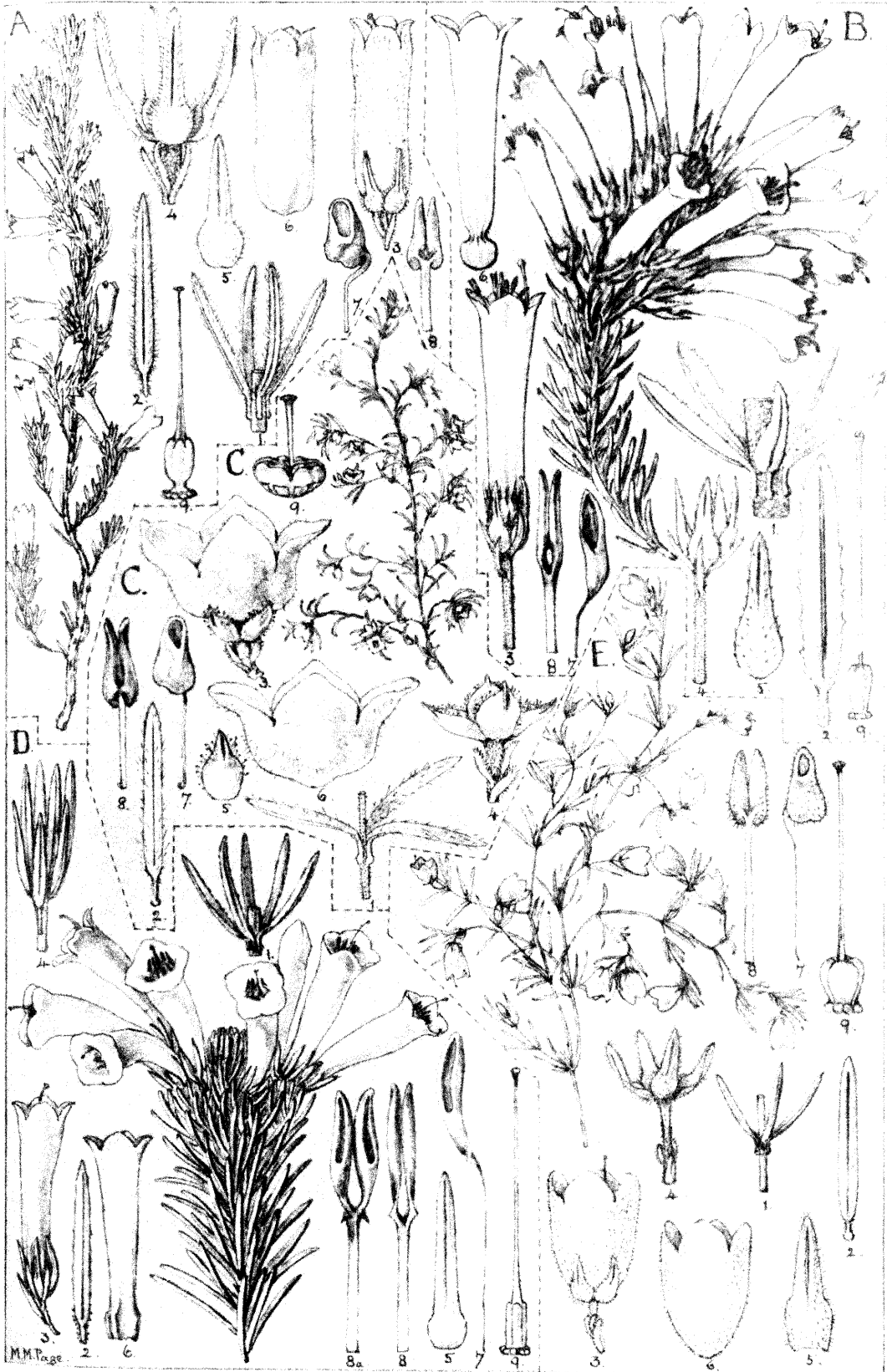
- A. *Erica fervida*, L. Bolus. B. *Erica autumnalis*, L. Bolus. C. *Erica annectens*, Guthrie and Bolus. D. *Erica Eylesii*, L. Bolus. E. *Erica Duthieae*, L. Bolus.  
A, B, C, D, E. Fig. 1, node; 2, leaf; 3, flower; 4, bracts and calyx; 5, sepal; 6, corolla; 7, anther, side view; 8, anther, back view; 9, gynaeceum.

### ERRATA.

Page 73, for Pl. III, D. read Pl. III, E.

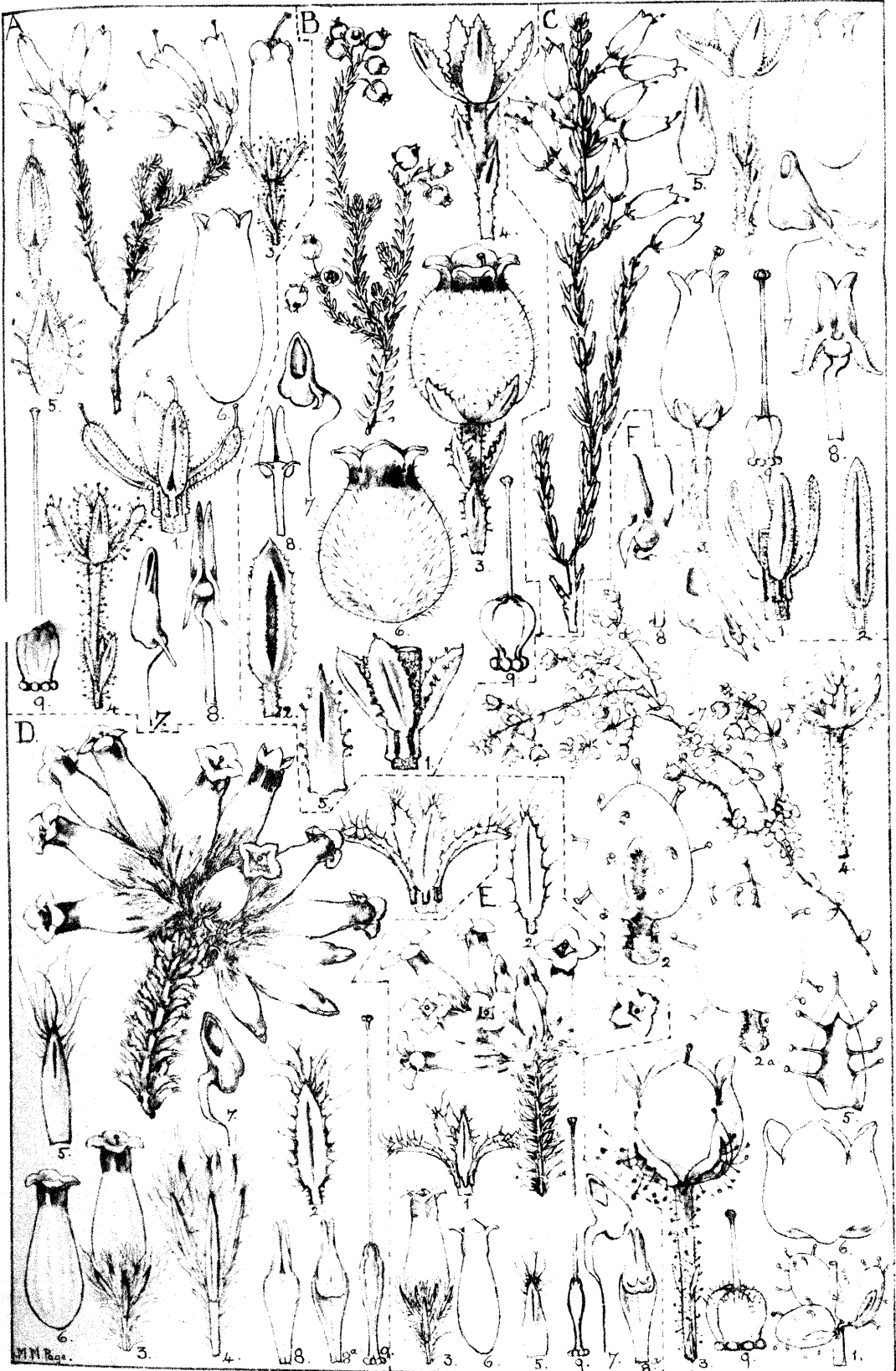
Plate III. For D. *Erica Eustacei*, L. Bolus read D. *Erica brachysepala*, Guthrie and Bolus; and for E. *Erica brachysepala*, Guthrie and Bolus read E. *Erica Eustacei*, L. Bolus.





A. *Erica fontana*, L. Bolus.                      B. *Erica Nevillei*, L. Bolus.  
 C. *Erica limosa*, L. Bolus.                      D. *Erica quadrisulcata*, L. Bolus.  
 E. *Erica paludicola*, L. Bolus.





A. *Erica saxatilis*, L. Bolus.

C. *Erica montana*, L. Bolus.

E. *Erica coruscans*, L. Bolus, var. *minor*.

B. *Erica cincta*, L. Bolus.

D. *Erica coruscans*, L. Bolus.

F. *Erica utriculosa*, L. Bolus.







H. G. Flanagan, F.L.S. (1861—1919)

## H. G. FLANAGAN, F.L.S.

HENRY G. FLANAGAN was born at Komgha, a small town in the native territories in the Eastern Districts of the Cape Province, on January 22, 1861, and died on October 23, 1919, at the Grey Hospital, King Williamstown. He was educated at the Public School, Komgha, and early in his career became the owner of Prospect Farm, in the Komgha Division. In 1890 he married Florence Reynolds who, throughout the remainder of his life, shared her husband's labours and hobbies with unlimited devotion. In 1898 Flanagan was elected a Fellow of the Linnaean Society.

For years before this, and in the midst of the multitudinous calls made upon the time of a practical farmer, he had set himself to collect the native plants of his district, a task he performed with characteristic thoroughness. No pains were spared in order to ensure success. I have heard how it was his custom to take an oil-stove with him to the sea-side, expressly for the purpose of rapidly drying in the oven certain plants which would otherwise have been spoilt by weather conditions. To-day his carefully selected and well-prepared specimens are in some of the largest herbaria of the world. His own valuable collection, containing all the types of his many discoveries, is now an important part of the National Herbarium in Pretoria, to which institution it was bequeathed.

Mr Flanagan's first collections were sent to Dr Peter MacOwan, at that time Government Botanist in Cape Town, who with the experience of advanced years immediately recognised "a promising collector," and set himself to give that help and encouragement which are of such vital importance to the beginner.

Besides collecting in the Komgha Division, Mr Flanagan made some extensive journeys for the purpose of botanical exploration. Among these were several to Rhodesia and the memorable waggon-journey in 1895-96, when he was accompanied by his wife and by his friend, the late Dr Harry Bolus, through Pondoland to the Orange Free State, culminating in the ascent of the Mont-aux-Sources. This trip yielded many novelties to the trio—some of the more notable being *Zabuzianskya Flanaganii*, Hiern, found on the summit (9500 ft.), and *Erica Flanaganii*, Bolus, on the landward slopes of the Mont-aux-Sources (8000 ft.); and the beautiful Balsam, *Impatiens Flanaganiae*, Hook. f., at Port St John.

During the last twelve years or more of his life Mr Flanagan's attention was chiefly turned to the development of his beautiful garden, containing

many rare exotics as well as South African trees, shrubs and succulents. It would be impossible to estimate the delight and comfort he must have derived from this pursuit, especially when one remembers that he suffered continually from headaches, and that there were periods lasting for days when he was prostrated by severe attacks of this painful malady.

Of a modest and retiring disposition H. G. Flanagan was, nevertheless, one of the leading farmers of his day, and it is most gratifying to record that he lived to reap some of the reward of his strenuous labour and undaunted perseverance; for during the latter part of his life the name of Flanagan Brothers and their famous citrus farm were known all over South Africa.

H. M. L. B.



Vol. III, Part I

May, 1920

South African College  

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**THE ANNALS**  
OF THE  
**BOLUS HERBARIUM**

EDITED BY

H. M. L. BOLUS, B.A.

HON. CURATOR, BOLUS HERBARIUM

CAMBRIDGE UNIVERSITY PRESS

C. F. CLAY, MANAGER

LONDON: FETTER LANE, E.C. 4

also

H. K. LEWIS & CO., LTD., 136, GOWER STREET, LONDON, W.C. 1

WILLIAM WESLEY AND SON, 28, ESSEX STREET, STRAND, W.C. 2

CHICAGO: THE UNIVERSITY OF CHICAGO PRESS

BOMBAY, CALCUTTA AND MADRAS: MACMILLAN & CO., LTD.

TORONTO: THE MACMILLAN CO. OF CANADA, LTD.

TOKYO: THE MARUZEN-KABUSHIKI-KAISHA

CAPE TOWN: T. MASKEW MILLER

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*Published 24 June, 1920*

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Contributions and editorial communications should be addressed to

THE EDITOR,  
Bolus Herbarium,  
South African College,  
Cape Town.

Vol. III, Part II

December, 1921

University of Cape Town

---

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BOLUS HERBARIUM

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HON. CURATOR, BOLUS HERBARIUM

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*Published 7 December, 1921*

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Bolus Herbarium,  
University,  
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Vol. III, Part III

September, 1922

University of Cape Town

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THE EDITOR,  
Bolus Herbarium,  
University,  
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Vol. III, Part IV

September, 1923

University of Cape Town



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OF THE  
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*Price Five Shillings net*

*Published January, 1924*

PRINTED IN GREAT BRITAIN

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LONDON: FETTER LANE, E.C. 4



H. K. LEWIS & CO., LTD., 136, GOWER STREET, LONDON, W.C. 1

WHELDON & WESLEY, LTD., 2-4, ARTHUR STREET, NEW OXFORD  
STREET, LONDON, W.C. 2

CHICAGO: THE UNIVERSITY OF CHICAGO PRESS  
(Agent for the United States and Canada)

BOMBAY, CALCUTTA, MADRAS: MACMILLAN & CO., LTD.

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THE ANNALS  
OF THE  
BOLUS HERBARIUM

EDITED BY

H. M. L. BOLUS, B.A., F.R.S.S.A.

HON. CURATOR, BOLUS HERBARIUM

VOLUME IV

WITH SEVENTEEN PLATES AND ONE PORTRAIT

CAMBRIDGE  
AT THE UNIVERSITY PRESS

1925-1928

PRINTED IN GREAT BRITAIN

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## NOVITATES AFRICANAE

*Mesembrianthemum stenophyllum*, L. Bolus (Ficoideae-Mesembryeae). Caudex subtuberosus, ramis confertis brevissimis, dense 6—8-foliatis, axillis gemmiferis; folia basi dilatata, textura multo tenuiore, connata, vagina ad 0.7 cm. longa, adscendentia, demum patentia, superne triquetra attenuata, acuta vel acuminata, supra plana, punctata, punctis sat prominentibus, fere ad 5 cm. longa, medio 0.2—0.3 cm. lata diametroque; flores solitarii 5-meri, meridie expansi, ad 2.5 cm. diam., pedunculis 1.5 cm. longis; bractee basales, cum vagina pedunculo paullo longioribus; calyx turbinatus, segmentis inter se subaequalibus, lanceolatis vel ovato-lanceolatis, acuminatis, 4 sat anguste membranaceo-marginatis, ad 0.6 cm. longis; petala 1—2-seriata, inter se subaequilonga, linearia, acuta vel obtusa, inferne gradatim attenuata, roseo-purpurea purpureo-vittata, 1.6 cm. longa, apice fere ad 0.15 cm. lata; stamina conico-collecta, apice 0.2 cm. diam., mox subdiffusa, staminodiis paucis albis circumdata, filamentis albis barbatis, ad 0.4 cm. longis, antheris pollineque albidis; discus annularis crenulatus; ovarium supra conspicue 5-lobum, stigmatibus subulatis setaceo-acuminatis, 0.3 cm. longis.

Cape Province: South-Western Region; Humansdorp Div., Witte Els Bosch, fl. Aug., *H. G. Fourcade*, 2992.

Described from living specimens, within a few days of their being collected.

*M. suppositum*, L. Bolus. Robustum glabrum, ad 9 cm. altum, caudice lignoso, ramis confertis adscendentibus, dense 4—6-foliatis, inferne saepius foliis persistentibus induratis onustis; folia adscendentia, basi connata per 0.2—0.5 cm., alterum folium paris altero leviter majus, turgide triquetra, sat obliqua, altero latere leviter magis convexo, obtusissima laevia glauca purpureo-tacta, ad 4 cm., saepius 2.5—3 cm. longa, 0.5—1 cm. lata, ad 1.2 cm. diam.; flores solitarii, circa 3 cm. diam., pedunculo brevi, omnino inter bractees incluso; calycis tubus turbinatus, segmentis inter se inaequalibus, oblongo-ovatis, duobus late membranaceo-marginatis ad 1.5 cm. longis; petala numerosa linearia, inferne attenuata, ? albida, ad 1.3 cm. longa, vix ad 0.1 cm. lata; stamina sublaxa numerosa, interiora breviora, dense barbata, pilis praecipue longis, antheris cum polline aureis, demum albidis; discus continuus crenulatus; ovarium supra convexum, alte 10-lobum, stigmatibus 10, lineari-filiformibus acuminatis, 0.25 cm. longis.

Cape Province: South-Western Region; Riversdale Div., Phisanti-fontein, fl. Feb., *Dr John Muir*, 3069.

Described from one living plant of which the flowers were somewhat advanced. The bracts enclosing the peduncle appear to be supporting the calyx and suggested the name, *suppositum*.

- M. *angulipes*, L. Bolus. Humile velutinum, vel, ob pilos minutos adpressos albidum, fere lepidotum, glauco-viride, ramis decumbentibus, ad 0.6 cm. diam., ramulis floriferis erectis, saepius 4-foliatis; folia demum patentia, alterum paris altero majus, basi connata, vagina 0.7—0.9 cm. longa, saepissime alterum paris conspicue, alterum inconspicue, carinatum, carina excentrica, folium majus obtusum, obscure apiculatum, ad 2.6 cm. longum, alterum abrupte acutum, apice demum recurvatum, ad 2.3 cm. longum (sine vagina), basi ad 0.9 cm. lata diametroque; flores solitarii 6-meri, ad 2.5 cm. diam., pedunculo angulato ebracteato, inferne sat gracili, superne gradatim incrassato in calycem, 2—2.4 cm. longo; calycis segmenta lanceolata vel ovato-oblonga, duo anguste membranaceo-marginata, 0.6—0.7 cm. longa; petala roseo-purpurea, basin versus albida, circa 1 cm. longa, 0.1 cm. lata; stamina collecta, vix ad 0.3 cm. diam., filamentis antherisque pallidis; discus e 6 glandulis discretis compositus; ovarium supra convexum, stigmatibus crassis subulatis brevibus.

Cape Province: South-Western Region; Riversdale Div., fl. Oct., *Dr John Muir* (Bolus Herbarium, No. 17695).

- M. *Cookii*, L. Bolus. *M. albido* affine, sed foliis minus angulatis, maturis haud obliquis, pedunculis compressis brevioribus, ceterisque differt.

Rami conferti, dense foliati; folia saepius 6, adscendentia, fere erecta, basi connata, vagina 0.5—0.6 cm. longa, sat turgide 3-quetra, supra plana, obtusa vel subacuta, apiculata laevia glauco-viridia, 3.5—8 cm. longa, 0.9 cm. lata; pedunculi compressi, 4 cm. longi, circa in medio bracteati; flores rite 3-nati, 3—4 horis postmeridiem expansi, 5 cm. diam.; calycis tubus compressus turbinatus, segmentis 5, ovatis vel late ovatis, 0.6—0.8 cm. longis, omnibus membranaceo-marginatis; petala pluri-seriata linearia, inferne leviter angustata, acuta vel obtusa, ad 2.2 cm. longa, 0.1—0.15 cm. lata; stamina pluri-seriata subdiffusa, circa 1.1 cm. diam., filamentis dilute luteis, intimis parce barbatis, 0.4—0.8 cm. longis, antheris pollicae aureis; discus inconspicuus, continuus vel irregulariter interruptus; ovarium supra convexum 10-lobum, stigmatibus lineari-filiformibus, 0.8—1 cm. longis; capsula valde convexa, ad 1.1 cm. diam.

Cape Province: South-Western Region; Barrydale and 15 miles West, Oct., *Compton and Cook* (National Botanic Gardens, No.  $\frac{1995}{3}$ ).

Flowered at Kirstenbosch May—June, 1924.

- M. *maritimum*, L. Bolus (§ *Corniculata*). Glabrum, ramis elongatis radican-tibus, ramulis floriferis adscendentibus, saepe fere erectis, cum pedunculo



ad 7 cm. altis; folia saepius fere erecta, teretia vel subteretia, basin apicemque versus attenuata, acuta apiculata, interdum omnino rubescentia, connata, vagina subtumida, 0.3—0.4 cm. longa; 3.5—6 cm. longa, 0.3—0.6 cm. diam.; flores saepius solitarii meridie expansi, 3.5—4 cm. diam.; pedunculi teretes, in calycem abrupte transeuntes, 2.5—3.5 cm. longi, prope basin bracteati, bracteis ad 2 cm. longis; calyx globosoturbinatus, segmentis 5, inter se inaequalibus, acutis, tribus late membranaceo-marginatis, 0.4—0.7 cm. longis; petala 2—3-seriata, obtusa vel acuta, saepe interiora irregulariter 2-dentata, linearia, inferne parum attenuata, 0.7—1.7 cm. longa, ad 0.2 cm. lata; stamina mox diffusa, exteriora patentia, 0.5 cm., demum 0.9 cm., diam., filamentis albis, interioribus barbatis, antheris pollineque aureis; discus annularis crenulatus; ovarium supra convexum, stigmatibus 10, subulatis.

Cape Province: South-Western Region; Riversdale Div., Still Bay, in sand near the sea, fl. June, *Dr John Muir*, 3095.

Described from several living specimens within a few days of their being collected.

- M. albertiniense, L. Bolus (§ Corniculata). Glabrum, ramis reptantibus elongatis angulatis, 30 cm. longis vel ultra, internodiis 1—2.5 cm. longis, ramulis floriferis dense 4-foliatis, axillis gemmiferis; folia fere erecta, demum patentia, leviter connata, vagina 0.1—0.2 cm. longa, teretia vel semi-teretia, rarius inconspicue carinata, abrupte acuta, basin versus gradatim angustata, viridia laevia, 1—2.5 cm. longa, saepius medio 0.2—0.3 cm., rarius ad 0.4 cm. diam.; flores saepius solitarii, interdum 2-nati, meridie expansi, ad 4.2 cm. diam., pedunculis patentibus, apicem versus adscendentibus vel erectis, teretibus, 2—2.5 cm. longis, infra medium bracteatis, bracteis 0.7—1 cm. longis; calyx subglobosus, segmentis 5, in alabastro subaequilongis, cum aetate duobus longioribus, lanceolatis vel ovatis acutis, 0.4—0.6 cm. longis, tribus late membranaceo-marginatis; petala 2—3-seriata, paucis intimis multo brevioribus, ceteris inter se subaequilongis, linearia acuta aurea, ad 2 cm. longa, 0.1—0.2 cm. lata; stamina diffusa, extima fere patentia, ad 1 cm. diam., filamentis aureis, ad 0.3 cm. longis, interioribus parce barbatis, antheris pollineque aureis; ovarium convexum, profunde 10-lobatum, lobis valde compressis, superne quasi alatis, apice truncatis, stigmatibus lanceolatis acutis, circa 0.15 cm. longis.

Cape Province: South-Western Region; Riversdale Div., near Albertinia (Oude Tuin), in sand, fl. June—Aug., *Dr J. Muir*, 919.

Described from living specimens within a few days of their being collected.

- M. pentagonum, L. Bolus (§ Bracteata). Erectum virgatum glabrum, 15—35 cm. altum, simplex vel ramis 3—4 prope basin orientibus, strictis compressis, ad 30 cm. longis; folia adscendentia, fere erecta, lineari-lanceolata

attenuata, saepissime apice uncinato-recurvata, rarissime supra medium latiora, viridia laevisissima, internodiis aequilonga vel breviora, 1.5—3 cm. longa, basi 0.3—0.5 cm. lata diametroque; flores 5-meri, per diem noctemque expansi, 3.5—4, vel rarius ad 4.5 cm. diam., pedunculo 1.2—3 cm. longo; calyx globoso-turbinatus acute 5-angulatus, angulis alatis, tubo 1—1.2 cm. longo, apice 0.8—1 cm. diam., segmentis inter se inaequalibus acuminatis acute carinatis, 0.7—1.1 cm. longis; petala laxè disposita, 1—2-seriata, paucis brevibus additis, linearia, ad basin longe attenuata, obtusa vel breviter 2-dentata, roseo-purpurea, basin versus saturate purpurea, interdum inconspicue vittata, extima 1.6—2.1 cm. longa, ad 0.2 cm. lata; staminodia numerosa, apice recurvata, 0.2—0.3 cm. longa, exteriora obtusa, saturate purpurea, interiora intro versa, lineari-filiformia acuminata pallida; stamina ad stigmata incumbentia (more sectionis), filamentis, antheris, pollineque albidis; receptaculum ultra ovarium productum, more sectionis; stigmata subulata, brevissima, 0.1 cm. longa.

Cape Province: South-Western Region; Riversdale Div., Garcia's Pass, alt. 1600 ft., fl. Oct., *H. Bolus*, 11290. Slopes of foot-hills of Langeberg at Glen, fl. Dec., *J. Muir*, 3001.

- M. triticiforme, L. Bolus. Fruticulus erectus rigidus glaberrimus, 30 cm. altus vel ultra, ramis ad 0.4 cm. diam., ramulis ultimis saepius 4—6-foliatis, 0.5—1 cm. longis, induratis persistentibusque, foliis delapsis; folia connata, vagina fere 0.2 cm. longa, turgide 3-quetra obtusa, interdum obscure apiculata, punctata, 0.4—0.8 cm., saepius 0.6 cm., longa, ad 0.25 cm. lata diametroque; flores solitarii 5-meri, meridie expansi, ad 1.2 cm. diam., pedunculo 0.6—0.7 cm. longo, medio bracteato, bracteis calyci subtendentibus; calyx turbinatus, segmentis leviter inaequalibus oblongo-lanceolatis, tribus anguste membranaceo-marginatis, 0.2—0.3 cm. longis; petala sat pauca, 2-seriata, linearia subacuta rosea, inferne pallidiora, 0.3—0.5 cm. longa, vix ad 0.1 cm. lata; stamina collecta, apicem versus subpatentia, staminodiis paucis filiformibus circumdata, filamentis dilute roseis, basin versus barbatis, fere ad 0.3 cm. longis, antheris pollineque pallidis; discus annularis crenulatus; ovarium supra convexum 5-lobum, 0.2 cm. diam., stigmatibus anguste subulatis setaceo-acuminatis, fere 0.25 cm. longis.

Cape Province: exact locality uncertain, fl. Oct., *C. F. Juritz*, 119.

Described from living specimens which flowered in Dr C. F. Juritz's garden at Three Anchor Bay, near Cape Town.

- M. Putterillii, L. Bolus. Fruticulus sat humilis, ramis subrigidis, adscendentibus vel subdecumbentibus, elongatis, 18 cm. longis vel ultra, junioribus praecipue compressis subalatisque, internodiis 0.5—2.5 cm. longis; folia adscendentia, demum patentia, rarius adscendenti-recurvata, basi breviter

connata, vagina 0.15 cm. longa, triquetra, carina marginibusque superne cartilagineo-ciliatis, obtusa apiculata, apiculo saepius recurvato, prominenter punctata, intus basi pustulata, ad 1 cm. longa, saepius 0.8 cm. longa, 0.35 cm. lata diametroque, axillis gemmiferis; flores solitarii 5-meri, meridie expansi, 1.5 cm. diam., pedunculo 0.4—0.9 cm. longo; calyx turbinatus, segmentis inter se subaequalibus, omnibus plus minusve membranaceo-marginatis, 0.4 cm. longis; petala 2—3-seriata linearia acuta roseo-purpurea, ad 0.8 cm. longa, fere ad 0.1 cm. lata; stamina conferta, 0.2 cm. diam., filamentis purpureis, infra medium barbatis, ad 0.4 cm. longis, staminodiis circumdata, antheris pollineque albidis; discus annularis crenulatus; ovarium supra convexum 5-lobum, stigmatibus filiformibus setaceo-acuminatis, 0.4 cm. longis.

Orange Free State, Harrismith, *V. A. Putterill* (Grey University Herbarium, No. 1443). Basutoland, Butha Butha, *H. Ashton* (National Botanic Gardens, No.  $1\frac{1}{2}\frac{4}{3}$ ).

Described from living specimens which flowered at Kirstenbosch during June 1924.

- M. *Phillipsii*, L. Bolus. Humile, partibus herbaceis velutinis, pilis minutis patentibus albidis; rami subelongati prostrati radicantes, ad 17 cm. longi, internodiis 1—3 cm. longis, ramulis floriferis erectis, dense 4-foliatis, 1—2 cm. longis; folia connata, vagina ad 0.6 cm. longa, turgide triquetra, subcymbiformia cano-viridia, 1.5 cm. longa, medio 0.8 cm., basi ad 1 cm., lata, ad 1 cm. diam.; flores solitarii 5-meri, meridie expansi, 2.2 cm. diam., pedunculo ad 1 cm. longo, medio bracteato, bracteis calyci approximatis, 1 cm. longis; calyx turbinatus, lateraliter compressus, segmentis inter se subaequilongis, oblongis vel oblongo-lanceolatis, obtusis vel subacutis, tribus membranaceo-marginatis, ad 0.6 cm. longis; petala pluri-seriata, exteriora lineari-spathulata, obtusa vel bidentata, laete rosea, sat crassa, 1 cm. longa, ad 0.2 cm. lata; stamina conico-collecta, staminodiis roseis petaloideis et filiformibus luteis circumdata, filamentis nudis luteis, cum staminodiis basi pallidis; discus annularis crenulatus; ovarium supra concavum, stigmatibus subulatis acutis, sat crassis, saturate rubris, 0.2 cm. longis.

Cape Province: South-Western Region; Giftberg, fl. Sept., *E. P. Phillips* (Percy Sladen Memorial Expedition, 1911, No. 7664). Packhuisberg, among stones, fl. Aug., *R. Schlechter*, 10817. Van Rhynsdorp, *Mrs Rood* (National Botanic Gardens, No.  $1\frac{2}{3}\frac{4}{3}$ ).

Described from living specimens which flowered at Kirstenbosch during July 1924.

- M. *callicolum*, L. Bolus. Glabrum laevissimum, ramis elongatis decumbentibus, apicem versus adscendentibus, valde compressis, internodiis 1.5—3 cm. longis, ramulis floriferis saepius erectis, cum pedunculo 2—4.5 cm. longis;

folia adscendentia, connata, vagina circa 0.2 cm. longa, triquetra, acuta vel acuminata, apiculata, carina complanata, integra vel crenulata, leviter decurrente, glauco-viridia, 2.5—3 cm. longa, 0.3 cm. lata diametroque; flores solitarii 5-meri, meridie expansi, ad 1.8 cm. diam., pedunculis 0.5—1.8 cm. longis, medio bracteatis; calyx turbinatus, segmentis inter se inaequalibus lanceolatis acuminatis, tribus membranaceo-marginatis, 0.4—0.7 cm. longis; petala 2-seriata linearia, e medio attenuata, obtusa, dimidio superiore roseo-purpureo, inferiore pallido, ad 0.8 cm. longa, vix ad 0.2 cm. lata; stamina conico-collecta, 0.2 cm. diam., staminodiis filiformibus, inferne albis, parce barbatis, circumdata, filamentis medio barbatis, superne purpureis, 0.2—0.3 cm. longis, antheris pollineque flavis; discus conspicuus annularis denticulatus; ovarium supra valde convexum, stigmatibus subulatis acuminatis, 0.15 cm. longis.

Cape Province: South-Western Region; Riversdale Div., on limestone hills near the sea, fl. June, *Dr John Muir*, 3097. On limestone hills near Eland's Kop in the Duinen, fl. Aug., *id.*, 905. Gouritz River, Melkhoutfontein, on limestone hills, fl. July, *id.*, 3113.

Described from living specimens. The name, *callicolum*, has been given because the species, as far as is known, grows exclusively in limestone.

M. Stayneri, L. Bolus. *M. producto* affine, sed habitu compacto, foliis abrupte acutis, haud longe attenuatis, carina magis conspicua, differt.

Glabrum compactum, sat robustum, multo ramosum, circa 20 cm. altum, ramis diffuse patentibus, internodiis ad 2 cm., saepius 1.5 cm., longis, ramulis ultimis erectis vel fere erectis, dense foliosis; folia saepe fere erecta, basi connata, vagina ad 0.1 cm. longa, superne 3-quetra, inferne semi-teretia, supra plana vel basi profunde concava, abrupte acuta, glauco-viridia rubro-apiculata laevia, 1.5—2.5 cm. longa, 0.3 cm. lata diametroque; flores 3-nati vel saepe abortione 1—2-nati, 5-meri, meridie expansi, saepius 3—3.3 cm. diam., pedunculis brevibus, rare ad 2 cm. longis, infra medium bracteatis; calyx turbinatus, segmentis inter se valde inaequalibus, 2 petalis aequilongis vel ea excedentibus, acuta vel acuminata, brevioribus late membranaceo-marginatis, 0.9—1.6 cm. longis; petala circa 5-seriata linearia, inferne leviter angustata, integra (acuta vel obtusa) vel denticulata, roseo-purpurea, 0.3—1.4 cm. longa, parum excedentia 0.1 cm. lata; stamina conico-collecta, staminodiis acuminatis roseis circumdata, filamentis pallidis barbatis, 0.3—0.6 cm. longis, antheris pollineque saturate luteis; discus annularis crenulatus; ovarium supra convexum lobatum, stigmatibus subulatis acuminatis, 0.4—0.5 cm. longis.

Cape Province: South-Eastern Region; Bedford, *F. J. Stayner* (National Botanic Gardens, No.  $\frac{5}{2}$ ).

Described from numerous living specimens which flowered at Kirstenbosch from March to July 1924.

M. leucantherum, L. Bolus. Humile, caudice lignoso crassoque, ramulis brevissimis, saepius 2-foliatis, axillis gemmiferis; folia adscendentia connata, vagina circa 0.3 cm. longa, sat turgide 3-quetra, subacuta glauca, punctis atro-viridibus interjectis, laevisima, fere velutina tactu, interdum minute ciliolata, sine vagina saepius 1 cm. longa, fere ad 0.4 cm. lata diametroque; flores solitarii 5-meri, meridie expansi, 1.4—2 cm. diam., pedunculo basi bracteato, bracteis 0.9—1.2 cm. longis; calyx clavatus, segmentis inter se subaequilongis, lanceolatis vel ovato-lanceolatis, acutis, tribus anguste membranaceo-marginatis, 0.4—0.6 cm. longis; petala 1—2-seriata linearia acuta vel subacuta, ad basin haud, vel vix, attenuata, roseo-purpurea, ad 0.8 cm. longa, 0.1 cm. lata; stamina conferta, apice 0.2—0.4 cm. diam. metientia, staminodiis filiformibus circumdata, filamentis medio barbatis, inferne pallidis, superne purpureis, antheris pollineque albis; discus annularis crenulatus, ovarium supra convexum, stigmatibus subulatis setaceo-acuminatis, 0.2 cm. longis.

Cape Province: Karroo Region; Prince Albert, fl. July, *A. M. Trugwell* (Bolus Herbarium, No. 17108). Matjesfontein, *R. S. K. Russell*, flowered at Kirstenbosch in May (National Botanic Gardens, No.  $\frac{8}{24}$ ).

M. Victoris, L. Bolus. Minute lepidotum, pallide glaucum, dense ramosum, ramis patentibus vel decumbentibus, crassis, 0.6 cm. diam. vel ultra, floriferis ad 8 cm. longis; folia adscendentia vel interdum alterum paris incurvum, alterum recurvum, demum patentia, connata, vagina ad 0.5 cm. longa, superne acute triquetra, carina subobliqua, lateribus leviter convexis, supra concava vel plana, obtusa vel juniora acuta, tactu velutina, 2—4 cm., rarius ad 6.5 cm., longa, 0.6 cm. lata diametroque; flores 3-nati 5-meri, meridie expansi, 1.5 cm. diam., pedunculis compressis saepius ad 2 cm., rarius ad 6.5 cm., longis, omnibus supra medium bracteatis; calyx turbinatus, segmentis inter se inaequalibus, lanceolatis acutis, tribus membranaceo-marginatis, 0.4—0.7 cm. longis; petala 1-seriata linearia obtusa, inferne attenuata, rosea purpureo-vittata, 0.6 cm. longa, 0.1 cm. lata; stamina conico-collecta 0.2 cm. diam., filamentis barbatis purpureis, inferne albis, antheris pollineque albidis; discus annularis crenulatus; ovarium supra convexum, stigmatibus subulatis acuminatis, 0.2 cm. longis.

Cape Province: South-Western Region; Graafwater, *Victor Peers* (National Botanic Gardens, No.  $\frac{1440}{24}$ ).

Described from living specimens which flowered freely at Kirstenbosch during February and March. Mr Victor Peers, after whom this species and *M. Peersii*, L. Bolus, are named, has collected and grown many interesting succulents.

M. calandrum, L. Bolus. Glabrum decumbens, ramulis floriferis erectis 2—4-foliatis, cum pedunculo ad 11 cm. altis; folia adscendentia, demum patentia, vagina circa 0.2 cm. longa, triquetra, carina basi leviter decur-

rente (i.e. folia leviter calcarata), supra subplana, basin versus excavata pustulataque, lateribus convexulis, obtusa, obscure apiculata, laete viridia, minute punctata, saepius circa 2 cm. longa, 0.4 cm. lata, ad 0.5 cm. diam.; flores solitarii vel 2-nati, meridie expansi, 4.3 cm. diam.; pedunculi teretes politi, in calycem abrupte transeuntes, ad 7 cm. longi, infra medium 2-bracteati, bracteis ad 2.4 cm. longis; calyx crateriformis, segmentis 5, inter se fere aequalibus, oblongo-lanceolatis acutis, omnibus anguste membranaceo-marginatis, 0.9 cm. longis; petala subtriseriata lineari-spathulata acuta, interiora irregulariter 2-dentata, pallide rosea, ad 2 cm. longa, 0.2 cm. lata; stamina subdiffusa, apice 0.6 cm. diam., filamentis rubro-aurantiacis, ad 0.6 cm. longis, interioribus basin versus parce barbatis, antheris aureis; discus annularis crenulatus; ovarium supra levissime convexum, stigmatibus 10, anguste subulatis, longe attenuatis, ad 0.5 cm. longis.

Cape Province: exact locality and collector not known; flowered in Miss Arbutnot's garden, July 1924 (Bolus Herbarium, No. 17688).

Described from one living specimen which had flowered for the first time. The name is in reference to the beautifully coloured stamens.

- M. argenteum, L. Bolus. Fruticulus glaberrimus, copiose ramosus, circa 23 cm. altus, ramis late patentibus rigidis, ad 30 cm. longis, ad 0.3 cm. diam., internodiis 2—4 cm. longis, ramulis adscendentibus; folia adscendentia, demum late patentia vel etiam subdecurvata, connata, vagina 0.1 cm. longa, subacuta vel obtusa, carinata laevia glauco-viridia, ad 2 cm., saepius 1—1.3 cm., longa, supra medium 0.3—0.4 cm., rarius ad 0.5 cm., lata, 0.2—0.3 cm. diam.; flores ternati vel bi-ternati, 5-meri, meridie expansi, 1.2 cm. diam., pedunculis in calycem sat abrupte abeuntibus, 0.7—1.1 cm. longis, mediano saepius ebracteato; calyx turbinatus, tubo apice leviter constricto, segmentis inter se aequilongis lanceolatis vel ovato-lanceolatis, acutis, tribus angustissime membranaceo-marginatis, 0.3 cm. longis; petala 2-seriata linearia, acuta vel acuminata, pallide rosea, marginibus saturatoribus, ad 0.5 cm. longa, vix ad 0.1 cm. lata; stamina conferta, filamentis pallidis, superne roseis, medio barbatis, antheris pollineque luteis; discus annularis crenulatus; ovarium supra convexum, stigmatibus filiformi-subulatis, setaceo-acuminatis, vix ad 0.2 cm. longis.

Cape Province: South-Western Region; Clanwilliam Div., Graafwater, R. H. Compton (National Botanic Gardens, No.  $\frac{962}{2}$ ).

Described from living specimens which flowered freely at Kirstenbosch during June 1923.

- M. Arbutnotiae, L. Bolus. Perenne humile glabrum gracillimum, ramis elongatis prostratis radicanibus, ramulis floriferis erectis, 6—8-foliatis, saepius 1—1.5 cm. longis; folia adscendentia, basi connata, vagina 0.1 cm.

longa, triquetra, supra plana, acuta, punctata, punctis subprominentibus, glauco-viridia, ad 0.8 cm. longa, 0.1 cm. lata diametroque; flores solitarii 5-meri, meridie expansi, 1.4—1.6 cm. diam.; pedunculi 0.6—1.2 cm. longi, prope basin 2-bracteati; calyx turbinatus, segmentis inter se subaequalibus lanceolatis acutis, omnibus plus minusve membranaceo-marginatis, 0.4 cm. longis; petala 1-seriata lineari-spathulata obtusa, apicem versus roseo-purpurea, inferne pallidiora, 0.7 cm. longa, parum excedentia 0.1 cm. lata; stamina conico-collecta, apice 0.15 cm. diam., staminodiis acuminatis, apicibus patentibus, circumdata, filamentis cum staminodiis dense barbatis, superne purpureis, inferne albis, antheris pollineque aureis; discus annularis denticulatus; ovarium supra convexum, stigmatibus filiformibus setaceo-acuminatis, 0.45 cm. longis.

Cape Province: South-Western Region; exact locality unknown. *I. Arbuthnot* (Bolus Herbarium, No. 17397).

Described from living specimens which flowered in Miss Arbuthnot's garden during August.

- M. karrooicum, L. Bolus. Erectum rigidum robustum glabrum, ad 30 cm. altum, ramis ramulisque saepius fere erectis; folia adscendentia, saepe fere patentia, apice uncinato-recurvata apiculata, dorso rotundata, supra leviter convexa, superne angustata, glauca viridi-punctata, lamina 0.8—2.1 cm. longa, 0.3—0.5 cm. lata diametroque, internodiis omnino vaginatis, vaginis clavatis, lamina longioribus, apice 0.8—1.1 cm. diam.; flores solitarii 5-meri, meridie expansi, ad 5 cm. diam., pedunculo 2—4.5 cm. longo, medio bracteato; calyx clavatus, segmentis inter se inaequalibus, lanceolatis vel ovato-lanceolatis, acute acuminatis, 1—1.4 cm. longis, 2 membranaceo-marginatis; petala 2—3-seriata lineari-spathulata, obtusa vel 2-dentata, roseo-purpurea, purpureo-vittata ad supra medium, ad 2.2 cm. longa, 0.2 cm., vel fere ad 0.3 cm., lata; paucis intimis 0.6 cm. longis; stamina mox diffusa, apice 0.7 cm. diam., primo staminodiis acuminatis recurvatis, 0.6 cm. longis, circumdata, filamentis purpureis barbatis, 0.5—0.7 cm. longis, antheris pollineque pallidis; discus annularis crenulatus; ovarium supra valde convexum vel semi-globosum, lobatum, stigmatibus anguste subulatis, longe acuminatis, luteis, 0.6 cm. longis.

Cape Province: Karroo Region; dry plains near Matjiesfontein, alt. 3000 ft., fl. Sept., *H. Bolus*, 13454. Whitehill, *R. H. Compton* (National Botanic Gardens, No.  $\frac{845}{2}$ ).

- M. montaguense, L. Bolus. Glabrum, sat rigidum, laxe ramosum, ramis diffusis vel subdecumbentibus, teretibus lignosis, cortice griseo-brunneo, ad 30 cm. longis, ad 0.5 cm. diam.; folia fere erecta, saepius falcata vel subfalcata, demum patentia, basi connata, vagina 0.1 cm. longa, leviter tumida, superne turgide triquetra, carina obscura, inferne semi-teretia, supra plana vel leviter convexula, ad apicem attenuata, supra basin veram

angustata, glauco-viridia laevia, minute papillosa, ad 2 cm., saepius 1.7 cm., longa, 0.2—0.3 cm. lata, 0.3 cm. diam.; flores rite 3-nati, saepe solitarii, 5-meri, meridie expansi, 1.9—2.3 cm. diam., pedunculis 0.5—1.5 cm. longis; calyx turbinatus, segmentis inter se fere aequilongis, 2 parum brevioribus, lanceolatis acutis, 0.4—0.5 cm. longis, 4 membranaceo-marginatis; petala dense 2-seriata, inter se subaequilonga, spathulata vel anguste spathulata, apice integra vel emarginata vel irregulariter denticulata, roseo-purpurea, obscure vittata, 0.7—1 cm. longa, 0.1—0.2 cm. lata; stamina conico-collecta, 0.1—0.2 cm. diam., staminodiis linearibus, saepe obtusis, superne purpureis, inferne albis, circumdata, filamentis inferne albis barbatis, 0.2—0.4 cm. longis, antheris albidis, polline pallide flavido; discus continuus denticulatus; ovarium supra convexum, stigmatibus anguste subulatis, 0.25 cm. longis.

Cape Province: South-Western Region; Montagu Div., near Montagu, alt. 800 ft., fl. Aug., *M. M. Page* (Bolos Herbarium, No. 17692).

Described from several living specimens within a few days of their being collected.

- M. promontorii, L. Bolus. Erectum glabrum epapillosum, diffuse ramosum, saepius 15 cm., rarissime ad 30 cm., altum, ramis lignosis, sat gracilibus, ad 0.2 cm. diam.; folia saepius falcato-erecta, interdum fere patentia, vix connata vel vagina ad 0.1 cm. longa, compresso-triquetra vel subturgide triquetra, supra medium dilatata, abrupte acuta, apiculata, apiculo interdum uncinato-recurvato, supra plana, laevia, 1—2.3 cm. longa, ad 0.2 cm. lata, 0.3—0.5 cm. diam.; flores 3-nati 5-meri, meridie expansi, 1.4—2.3 cm. diam., pedunculis 0.5—1.5 cm. longis, medio ebracteato; calyx turbinatus, segmentis inter se subaequilongis, lanceolatis vel ovato-lanceolatis acuminatis, tribus membranaceo-marginatis, 0.4 cm. longis, vel in umbrosis ad 0.6 cm. longis; petala pluri-seriata linearia, saepius acuta, laete lutea, interdum apicem versus rubescentia, 0.2—0.6 cm., vel in umbrosis ad 1.1 cm., longa, ad 0.1 cm. lata; stamina diffusa, filamentis ebarbatis, 0.3—0.5 cm. longis, cum antheris pollineque luteis; discus inconspicuus annularis denticulatus; ovarium supra convexum, stigmatibus subulatis, 0.1 cm. longis.

Cape Province: South-Western Region; Cape Peninsula, hills near Glencairn and slopes above the sea at Cape Point, fl. Dec. and Jan., *I. Arbutnot* (Bolos Herbarium, No. 17486).

A very distinct species which does not fit into any of the existing sections of this vast genus. The name is in reference to its being found on the actual promontory of the Cape of Good Hope. Described from living specimens.

- M. stenopetalum, L. Bolus (§ Scabrida). Fruticulus erectus glaber, 16—23 cm. altus; folia adscendentia acutissima glauco-viridia, punctis vix prominenti-



bus, 1—2 cm. longa, vix ad 0.2 cm. lata diametroque; flores rite 3-nati, 5-meri, meridie expansi, pedunculis omnibus 2-bracteatis, 1—2.5 cm. longis; calyx turbinatus, segmentis inter se subaequalibus, ovato-lanceolatis, 0.3 cm. longis, tribus late membranaceo-marginatis, membrana brunnea; petala numerosissima pluriseriata lineari-spathulata, acuta vel inaequaliter dentata, marginibus mox revolutis, nunc purpurea vel dilute purpurea, nunc rosea vel pallide rosea, 0.4—1 cm. longa; stamina conico-collecta, staminodiis numerosis albidis, ad 0.5 cm. longis, circumdata, filamentis albidis, basi barbatis, antheris pollineque flavidis; discus annularis crenulatus; ovarium supra convexum, stigmatibus subulatis crassis, circa 0.1 cm. longis.

Cape Province: South-Western Region; Clanwilliam Div., Graafwater, V. Peers (Bolos Herbarium, No. 17830).

Described from several living plants which flowered freely in the National Botanic Gardens, Kirstenbosch, during September and October. Remarkable in the section for the numerous petals and the variety of shades of colour exhibited by them. These tend to roll their margins back soon after the flower opens and so appear narrower than they really are, thus giving a fluffy or tassel-like look to the flower.

- M. constrictum, L. Bolus. Fruticulus subrobustus compactus, ad 25 cm. altus, ramis adscendentibus, ramulis floriferis fere erectis, 5—7 cm. longis; folia demum patentia connata, vagina 0.3 cm. longa, 3-quetra, acuta vel rarius obtusa, supra plana, glauca, 1—1.5 cm. longa, ad 0.5 cm. lata diametroque; flores ternati vel bi-ternati, meridie expansi, 1.5—2 cm. diam., pedunculis teretibus, sub calycem constrictis quasi articulatis, ad 2 cm. longis, parum infra medium bracteatis, post anthesin persistentibus, induratis vel interdum spinescentibus; calycis tubus brevis subcrateriformis, segmentis 5, inter se fere aequalibus, ovato-oblongis obtusis, omnibus plus minusve anguste membranaceo-marginatis, 0.5 cm. longis; petala biseriata lineari-spathulata obtusa rosea, saturate roseo-vittata, ad 0.9 cm. longa, vix ad 0.15 cm. lata; stamina conferta, filamentis inferne pallidis, superne purpureis, interioribus barbatis, antheris pollineque pallidis; discus annularis crenulatus; ovarium supra leviter convexum, stigmatibus 10, gracilibus lineari-subulatis acuminatis, circa 0.3 cm. longis.

Locality and collector unknown. Bolus Herbarium, No. 17677.

Flowered at Kirstenbosch during June 1924.

- M. delum, L. Bolus. Erectum glabrum, circa 11 cm. altum, caudice subtuberoso, 0.5 cm. diam. vel ultra, ramis adscendentibus, 7—9 cm. longis, inferne foliorum reliquis persistentibus subspinescentibus onustis; folia adscendentia vel patentia, basi connata, vagina circa 0.1 cm. longa, teretia obtusa, ad 2 cm. longa, saepius 1.5 cm. longa, 0.4 cm. diam.; flores rite 3-nati, 5-meri, meridie expansi, 2 cm. diam., pedunculis 1 cm. longis vel

parum ultra, intermedio ebracteato, interdum spinescente; calycis tubus subglobosus, segmentis inter se inaequalibus, 0.5—1 cm. longis, duobus membranaceo-marginatis; petala 2—3-seriata, anguste linearia acuta purpureo-rosea, 0.5—0.9 cm. longa, minus quam 0.1 cm. lata; stamina pluri-seriata conico-collecta, ad 0.5 cm. longa, staminodiis filiformibus numerosis, superne laete luteis, circumdata, filamentis, antheris pollineque laete luteis; discus e 5 foveolis compositus; receptaculum pro 0.25 cm. ultra ovarium productum, parte producta petala, staminodia staminaque ferente; ovarium convexum, stigmatibus angustissime subulatis acuminatis, circa 0.25 cm. longis.

Cape Province: Upper Region; Nieuwoudtville, *E. B. Watermeyer* (National Botanic Gardens, No.  $\frac{3656}{15}$ ). Western Region; Van Rhynsdorp, *id.* (National Botanic Gardens, No.  $\frac{2040}{23}$ ).

Flowered at Kirstenbosch during May and June 1924. The name, *delum* (not hidden) is given because the yellow staminodes are visible almost as soon as the petals show.

- M. planum, L. Bolus. Humile glabrum, ramis elongatis decumbentibus gracilibus, 10—12 cm. longis, ad 0.2 cm. diam., internodiis saepius 1—2 cm. longis, intervalla inter ramulos floriferos abbreviatis formantibus; folia adscendentia vel patentia, conferta, axillis gemmiferis, basi vix connata, 3-quetra obtusa, supra plana, punctata, punctis sat prominentibus, sordide viridia, ad 1.2 cm. longa, 0.5—0.6 cm. lata diametroque; flores rite 3-nati, meridie expansi, 2.5 cm. diam., pedunculis 0.8—1 cm. longis, lateralibus medio bracteatis; calycis tubus depresse globosus, segmentis 5, in alabastrum incumbentibus ita ut alabastrum planum videatur, inter se subaequalibus, ovato-oblongis obtusis, 0.5 cm. longis, duobus late membranaceo-marginatis; petala 1—2-seriata spathulata, obtusa vel subacuta, laete rosea, basin versus albescentia, ad 1 cm. longa, 0.15 cm. lata vel parum ultra; stamina conico-collecta, apice 0.3 cm. diam., staminodiis paucis, superne laete flavis, circumdata, filamentis pallide luteis, superne aureis, basi barbatis, 0.2—0.5 cm. longis, antheris pollineque aureis; discus annularis crenulatus; ovarium convexum, stigmatibus 10, subulatis acuminatis, fere ad 0.2 cm. longis.

Cape Province: Western Region; Van Rhynsdorp, *E. B. Watermeyer* (National Botanic Gardens, No.  $\frac{1320}{23}$ ).

Flowered at Kirstenbosch, March—June 1924. The name, *planum*, was suggested by the flatness of the calyx.

- M. Giffenii, L. Bolus (§ *Aspericaulia*). Erectum, caule basi lignoso nodosoque, ad 0.7 cm. diam., ramis adscendentibus asperis, ad 0.3 cm. diam., ramulis fere erectis, ultimis gracilibus lignosis, cum pedunculo ad 2 cm. longis; folia mox fere patentia, connata, vagina ad 0.2 cm. longa, dorso rotundata, supra plana, saepe superne dilatata, obtusissima, papillis prominentibus

nitentissimis dense vestita itaque pallide glauca, 0.4—0.7 cm. longa, ad 0.3 cm. lata, fere ad 0.4 cm. diam.; flores solitarii 5-meri, meridie expansi, ad 1.4 cm. diam., pedunculo ad 1 cm. longo, medio, vel supra medium, bracteato; calycis tubus globoso-turbinatus, conspicue papillosus, segmentis inter se subaequilongis ovato-oblongis obtusis, tribus membranaceo-marginatis, 0.4 cm. longis; petala 2—3-seriata linearia, inferne leviter angustata, integra vel 2-dentata, rosea, marginibus interdum saturatioribus, inferne pallida, ad 0.7 cm. longa, vix ad 0.1 cm. lata; stamina mox subdiffusa, primo staminodiis acuminatis albis circumdata, filamentis 0.25—0.4 cm. longis, interioribus basi barbatis, antheris pollineque albidis; discus e glandulis 5, transverse linearibus, vix omnino discretis, compositus; ovarium supra leviter convexum, stigmatibus e basi anguste subulata longe attenuatis, 0.3 cm. longis.

Cape Province: South-Western Region; Montagu Div., between Montagu and Barrydale, fl. Oct., *M. H. Giffen* (Bolus Herbarium, No. 17438).

Described from living specimens within a week of their having been collected.

*M. aereum*, L. Bolus. Perenne, e basi ramosum, ramis decumbentibus, saepius elongatis, sat rigidis, asperis ob papillas parvas albas, ad 0.3 cm. diam., internodiis saepius foliis longioribus, ramulis adscendentibus; folia adscendentia, supra medium recurvata, basi connata, vagina 0.1—0.2 cm. longa, carinata, carina excentrica, citra carinam complanata, ultra leviter convexa, supra subconcaeva vel canaliculata, subacuta, tenuiter papillosa, basin versus saepius papilloso-ciliata, ad 4.3 cm., saepius 2—3 cm., longa, 0.4—0.5 cm. lata diametroque; flores solitarii vel apice ramorum ternati (abortione saepe binati), lateralibus tarde evolutis, 5-meri, meridie expansi, 1.5—2.4 cm. diam., pedunculis ebracteatis, 1.5—2.5 cm. longis; calyx turbinatus, tenuiter papillatus, segmentis inter se valde inaequalibus, duo longioribus, ad 1.2 cm. longis, tribus membranaceo-marginatis, 0.5—0.6 cm. longis; petala pluri-seriata linearia acuta, pagina superiore aerea, basin versus saepe purpurascens, pagina inferiore purpurea, interiora breviora angustioraque acuminata, ad 1.1 cm. longa, fere ad 0.15 cm. lata; stamina conferta, apice 0.3 cm. diam. metientia, staminodiis pallidis vel purpureis circumdata, filamentis pallidis, ad 0.4 cm. longis, interioribus barbatis, antheris pollineque luteis; discus e glandulis 5, discretis, transverse linearibus, crenulatis compositus; ovarium supra conico-convexum, stigmatibus subulatis setaceo-acuminatis, 0.2—0.3 cm. longis.

var. *alba*. Folia pubescentia; petala alba vel pallidissime rosea.

Exact locality unknown. *N. S. Pillans* (National Botanic Gardens, No.  $\frac{401}{16}$ ). Appears to be in flower at Kirstenbosch throughout the year.

*M. Pottsii*, L. Bolus. Perenne herbaceum, minute papillosum, papillis in setam brevissimam abeuntibus, hinc omnes partes herbaceae molliter pube-

scentes, caule brevi, sat robusto, ad 1 cm. longo, 0.3 cm. diam., ramis gracilibus confertis, demum elongatis, subdecumbentibus vel adscendentibus, internodiis folia aequantibus vel excedentibus; folia adscendentia, fere erecta, apice interdum recurvata, connata, vagina 0.1 cm. longa, semiteretia vel fere teretia, apicem versus subattenuata, vix acuta, 1—2.5 cm. longa, 0.3—0.5 cm. diam.; flores 1—3-nati, 5-meri, meridie expansi, 1.5 cm. diam.; calyx turbinatus, segmentis inter se inaequalibus, 0.4—0.6 cm. longis; petala 2—3-seriata alba lineari-spathulata obtusa, ad 0.7 cm. longa, ad 0.1 cm. lata; stamina conico-collecta, staminodiis filiformibus circumdata, 0.2 cm. diam., filamentis albis, antheris luteis; discus e glandulis 5, transverse linearibus, compositus; ovarium supra levissime convexum, stigmatibus subulatis, vix 0.15 cm. longis.

Kalahari Region: Orange Free State; near Bloemfontein, Eagle's Nest, on kopje under shade of trees, alt. 4700 ft., fl. Dec. 1918, *G. Potts*, 1667. "A delicate plant with shallow fibrous roots."

- M. *vinaceum*, L. Bolus (§ *Crassulina*). Humile, ramis prostratis confertis gracillimis, junioribus rubescentibus, demum albidis, saepius ad 10 cm. longis, internodiis saepissime 1—2 cm. longis; folia adscendentia, fere erecta, basi brevissime connata, dorso rotundata vel inconspicue carinata, supra leviter canaliculata, acuta glabra, minute papillata, 1.8—2.5 cm. longa, ad 0.4 cm. lata, 0.2—0.3 cm. diam.; flores rite 3-nati, abortione saepius solitarii, 5—6-meri, meridie expansi, 1.5 cm. diam., pedunculo 0.3—0.7 cm. longo; calyx globose turbinatus, segmentis inter se inaequalibus, subulatis vel ovato-subulatis, 3—4 plusminusve membranaceo-marginatis, longioribus ad 0.9 cm., brevioribus ad 0.5, longis; petala 2-seriata linearia obtusa, saepissime denticulata, vinacea, ad 0.7 cm. longa, vix ad 0.15 cm. lata; stamina subconferta, apice 0.2 cm. diam., staminodiis numerosis filiformibus, apice recurvatis, inferne roseo-purpureis, superne albidis, 0.4—0.5 cm. longis, circumdata, filamentis inferne roseo-purpureis, parce barbatis, ad 0.4 cm. longis, antheris demum albidis, polline luteo; discus continuus pentagonus crenulatus; ovarium supra convexum lobatum, stigmatibus subulatis setaceo-acuminatis, 0.3 cm. longis.

Exact locality unknown. Bolus Herbarium, No. 17512.

Flowered freely at Kirstenbosch during the autumn and winter, making a dense mat. As the buds open the petals are a rich ruby-red which soon changes to a ruby wine-colour.

- M. *sinuosum*, L. Bolus (§ *Spinulifera*). Perenne, e basi ramosum, ramis elongatis, prostratis, conspicue flexuosis vel rarius strictis, internodiis foliis saepius brevioribus, ramulis floriferis erectis brevibus; folia ramulorum alterna, semi-teretia, supra demum leviter canaliculata, obtusa, 1—2.5 cm. longa, ad 0.5 cm. diam.; flores solitarii 5-meri, meridie expansi, ad 2.5 cm. diam., pedunculo 0.8—1.5 cm. longo; calyx turbinatus, segmentis inter se valde

inaequalibus, 0·7—1·3 cm. longis, vel longioribus interdum accrescentibus, ad 2·5 cm. longis, fructu marcescentibus, tribus anguste membranaceo-marginatis; petala pluri-seriata linearia obtusa, interdum obscure 2-dentata, ad basin haud, vel vix, attenuata, pallide straminea vel viridistraminea, ad 1·2 cm. longa, 0·1 cm. lata; staminodia numerosa, apicem versus patentia, ad 1 cm. longa; stamina conferta, 0·2 cm. diam. metientia, filamentis pallidis ebarbatis, 0·2—0·7 cm. longis, antheris pollineque luteis; receptaculum in tubum petala, staminodia, staminaque ferentem productum; nectarium e 5 foveolis compositum; ovarium conico-con vexum, stigmatibus crassis subovatis obtusis, vix 0·2 cm. longis.

Cape Province: Western Region; Namaqualand, *Mrs Breach* (National Botanic Gardens, No.  $\frac{518}{21}$ ).

Described from living specimens which flowered freely at Kirstenbosch during the summer of 1923 and autumn of 1924.

