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1913

Kew. ROYAL BOTANIC GARDENS, KEW.

BULLETIN

OF

MISCELLANEOUS INFORMATION.

1913.



LONDON :

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ERRATA.

Page 23, line 20 from bottom, for *Zeyher*, 15, 21! read *Zeyher*, 1521!

Page 32, line 19 from top, for *abysinnica* read *abyssinica*.

Page 44, line 7 from top, for Bahtian (?) read Baktiari.

Page 128, line 15 from bottom, for Tita Shur read Tita Ghur.

Page 145, line 8 from bottom, for Franklyn read Franklin.

Page 257, line 5 from bottom, for Booth read Boott.

Page 278, line 8 from bottom, and page 311, line 3 from bottom, for Matthews read Mathews.

Page 317, lines 15 to 32 from top, for Houttyn read Houttuyn.

barbatus glabri, e foliorum plurimorum axillis ramos erectos edentes. *Folia* basalia 5-7 vaginis valde compressis in dorso carinatis glabris vel saepius ad latera et ora versus pilosis; ligulae brevissimae, ciliolatae; laminae lineares, arcte plicatae, in statu plicato a latere visae apice curvatae, subapiculatae, 14-20 cm. longae, 5-7 mm. latae (explicatae), rigidulae, glabrae vel sparse villosae. *Spicae* 3-4 subdigitatae, 6-8 cm. longae, strictae; rhachis flexuosa, 0.5 mm. lata, ad margines scabridula. *Spiculae* circiter 2 mm. distantes, in flexuris rhachis receptae, 2.5-3 mm. longae, oblongae, acutae, pallidae. *Gluma* inferior suppressa, superior spiculam aequans, ad latera viridula, caeterum hyalina, apicem versus et saepe ad nervos inferiores pilosula, nervis margines versus utrinque 2, brevibus tenuibus obscuris 3-4 intermediis additis. *Anthoecium* inferum ad valvam glumae superiori simillimam nisi tenuius nervosam reducta. *Anthoecium superum* 2-2.5 mm. longum, valva paleaque firmulis obtusis albidis.

EASTER ISLAND. Common on the hill of the middle island, Comm. *F. Fuentes*.

XVII.—DIAGNOSES AFRICANAE. LIII.

1431. *Mesembryanthemum minusculum*, *N. E. Brown* [Ficoideae-Mesembryeae]; affinis *M. minuto*, Haw., sed corpusculis convexis nec depresso-emarginatis purpureo-maculatis et minutissime albo-punctatis area centrali minute puberula differt.

Herba parva, acaulis, succulenta, dense caespitosa, fere glabra, aphylla. *Folia* in corpuscula obovoidea, apice convexa, 5-8 mm. diametro fusa, area minute puberula circumdata et in annulo atro-virente inclusa, viridia vel lateribus purpureo-tinctis, purpureo-maculata vel atro-viridi-maculata et minutissime albo-punctata, fissura 1-2 mm. longa. *Calyx* in corpusculum inclusus. *Corolla* gamopetala, 2.5 cm. diametro, pulchre rubro-purpurea, luteo-oculata; tubus supra superficiem plantae 3-6 mm. exsertus, compressus, 2 mm. latus, sordide aurantiaco-ruber; petala exteriora circiter 16-18, sub-uniseriata, 12 mm. longa, 1.5-3 mm. lata, lineari-cuneata, obtusa vel subdentata; interiora circiter 6, uniseriata, 3 mm. longa, linearia, acuta, aurantiaco-lutea. *Stamina* inclusa, lutea.

SOUTH AFRICA: without locality, described from living plants received at Kew from *Mr. N. S. Pillans* in 1908.

The flowers of this species, when once expanded, remain open until they fade, irrespective of sunshine or dull sunless weather and last 4-5 days.

1432. *Mesembryanthemum fraternum*, *N. E. Brown* [Ficoideae-Mesembryeae]; affinis *M. minuto*, Haw., sed corpusculo punctato et floribus minoribus differt.

