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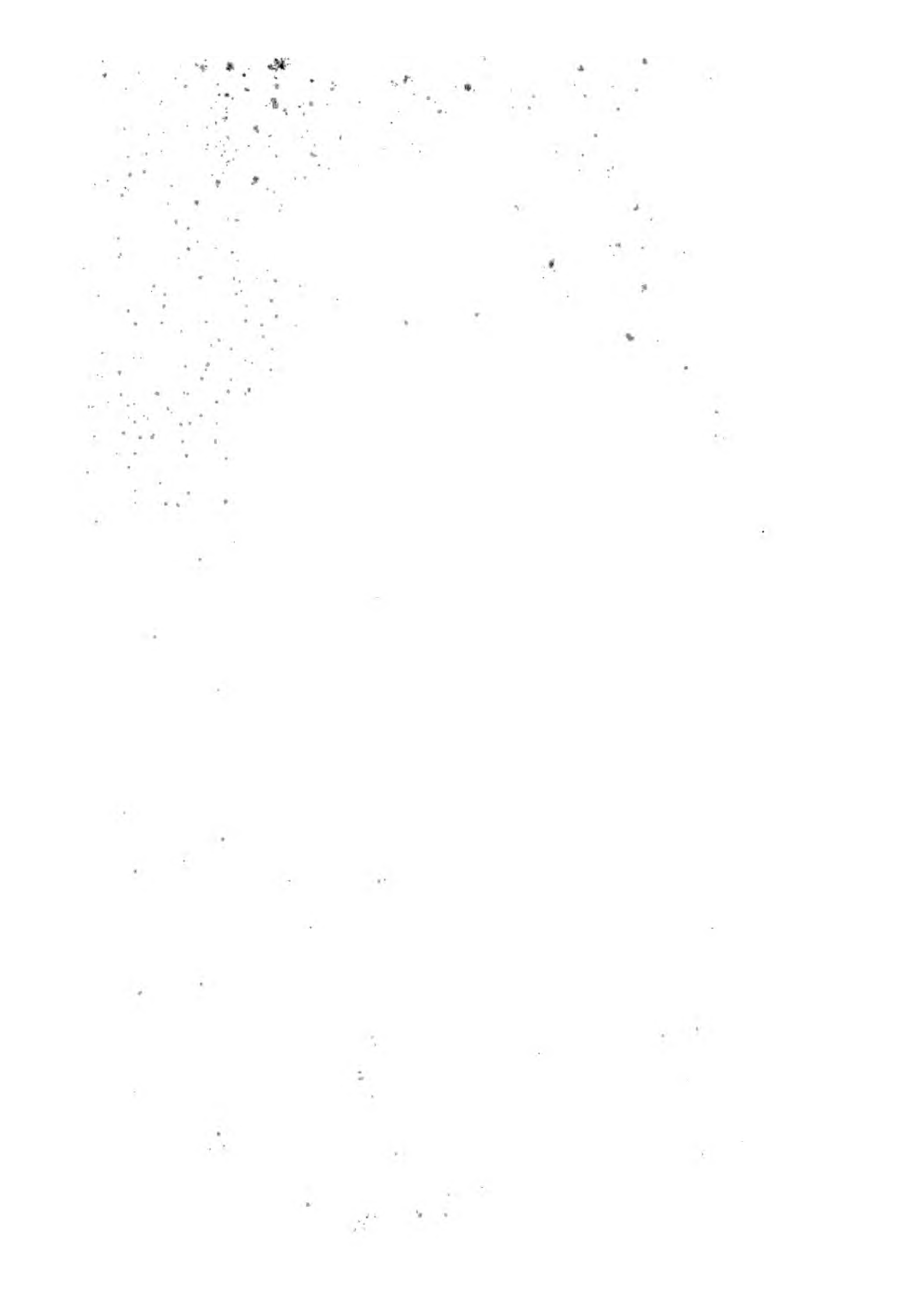
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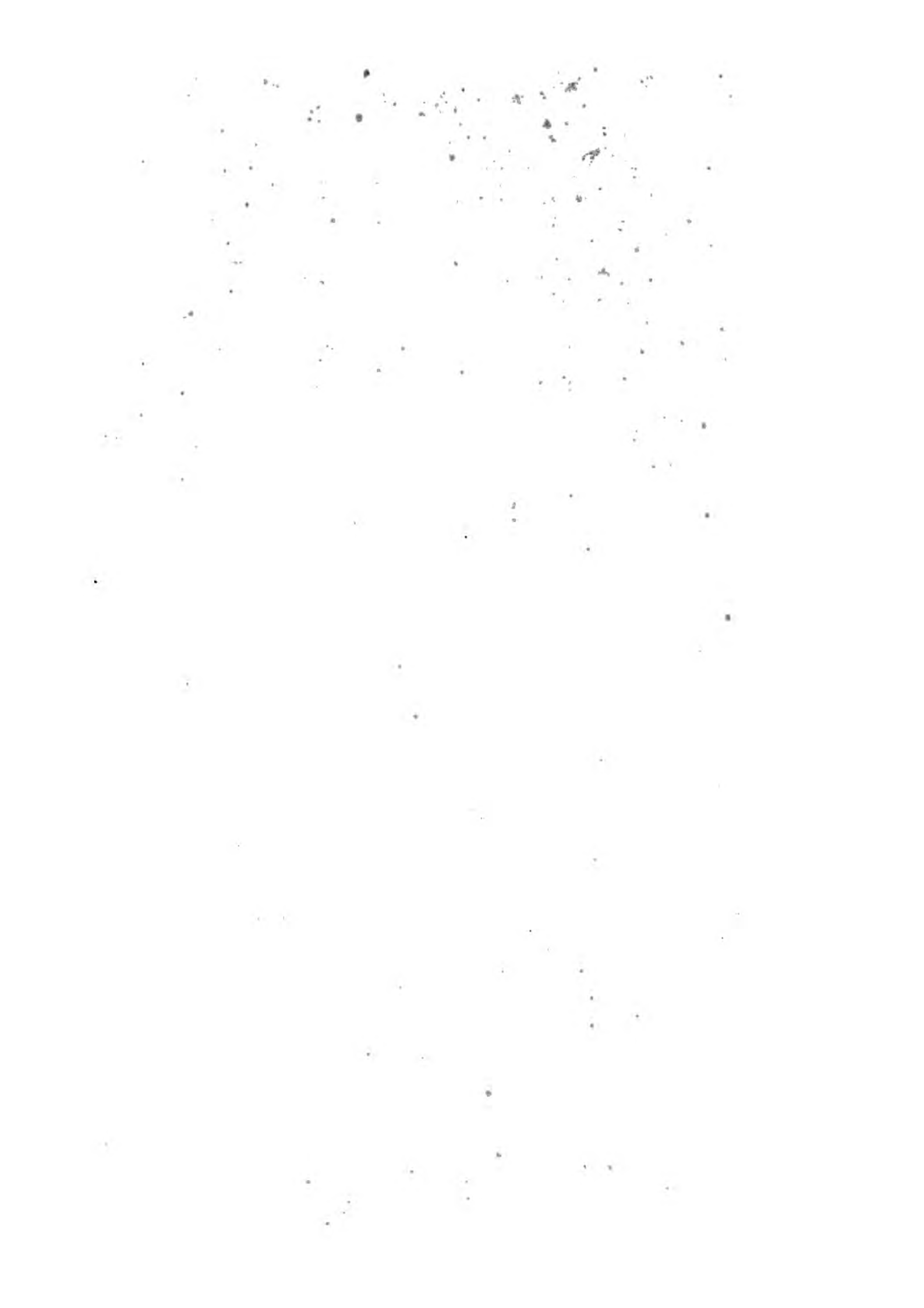
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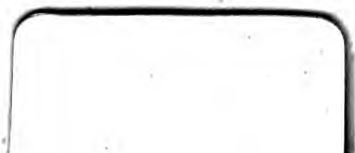