*Cenia Duckittiae*, L. Bolus (Compositae-Senecionideae). Caulis erectus pubescens, pilis sparsis adpressis; folia adscendentia, superne 2—3-pinnatisecta vel multi-secta, lobis linearibus setaceo-apiculatis, ad 0·7 cm. longis, 0·1 cm. latis, inferne indivisa, praeter basin utrinque 2—3-lobatum, lobis lineari-filiformibus, parce adpresseque pubescentia, inferiora circa 5 cm. longa, rarissime ad 7·5 cm., saepius 1—2 cm., lata; pedunculus apice turbinatus inflatusque, 11—15 cm. longus; capitula 2—4·9 cm. diametro; involucri squamae 2—3-seriatae, extimae late ovatae, acutae vel acuminatae, anguste albo-marginatae, 5—7-nervatae, ad 0·8 cm. longae, basi 0·6 cm. latae; flores saturate aurei, radiales in flores tubiformes gradatim abeuntes, ad 1·5 cm. longi, ligulis integris, 1·3 cm. longis, 0·3—0·5 cm. latis, labio superiore 0·2 cm. longo, segmentis 3, 0·1 cm. longis, flores disci veri 0·3 cm. longi, tubo inferne gracili, e medio ampliato subangulato, lobis ovatis acutis, vix tertium tubi aequantibus; achaenia (fere matura) subobovata vel fere ovalia, apice emarginata, ubique, praecipue marginibus, papillata, 0·25 cm. longa.

Cape Province: South-Western Region; Darling Div., Wild-Flower Show, Darling, Sept. 1922, *Mrs C. J. Duckitt* (Bolus Herbarium, No. 17184).

This handsome species may be distinguished by the large size of the heads and the well-developed ligules of the ray florets. The dried specimens do not show the deep gold, or orange, colour of the flowers.

*Gazania Pottsii*, L. Bolus (Compositae-Cynareae). Acaulescens, radice tuberosa elongata, saepe 8 cm. longa, 2·5 cm. diam., in exemplis cultis ad 16 cm. longa, ramos brevissimos, dense foliatos, emittente; folia erecta, superne patentia, lineari- vel lanceolato-spathulata vel oblonga, acuta vel obtusa, in petiolum 2—6 cm., in cultis ad 12 cm., longum, gradatim angustata, rarissime 1—6-partita, segmentis saepius suborbicularibus, marginibus

leviter revolutis, undulatis, minute spinuloso-serrulatis, supra saturate viridia nitentiaque, subtus, nervo medio excepto, arcte araneoso-tomentosa, tomento candido, lamina 2—16 cm. longa, fere ad 3 cm., saepius 1—2 cm., lata; pedunculus superne pubescens, 9—35 cm. longus, 3—5 foliis anguste linearibus, longe acuminatis, glabris, 10—1 cm. longis, onustus; involu-  
crum basi profunde intrusum, parce pubescens, segmentis exterioribus linearibus acuminatis ciliatis, calycem excedentibus, interioribus multo longioribus, setaceo-acuminatis, 1—2 cm., in cultis 2—3 cm., longis; receptaculum conicum; ligulae aureae immaculatae, subtus sordide viridivittatae, circa 2·5 cm., vel in cultis ad 3·5 cm., longae, 1 cm. latae; corolla floris disci gracilis, superne leviter ampliata, 0·5—0·8 cm. longa, segmentis lanceolato-linearibus acutis; achaenia obliqua, crebre costata, circa 0·3 cm. longa, pappi squamis anguste linearibus, longe setaceoque acuminatis.

Cape Province: South-Eastern Region; Albany Div., Port Alfred Beach, fl. Jan. 1907, *Geo. Potts* (Grey College Herbarium, 220); fl. July 1908, *J. Burt Davy*, 7900. Kowie West, *Parker* (National Botanic Gardens, No.  $\frac{2325}{17}$ ).

This species was sent to the National Botanic Gardens in 1917 and has now so thoroughly established itself there that self-sown plants are to be found in flower throughout the year, especially during the dry summer months, as if they were wild.

*Erica latituba*, L. Bolus (§ *Evanthe*). *E. unicolori* affinis, sed corolla brevior latioreque, antheris brevioribus latioribusque, minute denticulatis, dentibus decurrentibus differt.

Erecta, exempla visa ad 20 cm. longa, ramis adscendentibus pubescentibus, pilis patentibus albis, sat longis, floriferis dense foliosis, saepius 1—2 cm. longis; folia adscendentia 4-nata linearia, superne leviter angustata, sulco inconspicuo, glabra ciliata, pilis patentibus albis longis, cum petiolo 0·2 cm. longo, ad 1 cm. longa; flores adscendentes vel patentibus, 4-nati vel abortione 1—3-nati, pedunculis vix 0·2 cm. longis; bractee 3, approximatae lineares ciliatae foliaceae, infima 0·3 cm., superiores 0·5 cm., longae; sepala bracteis simillima, ad 0·6 cm. longa; corollae tubus infra medium leviter dilatatus, faucibus vix contractus, haud vel vix obliquus, pubescens, pilis sparsis albis, sat longis, cum lobis erectis semiorbicularibus, circa 0·15 cm. longis, ad 1·5 cm. longus, manu expansus ad 0·7 cm. diam.; stamina inclusa, antheris lateralibus subovatis obtusis, minute denticulatis, dentibus decurrentibus, 0·1 cm. longis vel parum ultra, poro dimidium lobi excedente; ovarium subobovatum glabrum, 0·2 cm. longum, stigmatem demum exserto capitato.

Cape Province: South-Western Region; Caledon Div.?. Obtained at the Caledon Wild-Flower Show, Sept. 1908, *N. S. Pillans*, 1451.

Very distinct in the section, and perhaps nearest to *E. unicolor*, Wendl.,

from which it differs chiefly in the shorter and broader corolla, and the shorter and broader anthers which are decurrent-denticulate.

- E. tenax*, L. Bolus (§ Pleurocallis). *E. Hibbertiae* affinis, sed foliis 7-natis, bracteis brevioribus, sepalis longioribus, antheris longioribus angustioribusque, denticulatis, dentibus decurrentibus, distinguitur.

Erecta, ramis virgatis, brevissime tomentosis, dense foliosis, ad 23 cm. longis, 0.4 cm. diam.; folia fere erecta vel inferiora patentia, 7-nata linearia acuta, angustissime sulcata, glabra, sat viscida, ad 1 cm. longa, saepius 0.1 cm. lata, petiolo fere ad 0.2 cm. longo; pedunculi adscendentes, demum patentes, cum bracteis, sepalis, corollaque, viscidissimi, 1.5 cm. longi; bracteae 3, infima parum supra medium posita, ceterae intermediae, lanceolato-subulatae, 0.35 cm. longae; sepala lanceolata, longe attenuata, coriacea foliacea, 1.3 cm. longa; corolla leviter obliqua, faucibus contracta, superne puberula, saturate viridis, cum segmentis rotundatis, 0.2 cm. longis, ad 2.7 cm. longa; antherae manifestae vel subexsertae, lineares subacutae, basi vix obliquae, circa 0.3 cm. longae, poro dimidium lobi excedente, filamentum in connectivum 2-denticulatum ampliato; ovarium subobovatum glabrum, 0.3 cm. longum, stigmatum capitellato.

Cape Province: South-Western Region; Caledon Div., Palmiet River Valley, fl. Jan., *T. P. Stokoe* (Bolus Herbarium, No. 17623).

Very like *E. Hibbertia*, Andr., in having extremely viscid flowers, long peduncles and a glabrous ovary, but easily distinguished by the 7-nate leaves, shorter bracts, longer sepals, longer and narrower anthers which are decurrent-denticulate. Plate I, B.

- E. Thomae*, L. Bolus (§ Pleurocallis). *E. tenaci* affinis, sed pedunculis sepalisque brevioribus, corollae tubo infra medium contracto 4-sulcatoque, antheris angustioribus et magis acutis, distinguitur.

Erecta, ramis breviter griseo-tomentosis, ad 30 cm. longis, 0.5 cm. diam., dense foliosis; folia adscendentia, fere erecta, 7-nata linearia acuta, angustissime sulcata, glabra, leviter viscida, cum petiolo 0.2 cm. longo, 1.5—2 cm. longa, saepius 0.1 cm. lata; pedunculi adscendentes, demum patentes, 0.9 cm. longi, cum bracteis, sepalis, corollaque, viscidissimi; bracteae 3, infima circa medium posita, ceterae approximatae vel subapproximatae, lanceolatae, 0.3 cm. longae; sepala lineari-lanceolata, longe attenuata, coriacea foliacea, 0.8—1 cm. longa; corolla subobliqua, inferne 4-sulcata leviterque constricta, quasi apicibus sepalorum, deinde superne gradatim ampliata, scaberula alba, cum segmentis late ovatis, 0.2 cm. longis, 2.5—3 cm. longa; antherae manifestae vel subexsertae, lineares, acutae vel acuminatae, basi obliquae, obscure denticulatae, dentibus decurrentibus, 0.3 cm. longae, poro lobi dimidium parum excedente; ovarium subobovatum glabrum, circa 0.3 cm. longum, stylo basi dilatato, stigmatum capitellato.

Cape Province: South-Western Region; Caledon Div., fl. Jan., *Thomas P. Stokoe*, Rooi Els, near Hangklip (Bolus Herbarium, No. 17571); Palmiet River Valley (Bolus Herbarium, No. 17572).

Allied to *E. tenax*, L. Bolus, and may be distinguished by the shorter peduncles and sepals; the corolla-tube constricted just below the middle, as if pressed in by the sepals, and 4-sulcate downwards; and the narrower and more acute anthers. Plate I, A.

E. Thomae, L. Bolus, var. *brevisepala*, L. Bolus. Sepala oblongo-lanceolata, 0.5 cm. longa, ceteris typicis.

Obtained at the Cape Town Wild-Flower Show (Bolus Herbarium, No. 16233).

E. Gysbertii, Guthrie & Bolus, var. *longiflora*, L. Bolus. Folia ad 0.7 cm. longa; corollae tubus ad 1.5 cm. longus.

Cape Province: South-Western Region; Caledon Div., Palmiet River Valley, fl. April, *T. P. Stokoe* (Bolus Herbarium, No. 15305).

E. Gysbertii, Guthrie & Bolus, var. *ampliata*, L. Bolus. Folia ad 0.6 cm. longa; corolla ad 1.4 cm. longa, manu expansa ad 0.6 cm. diam.

Cape Province: South-Western Region; Caledon Div., Hottentots-holland Mts., fl. Oct., *T. P. Stokoe* (Bolus Herbarium, No. 17435).

E. intonsa, L. Bolus (§ Euryloma). *E. Gysbertii* valde affinis, sed foliis squarrosis creberrimis, multo longioribus, pedunculis gracilioribus, corolla longiore magisque dilatata, cum bracteis sepalisque textura tenuiore.

Erecta, 33 cm. alta, ramis adscendentibus glabris, dense foliosis, ad 15 cm. longis; folia squarrosa 4-nata linearia, sat obtusa, angustissime sulcata, ciliata, pilis pluribus e tuberculo orientibus, albidis, apice pilis brunneis longe barbata, demum glabra, cum petiolo 0.15 cm. longo, 0.6—0.8 cm. longa; pedunculi graciles, parce pubescentes, pilis crispulatis albidis longis, ad 0.8 cm. longi; bracteae 3, infima medio posita, ad 0.4 cm. longa, ceterae subapproximatae breviores, longe ciliatae, apice pilis brunneis longe barbatae; sepala lanceolato-lineararia, bracteis simillima, 0.2—0.4 cm. longa; corolla ovoideo-urceolata glabra viscidissima, saturate rosea, cum segmentis acutis, vix 0.2 cm. longis, 1.6 cm. longa, manu expansa 0.7 cm. diam., faucibus 0.3 cm. diam.; antherae fere semilunatae acutae, basi 2-lobae, muticae, fere 0.2 cm. longae, poro dimidium lobi subaequante, filamentis apicem versus conspicue dilatatis; ovarium subcylindraceum, in basin substipitatum angustatum, glabrum, ad 0.4 cm. longum, stigmatate capitellato.

Cape Province: South-Western Region; Caledon Div., mountains near Hangklip, fl. March, *T. P. Stokoe* (Bolus Herbarium, No. 17369).

Closely allied to *E. Gysbertii*, Guthrie and Bolus, but differing from the type in having longer, squarrose, crowded leaves, more slender peduncles, a longer and more inflated corolla whose texture, like that of the bracts and sepals, is thinner.



*E. lananthera*, L. Bolus (§ *Euryloma*). Ab omnibus ceteris in sectione forma corollae distinguitur.

Erecta, ad 28 cm. alta (ad 50 cm., fide Stokoe), ramis adscendentibus virgatis glabris foliosis; folia fere erecta vel patentia vel rarius recurva, 4-nata, lineari-oblonga vel anguste ovata, subacuta, rigide breviterque ciliata, cum petiolo 0.1 cm. longo, 0.2—0.4 cm. longa, cum bracteis sepalisque apice aristata, arista brunnea, saepius laminam excedente; flores 4—16 apice ramulorum aggregati; pedunculi demum decurvati glabri viscerati, 0.7—1 cm. longi; bractee 3, infima remota, ceterae parum infra medium positae, spatulatae foliaceae, sine arista 0.2—0.3 cm. longae; sepala oblonga, apicem versus leviter angustata, foliacea, 0.25 cm. longa; corolla tubulato-campanulata glabra viscida rosea, 0.7 cm. longa, cum segmentis patentibus, demum recurvis, late ovatis, acutis, circa 0.2 cm. longis; stamina inclusa, filamentis vix 0.3 cm. longis, apicem versus conspicue dilatatis, antheris subovatis acutis, basi prognathis bilobis lanato-barbatis, rarius apice breviter lanato-barbatis, muticis, vix 0.15 cm. longis, poro dimidium lobi subaequante; ovarium subobovatum glabrum, 0.15 cm. longum, stigmatibus manifesto capitellato.

Cape Province: South-Western Region; Caledon Div., Palmiet River Mts., fl. Dec., *T. P. Stokoe* (Bolus Herbarium, No. 17573); fl. March, *id.* (Bolus Herbarium, No. 17651).

This may be distinguished from all the other species in the section by the shape of the corolla. The woolly indument on the anthers is similar to that found on the anthers of *E. retorta*, Montin. Plate I, C.

*E. Savilea*, Andr., var. *mutica*, L. Bolus. Pedunculi 1—1.6 cm. longi; antherae muticae.

Cape Province: South-Western Region; Tulbagh Div., Witsenberg Range, fl. Jan., *K. White, R. Primos* (Bolus Herbarium, No. 17691).

*E. fastigiata*, L., var. *longituba*, L. Bolus. Sepala 0.7—0.8 cm. longa; corollae tubus 1.5 cm. longus, segmentis immaculatis, 0.3 cm. longis.

Exact locality unknown, but most probably from the Caledon Division, fl. September, *N. S. Pillans*, 1893.

*E. velitaris*, Salisb., var. *parvibracteata*, L. Bolus. A forma typica bracteis minoribus, infima vix 0.1 cm. excedente.

Cape Province: South-Western Region; Caledon Div., near the mouth of the Palmiet River, fl. March, *T. P. Stokoe* (Bolus Herbarium, No. 17649); exact locality and collector unknown (Bolus Herbarium, No. 10461).

*E. curvirostris*, Salisb., var. *longisepala*, L. Bolus. Folia parce pubescentia, demum glabrescentia; sepala ad 0.3 cm. longa; antherae late aristatae, fere aequilateraliter triangulares, angulis rotundatis.

*E. cyathiformis*, Salisb., var. *orientalis*, L. Bolus. Erecta, ad 23 cm. alta, ramis pubescentibus, pilis patentibus, ramulis floriferis ad 1 cm. longis; folia saepius erecta vel suberecta, 4-nata, internodiis aequilonga vel imbr-

cata, parce pubescentia, ciliata, saepius 0.2 cm. longa; flores 4-nati, pedunculis glabrescentibus, vix 0.2 cm. longis; bracteae 3, infima parum infra, ceterae parum supra, medium positae, lineares coloratae, 0.1 cm. longae; sepala ovata acuta ciliata, saturate rosea, 0.1 cm. longa; corolla cyathiformis, faucibus haud vel vix contracta, 0.2 cm. longa, lobis erectis obtusis, tubi dimidio aequilongis; stamina inclusa, antheris aequilateraliter triangularibus, angulis rotundatis, circa 0.5 mm. longis, aristatis, aristis poroque lobi dimidio aequilongis; ovarium subglobosum glabrum, stigmatate manifesto capitato.

Cape Province: South-Western Region; Humansdorp Div., flats east of Eiland's River, alt. 750 ft., fl. June, *W. G. Fourcade*, 2999; flats, Witte Els Bosch, alt. 750 ft., fl. Aug., *id.*, 829.

*E. cyathiformis*, Salisb., has proved a difficult species. It has been identified with *E. laevis*, Andr., but it seems probable that, when more material has been accumulated, the two species will be regarded as distinct. In the circumstances I have thought it advisable to give a fuller description than is usual in dealing with new varieties.

E. *truncata*, L. Bolus (§ *Eurystoma*). *E. saxicolae* affinis, sed foliis subvesicularibus, floribus viscidissimis majoribusque, ovario glabro, differt.

Humilis, erecta vel diffusa, ramis adscendentibus, saepe fere erectis, gracillimis pubescentibus, pilis patentibus brevibus, ad 20 cm. longis, internodiis 0.1—0.3 cm. longis; folia patentia vel rarius recurva, 3-nata suboblunga subvesicularia, supra convexa polita, sulco late aperto, breviter apiculata, ad 0.4 cm. longa; flores 3-nati vel abortione 1—2-nati, ramulis floriferis brevissimis, tantum folia non evoluta interdum ferentibus; pedunculi pubescentes, pilis patentibus brevissimis, 0.4 cm. longi; bracteae 3, infima medio posita, ceterae subapproximatae, oblongo-ovatae, 0.1 cm. longae; sepala ovata acuta scariosa viscida, 0.2 cm. longa vel ultra; corolla subcrateriformis, basi fere truncata, faucibus levissime contracta, saturate rubra, 0.3 cm. longa, segmentis erectis, late ovatis, obtusissimis, dimidium tubi excedentibus; stamina inclusa, antheris subaequilateraliter triangularibus, angulis rotundatis, dilute brunneis, vix 0.1 cm. longis, poro dimidio lobi brevior, cristato-aristatis, aristis patentibus, lobo subaequilongis; discus praecipue magnus; ovarium depresso globosum glabrum, stigmatate manifesto simplici.

Cape Province: South-Western Region; Caledon Div., Hottentots-holland Mountains; slope of Platteberg, near Palmiet River Mouth, "on rocks and among grass and herbage," alt. 3000 ft., fl. Aug.—Dec., *T. P. Stokoe*, 926.

Allied to *E. saxicola*, Guthrie & Bolus, but differs in having the leaves more or less inflated, the flowers very viscid and larger, and the ovary glabrous. Described from living specimens. The name refers to the somewhat truncate base of the corolla. Plate I, D.

*Philippia Stokoei*, L. Guthrie. Fruticulus erectus, ut videtur circa 15 cm. altus, ramis adscendentibus pubescentibus, pilis patentibus vel reversis, minutis albis; folia erecta 3-nata lineari-lanceolata, supra leviter convexa, infra late sulcata, glabra glanduloso-ciliata, 2—3 mm. longa; flores saepius 3-nati, ramulos terminantes, pedunculis glanduloso-pubescentibus, 0.5 mm. longis; calycis segmenta apice foliacea, glanduloso-ciliata, maxima 2 mm., cetera 1.5 mm., longa; corolla campanulata, calycis lobis brevioribus aequilonga, segmentis erectis obtusis, 0.5 mm. longis; stamina subexserta, filamentis inter se liberis, 1 mm. longis, antheris fere ad basin bifidis, 1 mm. longis, poro dimidio lobi aequilongo; ovarium globosum 4-sulcatum glabrum multi-ovulatum, 0.5 mm. longum diametroque; stylus exsertus, 3 mm. longus; stigma peltatum, subquadrangulare, processibus e medio radiantibus onustum.

Cape Province: South-Western Region; Caledon Div., Hottentots-holland Mountains, fl. Oct. 1922, *T. P. Stokoe* (Bolus Herbarium, No. 17678).

A distinct species, somewhat resembling *P. Chamissonis*, Kl., in outward appearance but differing in having the filaments and anthers free, and the style much exserted.

*Blaeria oppositifolia*, L. Guthrie. Fruticulus humilis gracillimus, copiose ramosus, 7—14 cm. altus, ramis adscendentibus glabris; folia erecta imbricata opposita, breviter petiolata, oblonga obtusa, supra concava, infra convexa, anguste sulcata, crassa glabra, marginibus minute scabridis hyalinisque, 1—1.5 mm. longa, 0.5 mm. lata; flores 1—2-nati terminales; pedunculi glabri 3-bracteati, 1 mm. longi; bracteae 2 medianae, circa 0.5 mm. longae, tertia basi posita, parum major, interdum foliacea; calyx fere ad basin 4-partitus, 0.7 mm. longus, lobis apicem versus foliaceis, obtusis, minute glanduloso-ciliatis, intus viscidulis; corolla tubulato-campanulata, obtuse 4-angulata, glabra rosea, 2 mm. longa, apice 1 mm. lata, lobis erectis vel leviter patentibus, longitudine quintam partem tubi aequantibus; stamina 4, 3 mm. longa; antherae exsertae, 1 mm. longae, ad medium bifidae, lobis superne leviter divergentibus, lineares, apicem versus leviter angustatae, obtusae, basi obliquae, scabridae atro-brunneae deciduae, poro minuto; ovarium 4-loculatum vel abortione 3-loculatum, 4-angulatum, loculis saepius 2-ovulatis; stylus stigma versus leviter dilatatus, 2.3 mm. longus; stigma simplex, leviter dilatatum.

Cape Province: South-Western Region; Caledon Div., Hottentots-holland Mountains, fl. Jan. 1924, *T. P. Stokoe* (Bolus Herbarium, No. 17674).

Allied to *B. dumosa*, Wendl., from which it differs by having opposite leaves and binate flowers.

*Thoracosperma rosaceum*, L. Guthrie. Erectum, ad 45 cm. altum, copiose ramosum, ramis adscendentibus, junioribus pubescentibus pilis brevibus, patentibus vel reflexis; folia erecta 3-nata linearia obtusa, infra convexa,

anguste sulcata, glabra, primum scabrido-ciliata, internodiis aequilonga, 2 mm. longa; flores numerosi, 2—6-nati, terminantes ramulos breves apicem versus ramorum dispositos; pedunculi puberuli rubescentes 2—3-bracteati, 1 mm. longi; bracteae puberulae, nunc omnes approximatae, plus minusve calyci adpressae, nunc unica mediana foliaceaue vel deficiens; calyx fere ad basin 4-lobatus, lobis ovatis subacutis, apice carinatis, ad basin parce puberulis, ciliatis, 1 mm. longis, latitudine inter se variantibus; corolla tubulata, leviter inflata, interdum obtuse 4-angulata, rosea, 3 mm. longa, lobis erectis, demum conniventibus, obtusis, circa 0.6 mm. longis latisque; stamina 4, 4 mm. longa; antherae exsertae, fere ad basin partitae, lobis primum haud divergentibus, atro-brunneae scabridae, 1 mm. longae, aristatae, aristis minutis liberis, poro tertiam partem lobi aequante; discus conspicuus, purpureus; ovarium subglobosum obtuse 4-angulatum, 4-loculatum, loculis 1-ovulatis, puberulum, 0.5 mm. longum diametroque, stylo 4 mm. longo, stigmati simplici.

Cape Province: South-Western Region; Riversdale Div., hills at Muiskraal, alt. 1500 ft., fl. Aug., *Dr John Muir*, 2697.

Nearest *T. Marlothii*, N. E. Br., but differs in having less imbricate leaves, calyx-segments larger and connate only near the base, ovary puberulous, awns not decurrent on the filament.

*T. viscidum*, L. Guthrie. Erectum, copiose ramosum, circa 36 cm. altum, ramulis pubescentibus; folia patentia-incurva, rarius reflexa, 4-nata, supra convexa glabra, infra convexa scabrido-pubescentia, late sulcata, cum petiolo 3 mm. longa, internodiis aequilonga; flores numerosi, breves laterales ramulos terminantes, viscidi purpureo-rubentes; pedunculi puberuli, 1—1.5 mm. longi, prope apicem unicam bracteam ferentes, rarius 1—2 bracteis minimis, calyci adpressis, additis; calyx fere ad basin aequaliter 4-lobus, 1 mm. longus, lobis corollae arcte adpressis, lanceolatis, late sulcatis, ciliatis, 0.7 mm. longis; corolla ovata, obtuse 4-angulata glabra, 3.5 mm. longa, prope basin 2 mm. diam., lobis erectis, demum conniventibus, longitudine quartam partem tubi aequantibus; stamina exserta, filamentis 4 mm. longis, antheris lineari-oblongis, lobis haud divergentibus, deciduis, 1.5 mm. longis, minute aristatis; ovarium stipitatum, 2—3-loculatum, compressum vel triangulare, loculis 1-ovulatis, stylo filiformi, 6 mm. longo, stigmati simplici.

Cape Province: South-Western Region; probably Ceres Div., exact locality unknown, obtained at the Wild-Flower Show, Cape Town, Oct. 1920 (Bolus Herbarium, No. 16779).

Allied to *T. interruptum*, N. E. Br., but differs in having larger viscid flowers, and leaves as long as the internodes, usually spreading.

*Acrostemon Fourcadei*, L. Guthrie. Erectus, copiose ramosus, ramulis erectis albido-tomentosis; folia erecta 3-nata lanceolata obtusa, supra plana, nervo medio saepe prominente, infra convexa, anguste sulcata, glabra, margini-

bus scabridis, juvenilia apice ciliata; flores numerosi, 2—6 aggregati, breves laterales ramulos terminantes; pedunculi perbreves puberuli 3-bracteati; bracteae calyci adpressae pubescentes ciliatae, tertia majore, 0.5 mm. longa; calyx 4-angulatus, 4-lobus, 1 mm. longus, lobis tubo aequilongis; corolla calycem parum excedens, tubulata glabra, 0.5 mm. diam., lobis erectis obtusis brevibus; stamina exserta, filamentis filiformibus, 2 mm. longis, antheris mox deciduis, subterminalibus muticis, 1 mm. longis, 0.5 mm. latis; ovarium obovatum compressum 2-loculatum, vel abortione 1-loculatum, dimidio superiore puberulum, 1 mm. longum, stylo exserto filiformi, 2.5 mm. longo, stigmatate infundibuliformi, circa 0.4 mm. diametro.

Cape Province: South-Western Region; Uniondale Div., summit of the pass between Avontuur and Uniondale, alt. 3500 ft., fl. March 1922, *H. G. Fourcade*, 2093 a.

Allied to *A. eriocephalus*, N. E. Br., but differs in being more rigid and erect in its habit, having a less hairy calyx and glabrous filaments.

- A. Stokoei, L. Guthrie. Erectus subrigidus, 30—45 cm. altus, ramulis numerosis pubescentibus pilosisque; folia patentia 3-nata lineari-lanceolata obtusa, supra leviter convexa vel plana, infra convexa, late sulcata, scabrida puberula, parce pilosa, juvenilia glanduloso-ciliata, cum petiolo 5 mm. longa, circa 1 mm. lata; flores saepius 8, aggregati, ramulos terminantes; pedunculi pilosi 3-bracteati, 1 mm. longi; bracteae approximatae, superiores adpressae parvae, tertia ad 2 mm. longa; calyx fere ad basin partitus, 2 mm. longus, lobis lineari-lanceolatis, extus pilis albis vestitis, intus glanduliferis viscidisque; corolla tubulata inflata, primum faucibus leviter contracta, glabra rosea, 3 mm. longa, segmentis erectis, demum (antheris delapsis) conniventibus, obtusis, circa 0.5 mm. longis latisque; stamina exserta, filamentis glabris, 3 mm. longis, antheris linearibus muticis deciduis, 2 mm. longis, poro circa 0.4 mm. longo; ovarium 1 mm. longum, saepius 2-loculatum, stylo gracili, 5 mm. longo, stigmatate simplici.

Cape Province: South-Western Region; Caledon Div., Hottentotsholland Mountains, fl. Dec. 1923, *T. P. Stokoe* (Bolus Herbarium, No. 17523).

Allied to *A. hirsutus*, Kl., but differs in having 3-nate and spreading leaves, larger and glandular calyx-segments, and a more inflated corolla.

- Protea oleracea*, L. Guthrie (Proteaceae-Proteeae). Primum humilis, caule 5—10 cm. alto, simplici, deinde post anthesin 1—2-ramoso, ramis circa 10 cm. longis, demum crebre ramoso, ad 1 met. alto; folia densa difformia, majora persistentia erecta, in capitulum incurva, obovato-oblonga obtusa saepius apiculata, gradatim angustata in petiolum brevissimum cras-sumque, utrinque lanato-pubescentia, glabrescentia, marginibus leviter undulata, glauca coriacea, prominenter nervata, 14—30 cm. longa, 5—10 cm. lata, cetera minora pauciora interspersa, mox brunnea marcescentiaque, erecta subsessilia, circa 2.5 cm. longa, 1.3 cm. lata, vel

involucro adpressa, in folia majora transeuntia, ad 8 cm. longa; capitulum sessile erectum, 6.3 cm. longum, apice 7.8 cm. diam.; involucri squamae 8-seriatae roseae, superne argenteo-pubescentes, marginibus tomentosis, interiores apice breviter albo-barbatae, lineari-oblongae, floribus parum brevioribus, exteriores ovato-oblongae; perianthium superne pubescens, pilis brevibus brunneis, 3 cm. longum, segmentis pilosis rubris, 1 cm. longis, aristis barbatis conniventibus, circa 0.2 cm. longis; stamina omnia fertilia, filamentis basi bilobis, antheris 0.5 cm. longis, glandula apicali rubicunda lanceolata obtusa, facie interiore gibbosa, 0.5 mm. longa; ovarium cylindricum, pilis longis brunneis vestitum; stylus 3 cm. longus teres, in stigma gradatim angustatus, junctioe levissime flexus, stigmatibus filiformi, tenuissime canaliculato, obtuso, 0.4 cm. longo.

Cape Province: South-Western Region; Caledon Div., Hottentotsholland Mountains, fl. Aug. 1924, *T. P. Stokoe* (Bolus Herbarium, No. 17584).

The description was made from six living specimens in flower. Of these some were unbranched, and with very short stems ("acaulescent"), looking like cabbages from a distance, and might well have been placed in the section *Obvallata*, with *P. turbiniflora*, R. Br., which is also heterophyllous. Others had one or two branches and in one specimen the stem was about 2 feet high.

The following extracts from Mr Stokoe's letters are instructive: "Along with the 'Cabbage Proteas' in full flower I send another from a damp shallow depression (not a kloof), facing east, at an altitude of 3500 ft., in long grass with young *Leucadendrons*. Only this one plant was in flower, but there were a few small seedlings growing under the charred relics of their forbears which were rather gnarled and with very little space between each flowering-season. I photographed the plant<sup>1</sup> and a burnt bush alongside." In a later letter Mr Stokoe continues: "I am convinced in my own mind that the 'Cabbage Protea' becomes a bush of about 3 ft. high, densely foliated and about as wide as it is high. It must be a handsome bush when the young woolly leaves are developing, for if it retains (as I hope to show) its density of foliage when it is fully developed, it must be one of the most bushy bushes amongst the *Proteas*. One must bear in mind that the whole area containing what I call 'Five Beacon Ridge' and its surroundings were burnt out a few years ago, and that no tree or shrub grows on 'Five Beacon Ridge' except where rocks make natural fire-guards, except a few bushes of *P. Stokoei* and a *Leucadendron* or two on the north end of the ridge: nothing older than the date of the fire exists."

*Aristea Stokoei*, L. Guthrie, subgenus *Nivenia* (Iridaceae-Sisyrinchieae-Aristeae). Fruticosa erecta, parce ramosa, 25—37 cm. alta, ramis ancipitibus, cicatrices foliorum delapsorum ferentibus; folia erecto-patentia disticha densa amplexicaulia lanceolata, 4—15 cm. longa, 0.6 cm. lata; flores numerosi corymbosi, pedunculo erecto, stricto vel flexuoso, ancipiti,

<sup>1</sup> See Fig. 2.

circa 7 cm. longo; spathae obtusae, marginibus atro-brunneis, interdum membranaceis laceratisque, 0.6 cm. longae; bracteae membranaceae brunneae, saepius integrae, rarius apice breviter divisae; perianthii tubus longe exsertus, cylindricus, 3.8 cm. longus, segmentis obovatis obtusis, saepius laete coeruleis, rarius dilute lilacinis, 1.8 cm. longis, 0.6 cm. latis; filamenta 0.6 cm. longa, antheris luteis, saepius 0.2 cm. longis; ovarium turbinatum, 0.3 cm. longum, 0.2 cm. diam., stylo gracili, 4 cm. longo, ramis circa 0.2 cm. longis; capsula obtuse angulata, 0.6 cm. longa, 0.5 cm. diametro, seminibus paucis, dilute brunneis.

Cape Province: South-Western Region; Caledon Div., near the mouth of the Palmiet River, fl. Jan.—Feb. 1924, *T. P. Stokoe*, 946.

Allied to *A. corymbosa*, Benth., from which it may readily be distinguished by the much larger flowers, with a relatively much longer tube.

*Watsonia vittata*, Mathews & L. Bolus. Saepius 75—90 cm. alta; folia radicalia 4, glauco-viridia, nervo medio marginibusque subprominentibus, nervis ceteris inconspicuis, ad 40 cm. longa, 1.2—1.9 cm. lata, caulina 2, ad 29 cm. longa, laminae 6—15 cm. longis; inflorescentia inferne ramosa, ramis 3, infima 9-fl., 25 cm. longa, superiores 6-fl., 12.5 cm. longae, axi principali circa 18-fl., floribus erecto-patentibus roseis, extus roseo-purpureis; spatha prima 7 cm. longa; bracteae herbaceae, apice vero membranaceae, politae ovato-oblongae obtusae, ad 2 cm. longae, bracteolis fere ad apicem coalitis, canaliculatis, bracteis aequilongis vel parum brevioribus; perianthii tubus gracilis, 2.9 cm. longus, faucibus circa 0.6 cm. diam., segmentis basi albo-maculatis, vittatis, vitta lilacino-purpurea, exterioribus oblanceolato-oblongis, 2.1 cm. longis, 0.9 cm. latis, interioribus aequilongis obovato-oblongis, 1.2 cm. latis; stamina arcuata, ad dimidium segmentorum attingentia, vel parum ultra, filamentis purpureis, antheris purpurascens, 0.7 cm. longis; stylus demum apicem segmentorum attingens, ramis 0.5 cm. longis, ramulis 0.25 cm. longis.

Exact locality and collector unknown. Bolus Herbarium, No. 17696.

Described from living specimens which flowered at Kirstenbosch during the latter part of November and early in December 1923.

*W. Ardernei*, Mathews and L. Bolus. Saepius 1.2—1.5 cm. alta; folia radicalia 4, inter se subaequilonga, ad 60 cm. longa, 2.8 cm. lata, caulina 6—7, infima 37.5 cm. longa, lamina 22.5—10 cm. longa, vaginis haud ventricosis; inflorescentia multo ramosa, ramis fere erectis, 8—60 cm. longis; bracteae herbaceae, apice membranaceae, ad 1.5 cm. longae, bracteolis aequilongis vel parum brevioribus; flores adscendentes vel patentes, albi; perianthii tubus 3.7 cm. longus, parte superiore infundibuliformi, quam pars inferior angustiore parum longiore, faucibus ad 1.7 cm. diam., segmentis ovalibus, exterioribus circa 2.5 cm. longis, 1.9 cm. latis, interioribus ad 3 cm. longis, fere ad 2.5 cm. latis; stamina equilateralia vel inter-

dum subarcuata, inter se distantia, parum ultra dimidium segmentorum attingentia, filamentis albis, antheris pallide flavidis, ad 1·2 cm. longis; stylus circa 5·5 cm. longis, ramis 0·6 cm. longus, ramulis vix ad 0·3 cm. longis; capsula cylindrica, apice plana, 2—3 cm. longa, 0·8—1 cm. diam.

Cape Province: South-Western Region; Tulbagh Div., Roman's River Farm, fl. Oct., *H. K. Tredgold* (Bolus Herbarium, No. 17839).

The plants at Kirstenbosch are all derived from those given by the late Mr H. M. Arderne from his own garden. No other collectings have been recorded. This species has been known in cultivation for some thirty years under the name of "Arderne's *Watsonia*," and in the trade as *W. Ardernei*.

Described from living specimens which have flowered at Kirstenbosch during October for several years.

- W. Wordsworthiana, Mathews and L. Bolus. Ad 1·65 met. alta; folia radicalia 4, inter se aequilonga vel inferiora parum longiora, ad 60 cm. longa, ad 4 cm., saepius 2·5—3·5 cm., lata, haud nitentia, leviter glauca, marginibus et nervo medio tantum prominentibus, caulina 5, inferiora subventricosa, infima 57·5 cm. longa, vagina 22·5 cm. longa, supremum omnino vaginans; inflorescentia multo ramosa, ramis erectis confertis, infimis circa 60 cm., ultimis 15 cm., longis, axi principali 14—16-fl., floribus adscendentibus, tantum rarius cum aetate patentibus, lilacino-purpureis; bracteae herbaceae, praeter membranaceam integram superiorem quartam partem, 3·2—1·8 cm. longae, bracteolis parum longioribus, fere ad apicem vel omnino coalitae; perianthii tubus 5 cm. longus, parte inferiore angustioreque, ad 0·35 cm. diam., parti cylindricae aequilonga, faucibus 1·3 cm. diam., segmentis obovato-oblongis obtusis, praecipue interioribus, 3·2 cm. longis, 1·9 cm. latis, interioribus parum latioribus; stamina unilateralia porrecta vel subarcuata, circa 4 cm. longa cum antheris 1·2 cm. longis, saturate purpureis, filamentis albis vel pallide roseis, polline pallido; stylus 6·5 cm. longus, ramis circa 0·7 cm. longis ad medium bifidis, ramulis iterum divisus, divisionibus ultimis circa 0·2 cm. longis; capsula cylindrica, basin versus leviter attenuata, ad 3·5 cm. longa.

Cape Province: South-Western Region; Tulbagh Div., Roman's River Farm, fl. Oct., *H. K. Tredgold* (National Botanic Gardens, No.  $\frac{6.5.2}{13}$ , Bolus Herbarium, No. 15203).

The plants at Kirstenbosch were received from the late Mr H. M. Arderne from his garden.

Allied to *W. Ardernei*, but differs in having a longer perianth-tube, arcuate stamens, and 12 stigmatic segments. The bracts are always much longer.

Described from living specimens which have flowered at Kirstenbosch during September for several years.

- W. Fourcadei, Mathews and L. Bolus. Ad 1·50 met. alta; folia radicalia 8, saturate viridia, leviter glauca, marginibus vix prominentibus substramineis, nervo medio viridi, inferne subprominente, superne incon-



spicuo, 22.5—60 cm. longa, 1.8—4 cm. lata, folium caulinum unicum 35 cm. longum, lamina 15 cm. longa; spathae 3, ad 25 cm. longae, internodio inter spatham primam et secundam circa 30 cm., inter secundam et tertiam circa 17.5 cm., longo; inflorescentia ramosa, ramo laterali 22-fl., ad 52 cm. longo; bracteae ovato-oblongae acutae, dimidio superiore membranaceo, 1.5—1 cm. longae, bracteolis aequilongis vel parum brevioribus, per duas tertias partes longitudinis coalitis; flores basi tantum erecti, deinde patentes, salmoneo-corallini, 7.5—8.1 cm. longi, tubo gradatim ampliato, ad 5.4 cm. longo, medio 0.6 cm., faucibus ad 0.9 cm., diam., segmentis exterioribus oblongo-linearibus, interioribus obovato-oblongis; stamina arcuata, fere ad apicem segmentorum attingentia, filamentis pallide roseis, antheris purpureis, 0.9 cm. longis; stylus segmenta parum excedens, ramis 0.9 cm. longis, ramulis 0.3 cm. longis.

Cape Province: South-Western Region; Humansdorp Div., Witte Els Bosch, *H. G. Fourcade* (National Botanic Gardens, No.  $1\frac{1}{2}1$ ).

Described from living specimens which flowered at Kirstenbosch, November and December 1923.

*Tritonia coccinea*, L. Bolus. Caulis cum inflorescentia 56 cm. altus; folia radicalia 6, fere erecta, lineari-ensiformia longe acuminata, saturate viridia, praeter nervum medium prominentem inconspicue nervata, 32—40 cm. longa, 1.3—2.5 cm. lata, caulina 4, superiora brunnea membranaceae, 32—18 cm. longa; inflorescentia ramosa, ramis 3, axi terminali circa 14-fl., floribus equilateraliter dispositis, 17 cm. longo, spathis foliis caulinis simillimis; bracteae omnino membranaceae, 1.7—0.7 cm. longae, bracteolis brevioribus, per duas tertias partes longitudinis coalitis; perianthium coccineum, 2.5 cm. longum, tubo 1 cm. longo, faucibus 0.5 cm. diam., segmentis subconniventibus suboblongis obtusissimis, 0.5 cm. latis, supremo ovato-oblongo, ad 0.7 cm. lato, inferioribus basi inconspicue luteo-notatis; filamenta pallida, vix tubum excedentia vel etiam parum breviora, antheris 0.5 cm. longis; ovarium 0.2 cm. longum, stylo 1.3 cm., ramis fere ad 0.4 cm., longis.

Cape Province: South-Eastern Region; Pondoland, Port St John, *MacNair* (National Botanic Gardens, No.  $\frac{8}{8}$ ).

Described from a living specimen which flowered at Kirstenbosch in December 1923.

*Babiana Vanzijliae*, L. Bolus (Iridaceae-Ixieae). Saepius 12—15 cm. alta; folia 6—7, linearia vel ensiformia, acuta, breviter velutinoque pilosa, nervis primariis 3—5, lamina 6—9 cm. longa, 0.6—1.5 cm. lata; spica basi ramosa, ramis 2, pedunculo e foliis vix exserto, dense 6—8-fl. vel ramis 3—5-fl., floribus fere erectis; bracteae (spathae valvae exteriores) herbaceae, tantum apice vero membranaceae brunneae, fere truncatae emarginatae, molliter pilosae, 4—2.5 cm. longae vel infima ad 6 cm. longa; bracteolae fere ad apicem membrana tenui coalitae, setaceo-acuminatae,

apicibus brunneo-membranaceis, 3—2 cm. longae; perianthium luteum immaculatum, tubo gracili, apicem versus leviter ampliato, 5 cm. longo, segmentis 3 cm. longis, obovatis, ad basin gradatim angustatis, exterioribus inter se aequalibus, 1.2—1.3 cm. latis, interioribus inter se aequalibus, ad 1.5 cm. latis; stamina saepius arcuata, rarius subequilateralia, ad parum ultra medium segmentorum attingentia, filamentis luteis, ad 1.7 cm. longis, antheris cum polline pallidis, 0.8 cm. longis; stylum 6.5 cm. longum, staminibus aequilongum, ramis 0.4 cm. longis, ovario superne nervis piloso, aliter glabro, 0.5 cm. longo.

Cape Province: South-Western Region; Clanwilliam Div., exact locality unknown, flowered in Mrs H. S. van Zijl's garden at Claremont, near Cape Town, Aug. 1924, from corms collected by her in the previous year (Bolos Herbarium, No. 17698).

Described from several living specimens.

*Gladiolus Geardii*, L. Bolus. Caulis 40 cm. altus; folia radicalia 5—6 ensiformia, prominenter nervata, basin versus purpurascens, ad 53 cm. longa, ad 3.2 cm. lata, caulina 3—4, 9—38 cm. longa; inflorescentia ramosa, ad 47 cm. longa; bracteae (spathae valvae exteriores) carinatae, praecipue inferiores, nervis primariis inter carinam marginemque 3—5, infima superne attenuata acuta, 9.5 cm. longa, 2.2 cm. lata, superiores obtusae, 7—5.5 cm. longae, bracteolis brevioribus, omnino coalitis, floribus laxissime dispositis, internodiis 8.5—4 cm. longis; perianthium pallide roseum faucibus rubens, 1.1 cm. diam., 9.5 cm. longum, tubo valde curvato, fere genuflexo, posteriore 4 cm., anteriore 4.5 cm., longo, segmento supremo porrecto, apicem versus erecto, oblongo-ovato cuspidato, cuspidate 1.2 cm. longa, obscure undulato, ad 3.5 cm. lato, segmentis lateralibus patenti-recurvatis, interdum intus rubro-vittatis, ad 2.4 cm. latis, inferioribus obtusis vel subattenuatis, ad 1.7 cm. latis, rubentibus, nota anguste lanceolata, acute acuminata, inferne unguiculata, ad 1 cm. infra apicem segmentorum attingens; stamina dimidium segmentorum vel ultra attingentia, antheris 1.4 cm. longis; ovarium 1.4 cm. longum, stigmatibus 1 cm. longis.

Cape Province: ? South-Eastern Region; Willowmore Div., mountain-slopes on Mr C. Geard's farm, Hadley, near Steytlerville, comm. *Florence Paterson* (National Botanic Gardens, No.  $\frac{135}{3}$ ).

Described from a living specimen which flowered at Kirstenbosch during Jan. 1924.

*Cyrtanthus Stayneri*, L. Bolus. Folia 4, haud flaccida, fere erecta, apicem versus leviter recurva, linearia, ad basin apicemque angustata, supra canaliculata, infra carinata, carina e tribus nervis subprominentibus composita, marginibus leviter incrassatis subrevolutis, 24.5 cm. longa, basi 0.3 cm., medio 0.7 cm., apice 0.1 cm., lata; pedunculus purpurascens, conspicue nervosus, 23 cm. longus, basi fere 0.5 cm. diam.; spathae valvae

oblongo-lanceolatae, fere 3 cm. longae (tempore florente); flores 5 evoluti, pedicellis 1—1.9 cm. longis; perianthium curvatum, sordide rubrum, 6-vittatum, vittis sordide viridibus, 2.8—3.1 cm. longum, tubo superne gradatim ampliato, basi circa 0.2 cm., apice 0.6—0.7 cm., diam., segmentis valde recurvatis vel subrevolutis, late ovatis, obtusis, exterioribus apiculo, e brevibus setis composito, onustis, 0.5 cm. longis, 0.45 cm. latis, interioribus parum brevioribus angustioribusque; stamina inferiora 0.5 cm. infra fauces, superiora 0.1 cm., inserta, antheris ad 0.25 cm. longis, filamentis subaequilongis vel brevioribus; stylus demum ad fauces attingens vel parum ultra.

Cape Province: South-Eastern Region; Keiskama Hoek, *F. J. Stayner* (National Botanic Gardens, No.  $\frac{1393}{21}$ ).

Described from a living specimen which flowered at Kirstenbosch, Nov. 1923.

*Eriospermum graminifolium*, A. Duthie (Liliaceae-Asphodeleae). Tuber parvum, transverse subpyriforme, intus albidum, 0.8—2 cm. diametro, axi e parte dilatata lateraliter oriente; folium unicum hysteroanthum, lamina lineari, crebre venosa, glabra subcoriacea, 3.5—13 cm. longa, 0.15—0.3 cm. lata, in petiolum gracilem angustata, inferne reliquis fibrosis foliorum delapsorum vestitum, 4—9 cm. longum; racemus 1—5.5 cm. longus, 1—10-fl., floribus distichis, bracteis minutis, pedicellis inferioribus 0.5—3 cm. longis; perianthii segmenta rubro- vel viridi-carinata, 0.4—0.55 cm. longa, interiora latiora et textura tenuiore quam oblonga exteriora; stamina perianthio breviora, filamentis lanceolatis; ovarium globosum, circa 1 mm. longum, stylo subaequilongum; capsula 0.5—0.6 cm. longa, ultra perianthium marcidum protrusa.

Cape Province: South-Western Region; Stellenbosch Div., flats near Stellenbosch, locally frequent, fl. April, *A. V. Duthie* (Stellenbosch University Herbarium, No. 1359).

*E. fasciculatum*, A. Duthie. Tuber transverse pyriforme, vetera rarius lobata, intus albidum vel dilute roseum, multis longis fibrosis radicibus onustum, axi e parte dilatata lateraliter oriente, 0.5—4.5 cm. longum, 0.5—2 cm. diametro; folium unicum hysteroanthum, lamina cordato-orbiculari 2—5 mm. lata, supra fascicula onusta e 8—36 processibus teretibus setaceo-acuminatis, 0.4—1.5 cm. longis, composita; pedunculus gracilis, 9—19 cm. longus; racemus cylindricus vel plus minusve distichus, 1—5 cm. longus, 3—13-fl.; bractee minutae deltoideae; pedicelli inferiores 0.2—1.2 cm. longi; perianthii segmenta alba, brunneo- vel viridi-carinata, exteriora plus minusve patentia, oblonga vel anguste elliptica, 4—5 mm. longa, 1—1.5 mm. lata, interiora conniventia, obovata, 3—4 mm. longa, 1.5—2 mm.; stamina perianthio breviora, filamentis lanceolatis; stylus dimidio longior quam ovarium globosum viride, 1 mm. longum; capsula 5—6 mm. longa, 4 mm. diametro, pilis seminum candidis.

Cape Province: South-Western Region; Stellenbosch Div., flats near Stellenbosch, in sandy soil, fl. March—April, *A. V. Duthie* (Stellenbosch University Herbarium, No. 1356).

Two small leafing specimens (*Schlechter*, 10569) in the Bolus Herbarium, collected by Dr R. Schlechter in the Bredasdorp Div., evidently represent this species. The leaf-processes, however, are densely hairy, whereas those of the Stellenbosch specimens are glabrous or glabrescent.

*E. confertum*, Baker, var. *aureum*, *A. Duthie*, nov. var. Tuber globosum parvum, 0·5—1 cm. diametro, intus dilute roseum, axi apicale oriente; folium unicum, saepius hysteranthum, erectum aciculare glabrum, lamina 2—4 cm. longa, 0·5 mm. lata; pedunculus filiformis politus subrigidus, spiraliter tortus, 4—11 cm. longus; racemus 1—3·5 cm. longus, 2—8-fl., floribus saepius distichis; bracteae minutae; pedicelli inferiores 0·6—2·5 cm. longi; perianthii segmenta inter se subaequalia, 0·4—0·5 cm. longa, oblonga, supra aurea, exteriora inferne brunneo-viridia, interiora conspicue brunneo-carinata; stamina aurea, 2·5—4 mm. longa, filamentis minus quam 0·05 mm. latis; ovarium cylindricum, 1·5 mm. longum, stylum aequans vel parum excedens.

Cape Province: South-Western Region; Stellenbosch Div., flats near Stellenbosch, locally frequent, fl. May, *A. V. Duthie* (Stellenbosch University Herbarium, No. 492).

*Bulbine crocea*, L. Guthrie (Liliaceae-Asphodeleae). Acaulescens perennis, tubere parvo, 0·8 cm. diam.; folia 7 vel ultra, subteretia, supra basin versus leviter complanata, carnosa, laete, sat pallide viridia, ad 17 cm. longa, 0·5 cm. lata; pedunculus ad 30 cm. longus; racemus densus, circa 16 cm. longus, cum aetate elongatus, 3·5 cm. diam., pedicellis patentibus, demum recurvatis, 1·3 cm. longis; bracteae deltoideae cuspidatae, basi dentatae, 0·5 cm. longae; perianthium laete croceum, segmentis viridi-carinatis ovato-oblongis, obtusis; stamina 0·5 cm. longa, barba pallide lutea; stylus filiformis, infra stigma contractus, 0·3 cm. longus; ovarium 0·15 cm. longum, 0·1 cm. latum.

Cape Province: Upper Region; near Queenstown, alt. 3500 ft., fl. Feb., *M. M. Page* (Bolos Herbarium, No. 16393).

Allied to *B. longiscapa*, Willd., from which it may be distinguished by its pale green leaves and bright orange-red perianth-segments.

#### EXPLANATION OF PLATE I

A. *Erica Thomae*, L. Bolus. B. *Erica tenax*, L. Bolus. C. *Erica lananthera*, L. Bolus.  
D. *Erica truncata*, L. Bolus.

A, B, C, D. Fig. 1, node; 2, leaf; 3, flower; 4, bracts and calyx; 5, sepal; 6, corolla; 7, anther, side view; 8, anther, back view. A, B, D. Fig. 9, gynaecium. C. Fig. 9, androecium; 10, gynaecium. D. Fig. 10, portion of branch with flowering branchlet showing undeveloped foliage-leaves.

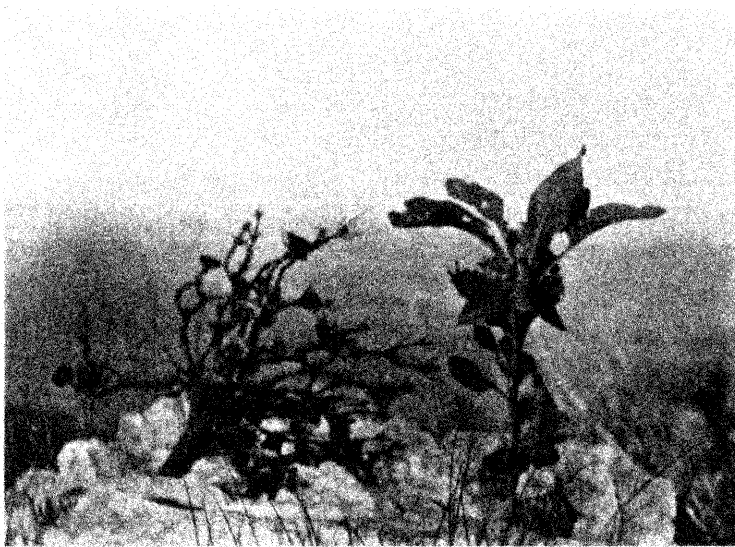


*Photo: T. P. Stokoe*

Fig. 1

*Protea oleracea*, L. Guthrie

showing the early growth of the plant with the stem short and either unbranched or with 1-2 branches



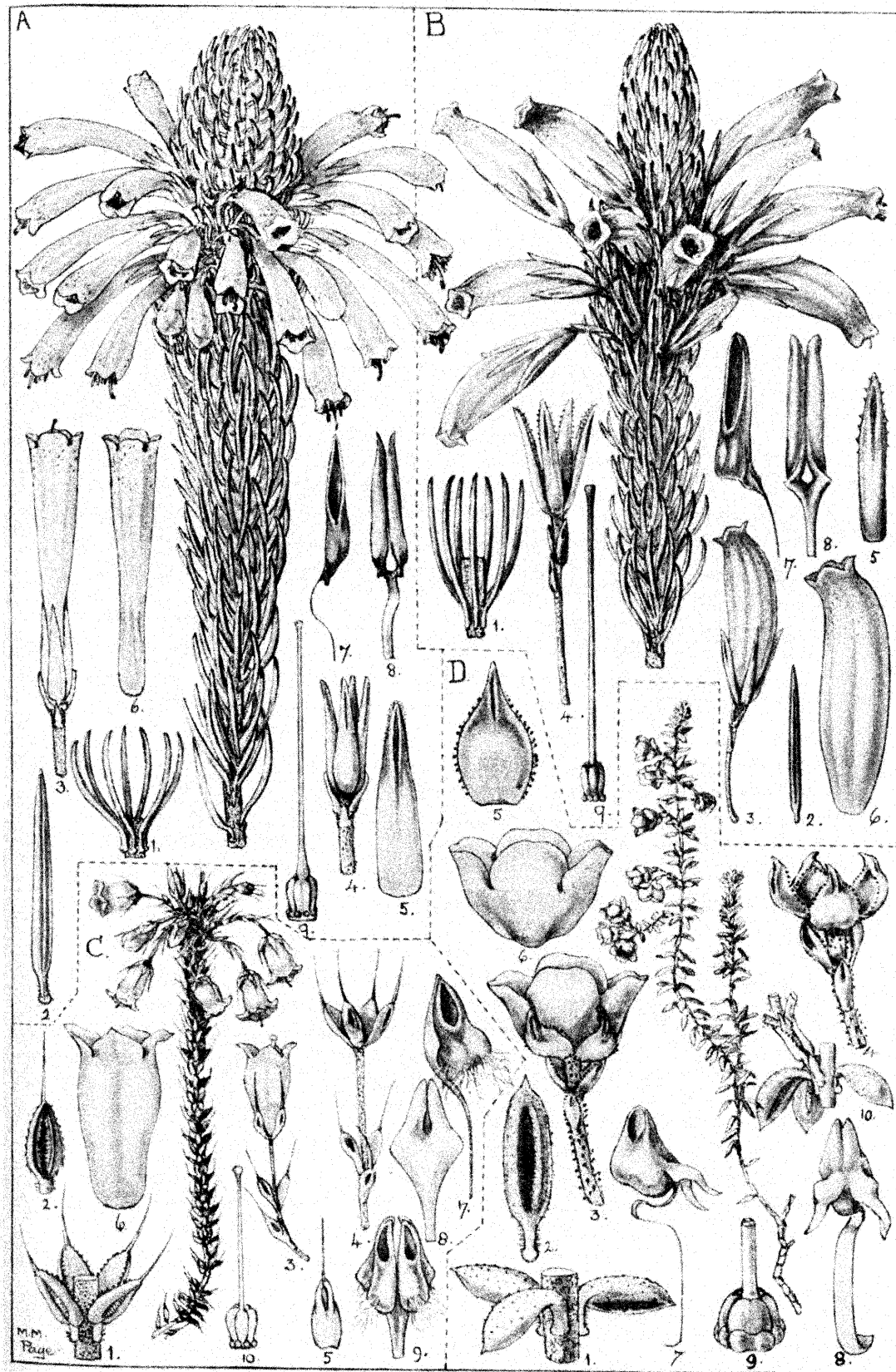
*Photo: T. P. Stokoe*

Fig. 2

*Protea oleracea*, L. Guthrie

showing later stages of growth





A. *Erica Thomae*, L. Bolus.  
C. *Erica lananthera*, L. Bolus.

B. *Erica tenax*, L. Bolus.  
D. *Erica truncata*, L. Bolus.





## SOUTH AFRICAN ORCHIDS

By H. M. L. BOLUS.

*EULOPHIA DREGEANA*, *Lindley*, in *Comp. Bot. Mag.* II, 202. Herba sat robusta, 31—47 cm. alta, rhizomate 1—1.5 cm. diam.; folia 5—10, synanthia erecto-patentia linearia acuminata, plus minusve conduplicata, duo inferiora multo breviora parumque latiora quam cetera, 5—36 cm. longa, 0.4—1.6 cm. lata; scapus strictus, vaginis 5—7, acuminatis griseo-brunneis, crebre nervosis, internodiis aequilongis vel longioribus, 7—3 cm. longis; racemus laxe 11—20 fl. (saepius 2—4 flores eodem tempore aperti), floribus adscendentibus, deinde patentibus; bractea lanceolata acuminata, 2.5—1 cm. longae; sepala pallide viridia, lateralia patentia, impar recurvatum, linearia acuminata, 2—2.4 cm. longa, ad 0.6 cm. lata; petala oblongo-elliptica acuta, pallida, fere albida, sepalis fere duplo latiora aequilongaque; labellum circuitu oblongum, petalis parum brevius, basin versus tuberculis, in 3—4 series dispositis, onustum, 3-lobum, lobis lateralibus circa 0.5 cm. longis, intermedio late obovato, dimidio inferiore processibus gracilibus brevibus, in 3 series dispositis, barbato, calcari curvato, ad 0.7 cm. longo; columna oblonga, apicem versus leviter angustata, basi in pedem producta; operculum brevissime rostratum.

South-Eastern Region: Cape Province; Komgha Div., near Komgha, in grassy valleys, alt. 2000 ft., fl. Dec. 1889, *H. G. Flanagan*, 344! Griqualand East, near Clydesdale, in damp grassy places, alt. 2500 ft., fl. Jan. 1885, *W. Tyson*, 2160! Natal; Maritzburg, fl. Dec. 1911, *T. R. Sim*, 4208! Dargle, Umgeni River, fl. Jan. 1922, *J. W. Bews* (Bolus Herbarium, No. 15394!). Kalahari Region: Transvaal; near Pretoria, *A. G. McLoughlin*!

A rather robust herb, 31—47 cm. high, with the rhizome 1—1.5 cm. diam.; leaves 5—10, synanthous erect-spreading linear acuminate, more or less conduplicate, the two lower ones much shorter and a little broader than the rest, 5—36 cm. long, 0.4—1.6 cm. broad; scape straight, sheaths 5—7, acuminate greyish-brown, closely nerved, as long as the internodes or longer, 7—3 cm. long; raceme laxly 11—20-fl. (usually 2—4 flowers open at the same time), flowers at first ascending, then spreading; bracts lanceolate acuminate, 2.5—1 cm. long; sepals pale green, the lateral spreading, the odd sepal recurved, linear acuminate, 2—2.4 cm. long, up to 0.6 cm. broad; petals oblong-elliptic acute, pale, almost whitish, as long as the sepals and nearly twice as broad; lip oblong in outline, a little shorter than the petals, furnished towards the base with tubercles arranged in 3—4 rows, 3-lobed, lateral lobes about 0.5 cm. long, intermediate broadly obovate, bearded in the lower half with short

slender processes arranged in 3 rows, spur curved, up to 0.7 cm. long; column oblong, slightly narrowed towards the apex, produced at base into a foot; operculum very shortly beaked.

The drawing was made from a living specimen collected by Mr T. R. Sim from Maritzburg (Sim, 4208).

*EULOPHIA ARENARIA*, *Bolus*, in Journ. Linn. Soc. xxv, 185. Ad 40 cm. alta, rhizomate 1—2 cm. diam.; folia plus minusve synantheria, 4—5, inferiora 2 vix producta, cetera linearia acuminata, ad 20 cm. longa, ad 0.8 cm. lata; scapus subflexuosus, vaginis 3 distantibus, 6—3 cm. longis, onustus; racemus laxe 5—8-fl., floribus adscendentibus vel mox cernuis, pedicellis ad 1.3 cm. longis; axis florifer saepe flexuosus; bracteae lanceolatae acuminatae, 2—1 cm. longae; sepala reflexa, saepius 1.6 cm. longa, lateralia oblique lateque ovato-oblonga, obtusa apiculata, impar ovato-oblongum subacutum; petala fere orbicularia, sepalis subaequilonga; labellum petalis longius, saepius 2 cm. longum, ad 2.4 cm. latum, late saccatum, ore sacci processibus 2 erectis subquadratis, 0.3 cm. longis, onustum, 3-lobum, lobis lateralibus rotundatis, intermedio subquadrato, truncato vel late emarginato, callis elongatis medio ornato; columna subpanduriformis, basi in pedem producta; anthera acuminata; pollinia orbiculata, stipite triangulari, glandula transverse linearis, utrinque attenuata. *Lissochilus arenarius*, Lindl., in Journ. Linn. Soc. vi, 133.