Herba parva, acaulis, succulenta, dense caespitosa, aphylla, glabra. *Folia* in corpuscula obconica, apice late rotundata vel emarginata, 0.7-1 cm. diametro fusa, pallide cinereo-viridia, haud nitida, punctis atroviridibus demum purpureis irregulariter conspersis notata, fissura haud ciliata. *Calyx* in pedunculo 1-2 mm. longo exsertus, 4-lobus; lobi 2 mm. longi, erecti, oblongi, obtusi, membranaceo-marginati. *Corolla* gamopetala, 1.5 cm. diametro; tubus

6 mm. longus, luteus; petala 21–28, biseriata, subaequalia, patula, 6 mm. longa, 1–1.5 mm. lata, linearia, obtusa, pulchre rosea, basi lutea, leviter nitida. *Stamina* breviter exserta; filamenta aurantiaca; antherae luteae. *Stylus* staminibus sublongior, filiformis, apice minute 4-lobus, rubro-aurantiacus.

SOUTH AFRICA. Little Namaqualand: common on decomposed granite on the upper north-western slopes of hills south-west of Chubiessies, *Pearson*, 6177.

Described from living plants collected during the Percy Sladen Expedition to the Orange River in 1910–1911, by Prof. H. H. W. Pearson, and sent to the Royal Botanic Gardens, Kew, where it flowered in July and August, 1912.

The flowers seen opened in the morning of a day on which there was an entire absence of sunshine, and the temperature in the open air only 60° Fahr. They did not close, so far as I observed, unless during the night, but remained open until they faded, the weather being very dull and cloudy all the time.

1433. *Mesembryanthemum globosum*, *N. E. Brown* [Ficoideae-Mesembryeae]; affinis *M. minimo*, Haw., sed corpusculis majoribus apice convexis nec depresso-emarginatis epunctatis, corolla pallide rosea tubo brevior.

Herba parva, acaulis, succulenta, dense caespitosa, ubique glabra, aphylla. *Folia* in corpuscula globosa, apice convexa, 1–1.3 cm. diametro fusa, glauco-viridia (haud glauca), emaculata et epunctata, fissura centrali 3 mm. longa, nec depressa, sed tempore florentis in tuberculum parvulum elevata. *Pedunculus* exsertus, 3 mm. longus, compressus, 2–2.5 mm. latus, albidus. *Calyx* 4-lobus, albidus vel pallide albo-virens, apice pallide rubro-tinctus; lobi 2–3 mm. longi, oblongi vel ovati, obtusi, membranaceo-marginati. *Corolla* gamopetala, 1.8–2 cm. diametro, subinfundibuliformis, pallide rosea, albo-oculata; tubus 5 mm. longus; petala 40–55, circiter 3–4-seriata, exteriora 8–9 mm. longa, interiora 5 mm. longa, linearia, obtusa vel acuta, integra. *Stamina* vix exserta, 5–6-seriata, erecta, lutea. *Styli* 4, filiformes, erecti, 8–9 mm. longi, ad medium connati, apice lutei.

SOUTH AFRICA. Little Namaqualand: lower side of the northern aspect in River Valley, 3 miles west of Garies, *Pillans and Pearson*, 5582.

Described from a living plant sent to Kew by Prof. Pearson in 1911. The flowers of this species open in the morning and begin to close about 2 p.m. and are quite unaffected by sunshine or dull sunless weather. Each flower opens successively for 5–7 days.

1434. *Mesembryanthemum odoratum*, *N. E. Brown* [Ficoideae-Mesembryeae]; affinis *M. ficiformi*, Haw., sed corpusculis punctis paucioribus et floribus multo majoribus odoratis differt.

Herba parva, acaulis, succulenta, aphylla, caespitosa, glabra. *Folia* in corpuscula obconico-obcordata, compressa, 2–3 cm. alta, ad 2.5 cm. lata fusa, glauco-viridia, punctis atroviridibus in lineas subbieruciatim dispositis notata. *Calyx* in pedunculo 2–3 mm. longo exsertus, compressus, 4-lobus; tubus ad 4 mm. latus; lobi 2.3–3 mm. longi, oblongi, obtusi, membranaceo-marginati. *Corolla* vesperem versus expansa, odoratissima, 1.8–2.5 cm. diametro, pulchre carneo-purpurea, nitida; petala sub 80, subbiseriata, 0.8–1 cm. longa,

1 mm. lata, integra vel apice emarginata. *Stamina* vix exserta, albida. *Styli* 4, inclusi, staminibus multo breviores, lineares, obtusi.

SOUTH AFRICA. Worcester Division; mountains near Worcester, Cooper.