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REFUGIUM BOTANICUM  
OR  
FIGURES AND DESCRIPTIONS  
FROM LIVING SPECIMENS  
OF  
LITTLE KNOWN OR NEW PLANTS  
OF BOTANICAL INTEREST.

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EDITED BY  
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J. G. BAKER, F.L.S.  
ASSISTANT CURATOR OF THE KEW HERBARIUM.

THE PLATES BY W. H. FITCH.

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VOL. V.

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LONDON:  
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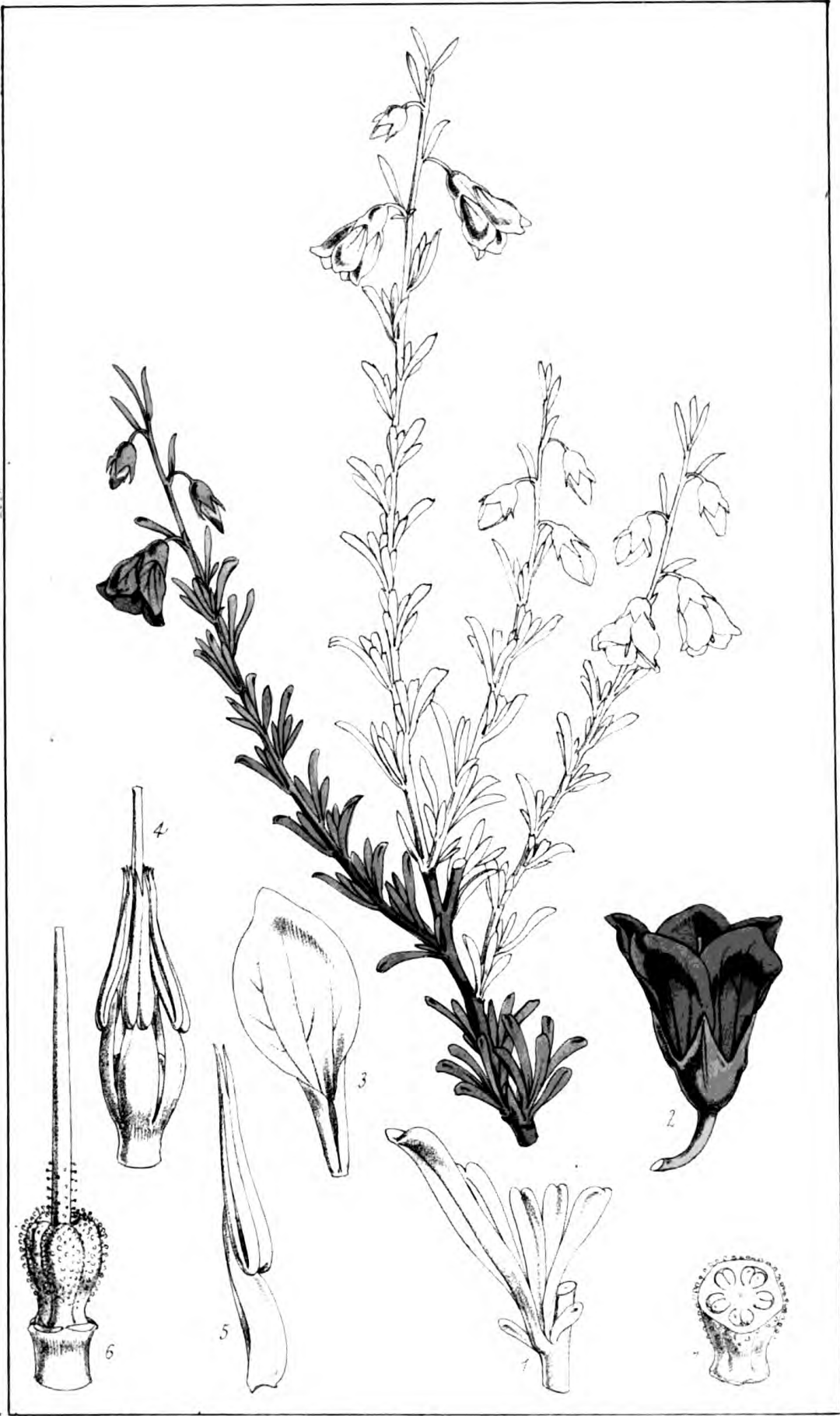
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1873.