South-Eastern Region: Natal; Umvoti, *Mrs K. Saunders*! Near Tongaat River, alt. 500 ft., fl. Nov. 1887, *Wood*! (Herbarium Normale, No. 1368). Zululand; Amatikulu, fl. Nov. 1914, *T. R. Sim*, 4235!

Up to 40 cm. high, the rhizome 1—2 cm. in diam.; leaves more or less synantherous, 4—5, the 2 lower scarcely produced, the rest linear acuminate, up to 20 cm. long and 0.8 cm. broad; scape somewhat flexuous, with 3 distant sheaths, 6—3 cm. long; raceme laxly 5—8-fl., flowers ascending or soon nodding; pedicels up to 1.3 cm. long; flowering-axis often flexuous; bracts lanceolate acuminate, 2—1 cm. long; sepals reflexed, usually 1.6 cm. long, lateral ones obliquely and broadly ovate-oblong, obtuse apiculate, the odd one ovate-oblong subacute; petals almost orbicular, about as long as the sepals; lip longer than the petals, usually 2 cm. long, up to 2.4 cm. wide, broadly saccate, furnished at the mouth of the sac with 2 erect subquadrate processes, 0.3 cm. long, 3-lobed, the lateral lobes rounded, the intermediate subquadrate, truncate or widely emarginate, furnished in the middle with three elongated calli; column somewhat fiddle-shaped, produced at base into a foot; anther acuminate; pollinia orbiculate, the stipe triangular, gland transversely linear, attenuate on both sides.

The drawing was made from living specimens collected in Natal.

*EULOPHIA CLITELLIFER*, *Bolus*, in Journ. Linn. Soc. xxv, 184, var. MAJOR, *L. Bolus*. Saepius 12—36 cm. alta, rhizomate 2—3 cm. diam.; folia plus minusve hysterantheria (i.e. orientia eodem tempore cum floribus bene evolutis),

producta 4, late linearia, acuta, demum ad 15 cm. longâ, inferiora breviora oblonga, omnia crebre nervata; scapus substrictus, vaginis 4—5, unica circa medium posita, ceteris basin versus aggregatis, 1.8—3 cm. longis; racemus laxe 8—13 fl., floribus adscendentibus, pedicellis 0.6—0.9 cm. longis; bracteae oblongo-ovatae vel lanceolatae, acuminatae, ad 1 cm. longae; sepala patentia, demum reflexa, obovato-oblonga acuta, 0.8—1 cm. longa, 0.4—0.5 cm. lata; petala patentia, ovata vel late ovata, obtusa, sepalis aequilonga; labellum ad dimidium columnae adnatum, crenulatum, petalis aequilongum, 3-lobum, lobis lateralibus erectis, rotundatis vel subtruncatis vel late emarginatis, intermedio suboblongo, fere ad apicem tuberculato-cristato, tuberculis in 7—8 series dispositis, lateralibus circa duplo longiore, calcari stricto vel leviter curvato, apice inflato, 0.4—0.5 cm. longo; columna suboblonga, superne ampliata, basi in pedem producta; operculum obtusum; stipes subquadratus. *Lissochilus Rehmannii*, Rolfe, in Flor. Cap. v, § 3, 55.

Kalahari Region: Transvaal; near Pretoria, on mountains, fl. Sept. 1875, *J. H. McLea* (Bolus Herbarium, No. 5819!). Groen Kloof, near Pretoria, "common on grassy hillsides," in full leaf and nearly finished flowering, Nov. 1903, *J. Burt Davy*, 1049! Sunnyside, near Pretoria, fl. Sept. 1907, *E. Tennant* (Transvaal Department of Agriculture, Colonial Herbarium, No. 4040).

Usually 12—36 cm. high, with the rhizome 2—3 cm. in diameter; leaves more or less hysteranthous (i.e. beginning to shoot when some of the flowers are already well developed or withering), the produced ones 4, broadly linear, acute, finally up to 15 cm. long, the lower ones shorter oblong, all closely nerved; scape rather straight, with 4—5 sheaths, one situated at about the middle, the rest crowded towards the base, 1.8—3 cm. long; raceme laxly 8—13-fl., flowers ascending, pedicels 0.6—0.9 cm. long; bracts oblong-ovate or lanceolate, acuminate, up to 1 cm. long; sepals spreading, finally reflexed, obovate-oblong acute, 0.8—1 cm. long, 0.4—0.5 cm. broad; petals spreading ovate or broadly ovate, obtuse, as long as the sepals; lip adnate half-way up the column, crenulate, as long as the petals, 3-lobed, lateral lobes erect, rounded or somewhat truncate or widely emarginate, the intermediate suboblong, tubercle-crested almost to the apex, the tubercles arranged in 7—8 rows, about twice as long as the lateral lobes, the spur straight or slightly curved, inflated at the apex, 0.4—0.5 cm. long; column suboblong, widened upwards, produced at base into a foot; operculum obtuse; stipe subquadrata.

The drawing was made from a living specimen collected by Mr A. G. McLoughlin, near Pretoria, October 1913.

HABENARIA NATALENSIS, *Reichenbach fil.*, Otia Bot. Hamb. II, 97. Gracillima, ad 46 cm. alta; folia inferiora 1—2 vaginiformia, caulina 5—8, gradatim in bracteas abeuntia, linearia, acuta vel acuminata, in siccis setaceo-apiculata, inconspicue nervata, cum vagina ad 15 cm., saepius 9—12 cm., longa, 0.4—1 cm., rarissime ad 1.5 cm., lata; racemus laxe 10—22-fl., rarius ad 30-fl.,

floribus adscendentibus, inter minimos in genere, viridia, axi florifero fere stricto; bracteae foliaceae, longe setaceoque acuminatae, 1.8—0.5 cm. longae; pedicelli demum ad 1.2 cm. longi; sepala lateralia reflexa, late semi-lunata, apicem versus leviter angustata, obtusa, ad 0.5 cm. longa; sepalum impar erectum galeatum, vix ad 0.4 cm. longum; petala integra ovato-oblonga subfalcata (margine anteriore convexa, posteriore concava), sepalo impari aequilonga; labellum basi (ore calcaris) processu erecto onustum, 3-partitum, lobis subfiliformibus, lateralibus 0.5 cm. longis vel parum ultra, intermedio fere ad 0.7 cm. longo, calcaris primum curvato, deinde dependente, ad 2.2 cm. longo; rostellum, manu expansum, circumscriptione late ellipticum, in media facie processu lineari-oblongo ornatum, lobo medio erecto lineari elongato, lobos erectos glanduliferos excedente; anthera lateraliter visa subquadrata; pollinia oblique globosa; brachia stigmatifera adscendentia; ovarium circa 0.8 cm. longum.

Kalahari Region: Transvaal; Pietersburg Div., in marshes near Houtbosch, alt. 6000 ft., fl. Feb. 1894, *R. Schlechter*, 4465! Mountains near Houtbosch, alt. 4500 ft., fl. Feb. 1904, *H. Bolus*, 11167! Near Pretoria, fl. March 1913, *A. G. McLoughlin*! South-Eastern Region: Natal; Northdene, *J. H. Bowker*! Marshy ground near Glencoe, alt. 4500 ft., fl. Feb. 1893, *Wood*, 4822! Zululand, *Gerrard*, 1552!

Very slender, up to 46 cm. high; the lower 1—2 leaves sheath-like, cauline 5—8, gradually passing off into the bracts, linear, acute or acuminate, in dried specimens setaceously apiculate, inconspicuously nerved, with the sheath up to 15 cm. long, usually 9—12 cm. long, 0.4—1 cm., very rarely up to 1.5 cm., broad; raceme laxly 10—22-fl., rarely up to 30-fl., flowers ascending, among the very small ones in the genus, green, the flowering-axis almost straight; bracts foliaceous, long and setaceously acuminate, 1.8—0.5 cm. long; pedicels finally up to 1.2 cm. long; lateral sepals reflexed, broadly half-moon-shaped, slightly narrowed towards the apex, obtuse, up to 0.5 cm. long; odd sepal erect galeate, scarcely up to 0.4 cm. long; petals entire ovate-oblong, somewhat falcate (the anterior margin convex, posterior concave), as long as the odd sepal; lip furnished at the base (at the mouth of the spur) with an erect process, 3-partite, lobes subfiliform, the lateral 0.5 cm. long or a little more, the intermediate almost 0.7 cm. long, spur at first curved, then hanging straight down, up to 2.2 cm. long; rostellum, when flattened out, broadly elliptical in outline, with a linear-oblong process on the middle of the face, the middle lobe erect linear elongate, longer than the erect gland-bearing side-lobes; anther, viewed laterally, subquadrate; pollinia obliquely globose; stigmatic arms ascending; ovary about 0.8 cm. long.

The drawing was made from living specimens collected by Mr A. G. McLoughlin near Pretoria.

HABENARIA BARBERTONI, *Kraenzlin and Schlechter*, in *Kraenzl. Orch. Gen.*

et Sp. 1, 199. Herba 20—38 cm. alta; folia caulina producta 8—10, adscendentia oblonga, obtusa vel acuta, superiora ovata vel lanceolata, longe acuminata, inferiora in basin vaginantem angustata, vagina ad 0.5 cm. longa, inconspicue nervata, 3.3—9 cm. longa, 0.6—2.2 cm. lata; racemus laxe 3—5-fl., floribus adscendentibus, inter majora in genere, pedicellis ad 1.1 cm. longis; sepala viridia, lateralia patentia, oblique late ovata, superne angustata, basi anteriore dilatata, 1 cm. longa, sepalum impar aequilongum, galeatum, late ovatum, superne angustatum; petala fere ad basin 2-partita, lobo anteriore patenti-erecto lineari acuto, posteriore longiore, late semi-ovato, 0.9 cm. longo; labellum 1.4 cm. longum 3-sectum, lobis linearibus, inter se subaequilongis, 1.1 cm. longis, intermedio ceteris fere duplo latiore, calcarum primum curvato, apicem versus gradatim dilatato, ad 3.5 cm. longo; rostellum, manu expansum, transverse lineare, circa 0.2 cm. longum, fere 0.9 cm. latum, lobo intermedio brevissimo rotundato, lateralibus erectis, duplo longioribus; anthera lateraliter visa subelliptica; pollinium ellipticum, stipite quam pars pollinifera longiore; processus stigmatiferi porrecti vel leviter adscendentes, subclavati, 0.2 cm. longi; ovarium circa 1.5 cm. longum.

Kalahari Region: Transvaal; Barberton, rocky hillsides, alt. 3300 ft., fl. Feb.—March, *W. Culver*, 81. Koodoe's Poort, near Pretoria, fl. March 1905, *L. Reck* (Transvaal Department of Agriculture, Colonial Herbarium, No. 165). Near Pretoria, fl. Feb. 1913, *A. G. McLoughlin*.

A herb 20—38 cm. high; produced cauline leaves 8—10, ascending oblong, obtuse or acute, the upper ones ovate or lanceolate, long acuminate, the lower ones narrowed into a sheathing base, sheath up to 0.5 cm. long, inconspicuously nerved, 3.3—9 cm. long, 0.6—2.2 cm. broad; raceme laxly 3—5-fl., flowers ascending, among the larger ones in the genus, pedicels up to 1.1 cm. long; sepals green, the lateral spreading, obliquely broad-ovate, narrowed upwards, widened at the base in front, 1 cm. long, odd sepal as long, galeate, broadly ovate, narrowed upwards; petals bi-partite almost to the base, the anterior lobe spreading-erect linear acute, posterior longer, broadly semi-ovate, 0.9 cm. long; lip 1.4 cm. long tri-sect, lobes linear, about equal in length, 1.1 cm. long, the intermediate nearly twice as broad as the others, spur at first curved, gradually dilated towards the apex; rostellum, when flattened, transversely linear, about 0.2 cm. long, almost 0.9 cm. broad, middle lobe very short rounded, lateral erect, twice as long; anther in side view somewhat elliptic; pollinium elliptic, the stipe much longer than the pollen-bearing portion; stigmatic processes porrect or slightly ascending, subclavate, 0.2 cm. long; ovary about 1.5 cm. long.

The drawing was made from a living specimen sent from Pretoria by Mr A. G. McLoughlin.

## EXPLANATION OF PLATES II—VI

## PLATE II

## EULOPHIA DREGEANA, LINDLEY

Fig. 1, odd sepal; 2, 2, side sepals; 3, 3, petals; 4, lip—all nat. size; 5, column, front view; 6, do., side view, magnified; 7, sketch of entire plant, much reduced; 8, one of the lower leaves (+ in sketch), nat. size.

## PLATE III

## EULOPHIA ARENARIA, BOLUS

Fig. 1, odd sepal; 2, 2, side sepals; 3, petal—all nat. size; 4, column and lip, side view; 5, lip, flattened out; 6, column, front view; 7, pollinarium.

## PLATE IV

## EULOPHIA CLITELLIFER, BOLUS

Fig. 1, flower, front view; 2, do., side view; 3, side sepal; 4, odd sepal; 5, petal; 6, lip and column, side view; 7, lip, flattened; 8, do., side view; 9, column, front view; 10, do., side view; 11, pollinarium—all magnified.

## PLATE V

## HABENARIA NATALENSIS, REICHENBACH FIL.

Fig. 1, flower, side view; 2, side sepal; 3, petal; 4, portion of lip, showing process at mouth of spur; 5, column, side view; 6, do., front view; 7, pollinium; 8, rostellum, flattened—all magnified.

## PLATE VI

## HABENARIA BARBERTONI, KRAENZLIN AND SCHLECHTER

Fig. 1, odd sepal; 2, side sepal; 3, petal; 4, lip; 5, column, side view; 6, rostellum, flattened out; 7, pollinium—all magnified; 8, leaf, nat. size.

*(To be continued)*



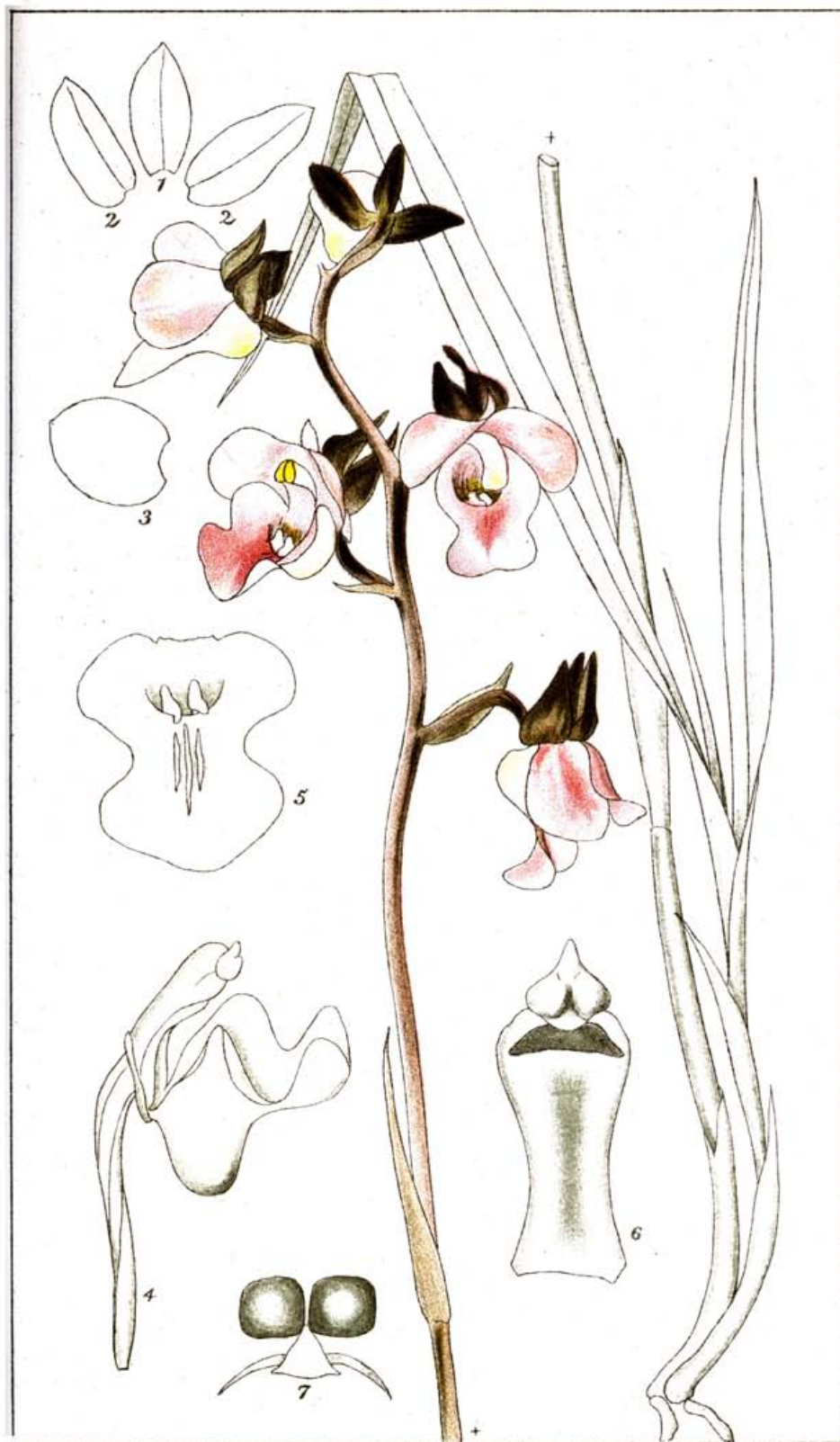
F. Bolus del. ad vivam, 2 1912.

Miles, Lith, London, W.

EULOPHIA DREGEANA, LINDLEY.





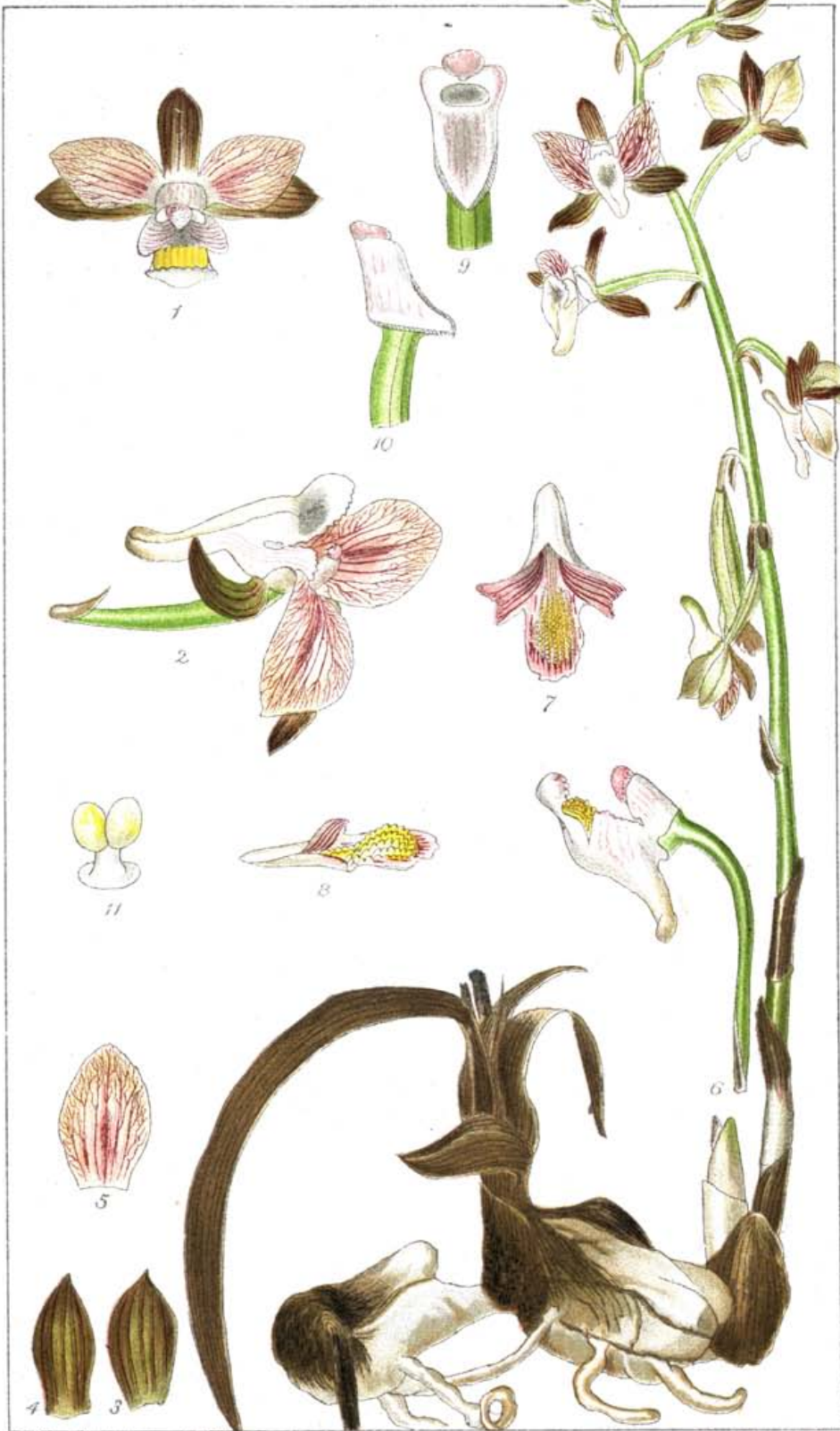


M. Frenks del. ad vivam.

Miles, Lith, London.W.

*EULOPHIA ARENARIA*, Bolus.





M. W. Glover } del. ad vivam, 6-10-1913.  
F. Bolus }

Miles, Lith., London, W.

*EULOPHIA CLITELLIFER*, Bolus.





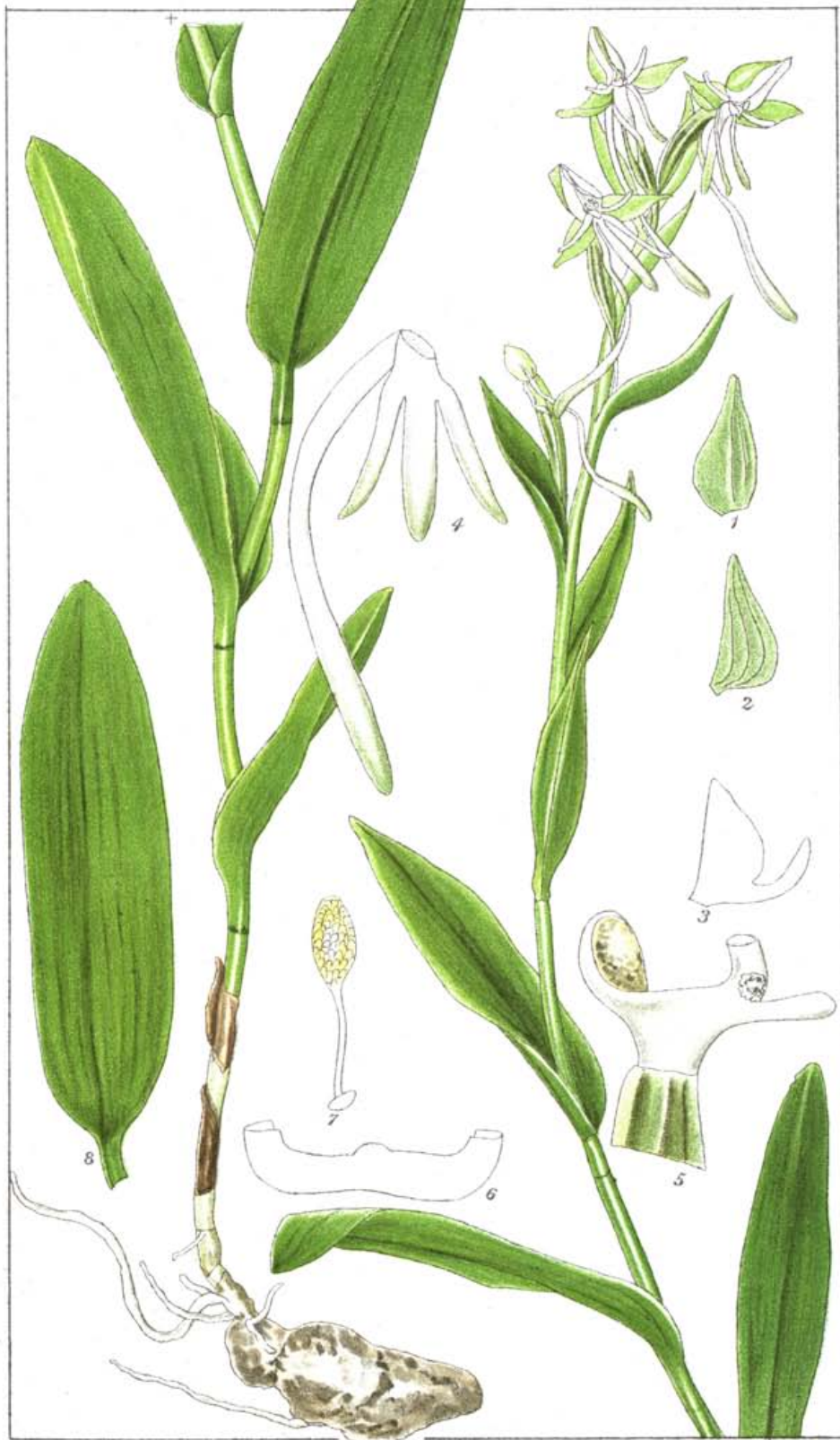
F. Bolus del. ad vivam. 19. 3. 1913.

Miles, Lith. London, W.

HABENARIA NATALENSIS, REICHENBACH FIL.







A.M. Tugwell del. ad vivam, 20.3.1913.

Miles, Lith., London, W.

HABENARIA BARBERTONI. KRAENZLIN & SCHLECHTER.





## NOVITATES AFRICANAE

*Mesembrianthemum MacOwanii*, L. Bolus (§ *Tumidula*). Diffuse ramosum, saepius 15—20 cm. altum, ramis decumbentibus elongatis, ca. 5 mm. diam., internodiis 2—3 cm. longis, ramulis adscendentibus, dense foliatis; folia subturgida, leviter obliqua, carinata, carina integra, acuta, supra plana, viridia, vel saepe saturate viridia, laevia, cum vagina tumida, ad 5 mm. longa, 2—3.5 cm. longa, 4 mm. lata diametroque; flores saepe 2-ternati, cymis saepe numerosis crebris, 5-meri, meridie expansi, ad 2.2 cm. diam., pedunculis omnibus bracteatis, 1—2 cm. longis; calyx turbinatus, segmentis inter se subaequilongis, ovato-lanceolatis vel lanceolatis acutis, tribus late membranaceo-marginatis, 5—6 mm. longis; petala 1-seriata, sat densa, linearia, basin versus attenuata, obtusa rosea, inferne saturate roseo-vittata, 8—9 mm. longa, 1—1.5 mm. lata; stamina conico-collecta, apice 2 mm., basi 6 mm., diam., staminodiis apice recurvatis circumdata, filamentis staminodiisque basin versus conspicue dilatatis, ciliatis vel barbatis, dense intertextis, inferne albis, 2—5 mm. longis, antheris pollineque pallide luteis; discus annularis crenulatus; ovarium supra planum, medio leviter convexum, obscure 5-lobatum, stigmatibus anguste subulatis, longe setaceoque acuminatis.

Cape Province: South-Western Region; Cape Peninsula, in rocky places on the sides of Lion Mt. above Kamp's Bay, alt. 800 ft., fl. Oct., *P. MacOwan* (Herb. Aust.-Afr., No. 1748); near Miller's Point, fl. Aug., *W. Dod*, 1473.

This species is common on the Cape Peninsula and is nearly always found near the sea or on slopes facing the sea. It occurs on the cliffs at Hermanus where I have seen the decumbent branches, one or two feet in length, spreading over a rock and the numerous flowers so dense as to almost hide the plant. The nearest ally is *M. Caroli*, L. Bolus, but the latter has larger leaves and flowers and is laxer in habit than *M. MacOwanii*, which has a denser inflorescence, a shorter leaf-sheath with the longitudinal junction-line scarcely marked, the darker stripe down the petal less conspicuous, dilated bases to the stamens and staminodes, and the ovary flat, or nearly so, above.

*M. approximatum*, L. Bolus (§ *Uncinata*). Diffuse ramosum, glabrum, 9—14 cm. altum, ramis saepius 9—14 cm. longis, ramulis floriferis 1.5—3 cm. longis; folia triquetra, carina apicem versus obscure 1—3-denticulata, supra leviter concava, obtusa apiculata glauco-viridia,

saepissime rubro-notata, laevia politaque, internodiis aequilonga vel longiora, cum vagina 5—7 mm. longa, 1—1.4 cm. longa, 4—5 mm. lata; flores solitarii 5-meri, meridie expansi, ad 2 cm. diam., pedunculo brevissimo in bracteis incluso; calyx turbinatus, lateraliter compressus, tubo apicem versus subalato, segmentis inter se subaequilongis sed tamen valde inaequalibus, 2—3 foliis simillimis, carina conspicue 2—3-denticulata, ceteris lanceolatis acuminatis membranaceo-marginatis, 6 mm. longis; petala numerosa, 3—4-seriata, lineari-spathulata integra, interiora obtusa, exteriora acuta, rosea, 0.4—1 cm. longa; stamina collecta, apice vix ad 3 mm. diam., staminodiis lineari-filiformibus circumdata, filamentis interioribus barbatis, 1.5—5 mm. longis, antheris pollineque luteis; discus annularis crenulatus; ovarium supra leviter convexum, in medio 5-lobatum, stigmatibus subulatis acuminatis, 2 mm. longis vel ultra.

Cape Province: South-Western Region; Montagu Div., near the Montagu Baths, fl. Oct. 1921, *M. M. Page* (Bolus Herbarium, No. 17170).

Nearest *M. uncinatum*, L., but the plant is more dwarf, the leaves shorter, thicker, and broader and the teeth on the keel more obscure, the petals more numerous, and the stamens not definitely collected into a cone. Described from ample living material.

- M. crassum*, L. Bolus (§ *Uncinata*). Robustum in sectione, omnibus partibus herbaceis brevissime molliterque albo-pubescentibus, pallide glaucoviridibus, pellucido-punctatis, punctis viridibus, ramis adscendentibus vel subdecumbentibus, ramulis fere erectis elongatis, ad 9 mm. diam., ramulis floriferis brevibus, saepe dense confertis, internodiis fere omnino vaginis vestitis; folia sat turgida carinata, obscure apiculata, supra plana, carina saepius inconspicue 1-denticulata, cum vagina 1—2 cm. longa, 1.6—2.9 cm. longa; flores 1—2-nati, 5-meri, meridie expansi, 2.2 cm. diam., pedunculo clavato, saepius 0.5—1 cm. longo; calyx subcrateriformis, segmentis 4—5 mm. longis, tribus membranaceo-marginatis; petala 1-seriata laxa linearia, supra medium leviter ampliata, acuta integra alba, 7 mm. longa, ca. 1 mm. lata; stamina conico-collecta, apice 3 mm., basi 8 mm., diam., staminodiis filiformibus circumdata, filamentis omnibus staminodiisque basi barbatis, albis, 3—5 mm. longis, antheris pallidis, polline luteo; discus annularis crenulatus; ovarium supra valde convexum, obtuse 5-lobatum, stigmatibus anguste subulatis, longe acuminatis, 4 mm. longis.

Cape Province: Karroo Region; without precise locality, flowered in Municipal Gardens, Cape Town (Bolus Herbarium, No. 17172).

Distinguished chiefly by the robust stems, short white pubescence on all the herbaceous parts of the plant, and by the white petals.

Described from ample living material. Fruiting specimens in Herb. Kew, *Pole Evans*, 6914, collected 13 miles from Laingsburg on the

Sutherland Rd., May 27, 1919, appear to be this species. The capsules are deeply and acutely 5-lobed and attain a diameter of 8 mm.

- M. *griseum*, L. Bolus (§ *Uncinata*). Diffuse ramosum glabrum, 30 cm. altum vel parum ultra, ramis rigidis, late patentibus, saepe 30 cm. longis, mox griseis induratisque, internodiis saepius 1—1.5 cm. longis, ramulis erectis, saepius 1.5—4 cm. longis; folia, sine vagina, 2—4 mm. longa, apice minute 2-denticulata, rarissime 1-denticulata, linea longitudinali vaginae impressa, 1—2 mm. longa; flores 5-meri, meridie expansi, 1.4 cm. diam., pedunculo perbrevis, in foliis supremis incluso; calyx clavato-turbinatus, segmentis inter se aequilongis oblongo-ovatis, infra apicem denticulatis, omnibus plus minusque membranaceo-marginatis, 0.3 cm. longis; petala 1-seriata, anguste linearia, acuta vel obtusa, basin versus haud angustata, pallide rosea, 6 mm. longa, 0.5 mm. lata vel parum ultra; stamina conico-collecta, apice 2 mm. diam., staminodiis roseis, basin versus pallidis, petalis fere aequilongis, circumdata, filamentis apicem versus roseis, basi barbatis, ad 6 mm. longis, antheris pollineque luteis; discus annularis crenulatus; ovarium supra convexum 5-lobatum, stigmatibus subulatis setaceo-acuminatis, ad 3 mm. longis.

Cape Province: origin uncertain but probably from the Montagu Div. (Bolus Herbarium, No. 17786).

The following collections may be quoted under this species: Karroo Region; near Graaff Reinet, hillsides, alt. 3000 ft., fl. Nov. 1866, *H. Bolus*, 542. (The flowers are larger than in the type.) Without precise locality, *Zeyher*, 703. (Capsules deeply and acutely 5-lobed, 6—7 mm. in diam.)

Described from ample living material which flowered in the National Botanic Gardens, Kirstenbosch, Dec. 1924. Differs from all the other species in this section by the very short leaves. These tend to wrinkle very quickly after they are picked; and on the plant they soon shrivel, and together with the bark become an ashy grey and harden, giving the plant the look of an *Equisetum*. The flowers are smaller than I have observed in any other species of this section. The name is in reference to the grey or grizzled appearance.

- M. *griquense*, L. Bolus (§ *Uncinata*). Diffuse ramosum, ad ca. 20 cm. altum, ramis 12—18 cm. longis, internodiis ad 3 cm. longis; folia adscendentia vel fere erecta, lamina superiorum saepe vaginae aequilonga, inferiorum vaginis longior, triquetra acuta apiculata, carina conspicue 1-denticulata, interdum 1—2 dentibus inconspicuis additis, cum vagina ad 1 cm. longa, ad 3 cm. longa, 2—3 mm. lata diametroque; flores saepius solitarii 5-meri, meridie expansi, 2.2 cm. diam., pedunculo saepius 2—2.5 cm., rarius ad 3 cm., longo, bracteis ad tubum calycis attingentibus; calyx globoso-turbinatus, segmentis inter se subaequalibus oblongo-lanceolatis acuminatis, carina saepe 1-denticulata, omnibus plus minusque mem-

branaceo-marginatis, ad 6 mm. longis; petala anguste linearia rosea, 0·8—1 cm. longa, 0·5 mm. lata vel parum ultra; stamina conico-collecta, apice vix 2 mm. diam., staminodiis apice recurvatis circumdata, filamentis pallidis, interioribus barbatis, ad 4 mm. longis, antheris pollineque aureis; ovarium supra convexum, demum profunde 5-lobatum, stigmatibus anguste subulatis setaceo-acuminatis, 3 mm. longis, capsula immatura ad 1 cm. diam.

Cape Province: Kalahari Region; Kimberley Div., flowered in the Public Gardens, Kimberley, Oct. 1924, comm. *Miss M. Wilman* (Bolus Herbarium, No. 17888).

- M. *canonotatum*, L. Bolus (§ *Uncinata*). Gracile in sectione, ad ca. 17 cm. altum, ramis patentibus, ramulis adscendentibus, ad 15 cm. longis, internodiis 2 cm. longis; folia adscendentia 3-quetra acuta, carina saepius 2-denticulata, rarius 3—5-denticulata, glauco-viridia, punctis vix prominentibus, cum vagina ad 5 mm. longa, 1·7—2·2 cm. longa, 2 mm. lata diametroque, vagina basi nota alba triangulari ornata; flores solitarii vel rarius 2-nati, 5-meri, meridie expansi, 1·5 cm. diam., pedunculo ad 1·5 cm. longo, medio 2-bracteato, bracteis fere ad segmenta calycis attingentibus; calyx subglobosus, segmentis inter se subaequilongis lanceolatis acutis, omnibus anguste membranaceo-marginatis, ad 5 mm. longis; petala 2—3-seriata linearia subobtusa rosea, ad 7 mm. longa, vix ad 1 mm. lata; stamina subconferta, staminodiis paucis circumdata, filamentis pallidis, ad 3 mm. longis, interioribus barbatis, antheris pollineque luteis; discus prominens annularis, irregulariter crenulatus; ovarium supra profunde 5-lobatum, stigmatibus lineari-subulatis setaceo-acuminatis, 3 mm. longis.

Cape Province: Kalahari Region; Griqualand West, Kimberley Div., fld. in the Public Gardens, Kimberley, Oct. 1924, comm. *Miss M. Wilman* (Bolus Herbarium, No. 18501).

Described from ample living material sent by Miss Wilman. The name refers to the conspicuous white mark, triangular in shape, on each side of the sheath at the base. Closely allied to *M. griquense*, L. Bolus, but more slender, with usually more teeth on the carina of the leaf, and with the well-defined white area on the leaf-sheath. Neither species has the unpleasant smell of *M. uncinellum* and *M. vulvaria*.

- M. *inclusum*, L. Bolus. Rigidum foliosum, 8—10 cm. altum, crebre ramosum, ramis decumbentibus, cum ramulis foliis vetustioribus induratis dense onustis, ramulis dense 2—4-foliatis, axillis gemmiferis; folia demum patentia, vagina 2—3 mm. longa, turgida, superne carinata, supra fere plana, apice obtusa vel subtruncata, apiculata, pellucido-punctata, obscure tenuiterque lepidota, glauco-viridia, 6—9 mm. longa, 4—5 mm. lata diametroque; flores solitarii, meridie expansi, 1·8—2·5 cm. diam.; pedunculi

perbreves, omnino in bracteis inclusi; bractee foliis majores, ad 1.2 cm. longae, vagina ad 9 mm. longa; calyx clavatus vel clavato-turbinatus, in bracteis inclusus, segmentis 4—5, inter se subaequilongis, tribus anguste membranaceo-marginatis; petala 2-seriata, inter se subaequilonga, linearia, inferne leviter angustata, integra vel 2-dentata, roseo-purpurea, ad 1.2 cm. longa, 1—1.5 mm. lata; stamina collecta, staminodiis filiformibus, sat longis, circumdata, mox diffusa, 1.1 cm. diam., filamentis purpureis, inferne albis, barbatis, ad 6 mm. longis, antheris pollineque albidis; discus annularis crenulatus; ovarium supra vix convexum, stigmatibus 8—10, anguste subulatis, acuminatis, 4—5 mm. longis.

Cape Province: Western Region; Little Namaqualand, on slopes facing the sea, south of Hondeklip Bay, *N. S. Pillans* (Bolus Herbarium, No. 17758). North slopes of Flamink Berg, Walle Kraal, *N. S. Pillans* (Bolus Herbarium, No. 17911).

A distinct species characterised by the bracts which are larger than the leaves and enclose the short peduncle and calyx-tube. The fine scurfiness on the leaves, between the pellucid dots, tends to give a slightly velvety feel to the touch. Described from ample living material.

M. *deliciosum*, L. Bolus (§ *Acinaciformia*). Rami elongati radicanes, ramulis erectis, saepius 8—10-foliatis; folia suberecta vel demum saepe patentincurva, acute triangularia, acuta, valde compressa, carina integra vel obscure cartilagineo-crenulata, seniores subacinaciformia, laevia glaucoviridia, ad 11 cm. longa, 1.5 cm. diam., vagina 0.7—1 cm. longa; flores solitarii, meridie expansi, 7—8 cm. diam.; pedunculi erecti, apice constricti, deinde patentes, demum in fructu sursum curvati, 7—9 cm. longi, parum supra medium bracteati, bracteis 5—6 cm. longis vel rarius ultra; calyx subglobosus, segmentis inter se inaequalibus, ad 2.8 cm. longis; petala numerosa pluri-seriata, anguste linearia, acuminata roseo-purpurea, ad 3 cm. longa; stamina mox diffusa, filamentis brevibus, basi barbatis; ovarium supra planum, in medio vero leviter convexum, stigmatibus patentibus linearibus perbrevis, ad 3 mm. longis, mox marcescentibus; fructus maturus subglobosus laevis brunneus, calycis segmentis marcescentibus onustus, edulis deliciosus, 2.5 cm. diam.

Cape Province: South-Western Region; Riversdale Div., Albertinia, *D. Cronje* (Bolus Herbarium, No. 17440).

Described from specimens which flowered in F. Bolus' garden at Claremont during September 1924 and fruited during December. The original plants were collected by Miss D. Cronje in 1923.

This is chiefly to be distinguished from all the species hitherto described in this section by the very short stigmas which radiate and become almost plastered to the ovary, leaving a small depression in the centre, usually filled with pollen; and by the peduncle which is constricted at the

apex and which alters its position during the development of the fruit, being erect in the flowering-stage, horizontal as the fruit matures, and finally curved downwards and then upwards, from about the middle, when the fruit is ripe. The stamens tend to diverge from the centre, leaving rather more of the flat surface of the ovary exposed than is usual. The fruit is particularly sweet and palatable—more so than that of another favourite (probably a new species) and of *M. Juritzii*, L. Bolus. My attention was first directed to the species by Dr John Muir who had known it in the field for years.

*Geissorhiza Mathewsii*, L. Bolus. Omnino glabra, 10—13 cm. alta; cormus ovoideus, ad 1 cm. longus, 0·8 cm. diam.; folia radicalia 2, linearia acuta, crebre nervata, nervis primariis ad 9, 6—9 cm. longa, 2—6 mm. lata, folium caulinum 1, ad 7 cm. longum, vaginans, vagina leviter ventricosa, crebre nervata, ad 7 mm. diam., lamina ad 13-nervata, vaginae aequilonga; inflorescentia 1-ramosa, ramo in axillo folii caulini oriente, 1—3-fl., axi florifero terminali ad 5·5 cm. longo, saepe subpatente, flexuoso, 3—5-fl., floribus erectis secundis; bracteae ovato-oblongae, vel demum fere quadratae, mucronatae, herbaceae, apicem versus rubescentes sed vix membranaceae, etiam in fructu, 7—8 mm. longae, bracteolis eis subaequilongis, fere ad apicem coalitis; perianthii tubus gracillimus brevissimus, 1—2 mm. longus, limbo crateriformi, segmentis obovatis, basi subcuneatis, dimidio inferiore laete rubicundis, dimidio superiore saturate purpureo-coeruleis, linea albido-purpurea interposita, ad 1·6 cm. longis, ad 9 mm. latis; stamina equilateralia, filamentis 9 mm. longis, antheris sordide purpureo-brunneis, 4—5 mm. longis; stylus 7 mm. longus, stigmatibus planis lineari-spathulatis acutis recurvatis, marginibus dense papillatis, ad 4 mm. longis; ovarium ad basin leviter attenuatum, obtuse 3-angulare, 2 mm. longum; capsula ad 7 mm. longa, apice 5 mm. diam.

Cape Province: South-Western Region; Darling Div., in damp and marshy places near Darling, fl. Aug.—Sep., 1923, *J. W. Mathews* (Bolus Herbarium, No. 18502).

Allied to *G. Bellendeni*, MacOwan, which, however, differs in having one nerve only, the midrib of the leaf, prominent, the axis pubescent throughout, the bracts with a tendency to be keeled and distinctly membranous in the upper third, and the colouring of the perianth-limb a dull red in the lower portion with a somewhat transparent band between this and the purplish-blue upper part. The colouring of the perianth is more like that of *G. rochensis*, Ker, but there are no “nectary-sacs” (or foveoles) and the flowers are smaller. In both there is a marked tendency for the stamens and style to be unilateral.

*Dierama argyrea*, L. Bolus. Planta 56—80 cm. alta; cormus depresso globosus, ad 1·5 cm. diam., tunicis fibris tenuibus compositis; folia 5, omnia

radicalia vel subradicalia acuta, nervis inconspicuis, in siccis autem subprominentibus, saepius 5 mm. lata, infimum 9—10 cm. longum, lamina vix 1 cm. longa, tria sequentia 18—30 cm. longa, lamina 6—12 cm. longa, quintum ad 42 cm. longum, fere omnino vaginans, vagina laxa carinata; inflorescentia 18—22 cm. longa, saepius 4-ramosa, parte terminali 6—9-fl., ramis 4—6-fl.; spathae (e quibus rami orti sunt) profunde irregulariterque divisae, segmentis longe setaceoque acuminatis, saepius 2—2·5 cm. longae; bracteae argyreo-niveae, late obovato-cuneatae vel subflabellatae, fere truncatae, dentato-laceratae, 1—2 cm. longae, bracteolis aequilongae; perianthium dilute roseum, 2—2·4 cm. longum, tubo 4—5 mm. longo, segmentis oblongo-ovalibus obtusis, basi albido-maculatis, exterioribus ad 9 mm., interioribus ad 8 mm., latis; stamina 1·4 cm. longa, antheris 5 mm. longis; stigmata ad apicem staminum attingentia, ca. 2 mm. longa, ovario vix ad 2 mm. longo.

South-Eastern Region: Natal (Bolus Herbarium, No. 18503).

Described from living specimens which have flowered freely at Kirstenbosch during Sept. and Oct. The silvery-white bracts, which broaden upwards and often cover half the perianth or more, serve to distinguish this species from the rest in the genus.

*Tritonia Masonorum*, L. Bolus. Planta 40—60 cm. alta, in genere robusta; cormus ignotus; caulis teres politus; vaginae basales 2, 6—9 cm. longae; folia radicalia 3, infimum 14·5 cm. longum, lamina 2 cm. longa, cetera 43—60 cm. longa, ad 5 cm. lata, plicata, longe acuminata, nervis primariis 6—12, sat prominentibus, caulina 5, inferiora dense imbricata, superiora distantia, infimum, cum vagina 12 cm. longa, 28 cm. longum, supremum 1 cm. longum; spica simplex unilateralis, floribus ad 23, saepe in pares approximatis; bracteae oblongae obtusae integrae, breviter apiculatae, 8—4 mm. longae, bracteolis fere ad apicem coalitis, apiculatis; perianthium saepius 4—5 cm., rarius 3 cm., longum, tubo gracili, superne infundibuliformi, 1·8—2·5 cm. longo, apice 0·8—1 cm. diam., parte filiformi partem infundibuliformem excedente, segmentis obtusis, exterioribus oblongis, 5—6 mm. latis, interioribus oblongo-ovalibus, 7—9 mm. latis; stamina demum exserta, antheris 9 mm. longis; stylus perianthium superans, stigmatibus ca. 5 mm. longis, ovario 4 mm. longo.

Cape Province: South-Eastern Region; Tembuland, Engcobo Mountain, alt. 4500 ft., fl. Jan. 20, 1896, *H. Bolus*, 10313; steep bank overhanging a little waterfall near Satana Nek in the mountains between Engcobo and Zidungeni, fl. Jan. 19, 1911, *Miss M. H. Mason* and *Mr E. Mason*.

Nearest *T. Pottsii*, Baker, but readily distinguished by the unilateral spike, larger flowers, proportionately longer and narrow segments, and the longer stamens. Miss Mason records the colour of the flowers as being scarlet-orange.

Described from two dried specimens. A painting made by Miss Mason from the living plant is among the collection of her paintings now hanging in Museum IV in the Royal Gardens, Kew. Here the leaves are shown to be considerably wider than in the specimens quoted.

- T. *Taylorae*, -L. Bolus (subgenus *Montbretia*). Planta 14—23 cm. alta vel ultra; cormus ovatus, ad 2.5 cm. longus, ad 2 cm. diam., tunicis e fibris tenuibus cancellatis compositis; folia radicalia subradicaliaque 4—5, longe vaginantia, caule omnino vestito, laminis saepe subfalcatis, longe attenuatis vel sat abrupte acuminatis, nervis primariis saepius 7—9, cum nervo medio marginibusque vix conspicuis, ad 6 cm. longis, 2—9 mm. latis, caulinum 1, vel deficiens; spathae valvae ramum inflorescentiae includentes longe acuminatae, infimae 1.5—3 cm. longae; spica equilateralis 2—3-ramosa, pedunculis 3—9.5 cm. longis, parte terminali laxa 4—6-fl., floribus fere erectis; bracteae quadrato-oblongae obtusae, brevissime mucronatae, aliter integrae, vel lobis lateralibus minute denticulatis, 1—0.5 cm., rarissime ad 1.3 cm., longae, bracteolis fere ad apicem coalitis, brevissime setaceo-apiculatis; perianthium pallide lilacinum, saturate venosum, ad 5.5 cm. longum, tubo gracillimo filiformi, superne infundibuliformi, 2.5—3.5 cm. longo, apice 3 mm. diam., segmentis obovato-oblongis obtusis, exterioribus 5 mm., interioribus ad 9 mm., latis, processibus semi-orbicularibus luteis; stamina dimidium segmentorum parum superantia, antheris 5 mm. longis; stylus vix ad apicem staminum attingens, stigmatibus ca. 4 mm. longis.

Cape Province: South-Western Region; Oudtshoorn Div., dry hills at Bank Hoogte, near Oudtshoorn, fl. Oct. 1905, *Anne Taylor*, 251 (Bolus Herbarium, No. 12347).

Described from several dried specimens. The "calli" on the lower perianth-segments are not equally obvious on all the flowers in the dried state, and in some tend to disappear.

- T. *Watermeyer*, L. Bolus (subgenus *Montbretia*). Planta 22.5 cm. alta; cormus ignotus; folia radicalia 4, lamina lineari-acuminata, apicem versus spiraliter torta, marginibus crispulato-undulatis, ad 6.5 cm. longa, 3—5 mm. lata, caulinum 1, radicalibus simillimum; spica simplex, laxa 4-fl., pedunculo ca. 11 cm. longo; bracteae quadrato-oblongae, 7—5 mm. longae, bracteolis fere ad apicem coalitis, setaceo-apiculatis, bracteis subaequilongis; perianthium croceum, 2.5—3 cm. longum, tubo basi filiformi, superne sat abrupte infundibuliformi, apice 3—4 mm. diam., limbo aequilongo, segmentis oblongo-obovatis obtusis, supremo subgaleato, ad 8 mm. lato, lateralibus patentibus, inferioribus subporrectis, ad 6 mm. latis, processibus magnis spathulatis luteis; stamina arcuata, dimidium segmentorum superantia, antheris saturate cyaneis, ca. 4 mm. longis; stylus ad apicem staminum attingens vel parum ultra.



Cape Province: Karroo Region; Van Rhynsdorp Div., *E. B. Watermeyer* (Bolus Herbarium, No. 18500).

Described from a living specimen which flowered in the National Botanic Gardens, Kirstenbosch, in September 1917. The plant is said to be common near Van Rhynsdorp and several specimens seen in cultivation at Claremont, near Cape Town, had longer and broader leaves and rather larger flowers than the type.

- T. *Tugwelliae*, L. Bolus. Planta gracilis, 10—20 cm. alta; cormus ovatus, in collum productus, 2·5—4·5 cm. longus, 1—2·3 cm. diam.; folia radicalia subradicaliaque 4, longe vaginantia, vaginis tenuibus membranaceis, laminis linearibus acuminatis, apicem versus spiraliter tortis, marginibus crispulato-undulatis, ad 7 cm. longis, 4—9 mm. latis, caulinum 1, radicalibus simillimum; spica unilateralis, 1—2-ramosa, pedunculis 2—8 cm. longis, axi florifero saepius refracto, dense 5—11-fl., floribus erectis; spathae valvae 2—2·5 cm. longae; bracteae quadrato-oblongae, fere truncatae, obscure mucronatae vel setaceo-apiculatae, omnino membranaceae, 8—3 mm. longae, bracteolis tantum apice vero liberis, setaceo-apiculatis, bracteis subaequilongis; perianthium pallidum, ad 3·7 cm. longum, tubo gracili, superne leviter dilatato, saepius 2—2·5 cm. longo, apice leviter obliquo, 2—3 mm. diam., segmentis oblongo-spathulatis, 2—3 mm. latis, inferioribus purpurea macula notatis; stamina arcuata, dimidium segmentorum superantia, antheris 3 mm. longis; stylus demum ad apicem staminum attingens, stigmatibus vix excedentibus 1 mm.

Cape Province: Karroo Region; near Prince Albert, fl. Sept., *A. M. Tugwell* (Bolus Herbarium, No. 13487). Allied to *T. crispa* but differs chiefly in the membranous texture of the bracts which are not ustulate at the apex; much smaller flowers; and less rigid leaves.

Described from several dried specimens.

- Watsonia Vanderspuyae*, L. Bolus (*Eu-Watsonia*). Planta robusta, caulis parte superiore 1·5 cm. diam.; cormus non visus; folium supremum 30 cm. longum, vagina ventricosissima, 15 cm. longa, ad 3·5 cm. diam., lamina duplicata, carinata; inflorescentia 2—3-ramosa, parte terminali dense ad 28-fl., floribus distichis, nodis axis floriferi conspicue incrassatis; bracteae praecipue longe acuminatae, dimidio superiore vel ultra membranaceo, 6·5—3 cm. longae, bracteolis parum brevioribus, fere ad apicem coalitis, setaceo-acuminatis; perianthium saturate roseo-coralinum, tubo fere stricto, deinde curvato, 5—6 cm. longo, apice 0·7 cm. diam., segmentis obovato-oblongis acutis, anguste saturato-vittatis, 3·2 cm. longis, exterioribus 1 cm., interioribus 1·2 cm., latis; stamina arcuata, fere ad apicem segmentorum attingentia, antheris atro-purpureis, 1·5 cm. longis; stylus vix ultra antheras attingens, ramis ultimis 0·3 cm. longis.

Cape Province: South-Western Region; Piquetberg Div., "common on the mountain," fl. Oct.—Nov., *Mrs M. van der Spuy* (Bolus Herbarium, No. 17838). Piquetberg, alt. 1500—3000 ft., *Drège*, 8439 (in Herb. Kew); Piquetberg, fl. Nov., *Drège*, 1573 (in Herb. Berlin). Tulbagh, *Ecklon and Zeyher*, 730 (in Herb. Vindob.). Clanwilliam Div., Cedarbergen, Heuning Vlei, among rocks and sand, alt. 900 met., Sept. 1900, *L. Diels*, 904.

Described from living specimens exhibited at the Cape Town Wild Flower Show by Mrs van der Spuy. These consisted of the inflorescence and the uppermost cauline leaf. The herbarium material quoted above also represents incomplete specimens. Dr Diels notes that the plant is  $\frac{1}{2}$ —1 met. high, and that the flowers are scarlet-red. Produced leaves, detached from the stem, attain a width of 7 cm., and have remarkably thickened midrib and margins. The intermediate nerves are also prominent. The species is a very handsome and distinct one. The remarkably inflated sheaths of the upper cauline leaves are similar to those of *W. tabularis*, Mathews and L. Bolus, but otherwise there is no close affinity between the two species.

*W. stenosphon*, L. Bolus (Eu-Watsonia). Planta 20—45 cm. alta; cormus 1.5 cm. diam., tunicis e fibris tenuibus compositis; folia radicalia 2 (vaginis basalibus exceptis), polita, nervo medio subincrassato marginibus vix prominentibus, nervis intermediis obscurissimis, 12—37 cm. longis, 4—5 mm. latis, caulina 3—4, infimum, cum vagina 3—5.5 cm. longa, 7.5—28 cm. longum, axillo saepe bulbilifero, superiora fere omnino vaginantia, 16—2 cm. longa; spica simplex, sublaxe 3—7-fl., floribus suberectis distichis; bracteae ovato-oblongae obtusae herbaceae, superne per tertiam partem brunneae membranaceaeque, 1.9—1.4 cm. longae, bracteolis fere ad apicem coalitis, bracteis subaequilongis vel eis brevioribus; perianthium aureo-testaceum, 5—5.5 cm. longum, tubo primum fere stricto, demum curvato, gracillimo, basi vix 1 mm., apice 4 mm. diam., sensim dilatato, 3.3 cm. longo, limbo ad 4.3 cm. diam., segmentis sat late patentibus, obtusis obovato-oblongis, exterioribus 1.2 cm., interioribus 1.4 cm., latis; stamina arcuata, filamentis ultra tubum per 3 mm. exsertis, antheris atro-cyaneis, 7 mm. longis; stylus ad dimidium segmentorum attingens, ramis 6 mm., ramulis 3 mm., longis, ovario 4 mm. longo.

Cape Province: South-Western Region; Caledon Div., exhibited at the Cape Town Wild Flower Show, Oct. 1921 (Bolus Herbarium, No. 15458). Hermanus, alt. 50 ft., fl. Oct. 23, 1897, *E. E. Galpin*, 4699. Onrust River, fl. Dec., *J. Macdonald*.

Described from ample living material. There is no doubt that this species is closely allied to, and may be only a variety of, *W. humilis*, Miller, which is known only from the type-figure and description, but the leaves of the latter are shorter and much broader, the perianth-tube less

slender, and the perianth-segments shorter. The plant which has been identified as *W. humilis* begins flowering at the end of August and is almost over by the end of September. The flowers of this are larger than those of *W. stenosiphon* and the perianth is a purplish-rose colour; the bracts are larger and the bracteoles usually overtop the bracts, as in *W. Meriana*, Miller. Bolus, 9859, collected at Hermanus in September 1901, appears to be a connecting link between *W. humilis* and *W. stenosiphon*. Bolus, 7427, from the slopes of the Genadendal Mountain, alt. 4500 ft., fl. January, is also an allied species; but the cauline leaves and bracts are acuminate, and it seems more advisable to see living specimens before making a satisfactory decision.

- W. Schlechteri, L. Bolus (Eu-Watsonia). Planta 66 cm. alta; cormus non visus; folia basalia visa 3, linearia, longe attenuata, nervo medio marginibusque incrassatis, nervis intermediis crebris subprominentibus, infimum, cum vagina 15 cm. longa, 32 cm. longum, ad 0.9 cm. latum, proximum, cum vagina 16 cm. longa, 36 cm. longum, ad 0.6 cm. latum, tertium, cum vagina 19 cm. longa, 33 cm. longum, ad 0.5 cm. lata, folia caulina circa 5, superiora internodiis aequantia vel parum breviora, summum 3.5 cm. longum; spica simplex, ca. 13-fl., floribus erecto-patentibus; bractee omnino herbaceae, oblongo-lineares, inferiores attenuatae acuminatae, superiores acutae vel obtusae, 3.3—2 cm. longae, bracteolis primo omnino coalitis, demum ad apicem liberis, 1.8—1.5 cm. longis; perianthium laete rubrum, 6—6.7 cm. longum, tubo ad ca. 4 cm. longo, parte filiformi 1.5 cm. longa, segmentis obovato-oblongis, exterioribus abrupte acutis, setaceo-apiculatis, ad 1 cm., interioribus ad 1.4 cm., latis; stamina arcuata, dimidium segmentorum excedentia, vel interdum exserta, antheris 0.9 cm. longis; styli rami ca. 0.6 cm. longi, ramulis 0.3 cm. longis; capsula non visa.

Cape Province: South-Western Region; Caledon Div., Houw Hoek, alt. 3200 ft., fl. Feb. 1896, *R. Schlechter*, 7349.

Described from dried specimens in the Kew, and in the Berlin, Herbarium. Specimens collected by the Rev. F. A. Rogers, No. 10537, Groot Drakenstein, Paarl, Jan. 1914, by H. Bolus at Houw Hoek, Dec. 1894, and those bought in Cape Town and exhibited at the Cape Town Wild Flower Shows, Dec.—Jan. (Bolus Herbarium, Nos. 17652, 17653, 15210) are to be referred to this species. The dried material of *W. Schlechteri* and *W. Pillansii* is very similar, but living specimens look distinct, the former differing chiefly in having fewer and shorter radical leaves with the midrib and margins more prominently thickened, and longer stamens which are sometimes exserted.

- W. Bachmannii, L. Bolus (Eu-Watsonia). Planta gracilis 31—40 cm. alta; cormus ca. 2 cm. diam., tunicis e fibris tenuibus compositis; vaginae

basales 2, 3—7 cm. longae; folium radicale 1, nervo medio marginibusque inconspicuis, nervis intermediis sat prominentibus, cum vagina 7—9 cm. longa, ad 20 cm. longum, 1 cm. latum, caulina 3, cum vagina 11—12 cm. longa, superiora distantia; spica simplex, sublaxe 2—6-fl., floribus suberectis; bracteae oblongae, obtusae vel subacutae, 2—1 cm. longae, bracteolis omnino vel fere ad apicem coalitis, bracteis brevioribus; perianthium “orange-rott,” 3·7—5 cm. longum, faucibus 4—6 mm. diam., segmentis obtusis, 1·5—1·8 cm. longis, exterioribus 7 mm., interioribus 9 mm., latis; stamina arcuata, haud ad dimidium segmentorum attingentia, antheris albidis; stylus stamina parum excedens.

Cape Province: South-Eastern Region; Pondoland, in damp places, Aug. 1888, *F. Bachmann*, 355.

Described from several dried specimens in the Berlin Herbarium. One of the corms bears the burnt off remains of 4 produced leaves, the longest of which is 21 cm.

- W. *elimensis*, L. Bolus (Eu-Watsonia). Planta 29 cm. alta; cormus non visus; folium infimum vaginiforme, duo cetera imperfecta, caulina 7, 3 producta ensiformia, nervo medio marginibusque vix magis prominentibus nervis intermediis, cum vagina 13—7 cm. longa, ad 0·8 cm. lata, cetera vaginiformia distantia, 5—1·2 cm. longa, internodiis ad 7 cm. longis; spica simplex, ad 6·5 cm. longa, 5—9-fl., floribus fere erectis; bracteae omnino herbaceae vel apice vero submembranaceae, ovato-oblongae, acuminatae vel rarissime superiores subobtusae, 1·4—1 cm. longae, bracteolis fere ad apicem coalitis, 0·9—0·7 cm. longis; perianthium ad 5 cm. longum, tubo ad 3·4 cm. longo, parte filiformi 1·3 cm. longa, faucibus ad 0·6 cm. diam., segmentis obovato-oblongis, exterioribus acutis, 0·6 cm. latis, interioribus obtusis, 0·8 cm. latis; stamina arcuata, fere ad apicem segmentorum attingentia, antheris 0·6 cm. longis; stylus staminibus parum brevior, ramis 0·5 cm., ramulis ca. 0·2 cm., longis; capsula non visa.

Cape Province: South-Western Region; Bredasdorp Div., hills near Elim, alt. 500 ft., Dec. 1896, *R. Schlechter*, 9642.