Described from a living plant, which has been in cultivation for over 40 years but never previously described. It was introduced in 1862 by Mr. Thomas Cooper, who informed me that he believed that he collected it at the above-mentioned locality. Its flowers open about 4 p.m. and are closed the next morning, but after opening and closing for 3 days, they do not close again, but remain expanded, with the petals spread over the top of the plant until they wither, each flower lasting altogether for 6 or 7 days. They are most delightfully scented, very much like cloves.

1435. *Mesembryanthemum evolutum*, N. E. Brown [Ficoideae-Mesembryeae]; species ab omnibus distinctissima.

Herba nana, succulenta, densissime caespitosa. *Plantulae* (vel rami) 2-4-foliatae, 6-7 mm. diametro. *Folia* erecta, basi connata, parte libera 2-3 mm. longa, semiglobosa, facie interiore plana, dorso valde convexa, marginibus ciliatis, viridia, emaculata. *Calyx* exsertus, 5-lobus, glaber; lobi 3-4 mm. longi, oblongo-lanceolati, obtusi, virides, basi purpureo-tincti. *Corolla* 16 mm. diametro; petala circiter 36, biseriata, 6-6.5 mm. longa, linearia, obtusa vel minute emarginata, roseo-purpurea, leviter nitida. *Stamina* numerosa, conniventia, exteriora filiformia, ananthera, inferne albida, superne atropurpurea. *Styli* 5 erecti, staminibus subaequilongi, subulati.

SOUTH AFRICA. Little Namaqualand, without precise locality, collected during the Percy Sladen Expedition to the Orange River by Prof. Pearson, no. 5946.

Described from a living plant, sent to Kew by Prof. Pearson, which flowered in October, 1912. This minute species is quite distinct from all others hitherto described, and connects those belonging to the group having two leaves fused into a small obconic body with those in which there are two or four free leaves.

1436. *Kalanchoe sexangularis*, N. E. Brown [Crassulaceae]; affinis *K. paniculatae*, Harv., sed caule sexangulari et cymis in paniculam superpositis distinctissima.

Herba succulenta, circa 1 m. alta. *Caulis* simplex, strictus, sexangularis, basi 1.3 cm. crassus, glaber, viridis. *Folia* opposita, petiolata, glabra, viridia, haud glauca; petiolus 1-2 cm. longus, 6-8 mm. latus, supra canaliculatus, subtus carinatus; lamina foliorum inferiorum 7-9 cm. longa, 5.5-8 cm. lata, elliptica vel suborbicularis, apice obtusissima vel rotundata, basi in petiolum brevissime et abruptissime cuneata, obscure vel distincte crenata, plana vel ad apicem convexa, marginibus reflexis, foliorum superiorum gradatim minora, angustiora, concava. *Cymae* pedunculatae, adscendentes, 3.5-5 cm. latae, in paniculam 20 cm. longam superpositae, glabrae, virides, haud glaucae; pedunculi 3-5 cm. longi. *Bracteae* 1-3 mm. longae, lanceolatae, acutae. *Pedicelli* 3.5-5 mm. longi. *Calyx* 3 mm. longus, fere ad basin 4-lobus; lobi ovati, acuti. *Corolla* parva, glabra, flava, basi viridis; tubus 1 cm. longus, elongato-conicus, 4-angularis; lobi 2.5 mm. longi, suborbiculares vel rotundato-ovati, apiculati. *Stamina* inclusa.

SOUTH AFRICA. Transvaal? Described from a living plant sent by *Mr. Thornecroft* to Cambridge Botanic Garden, and communicated to Kew by R. I. Lynch.

1437. *Ceropegia Ledgeri*, *N. E. Brown* [Asclepiadaceae - Ceropegieae]; affinis *C. vincaefoliae*, Hook., sed pedunculis glabris, corollae tubo purpureo et corona diversa facile distinguitur.