191. l. 177<sup>e</sup>







W.H. Fitch del. et lith.

J.N. Fitch imp.

*Hermannia fasciculata*, Baker

## TAB. 289.

Natural Order STERCULIACEÆ.

Tribe HERMANNIÆ.

Genus HERMANNIA, *Linn.*

*H. FASCICULATA, Baker.* Fruticosa ramis gracilibus virgatis glabris viscosis, foliis perparvis fasciculatis sessilibus anguste oblanceolatis integris crassis glabris nigro punctatis uninervis apice obtusis emarginatis decurvatis, racemis paucifloris, floribus cernuis, pedicellis glabris, calycis campanulati glabri dentibus deltoideo-cuspidatis tubo æquilongis, petalis obovatis unguiculatis calyce duplo superantibus, filamentis ligulatis antheris bifidis æquilongis, ovariis glabris glandulosis.

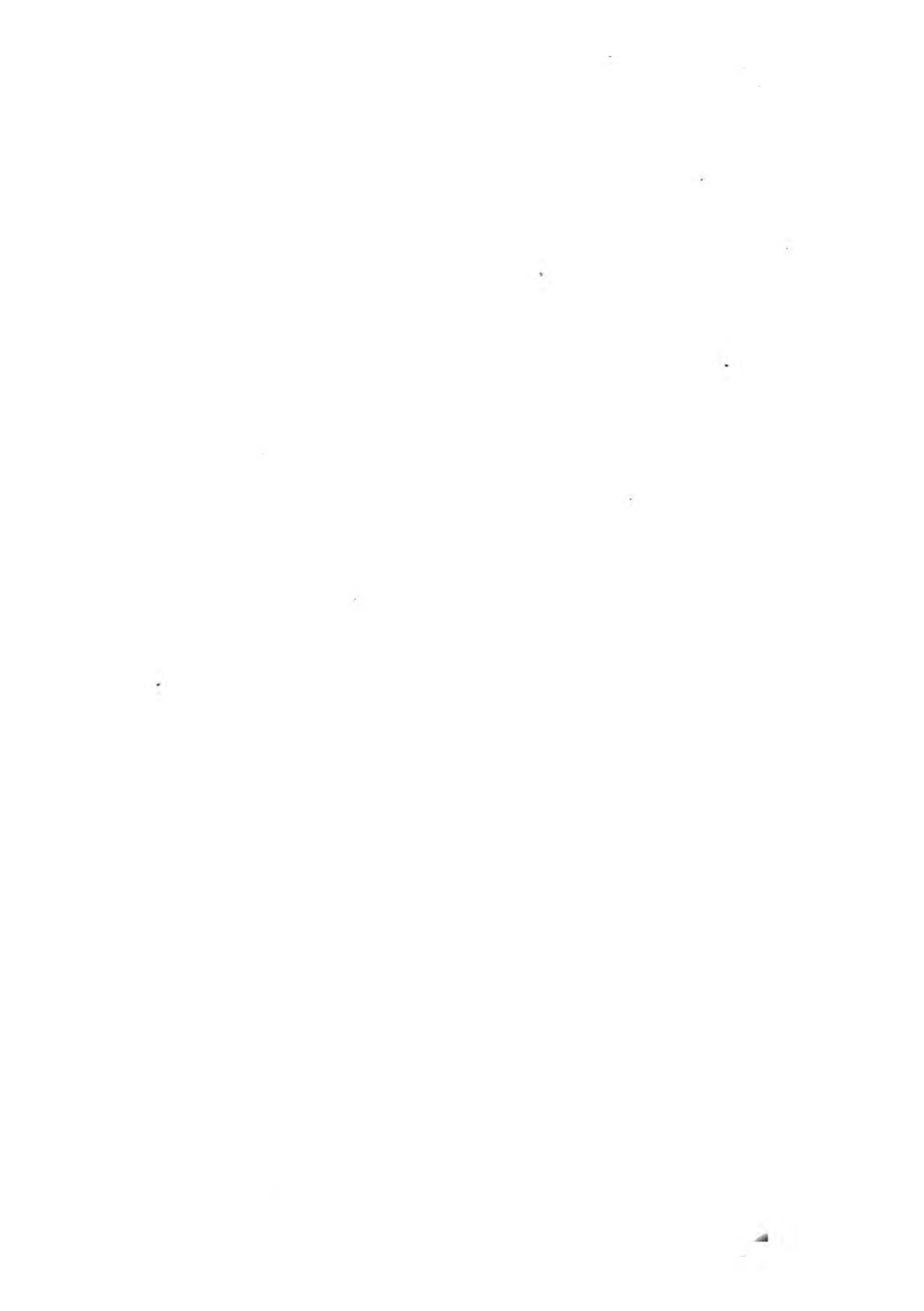
A native of Cape Colony, discovered by Mr. Cooper.