Described from three dried specimens in Herb. Kew.

- W. *Zeyheri*, L. Bolus (Eu-Watsonia). Planta 55 cm. alta vel parum ultra; cormus non visus; folia radicalia 2, vaginiformia, 9—15 cm. longa, caulina 5, inferum productum, cum vagina 10 cm. longa, 39 cm. longum, ad 0·9 cm. latum, lineare, longe attenuatum, acutissime acuminatum, nervo medio marginibusque conspicue incrassatis, nervis intermediis crebris subprominentibus, folium proximum 15·5 cm. longum, lamina 6 cm. longa, cetera vaginiformia, distantia, internodio ultimo ad 11 cm. longo; spica simplex, ad 17 cm. longa vel ultra, ad 14-fl., floribus fere erectis, demum subpatentibus; bracteae omnino herbaceae, oblongo-ovatae, acuminatae, vel superiores acutae vel subobtusae, 1·8—1·1 cm.

longae, bracteolis coalitis vel ad apicem verum liberis, acutis, 1.9—0.9 cm. longis; perianthium 5 cm. longum vel ultra, tubo 3.5 cm. longo, parte filiformi parum brevioris quam cylindrica, faucibus ad 0.5 cm. diam., segmentis obtusis, 0.6—0.8 cm. latis; stamina arcuata, cum stylo perianthium fere aequantia vel excedentia; styli ramuli ad 0.3 cm. longi; capsula non visa.

Cape Province: South-Western Region; Caledon, *Zeyher*.

Described from two dried specimens in Herb. Kew, referred in Flor. Cap. VI, 103 to *W. strictiflora*, Ker.

Incomplete specimens in Herb. Bolus and S.A. Museum, obtained from the Wild Flower Show, Cape Town, Oct. 1914 (Bolus Herbarium, No. 13764), are probably this species.

- W. Baurii, L. Bolus (Eu-Watsonia). Planta ad 38 cm. alta; cormus non visus; folia radicalia, ut videtur, 3, imperfecta, caulina 7, 5 producta imbricata lineari-ensiformia, nervo medio marginibusque prominentibus, 17—6 cm. longa, vaginis ad 8 cm. longis, 0.5—0.6 cm. lata, superiora vaginiformia, 5—4 cm. longa; spica simplex, ad 11 cm. longa, sat dense 7—9-fl., floribus erecto-patentibus; bractee amplectentes, medio ad 1.8 cm. latae, subrhomboideae, longe setaceoque acuminatae, herbaceae, margine angusto membranaceo, 3.2—2.2 cm. longae, bracteolis fere ad apicem coalitis, 2.3—1.8 cm. longis; perianthium (ex siccis roseum) ad 7.2 cm. longum, tubo 5.2 cm. longo, parte filiformi ad 2.3 cm. longa, faucibus 0.6 cm. diam., segmentis oblongo-ellipticis obtusis, exterioribus 0.6 cm., interioribus 0.7 cm., latis; stamina arcuata, cum stylo dimidium segmentorum attingentia vel parum ultra, antheris ca. 0.9 cm. longis; styli rami ca. 0.6 cm., ramuli 0.3 cm., ovarium 0.4 cm., longi; capsula non visa.

Cape Province: South-Eastern Region; Transkei, Baziya Mountain, alt. 4000 ft., fl. Oct., *R. Baur*, 499.

Nearest *W. gladioloides*, Schltr., but: 1, flowers smaller; 2, perianth-segments broader; 3, bracts broader at base and more suddenly acuminate; 4, style and stamens included.

Described from two dried specimens in Herb. Kew. These are referred, in the Flora Capensis VI, 102, to *W. humilis*, Miller.

- W. Priori, L. Bolus (Eu-Watsonia). Exemplum unicum visum imperfectum, 32 cm. altum, foliis caulinis 6, dense imbricatis, inferiora imperfecta, marginibus prominentibus, nervis intermediis subprominentibus, ad 1.1 cm. lata, folium summum 10 cm. longum; spica simplex, 23 cm. longa, in alabastro dense 14-fl., flore unico evoluto erecto; bractee 9—2 cm. longae, lanceolato-lineares, longe attenuatae, acuminatae vel superiores acutae, omnino herbaceae vel marginibus membranaceis, bracteolis multo brevioribus; perianthium 6 cm. longum, tubo 3.8 cm. longo, faucibus 0.7 cm. diam., segmentis obtusis, exterioribus 1 cm., interioribus 1.2 cm.,

latis; stamina dimidium perianthii excedentia; stylus stamina parum excedentia, ramis fere 1 cm. longis, ramulis 0·4 cm. longis, in segmenta, 0·1 cm. longa, bifidis.

Cape Province: South-Western Region; Georgetown, fl. Aug. 1847, *Alex. Prior*.

Described from a single and imperfect specimen. The species is very distinct and different from any other known to me.

- W. *Masoniae*, L. Bolus (Eu-Watsonia). Sat gracilis, ca. 45 cm. alta; folia 12 visa, caulina, ut videtur, 7, dense imbricata, linearia attenuata, nervo medio marginibusque saepius vix prominentibus, nervis intermediis crebris inconspicuis, 29—5 cm. longa, vaginis ad 17 cm. longis, laminis ad 22 cm. longis; spica 15 cm. longa, 12-fl., floribus fere erectis, deinde subpatentibus; bracteae apicem versus discoloratae, aliter herbaceae, lineari-lanceolatae, inferiores longe attenuatae, 4·5—2 cm. longae, bracteolis saepius omnino coalitis obtusis, 1·8—1·2 cm. longis; perianthium laete rubrum, ad 6 cm. longum, tubo 3·8 cm. longo, parte filiformi 2 cm. longa, faucibus ad 0·7 cm. diam., segmentis oblongo-ellipticis, exterioribus subacutis, 0·7 cm. latis, interioribus 0·9 cm. latis; stamina arcuata, perianthium aequantia vel parum excedentia, antheris 0·9 cm. longis; stylus staminibus aequilongus vel parum brevior, ramis ca. 0·7 cm., ramulis 0·4 cm., longis; capsula non visa.

Exact locality unknown. Flowered in Hort. Cantab. July 24, 1914, from corms collected by Miss M. Mason.

- W. *Westiae*, L. Bolus (Eu-Watsonia). Folia caulina 4 visa, summum 11·5 cm. longum; spica 11 cm. longa, 6-fl.; bracteae rigidae, omnino herbaceae lanceolatae, longe attenuatae, 7·3—3·8 cm. longae, bracteolis 1·5—1 cm. longis; perianthium 8 cm. longum, tubo 4·5 cm. longo, parte filiformi 1·8 cm. longa, faucibus 1·1 cm. diam., segmentis ovato-oblongis, e dimidio vel parum supra angustatis, marginibus subundulatis, basi imbricatis, exterioribus 1 cm., interioribus 1·4 cm., basi latis; stamina parum ultra dimidium segmentorum attingentia; stylus staminibus parum brevior, ramis ca. 0·9 cm., ramulis ca. 0·4 cm., longis, in segmenta 0·1 cm. longa bifidis.

Cape Province: South-Eastern Region; Port Elizabeth, Nov. 27, 1905, comm. Miss E. West.

Described from one incomplete specimen in Herb. Kew. A very distinct species.

- W. *Marlothii*, L. Bolus (Eu-Watsonia). Planta 67—84 cm. alta vel ultra; cormus non visus; folia radicalia et subradicalia 3, nervo medio marginibusque incrassatis, nervis intermediis crebris, sat conspicuis, cum vagina 11—20 cm. longa, ad 37 cm. longa, 1—1·5 cm. lata, folia caulina 3—4, inferiora imbricata, vagina ad 25 cm. longa, internodiis superioribus

4·5—7 cm. longis; inflorescentia 3—5-ramosa, parte terminali ad 25 cm. longa, dense 20—24-fl., floribus suberectis vel erecto-patentibus; bracteae oblongo-ovatae, setaceo-acuminatae vel acutae, 1·6—0·9 cm. longae, bracteolis primum coalitis, mox ad medium divisas, bracteis parum brevioribus vel eis aequilongis; perianthium 4—4·8 cm. longum, segmentis ad 1·5 cm. longis, 0·4—0·7 cm. latis; stamina arcuata, ad apicem perianthii attingentia vel exserta; stylus demum stamina excedens, bene exsertus, ramis ad 6 mm. longis.

Cape Province: South-Western Region; ? Prince Albert Div., Zwartbergen, in grassy places, alt. 1200 met., Nov. 1898, *R. Marloth*, 2484. Zwartberg Pass above Oudtshoorn, *J. W. Mathews* (National Botanic Gardens, No.  $\frac{4312}{14}$  B., fl. Oct. 1915). Oudtshoorn Div., exhibited at the Cape Town Wild Flower Show (Bolus Herbarium, No. 13748).

Described from several dried specimens. Allied to *W. angusta*, Ker, in having narrow perianth-segments, but readily distinguished by the leaves with thickened midrib and margins and crowded intermediate nerves, and by the denser inflorescence.

- W. *distans*, L. Bolus (Eu-Watsonia). Planta ad 32 cm. alta; cormus non visus; folia radicalia 2 visa, imperfecta, ad 0·3 cm. lata, caulina 5—6, cum vaginis 20—1 cm. longa, laminis ad 13 cm. longis, 0·4—0·6 cm. latis, internodiis ad 6 cm. longis, nervo medio marginibusque vix prominentibus; spica 5—9 cm. longa, sat laxa 3—6-fl.; bracteae saepissime omnino herbaceae ovatae, inferiores acutae, superiores obtusae, 1·3—0·8 cm. longae; perianthium (e siccis) roseo-purpureum, ad 4 cm. longum, tubo ad 2·3 cm. longo, parte filiformi 0·8 cm. longa, faucibus ad 0·5 cm. diam., segmentis obtusis, exterioribus 0·6 cm., interioribus ad 0·8 cm. latis; stamina dimidium segmentorum parum excedentia, antheris ca. 0·6 cm. longis; stylus stamina aequans vel parum excedens, ramulis vix ad 0·2 cm. longis; capsula non visa.

Cape Province: South-Western Region; Hottentots' Holland Mountains, alt. 1000—3000 ft., *Zeyher*, 4028. French Hoek, alt. 3600 ft., fl. Nov. 1896, *R. Schlechter*, 9303.

Allied to *W. vittata*, Mathews and L. Bolus.

- W. *occulta*, L. Bolus (Eu-Watsonia). Planta 55 cm. alta; cormus ignotus; vaginae basales 10—15 cm. longae; folium radicale productum unicum, cum vagina 14 cm. longa, 35 cm. longum, 9 mm. latum, nervo medio marginibusque incrassatis, nervis intermediis sat prominentibus, caulina 4, 31—11 cm. longa, ad 1 cm. lata, supremi lamina ca. 2 cm. longa, vaginae marginibus coalitis; pedunculus in vagina supremi folii inclusus; inflorescentia 16·5 cm. longa, ca. 6-fl., floribus fere erectis, bracteis fere occulta; bracteae herbaceae, 5·5—4 cm. longae dimidio inferiore oblongo-cuneiformes, dimidio superiore subtriangulares acu-

minatae, interdum circa in medio utrinque subauriculatae; bracteolae acuminatae, bracteis breviores; perianthium 6.4 cm. longum, tubo gracillimo, tantum apicem versus parum ampliato, 4.8 cm. longo, parte filiformi 3.5 cm. longa, segmentis lineari- vel oblongo-spathulatis, exterioribus apiculatis, 3 mm. latis, interioribus 4 mm. latis; stamina vix ad dimidium segmentorum attingentia, antheris 6 mm. longis; stylus antheras vix attingens, stigmatibus profunde divisis, 4—5 mm. longis.

Kalahari Region: Transvaal; Lydenburg Div., Krocodilfluss, near Lydenburg, fl. Dec. 1883, *F. Wilms*, 1439 (in Herb. Berlin and in the British Museum).

A very distinct species. The large acuminate bracts, which are sometimes lobed on each side, about in the middle, and which hide most of the flower, and the relatively very long and slender perianth-tube distinguish it from the rest of the genus.

- W. *Beatricis*, Mathews and L. Bolus (Eu-Watsonia). *W. Pillansii* affinis, sed foliis subglaucescentibus, nervo medio marginibusque magis prominentibus, floribus pluribus eodem tempore apertis, segmentis patentibus mox recurvatis, latoribus, distinguitur.

Cormus depresso globosus, ca. 6 cm. diam., tunicis e fibris crassis compositis; caulis, cum spica, ad 95 cm. altus vel rarius parum ultra; folia radicalia 3, subglaucescentia, nervo medio marginibusque sat prominentibus, cum aetate stramineis, nervis intermediis crebris inconspicuissimis, ad 75 cm. longa, 3 cm. lata, caulina 8, imbricata, caule omnino vestito, inferum, cum vagina 14 cm. longa, ad 74 cm., supremum 9 cm., longum; inflorescentia ad 51 cm. longa; spica simplex vel ramis 2, tardissime evolutis, saepius 30—40-fl., floribus saepe 15—17 eodem tempore apertis; bracteae internodia aequantes vel superiores ea excedentes, herbaceae rubescentes, apice margineque membranaceae, ovato-oblongae, basi latissimae, ventricosae, haud carinatae, inferiores acuminatae, superiores obtusae, intus viscidae, 3.5—1.5 cm. longae, bracteolis omnino coalitis, ovato-orbicularibus, inferioribus multo brevioribus, superioribus aequilongis, bracteis; perianthium erecto-patens, tubo 5 cm. longo, parte filiformi 2 cm. longa, faucibus 6 mm. diam., segmentis patentibus, mox subrecurvatis, obtusis, 2.5 cm. longis, exterioribus oblongis, 1.1 cm. latis, interioribus obovato-oblongis, fere ad 1.6 cm. latis; stamina arcuata, ad 6 mm. infra apicem segmentorum attingentia, filamentis salmonaeis, antheris inapertis 1.4 cm. longis, albidis, deinde purpureo-cyaneis; stylus stamina parum excedens, ramis primariis 1 cm., ultimis 5 mm., longis; ovarium subobconicum, 5 mm. longum, apice 3 mm. diam.; capsula cylindrica, ad basin leviter angustata, subobliqua, 1.1—1.9 cm. longa, apice ad 6 mm. diam.; semina utrinque alata, rubro-brunnea, saepius 9 mm. longa.



Cape Province: South-Western Region; George Div., *Beatrice Hops*. George, *F. A. Rogers*, 3483; *R. S. Adamson* (National Botanic Gardens, No.  $\frac{61}{4}$ ).

Described from living specimens which have flowered freely for several years in the National Botanic Gardens, Kirstenbosch, during January and February. The original plants were received from Mr Eustace Pillans. It is the most strikingly beautiful of all the *Watsonias*, the rich apricot-red colour of the perianth being brighter than that of *W. Pillansii*, and the flowers larger and more widely open.

- W. *Schinzii*, L. Bolus (Eu-Watsonia). Cormus non visus; planta 68.5 cm. alta; folia inferiora 4 producta, nervo medio marginibusque conspicue incrassatis, imperfecta, praeter tertium 41 cm. longum, cum vagina 14 cm. longa, 1.6 cm. latum, folia superiora 2, imbricata, vagina sub-ventricosa, supremum bracteiforme, 3.7—4.8 cm. longum; spica simplex subdensa, ad 11-fl.; bracteae ovato-lanceolatae setaceo-acuminatae vel superiores acutae, 3.8—1.9 cm. longae, bracteolis acuminatis, ultra medium coalitis, demum fere omnino distinctis, ad 1.8 cm. longis; perianthium 6.7—7.5 cm. longum, tubo parte superiore cylindrico, faucibus ad 0.7 cm. diam., segmentis oblongo-ellipticis obtusis, 2.5—3.1 cm. longis, exterioribus ad 1.1 cm., interioribus ad 1.4 cm., latis; stamina arcuata, dimidium segmentorum excedentia, antheris ca. 1.1 cm. longis; stylus staminibus  $\pm$  aequilongus, stigmatibus ca. 0.2—0.3 cm. longis; capsula non visa.

Cape Province: South-Western Region; Table Mountain, near Cape Town, 1887, *Dr Hans Schinz*.

Described from two dried specimens of which one comprises the inflorescence and 4 cauline leaves, and the other the inflorescence and 6 cauline leaves, the third, fifth, and sixth of which are perfect.

- W. *Ecklonii*, L. Bolus (Eu-Watsonia). Planta 92—107 cm. alta; cormus cum vaginis basalibus ignotus; folium radicale unicum visum productum, nervo medio marginibusque leviter prominentibus, nervis intermediis crebris, folia caulina 7—8, inferum ad 69 cm. longum, ad 3.4 cm. latum, superiora longe vaginantia, vaginis coalitis, 13 cm. longis vel ultra; inflorescentia 26 cm. longa, 4—5-ramosa, parte terminali dense 18—21-fl., 16—20 cm. longa, floribus suberectis, demum patentibus, ramis brevibus, saepius 2—3-fl.; bracteae inferiores setaceo-acuminatae, superiores subacutae vel obtusae, 1.8—1.2 cm. longae; bracteolae omnino coalitae, inferiores bracteis parum breviores, superiores parum longiores; perianthium 6—7.5 cm. longum, tubi parte cylindrica ca. 2 cm. longa, segmentis oblongo-ovalibus, apiculatis, 2.5—3 cm. longis, exterioribus ad 0.8, interioribus ad 1.1, cm. latis; stamina ad dimidium segmentorum attingentia vel parum ultra, antheris 1.3 cm. longis; stylus staminibus parum brevior, ramis 4 mm., ramulis vix 2 mm. longis.

Cape Province: without exact locality, *Ecklon*, 938.

Described from two dried specimens—one in the Herbarium at Vienna (*Ecklon*, 938) and the other in the Berlin Herbarium, bearing *Ecklon*'s name but without a number. The species is very similar to *W. rosea*, Ker, in vegetative characters, but differs in the shape of the perianth-tube and in the narrower perianth-segments.

- W. *Rogersii*, L. Bolus (*Neuberia*). Planta 73 cm. alta; cormus non visus; folium vaginans unicum visum 14.5—17 cm. longum, folium radicale productum 1, cum vagina 11—18 cm. longa, 60—66 cm. longum, ad 1 cm. latum, nervo medio marginibusque sat prominentibus, nervis intermediis inconspicuis; folia caulina 6—7, infimum, cum vagina 16 cm. longa, 63 cm. longum, secundum, cum vagina 11 cm. longa, 20—22 cm. longum, cetera vaginiformia, obtusa, inferiora imbricata, 14.5—1.5 cm. longa; spica 14—15 cm. longa, 8—10-fl.; bracteae oblongae obtusae vel superiores acutae, obscure carinatae, 2—1.4 cm. longae, bracteolis omnino coalitis, bracteis parum brevioribus vel superioribus eas aequantibus; perianthium roseum, 3.5—4.3 cm. longum, tubo infundibuliformi, faucibus 0.5—0.7 cm. diam., segmentis 1.5—2 cm. longis, exterioribus 0.8—1 cm., interioribus 1—1.2 cm., latis; stamina ad dimidium segmentorum attingentia vel parum ultra; stylus stamina parum excedens, stigmatibus interdum ad apicem segmentorum fere attingentibus, ramis 4 mm., ramulis 2 mm., longis.

Cape Province: South-Western Region; Caledon Div., Steenbraas, Nov. 1919, *F. A. Rogers*, 17841. Cape Div., Table Mountain, Nov. 1919, *id.*, 17875.

Described from two dried specimens. The affinity is with *W. maculata*, Klatt, which, however, differs in being less robust, having shorter leaves, and acute cauline leaves and bracts. *R. Schlechter*, 9492, from Onrust River, in the Caledon Div., appears to be a connecting link.

- W. *Wilmsii*, L. Bolus (*Neuberia*). Planta 66 cm. alta vel ultra; cormus non visus; folium radicale unicum visum, cum vagina, 51.7 cm. longum, lamina 32.7 cm. longa, ad 1.4 cm. lata, caulina 5, ensiformia imbricata, cum vaginis, ad 45 cm. longis, 1.7 cm. latis, marginibus conspicue incrassatis, nervo medio prominente, intermediis sat conspicuis; spica simplex, 32 cm. longa, 35-fl., floribus erecto-patentibus; bracteae versus apicem marginesque membranaceae, saepe sublaceratae, ovato-oblongae, inferiores angustatae acuminatae, superiores obtusae, 3.7—2.1 cm. longae, bracteolis fere ad apicem coalitis, 2.5—1.8 cm. longis; perianthium 6 cm. longum, tubo 4 cm. longo, parte filiformi 2.4 cm. longa, parte superiore infundibuliformi, faucibus 0.8—1 cm. diam., segmentis acutis apiculatis, exterioribus 0.6 cm., interioribus 0.9 cm., latis; stamina arcuata, cum stylo ad dimidium segmentorum vel ultra attingentia,

antheris 0·8 cm. longis; styli rami 0·3 cm. longi, ramulis vix 0·3 cm. longis; capsula non visa.

Transvaal: Lydenburg Div., Paarde-Platz, near Lydenburg, fl. March 1886, *F. Wilms*, 1440.

Nearest *W. densiflora*, Baker, but differs: 1, spike much less densely flowered; 2, bracts less rigid in texture and usually longer; 3, perianth longer; 4, style-branches and branchlets shorter.

*W. transvaalensis*, Baker, var. *drakensbergensis*, L. Bolus, nov. var. (Neuberia).

Planta 57—87 cm. alta; cormus et vaginae basales deficientes; folia radicalia visa 2, nervo medio marginibusque conspicue incrassatis, nervis intermediis sat conspicuis, cum vagina 16—30 cm. longa, 54—68 cm. longa, 1·4—2 cm. lata, caulina 5—6, infimum 49—69 cm. longum, ad 2·4 cm. latum, supremum subdistans setaceo-acuminatum, 2·5—3·3 cm. longum; spica simplex, subaxe 17—23-fl., floribus erecto-patentibus; bracteae setaceo-acuminatae vel obtusae mucronatae, dimidio superiore vel ultra membranaceo, 1·8—1 cm. longae, bracteolis primum fere ad apicem coalitis, bracteis brevioribus vel superioribus fere aequilongis; perianthium roseum ca. 3 cm. longum, tubo infundibuliformi, apice ad 7 mm. diam., segmentis oblongis acutis, conspicue apiculatis, tubo aequilongis vel parum longioribus, exterioribus 4—5 mm., interioribus ad 7 mm., latis; stamina arcuata, ad dimidium segmentorum attingentia; stylus stamina superans, ramulis vix 2 mm. longis.

Kalahari Region: Transvaal; Lydenburg Div., in a valley on the Drakensbergen, near Pilgrim's Rest, fl. March 1874, *W. Roe* (Bolus Herbarium, No. 2655); Pilgrim's Rest, fl. April 1916, *F. A. Rogers*, 18716.

The plant is taller, and the flowers and bracts smaller, than in the type.

Specimens (of uncertain origin) which flowered at Kirstenbosch in April—May 1917, and of which incomplete material is in the Bolus Herbarium; and an incomplete plant in the Kew Herbarium, collected by Henry Hutton on the Katberg, appear to be the variety, *drakensbergensis*. Both have a branched inflorescence and look more distinct from the type of *W. transvaalensis* than the Drakensberg specimens.

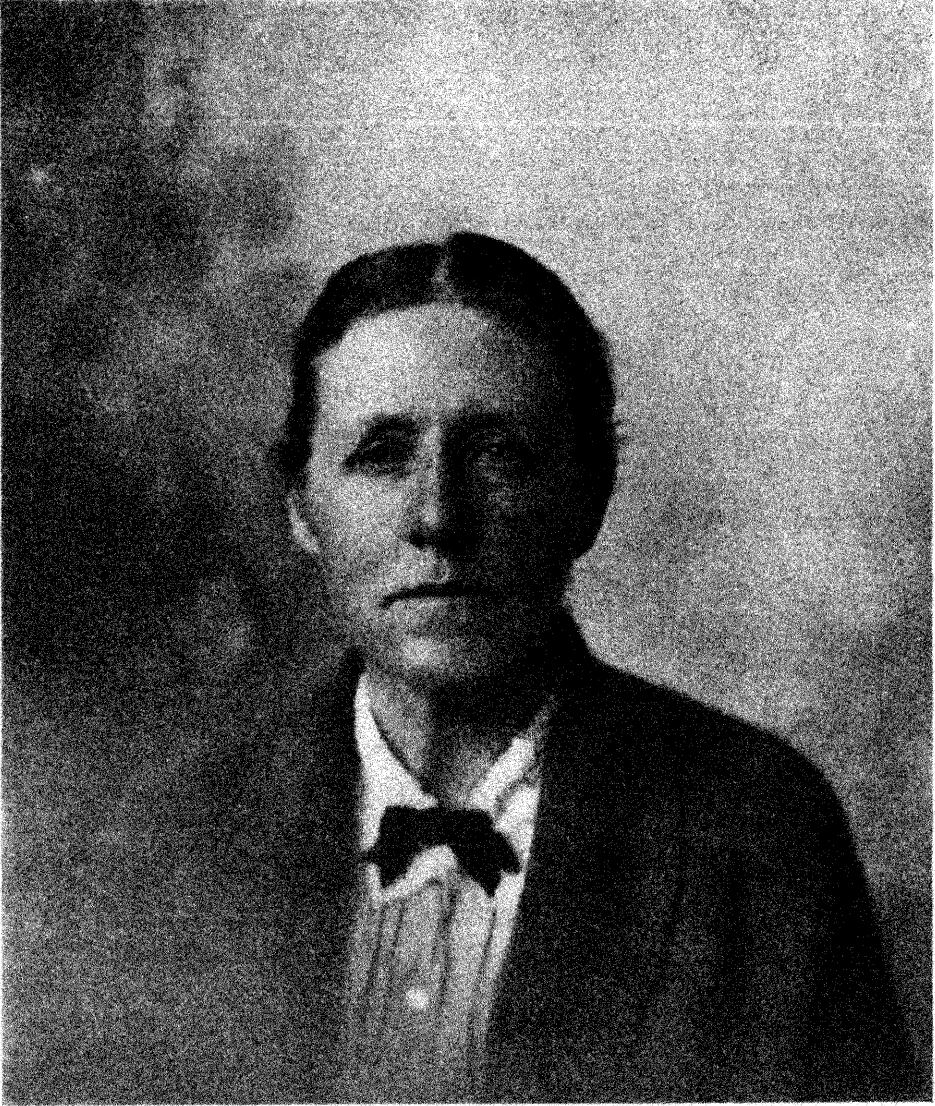
## MARY M. PAGE

1867–1925

MARY MAUD PAGE, botanical artist in the Bolus Herbarium, University of Cape Town, died in Cape Town on February 8th, 1925. She was the second daughter of Nathaniel Page, Esq., J.P., of Croydon, and was born on September 21st, 1867, in London, where she lived till she went out to South Africa. Her education was received at private schools in England, followed by a year in Paris at a "finishing school." Later on she spent six happy months in the south of France at Grasse with a friend, and learnt to converse easily in French. This accomplishment went far towards making her friendship with the French Missionaries and their families whom she met subsequently in South Africa all the more satisfying and genial.

Dogged by ill-health from early childhood Mary Page's whole life was a brave struggle to achieve, in spite of the many drawbacks that deterred her; and she fought on to the end with indomitable courage. Anyone less imbued with a deep and lasting love of Nature would have been saddened and rendered hopeless. But she was ever being comforted, restored, and inspired by her love; and this keen delight in the beauty of her surroundings and the glorious sunshine, coupled with a never-failing sense of humour, bore her victoriously through the most painful periods of her life. Occasionally there was a note of bitterness, but it was usually momentary and passed from an impatient shrug into a joke, and she was her courageous self again. Who can forget the merry twinkle of her blue eyes and the ready wit that refreshed us at every turn? How often, even between the twinges of pain, a gleam of fun would light up her face, and we would be laughing at one of her inimitable quips! No wonder she made friends and was beloved wherever she went.

The record of her activities is an extraordinary one. She worked at the School of Art (Caldrons) until her eyesight failed and she was obliged to give it up. Then she took a course of wood-carving; learnt to work with metals and enamels; excelled in various kinds of needlework, embroidery and lace-making; and learnt Braille in order to help a blind friend for whose use she translated many books. During the three years of her father's mayoralty of Croydon—at the time of the Boer War, the death of Queen Victoria, and the accession of King Edward—she took her full share of the labours that fell to the lot of the Lady-Mayoress and her daughters. At the same time she thoroughly enjoyed the privileges involved and her accounts of impressive scenes in Westminster Abbey and elsewhere have thrilled the writer.



MARY M. PAGE



In July 1911, soon after her father's death, Mary Page sailed for South Africa. Her health had become worse than ever and after a serious operation it was hoped that some big change in a warm climate would help her more than anything else could. It *was* a big change, almost a drastic one, from London to Dealesville (in the Orange Free State, some 5000 ft. above sea-level and 45 miles from the nearest railway) whose *raison d'être* was some sulphur-springs, the possibilities of which were not being realised. "Here I am," she writes to her mother, "after a fortnight without so much as a shoe to change, and still hoping for my things to come one day soon. Transport is so scarce with want of rain for oxen. But don't worry—you don't know how few things you need till you get away like this. We have had awful winds and sand-storms but still the rain holds off." In a charming letter (November 30th) to her little nieces, illustrated with sketches of spiders, beetles and other queer forms of life abounding in that "wilderness" round Dealesville, she says—"I expect you are all sitting by the fire and I am sitting under the fruit trees, where the apples and apricots are beginning to get ripe, and trying to think I am not being frizzled up. It is really almost too hot for my walk at half-past six in the morning, only I always go, because it is no use to walk after breakfast, and puppy always comes to my window and calls to me, and I can't resist his shaggy head, but put on my thinnest clothes and go off with him." This life, in spite of certain privations, was doing her good. "I should like to be rich enough," she writes, "to go on with the sun all the year round. I have so loved it, and have never felt it too hot except on the close thundery days; the dry hot air is so lovely to me. It has given me the health I was hunting for."

Early in 1912 came the move to Bloemfontein where "there are high hills overshadowing the town and hills all round wherever you look. Out at Dealesville it was uninterrupted flat vast distance, not even a shrub to break it; and the hot wind prowling incessantly over it, one way or the other. I felt a bit shut in when I first came here and missed the wind, which of course is much less, and my long wanders at all hours on the veldt; and especially I missed the various lightning displays all round. But it is a very welcome and comfortable change, and the plenty is a great boon—fruit, milk, butter, etc. I am still luxuriating in town life and no one could be kinder than Miss Scott." Miss Scott soon became a very dear friend and her home was Mary Page's ever after. "She is so kind and cheery and very keen on my work. Fancy me conducting a tuck-shop at a huge school and college, all alone with my 'boy,' and all day busy chatting and chaffing with the youth of the Free State!!! I don't like the idea, but must do something, and Dealesville has made me such a recluse I am shy of doing anything; and it is all so funny that it does not seem to matter much."

The various phases of life in Bloemfontein are vividly and amusingly

described in her letters to her mother—the early morning market where there are “*enormous* watermelons, green outside, and solid throughout inside, a lovely pink, like cocoa-nut ice for texture, and sprinkled with large black seeds. They are like half solid iced water, so refreshing. The marrows are funny shapes, like bad dreams, but very nice. I love to wander in the crowd.” Writing to her brother, the Hon. Mr Justice Page, about the same time, she describes the Free State as “a very hard land to its inhabitants, and for one who makes money, there are hundreds who don’t; but by living frugally (what in England would be called almost starvation) they scrape along and put by something, and add other bits to their farms, rescuing them from the veldt. Not much money passes hands there; the farmers bring their wool at shearing-times and exchange it for goods at the stores; and as they can’t afford to hold on to their wool, it all comes in at the same time, and so keeps down in price. This drought has meant a heavy loss, for, although the sheep have not died like the oxen and cows, there are no lambs. We had the worst earthquake known about here, last week, but I hardly realised its importance. The London underground is a good preparation, but when the rumble rose to deafening, and the whole place shook, and the floor waved about, it was very uncomfortable. I felt like a boat. Fortunately no harm was done beyond a few cracks and broken chimneys: these low houses seem to stand a lot. Someone said the Modder River was a sight—all the water dashing from side to side in waves, instead of in its usual course.”

Bloemfontein and Grey College certainly meant hard work for Mary Page and required a good deal of pluck. But she was equal to the task and faced it squarely and cheerfully. “After breakfast it is as much as I can do to be ready for my 110 to eleven o’clock tea, with 25 platefuls of scones or bread and butter to cut ready! But my fat remains a fixture in spite of it all and my spirits unabated. I certainly never was so young before. If only my enemy, rheumatism, will keep off!” When her time as locum expired she regrets leaving the many friends. “Everyone says such kind things and tells me how much I shall be missed, which is nice; and it has been sort of free and easy all the time.”

In August 1912 she writes from Palapye in Bechuanaland, where she spent three months—“I am having a change of scene up here; from open rolling bare veldt to the bush, with nothing but trees everywhere, or rather, low bush, for there are very few big enough to be worthy of the name of tree. The colours are lovely, all gold and brown and red—mostly Mopane, whose leaves all grow in pairs, and are like butterflies on the branches. There ought to be high grass, 5 feet high, but last year’s drought killed it. There are lots of giant Euphorbias and lovely blooms like our red-hot-pokers. Amongst them are plenty of birds to get at the honey, yellow and green flashing as they skim along; and great glossy black insects with a noise of wings like



small aeroplanes; and jays, toucans, doves, guinea-fowl and 'go-aways.' The toucans are very funny with their eggs; the hen gets on them in a hole in a tree, and the cock builds her up so that only her beak can get out for food, and there she has to sit till her eggs are hatched. If the cock gets into any trouble, Mrs Toucan is starved—that's all."

The visit to Palapye was followed by one to Pretoria and to Linslade near Gwelo where they lived "in rondavels, round plastered huts with tall thatched roofs. They are always so cool and lovely, and the low overhanging thatch makes a shade all round. The high thatch inside is so pretty and gives a lofty space for air. There are stable-doors and a gauze door so that the flies, etc. can be combated, and you can keep out the poultry and sleep with open doors at night. All between the huts is long grass and a path to each door. It is so high up here and so delightfully restful."

From Rhodesia she returned to Bloemfontein and visited various parts of South Africa, getting an insight into the life of the country such as few have been able to do in so short a time. She was loved wherever she went, and was always ready to help in everything that was going on. "I am enjoying myself decorating and icing the Xmas cakes; and there are puddings to help with too. There is such a lot to do on these farms, but I am supposed to enjoy it all and rest all I want."

Basutoland was a great joy. "We had a *lovely* drive; I just enjoy the Cape carts and the nice leisurely journey. The scenery is grand. All the time we are over 5500 ft., and great flat-topped or koppie-shaped mountains are all around, with great green valleys and amphitheatres, and more and more stretches of mealies and Kaffir corn, all waving and green. It was lovely. Constantly there are picturesque hut-villages on the koppies and ledges, and great hedges of blue-green Agave full of tall tree-like blooms. All the way we met the Basutos, in their brilliant blankets and tall queer straw hats, on their strong little ponies; and the women in the gayest of colours—yellow skirts very fashionable—and looking like the parrots at the Zoo for varied brilliance of hue, sometimes walking. In the tall mealie and corn acres were odd, gaily dressed natives as scarers for the birds; or often standing like black statues, on platforms of boughs, over the precious crops. The country seems very thickly populated by natives and the only Europeans allowed in are Government officials, missionaries, and traders. Think of me in this grand scenery!"

The visits to Basutoland were often repeated and many charming sketches were made, for there were pictures all round her and she saw them at every step. Later on arose the rival interest in the botanical aspect of the country and Miss Page made some important collections. She also inspired her friend, Mrs Beaumont, with an affection for the science and helped her to form a teaching herbarium of correctly named local plants for the use of the children at Morija.

I met Miss Page first in January 1915 when she was spending a few weeks in the Cape Peninsula, and was at once struck with the beauty of the flower-paintings she showed me. She had not, up to this time, done any botanical drawing; but with her usual enterprising spirit she was quite prepared to try and do her best, and we arranged to begin work together in October. For three months she lived with me, learning "to paint from the botanical point of view." The artist in her must often have been sorely tried; but nothing daunted her and she persevered, becoming more and more engrossed in the subject as she learnt to discern more of the minute differences between the various species. Her enthusiasm was unbounded. There were hunts for some of the rarer species (and she was wonderfully successful in running them to earth) and we had glorious expeditions—several of them to the top of Table Mountain. One excursion stands out vividly in my memory, namely, the one to Cape Point in November 1915. We walked from Miller's Point to Buffel's Bay and the next day on to Cape Point, sleeping again at Buffel's Bay before returning to Simonstown. How often she paused at an irresistible view, whipped out her paint-box, and in a few minutes had taken her record, hurrying on in joyous excitement to catch up with the other members of the party. I can see her now, looking back over the ten years that have passed, in the doorway of our bed-room at sunrise, drawing a rare flower which she feared would not last till the return home—so anxious was she to get it done. This was the beginning of her connection with the Bolus Herbarium which lasted till her death. Readers of these pages are familiar with the excellent drawings that have appeared in them, and with the illustrations in the *Journal of the Botanical Society*, as well as in our joint work *Elementary Lessons in Systematic Botany*. But beyond the few plates that have appeared in *The Flowering Plants of South Africa* and in Storey and Wright's *South African Botany* all her coloured drawings are still unpublished. These consist of considerably more than 200 drawings of that most important South African genus, *Mesembrianthemum*, and constitute an invaluable contribution to our knowledge of that difficult group. Besides these are some 30 drawings of orchids, about 100 of plants of the Cape Peninsula, and many sketches of various other plants, especially in the family Iridaceae. It is indeed a splendid legacy and will serve to immortalise her name in the annals of South African botany. Besides her special work as botanical artist Miss Page felt the deepest concern in the welfare of the Herbarium, and was always ready to further its interests in every direction. In her death, therefore, we lose one of the staunchest of friends, as well as a thoroughly skilled worker, and such a loss is irreparable.

In 1921 Miss Page had the gratification of returning to England for a few months' stay with her family.

She was surrounded by her colleagues, comrades and friends to the last.

“Miss Scott has been unfailing in her great kindness all the time and never found anything a bother, though I am not a perfect patient. Everyone has been so kind and to crown all, when I asked the chemist for my account (the man there was an old friend from the Dealesville days) he telephoned back that neither the doctor nor they were making me any charge for attendance nor medicines. I felt quite overwhelmed, for Dr Hodgins came a great deal when I was bad and was so kind and cheery always. Really the amount of kindness one meets with is simply wonderful, and makes one’s heart full of gratitude, does it not?” In spite of the illness that marred her last holiday and proved fatal, she had the pleasure of visiting many of her old friends and beloved haunts in the Free State and Basutoland and was able to go to the Nek—“my first try at a climb, and we took it gently with plenty of stops to see the views, and I got up quite comfortably, much to my pride. Up there, on a ridge, with mountains running away on each side; and over the near green or ploughed valleys, hill after hill, away to the blue distance! One way we looked right to Lastron and Aliwal; another way to a peak just close to Bloemfontein; and a third vista to the border of Natal! That’s what *I* call satisfying to one’s soul. Those magnificent spaces up in the mountains are so restful to me—the farther the distance the more I am satisfied; and I feel I have just been drinking in space and beauty enough to last me till my next holiday!”

She was buried in the cemetery at Plumstead on the “Flats” she had so often traversed, and in view of the mountains she had climbed with such eager delight.

H. M. L. B.

## SOUTH AFRICAN ORCHIDS

By H. M. L. BOLUS.

*HOLOTHRIX PILOSA*, *Reichenbach fil.*, *Otia Bot. Hamb.* II, 119. Erecta, in genere robusta, omnino (floribus glabris exceptis)  $\pm$  dense pilosa, pilis sat longis, patentibus vel deflexis, 30—45 cm. alta; tuberus ad 4 cm. longus, 2.5 cm. diam.; folium unicum evolutum, ad terram adpressum, per anthesin marcescens, reniforme, ca. 5.5 cm. latum; spica 16—20 cm. longa, sat dense multiflora, floribus adscendentibus viridibus; bracteae fere erectae, herbaceae ovato-lanceolatae, longe acuminatae, ciliatae, 1—0.6 cm. longae; sepala lateralia oblique ovata, acuta vel acuminata, basi saccata, 6 mm. longa, sepalum impar ovato-lanceolatum, lateralibus parum brevius; petala linearia, ad apicem leviter angustata, obtusa, 1.1 cm. longa; labellum obovato-oblongum vel subflabellatum, 5—7-lobum, lobo medio longissimo, parti tertiae labelli aequilongo vel brevioris, lobis lateralibus sensim brevioribus, calcare cylindrico, leviter recurvato, 2 mm. longo; anthera oblonga, obtusa. Bolus in *Journ. Linn. Soc.* xxv, 189; Durand and Schinz, *Conspect. Fl. Afr.* v, 71; Schlechter in *Oest. Bot. Zeitschr.* 1898, 442; Kränzlin, *Orch. Gen. et Sp.* I, 576; Rolfe in *Flor. Cap.* v, § 3, 104. *Saccidium pilosum*, Lindl., *Gen. et Sp. Orch.* 301. *Orchidea pilosa*, Burch. ex Lindl. l.c.

Cape Province: South-Western Region; Swellendam Div., on a dry hill near Breede River, in fruit, Jan. 26, 1815, *Burchell*, 7483. Riversdale Div., among stones and in pockets and crevices of rocks, Oude Tuin, near Albertinia, fl. Nov.—Dec. 1913, *Mrs John Muir (Dr John Muir, No. 1225)*.

Erect, robust in the genus, all parts, except for the glabrous flowers, more or less pilose with rather long, spreading or deflexed hairs, 30—45 cm. high; tuber up to 4 cm. long, 2.5 cm. diam.; one leaf developed, appressed to the ground, withered during the flowering-period, reniform, about 5.5 cm. broad; spike 16—20 cm. long, rather dense, flowers numerous ascending green; bracts almost erect herbaceous ovate-lanceolate long-acuminate ciliate, 1—0.6 cm. long; lateral sepals obliquely ovate, acute or acuminate, pouched at base, 6 mm. long, the odd sepal ovate-lanceolate, a little shorter than the lateral ones; petals linear, slightly narrowed towards the apex, obtuse, 1.1 cm. long; lip obovate-oblong or somewhat flabellate, 5—7-lobed, the middle lobe longest, about a third of the length of lip or a little shorter, the lateral lobes becoming gradually shorter, spur cylindrical, slightly recurved, 2 mm. long; anther oblong obtuse.

The drawing was made from living specimens received from Dr J. Muir in December 1913. Burchell's specimen in Herb. Kew is in the fruiting stage.

SATYRIUM RHODANTHUM, *Schlechter*, in Engl. Bot. Jahrb. XL, 92. "Erectum strictum, 25—40 cm. altum; foliis basilaribus 2, erecto-patentibus, post anthesin e gemma distincta ad basin caulis evolutis; caule tereti glabro, vaginis alte amplectentibus, acutis vel acuminatis, pluribus, omnino obtecto; spica oblonga vel ovata, cylindracea, dense 10—25-flora; bracteis lanceolatis acutis, mox deflexis, inferioribus flores superantibus, superioribus sensim decrescentibus; floribus pulchre roseis, illis *S. Woodii*, Schltr. similibus et aequimagnis; sepalis petalisque liberis decurvulis glabris, ca. 1.3 cm. longis; sepalo intermedio oblongo-ligulato obtuso, lateralibus paulo latioribus; petalis et sepalis lateralibus valde similibus; labello galeato, limbo inflato, dorso medio longitudinaliter carinato, apice libero erecto quadrato obtuso, intus microscopice papilloso, margine minute serrulato, calcaribus filiformibus deflexis, ovarium duplo superantibus; columna gracili incurva, rostello quadrato, apice trilobulato, lobulis lateralibus minutis dentiformibus acutis, intermedio lanceolato-elliptico obtuso majore; lobo stigmatifero cuneato-quadrato, leviter bilobo, rostellum longitudine aequante." [Ex *Schlechter*, *l.c. supra.*]

South-Eastern Region: Natal; Alexandra County, in damp meadows along the Umtwalumi at Fairfield, alt. ca. 700 met., fl. Oct. 1905, *H. Rudatis*, 128.

Erect straight, 25—40 cm. high; basal leaves 2, erect-spreading, developed after the flowering-period from a distinct bud at the base of the stem; stem terete glabrous, entirely covered by several, acute or acuminate, closely embracing sheaths; spike oblong or ovate, cylindrical, densely 10—25-fl.; bracts lanceolate acute, soon deflexed, the lower ones longer than the flowers, the upper ones gradually smaller; flowers a beautiful rose colour, similar to those of *S. Woodii*, Schltr., and as large: sepals and petals free, very similar, decurved glabrous, about 1.3 cm. long; intermediate sepal oblong-ligulate obtuse, a little broader than the lateral ones; lip hooded, the limb inflated, dorsally longitudinally keeled in the middle, the apex free erect quadrate obtuse, microscopically papillose within, margin minutely serrulate, spurs filiform deflexed, twice as long as the ovary; column slender incurved, the rostellum square, trilobulate at the apex, the lateral lobules minute tooth-like acute, the intermediate larger lanceolate-elliptic obtuse; stigmatiferous lobe cuneate-quadrate, slightly 2-lobed, as long as the rostellum.

The drawing was made from living specimens collected at Dumisa in Natal by *H. Rudatis*, Nov. 13, 1911 (Bolus Herbarium, No. 18375). Dr *Schlechter* remarks (*l.c. supra*): "This beautiful species is related to *S. Woodii*, Schltr., but is distinguished by the longer spurs and by the shape of the stigmatiferous lobe of the column. The flowers are carmine red."

DISA TRIPETALOIDES, *N. E. Brown*, in Gard. Chron. (1889) v, 360. *Sat gracilis* in genere, stolonifera glabra, 15—38 cm. alta; folia radicalia et subradicalia 7—9, adscendentia vel fere erecta, oblonga vel linearia, rarius lanceolata, superne attenuata, sat crassa, subcoriacea, ad 18 cm., saepius

4—10 cm., longa, 0·5—1·2 cm. lata; caulina 3—9, lamina infimi et secundi plus minusve producta, cetera vaginiformia acuta, internodiis aequilonga vel multo breviora, 5—1·5 cm. longa; spica saepius 5—12 cm. longa, sublaxe 6—14-fl., floribus adscendentibus, dilute, vel interdum saturate, roseis; bracteae herbaceae orbiculari-ovatae vel oblongo-ovatae, 2—0·7 cm. longae; sepala lateralialia late patentia vel subporrecta, obovato-oblonga, intus carmineo-maculata, 0·8—1·3 cm. longa, sepalum impar erectum galeatum, extus saepe maculatum, 0·5—0·9 cm. longum, calcare conico vel interdum subcylindraceo, 2—4 mm. longo; petala erecta, apice incurva, in galea inclusa, oblonga obtusa rubro-fasciata, 4—6 mm. longa; labellum porrectum, ad apicem incurvum, anguste lineare, inconspicuissimum, petalis fere aequilongum; anthera patens vel leviter adscendens, connectivo leviter producto; rostellum erectum suboblongum, lobis glanduliferis subdivergentibus; stigma pulvinaum; capsula cylindrica, ad 2 cm. longa, 4 mm. diam. Bolus in Journ. Linn. Soc. xxv, 199. Bot. Mag. t. 7206. Durand and Schinz, Conspect. Fl. Afr. v, 109. Kränzlin, Orch. Gen. et Sp. i, 788, and in Ann. Naturhist. Hofmus. Wien, xx, 8. Schlechter in Engl. Jahrb. xxxi, 263. Rolfe in Flor. Cap. v, § 3, 238. *D. venosa*, Lindley, Gen. and Sp. Orch. 351, not of Swartz. *D. excelsa*, Sw., in Vet. Acad. Handl. Stockh. 1800, 213; Thunb., Flor. Cap. ed. Schult., 14, partly. *Orchis tripetaloides*, Linn. f. Suppl. 398; Murr., Syst. Veg. xiv, 807. *Satyrium excelsum*, Thunb., Prodr. 5, partly.

Hab.: Cape Province: South-Western Region; many collectors—Caledon Div., Knoflook's Kraal and Little Houw Hoek, 1000—3000 ft., Zeyher, 3916; Houw Hoek, 2500 ft., Schlechter, 9410; trunks of fallen trees in Grietjesgat River, near Palmiet River, 800 ft., fl. Dec., Bolus, 4209! Riversdale Div., by mountain rivulets near Riversdale, Schlechter. Knysna Div., mountains near Knysna, 200 ft., fl. Dec., Caroline Newdigate (MacOwan, Herb. Norm. Aust.-Afr., No. 1650!). Humansdorp Div., Kromme River, Thunberg. Uitenhage Div., waterfall on Van Stadens Berg, fl. Dec., MacOwan, 1095! South-Eastern Region: Natal; Alfred County, on wet banks, Murchison, alt. 2000 ft., fl. May, Wood, 1981!

Rather slender in the genus, stoloniferous glabrous, 15—38 cm. high; radical and very lowest cauline leaves 7—9, ascending or nearly erect, oblong or linear, more rarely lanceolate, narrowed towards the apex, rather thick, somewhat leathery, up to 18 cm., usually 4—10 cm., long, 0·5—1·2 cm. wide; cauline leaves 3—9, the lamina of the lowest and following more or less produced, the rest sheath-like acute, as long as the internodes or much shorter, 5—1·5 cm. long; spike usually 5—12 cm. long, rather laxly 6—14-fl., flowers ascending, pale, or sometimes deep, rose; bracts herbaceous, orbicular-ovate or oblong-ovate, 2—0·7 cm. long; lateral sepals widely spreading or rather projecting forwards, obovate-oblong, carmine-spotted within, 0·8—1·3 cm. long, odd sepal erect hooded, often carmine-spotted without, 5—9 mm. long, spur conical or sometimes rather cylindrical, 2—4 mm. long; petals erect, the

apex incurved, enclosed in the hood, oblong obtuse, transversely banded with red, 4—6 mm. long; lip projecting forward, incurved at the apex, narrow linear, very inconspicuous, nearly as long as the petals; anther spreading or slightly ascending, the connective produced a little beyond the anther-lobes; rostellum erect suboblong, the gland-bearing lobes somewhat divergent; stigma cushion-shaped; capsule cylindrical, up to 2 cm. long, 4 mm. diam.

The drawing was made from living specimens received from Dr John Muir, summit of the Langebergen, Riversdale Div., Nov. 1913 (Bolus Herbarium, No. 18374).

DISA VASSELOTII, *Bolus ex Schlechter*, in Engl. Bot. Jahrb. xxxi, 373. Gracilis glabra, 8—17 cm. alta; folia radicalia 4—6, adscendentia vel patentia, oblongo-lanceolata acuta, ad 4·5 cm. longa, caulina 3—6, plus minusve vaginiformia, internodiis longiora, acuta; racemus quasi subcorymbosus, 2—10-fl., floribus adscendentibus, niveis vel dilute roseis; bracteae herbaceae ovato-lanceolatae acuminatae, 1·4—0·9 cm. longae; pedicelli 3—4 mm. longi; sepala lateralia subporrecta obovato-oblonga obtusa, 1—1·4 cm. longa, sepalum impar erectum galeatum, ore late ovato, 0·8—1·2 cm. longo, calcare decurvo conico-cylindrico, 3—4 mm. longo; petala adscendentia vel retro-patentia, apice incurva, oblonga subfalcata obtusa, 4—6 mm. longa; labellum porrectum, ad apicem incurvum, subspathulato-lineare obtusum petalis subaequilongum; anthera reclinata; rostellum suboblongum, lobis glanduliferis subdivergentibus; stigma pulvinatum. Rolfe in Flor. Cap. v, § 3, 235.

Hab.: Cape Province: South-Western Region; Riversdale Div., mountains near Riversdale, 2000—3000 ft., fl. Nov. 1892, *Schlechter*, 2219. Summit of the Langebergen, fl. Nov. 5, 1913, *Dr John Muir*, 1123. Knysna Div., mountains near Knysna, 3000—4000 ft., fl. Sept. 1886, *Vasselot de Regnier* (Bolus Herbarium, No. 10485!).

Slender glabrous, 8—17 cm. high; radical leaves 4—6, ascending or spreading, oblong-lanceolate acute, up to 4·5 cm. long, cauline leaves 3—6, more or less sheath-like, longer than the internodes, acute; raceme with a somewhat corymbose appearance, 2—10-fl., flowers ascending, white or pale rose; bracts herbaceous ovate-lanceolate acuminate, 1·4—0·9 cm. long; pedicels 3—4 mm. long; lateral sepals somewhat projecting forwards; obovate-oblong obtuse, 1—1·4 cm. long, odd sepal erect hooded, the mouth broadly ovate, 0·8—1·2 cm. long, the spur decurved conico-cylindrical, 3—4 mm. long; petals ascending or spreading backwards, incurved at the apex, oblong, somewhat falcate, obtuse, 4—6 mm. long; lip porrect, incurved at the apex, somewhat spathulate-linear obtuse, about as long as the petals; anther reclinate; rostellum suboblong, the gland-bearing lobes slightly divergent; stigma cushion-shaped.

The drawing was made from living specimens received from Dr John Muir in Nov. 1913.

DISA BAURII, *Bolus*, in Journ. Linn. Soc. xxv, 174, fig. 12, 203. Planta robusta in sectione, 22—45 cm. alta; tuberus oblongo-ovatus, 6·5 cm. longus,

3·5 cm. diam., reliquis vaginarum basalium, ad 9 cm. longis, 8 cm. latis, onustus; folia radicalia 4—10, marcescentia per anthesin, angustissime linearia, ad 33 cm. longa; vaginae 6—7, e basi late amplexente, longe attenuatae, inferiores imbricatae, superiores internodiis subaequilongae; racemus laxe 8—12-fl., floribus saepe fere erectis cyaneis; bracteae membranaceae brunneae, ovatae vel ovato-lanceolatae, inferiores longe setaceoque acuminatae, 2·5—0·8 cm. longae; sepala lateralia patentia vel subporrecta oblongo-elliptica subobliqua, 1—1·2 cm. longa, sepalum impar erectum galeatum, ore ovato-orbiculari, lateralibus aequilongum, calcare e basi conico, cylindrico, 0·7—1 cm. longo; petala oblonga subfalcata, apice dilatata, breviter 2-loba vel irregulariter dentata, basi anteriore in lobum producta, ca. 6 mm. longa; labellum circumscriptione late ovatum vel suborbiculare, multifidum, 0·8—1 cm. longum, segmentis lineari-filiformibus; anthera patens vel reclinata; rostellum transverse oblongum, lobis glanduliferis convergentibus, lobo intermedio minuto; glandulae orbiculares; stigma magnum pulvinatum; capsula cylindrica, saepe supra medium constricta, 2·2 cm. longa. Durand and Schinz, *Conspect. Fl. Afr.* v, 100; Schlechter in *Engl. Jahrb.* xxxi, 289. *Herschelia Baurii*, Kränzln., *Orch. Gen. et Sp.* i, 804; Rolfe in *Flor. Cap.* v, § 3, 204.

Cape Province: South-Eastern Region; Tembuland, Bazeia Mountains, 3000 ft., fl. Feb., *Baur*, 814! Kalahari Region: Transvaal; grassy hills, Woodbush, *Barber*, 12. Saddleback, near Barberton, 4000—5000 ft., fl. Nov., *Galpin*, 427! *Culver*, 20!; fl. Nov., Thorncroft, 2478! Near Verrers Poort, Middelburg, 5000 ft., *Bolus*, 9788!

Plant robust for the section, 22—45 cm. high; tuber oblong-ovate, 6·5 cm. long, 3·5 cm. diam., bearing remains of basal sheaths up to 9 cm. long and 8 cm. broad; radical leaves 4—10, withering during the flowering-period, very narrowly linear, up to 33 cm. long; sheaths 6—7, long attenuate, broad clasping at the base, the lower imbricate, the upper about as long as the internodes; raceme laxly 8—12-fl., flowers often nearly erect blue; bracts membranous brown, ovate or ovate-lanceolate, the lower ones long and setaceously acuminate, 2·5—0·8 cm. long; lateral sepals spreading or somewhat porrect, oblong-elliptic, rather oblique, 1—1·2 cm. long, odd sepal erect hooded, the mouth ovate-orbicular, as long as the lateral sepals, the spur cylindrical, conical at base, 0·7—1 cm. long; petals oblong subfalcate, widened at the apex and shortly 2-lobed or irregularly toothed, produced into a lobe at the base, in front, about 6 mm. long; lip broadly ovate or suborbicular in outline, multifid, 0·8—1 cm. long, segments linear-filiform; anther spreading or reclinate; rostellum transversely oblong, the gland-bearing lobes converging, intermediate lobe minute; glands orbicular; stigma large cushion-shaped, capsule cylindric, often constricted above the middle, 2·2 cm. long.

The drawing was made from living specimens sent to the National Botanic Gardens, Kirstenbosch, in October, 1913.



## EXPLANATION OF PLATES VII—XI

## PLATE VII

*HOLOTHRIX PILOSA*, REICHENBACH FIL.

Fig. 1, flower, oblique front view; 2, do., side view,  $\times 2$ ; 3, do.,  $\times 3$ ; 4, odd sepal; 5, 5, side sepals; 6, petals; 7, lip, flattened; 8, do., from another flower; 9, do., side view; 10, column, front view; 11, pollinarium—all variously magnified.

## PLATE VIII

*SATYRIUM RHODANTHUM*, SCHLECHTER.

Fig. 1, flower, side view; 2, do., front view, nat. size; 3, lip; 4, side sepal; 5, petal; 6, odd sepal; 7, column, oblique view; 8, do., front view; 9, pollinarium—all variously magnified.

## PLATE IX

*DISA TRIPETALOIDES*, N. E. BR.

Fig. 1, odd sepal, front view, spur removed; 2, do., back view; 3, side sepal, front view; 4, do., back view; 5, 5, petals; 6, lip; 7, column, with petals, front view; 8, do., with lip, side view; 9, column, front view; 10, do., side view; 11, pollinium—variously magnified.

## PLATE X

*DISA VASSELOTII*, BOLUS.

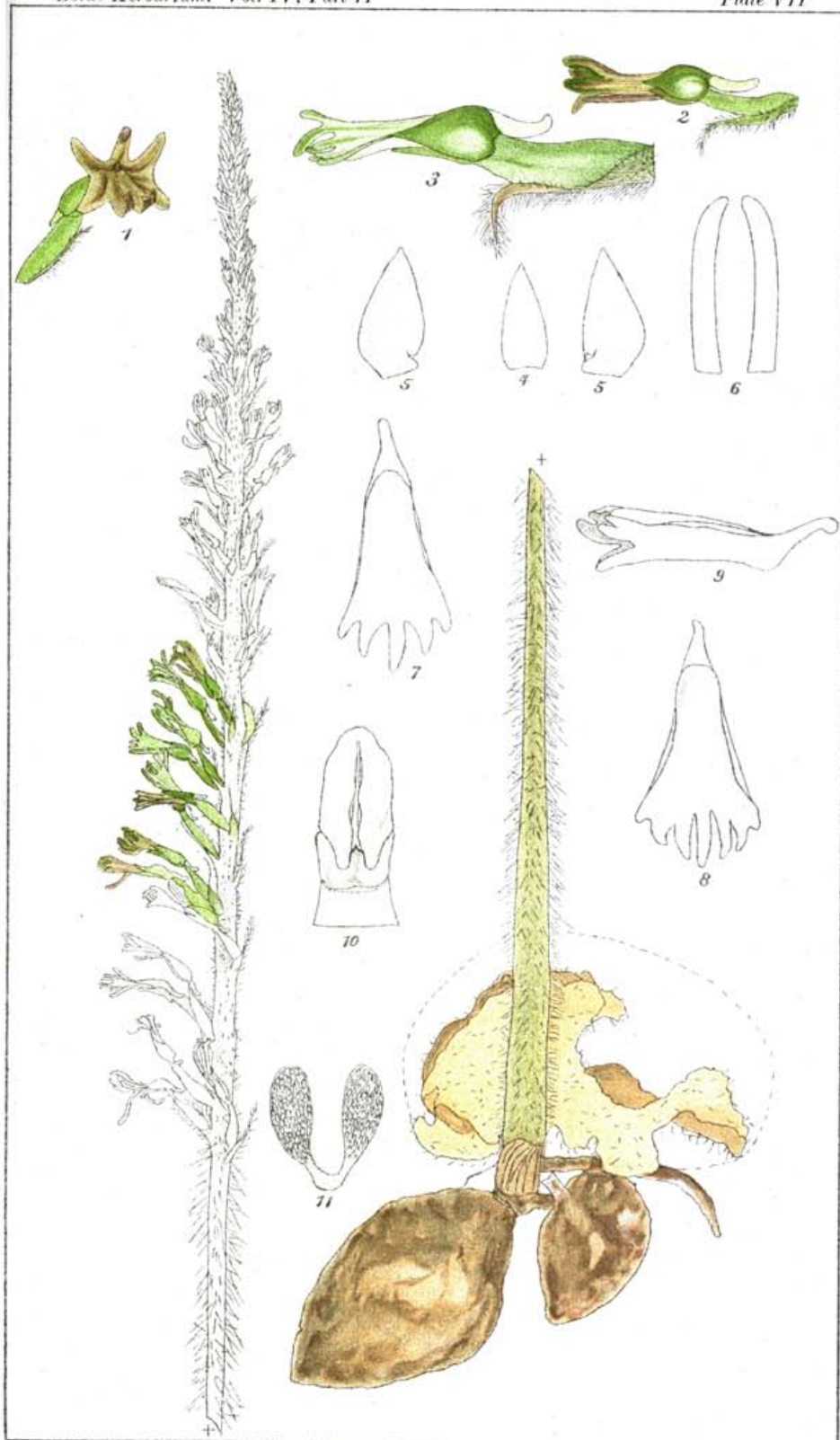
Fig. 1, flower, front view; 2, do., side view,  $\times 2$ ; 3, column and petals, slightly tilted forward, front view; 4, do., with lip, side view; 5, 5, petals; 6, lip; 7, column, side view; 8, do., back view; 9, pollinium—variously magnified.

## PLATE XI

*DISA BAURII*, BOLUS.

Fig. 1, flower, front view; 2, side sepal; 3, odd sepal; 4, petal; 5, lip; 6, column, with petals, side view; 7, column, front view; 8, pollinium—variously magnified.