Herba volubilis. *Caulis* 2 mm. crassus, glaber. *Folia* glabra, pulchre olivaceo-viridia; petioli 2 cm. longi; lamina 4.5–6.5 cm. longa, 2.2–3.8 cm. lata, elongato-ovata, acuta, basi rotundata vel levissime subcordata, integra. *Pedunculi* axillares, solitarii, 1.6–2 cm. longi, 1.25 mm. crassi, umbellatim 3–4-flori. *Pedicelli* 1–1.5 cm. longi, glabri, purpureo-punctati. *Sepala* 4 mm. longa, subulata, acuta, glabra. *Corollae* tubus curvatus, 2.3 cm. longus, utrinque glaber, sed intra ad apicem inflationis annulo pilorum crispatorum alborum ornatus, basi ellipsoideus et 5 mm. diametro, intra pallidus, purpureo-maculatus, medio cylindricus et 2 mm. diametro, intra atro-purpureus, extra pallidus, apice infundibuliformis et 9 mm. diametro, fusco-purpureus, intra pallidus, minutissime fusco-purpureo-punctatus; lobi 1.1–1.2 cm. longi, erecti, apice leviter connati, glabri, marginibus in parte superiore pilis simplicibus atropurpureis ciliatis, superne atropurpurei, inferne pallidi, minutissime purpureo-punctati. *Corona exterior* 10-dentata, glabra; dentes 1.25 mm. longi, erecti, lineari-subulati, purpureo-punctati. *Coronae interioris* lobi 2 mm. longi, arcte conniventes, erecti, lineares, glabri, purpurascens.

The origin of this plant is unknown. It was purchased by Mr. Walter Ledger, of Wimbledon, some years ago, from Mr. W. Bull, under the name of *C. Gardneri*, from which species it is entirely different. But as it bore that name, it probably is a native of the same region and doubtless was introduced from some part of India or the Malay Archipelago. Mr. Ledger has assiduously collected and cultivated the species of this interesting genus for many years.

1438. *Caralluma Burchardii*, *N. E. Brown* [Asclepiadaceae - Stapelieae]; affinis *C. europaeae*, N. E. Br., sed corollae lobis immaculatis intra pilis albis dense obtectis differt.

Caules succulenti, erecti, ramosi, 7–50 cm. longi, 1.5–2 cm. crassi, subacute tetragoni, angulis dentatis; dentes (folia rudimentaria) 1 mm. prominentes, deflexi, late deltoidei. *Flores* prope apicem caulorum fasciculati, sessiles. *Sepala* 3 mm. longa, lanceolata, acuta, glabra. *Corolla* rotata, 1.3 cm. diametro, intra alba, immaculata, pilosa, extra olivaceo-brunnea (ex *Burchard*); lobi 4 mm. longi, 3.5 mm. lati, ovati, acuti. *Corona exterior* cupuliformis, 10-dentata, lutea; dentes 1 mm. longi, erecti, subulati; interior 5-loba, lutea; lobi 1–1.25 mm. longi, antheris incumbentes et eas aequantes, lineares, obtusi. *Folliculi* 7–8 cm. longi, 7–8 mm. crassi, teretes, acuti, glabri, purpureo-vittati. *Semina* 6 mm. longa, 3.5 mm. lata, oblongo-obovata, plana, late marginata, glabra, pallide brunnea.

CANARIES. Common on recent lava streams, tops of volcanoes and on clay in the whole of the northern part of the island of Fuerteventura, but not yet found in the Handia Mountains, *Dr. O. Burchard*.

This is closely allied to *C. europaea*, N. E. Br., and *C. maroccana*, N. E. Br., differing in its unspotted flowers, which are covered with white hairs inside, and also in its corona. It is an interesting discovery, as it is the first record of this genus in the Canary Islands. Living plants and flowering specimens in formalin have been kindly sent by Dr. Burchard to the Royal Botanic Gardens, Kew.

1439. *Euphorbia Eustacei*, N. E. Brown [Euphorbiaceae-Euphorbieae]; species ab omnibus habitu et spinis longis albis distinctissima.