A copiously-branched low shrub, with slender rigid virgate glabrous densely viscose *branches*. *Leaves* in numerous close tufts, with up to six or eight leaves in each, sessile, narrowly oblanceolate, entire, three to four lines long, thick and rather fleshy in texture, dotted with minute black glands, glabrous on both sides with the *midrib* channelled down the face and elevated on the back, narrowed gradually to the base from near the truncate rather decurved slightly emarginate point. *Flowers* in sparse racemes on cernuous glabrous *pedicels* a line and a half to two lines long, each bracteated at the base by a single leaf. *Calyx* campanulate, glabrous, one-eighth of an inch deep at the flowering time, the deltoid cuspidate *teeth* equalling the *tube*. *Pctals* more than twice the calyx, claret-purple, obovate, with a distinct *claw* with enrolled borders, which is rather shorter than the *blade*. *Filaments* flat, strap-shaped, equalling in length the connivent bifid *anthers*. *Ovary* glabrous, but densely glandulose; *style* overtopping the *stamens*.

Of described species, near only to *H. filifolia*, Linn., from which it differs by being quite destitute of hairs, and by the shape of its leaves and calyx-segments, and larger more showy flowers.

TAB. 289.—1, portion of stem with tuft of leaves; 2, entire flower; 3, petal; 4, stamens and pistil; 5, a single stamen; 6, pistil; 7, horizontal section of ovary: all magnified.—*J. G. B.*

This is a neat little plant, requiring the protection of the greenhouse in winter, and to be placed in the open air during the summer, where it flowers freely. It wants but little pot-room, and should be grown in light sandy loam and peat, with the drainage carefully attended to. My stock of the plant originated from seeds sent to me from South Africa by Mr. Thos. Cooper.—  
*W. W. S.*







W.H.Fitch del. et. lth.

J.N.Fitch imp.

*Geranium ornithopodum*, *Eccl. et Zeyher*

## TAB. 290.

## Natural Order GERANIACEÆ.

## Tribe GERANIÆ.

Genus GERANIUM, *Linn.*

*G. ORNITHOPODUM* (*Ecklon et Zeyher, Pl. Cap. No. 449*). Herbacea 3—5 pedalis perennis diffusa, caulibus gracilibus dense albo-pubescentibus, foliis longe petiolatis rotundis ad vel ultra medium palmatim quinquepartitis lobis pinnatifidis, præsertim ad faciem inferiorem molliter pubescentibus, bracteis et stipulis parvis laciniatis, floribus copiosis cernuis geminis mediocribus, pedicellis et sepalis oblongo-cuspidatis dense pubescentibus, petalis albo-rubris calyce subduplo longioribus. — *Harv. Fl. Cap. i. 258.*

A native of Cape Colony, gathered by Zeyher, Drege, Burchell, and many other collectors.