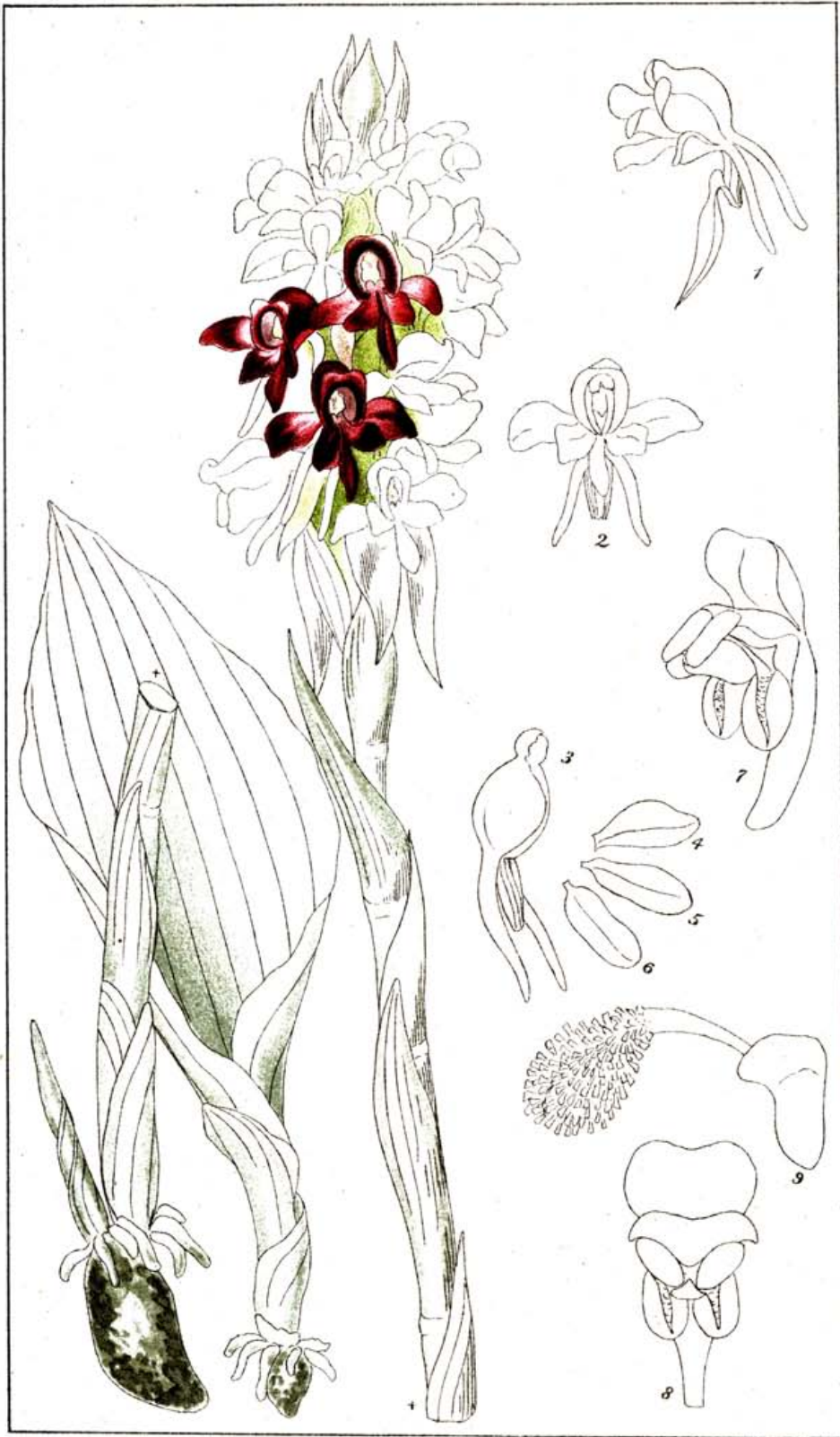
A.M. Tugwell del. ad vivam, 1912-1913.

Miles, Lith, London, W.

~~HOLOTHRIX PILOSA, REICHENBACH FIL.~~

HOLOTHRIX PILOSA, REICHENBACH FIL.





M. Franks del. ad vivam.

Miles, Lith., London, W.

~~SATYRIUM RHODANTHUM, SCHLECHTER.~~  
SATYRIUM RHODANTHUM, SCHLECHTER.





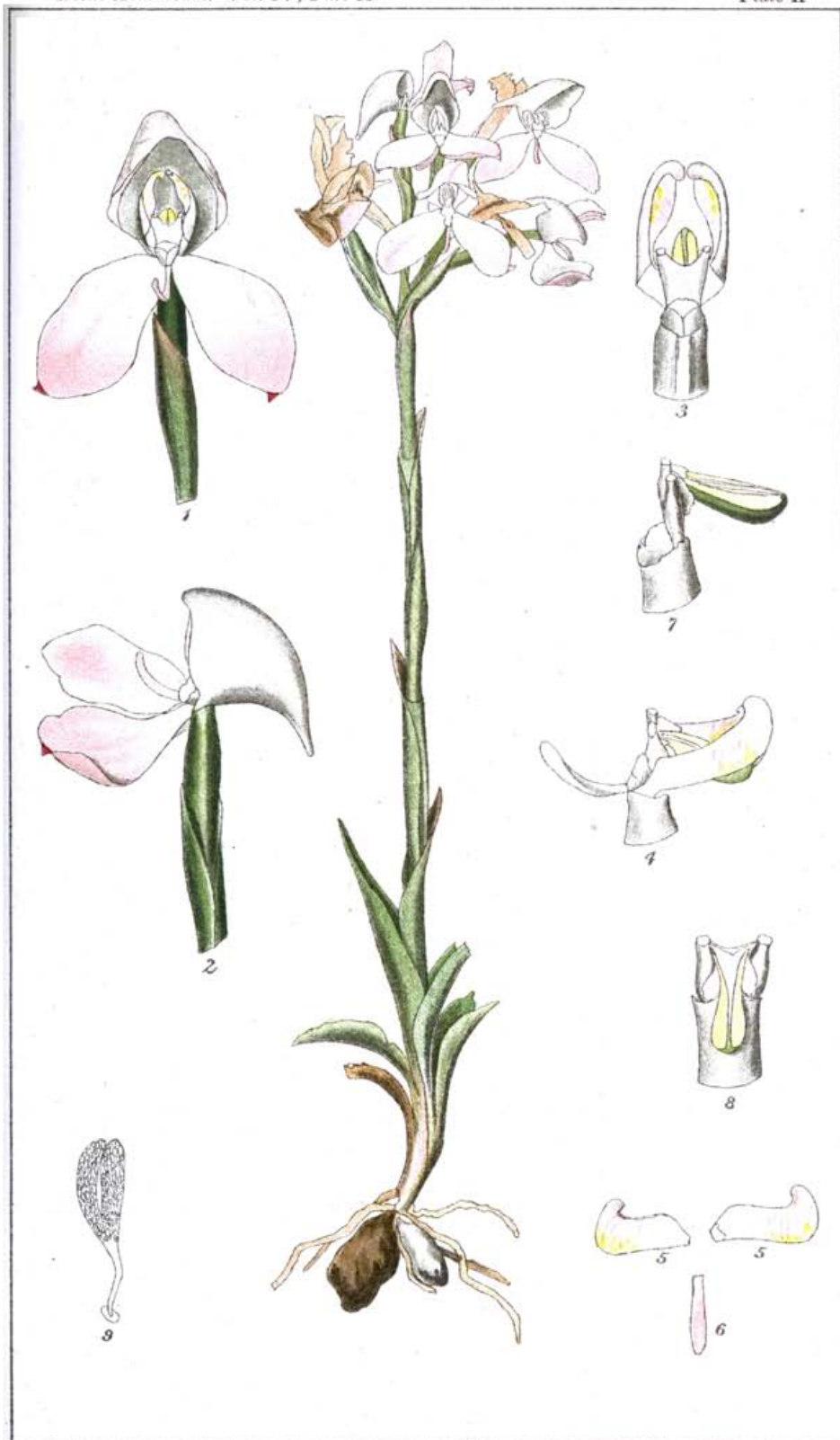
A.M. Tugwell del. ad vivam, 16/11/1913.

Miles, Lith, London, W.

~~DISA FALGATA, SCHLECHTER~~  
DISA TRIPETALOIDES, N.E.BR.







A.M. Tugwell del. ad vivam, 5 II 1913.

Miles, Lith., London, W.

~~DISA VASSELOTII, Bolus.~~

DISA VASSELOTII, BOLUS.





M. W. Glover del. 8.10.1913.

Miles Lith, London W.

~~DISA BAURII, BOLUS~~  
DISA BAURII, BOLUS.



## NOVITATES AFRICANAE

*Priestleya Stokoei*, L. Bolus (§ *Anisothea*) (Leguminosae-Papilionaceae-Lipariaeae). Fruticulus suberectus, 36 cm. altus, partibus herbaceis laxè molliterque pilosis, ramis elongatis subflexuosis, 2—3 mm. diam., dense foliatis; folia fere erecta subsessilia, plana, elliptica, breviter apiculata, nervis inconspicuis, 1.5—1.8 cm. longa, 1.1—1.4 cm. lata; flores in racemas sessiles, 2—2.5 cm. longas, dispositi, pedicellis dense pilosis, 2 mm. longis, bracteis ad 4 mm. longis; calyx 7—9 mm. longus, segmentis tubo parum longioribus, acuminatis, anterioribus ad medium connatis, posteriore ab ceteris distante; vexillum 1.5 cm. longum, lamina suborbiculare, 1.2 cm. lata; alae 1.5 cm. longae, lamina oblonga, ad 5 mm. lata, ungue 5 mm. longo; carina obtusa, 1.1 cm. longa, ungue 5 mm. longo; stamina carinae aequilonga; ovarium dense cano-villosum, 8-ovulatum, stylo superne glabro.

Cape Province: South-Western Region; Stellenbosch Div., foot-hills of mountains near Lourensford, Somerset West, fl. Sept. 1926, *T. P. Stokoe*, 1375.

Closely allied to, and perhaps only a broad-leaved form of, *P. tecta*, DC. (*Liparia tecta*, Thunb.), excluding *P. rotundifolia*, Walp.

*Coelidium Pageae*, L. Bolus (Leguminosae-Papilionaceae-Lipariaeae). Fruticulus erectus, 30 cm. altus vel ultra, ramis virgatis rigidis angulatis, angulis subincrassatis, inter angulos canaliculatis, glabris, axillis pilosis exceptis, parcissime foliatis, ad 25 cm. longis, ad 2 mm. diam.; folia arcte adpressa vel fere erecta, sessilia, ovato-lanceolata vel lanceolata, acuminata, marginibus involutis, subtus nervo medio inferne sat prominente, supra dense pilosa, subtus saepissime glabra, 3—5 mm. longa; flores patentes vel adscendentes, solitarii vel geminati in axillis foliorum parvorum superiorum, saepe 4—6 aggregati prope apicem ramulorum; pedunculus 2—3 mm. longus, apice 1-bracteatus, bractea ad 3 mm. longa; calyx adpresse pilosus, 7 mm. longus, tubo 3—5 mm. longo, segmentis acuminatis, posteriore lanceolato, ab ceteris distante, 4 mm. longo, lateralibus subfalcatis, anterioribus ad dimidium vel ultra connatis; vexillum album, 1.3 cm. longum, lamina parte superiore late elliptica, parte inferiore suboblonga, ungue vero brevissimo latoque; alae lineari-oblongae, apice rotundatae, albæ, 1.2 cm. longae, ad 3 mm. latae, ungue gracillimo, fere 3 mm. longo; carina obtusa vel fere truncata, 1.2 cm. longa; stamina ad apicem carinae attingentia, filamentis brevissime connatis; ovarium adpresse pilosum, stylo superne glabro, stigmatè minuto.

Cape Province: South-Western Region; Robertson Div., among rocks

near Montagu Baths, fl. Aug. 1918, *Mary M. Page* (Bolus Herbarium, No. 15608).

Described from several dried specimens. Readily distinguished from all the other species in the genus by the very scant foliage.

Specimens collected by *Dr R. Marloth*, No. 2809, in the same locality and in fruit only, seem to belong here. The pubescent legume is somewhat turgid, oblong, 1 cm. long, 5 mm. diam.

*Coelidium ciliare*, Vog. var. *brevifolium*, L. Bolus, nov. var. Fruticulus erectus, 30 cm. altus, ramis ramulisque adpresse pilosis, demum glabris, 0.5—2 mm. diam., internodiis foliis aequilongis vel saepius brevioribus; folia adpressa vel fere erecta, ovata (manu expansa) acuta, subtus transverse rugosa, minute tuberculata, glabra vel basin versus adpresse pilosa, juniora plus minusve pilosa, nervo medio demum haud evidente, saepius 4—5 mm., rarius ad 6 mm., longa; flores erecti, 1—3 aggregati apice vel prope apicem ramulorum, foliis subtendentibus dense ciliatis, ceteris parum brevioribus latoribusque, petalis luteis; calyx tenuiter pilosus, pallidus, 6 mm. longus, tubo fere aequilongo segmentis lanceolatis acuminatis ciliatis, anterioribus ad medium connatis; vexillum 9 mm. longum, lamina ovato-elliptica, 7 mm. longa, ad 5 mm. lata; alae 9 mm. longae, ad 2 mm. latae, apice breviter inaequaliterque 2-lobae; carina apice rotundata, 1 cm. longa, ungue 3 mm. longo; stamina carinae fere aequilonga, tubo 2 mm. longo; ovarium adpresse pilosum, stylo glabro.

Cape Province: South-Western Region; Mossel Bay Div., mountain sides at Cloete's Pass, fl. Sept. 1913, *Dr John Muir*, 1072.

Described from dried specimens. These were compared with *Zeyher* 1241 by Mrs R. Wordsworth and the following differences noted:

1. Leaves ovate acute, rugose and tuberculate on the lower surface.
2. Subulate acute, not setaceous, calyx-segments.
3. Alae broader and longer-spurred.
4. Carina broader, with shorter claw and longer limb.
5. Shorter staminal tube.
6. Stouter gynaeceium.

*Amphithalea Pocockiae*, L. Bolus (Leguminosae-Papilionaceae-Lipariaeae).

Fruticulus ad 20 cm. altus, caule basi ad 5 mm. diam., ramis ramulisque adscendentibus vel fere erectis, teretibus pubescentibus, pilis brevibus crispulatis cum longioribus pluri-cellularibus intermixtis; folia saepius adscendentia, rarius patentia, ovata acuminata apiculata, apiculo cum aetate indurato, marginibus subplanis, saepius involutis vel subinvolutis, supra glabra, subtus plus minusve, marginibus dense, pubescentia pilis longis, luteo-viridia, saepius 8—9 mm. longa, 5—6 mm. lata, petiolis brevissimis crassis tomentosis; flores sessiles in axillis foliorum, bractea 1 mm. longa; calyx subcoriaceus, breviter 5-lobatus, lobis rotundatis,

minute ciliatis, anterioribus fere ad apicem connatis, 2—3 mm. longus; vexillum suborbiculare, profunde emarginatum, basi auriculatum, album, 7 mm. longum, ungue 1.5 mm. longo; lamina alae oblonga, superne parum ampliata, apice subtruncata, basi anteriore saccata, alba, ad 2 mm. lata, cum ungue 2 mm. longo, ala ad 7 mm. longa; carina purpurea, lamina suboblonga obtusa, prope basin calcarata, alis parum brevior, 6 mm. longa, ungue 2.5 mm. longo; stamina alte connata, filamento posteriore longissimo, eis utrinque sensim parum brevioribus; ovarium pilosum, pilis erectis, arcte adpressis, 1-ovulatum, stylo piloso, superne glabrescente, stigmatate parvo.

Cape Province: Prince Albert Division; Swartberg, alt. 5000 ft., fl. May, *Mary A. Pocock*, S. 32.

Described from several dried specimens. Distinguished from the species whose leaves have revolute margins by the flat, or more often involute, margins; and from the flat-leaved species by the indument as well as other differences.

*Amphithalea oppositifolia*, L. Bolus. Fruticulus erectus, ad 48 cm. altus, caule ad 3 mm. diam., ramis virgatis gracilibus, 1—1.5 mm. diam., glabris sive parte cano-pilosa foliis opposita excepta; folia erecta, saepius adpressa, opposita sessilia linearia subacuta, apice indurata, marginibus involutis, supra pilosa, subtus convexa, glabra vel juniora apice penicillata, nervis haud evidentibus, 3—7 mm., saepius 5 mm., longa, 0.5 mm., rarius manu explanata ad 1 mm., lata; flores subsessiles, 2—8 aggregati apice, vel prope apicem, ramulorum, bractea lineari-lanceolata, 3 mm. longa; calyx sericeo-pilosus, 4—5 mm. longus, segmentis tubo parum longioribus, lineari-lanceolatis acuminatis anterioribus ad medium connatis; vexillum 6.5 mm. longum, lamina elliptico-obovata, 3 mm. lata, ungue 1.5 mm. longa; alae 6 mm. longae, lamina e medio parum ampliata, apice obliqua; carina 4.5 mm. longa, ungue laminae aequilongo; stamina carinae fere aequilonga; ovarium adpresse pilosum, 2-ovulatum, stylo superne glabro.

Cape Province: South-Western Region; Caledon Div., mountains near Kleinmond, Sept. 1923, *T. P. Stokoe* (Bolus Herbarium, No. 17480).

Described from dried specimens. The opposite leaves with involute margins readily distinguish this from the rest of the genus. The pilose areas on the branches exactly covered by the leaves are noteworthy.

*Amphithalea Stokoei*, L. Bolus. Fruticulus erectus, 30 cm. altus, caule 3 mm. diam., partibus herbaceis laxe molliterque pubescentibus, pilis sat longis cano-griseis; rami ramulique virgati teretes graciles, dense foliati, saepius 10—20 cm. longi; folia fere erecta, lanceolata vel ovato-lanceolata, acuta apiculata, apiculo indurato, marginibus revolutis, 5—8 mm. longa; flores pauci, 1—3 aggregati apice ramulorum brevium, petalis roseis, bractea lineari, 1.5 mm. longa; calyx 5 mm. longus, tubo 3 mm. longo,

segmentis lanceolatis acuminatis, anterioribus ultra medium connatis; vexillum 8 mm. longum, lamina subrhomboidea, profunde emarginata, ungue 2.5 mm. longo; alae 7 mm. longae, lamina supra medium parum dilatata, 2 mm. lata, prope basin saccata, ungue 2.5 mm. longo; carina 6 mm. longa obtusa, breviter calcarata, ungue 3 mm. longo; stamina carinae aequilonga, filamentis ultra medium connatis; ovarium adpresse sericeo-pilosum, 1-ovulatum, stylo superne glabro.

Cape Province: South-Western Region; Stellenbosch Div., near Lourensford, top of kloof leading to "Triplets," Hottentotsholland Mountains, near Somerset West, fl. Sept. 1926 *T. P. Stokoe*, 1376. Described from living and dried specimens.

*Mesembrianthemum aquosum*, L. Bolus. Annum decumbens, planta fere ad 1 met. diam. (fide Pillans), papillosum, papillis diversiformibus, nunc orbicularibus nunc oblongis, partibus herbaceis insigniter aquosis, laete viridibus vel interdum badiis, in siccis saepius pallidissime brunneis vel luteo-viridibus, ramis prostratis subteretibus ad 1 cm. diam., internodiis 4—9 cm. longis, ramulis adscendentibus; folia saepius patentia, opposita vel superiora subopposita, teretia vel supra concava, obtusa, marginibus basin versus purpureis, 2—7 cm. longa, ad 1 cm. diam.; flores irregulariter 3-nati vel abortione 1—2-nati, per diem noctemque aperti, vespere odoratissimi, ad 5.5 cm. diam., pedunculis 1—4 cm. longis, medio vel prope medium bracteatis; receptaculum clavato-cyathiforme, apice ad 2 cm. diam., in tubum ad 1 cm. longum productum; sepala 5, in fructu maturo persistentia, 2 foliis simillima, ad 1.6 cm. longa, 3 subtrotundata, late atrateque membranaceo-marginata, 7—8 mm. longis; petala numerosa pluriseriata angustissima, inferne connata, tubo ad 1.4 cm. longo, parte libera ad 3.4 cm. longa, saepius acuminata, alba vel pallide straminea; stamina multi-seriata, tubo adnata, exteriora gradatim in staminodia patentia, ad 2.5 cm. longa, abeuntia, antheris pollineque pallidis; nectarium e foveolis 5 compositum; ovarium fere superius, alte conico-elevatum, stigmatibus e basi anguste subulata longe attenuatis, ad 1.7 cm. longis, stamina superantibus; capsula pyramidalis, ad 1.5 cm. alta, aqua expansa ca. 3.5 cm. diam., valvis 5, acuminatis, marginibus deflexis, alis membranaceis erectis, transverse oblongis, sat rigidis, ad carinas apice tantum adnatis, carinis inter se parum distantibus, superne interdum contiguis, ad dimidium valvae attingentibus, alis oculi nullis, seminibus axillaribus fere rotundis, vel semi-circularibus, pallide brunneis, levibus.

Cape Province: Western Region; Little Namaqualand, 7 miles from the mouth, and 3 miles south, of the Orange River, fl. Oct. 1926, *N. S. Pillans*, 4928.

I have not been able to place this species in any of the genera recently created by Mr Brown. It appears to come very near *Hydrodea*, but the



capsule differs in having entire and spreading valves with deflexed margins (not erect and bifid ones). Individual plants vary much in size, as do the leaves and flowers. The measurements given are of the largest seen. Mr Pillans describes the plants as "lying flat on the ground and reaching a diameter of 3 feet." Plants collected by him, mostly in the seedling-stage, on sandy banks of Horees River, Walle Kraal, Little Namaqualand, in Oct. 1924 (Bolus Herbarium, No. 17790) are undoubtedly this species, although the solitary flower produced in cultivation was barely an inch in diameter. Other collections which seem to belong here are: *M. Schlechter*, 7, Jackal's water, Little Bushmanland, Nov. 27, 1897. *H. H. W. Pearson* (Percy Sladen Memorial Expedition, No. 5986), sandy river-bed between Modderfontein and Doornpoort, Dec. 1910.

*Mesembrianthemum scutatum*, L. Bolus (§ Moniliformia). Erectum, cum floribus ad 16 cm. altum, caule, ramis, ramulisque reliquis pergamentaceis scutatis quasi scutis, "scutis" imbricatis, glaucis vel pallidis, cum aetate brunneis vel atratis, lateraliter compressis, subquadrangularibus, angulis plus minusve rotundatis, ad 1.5 cm. diam. vel recentibus 7—9 mm. diam.; folia nunc uniformia nunc diversiformia, brevia fere patentia, fere semicircularia, crassa, obscure apiculata, polita nitentiaque, 7—8 mm. diam., longa erecta, fere cylindrica, supra plana vel leviter convexa, papillosa, glauco-viridia, in cultis ad 12 cm. longa, 6—7 mm. diam., saepius 5—7 cm. longa, 3—4 mm. diam.; flores solitarii, meridie expansi, ad 3 cm. diam., pedunculis 4.5—6.5 cm. longis; receptaculum hemisphaericum, apice ad 5 mm. diam.; sepala 5, inter se parum inaequilonga, ovato-lanceolata vel ovata, acuta, 3 late membranaceo-marginata, 6—8 mm. longa; petala numerosa densa, circa 3-seriata, inferne leviter attenuata, obtusa vel acuta, saepe apice dentata, alba, 1.2 cm. longa, fere ad 2 mm. lata; stamina erecta numerosa, filamentis luteis, basi parce barbatis, ad 4 mm. longis, antheris luteis, polline aureo; ovarium omnino inferum, supra convexum, stigmatibus subulatis, 2 mm. longis; capsula anni prioris 1 cm. diam., aqua expansa 1.4 cm. diam., valvis 5, recurvatis, marginibus deflexis, alis membranaceis transverse oblongis, carinis inter se distantibus, superne divergentibus, alis loculi ultra dimidium tegentibus, seminibus subobovatis levibus, .75 mm., diam., parieti exteriore dispositis.

Cape Province: Western Region; Little Namaqualand, 2–3 miles N.E. of Walle Kraal, in colonies on white quartzite, Oct. 1924, *N. S. Pillans* (Bolus Herbarium, No. 17794). Flowered in National Botanic Gardens, July 1925.

The vegetative parts are described from ample living material, and the flowers from carefully dissected and dried material. During July, August, and September of 1925 and 1926 long leaves were freely produced, the short ones being much less frequent. No plant seen by me produced a

normal pair of long leaves in succession to a short pair, but short leaves were produced on branches bearing the hardened remains of long leaves. The thickened bases of the long leaves are united, and, being slightly compressed, have one diameter longer than the other. As the leaves decrease in size above and begin to dry, the bases on the short sides push slightly inwards so that a longitudinal channel or furrow is formed. This is the beginning of the angles on the "shields" that are so characteristic of the species. Later the edges of the long sides become rather rounded and curve inwards, reminding one of a somewhat flattened finger-nail. In another species (probably *M. chrysoleucum*, Schltr.) collected by Mr P. Ross Frames at Van Rhynsdorp (Nat. Bot. Gardens, No.  $\frac{1 \frac{1}{2} 90}{6}$ ) no short leaves were produced, and the basal portion of the long leaves wrinkled longitudinally and equally all round, without forming 4 distinct angles, so that a beaded appearance is maintained. It is interesting to note that a herbarium-specimen which had been dipped in corrosive sublimate to be killed and had been dried and mounted for over two years showed within an uppermost "shield" a pair of green succulent short leaves with the earliest stages of a pair of long ones.

*Mesembrianthemum spongiosum*, L. Bolus. "Plantae 14—28 cm. altae, sive praesidio praeditae ad 90 cm. altae" (fide Pillans), ramis ad 35 cm. longis vel ultra, ad 1 cm. diam., nodis 1.5 cm. diam., plus minusve angulatis, cuticula polita luteo-brunnea, intus insigniter spongiosis, "spongia" albida, internodiis 2—5 cm. longis, vaginis foliorum delapsorum diu persistentibus, ramulis adscendentibus vel erectis, saepius 2—6-foliatis; folia fere erecta, duo paris inter se leviter inaequilonga, alterum subfalcatum, supra plana, carina inconspicua, lateribus convexis, obtusa vel abrupte acuta, glabra albo-lepidota, sine vagina ad 11 cm. longa, ad 1.2 cm., saepius 9 mm., lata, 1—1.9 cm. diam.; flores 3-nati vel abortione 1—2-nati, speciosi, meridie expansi, ad 6 cm. diam., pedunculis robustis, 5—5.5 cm., in fructu 7—10 cm., longis, prope medium bracteatis, bracteis 1—3 cm. longis; receptaculum hemisphaericum, apice 1.5 cm. diam.; sepala 4, acuta, 1—1.2 cm. longa, 2 latissime membranaceo-marginata; petala numerosa, ut videtur anguste linearia, "vermilion, golden at base" (fide Pillans); stamina numerosa erecta subdiffusa, aurea; capsula<sup>1</sup> pallida, 2—2.5 cm. diam., aqua expansa ad 4 cm. diam., valvis 20—22, lateraliter valde compressis, lateraliter visis basi subrotundis, apice deltoideis et late uncatis, carinis inferne contiguas crassis, superne divergentibus,

<sup>1</sup> The capsule is remarkably light and spongy. Its outer rim is the highest part. From there the valves slope gradually downwards to beyond half their length, when they begin to turn upwards and slightly backwards. This curve makes a constriction near the centre of the capsule. Each valve, viewed from above, appears to be split along its whole length as far as the constriction. The portion of the valve beyond the constriction is the "hook" on the back of the valve in the expanded capsule.

de valvis disjunctis, acuminatis membranaceis et alis membranaceis adnatis, alis vicinis coalescentibus truncatis, valva parum brevioribus, alis loculi per totam longitudinem disjunctis, tuberculo in loculo brunneo, sat parvo, seminibus obovatis vel fere orbicularibus, levibus, pallidis, 1 mm. longis, axi centrali, basi loculi, et parieti exteriore, dense dispositis.

Cape Province: Western Region; Little Namaqualand, on sandy flats round Hondeklip Bay, in flower and fruit Oct. 1924, *N. S. Pillans*, 17752.

The vegetative parts are described from living material, the flower and capsule from dried specimens. Two flowers only were seen. I have not been able to place the species exactly into any of the genera recently described by Mr Brown, but with a little stretching of its present limits the genus *Cephalophyllum*, N.E.Br., might include our plant.

*Mesembrianthemum insolitum*, L. Bolus. Glabrum perenne, caule abbreviato, 7 mm. diam., ramis procumbentibus, reliquis induratis foliorum onustis, ad 9 cm. longis, 6 mm. diam., ramulis fere erectis, saepissime dense 2—4-foliatis, internodiis in vaginis inclusis; folia adscendentia subcymbiformia, supra plana, subtus inconspicue carinata, carina eccentrica, lateribus leviter convexis, obtusis, pallide glauca, tactu levia sed sub lente minutissime crebreque papillata, 1.5—2.7 cm. longa, ad 1 cm. lata diametroque; flores solitarii, meridie expansi, ad 3.2 cm. diam., pedunculis brevibus, in vagina inclusis; receptaculum clavatum subcompressum, utrinque carinatum, apice 1.1 cm. diam.; sepala 5 inter se parum inaequilonga, acuta, 0.8—1 cm. longa; petala sat dense 2—3-seriata, exteriora inter se subaequilonga, interiora pauca, multo breviora, lineari-spathulata, saepissime obtusa, nivea, ad 1.3 cm. longa, ad 2 mm. lata; stamina collecta, collectione suburceolata, apice 4 mm. diam., filamentis albis, inferne breviter papillato-pubescentibus, ad 7 mm. longa, staminodiis nullis vel perpaucis, antheris pallidis, polline aureo; discus annularis crenulatus viridis inconspicuus, 6 mm. diam.; ovarium supra planum, in medio vero leviter elevatum, stigmatibus 8 (vel in flore unico 7) lineari-filiformibus, superne attenuatis, 7—8 mm. longis, ovulis parieti exteriore dispositis; capsula (vetus imperfectaque tantum visa) aqua expansa 1.2 cm. diam., valvis 8 recurvatis, alis membranaceis transverse oblongis, carinis parallelis, inter se leviter distantibus, alis loculi nullis, semine unico viso subobovato, parte micropylari leviter producta.

Cape Province: Western Region; karroid hills between Dun Vley and Groot Doorn, overlooking south bank of the Orange River, Oct. 1926, *N. S. Pillans*, 5692.

Described from one living plant which flowered in Mr Pillans' garden in December, 1926. There were six flowers and seven or eight old capsules, all showing eight loculi. Only one capsule, however, had some of the valves remaining, and this one, like the rest, showed no trace of cell-wings.

The combination of five sepals and eight stigmas is unusual in this group and accounts for the specific name, *insolitum* ("unusual").

*Mesembrianthemum rheolens*, L. Bolus. Humile, pallide glaucum, radice fibrosa, caule multo abbreviato, ramis confertis, saepius dense 4-foliatis, interdum ramulo bene evoluto, florifero; folia subcymbiformia, duo paris nunc aequilonga nunc inaequilonga, supra plana, subtus inferne convexa, superne obscure carinata, lateribus convexis vel altero fere plano, levia vel carina marginibusque minute asperula, integerrima, 2.3—3.5 cm. longa, 1—1.6 cm. lata diametroque; flores solitarii, vespertini, 3 cm. diam., pedunculo brevi, in bracteis, valde concavis, 8 mm. longis, fere incluso; receptaculum turbinatum, apice 1.2 cm. diam.; sepala 5, obtusa, apice subcucullata, ovato-oblonga vel oblonga, interiora vix membranaceo-marginata, inter se parum inaequilonga, 0.9—1.2 cm. longa, petalis fere aequilonga; petala 2-seriata, inter se fere aequilonga, lineari-spathulata obtusa, pallide roseo-lilacina, ad 1.2 cm. longa, ad 2 mm. lata; stamina suburceolato-collecta, apice 7 mm. diam., filamentis albis, ad 9 mm. longis, interioribus basi parce barbatis, antheris pallidis, polline aureo; discus annularis conspicuus crenulatus brunneus, 8 mm. diam.; ovarium supra concavum, stigmatibus 12—14, gracilibus sublinearibus, apice capitellatis, 1.2—1.3 cm. longis; capsula (una tantum visa, ut videtur anni prioris) aqua expansa 2 cm. diam., valvis 12, utrinque membranaceo-alatis, alis superne carinis adnatis, apice vero liberis, loculi alis ultra dimidium loculi tegentibus, tuberculo nullo, seminibus parieti exteriori dispositis, fere orbicularibus, leviter lateraliter compressis, levibus.

Cape Province: Western Region; Little Namaqualand, karroid hills above south bank of the Orange River, between Dun Vley and Groot Doorn, Oct. 1926, *N. S. Pillans*, 5644.

Described from a living specimen which flowered in Mr Pillans' garden at the end of November. Only one flower was produced; and there was a single capsule almost in perfect condition, but old and apparently the previous year's growth. Very closely allied to *M. montisdraconis*, Dinter, from which it differs in having the leaves entirely without teeth and the stigmas well over-topping the stamens. The flower began to expand about 5 p.m., and to close at 10 p.m., or one night at 11.30 it was still wide open. The whole plant smells like freshly-cut rhubarb (*Rheum*) and on this account has been named *rheolens* ("smelling of rhubarb").

*Mesembrianthemum Giffenii*, L. Bolus ("Annals Bolus Herb." iv, p. 12), var. *intertextum*, L. Bolus. Diffuse ramosum, ramis multis, saepe elongatis, flexuosis intertextis, ad 3 mm. diam., internodiis saepius 2—2.5 cm. longis; folia adscendentia vel patentia, supra plana, carinata, altero latere plus minusve plano, altero convexo, obtusa, basi connata, vagina 1—1.5 mm. longa, papillosa, papillis magnis sed tamen haud elevatis, 0.5—1.2

cm. longa, 2—3.5 mm. lata diametroque; pedunculi saepius 0.5—1 cm., rarius ad 2.2 cm., longi, infra medium vel prope basin bracteati; alabastrium subcompressum; sepala 5, oblonga obtusa, 2 apice subcucullata, ad 5 mm. longa; staminodia nulla; stamina ad 5 mm. longa; glandulae 5, discretae crenulatae; ovarium supra medio subconico-elevatum, 5-lobatum, stigmatibus 4 mm. longis vel ultra.

Cape Province: South-Western Region; Riversdale Div., Oakdale, fl. Oct.—Nov. 1926, *Dr John Muir*, 3962.

Described from ample living material sent by Dr Muir, who supplies the following interesting facts: "Grows in brack places in green patches. It gives many little upright or diffuse stems from prostrate sarmentose ones which have to be loosened by the fingers all along the stems. The flowers when young are white or with the slightest mauve or flesh tint at the tips of the petals. As they get older the colour deepens and becomes more pink, as in some of the § *Splendentia*. It is usually so densely interwoven with *Salicornia hottentotica*, C. E. Moss (the only *Salicornia* in non-maritime localities), and *Kleinia radicans* that these plants are pulled up together."

The var. *intertextum* chiefly differs from the typical form (which is very near *M. praecultum*, N.E.Br.) in having the leaves rather less swollen, with the keel more obvious, and with the papillae less elevated; and the longer stigmas.

*Mesembrianthemum octojuge*, L. Bolus. Erectum glabrum, 7.5 cm. altum, caule basi ad 5 mm. diam., copiose ramosum, ramis adscendentibus, sat confertis, subcarnosis; folia adscendentia vel fere patentia, supra plana, obtuse carinata, lateribus convexis, juniora marginibus carinaque plus minusve conspicue 1—3-denticulata, levia viridia, vagina, ut videtur, 2—3 mm. longa, vagina vera tantum 1 mm. longa, saepius 1—1.2 cm. longa, ad 5 mm. lata, 3—4 mm. diam.; flores solitarii, meridie expansi, ad 3.3 cm. diam., breviter pedunculata, bracteis apicem receptaculi fere attingentibus vel parum brevioribus; receptaculum turbinatum, apice 9 mm. diam.; sepala 4 inter se inaequalia, 2 crassa obtusa carinata, carina obscure denticulata, 1.2 cm. longa, 2 subacuta membranaceo-marginata, 8—9 mm. longa; petala 3—4-seriata, intima brevissima, linearia, inferne angustata, obtusa, ad 1.6 cm. longa, 1—1.5 mm. lata; stamina erecta cylindrico-conferta, 6 mm. diam., staminodiis albis, 6 mm. longis, circumdata, filamentis ad 6 mm. longis, ebarbatis, antheris pollineque pallide luteis; discus annularis crenulatus, 7 mm. diam.; ovarium supra convexum, profunde 8-lobum, stigmatibus 8, anguste subulatis acuminatis, 5 mm. longis, fere ad apicem staminum attingentibus; capsula imperfecta (anni prioris) 8-locularis, valvae carinis superne divergentibus, in membranam acuminatam terminantibus, loculi alis loculos fere omnino tegentibus,

tuberculo intervalvulari sat magno, pallido, seminibus parieti exteriori dispositis, subobovatis levibus.

Cape Province: South-Western Region; Riversdale Div., Klein Karroo, fl. Oct.–Nov., *Dr John Muir*, 3957.

A distinct species which I have been unable to place satisfactorily in any of the 41 genera given by Mr Brown in "The Gardeners' Chronicle" (Nov. 1925). Pending, therefore, the creation of a new genus, or the widening of the limits of one of the existing genera, to hold it, I have included it in *Mesembrianthemum*, in the wider sense.

Described from living specimens which flowered in Dr Muir's garden, Riversdale, during October and November, 1926. Dr Muir, at my request, has kindly sent the following details: "I have two little shrubs of it 3 inches high, the upper surface of the plants having superficies of 5 ins.  $\times$  3 ins. and 6 ins.  $\times$  4 ins., respectively. They form little green dense patches. Flowers pure white, up to 1½ ins. in diameter, stamens yellow. The little stems are ½ in. thick at ground level, ascending at the base, richly branched, the terminal branchlets upright. There is a faint pleasant odour, but not hyacinth-like as in *M. odoratum*, L. Bolus, and *M. noctiflorum*, L., which are distinctly reminiscent of monocotyledonous plants."

*Mesembrianthemum attonsum*, L. Bolus (§ *Barbata*). Erectum, 10–15 cm. altum, ramis patentibus, basi ad 3 mm. diam., ramulis adscendentibus pubescentibus, pilis patentibus minutis, cum aetate glabris, 1–2 mm. diam., internodiis saepius 0.7–1 cm. longis; folia demum patentia, basi distincta vel fere distincta, subtus rotundata, supra leviter convexa, marginibus obscuris, apicem versus parum angustata, attonsa vel 1–3 setis erectis perbrevibus instructa, papillata, papillis orbicularibus vel subovatis, in setam erectam terminantibus, juniora supra plana, carinis marginibusque evidentioribus, setis papillorum apicalium in penicillum minutum aggregatis, basi ciliata, 1–1.3 cm. longa, 3–4 mm. lata diametroque; flores solitarii, meridie expansi, 1.6–2 cm. diam., pedunculis 3–9 mm. longis; receptaculum hemisphaericum, minute papillato-setosum, apice 4–5 mm. diam.; sepala 5, inter se valde inaequilonga, 0.3–1 cm. longa, acuta vel subacuta; petala 3-seriata nivea, interiora linearia, 0.5 mm. lata, exteriora lineari-spathulata, saepius obtusa, ad 1 cm. longa, rarius ad 2 mm. lata; stamina subconico-collecta, apice ad 2 mm. diam., staminodiis petalisque intimis circumdata, filamentis albis, interioribus barbatis, 2–4 mm. longis, antheris pallidis, polline luteo; glandulae 5 semilunatae crenulatae; ovarium supra medio elevatum, sat profunde 5-lobum, stigmatibus 5 subulatis setaceo-apiculatis luteo-viridibus, 2.5 mm. longis; capsula 4 mm. diam., aqua expansa 7 mm. diam., valvis 5 utrinque, intra marginem, alatis, alis erectis rotundatis, sat magnis, carinis contiguis, loculi alis angustissimis, inter se distantibus,

fere omnino semina exponentibus, seminibus ovalibus levibus, parieti exteriore dispositis.

Cape Province: South-Western Region; Riversdale Div.,? exact locality uncertain, "probably Klein Karroo," fl. Nov. 1926, *Dr John Muir*, 3969.

Described from two living branches from Dr Muir's garden with four flowers and one capsule, probably of the previous year, but in perfect condition. The very narrow cell-wings, scarcely more than a narrow membranous margin to the cell-walls, bring this species into very close relationship with the genus *Delosperma* and it might be regarded as a connecting link between this genus and *Mesembrianthemum*.

Dr Muir has had the plant in cultivation since the beginning of 1926.

*Mesembrianthemum* Barklyi, N.E.Br., var. *obtusifolium*, L. Bolus. Perenne erectum, 60 cm. altum vel ultra, partibus herbaceis dense minuteque papillatis, glauco-viridibus purpureo-suffusis; caulis basi immo ad 4 cm. diam., cum ramulis, nodis articulatus, quadrangularis vel rarius angulo unico obscuro, internodiis 20—3 cm. longis; folia opposita, in genere inter maxima, inferiora ad 28 cm. longa, medio ad 18 cm., basi ad 7 cm., lata, inferiora patentia, crassa, nervo medio subtus valde prominente, subconduplicata, manu expansa spatulato-oblonga obtusa, apice recurva, amplexicaulia, basi brevissime connata, marginibus longe undulatis, superiora adscendentia vel fere erecta, ovata subacuta, mox marcescentia aridaque, suprema 2.7 cm. longa, 2 cm. lata; flores 3-nati vel bis 3-nati, post meridiem et per vesperum expansi, odorati, 3.6 cm. diam., medius subsessilis, laterales breviter pedunculati, pedunculis apice constrictis, 1.3 cm. diam., 1 cm. longis, bracteis aridis squamiformibusque; receptaculum fere globosum, inconspicue 2—3-angulatum, 1.2 cm. longum, in tubum parum ultra ovarium productum; sepala 5, inter se fere aequilonga, ca. 1.1 cm. longa, exteriora basi ad 1.5 cm. lata, subdeltoidea vel late ovata, mox marcescentia, interiora late membranaceo-marginata vel intima fere omnino membranacea; petala in tubum 5 mm. longum connata, numerosissima, in alabastro subcorrugata, expansa vix stricta, linearia angustissima, 0.5 mm. lata, laete rosea, inferne alba, 1.5 cm. longa; staminodia corollae tubo adnata, alba; stamina inter se libera, corollae tubo tantum basi immo adnata, subconico-collecta, mox diffusa, stigmata exponentia, filamentis viridi-albidis ebarbatis, ad 9 mm. longis, antheris pollineque pallidis; nectarium e sulco annulari angustissimo, 1.5 cm. diam., compositum; ovarium supra convexum, vix lobatum, dimidio superiore, 1.1 cm. diam., ovulis axillaribus, stigmatibus 5, lineari-filiformibus, superne vix angustatis, 4 mm. longis; capsula ad 1.5 cm. alta, sepalis persistentibus, aqua expansa fere 3 cm. diam., valvis 5, marginibus deflexis, alis membranaceis erectis subsemicircularibus, sat rigidis, ad carinas apice vero tantum adnatis, carinis inter se leviter distantibus,

sive apice conniventibus, alis loculi nullis, seminibus axillaribus, minute tuberculatis, ca. 1 mm. diam.

Cape Province: Western Region; Little Namaqualand, abundant in the coast-belt between Port Nolloth and the Orange River, extending eastward to base of Richtersveld mountains, flower and fruit, Oct. 1926, *N. S. Pillans*, 4927.

Described from fresh material. The flowers, however, were in fairly advanced bud only, and opened in water; and this may account for the corrugated or waved appearance of the petals which gave them a very different look from those represented in the figure of the type. (*Hook. Ic. Pl. t.* 1820.)

Mr Pillans describes the range of the species as being: "From Port Nolloth due east to Anenous at base of mountains; northward from Port Nolloth to the mouth of the Orange River, and eastward along the south bank of the river to Arris Drift; from there south-east to Kuboos; from Kuboos southwards to Anenous."

*Mesembrianthemum Pocockiae*, L. Bolus (§ Scabrida). Fruticulus gracillimus erectus glaber, intricate ramosus, 9 cm. altus; rami sat rigidi, interdum fere capillaribus, internodiis saepius 4—8 mm. longis, ramulis apicem versus dense foliatis; folia fere erecta, demum patentia, saepe leviter incurvata, sat turgida, dorsaliter rotundata, superne obscure carinata, supra leviter canaliculata, acuta, parce tuberculata more sectionis, tuberculis sat prominentibus, glauco-viridia purpurascencia, ad 1.1 cm. longa, ad 2 mm. lata diametroque; flores solitarii, meridie expansi, 2 cm. diam., pedunculo gracillimo, 7—9 mm. longo, basin versus bracteato; receptaculum turbinatum; sepala 5, inter se aequilonga, lanceolata acuta, ad 4 mm. longa, 3 late membranaceo-marginata; petala ca. 50, 4-seriata, interiora quam extima multo breviora sed haud multo angustiora, linearia, e medio inferne parum angustata, obtusa, 4—9 mm. longa, ad 1 mm. lata vel parum ultra; staminodia paucissima; stamina erecta sublaxa, 2 mm. diam., filamentis pallidis, ad 2.5 mm. longis, interioribus barbatis, antheris pollineque aureis; discus annularis, obscure crenulatus, 3 mm. diam.; ovarium supra leviter convexum, stigmatibus subulatis acuminatis, 1.5 mm. longis.

Cape Province: Prince Albert Div., Swartberg, June, 1926, *Mary A. Pocock*, S. 158.

Described from a living specimen which flowered at the Bolus Herbarium, Kirstenbosch, October, 1926.

Allied to the species in this section having laxly-disposed stamens, but very distinct from *M. emarginatum*, L. and its nearest allies by the solitary flowers on short peduncles, smaller flowers with entire petals, and in other respects.

*Mesembrianthemum erectum*, L. Bolus (§ Tumidula). Fruticulus erectus



glaber, 60 cm. altus, ramis rigidis, ad 3 mm. diam., internodiis saepius 2—3.5 cm. longis; folia demum late patentia, interdum alterum paris suberectum alterum subpatens, fere teretia, angulis rarius subconspicuis, sat abrupte acuta, apiculata levissima, subglauce viridia, saepius 2—2.5 cm. longa, 3—4 mm. diam., vagina apice leviter tumida, 2 mm. longa, linea exarata; pedunculus cymae 3—4.5 cm. longus; cyma laxa, ad 15-fl., 5—6 cm. longa, utrinque 2-ramosa, ramis 3-fl. vel abortione 1—2-fl., parte terminali 3-fl., pedunculis ultimis 6—7 mm. longis, omnibus supra medium bracteatis, bracteis saepius 6 mm. longis; receptaculum globoso-turbinatum; sepala 5, inter se fere aequilonga, lanceolata acuta, ad 5 mm. longa, 3 membranaceo-marginata; petala non bene visa, fortasse 1-seriata, roseo-purpurea, purpureo-vittata, ca. 6 mm. longa; stamina non bene visa, erecta conferta, staminodiis perpauca, filamentis pallide roseis, basi barbatis, ad 5 mm. longis, antheris pallidis, polline luteo; ovarium supra convexum, vix lobatum, stigmatibus 5, e basi anguste subulata longe acuminatis, 5 mm. longis, stamina parum excedentia.

Cape Province: Western Region; Little Namaqualand, rocky hill north side of Ookiep, fl. Oct. 1926, *N. S. Pillans*, 4961.

Described from living specimens of which the flowers were rather past maturity or had the petals and stamens damaged in transit.

*Mesembrianthemum intervallare*, L. Bolus. Humillimum gracile glabrum, primum caespitosum, ramis demum elongatis radicanibus, internodiis saepius 2—3 cm. longis, ramulis erectis, dense 4—6-foliatis; folia fere erecta, superne carinata, inferne carina obscura, lateribus leviter convexis, supra plana, obtusa, angulis marginalibus carinaque inconspicue 1—2-dentatis, sat prominenter punctata, saepius 1 cm. longa, 4 mm. lata diametroque, vel rarius et ante florentem ad 1.5 cm. longa, connata, vagina fere ad 2 mm. longa; flores solitarii, fere sessiles vel pedunculo 2 mm. longo, nocturni, 1.3 cm. diam.; receptaculum turbinatum; sepala 5, inter se fere aequilonga, oblongo-lanceolata obtusa, apice subcucullata, 6 mm. longa; petala sepalis aequilonga vel breviora, ca. 16, inter se subaequilonga, spathulato-linearia obtusa vel subacuta, alba, ad 6 mm. longa, fere ad 1 mm. lata; stamina sat pauca, erecta, laxa disposita, filamentis albis, interioribus basi dense barbatis, ad 4 mm. longis, antheris pollineque pallide luteis; glandulae insigne conspicuae, 1 mm. altae, semi-lunatae crenulatae, contiguae itaque discum annularem fere formantes; ovarium supra profunde concavum, stigmatibus 5, semi-teretibus, superne parum angustatis, ca. 2 mm. longis; capsula supra fere plana, aqua expansa, 7 mm. diam., valvis 5, carinis basi distantibus, superne subcontiguis, alis membranaceis loculi angustissimis, haud, vel minime, semina tegentibus, seminibus fere globosis, lateraliter subcompressis, minutissime areolatis, pallide brunneis.

Kalahari Region: Transvaal; in shallow basins in the rock in fine washed-down sand, Forest Hill, near Johannesburg, Roedean Science Club (National Botanic Gardens, No.  $\frac{1430}{25}$ ). Orange Free State; "Goedehoop," Zastron, *S. Hattingsh* (National Botanic Gardens, No.  $\frac{2191}{4}$ ).

Described from living specimens which flowered at Kirstenbosch during October, 1926. The time at which the flowers opened varied from 6.30 to 11, p.m., being earlier when the evening was warm. The name refers to the often regular intervals between the branchlets occurring on the elongated branches.

*Mesembrianthemum uitenhagense*, L. Bolus (§ *Uncinata*). Fruticulus erectus glaber, dense ramosus, 25—30 cm. altus, ramis lignosis teretibus, ad 2 mm. diam.; folia adscendentia vel fere patentia, apice uncinato-recurva, basi breviter connata, obscure carinata vel fere semi-teretia vel rarius carina manifesta, supra plana vel leviter convexa, lateribus convexis, acuta setaceo-apiculata, seta pallide viridi, glauco-viridia, conspicue translucenter puncta, notis saepe elevatis, seniores ad 5 mm., juniores ad 9 mm., longa, basi 3 mm., medio 2 mm., lata, ad 2 mm. diam.; flores solitarii, meridie expansi, 1.4 cm. diam., pedunculo clavato, apice subconstricto, saepius 1 cm. longo, basi bracteato, bracteis foliis aequilongis simillimis; receptaculum brevissimum; sepala 5, lanceolata acuminata, duo ceteris parum longiora uncinata, tria apiculo erecto, membranaceo-marginata, 4—5 mm. longa vel breviora; petala 28—30, 1-seriata vel 1—3 petala interiora brevioraque addita, linearia acuta rosea, ad 6 mm. longa, .75 mm. lata; stamina conico-collecta, staminodiis paucis circumdata, apice 1.5 mm. diam., filamentis pallide roseis, barbatis, ad 3 mm. longis, antheris pollineque aureis; discus conspicuus annularis crenulatus, 3 mm. diam.; ovarium omnino in receptaculo inclusum, supra convexum, profunde lobatum, stigmatibus 5, anguste subulatis, acuminatis, 3 mm. longis, ovulis parietalibus.

Cape Province: South-Eastern Region; near Uitenhage, *Dr John Muir*, 3949.

Described from living specimens which flowered in Dr Muir's garden, Riversdale. Dr Muir states that it "forms a round dense scrubby bush."

*Mesembrianthemum albiflorum*, L. Bolus (§ *Aspericaulia*). Fruticulus gracilis, ca. 15 cm. altus, ramis patentibus vel adscendentibus, demum levibus, ad 4 mm. diam., ramulis saepius erectis asperis, papillis creberrimis, ultimis .75 mm. diam.; folia basi distincta tamen saepe contigua, patentia vel fere patentia, teretia vel rarius supra leviter concava, obtusa, laete viridia, papillata, papillis minutis crebris micantibus, 0.7—1 cm. longa, fere ad 4 mm. diam.; flores solitarii, meridie expansi, 1.7 cm. diam., pedunculis cano-papillois, 0.5—1.3 cm. longis; receptaculum hemisphaericum, cum aetate globose obconicum; sepala 5, oblonga vel oblongo-lanceolata,

obtusa, 3 membranaceo-marginata, 4—5 mm. longa, post anthesin incurvata, ad ovarium adpressa; petala 19—24, 1-seriata, alba linearia, inferne parum attenuata, obtusa, 7 mm. longa, 1 mm. lata; stamina conico-collecta, apice 1.5 mm. diam., mox erecta, sublaxa, staminodiis nullis, filamentis albis, interioribus barbatis, ad 5 mm. longis, antheris pollineque pallidis; glandulae 5, conspicuae semilunatae; ovarium supra convexum, stigmatibus 5, filiformibus, demum stamina parum excedentibus, ad 5 mm. longis.

Cape Province: South-Western Region; Riversdale Div., Phisanti-fontein, Klein Karroo, *Dr John Muir*, 3951.

Described from living specimens received from Dr Muir in October 1926. The drawing of *M. maculatum*, Haw., preserved at Kew, is so extremely like the present species that the two may, therefore, be identical. But in the Revisions, p. 182, Haworth places his species in the group with large, orange-red or yellow flowers and describes the leaves as being compressed-semicylindric. These characteristics appear to offer sufficient reason for distinguishing the present species, whose affinity is with *M. brevifolium*, Ait.

*Mesembrianthemum capillare*, L. f. var. *acutifolium*, L. Bolus. Lignosum, caule basi ad 6 mm. diam., ramis primariis adscendentibus, saepe tortuosis, basi ad 3 mm. diam., junioribus elongatis, saepe decumbentibus, ad 25 cm. longis, internodiis 1.5—2.5 cm. longis, ultimis capillaribus; folia saepius fere patentia, lateraliter visa e basi gradatim ampliata, abrupte acuta, apiculata, apiculo stricto vel subrecurvato, supra plana, subtus inferne convexa, superne inconspicue carinata, lateribus convexis, laete viridia, minute crebreque papillosa, saepius 6—8 mm. longa, fere ad 2 mm. lata, 2—3 mm. diam.; flores copiosi, meridie expansi, ad 1.2 cm. diam.; pedunculi saepius 1—2 cm. longi, rarius longiores; receptaculum perbreve subcrateriforme; sepala 5, inter se fere aequilonga, lanceolata acuta, fere ad 4 mm. longa, 3 membranaceo-marginata; petala 1-seriata, saturate roseo-purpurea, linearia obtusa, inferne vix angustata, 5 mm. longa, .75 mm. lata; stamina erecta, sat laxa, 2—2.5 mm. diam., filamentis roseis, basin versus dense barbatis, ad 2 mm. longis, antheris pollineque pallide luteis; glandulae 5, conspicuae semi-lunatae atro-virides; ovarium supra convexum 5-lobatum, stigmatibus 5, anguste subulatis, acuminatis, 1.5 mm. longis (in flore non bene evoluto).

Cape Province: South-Western Region; Riversdale Div., Klein Karroo, *Dr John Muir*, 3952.

Dr Muir states that this "forms a dense cushiony bush several feet across by 9 inches high. Almost hidden in reddish flowers." Described from ample living material which flowered in Dr Muir's garden October–November, 1926.

A dried specimen sent to the Bolus Herbarium by Dr Muir in October, 1923, shows a woody stem, 6 mm. diam. at the base, and the bead-like thickening at the nodes which Mr N. E. Brown describes in *Bothalia*, 1, 150, as being characteristic of *M. capillare*, L. f.

*Mesembrianthemum Fourcadei*, L. Bolus (§ *Aspericaulia*). Fruticulus erectus sat rigidus, ad 22 cm. altus, ramis ad 3 mm. diam., ramulis saepius 6—8 mm. longis, 4-foliatis, inferne reliquis minutis induratis foliorum vetustiorum instructis; folia adscendentia connata, vagina 2—3 mm. longa, supra plana, subtus inferne convexa, superne compressa carinataque, lateraliter visa apicem versus ampliata, apice latissima, fere truncata, minute papillata vel margine apicali papillis conspicuis, glauco-viridia, interdum subpurpurascens, saepius ad 8 mm. longa, apice ad 4·5 mm., basi ad 3 mm., diam.; flores solitarii, meridie expansi, ca. 1·5 cm. diam., pedunculis papillis magnis albis dense vestitis, 2—8 mm., vel terminalibus in fructu ad 2·5 cm., longis, bracteis prope basin positae; receptaculum turbinatum; sepala 6, inter se fere aequilonga, ad 4 mm. longa, 4 membranaceo-marginata; petala 2-seriata, linearia obtusa, inferne parum angustata, purpurea, 6 mm. longa, ad 1 mm. lata; stamina sat pauca, erecta sublaxa, filamentis prope basin barbatis, pallidis, antheris polineque albidis; nectarium e 12 foveolis compositum; ovarium supra convexum, stigmatibus anguste subulatis, acuminatis, 3 mm. longis; capsula anni prioris 6 mm. diam., aqua expansa 8 mm. diam., carinis superne late divergentibus, membrana tegente ad basin valvae attingente, seminibus in parieti exteriore positae, suboblongis, 0·5 mm. longis.

Cape Province: South-Western Region; Humansdorp Div., hills near Hankey, fl. Oct. 1923, *H. G. Fourcade*, 2771.

Described from living specimens of which the flowers were rather withered. *H. Bolus*, 6715, fl. Dec. 1892, alt. 800 ft., Montagu, is probably this species. The flowers are stated to be white.

*Mesembrianthemum delicatulum*, L. Bolus (§ *Aspericaulia*). Gracillimum, erectum vel fere erectum, 10 cm. altum vel ultra, caule basi ca. 2·5 mm. diam., ramulis sat rigidis, internodiis saepius 5—9 mm. longis, floriferis saepius brevissimis; folia adscendentia vel fere erecta, subglobosa, inferne parum angustata, supra concava, papillata, papillis sat magnis elevatis, 2—3 mm., rarius ad 4 mm., longa, 2—2·5 mm. diam., basi connata, vagina 1·5—2 cm. longa; flores solitarii vel rarius 2-nati, saepe secundi, meridie expansi, 0·8—1 cm. diam.; pedunculi 2—6 mm. longi, supra medium bracteati, bracteis receptaculum amplectentibus; receptaculum breviter obconicum, subcompressum, dense papillatum, papillis interdum reflexis; sepala 5, inter se fere aequilonga, oblonga obtusa, 2 foliis similia, apice cucullata, omnia plus minusve membranaceo-marginata, ad 2·5 mm. longa; petala 2-seriata, linearia, obtusa vel subacuta, inferne vix angus-

tata, pallidissime rosea, fere ad 4 mm. longa, ad .75 mm. lata; stamina erecta laxa, filamentis albis barbatis, ad 2.5 mm. longis, antheris pollineque albidis; discus conspicuus annularis crenulatus, 2.5 mm. diam.; ovarium supra convexum, 5-lobatum, stigmatibus 5, basi anguste subulatis, superne tenuissime setaceis, stamina bene excedentibus, petala fere aequantibus, 3.5 mm. longis vel parum ultra.

Cape Province; South-Western Region; Ladismith Div., Adam's Kraal, 1400 ft.; also Swellendam Div., Klein Karoo, *Dr John Muir*, 3954.

Described from living specimens which flowered in Dr Muir's garden, Riversdale, during October and November, 1926.

This delicate little species is among the daintiest of plants. The large and very translucent papillae, giving a frosted appearance, allow the vivid green of the leaves to show through, and the pale blush-pink of the petals makes an exquisite harmony with the soft grey of the foliage.

The flowers are often produced on one side of a branch only, and the flower-bearing branchlet reduced to a peduncle with one pair of leaves (or bracts). As the bud begins to open, and as soon as the tips of the petals separate, the 5 pale green stigmas are seen as a line athwart the stamens. *M. brevifolium*, Ait. suggests an alliance, but in our species the leaves are concave above and slightly decurrent, so that the white scar left by a fallen leaf is oblique (say 45°), the papillae are larger, flowers much smaller and with a differently-shaped receptacle, and the peduncles are much shorter and with a fine wire-like rigidity.

Dr Muir writes: "This exquisite little Mesemb. is quite common but fragile and difficult to get to grow. It is a more or less erect shrublet, 3½ ins. high and 8 ins. in spread. The stem where it issues from the ground is  $\frac{1}{10}$  in. in diam. but flattens out (probably abnormally) and becomes  $\frac{1}{2}$  in. wide (not in diam.). In the Karoo it is taller—up to 12 ins."

*Mesembrianthemum Lawsonii*, L. Bolus. Humile, dense caespitosum, cum aetate robustum, glaberrimum, ramis ad 3 mm. diam. vel ultra, ramulis floriferis gracilibus, dense 4—6-foliatis vel rarius 8-foliatis, foliis infimis marcescentibus induratisque, marginibus corneis albis; folia adscendentia, demum patentia, basi connata, vagina ca. 1 mm. longa, carinata, supra plana, lateribus convexis, acuta inconspicue apiculata, levissima glauca, superne roseo-purpurea, 4—6 mm. longa, basi ad 3 mm. lata diametroque; flores solitarii meridiani, in genere inter minimos, ad 1 cm. diam.; pedunculus in foliis supremis inclusus, 1 mm. longus; receptaculum subobconicum; sepala 5, inter se fere aequilonga, ovata vel lanceolato-ovata acuta, 3 membranaceo-marginata, 2—2.5 mm. longa; petala 1-seriata vel, interioribus brevioribus paucis additis, 2-seriata, conferta linearia, apicem versus parum ampliata, obtusa, laete rosea, 3—3.5 mm. longa, ad 1 mm. lata; stamina conico-collecta, apice 1 mm. diam., staminodiis

anguste linearibus circumdata, filamentis pallide roseis, fere ad 3 mm. longis, interioribus longe barbatis, antheris pollineque aureis; discus conspicuus annularis, crebre profundeque crenulatus; ovarium supra subconcaevum, cum aetate convexum 5-lobum, stigmatibus anguste subulatis, 1.5 mm. longis.

Cape Province: Kalahari Region; Hay Div., Papkuil, fl. Aug. 1912, *Canon G. L. Lawson* (Bolus Herbarium, No. 18551).

Described partly from dried specimens and partly from living material which flowered on the rockery at the MacGregor Museum, Kimberley, September, 1926. I am indebted to Miss Wilman for furnishing the material.