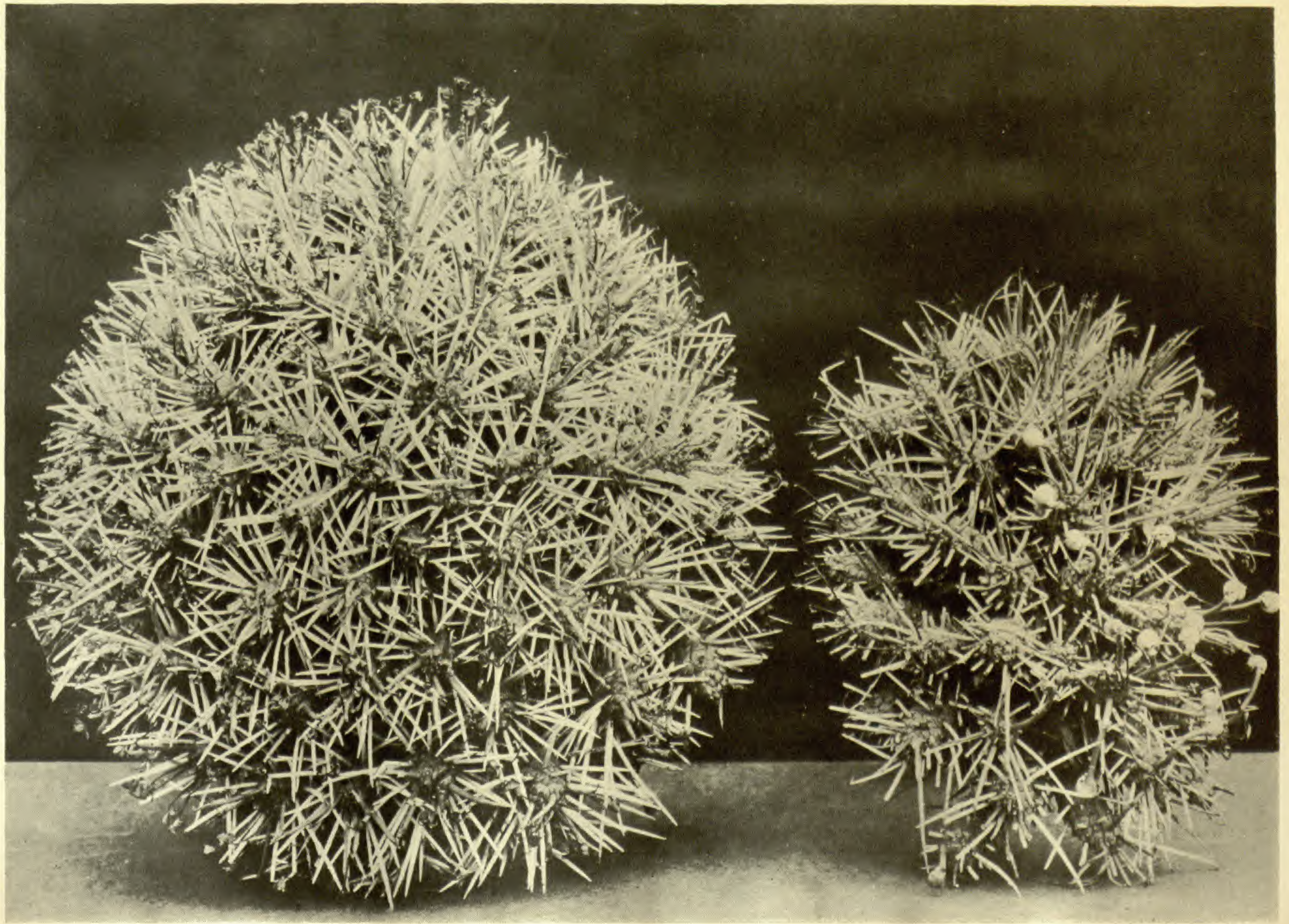
Planta succulenta, spinosissima, hemispherico-caespitosa, 10–15 cm. alta, 20–30 cm. diametro, dioica. *Rami* conferti, 4–11.5 cm. longi, 1.7–2 cm. crassi, cylindrici, vix tuberculati, sed lineis impressis areolas hexagonas circumdantibus notati, glabri, pallide virides. *Folia* petiolata, 2–3.2 cm. longa, 5–7 mm. lata, oblanceolata, obtusa vel subacuta, mucronata, e medio in petiolum 4–6 mm. longum attenuata, minutissime puberula, decidua. *Spini* solitarii, patuli, 2–5 cm. longi, albi, glabri. *Pedunculi* solitarii, 2–3 cm. longi, apice bracteis 3–4 verticillatis inferne bracteis 2–3 sparsis instructi. *Bracteae* superiores 3–5 mm. longae, 2–3.5 mm. latae; oblongae vel obovato-oblongae, inferiores minores. *Involucrum* 4–6 mm. diametro, subcampanulatum, glabrum vel minutissime puberulum; glandulae 1.5–2.5 mm. latae, cuneato subrectangulares, integrae. *Ovarium* sessile, minutissime velutino-puberulum; styli inferne in columnam 1.5 mm. longam connati, superne in ramos 1.3 mm. longos patulos apice bifidos divisi. *Capsula* brevissime pedicillata, 6 mm. diametro, depresso-globosa, minutissime velutina. *Semina* 3 mm. longa, ovoidea, obscure et minute rugulosa, cinerea.