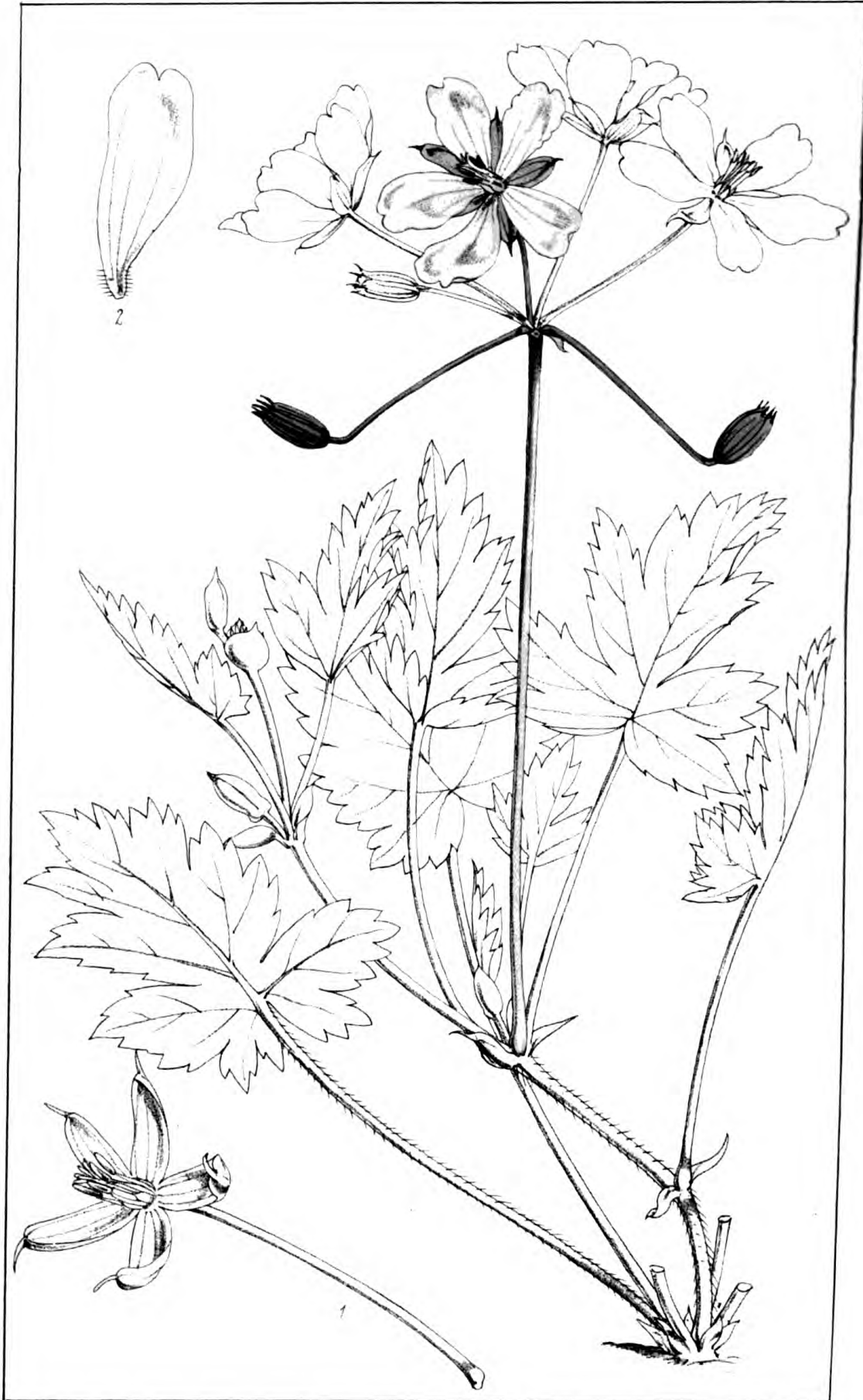
A copiously diffusely-branched perennial herb, with the general habit of our English *G. pyrenaicum*, reaching a height of four to five feet, with slender stems densely clothed with soft short decurved whitish hairs. Lower petioles reaching a foot long, upper an inch or less. Stipules minute, cut into linear segments. Leaves roundish in general outline, thin and soft in texture, downy principally on the lower face, three to four inches broad, palmately five-lobed usually at least half-way down, with pinnatifid divisions. Flowers in pairs on densely downy drooping slender pedicels one-fourth to three-fourths of an inch long, the hairs of which are sometimes gland-tipped. Calyx one-fourth of an inch deep; the sepals oblong, very downy, cuspidate. Petals twice as long as the sepals, in our plant white veined with red. Beak of carpels downy, six to seven lines long.

TAB. 290.—1, flower with petals taken away, magnified.—*J. G. B.*

This straggling species of *Geranium* was grown by Mr. Thos. Cooper, of Reigate, from seeds which he procured in South Africa. It seems to require greenhouse treatment during the winter, and likes a light rich soil.—*W. W. S.*







W. H. Fitch del et lith.

J. N. Fitch imp.

*Erodium Munbyanum*, Boiss.

## TAB. 291.

Natural Order GERANIACEÆ.

Tribe GERANIÆ.

Genus ERODIUM, *L'Herit.*E. MUNBYANUM (*Boiss. ex Munby, Bull. Soc. Bot. France, ii. 283*).

Herbacea perennis diffusa caulibus glaucescentibus, stipulis ovato-lanceolatis scariosis, foliis cordato-ovatis irregulariter crenatis sæpissime ad medium palmatim tripartitis utrinque viridibus supra glabrescentibus subtus ad venas leviter pilosis, umbellis 5—8-floris, bracteis latis scariosis persistentibus, pedicellis subglabris, sepalis oblongis cuspidatis, petalis obovatis calyce duplo superantibus superioribus angustioribus basali nigro-maculato, filamentis staminum fertilium edentulis, carpellis hispidis rostro biunciali. — *Walp. Ann. iv. 393. E. mauritanicum, Cosson et Durieu Bull. Soc. Bot. France, ii. 309.*

A native of Algeria, gathered by numerous collectors, and named by Boissier in compliment to our countryman, Mr. Munby, who has so carefully explored the Flora of that country.