*Mesembrianthemum laxifolium*, L. Bolus. Fruticulus erectus glaber, 15—25 cm. altus, ramis adscendentibus vel erectis, ad 2 mm. diam., laxe foliatis; folia adscendentia vel fere erecta, saepe falcato-incurva, carinata, supra plana, lateribus levissime convexis, acuta vel acuminata, levia, luteo-viridia, 1.8—2.6 cm. longa, ad 3 mm. lata, 2—3 mm. diam.; flores saepius solitarii, rarius 3-nati, meridie expansi, 3—3.5 cm. diam.; receptaculum turbinatum; sepala 5, inter se inaequilonga, 0.7—1.1 cm. longa, lanceolata vel ovato-lanceolata, acuminata, 2 late membranaceo-marginata, membrana brunnea; petala 3-seriata, sat laxa, lineari-spathulata vel interiora linearia, apice integra vel irregulariter 2-dentata, roseo-purpurea, inferne alba, 0.5—1.6 cm. longa, ad 2 mm. lata; stamina erecta vel exteriora subpatentia, laxe disposita, 1—1.2 cm. diam., filamentis albis, omnibus basi barbatis, antheris pollineque pallide luteis; discus inconspicuus annularis crenulatus; ovarium supra leviter convexum, stigmatibus 5, crassis ovatis setaceo-acuminatis, 1.5 mm. longis.

Cape Province: South-Western Region; Riversdale Div., exact locality uncertain, *Dr John Muir* (National Botanic Gardens, No.  $\frac{2473}{23}$ ).

Described from living specimens which flowered freely at Kirstenbosch during January and February, 1926. Perhaps the affinity is with the § *Falcata*.

*Mesembrianthemum altigenum*, L. Bolus. Glabrum, ramis decumbentibus, 13 cm. longis vel ultra, ad 4 mm. diam., ramulis adscendentibus vel erectis, 3—5 cm. longis, inferne reliquis induratis foliorum onustis, superne dense 4—6-foliatis, axillis gemmiferis; folia fere erecta vel demum fere patentia, dense conferta, e basi gradatim attenuata acuta, supra plana, carina saepius inconspicua eccentrica, latere majore magis convexo quam altero, sordide glauco-viridia, fere levia, ad 2.7 cm. longa, basi 4 mm. lata, ad 4 mm. diam., vagina fere ad 4 mm. longa, longitudinaliter impressa lineata; flores solitarii, meridie expansi, 2.3 cm. diam., pedunculo gracillimo, 4 mm. longo, cum parte inferiore bractearum in vagina foliorum incluso, itaque flores quasi sessiles videntur; bractee parvae, ad 6 mm.

longae, cum vagina 3 mm. longa; receptaculum turbinatum, ca. 5 mm. longum; sepala 5, inter se subaequilonga, lanceolata vel ovato-lanceolata, acuminata, 6—7 mm. longa, 3 anguste membranaceo-marginata; petala 2-seriata linearia, inferne vix, vel tantum leviter, angustata, acuta vel subobtusa, integra roseo-purpurea, 1.1 cm. longa, ad 1.5 mm. lata; stamina subconico-collecta, apice 2 mm. diam., staminodiis roseis circumdata, filamentis pallide roseis, inferne albis barbatis, antheris pollineque pallide luteis; discus annularis crenulatus brunneus, 5 mm. diam.; ovarium supra convexum, 5-lobum, omnino in receptaculo inclusum, ovulis parieti exteriori affixis, stigmatibus 5, anguste subulatis acuminatis, 4 mm. longis.

Cape Province: Karroo Region; Laingsburg Div., summit of Witteberg, alt. 5000 ft., fl. Oct. 28, 1926, *R. H. Compton*, 3075.

A very distinct species. The lower portion of a flowering-branchlet shows the hardened remains of 6 fruits. These, by reason of the very short axillary shoot which carries on the growth each year, appear to be lateral and present the semblance of an equilateral raceme.

*Mesembrianthemum paripetalum*, L. Bolus. Robustum, 30—60 cm. altum (fide Pillans), ramis rigidis patentibus, cortice griseo, 20 cm. longis, ad 8 mm. diam., internodiis saepius 1—2.5 cm. longis, ramulis adscendentibus vel erectis, dense 2—6-foliatis; folia demum fere patentia, connata, vagina foliorum juniorum ad 7 mm. longa, saepius 2—3 mm. longa, subtus inferne convexa, superne carinata, supra plana, lateribus convexis, superne leviter attenuata, juniora rigide apiculata et apice interdum subrecurvata, minute lepidota itaque tactu subvelutina, 2—3.2 cm. longa, ad 1.2 cm. lata diametroque; flores solitarii, meridie expansi, vix ad 2.7 cm. diam., pedunculo 0.5—1.4 cm. longo, medio vel parum supra medium bracteato; receptaculum clavatum; sepala 6, inter se inaequilonga, oblongo-lanceolata vel oblongo-ovata acuminata apiculata, 0.7—1 cm. longa, 3 anguste membranaceo-marginata; petala ca. 35, fere omnia inter se aequilonga, linearia, inferne leviter angustata, acuta vel rarius obtusa, 1.2 cm. longa, 1—1.5 mm. lata; stamina conico-collecta, apice 3 mm. diam., staminodiis filiformibus albis circumdata, filamentis inferne albis, superne saturate aureo-rubris, 4—7 mm. longis, antheris pollineque pallidis; discus annularis crenulatus; ovarium supra planum vel leviter concavum, stigmatibus 6, anguste subulatis, setaceo-acuminatis, 5 mm. longis; capsula supra plana vel fere plana, ad 1.1 cm. diam., valvis aqua expansis ad 1.7 cm. diam., carinis valvae inter se fere per 1 mm. distantibus, superne magis divergentibus, basi ad 1.5 mm. altis (vel latis), superne angustatis, loculi alis membranaceis dimidium tegentibus et tuberculo, parum infra apicem posito, albido, ca. 1 mm. diam., onustis, seminibus parieti exteriori positis, subpyriformibus, basi leviter obliquis, pallide brunneis, levibus.

Cape Province: Western Region; Little Namaqualand, Hondeklip Bay, at the coast, Oct. 1924, *N. S. Pillans* (Bolus Herbarium, No. 17759).

Described from living specimens, partly those freshly collected, partly from a plant which flowered in Mr N. S. Pillans' garden, June 16, 1926. One living flower and three dried ones only seen. The name is in reference to the petals being all so nearly equal in length.

*Mesembrianthemum wittebergense*, L. Bolus. Nanum subcaespitosum glabrum, ca. 2.5 cm. altum; rami saepius 4-foliati, sed inferne per totam longitudinem foliis induratis et reliquis onusti, more sectionis "Microphylla," axillis saepe gemmiferis; folia adscendentia subcymbiformia, superne carinata, supra plana, lateribus convexis, basi connata, vagina fere 1 mm. longa, sat conspicue albo-tuberculata, praecipue carina marginibusque, tuberculis minute granulatis, ad 4 mm. longa, basi fere ad 4 mm. lata, 2 mm. diam.; flores solitarii, meridie expansi, 1.4 cm. diam., pedunculis 2—3 mm. longis, inter bracteas inclusis; receptaculum turbinatum; sepala 5, inter se subaequilonga, lanceolata vel ovato-lanceolata, obtusa, 2 membranaceo-marginata, 4 mm. longa; petala ca. 25, 1-seriata linearia, saepius acuta roseo-purpurea, 6 mm. longa, vix 1 mm. lata; stamina conico-collecta, 1.5 mm. diam., staminodiis purpureis circumdata, filamentis parce barbatis, inferne pallidis, superne purpureis, ad 4 mm. longis, antheris pollineque albis; discus conspicuus annularis crenulatus; ovarium supra vix convexum, inconspicue 5-lobum, stigmatibus 5, filiformibus acuminatis, vix 4 mm. longis.

Cape Province: Karroo Region; Laingsburg Div., Witteberg, alt. 4000 ft., *R. H. Compton* (National Botanic Gardens, No.  $1\frac{3}{4}$ ).

Described from living specimens which flowered in the Gardens during the latter part of September, 1926.

*Mesembrianthemum graniticum*, L. Bolus. Humile, glabrum, ramis gracilibus decumbentibus vel reptantibus, saepe ad 11 cm. longis, vel brevioribus confertis, ramulis floriferis erectis, dense 2—4-foliatis; folia fere erecta oblonga obtusa apiculata carinata, supra plana, lateribus leviter convexis, levia glauco-viridia, angulis rubro-marginatis, margine distincta polita, 0.5—1.1 cm. longa, basi 4—5 mm. lata; flores solitarii, meridie expansi, ad 1.2 cm. diam., pedunculis 6—8 mm. longis, prope basin bracteatis, bracteis ad 5 mm. longis; receptaculum subclavatum, in pedunculum sensim abeuns; sepala 5—6, inter se fere aequilonga vel interdum 1—2 distincte breviora, oblonga vel oblongo-lanceolata, 1 late membranaceo-marginatum, cetera plus minusve anguste marginata, 3—5 mm. longa; petala ca. 38 densa, 2—3-seriata linearia, fere truncata, saepe emarginata, rosea, marginibus saturatis, inferne pallidiora, inter se fere aequilonga, 5 mm. longa, vix ad 1 mm. lata; stamina conico-collecta, staminodiis filiformibus, superne purpureis, circumdata, vix 2 mm. diam., filamentis superne purpureis,



interioribus supra medium barbatis, antheris pollineque albidis; discus annularis crenulatus; ovarium supra convexum, stigmatibus subulatis, 1.5—2 mm. longis.

Cape Province: Western Region; Little Namaqualand, on masses of granite, Platte Klip, 1 mile S. of Hondeklip Bay, *N. S. Pillans* (Bolus Herbarium, No. 17772).

Described from ample living material which flowered in Miss Arbuthnot's garden, Wynberg, during the latter part of May and June. The same species was collected by Mr J. W. Mathews at Vredenberg, Malmesbury Div. (National Botanic Gardens, No.  $\frac{1970}{3}$ ).

*Mesembrianthemum zygophylloides*, L. Bolus. Fruticulus glaber, crebre ramosus, ad 14 cm. altus, ramis decumbentibus, patentibus vel adscendentibus, sat rigidis, ad 7 mm. diam., ramulis erectis, internodiis 1—1.5 cm. longis, axillis gemmiferis; folia patentia vel juniora patenti-erecta, teretia vel fere teretia, obtusa mutica levia, laete viridia, sat mollia, saepius 1—1.3 cm. longa, 2—3 mm. diam., basi brevissime connata; flores 3-nati vel bis 3-nati, vel in cymam sat compactam, ad 5-ramosam, dispositi, meridie expansi, 1.4 cm. diam., pedunculis ad 6 mm. longis, prope basin bracteatis; receptaculum clavato-turbinatum; sepala 5, inter se aequilonga, linearilanceolata obtusa subcucullata, omnia anguste membranaceo-marginata, 4 mm. longa; petala ca. 13—14, 1-seriata linearia, e medio inferne parum angustata, acuta, laete lutea, 5—6 mm. longa, 1 mm. lata; stamina erecta pauca, sat laxa, staminodiis abeuntibus, filamentis luteis, basi barbatis, antheris pollineque aureis; glandulae 5, conspicuae atro-virides; ovarium supra alte convexum, profunde 5-lobatum, stigmatibus 5, anguste subulatis, setaceo-acuminatis, fere ad 2 mm. longis.

Cape Province: South-Western Region; Clanwilliam Div., Pakhuis Pass, fl. Oct. 1926, *C. L. Leipoldt* (Bolus Herbarium, No. 18549).

The bright green foliage and the cheerful yellow of the numerous flowers closely set amid the leaves suggest a resemblance to several species of *Zygophyllum* common in the south-western districts.

*Mesembrianthemum distans*, L. Bolus. Fruticulus erectus, 10—12 cm. altus, caule rigido, basi 3 mm. diam., ramis adscendentibus vel fere erectis, angulatis, angulis anguste alatis, 2 mm. diam., nodis distantibus, internodiis 1.5—3 cm. longis, ramulis floriferis e vagina indurata orientibus, saepius 2 cm. longis; folia in 2 paria approximata, ramulos terminantia, disposita, par inferum 0.7—1 cm. longa, ultra medium connatum, primum calyptriforme, deinde apicibus divergentibus, obscure carinatis, subacutis, basi reliquis membranaceis vaginatum, ad 6 mm. diam., par superum dissimile, alte connatum, vagina ventricosa inclusa, parte libera 3-angulare, ad basin receptaculi attingente vel ultra, 4—8 mm. longa, ca. 1—2 mm. diam., axillis gemmiferis; flores solitarii, meridie expansi, ca.

1.5 cm. diam., pedunculo brevissime pubescente, 7 mm. longo, persistente induratoque ad 1.5 cm. longo; receptaculum turbinatum; sepala 5, inter se inaequalia, oblonga obtusa, 3—5 mm. longa, omnia plus minusve anguste membranaceo-marginata; petala purpureo-rosea, ad 7 mm. longa, ca. .75 mm. lata; (stamina non bene visa); discus conspicuus annularis, profunde multisectus; stigmata 5, gracillima, setaceo-acuminata, 3 mm. longa.

Bolus Herbarium, No. 18550.

The origin of this very distinct species is uncertain, but it is most probably one of a number of plants collected in a resting state by Dr H. H. W. Pearson on one of the Percy Sladen Memorial Expeditions and given to Mr N. S. Pillans to grow. A specimen, in full leaf only, was received from the latter's garden in April 1911; and in May 1913, when the plants in Mr Pillans' garden flowered freely, specimens were dried. Unfortunately, no notes were taken at the time, and the above description is, therefore, almost entirely from the dried material. The specific name refers to the distant nodes, a character (together with the small leaves) which gives the plant a bare appearance.

*Mesembrianthemum pauciflorum*, L. Bolus. Fruticulus sublaxus, ad 30 cm. altus, ramis decumbentibus, patentibus, vel adscendentibus, floriferis erectis, ad 3 mm. diam., internodiis 1—3 cm. longis; folia basi fere distincta, fere erecta vel tandem adscendentia, saepe subfalcato-incurva, carinata, supra plana, lateribus planis vel levissime convexis, supra medium parum ampliata, acuta levia subglaucoviridia, ad 1.8 cm. longa, ad 2 mm. lata, ad 3 mm. diam.; flores solitarii, meridie expansi, ad 4 cm. diam., pedunculis 2—4 cm. longis, medio vel parum supra medium bracteatis; receptaculum clavato-turbinatum, inconspicue tuberculatum; sepala 5, inter se inaequilonga, acute acuminata, 4—7 mm. longa, 3 membranaceo-marginata, membrana ampla rubro-brunnea; petala ca. 5-seriata, saturate rosea, intima angustissima, staminibus parum longiora, intermedia gradatim longiora, exteriora acuta vel obtusa, ad 1.8 cm. longa, 1 mm. lata vel parum ultra; stamina erecta collecta, tandem sublaxa, 5 mm. diam., staminodiis paucis filiformibus circumdata, filamentis albidis, ad 4 mm. longis, interioribus barbatis, antheris pollineque luteis; discus inconspicuus annularis; ovarium convexum 5-lobum, stigmatibus subulatis setaceo-acuminatis, 4 mm. longis.

Cape Province: South-Western Region; Knysna Div., on rocky ledges and stony scree of cliffs, Noetzie, fruiting Feb. 1925, *John Phillips* (Bolus Herbarium, No. 18552).

Described from living specimens (cuttings of the above) which flowered in Miss Arbuthnot's garden, Wynberg, during September and October 1926. In the paucity of its flowers this species is remarkable in the genus. Except for this characteristic it might be placed in the § *Amoena*.

*Mesembrianthemum indecorum*, L. Bolus. Fruticulus erectus robustus glaber, 30 cm. altus vel parum ultra, ramis patentibus vel adscendentibus rigidis, ramulis permultis adscendentibus, sat brevibus, internodiis 0·7—2·5 cm. longis; folia fere erecta, apice uncatorecurva, carinata, supra plana, lateribus leviter convexis, sensim superne attenuata, glauca levia, ad 2·1 cm. longa, basi 3 mm. lata, saepius ad 3 mm. diam., basi connata, vagina vix tumida, 2 mm. longa vel junioribus ad 3 mm. longa, linea longitudinali inconspicua; flores minimi in genere, numerosissimi, 3—4-ternati, meridie expansi, 0·8—1 cm. diam., pedunculis 5—7 mm. longis, medio bracteatis; receptaculum brevissimum subcrateriforme; sepala 5, inter se subaequilonga, lanceolata vel ovato-lanceolata, acuta, 3 anguste membranaceo-marginata, 4 mm. longa; petala ca. 20, 1-seriata linearia obtusa, albida inconspicua, sepalis aequilonga, vix 1 mm. lata; stamina conico-collecta, apice 1 mm. diam., staminodiis albidis, dimidio superiore purpureis circumdata, filamentis albidis, apice dense barbatis, antheris pollineque brunneo-purpureis; discus conspicuus annularis crenulatus; ovarium supra leviter convexum, stigmatibus anguste subulatis, vix 2 mm. longis.

Cape Province: South-Western Region; Cape Div., at the roadside between Cape Town and Melkbosch Strand, about 20 miles from Cape Town, fl. Sept., *L. Bolus* (Bolus Herbarium, No. 17418).

A distinct species, not fitting exactly into any of the known sections of the genus, and being nearest to the § *Tumidula*. The name, *indecorum*, alludes to the modest flowers which would be most inconspicuous were it not for the purple of the staminodes.

*Mesembrianthemum cupulatum*, L. Bolus (§ *Tumidula*). Fruticulus erectus robustus, 20 cm. altus vel ultra, ramis adscendentibus rigidis griseis, ad 6 mm. diam., ramulis floriferis saepe 10 cm. longis, internodiis 1·5—3 cm. longis; folia fere erecta vel saepius, axillis gemmiferis, patentierecta, carinata, carina minutissime cartilagineo-serrulata, supra plana, lateribus leviter convexa, acuta apiculata, apiculo recurvo, tactu velutina tamen glabra, luteo-viridia, 1·5—2 cm., rarius ad 3 cm., longa, 3—4 mm. lata diametroque, vagina leviter tumida, 3—5 mm. longa, linea longitudinali inconspicua; flores 3-ternati cymam densam formantes, meridie expansi, ad 2·8 cm. diam.; pedunculi ultimi teretes, apice subconstricti quasi articulati, 1·5—2 cm. longi, omnes medio bracteati, bracteis concavis cupuliformibus, marginibus membranaceis, 6—9 mm. longis; receptaculum subcrateriforme; sepala 5—6, 5 inter se subaequilonga, sextum deminutum, oblongo-lanceolata vel oblongo-ovata, apiculato-acuminata, 3—4 membranaceo-marginata, membrana alba, 7—9 mm. longa; petala permulta, inter se fere aequilonga, linearia, inferne parum attenuata, apice saepissime inaequaliter dentata, 1—1·2 cm. longa, vix ad 1·5 mm.

lata; stamina primo conico-collecta, mox erecta vel subdiffusa, 3—7 mm. diam., staminodiis paucis brunneis, mox delapsis, filamentis albis, basi barbatis, 4 mm. longis, antheris pollineque pallide luteis; discus conspicuus annularis crenulatus; ovarium supra medio leviter convexum, 5—6-lobum, stigmatibus 5—6, anguste subulatis, acuminatis, 2.5 mm. longis.

Cape Province: South-Western Region; Malmesbury Div., Oliphant's Kop, nr. Saldanha Bay, *J. W. Mathews* (National Botanic Gardens, No.  $\frac{1720}{4}$ ). Flowered freely from cuttings during October 1926.

Very closely allied to *M. festivum*, N.E.Br., but may be distinguished by the shorter leaves, shorter and more dense cyme, rather smaller flowers, saucer-shaped (not semi-globose) receptacle, and ivory-white (not rose-pink) petals. The two species flower at the same time, and I have thus been able to compare the living plants, both of which appear to be equally well-grown. From that of *M. festivum* (Bolus Herb. No. 17155) specimens were sent a few years ago to Mr Brown who confirmed my identification.

The name, *cupulatum*, is in reference to the cup-shaped bracts.

*Mesembrianthemum Stanleyi*, L. Bolus. Fruticulus glaber, 7—9 cm. altus, caule cum aetate crasso, 9 mm. diam., ramis adscendentibus, basi ad 7 mm. diam., ramulis erectis, saepius 6—8-foliatis, internodiis foliis parum brevioribus; folia adscendentia vel fere patentia, juniora fere erecta, carinata, supra plana, lateribus leviter convexis, carina parum infra apicem 1-denticulata, rarius 2-denticulata vel integra, glaucoviridia, cum aetate levia, 1—1.3 cm. longa, ad 3 mm. lata, fere ad 4 mm. diam.; flores solitarii, vespertini, odorati, 2—2.4 cm. diam.; receptaculum subturbinatum; sepala 5, inter se inaequilonga, oblonga vel lineari-oblonga, carinata, apice subcucullata, 5—9 mm. longa, 2 anguste membranaceo-marginata; petala ca. 38, 2-seriata lineari-spathulata obtusa aurea, extus apicem versus rubescentia, 0.7—1.1 cm. longa, ad 1.5 mm. lata; stamina erecta collecta, apicem versus leviter recurvata, 4—5 mm. diam., filamentis 3—6 mm. longis, interioribus barbatis, cum antheris pollineque aureis; glandulae 5, semi-lunatae; ovarium supra convexum, obtuse 5-lobatum, stigmatibus 5, anguste subulatis, setaceo-acuminatis, demum stamina bene superantibus, 7 mm. longis.

Cape Province: Karroo Region; Willowmore Div., near Miller, alt. 2235 ft., fl. Oct. 1925, *V. S. Peers* (National Botanic Gardens, No.  $\frac{1278}{5}$ ).

Described partly from dried specimens and partly from rooted cuttings of the original plants. The cuttings flowered in Jan. 1926 and the flowers were fully open at 5 p.m.

*N. S. Pillans*, 2103, collected at Abraham's Kraal, Prince Albert Div., Sept. 1913, appears to be this species.

Named after the collector, Mr Victor Stanley Peers, a keen collector

and cultivator of South African succulents, after whom *M. Peersii*, L. Bolus and *M. Victoris*, L. Bolus were also named.

*Mesembrianthemum vernale*, L. Bolus. Fruticulus laxus, ramis primariis decumbentibus, 10—40 cm. longis vel ultra, ad 4 mm. diam., ramulis floriferis erectis saepius 8—14 cm. longis; folia erecta vel adscendentia, fere semi-teretia, apicem versus obscure carinata, abrupte acuta, supra medium parum ampliata, stricta vel saepe subfalcato-incurva, minutissime crystallino-papillata (more sectionis “*Crassulina*”), mollia, laete vernali-viridia, saepius 1—1.5 cm., rarius ad 2 cm., longa, ad 2.5 mm. diam., internodiis saepius 1—2.5 cm. longis; flores ternati vel biternati vel abortione solitarii, meridie expansi, ad 4.4 cm. diam., pedunculis 2.5—5 cm. longis, omnibus medio vel parum supra medium bracteatis; receptaculum clavato-turbinatum, infra sepala leviter constrictum; sepala inter se fere aequilonga acuta, 6—8 mm. longa, tribus late membranaceo-marginatis; petala ca. 4-seriata spathulato-lineararia, obtusa vel subacuta, laete rosea (“*cerise*”), ad 2.1 cm. longa, ad 2.5 mm. lata, intima angustissima; stamina erecta diffusa, extima tandem patentia, 0.8—1 cm. diam., filamentis roseis, intimis barbatis, ad 4 mm. longis, antheris pollineque luteis; discus inconspicuus annularis; ovarium supra convexum 5-lobum, stigmatibus crassis subulatis acuminatis, 2.5 mm. longis.

Cape Province: South-Western Region; exact locality uncertain. Flowered freely and grew luxuriantly, from a cutting, in Miss Arbuthnot's garden, Wynberg, for several years during September and October (Bolus Herbarium, No. 17305).

The minute glittering papillae and the soft texture of the leaves are reminiscent of the section *Crassulina*, but the flowers would be large for that section, nor are the loosely-disposed stamens and annular disk characteristic. The name, *vernale*, alludes to the fresh spring-green colour of the foliage.

*Mesembrianthemum magnificum*, L. Bolus (§ *Tenuifolia*). Perenne glabrum, ramis decumbentibus vel prostratis, ad 2 mm. diam., ramulis floriferis adscendentibus vel erectis, gracilibus, cum flore saepius 9—11 cm. longis; folia fere erecta, internodiis multo longiora, exacte semi-teretia, acuta apiculata levia viridia, 2.5—4.5 cm. longa, 2—2.5 mm. diam., basi connata, vagina ad 3 mm. longa; flores saepius solitarii, meridie expansi, ad 5 cm. diam., pedunculo 3—5.5 cm. longo, parum infra medium bracteato, bracteis ca. 1.7 cm. longis; receptaculum anguste clavatum, apice 5—6 mm. diam.; sepala 5, inter se subaequilonga, lanceolata vel ovata, acuta, omnia plus minusve late membranaceo-marginata, 7 mm. longa; petala dense 3—4-seriata, lineararia, obtusa integra, inferne parum attenuata, pulcherrime cupreo-rubra, ad 2.3 cm. longa, 2 mm. lata; stamina erecta, permulta sed tamen laxa, mox diffusa, stigmata ex-

ponentia, 8 mm. diam. vel ultra, filamentis purpureis, interioribus basi parce barbatis, ad 6 mm. longis, antheris pollineque brunneo-purpureis; discus inconspicuus annularis; ovarium supra semi-globosum, 5-lobum, lobis rotundatis, stigmatibus 5, late patentibus, sat crassis, mollibus subdeliquescentibus oblongis setaceo-apiculatis, 3—4 mm. longis.

Cape Province: South-Western Region; Malmesbury Div., exhibited at a show of wild flowers and reported as having been collected on the Paardeberg, October, 1926 (Bolus Herbarium, No. 18532).

Described from several living specimens. Although a plant of lowly stature, the magnificent colouring of the flower amply justifies the specific name. It frequently happens that the splendid brilliance of colour in flowers of this genus is too dazzling to look at with pleasure; but in the present species the rich coppery red of the petals is so deep that the eye can rest upon it with delight, even burnished as it is in the sunlight. The purplish-brown colour of the anthers and pollen is very unusual in the genus. The affinity is with those species in this section having the stamens more or less diffuse in the early stages of development.

*Mesembrianthemum Muirianum*, L. Bolus (§ *Vaginata*). Fruticulus erectus rigidus, 15—20 cm. altus, caule basi ima cum aetate 1 cm. diam., ramis 2—6 mm. diam., internodiis 0.5—2 cm. longis; folia adscendentia, rarius patentia, apice interdum subrecurvata, carinata, supra lateraliterque plana vel leviter convexa, acuta, angulis integerrimis, ad 2.5 cm. longa, 3 mm. lata diametroque, connata more sectionis, vagina 6—7 mm. longa; flores solitarii, sat pauci, meridiani, 1.9 cm. diam., pedunculo 1.3—2.5 cm. longo, prope medium bracteato; receptaculum turbinatum verrucosum; sepala 5, inter se subaequilonga lanceolata, 4—5 mm. longa, 3 late membranaceo-marginata; petala 15—20, sat laxa, 1-seriata, lineari-spathulata obtusa purpureo-rosea, purpureo-vittata, 8 mm. longa, fere ad 2 mm. lata; stamina conico-collecta, apice 1.5 mm. diam., staminodiis paucis, basi dilatatis, parce barbatis, albis, superne purpureis circumdata, filamentis pallidis barbatis, superne purpureis, ad 4 mm. longis, antheris pollineque pallidis; discus conspicuus annularis crenulatus, 4 mm. diam.; ovarium supra leviter convexum, obscure 5-lobatum, stigmatibus anguste subulatis acuminatis, 4 mm. longis.

Cape Province: South-Western Region; Ladismith Div., Muiskraal, fl. Sept. 1923, *Dr John Muir*, 3938.

Described from living plants. Allied to *M. vaginatum*, Haw., but may be distinguished by the entire leaf-angles, and by the broader, purple-pink petals which, together with the flowers, are also far less numerous than is usual in this section.

*Mesembrianthemum Renniei*, L. Bolus. Glabrum, radice cum aetate crassa tuberosa elongata, ad 9 cm. longa, 2.5 cm. diam., caule abbreviato, ramis

confertis, saepius dense 4—6-foliatis, axillis saepe gemmiferis; folia adscendentia, demum late patentia, rarius subfalcata, alterum paris subdissimile altero parum longiusque, supra plana, subtus convexa, superne carinata, carina apicem versus valde compressa, lateribus planis vel altero subconvexo altero leviter concavo, acuta vel semi-rotundata, rarius apice incurvato, levia glauca, punctis viridibus crebris conspicuis, saepius 3·5 cm. longa, basi 8 mm., prope apicem 1 mm., lata, 6—9 mm. diam., rarius ad 6 cm. longa, 1·1 cm. diam.; flores solitarii sessiles, meridie expansi, ad 3 cm. diam.; receptaculum globose turbinatum; sepala 5, inter se inaequilonga, lanceolata acuta vel ovata, longe acuminata, 0·5—1·1 cm. longa, omnia plus minusve membranaceo-marginata; petala 45—60, ca. 3-seriata, interiora angustissima, exteriora linearia, inferne parum attenuata, obtusa, integra vel 2-dentata, roseo-lilacina, ad 1·5 cm. longa, ad 2 mm. lata; stamina conico-collecta, staminodiis longioribus numerosis gracillimis, saepe spiraliter recurvatis, circumdata, filamentis pallidis, interioribus medio barbatis, ad 6 mm. longis, antheris pollineque aureis; discus conspicuus annularis crenulatus; ovarium supra planum, medio leviter elevatum, stigmatibus 5, anguste subulatis acuminatis, 5—6 mm. longis, ovulis parietalibus.

South West Africa: Moltke Blick, Anas Mountains, Windhuk, *J. V. Rennie* (National Botanic Gardens, No.  $\frac{728}{5}$ ).

Very near *M. Wilmaniae*, L. Bolus, but differs in having the leaf-keel much more compressed, larger flowers and an annular disk.

Described from living specimens which flowered at Kirstenbosch in May 1926 and from a cutting of the same which flowered in Miss Arbuthnot's garden, Wynberg. Only two flowers seen.

*Mesembrianthemum clavifolium*, L. Bolus. Humile, ramis prostratis elongatis reptantibus, internodiis 1—2 cm. longis, ramulis erectis, saepissime 4-foliatis; folia saepius fere erecta clavata, obtusa vel abrupte acuta, apiculata, basin versus attenuata quasi petiolata, dorsaliter rotundata, apicem versus obscure carinata, supra leviter convexa, levia, sordide viridia, saepius 2·2 cm. longa, 3 mm. lata, 4—5 mm. diam., basi connata, vagina 1·5 mm. longa; flores solitarii, meridie expansi, 4·5—5 cm. diam.; pedunculo tereti, basi bracteato; receptaculum globoso-turbinatum vel hemisphaericum; sepala 5, duo longiora ovato-oblonga obtusa, ad 7 mm. longa, tria breviora late membranaceo-marginata; petala ca. 4-seriata linearia, acuta vel acuminata vel rarius subobtusa, basin versus leviter angustata, dilute aureo-cuprea, intima angustissima, 9 mm., extima 2·1 cm., longa, ad 1·5 mm. lata; stamina laxe disposita, exteriora mox subpatentia, 1 cm. diam., filamentis aureis, basi parce barbatis, ad 6 mm. longis, antheris pollineque aureis; discus inconspicuus annularis crenulatus, 7 mm. diam.; ovarium supra profunde 10—11-lobatum, lobis valde

compressis, superne quasi alatis, acutis, stigmatibus 10—13, lineari-filiformibus acuminatis, 4—5 mm. longis.

Cape Province: Western Region; Little Namaqualand, sandy flats at Hondeklip Bay, Oct. 1924 (not in flower), *N. S. Pillans* (Bolus Herbarium, No. 17774).

Described from living specimens, in part from the material freshly collected and in part from a plant which flowered in Miss I. Arbuthnot's garden, Wynberg, June 1926. Closely allied to *M. albertiniense*, L. Bolus, but may be distinguished by the clavate leaves, more numerous petals, and longer stigmas.

These two species together with two others, still undescribed as far as I am aware, and a fifth species [commonly found on the Cape Flats which Mr Brown has identified as *M. dissimile*, N.E.Br., or a near ally, but which seems to agree fairly well with Haworth's description of *M. procumbens*, Haw., as far as that goes—the "purple-jointed" stems being very characteristic of the Cape Flats plant (= *Wolley Dod*, 3144)], form a group having the lobes of the ovary strongly compressed and extended outwards into a wing, giving to the ovary what might be described as a castellated appearance. Otherwise the group would fit well into the genus *Cephalophyllum*, N.E.Br.

*Mesembrianthemum klaverense*, L. Bolus. Humile herbaceum, odore forti piscis, caule sat crasso, ramis primo brevibus confertis, deinde elongatis, patentibus vel decumbentibus, internodiis ad 2 cm. longis, ramulis floriferis 2—4 cm. longis; folia adscendentia vel fere patentia, supra plana, subtus superne carinata, lateribus leviter convexis, obtusa, saepius 1—1.5 cm. longa, ad 5 mm. lata, 6 mm. diam., levia glauco-viridia; flores solitarii, meridie expansi, ad 1.6 cm. diam.; receptaculum clavatum, in pedunculum brevem, medio bracteatum, sensim attenuatum, cum pedunculo bracteisque sub lente pubescens, pilis erectis; sepala 5 vel rarius 6, inter se parum inaequilonga, oblonga vel lanceolato-oblonga, marginibus minute ciliatis, 3 membranaceo-marginatis, 4—6 mm. longa; petala 2—3-seriata linearia obtusa purpureo-rosea, 3—6 mm. longa, fere ad 1 mm. lata; stamina conico-collecta, staminodiis, apicibus recurvatis, circumdata, filamentis barbatis, inferne albis, superne rubescentibus; discus annularis crenulatus; ovarium supra leviter convexum, stigmatibus 5—6, subulatis acuminatis, 2 mm. longis.

Cape Province: South-Western Region; Clanwilliam Div., Klaver, *R. H. Compton* (National Botanic Gardens, No.  $\frac{291}{22}$ ).

Described from living specimens which flowered at Kirstenbosch, May 1924.

This appears to be very near *M. molle*, Ait., and is perhaps the same as the plant described and figured by Berger (*Mesembrianthemum*, p. 130).



But the margins of the leaves of our species are not lined with dots ("marginibus obtusis lineato punctatis")—as in *Schlechter*, 8065, from Dorn River, Clanwilliam Div., fl. July 1896. Moreover, there is no record of the existence of any strong fishy smell in the case of *M. molle*, Ait.

*Mesembrianthemum knysnanum*, L. Bolus. Fruticulus erectus rigidus, glaber, 30—40 cm. altus vel ultra, ramis virgatis, 17—34 cm. longis, ad 5 mm. diam., ramulis saepius 3—4 cm. longis, internodiis 1—6 cm. longis; folia adscendentia vel fere erecta, acute carinata, carina conspicue decurrente, supra concava vel fere plana, lateribus planis vel levissime convexis, acuta vel obtusa apiculata, juniora apice subrecurvata, leviter politaque viridia, ad 3·3 cm. longa, 5 mm. lata, 6 mm. diam., basi connata, vagina 2 mm. longa; flores bis 3-nati vel abortione 1—5-nati, meridie expansi, ad 2·5 cm. diam., pedunculis ad 2·5 cm. longis, supra medium bracteatis; receptaculum turbinatum, utrinque carinatum; sepala 4—6, saepissime 6, inter se inaequilonga lanceolata acuminata, 5—8 mm. longa, 3—4 late membranaceo-marginata; petala pluri-seriata linearia, inferne leviter attenuata, acuta vel subobtusa, pallide rosea vel purpureo-rosea, 0·5—1 cm. longa, ad 1 mm. lata vel parum ultra; stamina conico-collecta, apice 2 mm. diam., staminodiis albis, apice recurvatis, circumdata, filamentis albis, interioribus barbatis, ad 4 mm. longis, antheris pollineque pallidis; discus annularis crenulatus; ovarium supra leviter convexum, stigmatibus 6, anguste subulatis, longe acuminatis, 3—4 mm. longis; capsula subglobosa, 0·8—1·3 cm. diam., aqua expansa 1·4—1·8 cm. diam., valvis dimidio superiore medio membranaceo-alatis, carinis basi fere contiguis, superne divergentibus ad dimidium valvae attingentibus, loculi alis dimidium loculi vel ultra tegentibus, seminibus rotundo-obovatis muricatis, parieti exteriori dispositis.

Cape Province: South-Western Region; Knysna Div., near Knysna, fl. Jan.—Feb. 1924, *A. V. Duthie*, 671 (National Botanic Gardens, No.  $\frac{242}{24}$ ).

Described from many living specimens. Plants collected by *H. G. Fourcade*, No. 2976, at Buffel's Nek, Humansdorp Div., March 1924, with purple-pink petals and more turgid leaves, appear to be this species.

*Mesembrianthemum albatum*, L. Bolus. Erectum, basi compacte ramosum, glabrum, ad 30 cm. altum; folia dense imbricata, internodiis omnino vestitis, fere erecta, rarius subpatentia, supra plana, subtus carinata, carina inferne obscura, saepius eccentrica, lateribus leviter convexis vel altero plano altero convexo, visa lateraliter interdum supra medium ampliata, deinde abrupte angustata (juniora acuta vel acuminata), saepius superne gradatim ampliata subacuta, connata, vagina 1 cm. longa vel ultra, leviter, pallidissime glauca roseo-suffusa, inconspicue viridipunctata, ad 8 cm. longa, 2·1 cm. lata diametroque, saepius 5—6 cm. longa, 1—1·5 cm. diam., marginibus integris vel obscure gibbosis vel

junioribus 1—3-denticulatis; flores solitarii, pedunculo compresso ebracteato, 1 cm., in fructu 1.5 cm., longo; receptaculum compresso-turbinatum, utrinque carinatum, 1 cm. longum; sepala 4, inter se inaequilonga, ovato-lanceolata acuminata, 2 ad 1 cm. longa, 2 carinata, ad 1.5 cm. longa, membranaceo-marginata; petala (marcescentia tantum visa) alba, 1.7 cm. longa, 1.5 mm. lata; stamina erecta laxa permulta, filamentis albidis ebarbatis, ad 9 mm. longis, antheris pollineque aureis; discus inconspicuisissimus annularis; ovarium supra planum, medio abrupte conico-elevatum, stigmatibus 8, filiformibus, longe attenuatis, 7 mm. longis; capsula turbinata, ca. 1.3 cm. longa, apice aqua expansa 2.2 cm. diam., loculis valvisque 8, seminibus parietalibus, in medio per omnem longitudinem parietis creberrime dispositis, rotundatis, lateraliter compressis, proxime hilum minute gibbosis, valvis e medio leviter recurvatis, carinis contiguis, apicem versus leviter divergentibus, ca. 1.5 mm. altis, ala membranacea utrinque, ad 1.5 mm. lata, parum ultra valvam extendente, acuta; alae loculi medio per totam longitudinem divisae, marginibus inter se distantibus.

Cape Province: Western Region; Little Namaqualand, in sand at base of hills, west of Arris Drift, alt. ca. 300 ft., fl. Oct. 1926, *N. S. Pillans*, 5039.

Described from living specimens of which the flowers had suffered somewhat in transit. The very pale colouring of the leaves suggested the appearance of putty or, better still, of pork sausage before cooking. The name, *albatum*, refers to the white petals.

*Ectotropis*<sup>1</sup> alpina, N.E. Br., in Gard. Chron., 81, 12. Nana, radice tuberosa 6 cm. longa, ad 7 mm. diam., apice ramos gracillimos, radicanes vel adscendentes, emittente, omnibus partibus herbaceis saturate rubicundis, minutissime papillatis; folia adscendentia, supra plana, subtus convexa, acuta, inferne leviter angustata, basi fere distincta, saepius internodiis breviora, 6—8 mm. longa, ad 1.5 mm. lata diametroque; flores solitarii, fere sessiles, vel 2-nati, pedunculo ad 1.3 cm. longo, apicem versus 2-bracteato, e bractea unica flore secundo tarde oriente, meridie expansi, ca. 9 mm. diam.; receptaculum turbinatum; sepala 5, inter se inaequilonga, lineari-lanceolata acuta, dorsaliter convexa, 3 membranaceo-marginata, 2.5—4.5 mm. longa; petala 2—3-seriata linearia obtusa, inferne vix angustata, alba, 3—4 mm. longa, ad 1 mm. lata; staminodia pauca, superne lutea, 2 mm. longa; stamina sat pauca, erecta sublaxa, filamentis albis ebarbatis, 1.5 mm. longis, antheris pollineque aureis; discus inconspicuus annularis, fere integer; ovarium convexum, haud lobatum, ovulis e basi loculi orientibus, stigmatibus 5, linearibus, parte inferiore cohaerentibus, 2 mm. longis.

<sup>1</sup> It is necessary to explain that, since this description was printed and the proofs paged, Mr Brown has published his new genus, *Ectotropis*, founded on the same plant.

Cape Province: South-Eastern Region; Fort Beaufort Div., Hogsback, alt. 6000 ft., fl. Nov. 1926, *R. A. Dyer* (Botanical Survey No. 673).

Described from living specimens, without fruit and with 4 flowers. Mr Dyer states that he has collected the same species in the King Williamstown Div., Amatola Mt., Cala Ridge, on large boulders (near stream), using lichen as means of attachment for roots (*Dyer*, 357). Stockenström Div., Katberg, towards "The Gorge," on rocks in small niches, scarce (*Dyer*, 378). *Mesembrianthemum Neethlingiae*, L. Bolus (§ *Trichotoma*). Subherbaceum gracile, ad 14 cm. altum, radice longa, crassa vel tuberosa, ramis laxe patentibus vel decumbentibus, glabris levibus teretibus, vix ad 2 mm. diam., ramulis adscendentibus vel erectis, levissime asperis, internodiis 0.7—2 cm. longis; folia saepius fere erecta, apice subrecurvata, semi-teretia, sat abrupte acuta, minute papillata, more sectionis *Trichotoma*, juniora pubescentia, papillis in pilum terminantibus, 0.5—1.5 cm. longa, ad 5 mm. lata, ad 2.5 mm. diam.; flores solitarii vel 2—3-nati vel rarius bis 3-nati, meridie expansi, ad 1.5 cm. diam., pedunculis teretibus pubescentibus, pilis albis brevissimis, ad 1 cm. longis, prope basin bracteatis, bracteis parvis; receptaculum subglobosum pubescens; sepala 5, inter se parum inaequilonga, 3—4 mm. longa, cum aetate 2 subacrescentia, 6 mm. longa; petala 1-seriata linearia, inferne parum angustata, integra vel 2-dentata, extus rubro-purpurea, intus cum aetate pulcherrime cupreo-rubra, 6—7 mm. longa, 1 mm. lata; stamina conico-collecta, staminodiis paucis circumdata, apice ad 2 mm. diam., filamentis albis, 3 mm. longis, antheris luteis; discus annularis crenulatus; ovarium supra alte convexum, vix lobatum, stigmatibus 5, anguste subulatis stamina parum excedentibus, 2 mm. longis vel parum ultra.

Cape Province: South-Western Region; Caledon Div., near the village, River Zondereinde, *Mrs M. Neethling* (National Botanic Gardens, No. 1397). Riversdale Div., exact locality uncertain, "grew up from seed in the garden, self-sown," *Dr John Muir*, 3870.

Described from living specimens which flowered at Kirstenbosch from October 1925 to April 1926, and living plants sent in flower by Dr John Muir, May 1926.

*Mesembrianthemum Pageanum*, L. Bolus (§ *Trichotoma*?). Erectum, ad 26 cm. altum, caule basi 3 mm. diam. vel ultra, cum ramulis, glabro, cuticula pallida papyracea dirumpente, ramulis ultimis parce pubescentibus, internodiis saepius 1 cm. longis; folia adscendentia vel patentia, fere teretia vel teretia, haud, vel leviter, superne attenuata, obtusa, minute papillata, papillis in brevem albam setam terminantibus, basi brevissime connata, 1—1.5 cm. longa, 2—3 mm. diam., mollissima, in aqua mox deliquescentia; flores solitarii vel 3-nati, postmeridie maxime expansi, 1.6 cm. diam., vel ultra, pedunculis pilosis, pilis patentibus, ad

1.7 cm. longis; receptaculum hemisphaericum pilosum, pilis retroversis, minute papillatum, apice 5—6 mm. diam.; sepala 5, 2 elongata, foliis simillima, 7 mm. longa, 3 late membranaceo-marginata, 3—4 mm. longa; petala 1—2-seriata, inter se fere aequilonga, lineari-spathulata, saepius acuta, purpureo-rosea, 6—7 mm. longa, 1 mm. lata vel parum ultra; stamina conico-collecta, apice 2 mm. diam., staminodiis paucis 3 mm. longis circumdata, filamentis albis barbatis ad 3 mm. longis, antheris pollineque pallide luteis; glandulae 5, crenulatae; ovarium supra convexum, inconspicue 5-lobum, stigmatibus anguste subulatis, acuminatis, fere 2 mm. longis; capsula ca. 4 mm. diam., aqua expansa, 8 mm. diam., valvis late membranaceo-marginatis, carinis contiguis, loculi alis abeuntibus, seminibus levibus subobovatis, vix 1 mm. longis, parieti exteriori dispositis.

Cape Province: South-Western Region; Montagu Div., near Montagu Baths, fl. Aug. 1924, *Mary M. Page* (Bolus Herbarium, No. 17693); *H. H. W. Pearson* (National Botanic Gardens, No. 17 $\frac{2}{3}$ ).

This species flowered freely on the rockery at the South African Pavilion at Wembley in August and September, 1925. The plants there, however, were more luxuriantly grown than the wild specimens I have selected as being typical.

In the absence of cell-wings in the capsule this species approaches the genus *Delosperma*, N.E.Br., and should probably be included in it rather than in *Mesembrianthemum*.

*Mesembrianthemum odoratum*, L. Bolus. Fruticulus humilis glaber, ramis patentibus vel adscendentibus, 3—4 mm. diam., ramulis floriferis erectis; folia adscendentia vel demum saepe alterum paris late patens, alterum patenti-erectum vel patenti-adscendens, seniores fere semi-teretia vel rarius subteretia, carina marginibusque obscuris, obtusa leviter subglaucoviridia, basi connata, vagina 1 mm. longa, saepius internodiis longiora, ad 3 cm. longa, 4 mm. lata, 6 mm. diam., juniora carinata, carina eccentrica, supra plana, subacuta viridia; inflorescentia 4—6.5 cm. longa, floribus 3-natis vel saepius abortione 2-natis vel bis 2-natis nocturnis odoratis, 2.6 cm. diam.; pedunculi teretes, medio bracteati, bracteis parvis, saepius 8 mm., rarius ad 1 cm., longis; receptaculum globose turbinatum, apice 8 mm. diam., fructu immaturo 1.2 cm. diam.; sepala 5, inter se subaequilonga, oblongo-lanceolata vel oblongo-ovata, acuta, apice subcucullata, anguste membranaceo-marginata, ad 1.1 cm. longa; petala pluri-seriata, anguste linearia acuminata lutea, apicem versus rubescentia, ad 1.1 cm. longa, saepius 0.5 mm. lata vel parum ultra; stamina erecta subblaxa, 6 mm. diam., filamentis ebarbatis, pallide luteis, ad 5 mm. longis, antheris pollineque luteis; discus annularis, vix crenulatus, pallide viridis; ovarium omnino in receptaculo inclusum, supra planum,

medio tamen profunde 5-lobum, lobis cum aetate valde compressis elevatisque, stigmatibus 5 linearibus, longissime setaceoque acuminatis, interiore conspicue ramentaceis, 7 mm. longis; capsula supra, propter margines erectos valvarum, profunde 5-loba, aqua expansa 1.6 cm. diam., valvarum marginibus reflexis, 3 mm. latis, exceptis, valvis angustissime membranaceo-alatis, carinis basi contiguas, superne divergentibus, loculi membrana dimidium tegente, seminibus parieti exteriore positis, obovato-orbicularibus, pallide brunneis, levibus, vix 1 mm. longis.

Cape Province: South-Western Region; Swellendam Div., Uitvlugt, alt. 1800 ft., fl. Sept.–Oct., *Dr J. Muir*, 3927.

Described from a living specimen which flowered in Dr Muir's garden, Riversdale. Dr Muir states that this species is "Widely spread in the Klein Karoo; has same scent as *M. noctiflorum*, L., but in a greater degree; opens after sunset when the light has almost gone and is at its best when it is quite dark." Dr Muir also sends the following observations:

"Observed in nights 13–14 and 14–15 Oct. 1926.

6.35 p.m.: fls. began to open slightly.

7 p.m.:  $\frac{1}{2}$  open, still some glow in the sky but sun below horizon some time.

7.20 p.m.: nearly expanded.

8.30 p.m.: fully expanded.

11 p.m.–12 midnight: fully expanded; a wet mist falling but makes no difference to fls.

2.30 a.m.: closed. Not observed since 12 midnight."

The following appear to belong to this species: *Pillans*, 2041, from Matjesfontein; *Pillans*, 940, between Ladismith and Laingsburg.

*Mesembrianthemum Guthrieae*, L. Bolus. Lignosum, 12 cm. altum, intricate rigideque ramosum, ramis senioribus flexuosis, ad 8 mm. diam., ramulis vestigiis induratis foliorum pedunculorumque onustis, superne 4–6-foliatis, axillis gemmiferis; folia adscendentia vel rarius fere patentia, saepius subfalcata, carina inconspicua, lateraliter visa superne sensim ampliata, apicem versus subcymbiformia, saepe abrupte acuta, supra plana vel levissime convexa, lateribus convexis, minutissime lepidota, aliter levia, glauco-viridia, ad 2.2 cm. longa, 5–6 mm. lata, 9 mm. diam., basi connata, vagina vix 2 mm. longa; flores 3-nati vel saepe abortione solitarii, meridie expansi, 2 cm. diam., pedunculis 4–8 mm. longis, basi bracteatis, bracteis parvis; receptaculum turbinatum; sepala 5–6, inter se subaequilonga lanceolata vel lanceolato-ovata acuta, 6 mm. longa, 3 membranaceo-marginata; petala densa, ca. 2-seriata, linearia, acuta vel obtusa, inferne vix angustata, laete rubro-rosea, ad 9 mm. longa, 1.5 mm. lata; stamina erecta, laxe disposita sed tamen permulta, 6 mm. diam., filamentis basi barbatis pallidis, ad 3.5 cm. longis, antheris pollineque

aureis; glandulae 5—6 conspicuae contiguae crenulatae; ovarium supra concavum, stigmatibus 5—6, anguste subulatis, setaceo-acuminatis, 3 mm. longis vel parum ultra.

Cape Province: South-Western Region; Ceres Div., exhibited at the Show of wild flowers held at Ceres, Oct. 1926, and said to come from the "Ceres Karroo." Presented by *L. Guthrie* (Bolus Herbarium, No. 18531).

Described from one living specimen of what appeared to be almost a complete plant.

*Aridaria radicans*, L. Bolus. Prostratum, epapillosum glabrum, e basi ramosum, ramis teretibus elongatis radicanibus, cum aetate cuticula pallida levissima, ad 28 cm. longis vel ultra, ramulis adscendentibus vel erectis, 2—4 cm. longis, densissime foliatis; folia erecta vel patentia, basi vix connata, carina inconspicua, supra plana vel saepius canaliculata, obtusa vel acuta, levia glauco-viridia, juniora pruinosa, 1.4—2.4 cm. longa, ad 3 mm. lata diametroque; flores solitarii meridie expansi, 3 cm. diam., pedunculis saepius ad 1 cm. longis; receptaculum clavatum, ultra ovarium in tubum productum; sepala 4, inter se valde inaequilonga, 2 oblongo-ovata, late membranaceo-marginata, 2 foliis simillima, 0.7—1.5 cm. longa; petala sublaxa 3-seriata, basin versus coalita, linearia, inferne leviter attenuata, obtusa vel acuta, alba vel pallide straminea, 0.8—1.3 cm. longa, ad 1 mm. lata; stamina primum erecta, exteriora mox late patentia, 2.2 cm. diam., filamentis petalis adnatis, albis ebarbatis, ad 9 mm. longis, antheris pollineque luteis; nectarium e 4 fossis parvis compositum; ovarium supra subconico-convexum, parte superiore in receptaculo haud inclusa, stigmatibus filiformi-subulatis acuminatis 7 mm. longis; capsula immatura globose obovata, atro-rubra, basi 6 mm. diam., sepalis delapsis quasi circumscissis, rarius subpersistentibus, capsula matura aqua expansa 1.3 cm. diam., valvis intramarginaliter utrinque late membranaceo-alatis, carinis contiguis, ultra dimidium valvae attingentibus, loculi alis abeuntibus, seminibus axillaribus paucis, lateraliter compressis, tuberculatis tuberculato-cristatisque, 1.5 mm. diam.

South-West Africa: without precise locality, *Mrs Coulter* (National Botanic Gardens, No.  $\frac{1302}{24}$ ).

Described from ample living material which flowered freely at Kirstenbosch during the summer (Nov.—Feb.) of 1924 and 1925. What appears to be the same plant was collected by the Rev. F. A. Rogers, in South-West Africa, probably near Aus in Nov. 1924, and living specimens have recently been received from Miss Wilman, who states that the plant is said to be used in Luderitzbucht for covering bare and waste places. It is certainly a rampant grower, with often much thickened nodes, and sending out numerous rootlets from each node.

*Aridaria suffusa*, L. Bolus. Fruticulus erectus pruinosis, pulchre roseo-

suffusus, vel partibus senioribus pallidioribus subglaucis, ramis virgatis, obscure 4-angulatis, ad 5 mm. diam., internodiis ad 4.5 cm., saepius 1.5—3 cm., longis; folia patenti-erecta, semper opposita, teretia vel supra parum minus convexa, obtusa, ad 3 cm., saepius 1.5—2 cm., longa, ad 8 mm. diam., vagina linea exarata, 1—1.5 mm. longa, vetera diu persistentia deflexa; cyma irregulariter ramosa, ramis saepe 2-ternatis, bracteis interdum haud vere oppositis, parvis; receptaculum clavatum, in fructu immaturo succulentissimum, ultra ovarium breviter productum; sepala 4 suboblonga ecarinata, 2 longiora, ad 7 mm. longa, 2 late membranaceo-marginata 4—5 mm. longa, post anthesin accrescentia ovarium includentia, demum marcescentia, circumscissiliter decidua; petala inferiore parte connata, ut videtur angustissima, superne rosea, inferne alba, ca. 1 cm. longa; stamina pluri-seriata, petalis adnata, antheris exterioribus polliniferaeque albidis, interioribus luteis; ovarium supra conico-elevatum, fere omnino superum, ovulis axillaribus, seminibus e capsula immatura succulenta subcompressis rotundatis, basi truncatis, muricatis, margine rotundata cristata vel echinato-tuberculata.

Cape Province: Western Region; Little Namaqualand, on barren stony hills west of Arris Drift, fl. Oct. 1926, *N. S. Pillans*, 5237.

Described from living specimens of which the flowers were partly dried or crushed in transit. It is closely allied to *Mesembrianthemum tetragonum*, Thunb., and may prove to be only a variety of that species with pink petals.

*Aridaria tetramera*, L. Bolus. Fruticulus erectus, sat robustus, glaber, radice lignosa crassaque sed tamen haud tuberosa, caule basi ima ad 1.5 cm. diam., copiose ramosus, ramis patentibus subdecumbentibus rigidis, vel in cultis gracilioribus flexilibusque, primariis ad 7 mm., ceteris 2—3 mm., diam., griseo-brunneis vel saepe atratis, nodis subincrassatis, internodiis saepius 1.5—2.5 cm., rarius ad 3 cm., longis; folia adscendentia vel patentia-adscendentia, supra leviter convexa, subtus rotundata, obscure carinata, marginibus plus minusve evidentibus, obtusa vel abrupte subacuta, basin versus leviter angustata, breviter connata, vaginis 1—2 mm. longis, minute papillata, glauco-viridia rubro-apiculata, saepius 1.5—2 cm. longa, rarius supra ad 2.5 cm. longa, ad 4 mm. lata diametroque, cum aetate indurata, diu persistentia, reliquis subspini-formibus, saepe subspinescentibus atratisque, 1—2.5 cm. longis; flores 3-nati, lateralibus tardissime evolutis, vel abortione solitarii, meridie expansi, sine sepalis 2—2.3 cm. diam., pedunculis brevissimis, in vagina foliorum inclusis, lateralibus parum longioribus; receptaculum turbinatum, apice 8 mm. diam.; sepala 4, inter se valde inaequilonga, longiora variabilia, nunc 7 mm., nunc ad 1.5 cm., longa, foliis simillima, breviora late membranaceo-marginata, 4 mm. longa; petala numerosa, anguste linearia, obtusa vel acuta, straminea, ad 1.2 cm. longa, 0.5 mm.

lata, inferne connata, tubo 3 mm. longo; stamina ca. 6-seriata, filamentis 2—9 mm. longis, exterioribus tubo cohaerentibus, antheris parvis, cum polline, aureis, staminodiis extimis petalis fere aequilongis; nectarium e foveolis 4 compositum; ovarium supra conico-elevatum, stigmatibus 4 subulatis acuminatis rubicundis, 1.5 mm. longis, ovulis axillaribus; capsula (4 anni prioris visae), aqua expansa, 1.1 cm. diam., valvis 4, intra marginem late alatis, alis inflexis, carinis superne contiguas, seminibus subcompressis tuberculatis, margine minute cristatis, 1.5 mm. diam.

Cape Province: Western Region; Little Namaqualand, sandy hills, Hondeklip Bay, fl. Oct. 1924, *N. S. Pillans* (Bolus Herbarium, No. 17757).

Described from ample dried material and living specimens which flowered in Miss Arbuthnot's garden, Nov. 1925, and in Mr Pillans' garden, Nov. 1926. The variability in the length of the two long sepals is similar to that found in *M. trichotomum*, Thunb. (*M. ebracteatum*, Kensis) to which the present species is closely allied.

*Nananthus Peersii*, L. Bolus. Radix magna elongata tuberosa, apice ad 2.5 cm. diam., ramis abbreviatis confertis, dense 4—6-foliatis; folia patentia, demum recurva, expansa crassa, juniora linearia vel oblongo-lineararia, seniora oblonga vel ovato-oblonga, obtusa vel saepius apicem versus sensim attenuata, supra plana vel apicem versus leviter concava, infra convexa, superne inconspicue carinata, rubro-brunnea velutina, pilis crebris canis brevissimis, saepius 2—2.5 cm., rarius ad 5 cm., longa, medio 0.7—2 cm. lata, ad 1 cm. diam., connata, vagina ad 5 mm. longa; flores solitarii nocturni odorati, 3—3.6 cm. diam., fere sessiles vel pedunculo ad 9 mm. longo; receptaculum breviter turbinatum; sepala 5, inter se subaequilonga, ovata vel oblongo-lanceolata, acuta vel obtusa, ad 1.1 cm. longa; petala 3—4-seriata, sat laxa, lineararia, saepius acuta, sordide rubro-lutea, inferne pallidiora, ad 1.3 cm. longa, vix ad 1 mm. lata; stamina primum erecta laxe cylindrico-collecta, collectione saepe lateraliter compressa, 6 mm. et 9 mm. diam., filamentis pallide luteis, inferne albis, ad 8 mm. longis, interioribus dense barbatis, antheris pollineque pallidis; discus insigne conspicuus, annularis crenulatus; ovarium omnino inferum, supra semi-globose convexum, brevissime 12—13-lobatum, stigmatibus 12—13 filiformibus, 3 mm. longis; capsula (immatura tantum visa) aqua expansa 2.2 cm. diam., valvis dimidio superiore medio membranaceo-alatis, carinis basi fere contiguas, superne divergentibus, brevibus, ad quartam partem longitudinis valvae attingentibus, basi valvae utrinque ala membranacea semi-orbiculari, longe setaceoque acuminata, ad apicem valvae attingente, oriente, loculi alis fere omnino loculum tegentibus, seminibus parieti exteriori dispositis (immaturis levibus).

Cape Province: Karroo Region; Willowmore Div., near Miller, alt. 2235 ft., *V. S. Peers* (National Botanic Gardens, No. 1274).



Described from ample living material which flowered at Kirstenbosch Aug.—Sept. 1926. The time at which the flower was fully expanded varied from 6.30–10.30 and it was still open at midnight.

This is probably the same as the plant described by Berger (“Mesembrianthemem,” p. 279) as being *M. canum*, Haw., a species which Haworth likens to his *M. magnipunctatum*. (The only plant I know which seems to answer to the description of *M. canum*, Haw., is *M. Orpenii*, N.E.Br., from Griqualand West.) I have not been able to place this species satisfactorily in any of the genera included in the key published by Mr Brown in “The Gardeners’ Chronicle” (Nov. 21–28, 1925). Its affinities are with *M. rosulatum*, Kensit, *M. calcareum*, Marloth, *M. spathulatum*, Thunb., and with two undescribed species of which there is incomplete material in the Bolus Herbarium. It differs from the genus *Nananthus*, so far as this is described in the key mentioned above, in having 12–13 stigmas, and undotted leaves which often have a tendency towards being ovate.

*Psilocaulon fimbriatum*, L. Bolus. Fruticulus erectus, multo ramosus, exsiccatus pallide luteo-viridis, partibus herbaceis minute papillatis, junioribus parce pubescentibus pilis papilliformibus minutis, senioribus scaberulis vel tuberculatis, caule basi suberoso, ad 6 mm. diam., ramis adscendentibus vel infimis fere patentibus, teretibus, ad 3 mm. diam., internodiis cylindricis, saepius 0.5–1 cm. longis, ramulis 1.5–2 mm. diam.; folia adscendentia vel fere erecta, supra plana, subtus convexa, acuta apiculataque, basi ampliata, late amplexicauli, mox vel ab initio lutescente, margine membranaceo, parum supra basin ampliata persistentem constricta, tardius disarticulata, ad 1.2 cm., saepius 0.7–0.9 cm., longa, medio 1.5 mm. lata diametroque, basi distincta vel rarius brevissime connata; ramuli floriferi 1–3 cm. longi, fere erecti, saepe secundi, 1–5-fl., pedunculis 1–5 mm. longis; receptaculum turbinatum, ultra ovarium per 1 mm. productum; sepala 5, inter se fere aequilonga, lanceolata vel oblonga, minute apiculata, 3 membranaceo-marginata, 2–2.5 mm. longa, diu persistentia, demum circumscissiliter decidua, receptaculi tubo persistente; petala 2-seriata, basi connata, dimidio superiore vel ultra serrata vel lacerata vel fimbriata, longe setaceo-acuminata, inferne angustata, medio latissima, 1 mm. lata vel parum ultra, pallide straminea vel alba, translucencia, 4 mm. longa; stamina erecta laxa, basi ad petala brevissime adnata, filamentis petalis subaequilongis, pallide luteis, antheris conspicuis ultra petala leviter exsertis, cum polline laete luteis; ovarium fere omnino superum, conico-convexum, ovulis axillaribus, stigmatibus 5, angustissime subulatis, acuminatis, 2 mm. longis; capsula fere globosa, basi 3.5 mm. diam., aqua expansa 7 mm. diam., valvis late patentibus, marginibus deflexis, carinis contiguis, membrana e basi valvae utrinque oriente, lateribus fere ad apicem valvae

adnata, basi obliqua, margine libera ad carinas transeunte; semina sub-orbicularia, sed basi truncata, minute tuberculata.