SOUTH AFRICA. Laingsburg Division: near Matjesfontein, E. Pillans.

The above description and accompanying figures are made from living male and female plants sent to the Royal Botanic Gardens, Kew, by Mr. Eustace Pillans of Cape Town, to whom and to his son, Mr. Neville S. Pillans, Kew is also indebted for a large number of other interesting plants; their services are commemorated by naming this and the following very distinct species after them. The figures of *E. Eustacei* represent the plants as seen from above, the pots containing them being laid upon their sides. The larger figure is that of the male and the smaller that of the female plant. Viewed from the side, the plants have the form of hemispherical spiny cushions, the larger of which is about one foot in diameter. The stems are pale green at the younger parts and the spines very white, so that the contrast is rather pleasing, and the whole appearance of the plant is entirely distinct from any other species in cultivation.

1440. *Euphorbia Pillansii*, N. E. Brown [Euphorbiaceae-Euphorbieae]; affinis *E. stellaespiniae*, Haw., sed caule transverse zonato-variegato, angulis paucioribus, spinis validioribus et involucre majore differt.

Planta succulenta, 10–15 cm. alta, basi ramosa, aphylla, spinosa, glabra, dioica. *Caules* vel rami 3–5 cm. crassi, obtusissime 7-angulati, zonis alternis viridibus et atroviridibus transverse notatis,



EUPHORBIA EUSTACII.



EUPHORBIA PILLANSII.

angulis crenatis. *Folia* rudimentaria 1 mm. longa, deltoidea, acuta, decidua. *Spini* solitarii, apice stellato-ramosi vel simplices, 8-17 mm. longi, 1.5-2 mm. crassi, glabri, cinerei. *Pedunculi* erecti, 7-12 mm. longi, 1-2.5 mm. crassi, umbellatim 2-6-flori vel interdum uniflori, minute bracteati. *Pedicelli* 5-6 mm. longi, apice bibracteati. *Bracteae* 2-3 mm. longae et latae, subquadratae, apiculatae, glabrae. *Involucrum* 5-6 mm. diametro, late campanulatum, glabrum, viride, glandulis 5 transverse ellipticis vel sub-reniformibus integris atroviridibus. *Ovarium* non vidi.

SOUTH AFRICA. Ladismith Div.: near Doornkloof River, between Muis Kraal and Ladismith, *N. S. Pillans*.

The description and figure of this species are made from a living plant sent by Mr. Neville S. Pillans to the Royal Botanic Gardens, Kew, where it flowered in Dec., 1912. *E. Pillansii* is allied to *E. stellaespina*, Haw., but is well distinguished from that species by its much fewer angles, stouter spines, and the transverse pale greenish bars upon its stems. The figure represents the plant of its natural size.

XVIII.—CASCARA SAGRADA.

(*Rhamnus Purshiana*, DC.)

W. J. BEAN.

Attention has already been called in these pages to the possibility of this drug proving a remunerative culture in the British Isles (see *K. B.* 1908 p. 429) and the question has aroused considerable interest in various parts of the country. In 1908, seeds of *Rhamnus Purshiana* were distributed from Kew to about twenty establishments in England, Scotland and Ireland. Reports have just been received from most of the recipients as to the germination of the seeds, also notes on the behaviour of the plants. The seeds as received from America do not appear to have had a high germinating power, and even the most successful results do not show that more than 35 per cent. were fertile. The seeds appear to have germinated best when the stiff pulp (the dried fruit) in which the seeds, as received, are embedded is removed before sowing. The most successful results both as to germination and growth have been obtained in the garden of Mr. Collis-Sandes at Oak Park, Tralee, Ireland, where some of the plants raised from the 1908 seed are already 9 feet high, 8 feet in diameter, and 6 inches in girth of stem. At Fota they are 7 feet, at Rossdohan 8 feet, and at Glasnevin 6 feet high. The tree is also succeeding particularly well in the south-west of Scotland with Sir Herbert Maxwell, who had six plants from Kew in 1908. Plants at the Edinburgh Botanic Garden are thriving well.

The species, like our native *R. Frangula*, is capable, evidently, of very soon arriving at the fruiting stage, for Sir Herbert Maxwell's plants bore a plentiful crop of berries in 1911, and although his plants are two or three years older than the plants raised from seed in 1908, they show that, in favourable circumstances, trees five or six years old will produce fruit. It appears