A copiously-branched herbaceous perennial, about a foot high, with moderately stout *stems*, clothed when young with a few spreading gray bristly hairs, becoming glabrous as they mature. *Stipules* scariose, ovate-lanceolate, persistent, three to four lines long. *Petioles* slightly downy, the lower five to six inches, the upper under one inch, long. *Leaves* an inch to two inches broad, cordate-ovate, blunt, irregularly inciso-crenate, usually three-lobed about half-way down to the middle, moderately thick in texture, green on both surfaces, glabrescent above, furnished with a few inconspicuous hairs on the veins below. *Flowers* in copious terminal umbels of five to eight flowers each. *Bracts* like the stipules in texture, ovate or roundish, persistent. *Pedicels* nine to fifteen lines long, very slender, subglabrous, purplish. *Calyx* three and a half to four lines long; the *sepals* oblong, with very distinct *cusps*. *Petals* obovate, five-eighths of an inch long, purple, the two upper ones rather narrower than the other three, the basal one with a black spot in the throat. *Filaments* of the fertile stamens entire. *Carpels* hispid, the *beak* finally two inches long.

TAB. 291.—1, flower with petals taken away; 2, single petal.—*J. G. B.*

A rather showy and pretty species of *Erodium*, for the seeds of which I am indebted to Giles Munby, Esq. It thrives in light rich soil, produces seeds freely, and will probably prove hardy, although we have treated it as a frame perennial during the winter.—*W. W. S.*







W.H. Fitch del et lith.

J.N. Fitch imp.

*Oxalis Neavei*, D.C.

## TAB. 292.

## Natural Order GERANIACEÆ.

## Sub-order OXALIDÆÆ.

Genus OXALIS, *Linn.*

Sub-genus THAMNOXYS (*Planch. Flore des Serres*, viii. 231). Cauliscentes suffruticosæ foliosæ foliis trifoliolatis foliolis ovatis vel lanceolatis intermedio petiolulato pedunculis multifloris ovarii loculis sæpissime uniovulatis.

O. NEÆI (*D.C. Prodr.* i. 690) var. GLABRATA (*Baker*). Suffruticosa 1—2-pedalis ramis strictis gracillimis, foliis trifoliatis membranaceis supra glabris nitide viridibus subtus obscure albido-sericeis purpureis, folioli terminali longe petiolulato ovato acuminato, lateralibus sessilibus obliquis, floribus parvis inconspicuis in cymis paucifloris unifurcatis axillaribus longe pedunculatis dispositis, sepalis lanceolatis dorso puberulis, petalis albidis obovato-spathulatis calyce duplo superantibus, staminibus trimorphis cum stylis inclusis.—*G. Don, Gard. Dict.* i. 754.

A native of Mexico.

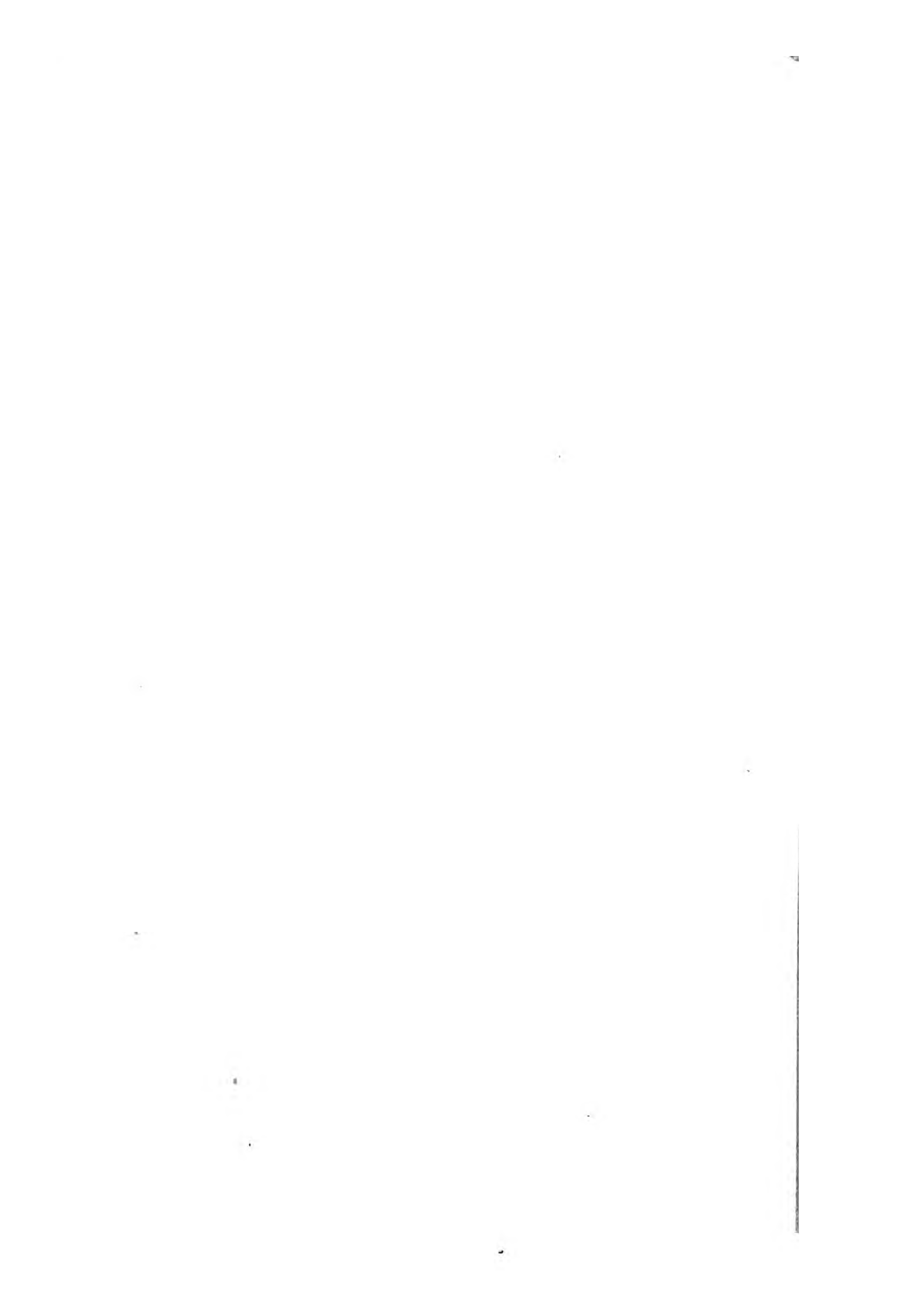
An erect undershrub, a foot to two feet high, with straight slender puberulent branches. Petioles an inch to three inches long, finely downy like the stem. Leaflets three, entire, thin, shining, dark green and glabrous above, purple and thinly pubescent beneath; the central one ovate-acuminate, an inch and a half to two inches long, on a petiolule six to nine lines long; lateral leaflets sessile, rather smaller, a little unequal-sided. Flowers in copious once-forked cymes, on erect slender peduncles, half an inch to two inches long, from the axils of the leaves. Pedicels very short. Calyx a line and a half to two lines long, slightly downy; sepals lanceolate. Petals whitish, obovate-spathulate, twice the calyx. Stamens trimorphic, always shorter than the petals. Styles pubescent.