South-West Africa; near the Orange River,  $\frac{3}{4}$  mile north of Sendling's Drift, on sandy slopes, alt. ca. 550 ft., fl. Oct. 1926, *N. S. Pillans*, 5284.

Described from one plant, partially dried, but with some almost freshly opened flowers sufficient for a satisfactory examination. The petals are remarkable, and unlike those of any other species in the Mesembrianthemum-group known to me, in having their margins incised. This character has suggested the name, *fimbriatum*, as well as the fringed appearance given by the finely acuminate petals round the stamens.

*Psilocaulon* Pageae, L. Bolus. Diffuse ramosum glabrum, in vivo papillato-granulatum (more *M. granulicaulis*, Haw.), ramis patentibus vel adscendentibus, saepe apicem versus decurvatis ferentibusque ramulos floriferos crebros breves, ad 4 mm. diam., internodiis saepius 0.7—1.5 cm. longis; folia non bene visa, marcescentia, ad 1.4 cm. longa, reliquis squamiformibus minutis flores irregulariter cymosi vel abortione 1—2-nati, meridie expansi, 1.4 cm. diam.; receptaculum clavatum, parum ultra ovarium productum, apice 3 mm. diam.; sepala 5, inter se fere aequilonga, late ovata, extima acuta, 3 mm. longa, intima fere orbicularia, profunde concava, fere omnino membranacea, 2—2.5 mm. longa; petala inter se subaequilonga, basi connata, linearia obtusa, inferne levissime angustata, lilacino-rosea, 6 mm. longa, 0.5 mm. lata; stamina conico-collecta, cono fere 5 mm. alto, apice 1 mm. diam., staminodiis albis translucetibus acutis, ad 4 mm. longis, circumdata, antheris magnis, fere 1.5 mm. longis, cum polline pallidis; glandulae 5, crenulatae inconspicuae; ovarium supra conico-convexum, stigmatibus 5, anguste subulatis, acuminatis, 3 mm. longis, ovulis axillaribus; cetera generis.

Cape Province: South-Western Region; Montagu Div., Montagu Baths, fl. Oct. 1921, *M. M. Page* (Bolus Herbarium, No. 17167).

Described from dried specimens and a drawing made by Miss Page from the living plant.

*Erepsia promontorii*, L. Bolus. Gracilis subdebilis, ca. 12 cm. alta, e basi ramosa, ramis patentibus vel decumbentibus, ad 2 mm. diam.; folia, saepius adscendentia, carinata, carina vix compressa, supra medio levissime convexa vel plana, acuminata verrucosa, sordide viridia, connata, vagina 1 mm. longa, internodiis longiora, saepius 1—2 cm. longa, 1 mm. lata, ad 2 mm. diam.; flores solitarii vel 2-nati, per diem neque per noctem expansi, 2.5 cm. diam., pedunculo saepius ad 1 cm. longo; receptaculum globose turbinatum, conspicue verrucosum, in tubum productum; sepala 5, inter se valde inaequilonga, lanceolata, longe acuminata, 3 membranaceo-marginata, 0.6—1.2 cm. longa; petala ca. 7-seriata, fere omnia, etiam intima, apice 2-dentata, linearia, inferne angustata, extima sublaxa

roseo-purpurea, interiora densa, inferne pallidiora, intima albida, ad 1.2 cm. longa, vix ad 1.5 mm. lata; stamina exteriora adscendentia, haud omnino abscondita in flore expanso, interiora valde incurva, filamentis pallidis, basi dilatatis, antheris pallidis, polline aureo; discus inconspicuissimus annularis, 5 mm. diam.; ovarium supra planum vel levissime convexum, stigmatibus 5, crassis subdeltoideis brevissimis, 0.5 mm. longis.

Cape Province: South-Western Region; Cape Div., Cape Point, *I. Arbuthnot*, Jan. 1924 (Bolus Herbarium, No. 17894).

Described from living specimens which flowered in Miss I. Arbuthnot's garden, Wynberg, Jan. 1925.

A cutting from the original plant flowered in November, 1926. This had leaves up to 2.5 cm. long, glaucous green, and with the tubercles less crowded and less prominent.

*Erepsia Stokoei*, L. Bolus. Fruticulus glaber, ad 13 cm. altus, e basi ramosus, ramis fere erectis virgatis, ancipitibus, 2—3 mm. latis, internodiis 0.8—2.2 cm. longis; folia saepius fere erecta, leviter falcata, carinata, carina valde compressa, inferne decurrente, superne serrulata, supra concava, abrupte acuta apiculata, apiculo erecto vel recurvato, 1.3—2 cm. longa, basi 4 mm. lata, ad 5 mm. diam., basi connata, vagina 2—3 mm. longa; flores solitarii vel 2-nati, per diem noctemque expansi, ad 2.3 cm. diam., pedunculo floris secundi ad 1 cm. longo, medio bracteato; receptaculum magnum subcylindricum, in tubum productum, minute papillatum, ad 9 mm. longum, cum aetate obovatum, ad 1.7 cm. longum diametroque; sepala 5, lanceolata vel ovato-lanceolata, acuminata, inter se inaequilongia, ad 6 mm. longa, 3 late membranaceo-marginata, 3—4 mm. longa; petala ca. 5-seriata, intima densa filiformia rigida alba, media linearia subobtusata, exteriora laxa lineari-spathulata, acuta vel acuminata, rosea vel dilute rosea, ad 1.1 cm. longa, fere ad 2 mm. lata; staminodia saturate purpurea, superne pallidiora; stamina valde incurvata, filamentis purpureis, antheris pollineque albidis; discus inconspicuus annularis crenulatus, basi staminum positus; ovarium supra concavum vel planum, stigmatibus anguste subulatis, acuminatis, fere 1.5 mm. longis.

Cape Province: South-Western Region; Caledon Div., Palmiet River Mountains, fl. Jan. 1925, *T. P. Stokoe* (Bolus Herbarium, No. 18538).

*Carpobrotus Pageae*, L. Bolus. Rami robusti, 1.2 cm. diam. vel ultra; folia adscendentia, saepe fere erecta, subarcuata, supra plana vel levissime convexa, lateribus planis vel inferne leviter convexa, carina apicem versus interdum minute serrulata, lateraliter visa e basi gradatim ampliata, apice rotundata, pallide glauca, roseo-suffusa, saepius 9—11.5 cm. longa, ad 1.1 cm. lata, ad 2 cm. diam., basi brevissime connata, vagina vix ad 2 mm. longa; flores ad 7 cm. diam., pedunculo 4—9 cm. longo, sat

gracili, supra medium bracteato, apice rugosus, cum aetate subter receptaculum subconstricto; bracteis 1.3—3 cm., saepius 2.5 cm., longis; receptaculum cum aetate globosum, utrinque carinatum, saepe 1.7 cm. longum; sepala 5, inter se inaequalia, 1.1—1.7 cm. longa, 3 membranaceo-marginata; petala ca. 3-seriata, linearia, acuta vel subacuta integra lilacino-rosea, 1—2.5 cm. longa; stamina ad 7 mm. longa, filamentis albis, interioribus barbatis, antheris pollineque pallidis; discus inconspicuus crenulatus; ovarium planum, medio leviter elevatum, ovulis parietalibus, stigmatibus 10, anguste subulatis, acuminatis, 1—1.2 cm. longis; fructus globosus, utrinque carinatus, odore pomorum, sepalis herbaceo-persistentibus, 2.2 cm. longus, 2.8 cm. diam.

Cape Province: South-Western Region; Robertson Div., near Montagu, "by the stream (with *M. edule*) in the gorge, Montagu Baths, and also by the stream in Douker Kloof, Montagu," fl. Oct. 1921, *M. M. Page* (Bolus Herbarium, No. 17890). Locality uncertain, *C. F. Juritz*, 105.

Described from ample living material which flowered in Dr C. F. Juritz's garden, September 1921, and Miss Page's collections. The nearest ally is *C. Fourcadei*, L. Bolus, from which it differs in the shape and colouring of the leaves and, especially, in the receptacle not being prolonged beyond the ovary to form a tube.

*Carpobrotus Vanzijliae*, L. Bolus. Rami valde 4-angulati, internodiis 1.5—6 cm. longis, ramulis floriferis saepius dense 6—8-foliatis, cum flore ad 9 cm. longis; folia fere erecta, rarius patenti-adscendentia, supra plana, lateribus planis vel levissime convexis, luteo-viridia, 5—7 cm. longa, 6—7 mm. lata, ad 1.1 cm. diam.; flores ca. 8 cm. diam., meridie expansi; pedunculi 2—2.3 cm. longi, medio bracteati, bracteis basin sepalorum attingentibus; receptaculum clavatum, leviter lateraliter compressum, 1.5—2 cm. longum; sepala 5, inter se inaequilonga, 1.2—2.3 cm. longa; petala ca. 3-seriata, linearia, acute acuminata, pulcherrime rosea, basi pallidiora, ad 3 cm. longa, ad 2 mm. lata; stamina erecta laxa, vel interiora incurva, intima inflexa, ca. 2 cm. diam., filamentis albis, ad 6 cm. longis, omnibus inferne plus minusve barbatis, antheris pollineque dilute luteis; discus inconspicuus annularis; ovarium in receptaculo omnino inclusum, supra planum, nisi leviter convexum medium versus, stigmatibus 10—11, erectis vel fere erectis, anguste subulatis acuminatis, 5.5 mm. longis; fructus subpyriformis, utrinque conspicue carinatus, ad 3.7 cm. longus, apice 2.6 cm. diam., sepalis herbaceo-persistentibus neque accrescentibus, pedunculo erecto.

Cape Province: South-Western Region; exact locality uncertain but probably between George and Oudtshoorn, *Mrs Dorothy van Zijl* (Bolus Herbarium, No. 18553).

This has flowered for several years in Mrs van Zijl's garden, at Clare-

mont, near Cape Town, from cuttings made from the plant originally collected. During this period I have had it under observation and have noted no change due to cultivation or hybridisation with other species of *Carpobrotus* established in Mrs van Zijl's garden. It flowers early in the season, beginning early in August and lasting into October. The fruit is slightly sweet when quite ripe.

*Carpobrotus Fourcadei*, L. Bolus. Robustus, ramis radicanibus angularibus, cortice aureo-brunneo, ad 1 cm. diam., ramulis erectis, saepe 4-foliatis; folia saepius fere patentia, leviter arcuata, carina vix compressa, lateribus sat turgidis, supra plana, basin apicemque versus parum angustata, viridia vel glauco-viridia, saepius 7—9 cm. longa, 9 mm. lata, ad 1.2 cm. diam.; flores solitarii, meridie expansi, 6 cm. diam., vel parum ultra, pedunculo 5—6 cm. longo, supra medium bracteato, apice primum leviter, cum aetate valde, constricto; receptaculum globosum, utrinque inconspicue carinatum, 1.7 cm. longum, ultra ovarium in tubum, 4—5 mm. altum, productum; sepala 5, inter se inaequilonga, 1.3—1.8 cm. longa, acuta, 3 late membranaceo-marginata; petala densa, ca. 5-seriata linearia, inferne leviter angustata, apice saepe tenuiter dentata, alba vel pallide rosea, ad 2.3 cm. longa, 2 mm. lata; stamina permulta, incurva vel inflexa, exteriora demum erecta, filamentis albis, basi barbatis, ad 7 mm. longis, antheris parvis albidis; discus sat conspicuus, minute crenulatus, 1.8 cm. diam.; ovarium supra planum, stigmatibus 15, linearibus acutis, intus conspicue ramentaceis, 3—4 mm. longis, mox late patentibus, ovario adpressis; fructus globosus, saepius 3 cm. diam., tubo receptaculi ad ovarium adpresso, sepalis marcescentibus induratisque instructus, dulcis.

Cape Province: South-Western Region; Humansdorp Div., top of Karedouw Pass, alt. 1600 ft., fl. Aug.—Sept. 1924, *H. G. Fourcade*, 2301. ("Flower tinged red.") Uniondale Div., Kromme River Heights, alt. 1500 ft., fl. Aug. 1923, *H. G. Fourcade*, 2702. ("Flower white.")

Described from ample living material which flowered in the grounds of the Bolus Herbarium, Kirstenbosch.

*Carpobrotus Juritzii*, L. Bolus (= *Mesembrianthemum Juritzii*, L. Bolus), comb. nov.

*Carpobrotus Muirii*, L. Bolus (= *Mesembrianthemum Muirii*, L. Bolus) comb. nov.

*Carpobrotus Mellei*, L. Bolus (= *Mesembrianthemum Mellei*, L. Bolus), comb. nov.

*Carpobrotus deliciosus*, L. Bolus (= *Mesembrianthemum deliciosum*, L. Bolus), comb. nov.

*Metalasia Galpinii*, L. Bolus (Eu-Metalasia. § *Condensatae*). Fruticulus 20—30 cm., vel ad 90 cm., altus (fide J. Muir), ramis dense foliatis, tenuiter tomentosis, glabrescentibus, ad 3 mm. diam.; folia adscendentia vel

erecta, saepius leviter falcato-curvata, apicem versus subrecurva, haud torta, axillis nudis, anguste linearia, pungenti-mucronata, dorsaliter glaberrima nitentiaque pallida, internodiis multo longiora, 0.9—1.7 cm. longa, ad 1 mm. lata; capitula cylindrica, supra medium leviter constricta, 3—5-fl., 7 mm. longa, subsessilia vel pedunculata, pedunculis ad 4 mm. longis, subcorymbose aggregata, "corymbis" foliis circumdatis, 1.7—2.5 cm. diam.; involucrium majore parte griseo-tomentosum, tomento adpresso, squamis inferioribus circa 12, 3-seriatis, anguste linearibus, acuminatis, apice saepe recurvis, superioribus circa 9, 3-seriatis linearibus, acuminatis vel acutis, albis; pappi setae minute serrulatae, superne leviter ampliatae, acuminatae; corolla 4 mm. longa.

Cape Province: South-Western Region; Riversdale Div., north entrance to Garcia's Pass, alt. 1200 ft., fl. September 1897, *E. E. Galpin*, 4156. Stony hill near the road between Garcia's Pass and Muiskraal, alt. ca. 1850 ft., fl. October 1904, *H. Bolus*, 11319. Langeberg above Phisantefontein, alt. 1500 ft., fl. June 1924, *J. Muir*, 3135.

Near *M. pulcherrima*, Less., from which it differs in the longer and narrower leaves, which are usually falcately curved and with a distinct tendency to recurve towards the apex; and in the appearance of the capitula. The foliage is similar to that of *M. pallida*, Bolus, but the involucre is different. The general shape of the capitula and their arrangement in the "corymbis" are very similar to those in *M. Lichtensteinii*, Less., but from this species it may readily be distinguished by the smaller capitula, with fewer flowers, and by the very different foliage.

*Metalasia Bodkinii*, L. Bolus (Eu-Metalasia. § Capitatae). Fruticulus diffusus, sat gracilis, 15 cm. altus, ramis inferioribus subdecumbentibus, vix ad 2 mm. diam., ramulis adscendentibus vel erectis, griseo-tomentosis, tomento tandem deciduo; folia patentia vel adscendentia torta, axillis nudis vel rarius inconspicue gemmiferis, oblongo-obovata, infra medium angustata, mucronata, utrinque dense cinereo-tomentosa, internodiis longiora, saepius 6 mm. longa, 2—2.5 mm. lata, manu explanata; capitula sessilia, inter se distincta vel fere distincta, 5-fl., 7.5 mm. longa, sublaxe capitato-aggregata, "capita" 0.6—1.4 cm. diam.; involucrium cylindricum, pro majore parte lanato-tomentosum, pilis cinereis atrisque parce intermixtis, squamis inferioribus 6—8, extimis foliaceis, ceteris calycinis acuminatis, 3—5 mm. longis, superioribus 1-seriatis, e medio recurvatis, modo *M. quinqueflorae*, linearibus, acutis vel subacutis, albidis, externe interdum brunneis, 6.5 mm. longis; corolla infra medium leviter constricta, 4 mm. longa; pappi setae uniformiter latae, serrulatae, corollam excedentes.

Cape Province: South-Western Region; Caledon Div., Zwarteberg, near Caledon, alt. 2500 ft., fl. Oct. 1894, *A. A. Bodkin* (Bolus Herb., No. 6915).

Allied to *M. quinqueflora*, DC., which it closely resembles in the set and shape of the 1-seriate petaloid involucreal scales, but the leaves are very different; the heads are more loosely clustered and their indument is more woolly; and the pappus-bristles are not broadened upwards. By reason of the heads being completely sessile it seems best placed in the § *Capitatae*.  
*Metalasia Schlechteri*, L. Bolus (Eu-*Metalasia*. § *Capitatae*). Fruticulus rigidus, ut videtur ca. 20 cm. altus vel ultra, ramis ramulisque adscendentibus vel erectis, ad 3 mm. diam., junioribus tenuiter cano-araneosis; folia patentia vel reflexa torta oblongo-lineariter obtusa, minute mucronata, dorsaliter mox glaberrima, saturate viridia, saepius 2 mm. longa vel minora, axillis saepissime gemmiferis; capitula 3—4-fl., sessilia gracillima cylindracea, ad 1 cm. longa, medio 1.5 mm. diam., ca. 4—16 capitato-aggregata, arcte conferta; involucri squamae erectae, 5—6-seriatae, acute acuminatae vel rarius acutae, series 3—4 inferiores in albo tomento absconditae, apicibus brunneis exceptis, series 2—3 superiores petaloideae albae vel pallidissime roseae, 8 mm. longae, vix ad 1.5 mm. latae; pappi setae barbellatae, corollis longiores; corolla gracillima, 5 mm. longa, segmentis lanceolatis, vix 1 mm. longis; antherae filamentis duplo longiores vel ultra.

Cape Province: South-Western Region; Paarl Div., mountains near Bain's Kloof, alt. 1000 ft., fl. Feb. 1897, *R. Schlechter*, 10243.

This species is readily distinguished from all the others in the subgenus *Eu-Metalasia* by the long slender heads and the acuminate involucreal scales.

*Metalasia Phillipsii*, L. Bolus (Eu-*Metalasia*. § *Capitatae*). Fruticulus 25 cm. altus vel ultra, ramis erectis vel adscendentibus, glaberrimis, ad 3 mm. diam.; folia patentia vel reflexa torta, oblonga vel lineari-oblonga, mucronata, dorsaliter glaberrima, ad 3 mm., saepissime 2 mm., longa, axillis gemmiferis, fasciculo stellam formante; capitula 3-fl., 5—6 mm. longa, sessilia, in glomerulas basi parcissime tomentosas aggregata, glomerulis saepe 6-capitatis, foliis paucis coloratis involucreatis, breviter pedunculatis, umbellatim dispositis, "umbella" 0.8—1.5 cm. diam.; involucri squamae ca. 4-seriatae, acutae vel subacutae, inferiores oblongae rubicundae, interiores 3-seriatae, laete roseae, intimae ca. 1 mm. latae; pappi setae serrulatae, superne inconspicue incrassatae.

Cape Province: South-Western Region; Ceres Div., Matroosberg, near Laaken Vlei, alt. 5500 ft., Nov. 1917, *E. P. Phillips*, 1892 (South African Museum Herb., No. 11692).

This appears to be closely allied to the little-known *M. capitata*, Less., from which, however, it differs in having the upper involucreal leaves well developed, and the petaloid involucreal scales in three series. Moreover, in *M. capitata* the branches are described as being tomentose while

in *M. Phillipsii* they are remarkably glabrous. The localities of the two species are wide apart.

*Metalasia Barnardii*, L. Bolus (Eu-Metalasia. § Glomeratae). Fruticulus robustus, ut videtur ca. 25 cm. altus vel ultra, ramis erectis vel adscendentibus, dense foliosis, albo lanato-tomentosis, ad 5 mm. diam.; folia fere erecta vel patentia, plus minusve torta, rarius stricta, linearia acuminata pungenti-mucronata, dorsaliter demum glabrescentia, nervo medio prominente, ad 1.5 cm., saepius 1—1.2 cm., longa, axillis saepius gemmiferis; capitula 5-fl., ca. 6 mm. longa, arcte conferta in capita globosa speciosa, foliis longis involucrata, basi dense lanato-tomentosa, 2—3 cm. diam.; involucri squamae petaloideae 2—3-seriatae subplicatae, exteriores pallide, interiores laete, roseae, obtusissimae vel rotundatae, marginibus subundulatis, in genere latae, ad 2 mm. latae, squamae calycinae paucissimae; pappi setae superne conspicue ampliatae.

Cape Province: South-Western Region; Paarl Div., Wellington Sneeuwkop, alt. 5000 ft., *K. H. Barnard* (South African Museum Herb., No. 28035).

This is the handsomest of the *Metalasiae* known to me. The densely massed heads with their involucreal scales of varying shades of delicate pink are in pleasing contrast with the grey-woolly leaves on the flowering branchlets. Each head with its broad, slightly folded, and closely imbricating, scales looks like a tiny opening rose-bud. The affinity is with *M. Cephalotes*, Less.

*Metalasia Bolusii*, L. Bolus (Eu-Metalasia. § Glomeratae). Fruticulus sat rigidus; folia patentia vel reflexa vel, prope capitula, erecta, plus minusve torta, linearia mucronata glabrescentia, ad 7 mm. longa, axillis gemmiferis, superioribus exceptis; capitula 3-fl., 5 mm. longa, capitato-conferta, "capita" globosa, griseo lanato-tomentosa, foliis paucis longis involucrata, ad 1.8 cm. diam.; involucri squamae ca. 3-seriatae, saepius inter se subaequilongae, petaloideae 2-seriatae obtusae, minute apiculatae vel emarginatae, vel subcrenulatae, candidissimae; pappi setae superne clavato-ampliatae acutae, inferne serrulatae; corolla 3 mm. longa vel parum ultra, segmentis acutis.

Cape Province: South-Western Region; Malmesbury Div., in sandy dunes near Hopefield, alt. 100 ft., fl. September 1905, *H. Bolus*, 12715.

*Metalasia decora*, L. Bolus (Eu-Metalasia. § Fastigiatae). Fruticulus erectus, 30 cm. altus vel ultra, ramis ad 20 cm. longis, vix ad 3 mm. diam.; folia aut erecta adpressa stricta, axillis haud gemmiferis, aut plus minusve adscendentia, basi subtorta, axillis gemmiferis, oblonga vel lineari-oblonga, convexa, basin versus angustata, acuta mucronata, vel superiora cymbiformia, dorsaliter tomentosa, mox glaberrima nitentiaque, olivaceo-viridia, ad 9 mm., saepius 5 mm., longa; capitula 3-fl., subsessilia, in



glomerulas, basi tomento intertextas, pedunculatas, corymbose disposita, "corymbo" multo ramoso, hemisphaerico, 2—3·5 cm. diam.; involucri squamae 5-seriatae, calycinae paucae (4—6) 2-seriatae, lineares vel lineari-spathulatae, acuminatae vel acutae, squamae corollinae 3-seriatae spathulatae, acutae vel intimae obtusissimae, roseae, ad 1·5 mm. latae; pappi setae superne ampliatae, inferne minute serrulatae; corolla 3·5 mm. longa, segmentis brevissimis.

Cape Province: South-Western Region; Caledon Div., hills near Hermanus, alt. 400 ft., fl. Nov. 1893, *H. Bolus*, 9179.

Allied to *M. speciosa*, Hutchinson, from which it may readily be distinguished by the round-backed or cymbiform leaves, straight or scarcely twisted, and the more loosely woolly tomentum on the heads. Also allied to *M. nitidula*, Harv., which, however, has longer and narrower leaves, less loosely branched "corymbs," and a much less woolly tomentum on the heads than *M. decora*.

*Moraea Duthieana*<sup>1</sup>, L. Bolus (Irideae-Moraeae. Subgenus Eu-Moraea: Acaules). Planta 10—16 cm. alta; cormus globose ovatus, 1—1·5 cm. diam., bulbillas emittens, tunicis interioribus mollibus cancellatis, extimis in segmenta crassa suberosa erumpentibus; caulis omnino foliis vestitus; vaginae basales 2, pallidae, ad 3 cm. longae; folia caulina 3, fere erecta linearia acuminata, apice vero obtusa, crebre nervata, glabra vel rarius parce puberula, obscure ciliolata, marginibus planis, ad 13 cm. longa, 7 mm. lata; spatha gracilis obtusa, 3·5—6 cm. longa, 3-fl.; pedicelli saepius longe exserti, 3—6 cm. longi; perianthium laete luteum, ca. 3·5 cm. diam., segmentis exterioribus ad 2·5 cm. longis, lamina obovata, ad 1 cm. lata, basi maculata, macula rubro-brunnea, extus rubro-brunnea, ungue oblongo, intus dense piloso, segmentis interioribus immaculatis, 2·1 cm. longis, ungue lamina parum longiore, lamina 7 mm. lata; stamina ca. 6 mm. longa; ovarium gracillimum, pedicello vix crassius, cristis erectis, laete luteis, late ovatis, abrupte acuminatis, marginibus undulatis, fere ad 9 mm. latis, ad lobum stigmatiferum integrum semi-orbicularem 2-partitis.

Cape Province: South-Western Region; Stellenbosch Div., edge of a marsh near the road from Cape Town to Stellenbosch, about 10 miles from Stellenbosch, fl. Aug. 17, 1926, *L. Bolus* (*Bolus Herbarium*, No. 18529).

Described from living specimens. Closely allied to *M. ciliata*, Ker, but readily distinguished by the broad stigma-crests which fill up the centre of the flower, giving it an entirely different look from that of the former species. In the yellow colour of the flower it approaches more nearly to *M. minuta*, Ker (included by Baker in *M. ciliata*, Ker), but this is

<sup>1</sup> Named in honour of Miss A. V. Duthie, who has made an extensive study of the plants of the Stellenbosch Division.

described as having "lanceolate petals" and no mention is made of the very distinctive stigma-crests. It seems advisable, therefore, to publish a fresh description of the excellent living material available.

*Hesperantha Metelerkampiae*, L. Bolus. Planta 16 cm. alta, glabra; folia basalia 3, adscendentia vel subfalcato-recurvata, acuta, nervo medio inconspicuo, nervis primariis utrinque 3—4, ad 10 cm. longa, 1 cm. lata, caulinum 1, longe vaginans, vagina ventricosa carinata, utrinque prominenter 2—3-nervata, 6 cm. longa, lamina 2·5 cm. longa, 2—3 mm. lata, ramum inflorescentiae emittens; spica laxe 3-fl., axi flexuoso, pedunculo 5 cm. longo; bracteae per majorem partem membranaceae, 2—2·2 cm. longae, bracteolis eis fere aequilongis, fere ad apicem coalitis; perianthium speciosum aureum atro-purpureumque, tubo vix 3 mm. longo, segmentis oblongo-obovatis, deltoideo-apiculatis, 3 cm. longis, exterioribus subtus omnino purpureo-brunneis, supra tertia parte superiore, nervo medio, basin versus, atro-purpureis, interioribus utrinque aureis, nota atro-purpurea, apice parva spathulata, basi obovata, ornatis; stamina exacte equilateralia, filamentis 3 mm., antheris 1·3 cm., longis; stylus 2 mm. longus, stigmatibus atro-purpureis, 8 mm. longis; capsula fere matura 8 mm. longa.

Cape Province: Central Region; near Nieuwoudtville, *Mrs F. W. Metelerkamp* (Bolus Herbarium, No. 18555). Flowered in Mr Metelerkamp's garden at Tulbagh, August 1926.

Described from one living specimen.

*Ixia Vanzijliae*, L. Bolus (Irideae-Ixieae. Subgenus *Eu-Ixia*). Planta 30 cm. alta; folia basalia 3, erecta linearia, spiraliter torta, marginibus crispulatis, ad 8·5 cm. longa, 4 mm. lata, caulina 2, longe vaginantia, vaginis carinatis, carina inconspicue crispulata; perianthii tubus gracillimus purpurascens, 1 cm. longus, segmentis duplo longioribus obovato-oblongis obtusis, exterioribus ad 1·1 cm., interioribus 1·5 cm., latis, omnibus paginis utrisque roseo-testaceis, basi vera purpureo-maculatis, macula parva; stamina ad dimidium segmentorum vix attingentia, filamentis inter se liberis purpureis, vix 3 mm. longis, antheris 7 mm. longis, polline aureo; stylus ad dimidium antherarum attingens, stigmatibus 2·5 mm. longis.

Cape Province: South-Western Region; exact locality uncertain but said to be from the Clanwilliam Div. Flowered in Mrs H. S. van Zijl's garden, Claremont, Aug.—Sept. 1926 (Bolus Herbarium, No. 18537).

*Watsonia Wilmaniae*, Mathews and L. Bolus. Plantae ad 1·40 met. altae; cormus depresso globosus; folia radicalia 6, leviter glauca, ad 50 cm. longa, ad 4 cm. lata, inferiora 2—2·5 cm. lata, nervo medio inferne prominente viridi, marginibus vix prominentibus, pallide luteis, folia caulina 4, internodiis longiora, infimum 45 cm. longum, vagina arcte adpressa, 21 cm. longa, summum 11 cm. longum; spathae 4, arcte adpressae, 8—2 cm. longae; inflorescentia 4-ramosa, ramis insigniter fastigiatis, parte

terminali 40-fl., ca. 50 cm. longa, ramis ad 16-fl., 21 cm. longis, floribus distiche et sat laxe dispositis, ab axi divergentibus; bractee rigidae adscendentes, superne membranaceae, ad 2 cm., saepius 0·7—1 cm., longae, bracteolis omnino coalitis, bracteis subaequilongis vel inferioribus brevioribus; perianthium roseo-purpureum, 5—6 cm. longum, tubo in medio genuflexo, tubi parte filiformi parti cylindricae subaequilonga vel parum brevior, segmentis 2 cm. longis, exterioribus 0·9 cm., interioribus 1·1 cm., latis; stamina arcuata, ad apicem segmentorum attingentia, antheris purpureis, 9 mm. longis; stigmata ad apicem antherarum fere attingentia, 2—3 mm. longa; capsula apice fere truncata, basi styli persistente indurataque instructa, inferne parum angustata, ad 1·5 cm. longa, ad 6 cm. diam., seminibus 5 mm. longis.

Exact locality unknown. Flowered freely in the National Botanic Gardens at Kirstenbosch from plants given by Miss M. Wilman, Curator of the McGregor Museum, Kimberley. (Bolus Herbarium, No. 18578.)

A distinct species characterised by the short bracts, the cylindrical portion of the tube being at right angles to the filiform portion, and the very erect branches of the inflorescence.

*Watsonia longifolia*, Mathews and L. Bolus. Plantae 1·40 met. altae vel ultra; cormus depresso globosus, tunicis in genere haud crassis; folia radicalia 4 infimum longissimum, ad 1 met. longum, quartum 56 cm. longum, medio 0·8—1·3 cm. lata, nervo medio prominente, nervis intermediis marginibusque inconspicuis, laete viridia, polita nitentiaque, caulina 8 vel rarius 6 (2 superioribus ramos inflorescentiae emittentibus itaque "spathae" dictis), infimum 34 cm. longum, lamina vera 4 cm. longa, vagina arcte adpressa, supremum 4·5 cm. longum, arcte adpressum, internodiis fere omnino vestitis; inflorescentia saepius simplex, rarius breviter 2-ramosa, ad 62 cm. longa, ad 37-fl., floribus sat densis distichis, cum bracteis bracteolisque arcte amplectentibus, ab axi divergentibus; bractee haud axem amplectentes, oblongae vel lineari-oblongae, acuminatae vel superiores obtusae, herbaceae, apice membranaceae, 4·5—2 cm. longae, bracteolis 2·7—2 cm. longis, fere omnino coalitis; perianthium album, pallide carneum, roseo-coralinum, vel rubro-coralinum, ad 8·7 cm. longum, tubo curvato, ad 6 cm. longo, parte filiformi parti cylindricae aequilonga, segmentis exterioribus oblongis subacutis, 1·1 cm. latis, interioribus obovato-oblongis, ad 1·5 cm. latis, supremo ceteris parum latiore; stamina arcuata, ultra dimidium segmenti attingentia, antheris pallidis vel atro-purpureis, ad 1·2 cm. longis, 3 staminodiis minutis interdum visis; stigmata antheras attingentia vel parum ultra, ad 7 mm. longa; ovarium medio leviter constrictum, 3—5 mm. longum; capsula apice fere truncata, styli basi indurata onusta, inferne leviter angustata, ad 2 cm. longa, 8 mm. diam., seminibus 9 mm. longis.

Cape Province: South-Western Region; Knysna Div., *J. D. Keet* (Bolus Herbarium, No. 17852).

Described from numerous living specimens which have flowered in the National Botanic Gardens, Kirstenbosch, during November, for several years.

The colour of the perianth varies from nearly white to pale rose-pink, old-rose, and shades of salmon-pink, coral and terra-cotta. A very beautiful form is the one with pale pink flowers and an apple-green flowering-axis.

The affinity is with *W. Pillansii*, L. Bolus, from which it differs in the flowers being distichous; bracts narrower and more acute and enclosing the perianth only—not clasping the rachis as in *W. Pillansii*—and the whole being divergent from the rachis, as in *W. Wilmaniae*, Mathews and L. Bolus.

*Watsonia hysterantha*, Mathews and L. Bolus (Eu-Watsonia). Planta 70—80 cm. alta, in genere inter graciliores; cormus fere globosus, tunicis percrassis, intricate cancellatis, reliquis fibrosis numerosis coronatus, ca. 7 cm. diam.; folia radicalia hysterantha, basalia vaginiformia 3, producta 5, ad 1 met. longa vel ultra, in cultis saepius 50—80 cm. longa, 0.6—1 cm. lata, vaginis 5—12 cm. longis, saepe decumbentia, nervo medio conspicuo tantum in pagina unica, marginibus haud incrassatis, nervis intermediis crebris inconspicuis, viridia (haud glauco-pruinosa), caulina 4, insigniter acuminata, in setam terminantia, 21—7 cm. longa, vaginis 9—3 cm. longis, internodiis superioribus bene exsertis; spica simplex, 20 cm. longa, sat laxe 9-fl., floribus fere erectis; bractea infima late amplexicaulis, longe cuspidata, ceterae cuspidato-acuminatae, 2—1.3 cm. longae, bracteolis parum brevioribus, fere ad apicem coalitis; perianthium saturate rubrum, 7 cm. longum, tubo apice 6—7 mm. diam., 4.3 cm. longo, parte filiformi 1.8 cm. longa, segmentis obtusis vel subacutis, exterioribus ovalibus, 8—9 mm. longis, interioribus obovato-oblongis, 1—1.2 cm. latis; stamina arcuata, ultra dimidium segmenti attingentia, antheris 1.2 cm. longis, stigmata superantibus; capsula inflata obovata, 2.1 cm. longa, seminibus ad 1.1 cm. longis.

Cape Province: South-Western Region; Malmesbury Div., Oliphant's Kop, near Langebaan (and Saldanha Bay), *J. W. Mathews* (National Botanic Gardens, No.  $\frac{1723}{24}$ ).

Described partly from dried and partly from living specimens which flowered at Kirstenbosch in May–June, 1925 and 1926. The leaves started their growth at the same time but only reached their full size in August–November. Hysteranthous leaves have not been observed by us before in living plants, and once only in an undescribed herbarium specimen, where, however, there is some doubt on the point. The thin texture of the bracts and of the leaves, in the wild state, is also to be noted.

*Watsonia vivipara*, Mathews and L. Bolus. Plantae 1 met. altae vel parum ultra; cormus depresso globosus; caulis ad 8 mm. diam.; folia radicalia 4, adscendentia vel fere erecta, acuminata, nervo medio prominente, nervis ceteris marginibusque inconspicuis, leviter glauca, ad 60 cm. longa, 5 cm. lata, caulina 3—4, infimum 46 cm. longum, vagina vera 16 cm. longa, secundum 31 cm. longum, vagina sat ventricosa, 18 cm. longa, tertium quartumque vaginiformia, axillis bulbiferis, bulbillis cum floribus contemporaneis, 18—9 cm. longa, internodiis superioribus breviter exsertis; inflorescentia 40—60 cm. longa, 4—5-ramosa, parte terminali 7—11-fl., ad 28—35 cm. longa, spatha ad 4·5 cm. longa, ramis saepius 3—4-fl., interdum ramo secundo vel etiam tertio quasi ex eadem bulbifera spatha oriente; bracteae acutae vel acuminatae, 2—1·4 cm. longae, bracteolis omnino coalitis, acuminatis, 2·5—2 cm. longis; perianthium erecto-patens rubrum, 6—7·2 cm. longum, tubi parte filiformi parti cylindrica aequilonga, segmentis linearibus acutis, inferne parum angustatis, marginibus subundulatis, ad 2·5 cm. longis, ad 7 mm. latis; stamina arcuata, segmentis subaequilonga, antheris 1·2 cm. longis; stylus perianthium parum excedens, ramis 4 mm. longis, ramulis stigmatiferis 2 mm. longis; capsula acuta, 2·5 cm. longa, 7 mm. diam., seminibus utrinque alatis, 1 cm. longis; bulbillae maturae ca. 2 cm. longae, basi 9 mm. diam.

Cape Province: South-Western Region; Robertson Div., near Montagu, *Compton and Cook* (National Botanic Gardens, No. 18324).

Described from several living specimens which flowered at Kirstenbosch during October, 1925 and 1926. The name alludes to the "bulbils" which while still on the parent plant put forth a green leaf, projecting for up to 1 cm. beyond the basal sheath of the "bulbil," suggesting the idea that this leaf may be functioning in order to permit the "bulbils" to start growth without a preliminary resting-stage. Except for the axils of the radical leaves and the bracts on the terminal part of the inflorescence, the remaining axils may bear dense clusters of bulbils, the former up to 2 cm. in diam.

In the large number of bulbils produced this species resembles *W. bulbifera*, Mathews and L. Bolus, but this difference must be noted: the development of the bulbils is concurrent with the development of the flowers in *W. vivipara*, whereas in the former their development starts when the flowering is nearly, if not quite, over.

*Antholyza Fourcadei*, L. Bolus (Iridaceae-Ixieae. Subgenus *Eu-Antholyza*). Planta glaberrima, ad 1·07 met. alta; cormus globosus ad 1·8 cm. diam., tunis e fibris tenuibus compositis; vaginae basales 2—3, ad 6 cm. longae; folia producta 3, infimum spicam superans, vagina arcte adpressa, crebre prominenterque nervata, 25 cm. longa vel ultra, lamina 2—4 mm. lata, nervo medio marginibusque prominentibus, folium secundum longe vaginans, parte libera ad 8·5 cm. longa, folium tertium ad 6 cm. longum,

parte libera nulla vel ad 2 cm. longa; spica ad 16 cm. longa, ad 7-fl., floribus secundis erecto-patentibus; bractee saepe semi-amplexicaules obtusae, 5—3.5 cm. longae, bracteolis 3—2.2 cm. longis; perianthium 6.8—7 cm. longum, tubo ad 6 mm. diam., segmentis late obovatis vel inferioribus late ovatis acutis, supremo ad 2.5 cm. longo, 1.5 cm. lato, lateralibus ad 1.8, inferioribus 1.2 cm., longis; stamina ultra dimidium segmenti supremi attingentia vel in floribus superioribus breviter exserta, antheris 1.1 cm. longis; stylus staminibus aequilongus vel parum brevior, rarius parum longior.

Cape Province: South-Western Region; Humansdorp Div., near Humansdorp, fl. Sept. 1923, *H. G. Fourcade*, 2337.

Intermediate between *A. quadrangularis*, Burm., and *A. Gawleri*, L. Bolus. In the former the lateral and lower perianth-segments are much smaller (3—5 mm. long), and the perianth-limb is comparatively inconspicuous; and in the latter the bracts are proportionately shorter, the perianth larger and differently coloured, and the cylindrical portion of the tube is proportionately shorter and more ample.

*Antholyza Buckerveldii*, L. Bolus. Glabra; folia producta 5—6, longe vaginantia, vaginis arcte adpressis, crebre nervatis, laminis ad 56 cm. longis, ad 2.3 cm., saepius 1.5 cm., lata, folium supremum bracteiforme, 12 cm. longum; spica simplex, ad 60 cm. longa, ad 31-fl., floribus patentibus secundis; bractee late patentes, lineares, acutae vel acuminatae, semi-amplexicaules, 9—3 cm. longae, bracteolis acuminatis, 6—2 cm. longis; perianthium viridi-luteum, 5.5—6.5 cm. longum, tubo apice 6 mm. diam., segmentis inter se valde inaequalibus, supremo oblongo-obovato, 2.2 cm. longo, 1.2 cm. lato, lateralibus ovatis acuminatis, 1.6 cm. longis, inferioribus ovatis acuminatis, prope medium purpureo-maculatis, 8—9 mm. longis; stamina fere ad apicem segmenti supremi attingentia, antheris 1.1 cm. longis; stigmata stamina leviter superantia, ca. 6 mm. longa; capsula herbacea, 2.3 cm. longa, ca. 9 mm. diam., seminibus late alatis, 1 cm. longis.

Cape Province: South-Western Region; Clanwilliam Div., mountains at Algeria, alt. 3000 ft., fl. Jan. 1926, *M. H. Buckerveld* (National Botanic Gardens,  $\frac{7}{2} \frac{5}{6}$ ).

Described from two dried specimens and sketches made from the living plant. A very distinct species.

*Acidanthera Fourcadei*, L. Bolus (Iridaceae-Ixieae). Planta glabra, 16—36 cm. alta; cormus globosus, 1.5—2 cm. diam., tunicis exterioribus e fibris sat tenuibus compositis, interioribus papyraceis brunneis; caulis teres politus; folia radicalia 3, sat rigida, anguste linearia, acuminata, ad 29 cm. longa, 0.5—1.5 mm. lata, marginibus subdilatatis, nervo medio ampliato, sulco intermedio utrinque angustissimo, vaginis crebre nervatis, folia

caulina 3—4, superiora vaginiformia, arcte adpressa, internodiis multo breviora, 1.5—19 cm. longa; flores erecti, saepe solitarii vel spica 1-ramosa vel rarius 2-ramosa, ramis 2.8—4 cm. longis, 1-fl., ramo inferiore juniore; bractee oblongae, superne attenuatae, apice vero subtruncatae, tubo perianthii parum longiores vel rarius breviores, 2—3 cm. longae, bracteolis fere aequilongis vel parum longioribus; perianthium purpureo-roseum, 3.5—5 cm. longum, tubo stricto, segmentis obtusis vel subacutis, tubo parum longioribus, exterioribus oblongo-ovalibus, ad 8 mm. latis, interioribus oblongo-obovatis, ad 1.1 cm. latis; stamina ad dimidium segmentorum vel ultra attingentia, antheris 0.8—1.2 cm. longis; stigmata gracilia, stamina parum superantia.

Cape Province: South-Western Region; Humansdorp Div., southern slopes of Witte Els Berg, alt. 2000—2400 ft., fl. Feb. 1924, *H. G. Fourcade*, 2968.

Described from dried specimens. The branching of the inflorescence is very unusual in the genus. Mr Fourcade states: "Out of 28 specimens collected 20 are unbranched and bear a single flower; 8 are branched and bear, 7 of them 2, and 1 of them, 3 flowers. At each branch one spathe-valve subtends the main peduncle and the branch with its own smaller valve, but the latter does not subtend the main peduncle."

*Lachenalia ovatifolia*, L. Guthrie. Herba glabra, 10—14 cm. alta; bulbus ovoideus pallidus, tunicis laxis crustaceis brunneis, 1—1.5 cm. diam.; folia 2, amplexicaulia, demum erecta vel patentia, late ovata, carnosa, sordide viridia, marginibus cartilagineis purpureis, supra pustulata, ca. 10-nervata, subtus levia, pallide purpureo-notata; pedunculus sat crassus pallidus, spica ca. 7 cm. longa, modice densa; bractee variabiles, deltoideae acutae vel gradatim angustiores, lineares acuminatae, ad 5 mm. longae, superiores steriles saepe numerosae; flores sessiles patentis, perianthio tubuliformi, basi obliquo, 1.5 cm. longo, 0.7 cm. diam., segmentis exterioribus 8 mm. longis, basi pallidis coeruleo-suffusis, apicem versus purpureis, segmentis interioribus basin versus albis, superne patentibus, purpureis, infimo ab ceteris distante et labium inferius formante; stylus staminibus aequilongus, perianthio brevior.

Cape Province: Western Region; Little Namaqualand, *M. H. Giffen* (National Botanic Gardens, No.  $1\frac{0\frac{6}{2}}{4}$ ).

Described from three living plants which flowered at Kirstenbosch, August 1926. It somewhat resembles *L. trichophylla*, Baker, but is readily distinguished by the two, glabrous leaves.

## THE PLACE OF LATIN IN SYSTEMATIC BOTANY

[The following memorandum has been communicated by a correspondent; and, as it represents my views on the subject, derived from those of the late Dr Harry Bolus, I have much satisfaction in publishing it here. EDITOR.]

A serious problem arises from the virtual disappearance of Latin from the curricula of many schools, more especially in the Dominions and the United States of America. Most of the older works on Systematic Botany are written in Latin. In other branches of Botany, papers and books may become obsolete during the course of a generation or even sooner, but in Systematic Botany it is frequently necessary to refer to the original descriptions of natural groups, in order to identify them with certainty, and these original descriptions may date back to 1753 or even earlier. Thus, in order correctly to interpret many of Linne's species which are characterized by a very brief phrase in the *Species Plantarum*, it is necessary to refer to such works as the *Hortus Cliffortianus* and the earlier books cited therein.

The Latin language continued to be the favourite medium of technical description, adopted in a great majority of taxonomic works until about the middle of the nineteenth century. From that time onwards more Floras were written in modern languages than in Latin.

A list of all important taxonomic works written in Latin would occupy many pages. Here only a small selection can be cited. Among the general works it may suffice to mention the various editions of Linne's *Genera Plantarum*, *Species Plantarum* and *Systema Naturae*, Jussieu's *Genera Plantarum*, Persoon's *Synopsis*, Sprengel's *Systema*, Roemer and Schultzer's *Systema*, Endlicher's *Genera Plantarum*, Bentham and Hooker's *Genera Plantarum*, De Candolle's *Prodromus*, De Candolle's *Monographiae Phanerogamarum* and Engler's *Pflanzenreich*, the latter still in course of publication.

Among European Floras may be cited Wahlenberg, *Flora Lapponica* (1812) and *Flora Suecica* (1831-33), Ledebour, *Flora Rossica* (1842-53), Williams, *Prodromus Florae Britannicae* (1901-12), Ganden, *Flora Helvetica* (1828-33), the first two editions of Koch's *Synopsis Florae Germanicae et Helveticae* (1835-44), Reichenbach, *Icones Florae Germanicae* (1838), Moris, *Flora Sardoia* (1837-59), Bertoloni, *Flora Italica* (1833-54), Parlato, *Flora Italiana* (1848-96), Brotero, *Flora Lusitanica* (1804), Willkomm and Lange, *Prodromus Florae Hispanicae* (1861-93), Host, *Flora Austriaca* (1827-31), Schlosser and Vukotinovic, *Flora Croatica* (1869), Visiani, *Flora Dalmatica* (1842-52)



Sibthorp, *Flora Graeca* (1806–40), Halacsy, *Conspectus Florae Graecae* (1900–08), Velenovsky, *Flora Bulgarica*, and Hayek, *Prodromus Florae Peninsulae Balanicae* (1924— ).

Among extra-European Floras may be mentioned Boissier, *Flora Orientalis* (1867–81), Janbert and Spach, *Illustrationes Plantarum Orientalium* (1842–57), Desfontaines, *Flora Atlantica* (1798), Webb and Berthelot, *Histoire Naturelle des Iles Canaries* (1835–60), Ledebour, *Flora Altaica* (1829–34), Thunberg, *Flora Japonica* (1784), Siebold and Zuccarini, *Flora Japonica* (1835–70), Wallich, *Plantae Asiaticae Rariores* (1830–32), Jacquemont, *Voyage dans l'Inde Botanique* (1844), Miguel, *Flora Indiae Batavae* (1855–60), Labillardière, *Novae Hollandiae Plantarum Specimen* (1804–06) and *Sertum Austro-Caledonicum* (1824), R. Brown, *Prodromus Florae Novae Hollandiae* (1810), F. Mueller, *Fragmenta Phytographiae Australiae* (1852–82), J. D. Hooker, *Flora Antarctica*, Guillemin and Perrottet, *Florae Senegambiae Tentamen* (1830–33), A. Richard, *Tentamen Florae Abyssinicae* (1847–51), Thunberg, *Flora Capensis* (1807–13), Michaux, *Flora Boreali-Americana* (1803), Pursh, *Flora Americae Septentrionalis* (1814), W. J. Hooker, *Flora Boreali-Americana* (1833–40), N. J. Jacquin, *Selectarum Stirpium Americanarum Historia* (1763), Swartz, *Flora Indiae Occidentalis* (1797–1806), Urban, *Symbolae Antillanae* ( ), Humboldt, Bonpland and Kunth, *Nova Genera* (18 - ), Martius, *Nova Genera et Species Plantarum Brasiliensium* (1824–29), St Hilaire, *Flora Brasiliae Meridionalis* (1825–32), Ruiz and Pavon, *Flora peruviana et chilensis* (1798–1802).

It is evident that without a good working knowledge of botanical Latin a systematic botanist is so badly handicapped that he cannot be regarded as really efficient. It is incumbent on every professional systematist who at the commencement of his career is without such knowledge to acquire it without delay, so that he may be able to profit by the works of his predecessors and to check modern identifications by comparison with the original descriptions.

Nowadays most Floras are written in modern languages so as to suit the convenience of a majority of their readers. Those botanists who are working on the floras of particular regions will naturally acquire the language or languages used in botanical works dealing with the regions in question, but monographers and authors of revisions of widespread genera obviously cannot afford the time to learn even the elements of several of the less known modern languages. Hence it is extremely desirable that all descriptions of new groups should either be in Latin or be accompanied by a Latin diagnosis, in which the salient features of the new group are indicated. This was recognized at the International Botanical Congress of Vienna (1905), and a Rule was adopted that on and after January 1, 1908, names of new groups should not be recognized as valid unless they were accompanied by a diagnosis or description in Latin. During the seventeen years 1908–1924, however, over ten thousand new species of Flowering Plants were published without a Latin description

or diagnosis. It is regrettable that their authors should not have seen fit to comply with such a reasonable requirement, a requirement designed to secure the maximum of publicity for their taxonomic work. There is, however, no means of enforcing the International Rules of Nomenclature, and even were it possible to ignore the ten thousand irregularly published species, such a course would inevitably bring confusion into Systematic Botany, by relegating the names of these species to synonymy. In these circumstances the most practical course is to replace the Rule prescribing Latin diagnoses by a strong Recommendation that Latin diagnoses should be supplied, leaving compliance to the good sense and public spirit of those who describe new groups.

It is true that a description in English, French or German can be read by a very wide circle of botanists but every description of a new group published in these languages encourages publication of new descriptions in less known languages such as Swedish, Magyar, Russian or Japanese, which are unknown to a great majority of botanists.

## NOVITATES AFRICANAE

*Aspalathus Stokoei*, L. Bolus (Leguminosae-Papilionaceae-Genisteae). Fruticulus ad 1.25 met. altus; rami, ut videtur, ad 30 cm. longi, ad 5 mm. diam., pilosi, densissime foliati; folia fere erecta, dense imbricata, tuberculo parvo inermi piloso, 3-foliolata, foliolis anguste linearibus, acuminatis, breviter setaceo-apiculatis, subtus leviter convexis, piloso-ciliatis, pilis albis longis, saepe densis, 3.5—4 cm. longis, vix ad 2 mm. latis; flores inter maximos in genere, umbellati, umbellis 5—8-fl., supremis foliis involu-cratis, pedicellis sericeo-pilosis, 7 mm. longis, bracteis lanceolato-linearibus, longe attenuatis, 2.5 cm. longis, bracteolis 2, angustissime linearibus, 2 cm. longis; calyx 2.5—2.8 cm. longus, tubo sericeo-piloso intus extusque, 5—7 mm. longo, segmentis lineari-lanceolatis, longe attenuatis, anteriore carinam superante; corolla aurea, cum aetate atrata, vexillo 2.5 cm. longo, 1.8 cm. lato, ungue 5 mm. longo, lamina basi dorso tomentosa, aliter glabra, alis 2.5 cm., ungue 8 mm., longis, lamina oblonga, apice inaequaliter 2-lobulata, 9 mm. lata; carina alas aequans, breviter obtuseque rostrata; tubum staminale 1.7 cm. longum, antheris biformibus, longioribus ad 3 mm. longis; ovarium oblique ovatum, inferne pilosum, 5—7-ovulatum, stigmatibus capitato.

Cape Province: South-Western Region; Stellenbosch Div., along stream-side, Spinnykop-Nest Kloof, near Kogelberg, Hottentots' Holland Mountains, alt. 3500 ft., fl. Oct. 1927, *T. P. Stokoe*.

Described from several living specimens. A distinct species which seems best placed in § *Grandiflorae* where it may be easily recognized by the very long and densely imbricate leaves, umbels 5—8-fl., very large flowers with a remarkably long calyx.

*Aspalathus pileata*, L. Bolus (§ *Leptanthe*). Frutex inermis 2.4 met. altus; rami elongati, sat graciles, ut videtur ad 45 cm. longi, juniores tomentosi, dense foliati; folia fere erecta, 3-foliolata, foliolis subteretibus subacutis, basi piloso-ciliatis, sordide viridibus vel atratis, 4—5 mm. longis, 0.5 mm. latis; flores in spicas terminales globosas, 1.5—2 cm. diam., 14—20-fl., dispositi, spicis foliis trifidis vel tripartitis, integris lanceolatis intermixtis, involu-cratis; pedicelli subnulli, bracteis bracteolisque angustissimis, inferne attenuatis, longe pilosis, 8—9 mm. longis; calyx densissime fusco-pilosus, 5 mm. longus, segmentis lanceolatis acuminatis, 2 mm. longis, corolla saturate brunnea, petalis, praecipue carina, externe densissime pilosis, vexillo 9 mm. longo, lamina oblonga, apice rotundata, 6 mm. longa, 4 mm. lata, alis 9 mm. longis, lamina 5 mm. longa, 2 mm. lata, carina obtusa, 7 mm. longa, ungue 4 mm. longo; tubum staminale 6 mm.

longum, antheris fere uniformibus; ovarium oblique ovatum, apicem versus longe pilosum, quasi pileatum, 1—2-ovulatum, stigmatibus minuto; legumen semi-rhomboides, superne pilosum, 7 mm. longum, 5 mm. latum, seminibus magnis, 3 mm. diam.

Cape Province: South-Western Region; Caledon Div., kloof on left bank of Palmiet River Mouth, alt. 2000 ft., fl. Aug. 1924, *T. P. Stokoe*, 948.

Described from ample material collected "in moist ground in lush vegetation and in an unfired part of the kloof." The indument on the keel as well as on the ovary is somewhat in the form of a shaggy cap or *pileus* and suggested the specific name, *pileata*.

*Aspalathus Fourcadei*, L. Bolus. Frutex rigidus; ramus unicus visus tomentosus, 30 cm. longus, ad 4 mm. diam., ramulis patentibus, dense foliatis, saepius 3—5 cm. longis; folia patentia 3-foliolata, foliolis teretibus ut videtur in siccis, pungentibus glabris, saepe 1—1.2 cm. longis, tuberculo tomentoso inermi; flores in ramulis lateralibus 2—4, vel apice rami 10—12, pedunculis brevissimis, bracteolis vix ad 2 mm. longis; calyx 6—7 mm. longus diametroque, intus pilosus, extus sat dense tomentosus, segmentis subdeltoideis pungentibus, 2 mm. longis; petala lutea vel in siccis saepe saturate brunnea, vexillo 1.4 cm. longo, lamina orbiculari-cuneata, supra glabrescente vel tenuiter pilosa, subtus sat dense sericea, 1.2 cm. longa, ad 1.3 cm. lata, alis anteriore pilosis, 1.4 cm. longis, lamina oblonga, apice oblique rotundata, 1.1 cm. longa ad 5 mm. lata; carina alis subaequilonga, breviter rostrata, subobtusa, dense pilosa; antherae bifformes; ovarium oblique ovato-lanceolatum, omnino pilosum, 2-ovulatum.

Cape Province: Humansdorp Div., kloof on north slopes of Zuuromys hills, south of de Jager's farm, alt. 1400 ft., fl. Sept. 1925, *H. G. Fourcade*, 3057.

Described from one dried branch. Closely allied to *A. hystrix*, Thunb., from which it differs in having glabrous leaves, shorter calyx-segments, and a pilose carina. From *A. rigescens*, E. Mey. it may be readily distinguished by the much shorter calyx-segments.

*Priestleya calycina*, L. Bolus (§ *Isothea*) (Leguminosae-Papilionaceae-Liparieae). Frutex robustus, 1 met. altus vel ultra, ramis virgatis teretibus, ad 1.2 cm. diam., ramulis multo gracilioribus, cum omnibus partibus herbaceis densissime hirsutis, pilis erectis appressis argenteis, cum aetate atrato-cinereis; folia saepius fere erecta, dense imbricata, sessilia, ovato-lanceolata vel medio vel parum supra medium latissima, inferne leviter angustata, superne attenuata, acuta vel acuminata, sat rigide apiculata, undique copiose piloso-hirsuta vel supra indumento tenuiore, marginibus planis vel in siccis leviter involutis, nervis omnino occultis, ad 2.8 cm., saepius 1.8—2.2 cm., longa, 8—14 mm. lata; flores umbellati, umbellis

terminalibus 4-floris pedunculatis, pedunculis ad 1 cm. longis, bracteis leviter concavis oblongo-ovatis acuminatis, 1.6 cm. longis, 8—9 mm. latis, pedicellis 3—4 mm. longis; calyx manu extensus corollae fere aequilongus, 1.7 cm. longus, segmentis lanceolatis, longe attenuatis, ad 1.2 cm. longis, lateralibus cultratis, superioribus brevissime connatis, parte libera 8 mm. longa; petala laete lutea vel fere aurea, in siccis atrata; vexilli lamina rotundata basi late subcordata, apice emarginata, 1.4 cm. longa, 1.8 cm. lata, ungue vix 3 mm. longo; alae vexillo aequilongae, carinam includentes, lamina ampla, superne dilatata, apice subtruncata, ad 9 mm. lata, ungue incurvato, 4 mm. longo; carina brevissime rostrata, alis parum brevior, lamina 8 mm., ungue 4 mm., longo; tubum staminale 2—5 mm. longum, antheris biformibus, ovatis .75 mm., linearibus fere 1.5 mm., longis; ovarium oblique lanceolatum, longe densissimeque villosum, 2-ovulatum; legumen in calyce absconditum, oblique orbiculari-ovatum rostratum, rostro rigido 2 mm. longo, ad 1.4 cm. longum, seminibus 2.4 mm. in diam.

Cape Province: South-Western Region; Caledon Div., Hottentots' Holland Mountains, fl. Oct. 1924, *T. P. Stokoe* (Bolus Herbarium, No. 18325).

Described from ample living and dried material collected by Mr Stokoe who also found it on the Kogelberg (Hottentots' Holland) flowering in January. The chief distinguishing marks are the large bracts and long calyx. *Priestleya Schlechteri*, L. Bolus (§ *Anisothea*). Fruticulus, ut videtur erectus, partibus herbaceis breviter sericeis demum glabrescentibus, ramis adscendentibus, junioribus sat conspicue 5-angulatis, ad 23 cm. longis, 3 mm. diam., internodiis saepius 3—5 mm. longis; folia adscendentia, saepe fere erecta, sessilia vel petiolata, petiolis rarius ad 2 mm. longis, seniora subcoriacea oblongo-oblancheolata vel oblongo-obovata, minute indurateque apiculata, nervo medio subtus prominente, 1.5—2.5 cm. longa, 5—9 mm. lata; pedunculi brevissimi, umbellatim 2-fl. vel rarius 1-fl., pedicellis ad 6 mm. longis, bracteis linearibus, vix ad 3 mm. longis, mox deciduis; calyx 7—8 mm. longus, segmentis ovato-deltaideis, inter se fere aequilongis, dimidio tubi aequilongis, superioribus per tertiam partem connatis; vexillum 1.3 cm. longum, ungue 3 mm. longo, lamina fere orbiculari, profunde emarginata; alae vexillo carinaeque aequilongae, lamina suboblonga, apice rotundata, 9 mm. longa, 3—4 mm. lata; carina apice rotundata, lamina 9 mm. longa, 4—5 mm. lata; filamenta ad 1.5 cm. longa, fere per dimidium longitudinis connata, antheris inter se simillimis; ovarium oblique lanceolatum dense sericeum, 7-ovulatum (unicum examinatum); legumen ignotum.

Cape Province: Calvinia Div.; Onder Bokkeveld, Oorlogs-Kloof, fl. Aug. 1897, *R. Schlechter*, 10943.

Described from several dried specimens. Differs from *P. elliptica*, DC. chiefly in the shape of the leaves and the broader carina.

*Priestleya Guthriei*, L. Bolus (§ *Anisothea*). Fruticulus nanus, ad 17 cm. altus, caule basi ad 5 mm. diam., ramis adscendentibus vel patentibus, pilosis, pilis patentibus canis, senioribus inferne glabrescentibus, superne dense foliatis; folia fere erecta vel late patentia subsessilia, lineari-lanceolata vel lanceolata vel anguste elliptica vel ovato-elliptica, basi leviter angustata, acuta, juniora copiose pilosa praecipue marginibus, pilis laxis patentibus, nervo medio evidente, marginibus planis vel saepius levissime revolutis, luteo-viridia, ad 2.5 cm., saepius 2 cm., longa, 4—9 mm. lata; flores in genere inter minimos, apice ramulorum aggregati, inter folia absconditi; pedicelli 1.5—3 mm. longi, pilosi, bracteis anguste linearibus, ad 3.5 mm. longis; calyx 6 mm. longus, segmentis lanceolatis acuminatis, inferiore ceteris parum latiore, tubo aequilongis, superioribus ultra medium connatis; vexillum 9 mm. longum, lamina ovato-orbiculari, 6 mm. longa, ad 5 mm. lata; alae vexillo aequilongae, lamina lineari, apice rotundata, 6 mm. longa, 1.5 mm. lata; carina apice rotundata, 7 mm. longa, lamina 4 mm. longa, fere 2 mm. lata; filamenta infra medium connata, antheris inter se simillimis; ovarium oblique lanceolatum, stylo demum disarticulato; legumen immaturum oblique subovatum rostratum, styli basi indurato onustum, seminibus 2, sat magnis.