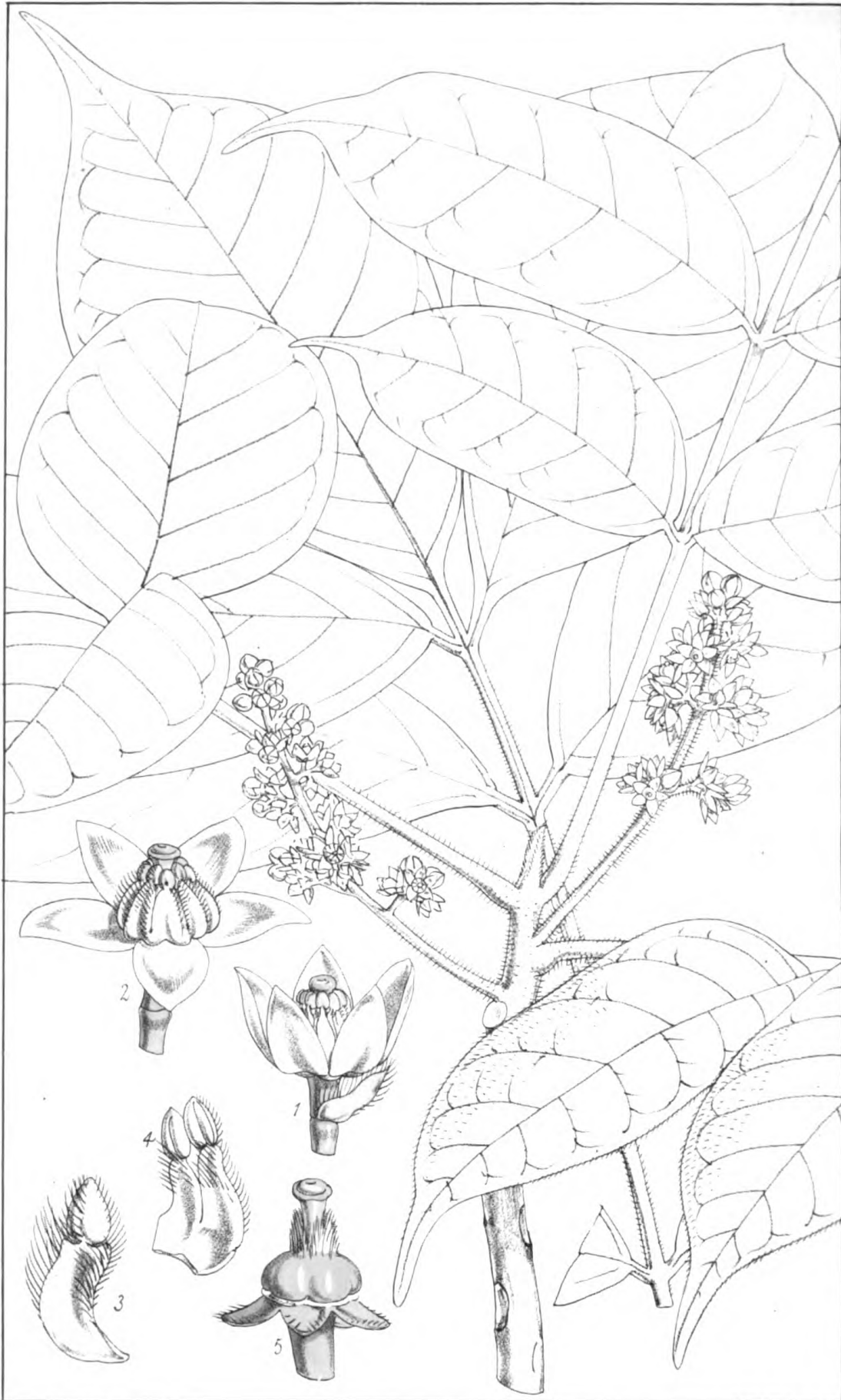
This may be distinct specifically from *O. Neæi*, the wild specimens of which, that I have seen, are densely pubescent, with longer drooping pedicels, and leaves green on the under surface. It closely resembles *O. Lindeni* and *O. acuminata* of Turczaninow in the 'Moscow Bulletin' for 1858, p. 429, both of which are evidently one species, but that has the terminal leaflet very nearly sessile.