Cape Province: South-Western Region; hills near Elim, alt. 250 ft., *F. Guthrie*, 3866.

Described from dried specimens of which the petals of most of the flowers had fallen. Professor Guthrie noted that the "flowers are solitary or in pairs, deeply immersed among the leaves so as almost to escape notice." Nearest *P. sericea*, E. Mey., but differs in the more robust habit and spreading indument; leaves slightly narrowed at the base (in *P. sericea* the leaf is rounded, or sometimes with a tendency to be cordate, at base); smaller flowers with calyx-segments equalling the tube, alae and carina with no tendency to be falcate, and ovary 2-ovuled in several flowers examined: in *P. sericea* the number appears to be six.

*Ruschia decumbens*, L. Bolus. Sat robusta glabra, ramis decumbentibus, ramulis dense 4—6-foliatis, inferne foliis 2—4 induratis onustis; folia hornotina fere erecta, leviter diversa, 2 infima breviora crassioraque, 1—1.4 cm. longa, secunda ad 1.8 cm. longa, ad 6 mm. lata diametroque, obtuse carinata, lateribus convexis, supra fere plana, lateraliter visa apice fere rotundata, glauca purpurascens, sat aspera, praecipue marginibus, punctis viridibus levissime elevatis, vagina 3—4 mm. longa; flores solitarii diurni, ca. 3.5 cm. diam.; pedunculus 8 mm. longus, foliis supremis multo brevior, basi bracteatus, bracteis 5 mm. longis; receptaculum turbinatum; sepala 5, inter se fere aequilonga, 3 membranaceo-

*marginata*, 5—6 mm. longa; petala purpureo-rosea, saturate vittata, inferne attenuata, emarginata, 1.4 cm. longa, ad 2 mm. lata; stamina conico-collecta, staminodiis roseis, apice recurvatis, circumdatis, filamentis roseis barbatis, antheris pollineque luteis; discus annularis inconspicuus; ovarium supra conspicue elevatum, profunde 5-lobatum, stigmatibus 5, anguste subulatis acuminatis, fere 6 mm. longis; capsula generis (unica senecta visa).

Cape Province: Karroo Region; Ladismith Div., *J. Archer*, 296. Fl. at Whitehill, Sept. 1927.

Described from a living specimen. I have had what appears to be this species sent in from the Prince Albert Div. more than once, but not in flower.

*Ruschia Archeri*, L. Bolus (Aizoaceae-Mesembrieae). Glabra, ramis virgatis, ad 33 cm. longis, inferne foliorum reliquis vaginantibus induratis onustis, foliis hornotinis 6—12, quasi longe vaginantibus (more “§ *Uncinata*,” Haw.), “vagina” ad 2 cm. longa, parte libera (folium verum) 1—1.2 cm., rarius 6 mm. longa, ad 6 mm. lata crassaque, supra levissime convexa, carinata, lateribus convexis, acuta vel lateraliter visa subacuta, glauca purpureo-suffusa; flores solitarii diurni, ca. 2.5 cm. diam., pedunculo 1.3 cm. longo, medio bracteato, bracteis 7—8 mm. longis, receptaculum globose turbinatum, subverrucosum, apice 7 mm. diam., includentibus; sepala 5, inter se subaequilonga, 5 mm. longa; petala haud bene visa, purpureo-rosea, ca. 1.1 cm. longa; stamina collecta, filamentis purpureis, glabris vel inferne parce pilosis, antheris pollineque albidis. Discus annularis crenulatus; ovarium supra profunde obtuseque 5-lobatum, stigmatibus 5, subulatis purpureis, 2 mm. longis, capsula 7 mm. diam., profunde 5-lobatis, lobis valde compressis, seminibus minute areolatis, atro-brunneis, fere orbicularibus.

Cape Province: Karroo Region; near Ladismith, *J. Archer* (Bolus Herbarium, No. 18748).

Described from living specimens which flowered at Whitehill, July 1927. Another collection which belongs here is that of A. M. Krige (Mrs Tugwell) from near Prince Albert, in fruit Jan. 1908 (Bolus Herbarium, No. 12966).

*Aridaria vespertina*, L. Bolus (Aizoaceae-Mesembrieae). Rigida glabra, ca. 15 cm. alta, caule lignoso incrassato, ad 1.5 cm. diam., cuticula saturate brunnea, ramis rigidis tortuosis, 7—8 mm. diam., ramulis ultimis gracilibus, ad 3.5 cm. longis, 6—8-foliatis, foliis 2—4 tantum persistentibus; folia patentia, fere globosa, 6—9 mm. longa, ad 6 mm. diam., supra subplana, basi abrupte angustata distinctaque, pallide glauca pruinosa; flores 3-nati vel abortione saepe solitarii, vespertini (6—9.30 p.m.), ad 3 cm. diam.; pedunculi 2—8 mm. longi, cum aetate laterales late patentis indurati, bracteis prope apicem positis; receptaculum clavato-cyathi-

forme, ultra ovarium per 4 mm. productum, apice leviter constrictum, 5 mm. diam.; sepala 4, inter se inaequilonga, 2 foliis simillima, 4—6 mm. longa, 2 anguste membranaceo-marginata, 3—4 mm. longa; petala 3—4-seriata numerosa sed tamen sublaxa, anguste linearia, acuta vel acuminata, rarius subobtusa, laete rosea, intima pallidiora, extima subtus pulcherrime cuprea, 1.5 cm. longa, vix ad 1 mm. lata; stamina erecta vel leviter divergentia, staminodiis perpaucis patentibus, antheras abortivas ferentibus, ad 9 mm. longa; ovarium supra alte elevatum, stigmatibus anguste subulatis, longe attenuatis, 5 mm. longis.

Cape Province: Western Region; Little Namaqualand, South side of the Orange River, karroid hills between Dun Vlei and Groot Derm, Oct. 1926, *N. S. Pillans*, 5696. Fl. Jan. 1927.

Described from one living specimen which flowered in Mr Pillans' garden. Closely allied to *A. noctiflora*, L. Bolus (= *M. noctiflorum*, L.), but differs in the more rigid habit of growth, much shorter, almost globose leaves, and the vespertine flowers.

*Aridaria noctiflora*, L. Bolus, comb. nov. = *Mesembrianthemum noctiflorum*, L. *Mesembrianthemum multiseriatum*, L. Bolus. Glabrum, ramis elongatis radicantibus, internodiis convexo-curvatis 2.5—3.5 cm. longis, ramulis erectis, 5—6 cm. longis; folia obtuse carinata, sed tamen lateraliter subcompressa, supra plana, acuta, lateraliter visa leviter ampliata supra medium, lateribus subconvexa, basi breviter connata, glauco-viridia levia, 1.5—1.8 cm. longa, 1.5 mm. lata, ad 2.5 mm. diam.; flores solitarii diurni, 4.4 cm. diam., pedunculis 1.3—2.3 cm. longis, medio bracteatis; receptaculum turbinatum, sat asperum tuberculis sparsis; sepala 5, acuta, inter se subaequilonga, 5—6 mm. longa, 3 late membranaceo-marginata, membrana brunnea; petala 6—7-seriata, sat densa, linearia, inferne angustata, acuta vel acuminata, omnia rosea, 0.5—2 cm. longa, 0.5—2 mm. lata; stamina erecta, mox subdiffusa, apice 4—5 mm. diam., filamentis pallide luteis, supra basin barbatis, ad 3 mm. longis, antheris pollineque aureis; discus inconspicuus annularis crenulatus; ovarium supra leviter convexum, stigmatibus 5 crassis subulatis abrupte acuminatis, 3 mm. longis.

Cape Province: South-Western Region; Riversdale Div., Ou' Tyn, near Albertinia, *Dr John Muir*, 2416. *J. La Grange* (National Botanic Gardens,  $\frac{4584}{14}$ ).

Described from living specimens received from Dr Muir in flower, October 1927. The general appearance recalls *M. sociorum*, L. Bolus; but the present species is readily distinguished by the petals in many series (*multiseriata*), the absence of staminodes, erect stamens becoming somewhat diffuse, and the shorter and stouter stigmas. I have previously confused this species with *M. sociorum*, L. Bolus, in placing La Grange's plant, of which I had dried material only, under the latter.



*Drosanthemum roridum*, L. Bolus. Fruticulus suberectus, 25—30 cm. altus; rami graciles, sat rigidi, vix ad 2 mm. diam., juniores papilloso-pubescentes, senecti leviter asperuli vel leves, internodiis saepius 1—1.5 cm. longis; folia adscendentia, obscure carinata, supra plana, lateribus subconvexis, lateraliter visa superne leviter attenuata, apice saepius rotundata vel juniora subtruncata, vagina 2 mm. longa, papillosa, papillis parvis crebris, pallide glauco-viridia, ad 1.2 cm. longa, 2 mm. lata, basi 4 mm., apicem versus 3 mm., diam.; pedunculi 0.5—1.5 cm. longi, cum receptaculo semi-globo, papillis patentibus vel decurvatis, gracilibus pubescentes; flores solitarii diurni, 2 cm. diam.; sepala 6, inter se fere aequilonga, ad 5 mm. longa; petala 2—3-seriata lineari-spathulata emarginata roseo-purpurea, 9 mm. longa, ad 1.5 mm. lata; stamina erecta vel subdiffusa, filamentis roseo-purpureis vel interioribus albis, barbatis, ad 4 mm. longis, antheris albis; discus e glandulis 6, profunde lobatis, connatis, compositus, glandulis intermediis minoribus, crenulatis; ovarium supra medio leviter convexum, profunde 6-lobatum, stigmatibus 6, e basi anguste subulato longe attenuatis, 4 mm. longis; capsula non visa.

Cape Province: Klein Karroo; Montagu Div., alt. 2000 ft., *Dr John Muir*, 4121.

Described from several living branches from plants flowering in Dr Muir's garden at the end of September. Two flowers in good condition only seen. Dr Muir notes that the plant is: "a shrub 11—12 in. high, somewhat erect and compact, the branches rigid and brittle. The rose pink flowers form a contrast with the beautiful grey foliage." The pale grey-green colour of the leaves is due to the small crowded papillae looking like minute dew-drops. The name, *roridum* (bedewed), is in allusion to this character.

*Leipoldtia compacta*, L. Bolus. Planta glabra, 7—8 cm. alta, dense ramosa, ramis ad 7 cm. longis, ad 5 mm. diam., ramulis ultimis albis, 2—4 foliatis, axillis gemmiferis; folia obtuse carinata, supra lateribusque subconvexa, glauco-viridia, levissime lepidota, ad 1.5 cm. longa, 3—4 mm. lata diametroque, vagina ad 2 mm. longa; flores ternati, laterales tardissime evoluti, meridiani, 1.7—2.2 cm. diam.; pedunculi teretes, 4 mm. longi, demum spinescentes; receptaculum globose turbinatum; sepala inter se fere aequilonga, 4 vel quintum minimum additum, 4 mm. longa, 3 membranaceo-marginata; petala 1—2-seriata, rosea lineari-spathulata obtusa, ad 2 mm. lata, 7—8 mm. longa; stamina conico-collecta, apice 1.5 mm. diam., staminodiis paucis, filamentis superne albidis, basi roseo-barbatis, ad 6 mm. longis, antheris pollineque pallidis; discus annularis, crenulatus; ovarium supra convexum; stigmata 8, filiformia, acuminata, rubescentia, 6 mm. longa, demum stamina superantia; fructus non visus.

Cape Province: Western Region; Little Namaqualand, between Brakfontein and Oograbries Poort, Oct. 1926, *N. S. Pillans*, 5773.

Described from living specimens which flowered in Mr Pillans' garden, May, 1927.

*Erica draconis*, L. Bolus (§ *Pachysa*). Gracilis, ad 15 cm. alta, ramis adscendentibus, junioribus pubescentibus pilis simplicibus brevissimis, longioribus glanduliferis interjectis; folia patentia vel leviter adscendentia, 3-nata, oblonga vel lineari-oblonga, subacuta, supra setis paucis glanduliferis onusta, sat rigide glanduloso-ciliata, apice subpenicillata, demum glabrescentia, subtus sat late aperta, internodiis parum longiora, cum petiolo 1.5 mm. longo, saepius 6.5 mm., rarius ad 8.5 mm., longa, 2 mm. lata; flores 3-nati viscidissimi, pedunculis gracilibus, 1 cm., vel in fructu ad 1.8 cm., longis; bracteae 3, 2 parum supra medium positae, tertia fere basalis, lineares, 2 mm. longae; sepala erecta linearia, crebre minuteque glanduloso-ciliata, saturate rubra, 3 mm. longa; corolla globose suburceolata rosea, 6.5 cm. longa, ad 4—5 mm. diam., segmentis erectis rotundatis, 1.5 cm. longis; stamina inclusa, filamentis explanatis subhyalinis, inferne conspicue ampliatis, ovario parum longioribus, 2.5 mm. longis, antheris dorsifixis semi-ovatis subacutis, 1 mm. longis vel parum ultra, poro dimidium lobi excedente, aristatis, aristis lobis aequilongis; ovarium 4-loculare globosum glabrum, ovulis saturate rubris, stylo 2 mm. longo, stigmatibus inclusis, vix incrassato.

Cape Province: South-Western Region; Stellenbosch Div., summit of Drakenstein Peak, alt. 3500 ft., fruiting Jan. 1921, *T. P. Stokoe*, 73; same locality, fl. Sept. 1926, *id.* 1378.

Nearest *E. nubigena*, Bolus, from which it may be distinguished by the larger, conspicuously ciliated leaves, broad filaments, and glabrous ovary (Plate XIII, A).

*Erica Goatcheriana*, L. Bolus, var. *drakensteinensis*, L. Bolus (§ *Eurystegia*). Erecta rigida, ad 90 cm. alta, caule basi 1.2 cm. diam. vel ultra, ramis virgatis 1—6 mm. diam., ramulis floriferis saepius 1.5—3 cm. longis, breviter pubescentibus, densissime foliatis; folia 3-nata, adscendentia vel rarius inferiora patentia, sexfaria, linearia, obtusa vel subacuta, angustissime sulcata, glabra, subglauca vel canescentia vel roseo-suffusa, cum petiolo 1—1.5 mm. longo, 7—8 mm. longa, 1.5—2 mm. lata, internodiis petiolis aequilongis; flores 3-nati, saepius nutantes; pedunculi 2.5—3 mm. longi, pubescentes, pilis patentibus brevissimis albis, in lineas longitudinaliter dispositis, bracteis 3, inter se approximatis, supra medium positis, infima ovata, 5.5 mm. longa, ad 3 mm. lata, ceteris fere aequilongis sed multo angustioribus; sepala erecta ovato-oblonga, apice carinata, pallide rosea minute cartilagineo-ciliolata, 6 mm. longa; corolla suburceolata, leviter faucibus constricta, ad 7.5 mm. longa, segmentis erectis

obtusis, 2 mm. longis; antherae inclusae lineari-lanceolatae, saturate brunneae, 1.5 mm. longae, poro dimidio lobi aequilongo, cristatae, cristis late ovalibus scaberulis lacerato-denticulatis, lobo aequilongis, 2 mm. latis, filamentis complanatis, sub antheris retroversis, deinde introversis, 3—4 mm. longis; ovarium subglobosum, conspicue 8-lobatum (an in vivis?), prope apicem leviter constrictum, glabrum, stylo superne sensim incrassato, 3 mm. longo, stigmatum cum stylo continuo vel levissime ampliato.

Cape Province: South-Western Region; Stellenbosch Div., summit of Groot Drakenstein, alt. 4000 ft., Jan. 1921 (in fruit), Oct. 1922 (in flower), *T. P. Stokoe*, 68.

Described from ample dried material. The chief variations from the type which appear to be constant in this variety are: the shorter peduncles with the indument much less dense, and the bracts placed nearer the apex; inequality in the breadth of the bracts; narrower sepals, imbricating to a less extent; shorter corolla with relatively longer segments; darker-coloured anthers with the crests slightly broader. These differences taken together might have been considered of sufficient importance to constitute a species if it were not that some of them break down in the following variety (Plate XIII, B).

*Erica Goatcheriana*, L. Bolus, var. *petrensis*, L. Bolus. Humilis vel ad 60 cm. alta, folia 2 mm. longa; pedunculi ad 6 mm. longi; bracteae inter se fere aequilatae—ceteris varietatis *drakensteinensis*.

Cape Province: South-Western Region; Worcester, Caledon and Robertson Divs., Wildepaardeberg and Omklaarberg, alt. 4000—5000 ft., fl. March, July, Sept., 1922, *T. P. Stokoe*, 380. Some forms of this var. are similar in appearance to *E. pumila*, Andr.

Mr Stokoe with characteristic zeal and perseverance has made some careful observations of these varieties in their mountainous habitats. He has traced their several forms of growth from "a shrub of 3 ft. high" to what he describes as "a pure rock heath, gnarled and twisted, rooting itself in impossible fissures or scarcely perceptible cracks. The stem of old plants takes a sudden thickening immediately above the crack-surface. The plant itself is a perfect picture of delicacy and refinement in colour: the regular lines of its close-cropped leaves, and the grey-green bloom thereon, seem to have been borrowed from the weathered sandstone on which it grows. A tender shade of lemon yellow just suffuses the corolla when the flower is in its prime stage, but the general impression is pink, occasionally flushed with a deeper rosiness." Writing again in September, 1926, just after another visit to Groot Drakenstein, he states that he "took careful note in comparing the Drakenstein type *in situ* with the Omklaar type, and unless you discover structural differences in

dissection, they must really be the same species. The altitude of both is much the same, but, owing to the difference in the weather-worn character of the rocks of the two widely separated mountains, the Drakenstein plants are more sheltered from the fierce sweep of the winter winds than the Omklaar ones, which grow in the fissures athwart the *tops* of the rocks. . . . The specimens sent you to-day from Drakenstein were thickly coated with ice over an inch thick in patches on the flowering branches, and the whole of the small bushes were almost solid blocks—evidently the result of constant showers freezing where they fell. It was a beautiful sight, well worth breasting the south-easter for; and I was much surprised to see them emerge none the worse for their very cold storage.”

*Erica racemosa*, Thunb. var. *aristata*, L. Bolus, var. nov. A forma typica antheris aristatis, aristis dimidio lobi parum brevioribus, pedunculis brevioribus, 2 mm. longis.

Cape Province: South-Western Region; Stellenbosch Div., Drakenstein, fl. Sept. 1926, *T. P. Stokoe* (Plate XIII, C).

*Erica adnata*, L. Bolus (§ *Eurystoma*). Erecta, sat robusta, 40 cm. alta, ramis glabrescentibus, ad 3 mm. diam., ramulis dense molliterque pubescentibus, pilis patentibus, albis vel paucis brunneis rigidis intermixtis; folia patenti-recurvata, 3-nata linearia subacuta, apiculata angustissime sulcata, supra concava, saepe lateraliter subcompressa, glabra lucida, cum petiolo 1 mm. longo, ad 4 mm., saepius 3 mm., longa, internodiis multo longiora; flores 3-nati densi, ramulos laterales breves terminantes; pedunculi saepius decurvati cano-tomentosi, 2—3.5 mm. longi; bractee 3, infima medio, ceterae parum supra medium, positae, ovatae acuminatae, pallide roseae, scariosae, apicem versus foliaceo-carinatae, apiculatae ciliatae, ciliis rigidis, saepe brunneis, 1—1.5 mm. longis; sepala bracteis simillima sed latiora, basi conspicue imbricata, 2 mm. longa, tubum corollae parum excedentia; corolla cyathiformis, basi subtruncata, subtetragona glabra rosea 3 mm. longa, segmentis, ut videtur, erectis obtusis, tubo parum longioribus, ad 1.5 mm. latis; antherae manifestae terminales, anguste ovatae, subacutae, basi leviter obliquae, atropurpureae scaberulae, poro lobi dimidio aequilongo, cristato-aristatae, aristis lobo subaequilongis, filamento ampliato adnatis, dimidio inferiore libero; ovarium depresso globosum, pallidissime roseum, glabrum, stylo exserto, superne gradatim incrassato, stigmatibus vix ampliato.

Cape Province: South-Western Region; Worcester Div., Omklaarberg, alt. 3500 ft., fl. Sept. 1925, *T. P. Stokoe*, 1266.

Described from one large dried specimen, broken off, apparently, from near the base of the plant. The nearest affinity is with *E. lucida*, Salisb., the chief difference being in the shape of the anther, and especially in the adnation of the appendages to the widened filament for at least half

their length. The set of the leaves is different and the corolla-tube shorter. In their general appearance the flowers resemble those of *E. consobrina*, Guthrie and Bolus and *E. rhodantha*, Guthrie and Bolus (Plate XIII, D).

*Erica petrophila*, L. Bolus (§ Ceramia). Nana, partibus herbaceis cum corolla parce pubescentibus, plus minusve viscidulis, ramis filiformibus, saepe 5—6 cm. longis; folia adscendentia vel patentia, 3-nata vel rarius 2-nata, internodia bene excedentia, linearia vel oblonga, angustissime sulcata vel cum aetate marginibus explanatis subovata, 1.5—2 mm. longa, saepius fere 1 mm. lata; flores rite 3-nati, ramos, vel saepius ramulos breves, terminantes; pedunculi 2—2.5 mm. longi, bracteis 3, vix 1 mm. longis, 2 medio, infima parum supra basin, positis; sepala herbacea cum aetate transverse rugosa, pallida molliaque, intus viscidissima, ovato-oblonga subobtusa, nervo medio conspicuo, 1.75 mm. longa; corolla subcrateriformis, ad 2.5 mm. longa, segmentis obtusis, tubo aequilongis; antherae manifestae terminales muticae, lateraliter visae oblongae vel ovato-oblongae, basi obliquae, pallidissime brunneae, .75 mm. longae, poro dimidium lobi excedente, filamentis latis planis; ovarium globose ovoideum glabrum, stigmatate vix exserto, capitellato, seminibus subcompressis oblongis, latere altero excavatis, pallidis.

Cape Province: South-Western Region; Worcester and Caledon Divs., Wildepaardeberg, "in rock crevices, rather dry," alt. 3500 ft., fl. Jan. 1925, *T. P. Stokoe* (Bolus Herbarium, No. 18354). Stellenbosch Div., Helderberg, "growing pressed to the rocks," fl. Dec. 1923, *T. P. Stokoe*, 327.

Nearest to *E. leptoclada*, Van Heurck and Muell. Arg., but differs in the shape of the sepals and corolla, shape and colour of the anthers, and the included style (Plate XIII, E).

*Erica Pageana*, L. Bolus (§ Leptodendron). *E. campanulatae*, Andr. proxima, sed habitu robustiore, foliis 4-natis, floribus 3—4-natis, corolla infra medium constricta, filamentis longioribus distinguitur.

Fruticulus erectus, ca. 20—30 cm. altus, multo ramosus, ramis adscendentibus glabrescentibus; folia adscendentia vel patentia, apice incurva, 4-nata, dense imbricata, linearia subacuta, angustissime sulcata, glabra vel juniora puberula, cum petiolo 1 mm. longo, saepissime 7 mm. longa; flores 4-nati vel abortione 2—3-nati, brevissimos ramulos, apicem versus ramorum aggregatos, terminantes, inflorescentiam cylindricam plus minusve densam formantes; pedunculi patentes vel decurvati, minute pubescentes, pilis patentibus, saepius 3.5—4 mm. longi; bractee 3, infima parum supra basin, ceterae parum infra medium, positae, 1—1.5 mm. longae; sepala e basi scarioso ovato vel ovato-orbiculari abrupte acuminata, superne subfoliacea, 3 mm. longa; corolla lutea campanulata, tubo infra medium constricto, 7 mm. longa, segmentis semiorbicularibus,

vix 2 mm. longis; stamina inclusa, ultra dimidium tubi attingentia, antheris suboblongis obtusis, basi subobliquis denticulatis, saturate brunneis, scaberulis, 1 mm. longis vel parum ultra; ovarium depresso globosum, stylo basin versus conspicue dilatato, stigmatibus capitellato, corolla paullo brevior.

Cape Province: South-Western Region; Caledon Div., Palmiet River Valley, Sept. 1924, *T. P. Stokoe* (Bolus Herbarium, No. 18747).

This species has presented some difficulty. There is no doubt of its very close affinity with *E. campanulata*, Andr., and Guthrie and Bolus, who, however, recognized and noted the differences, regarded it as a robust variety of that species. Extreme forms of the two look very distinct. Named in honour of Miss Mary M. Page, whose drawing is reproduced on Plate XII, A. Specimens bought in Adderley St. and distributed under *Bolus*, 6872 and Bolus Herbarium, No. 17261 are this species (Plate XII, A).

*Erica viscidula*, L. Bolus (§ Arsace). Diffuse ramosa, ramis primariis ad 3 mm. diam., ramulis gracillimis, ultimis pubescentibus, pilis brevissimis, paucis longioribus glanduliferis intermixtis; folia patentia 3-nata, linearilanceolata vel subovata, sulco plus minusve aperto, subacuta, parce pubescentia, pilis sat longis, basi minute tuberculatis, marginalibus interdum glanduliferis, leviter viscida, cum petiolo fere ad 1 mm. longo, 2—4 mm. longa; flores 3-nati, pedunculus viscidulus, 2 mm. longus; bracteae 3, infima medio vel parum infra medium, ceterae parum supra medium, positae, marginibus pubescentibus, 1—1.5 mm. longae; sepala basi brevissime connata, ovato-lanceolata, roseo-purpurea, superne pubescentia, ciliata viscidula, 1.5 mm. longa; corolla cyathiformis roseo-purpurea viscidula, ad 2 mm. longa, segmentis erectis obtusis, dimidio tubi subaequilongis; antherae manifestae terminales subovatae acutae, dorso longitudinaliter convexae, basi obliquae, muticae, lobis apicem versus divergentibus, poro lobi dimidio brevior, fere 1 mm. longae; stylus brevissime exsertus, stigmatibus peltato, margine subundulato, ovario subgloboso, apicem versus pubescente, pilis erectis longis albis.

Cape Province: South-Western Region; Worcester Div., Fontainsberg, "on grassy slopes, near rocks, usually tangled up with grass," alt. 5000 ft., fl. Sept. 1925, *T. P. Stokoe*, 1267 (Plate XII, B).

*Erica Patersonii*, L. Bolus (§ Pleurocallis). Erecta rigida, 30—40 cm. alta, caule basi ad 7 mm. diam., ramis virgatis, ad 25 cm. longis, 1.5—5 mm. diam.; folia adscendentia incurva, rarius inferiora patenti-incurva, 5—6-nata linearia acuta glabra, sulco inconspicuisimo, cum petiolo 1.5 mm. longo, ad 1 cm., saepius 7—9 mm., longa, .75 mm. lata, internodiis petiolis aequilongis vel parum longioribus; flores laterales, ad apicem ramulorum aggregati, inflorescentiam 1—2 cm. longam formantes, axi folioso parum ultra flores producto; pedunculi minute glanduloso-pubescentes, 2—3 mm.

longi, bracteis 3, foliis simillimis, omnibus prope apicem, vel infima medio, 2 supra medium, positis, 3—4 mm. longis; sepala erecta, bracteis similia, basin versus leviter ampliata, intus viscidissima, 5 mm. longa; corolla tubiformis, faucibus leviter constricta, subquadrangularis, angulis rotundatis, crassa, extus papillata vel superne pustulata, viridi-lutea vel demum ochracea, 0.7—1 cm. longa, segmentis patentibus vel leviter recurvatis, obtusis, marginibus crispulatis, 1.5—2 mm. longis; antherae inclusae, fere ad basin dorsifixae, oblongae obtusae muticae, saturate brunneae, 1—1.5 mm. longae, poro dimidio lobi aequilongo, filamentis 3—4 mm. longis; ovarium 4-loculare subobconicum villosum, pilis erectis albis, stylo corollae subaequilongo, cum aetate breviter exserto, stigmatibus capitellato.

Cape Province: South-Western Region; Caledon Div., near Hermanus, fl. Sept. 1926, *W. Paterson* (Bolus Herbarium, No. 18548).

In the details of its floral structure this is similar to *E. longifolia*, Ait. and *E. onosmaeflora*, Salisb., from both of which it may be distinguished by the shorter corolla and usually shorter leaves (Plate XII, C).

*Erica longistyla*, L. Bolus (§ Polycodon). Humilis, diffuse ramosa, 13 cm. alta, caule basi atro, 2 mm. diam., ramis flexuosis gracilibus, 0.5—1.5 mm. diam., minute pubescentibus; folia patentia vel adscendentia vel rarius leviter recurvata, 3-nata linearia, acuta vel subobtusa, angustissime sulcata, glabra, cum petiolo 1 mm. longo, saepius 4 mm. longa, vix 1 mm. lata, internodiis saepius 1—1.5 mm. longis; flores 3-nati, terminantes brevissimos ramulos ad apices ramorum aggregatos; pedunculi minute pubescentes, 1.5 mm. longi, bracteis 3. inter se approximatis, medio vel supra medium positis; sepala erecta, late ovata, acuta glabra pallida, 1.75 mm. longa; corolla subcrateriformis glabra, pallide rosea, 3.5 mm. longa, segmentis erectis obtusis, tubo parum brevioribus; antherae apicem corollae attingentes, parum supra basin dorsifixae, muticae, lobis subovatis acutis, basi breviter 2-lobis leviterque obliquis, apicem versus divergentibus, saturate brunneae, ca. 1 mm. longae, poro lobo fere aequilongo, filamentis inferne ampliatis; ovarium globosum glabrum, stylo longe exserto, 3 mm. longo, stigmatibus peltato.

Cape Province: South-Western Region; Tulbagh Div., Klein Winterhoek, alt. 5500 ft., fl. Dec. 1920, *T. P. Stokoe*, 348.

Described from three specimens which appear to be complete, or almost complete, plants. The nearest affinity is with *E. macrotrema*, Guthrie and Bolus which, however, has shorter and broader leaves with a different set, much smaller flowers but with the sepals proportionately longer, and a less peltate stigma (Plate XII, D).

*Erica vinacea*, L. Bolus (§ Callista). Erecta, 35 cm. alta, ramis gracilibus glabris, ad 2 mm. diam., ramulis dense foliatis; folia fere erecta 4-nata imbricata linearia acuta, angustissime sulcata, glabra, cum petiolo 1.5 mm.

longo, 5—6 mm. longa, 0.75 mm. lata; flores 4-nati, terminantes ramulos breves versus apicem ramorum aggregatos; pedunculi fere glabri, ad 2 mm. longi; bracteae 3, lanceolatae, infima medio vel parum supra medium posita, 1.5 mm. longa, superiores parum breviores; sepala erecta ovata acuta rosea scariosa, apice foliaceo-carinata, 3 mm. longa; corolla cylindrica, inferne levissime dilatata, vinacea, 8 mm. longa, segmentis stellato-patentibus, late ovatis, basi imbricatis, obtusis, 2 mm. longis; stamina inclusa, filamentis anguste linearibus, antheris dorsifixis parum supra basin, ovatis obtusis glabris, ca. 0.5 mm. longis, aristis minutis, vix basin lobi attingentibus, poro dimidium lobi aequante; ovarium suboblongum, superne cano-pubescens, stylo apicem tubi attingente, stigmatibus capitellato.

Cape Province: South-Western Region; Caledon Div., Hottentots' Holland Mountains, between Platteberg and Kogelberg, fl. Nov. 1923, *T. P. Stokoe*, 70 (Bolus Herbarium, No. 17599).

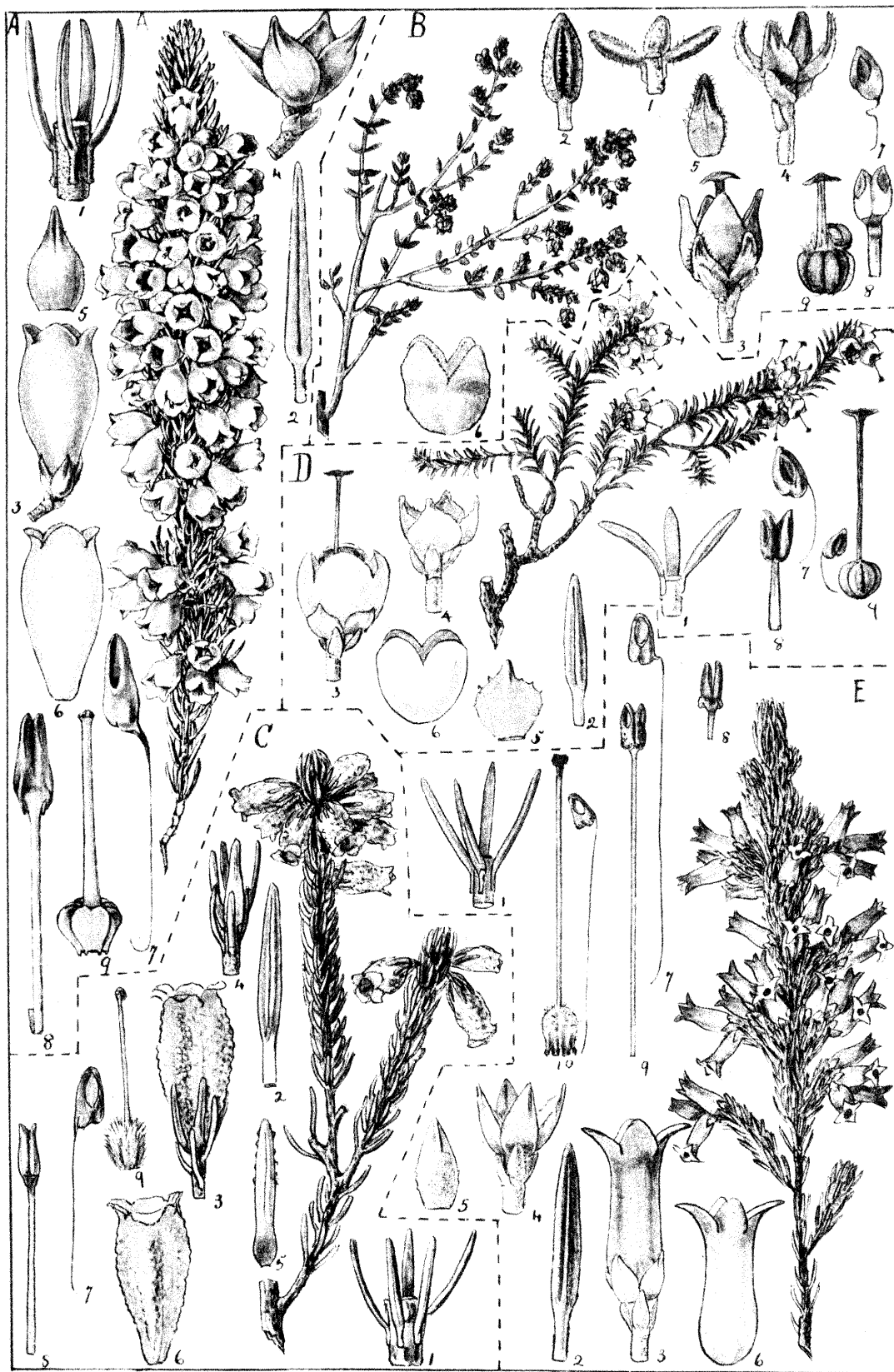
This and the next species, *E. glabripes*, are allied to some of the forms of *E. daphniflora*, Salisb. When an opportunity offers, we propose to deal more fully with *E. daphniflora*, and to state the distinguishing characters of our present species. Meantime much valuable material is being collected, especially by Mr Stokoe, which will facilitate our future work. The claret-coloured corolla suggests the name, *vinacea* (Plate XII, E).

*Erica glabripes*, L. Bolus (§ Callista). *E. vinaceae* valde affinis sed characteribus sequentibus facile distinguitur: rami ad 4 mm. diam.; folia ad 8 mm. longa; pedunculi glaberrimi; bracteae lineari-acuminatae, ad 3.5 mm. longae; sepala lineari-lanceolata, longe acuminata, 5 mm. longa; corolla ad 1 cm. longa, lobis 2 mm. longis; ovarium glabrum.

Cape Province: South-Western Region; Caledon Div., Hottentots' Holland Mountains, Dec. 1923, *T. P. Stokoe* (Bolus Herbarium, No. 17600).

*Anthericum scariosum*, A. Duthie. Rhizoma gracile, simplex vel ramosum, verticale vel plus minusque horizontale, reliquis fibrosis foliorum dense vestitum; radices numerosae graciles, apice tuberosae, seniores tenues rigidae; folia rudimentaria exteriora parva submembranacea, in reliquis fibrosis celata; folia evoluta 5—15 vel ultra, subteretia vel supra canaliculata glabra, marginibus minute cartilagineo-denticulata, 5—20 cm. longa, 1—2 mm. lata, inferne in basin membranaceum vaginantem ampliata; pedunculus simplex vel ramosus, tenuis rigidusque, foliis reductis onustus; bracteae parvae membranaceae; pedicelli 5—10 mm. longi, prope basin articulati, inferiores saepe 2-nati; perianthium ca. 10 mm. longum, lobis albis subaequalibus carinatis, carina 3-nervata viridi vel brunneo-viridi; filamenta levia, antheris longiora; ovarium ca. 2 mm. longum, 1 mm. diam.; stylus glaber, 6 mm. longus; capsula ca. 8 mm.





Del. A. M. M. Page. B-E. L. Guthrie.

A. *Erica Pageana*, L. Bolus. B. *Erica viscidula*, L. Bolus. C. *Erica Patersonii*, L. Bolus.  
D. *Erica longistyla*, L. Bolus. E. *Erica vinacea*, L. Bolus.





A. *Erica draconis*, L. Bolus. B. *Erica Goatcheriana*, L. Bolus, var. *drakensteinensis*, L. Bolus. C. *Erica racemosa*, Thunb. var. *aristata*, L. Bolus. D. *Erica adnata*, L. Bolus. E. *Erica petrophila*, L. Bolus.



longa, superne in rostrum conspicuum angustata, basi perianthio persistente vestita; semina nigra, ca. 2 mm. diam., irregulariter tetrahedralia.

Cape Province: Stellenbosch Div., Stellenbosch Flats, in gravelly soil, rare, fl. Jan.—March, leafing May—Nov., Herb. University Stellenbosch, Flora Regionis Stellenboschensis, No. 1818. Zondereinde R., *Schlechter*, 9884. *Wolley-Dod*, 2484.

*Chlorophytum tuberculatum*, A. Duthie. Rhizoma breve crassum, simplex vel ramosum, verticale vel plus minusve horizontale, radicibus brevibus, dilatatis more tuberculi, dense tecta, reliquis setaceis foliorum aspera; radices breves crassaeque, 2—4 mm. longae vel elongatae ad 4 cm. vel ultra; folia ad 6 vel ultra in fasciculo, erecta vel patentia, linearia duplicata, basi vaginantia, 7—15 cm. longa, 2—4 mm. lata, sat rigida tenuiaque, longitudinaliter crebre nervata, glabra, marginibus minutissime cartilagineo-dentata; pedunculus simplex, cum inflorescentia, 10—25 cm. longus; racemus 1—8-fl., saepe bractea unica sterili, membranacea vel foliacea, basi posita; bracteae deltoideae cuspidatae, ca. 10 mm. longae, inferne 5 mm. latae; pedicelli erecti vel suberecti, inferiores 3—10 mm. longi, rarius 2-nati, saepius prope medium articulati; flores speciosi magni, 2 cm. diam. vel ultra; perianthii segmenta subaequalia, persistentia, alba, conspicue carinata, carina aureo-brunnea, exteriora interioribus leviter angustiora, externe rubescentia; stamina subaequalia, filamentis ca. 7 mm. longis, medio vix 1 mm. latis, basin apicemque versus attenuatis, minute-scabridis, antheras parvas luteas excedentibus; ovarium laete viride, 3-angulare, 2.5—4 mm. longum, 6—7 mm. diam., transverse nervatum, perianthio persistente suboccultum; semina complanata, 2—3 mm. lata, testa nigra crustacea, matura in capsula 3—15.

Cape Province: Stellenbosch Div., Stellenbosch Flats, in clayey soil, locally frequent, fl. Aug.—Oct., Herb. University Stellenbosch, Flora Regionis Stellenboschensis, No. 992. Tulbagh, *Pappe*. Worcester, *Wolley-Dod*, 4051.

## EXPLANATION OF PLATES XII, XIII

### PLATE XII

A. *Erica Pageana*, L. Bolus. B. *Erica viscidula*, L. Bolus. C. *Erica Patersonii*, L. Bolus.  
D. *Erica longistyla*, L. Bolus. E. *Erica vinacea*, L. Bolus.  
A, B, C, D, E. Fig. 1, node; 2, leaf; 3, flower; 4, bracts and calyx; 5, sepal; 6, corolla;  
7, anther, side view; 8, anther, back view; E 9, do., front view; 9, 10, gynaeceum—  
variously enlarged.

### PLATE XIII

A. *Erica draconis*, L. Bolus. B. *Erica Goatcheriana*, L. Bolus, var. *drakensteinensis*, L. Bolus.  
C. *Erica racemosa*, Thunb. var. *aristata*, L. Bolus. D. *Erica adnata*, L. Bolus. E. *Erica petrophila*, L. Bolus.  
A, B, C, D, E. Fig. 1, node; 2, leaf; 3, flower; 4, bracts and calyx; 5, sepal; 6, corolla;  
7, anther, side or front view; 8, anther, back view; 9, gynaeceum.  
B, Fig. 6 a, corolla in earlier stage of development.  
C, Figs: 6 a, 7 a 9, a, parts of a form with rather longer flowers than in the typical variety.

## SOUTH AFRICAN ORCHIDS

BY H. M. L. BOLUS

(With Plates XIV, XV, XVI and XVII.)

*Eulophia violacea*, *Reichenbach f.*, in *Linnaea*, xx, 683. Folia 4—6, erecta, per anthesin evoluta, conduplicata, 7—12 cm. longa, vel ultra, 8—9 mm. lata; scapus sat gracilis, cum racemo 8—13 cm. longo, ad 35 cm. altus, vaginis 4, distantibus membranaceis, 4—2.5 cm. longis; bracteae sat parvae, rhomboideae, longe attenuatae, ad 1.5 cm. longae; pedicelli ad 1 cm. longi; sepala oblongo-lanceolata acuta, 1—1.3 cm. longa; petala circuitu subelliptica, posteriore columnae adnata, sepalis aequilonga; labellum superum vel in floribus senectis inferum ob ovarium tortum, 3-lobum, lobis lateralibus supra medium positis, subovatis obtusis brevibus, intermedio late obovato-rotundato emarginato, cristato-papillato, papillis in 5 lineas dispositis, 3 intermediis ad medium lobi attingentibus vel parum ultra, cum calcare obtuso, 5—6 mm. longo, 1.5—1.7 cm. longum; columna obovato-oblonga, 4 mm. longa, basi haud producta; anthera fere orbicularis.

Cape Province: South-Eastern Region; Albany Div., Stone's Hill, near Grahamstown, fl. Nov. 1889, *S. Schonland* (Bolos Herbarium, No. 5980!). Uitenhage Div., near Redhouse, Nov. 1916, *Mrs T. V. Paterson!* Uniondale Div., Avontuur, fl. Oct. 1916, *F. H. Holland!* Knysna Div., *Mund, Bowie.*

Leaves 4—6, erect, developed during the flowering period, folded together lengthwise, 7—12 cm. long, or longer when fully developed, 8—9 mm. broad; scape rather slender, together with 8—13 cm. long raceme, up to 35 cm. high, with 4 distant membranous sheaths, 4—2.5 cm. long; bracts rather small, rhomboidal with long, tapering apex, up to 1.5 cm. long; pedicels up to 1 cm. long; sepals oblong-lanceolate acute, 1—1.3 cm. long; petals somewhat elliptic in outline when flattened, the posterior margin adnate to the column for the whole, or almost the whole, of the latter's length, equalling the sepals in length; lip superior, or in old flowers on account of the twisted ovary inferior, 3-lobed, the lateral lobes placed above the middle, subovate obtuse short, the intermediate lobe broadly obovate-rounded, emarginate, crested, the papillae arranged in 5 lines of which the 3 central ones reach to the middle of the lobe or a little beyond, together with the obtuse, 5—6 mm. long spur, 1.5—1.7 cm. long; column obovate-oblong, 4 mm. long, not produced at base into a projecting foot; anther almost orbicular.

The drawing was made from Mr F. Holland's collection.

*Eulophia Meleagris*, *Reichenbach f.*, in *Linnaea*, xx, 683. Folia erecta, per

anthesin bene evoluta, basalia 2, ad 6.5 cm. longa, producta 5—6, e basi lato amplectente oblongo-ovata acuta, vel ensiformia, nervis prominentibus 3—5, ad 30 cm., vel (*Tyson*, 1611) ad 53 cm., longa, ad 4.4 cm. lata; scapus nunc parum, nunc multo, folia superans, ad 47 cm. longus vel rarius parum ultra, vaginis 4—5 membranaceis, internodiis subaequilongis vel eis longioribus; racemus 12—22 cm. longus, laxe 12—23-fl., floribus adscendentibus vel nutantibus; bracteae membranaceae, saepius 1—1.5 cm. longae; pedicelli saepius 8—9 mm. longi; sepala patentia, mox torta vel recurvata, oblonga acuta, intus pulchre cancellato-picta, 1.2 cm. longa; petala fere quadrata, 7 mm. longa, 5 mm. lata, apice subtruncata; labellum cum calcare obtuso, 2—4 mm. longo, 1.2—1.4 cm. longum, lobis lateralibus prope basin positis, oblique late ovatis, lobo intermedio lineari-oblongo, margine undulato, apice subrotundato, cristato fere per totam longitudinem; columna oblonga, 4 mm. longa; anthera suborbicularis, breviter rostrata.

Cape Province: South-Eastern Region; Griqualand East, in grassy, stony, and damp places near Fort Donald, alt. 5000 ft., Dec. 1883, *W. Tyson*, 1611! Exact locality uncertain, fl. Dec. 1916, *A. G. McLoughlin*! In tangle at edge of kloof below Vaal Kop at Benholm near Stocken-stroom, Jan. 1885, *W. C. Scully*, 189! (Bolus Herbarium, No. 5916!).

Leaves erect, well developed at the flowering period, the two sheath-like basal ones up to 6.5 cm. long, the 5—6 produced ones oblong-ovate or ensiform with a broad clasping base, prominent nerves 3—5, up to 30 cm., or (*Tyson*, 1611) up to 53 cm., long, up to 4.4 cm. broad; scape sometimes shortly, sometimes well, overtopping the leaves, up to 47 cm. long or rarely a little longer, sheaths 4—5, membranous, about as long as, or a little longer than, the internodes; raceme 12—22 cm. long, laxly 12—23-fl., flowers ascending or nodding; bracts membranous, usually 1—1.5 cm. long; pedicels usually 8—9 mm. long; sepals spreading, soon becoming twisted or recurved, oblong acute, prettily veined or cancellate on the inner surface with a darker colour, 1.2 cm. long; petals almost square, 7 mm. long, 5 mm. broad, subtruncate at the apex; lip, together with the obtuse, 2—4 mm. long spur, 1.2—1.4 cm. long, the lateral lobes placed near the base, obliquely broad-ovate, the intermediate lobe linear-oblong, margin undulate, somewhat rounded at the apex, the crests extending almost throughout the entire length; column oblong, 4 mm. long; anther suborbicular, shortly beaked.

The drawing was made from a living specimen collected by Mr A. G. McLoughlin in Griqualand East.

*Cynorchis Macloughlinii*, L. Bolus. Herba gracilis erecta glabra, 12—18 cm. alta; tuberes plures cylindrici, ad 8 mm. diam.; folia radicalia 6—10, fere erecta, apicem versus saepe recurvata, linearia vel saepissime lineari-

oblanceolata, acuta, ad 5 cm. longa, 1.1 cm. lata, caulina 3, bracteiformia, ca. 1 cm. longa; racemus sat dense 12—18-fl., floribus subsecundis; bracteae e basi late ovato longe acuminatae, herbaceae, pedicellis parum longiores, 7—4 mm. longae; sepala ovata acuta, lateralia subobliqua, 4—5 mm. longa; petala ovata acuminata, 4.5 mm. longa; labellum inferum, inferne subcuneatum, e medio superne conspicue dilatatum, 3-lobum, lobis lateralibus fere semi-orbicularibus, intermedio fere duplo brevior, multo minore, cum calcare gracili, 2 mm. longo, 1 cm. longum; columna, anteriore visa, circuitu late obovata, 1.75 mm. longa; rostellum 3-lobum, lobis lateralibus 2-appendiculatis, appendicibus complanatis obtusissimis erectis, anterioribus apicem versus recurvatis parumque posterioribus brevioribus angustioribusque, lobo intermedio retroverso subulato; anthera fere horizontalis; pollinium obovato-oblongum, glandula suborbiculari.

Cape Province: South-Eastern Region; Griqualand East, Lusikisiki, *G. Fraser!* (National Botanic Gardens, No.  $\frac{164}{23}$ ); without exact locality *A. G. McLoughlin!*

A slender erect glabrous herb, 12—18 cm. high; tubers several cylindrical, up to 8 mm. in diam.; radical leaves 6—10, almost erect, often recurved near the apex, linear or usually linear-oblanceolate, acute, up to 5 cm. long, 1.1 cm. broad, cauline 3, bract-like, about 1 cm. long; raceme rather densely 12—18-fl., flowers turning rather to one side of the axis; bracts from a broadly ovate base long-acuminate, herbaceous, a little longer than the pedicels, 7—4 mm. long; sepals ovate acute, the lateral somewhat oblique, 4—5 mm. long; petals ovate acuminate, 4.5 mm. long; lip inferior, somewhat cuneate in the lower half, considerably widened upwards from the middle, 3-lobed, the lateral lobes almost semi-circular, the intermediate one a little more than half as long and much smaller, together with the slender, 2 mm. long, spur the whole lip about 1 cm. long; column, viewed from the front, broadly obovate in outline, 1.75 mm. long; rostellum 3-lobed, the lateral lobes each with 2 erect, flattened, very obtuse processes, the anterior pair recurved towards the apex and a little shorter and narrower than the posterior pair, the intermediate lobe bent backwards subulate; anther almost horizontal; pollinium obovate-oblong, the gland almost circular.

The drawing was made from one of several living plants, sent to Kirstenbosch by Mr G. Fraser, which flowered there in Dec. 1923. An earlier collection, also from Griqualand East, is that of Mr A. G. McLoughlin. Of this a single specimen is recorded as having flowered at Kirstenbosch in Dec. 1917. This was rather smaller than the plants in Mr Fraser's collection and much paler in the colour of the flowers. The species is readily distinguished from *C. compacta*, Rolfe, by the several radical leaves, and the shape of the lip.



*Disa Stokoei*, L. Bolus. Caulis erectus robustus, ad 45 cm. altus, foliis omnino vestitus; folia 8—9, erecta, oblonga vel late ovato-oblonga vel linearia, inferiora vaginata, vagina 2—3 cm. longa, superiora amplexicaulia, superne attenuata, marginibus undulatis, ad 16 cm. longa, 2—6 cm. lata; spica sat laxe 17-fl., floribus adscendentibus; bracteae maximae, flores aequantes vel inferiores eos bene excedentes, herbaceae, laxe spathaceae, subrhomboidae, superne longe attenuatae, acuminatae, 6—2 cm. longae; sepalum impar galeatum, ore orbiculari, calcare patenti-decurvato, apice saepe incurvato, lateraliter subcompresso canaliculatoque, apice truncato, 5 mm. longo; sepala lateralia oblonga obtusa, 1.4 cm. longa; petala subfalcata, superne dilatata, apice oblique subtruncata vel subacuta, 6 mm. longa, lobo anteriore oblongo, apice rotundato, 3—4 mm. longo; labellum adscendenti-patens oblongo-lineare, apice rotundatum, asperum papillis minutis prominentibus, 1.1 cm. longum, 4 mm. latum; rostellum subquadratum, lobis contiguis; anthera fere horizontalis vel leviter resupinata; ovarium saepius 2—2.5 cm. longum, stigmatate suborbiculari.

Cape Province: South-Western Region; Caledon Div., Hottentots' Holland Mountains, fl. Nov. 1923, *T. P. Stokoe* (Bolus Herbarium, No. 17463!). Exact locality uncertain: obtained from Kuil's River by *M. R. Levyns* (Bolus Herbarium, No. 17462!).

Stem erect robust, up to 45 cm. high, entirely covered by the leaves; leaves 8—9, erect, oblong or broadly ovate-oblong or linear, the lower sheathing, sheath 2—3 cm. long, the upper ones stem-clasping, narrowed towards the apex, margins undulate, up to 16 cm. long, 2—6 cm. wide; spike rather laxly 17-fl., flowers ascending; bracts very large, equalling the flowers or the lower ones well over-topping them, herbaceous, loosely ensheathing the ovary, somewhat rhomboidal, narrowed upwards, acuminate, 6—2 cm. long; odd sepal hooded, mouth orbicular, the spur spreading, then decurved, often incurved at the truncate apex, laterally somewhat compressed and channelled, 5 mm. long; lateral sepals oblong obtuse, 1.4 cm. long; petals somewhat falcate, dilated upwards, obliquely somewhat truncate at the apex or rather acute, 6 mm. long, the anterior lobe oblong, rounded at the apex, 3—4 mm. long; lip ascending-spreading oblong-linear, rounded at the apex, rough with minute prominent papillae, 1.1 cm. long, 4 mm. wide; rostellum almost square, with the lobes contiguous; anther almost horizontal or slightly sloping downwards; ovary usually 2—2.5 cm. long, stigma nearly orbicular.

Described from the dried specimens and the drawing made from a complete living specimen collected by Mr Stokoe and an almost complete one given to Mrs Levyns as being from Kuil's River, in the Stellenbosch Division. The latter was more robust and slightly larger in all its parts. The species is closely allied to *D. cornuta*, Sw. and *D. macrantha*, Sw., and

differs in having proportionately broader bracts, a much shorter spur, shorter and less tapering petals, and the lobes of the rostellum contiguous. From the former it also differs in the shape of the lip which is very similar to that of the latter. The flowers are much less purplish than in either; green being the prevailing colour, and the white border round the hood very distinctive.

## EXPLANATION OF PLATES XIV-XVII

### PLATE XIV

*EULOPHIA VIOLACEA*, REICHENBACH F.

Fig. 1, flower, front view, sepals removed; 2, column and petals, back view; 3, lip, flattened; 4, column and lip, side view; 5, 6, column, side and front views; 7, petal, flattened; 8, side sepal; 9, odd sepal—all magnified.

### PLATE XV

*EULOPHIA MELEAGRIS*, REICHENBACH F.

Figs. 1, 2, side sepal, inner and outer surface; 3, petal— $\times 2$ ; 4, lip, flattened— $\times 6$ ; 5, do., side view; 6, column and lip, side view; 7, column—all  $\times 4$ .

### PLATE XVI

*CYNORCHIS MACLOUGHLINII*, L. BOLUS.

Fig. 1, flower, side view; 2, bract; 3, side sepal; 4, odd sepal; 5, petal; 6, lip—all  $\times 3$ ; 7, column and lip, side view— $\times 4$ ; 8, 9, column, front and oblique views— $\times 25$ ; 10, do., side view— $\times 20$ ; 11, pollinium, enlarged.

### PLATE XVII

*DISA STOKOELI*, L. BOLUS.

Figs. 1, 2, side sepal, outer and inner surface; 3, odd sepal—nat. size; 4, petal; 5, 6, lip flattened and side view— $\times 3$ ; 7, column, petals, and lip, side view— $\times 2$ ; 8, 9, column, front and side view— $\times 3$ ; 10, pollinium— $\times 2$ .

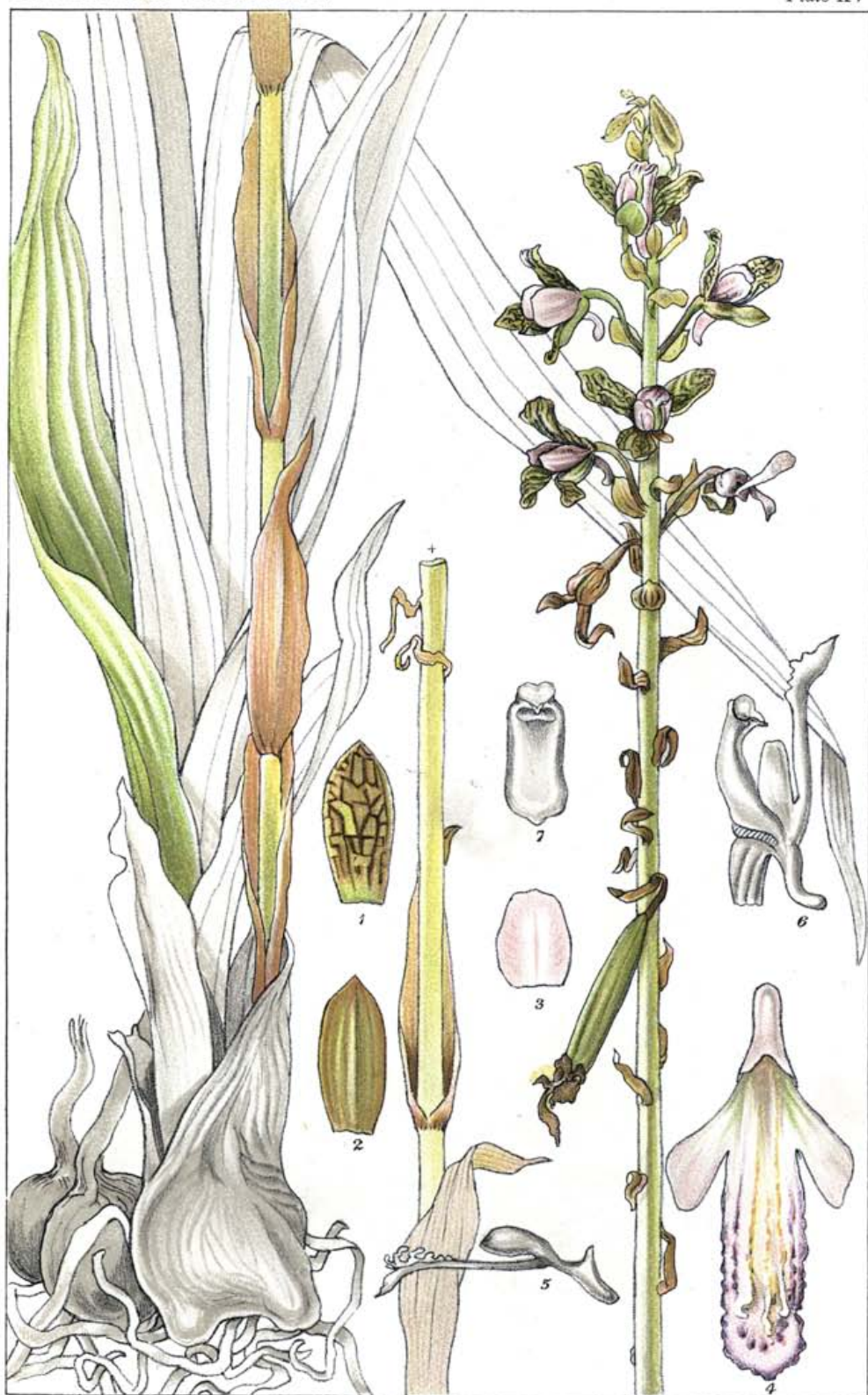


MMPage, del. ad vivam. X. 1916.

Vincent Brooks, Druy & Son Ltd. Lith. London.

*EULOPHIA VIOLACEA*, REICHENBACH F.





MM Page, del. ad vivam 1918.

+ Vincent Brooks Day & Son Ltd Lith London.

**EULOPHIA MELEAGRIS, REICHENBACH F.**







M. M. Page, del. ad vivam. XII. 1923.

Vincent Brooks, Day & Son Ltd. Edin. London.

CYNORCHIS MACLOUGHLINII, L. BOLUS.







MM Page, del. ad vivam. XI. 1923.

Vincent Brooker Day & Son Ltd. Lith. London.

*DISA STOKOEI*, L. Bolus.



Vol. IV, Part I

JANUARY, 1925

University of Cape Town

THE ANNALS  
OF THE  
BOLUS HERBARIUM

EDITED BY

H. M. L. BOLUS

HON. CURATOR, BOLUS HERBARIUM

CAMBRIDGE UNIVERSITY PRESS

LONDON: FETTER LANE, E.C. 4

also

H. K. LEWIS & CO., LTD., 136, GOWER STREET, LONDON, W.C. 1  
WHELDON AND WESLEY, LTD., 2-4, ARTHUR STREET, NEW OXFORD STREET,  
LONDON, W.C. 2

CHICAGO: THE UNIVERSITY OF CHICAGO PRESS  
(AGENT FOR THE UNITED STATES)

BOMBAY, CALCUTTA AND MADRAS: MACMILLAN & CO., LTD.

TOKYO: THE MARUZEN-KABUSHIKI-KAISHA

CAPE TOWN: T. MASKEW MILLER

*Price Five Shillings net*

PRINTED IN GREAT BRITAIN

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KIRSTENBOSCH,  
NEWLANDS,  
NR CAPE TOWN.

Vol. IV, Part II

JANUARY, 1926

University of Cape Town

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THE ANNALS  
OF THE  
BOLUS HERBARIUM

EDITED BY

H. M. L. BOLUS

HON. CURATOR, BOLUS HERBARIUM

CAMBRIDGE UNIVERSITY PRESS

LONDON: FETTER LANE, E.C. 4

also

H. K. LEWIS & CO., LTD., 136, GOWER STREET, LONDON, W.C. 1  
WHELDON AND WESLEY, LTD., 2-4, ARTHUR STREET, NEW OXFORD STREET,  
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*The Annals of the Bolus Herbarium* is entirely devoted to botanical work and is mainly concerned with botanical work directly or indirectly inspired by Dr Bolus and with investigations conducted in or in connection with the Bolus Herbarium and contributing to our knowledge of the vegetation of South Africa—in particular of its taxonomy, ecology, economic and geographical botany.

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