TAB. 292.—1, bud ; 2, entire flower ; 3, single petal ; 4, pistils : all magnified.—*J. G. B.*

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A very interesting and remarkable species of *Oxalis*, forming a small shrub when well grown. I obtained it from Mons. J. Linden, of Brussels, who has kindly furnished me with many rare plants. It thrives in a warm greenhouse, where it flowers freely, grown in sandy loam and leaf-mould. It is easily increased by cuttings.—*W. W. S.*





W.H. Fitch del. et lith.

J.N. Fitch imp.

*Trichilia spondioides* Swartz.

## TAB. 293.

Natural Order MELIACEÆ.

Genus TRICHILIA, Linn.

T. SPONDIODES (*Swartz, Fl. Ind. Occ.* p. 730). Arborea ramis pubescentibus foliis imparipinnatis foliolis 3—6-jugis obovato-oblongis leviter pubescentibus lateralibus obliquis, paniculis thyrsoideis foliis multo brevioribus, filamentis pubescentibus prope basin distincte concretis. — *Jacq. Hort. Schoen.* vol. i. t. 102; *D. C. Prodr.* i. 622.

Widely diffused in Tropical America, from the West Indies southward to Columbia and Brazil.

A tree reaching fifteen to twenty feet high, with virgate branches pubescent when young. Leaves imparipinnate, with three to six pairs of shortly stalked opposite leaflets; petiole woody, two to three inches long; rachis reaching half a foot or more in the lower leaves; end leaflets obovate-oblong, three to four inches long, often cuspidate; side ones rounded at the base, especially on the upper side, the lower ones growing gradually shorter than the others; texture scarcely coriaceous; both sides bright green, inconspicuously pubescent; main veins channelled above and raised beneath. Flowers in copious stiff erecto-patent short-stalked axillary thyrsoid panicles much shorter than the leaves. Pedicels very short. Calyx green, rotate, very minute, the lobes deltoid. Corolla campanulate, milk-white, one-eighth of an inch deep. Filaments strap-shaped, pubescent, distinctly monadelphous for the lower third or quarter. Fruit a persistent triquetrous capsule half an inch deep, with loculicidal dehiscence, containing usually three large seeds.

TAB. 293.—1, half-closed flower; 2, opened flower; 3, 4, stamens; 5, pistil and calyx: all magnified.—*J. G. B.*

The fine foliage of this plant makes it an interesting object in the stove, although its flowers are not remarkable for beauty. The plant was sent to me by the late Dr. Bowman from the vicinity of Rio Janeiro. The plant delights in plenty of pot-room and a liberal supply of water. It grows freely in strong loam, and should be placed in a shady position—*W. W. S.*









W.H. Fitch del. et lith.

J.N. Fitch sculp.

*Calliandra gracilis*, Klotzsch.

## TAB. 294.

## Natural Order LEGUMINOSÆ.

## Sub-order MIMOSÆÆ.

GENUS CALLIANDRA (*Benth. in Hook. Lond. Journ.* iii. 93). Flores 5-meri vel rarius 6-meri polygami. Calyx campanulatus dentatus vel rarius profundior divisus. Corolla infundibuliformis petalis ad medium coalitis. Stamina 10—100, longe exserta basi vel alte in tubum connata; antheræ minutæ glanduloso-hirtæ rarius glabræ polline in quoque loculo in massas 2 vel 4 agglomerato. Ovarium sessile multiovulatum; stylus filiformis stigmatate terminale. Legumen lineare rectum vel vix falcatum plano-compressum vel subtus valvis ad basin elastice dehiscen-tibus, intus continuum epulposum. — *Benth. et Hook. fil. Gen. Plant.* i. 596.

C. GRACILIS (*Klotzsch, Plantæ Ottoanæ Exsic.* No. 404). Ramis virgatis puberulis, foliis bipinnatis, pinnis 2—3-jugis foliolis 4—6-jugis mediocribus inæquilateraliter obovato-oblongis obtusis mucronatis utrinque pubescentibus supra obscure læte viridibus subtus pallidis, capitulis 20—30-floris longe pedunculatis, calycibus sessilibus glabris dentibus lanceolatis tubo æqui-longis, petalis lanceolatis calyce duplo superantibus, stami-nibus 30—40 calyce 6—8-plo superantibus, leguminibus glabris plano-compressis leviter falcatis 10—12-spermis.

A native of Columbia, gathered by Otto, Moritz, Fendler and others.

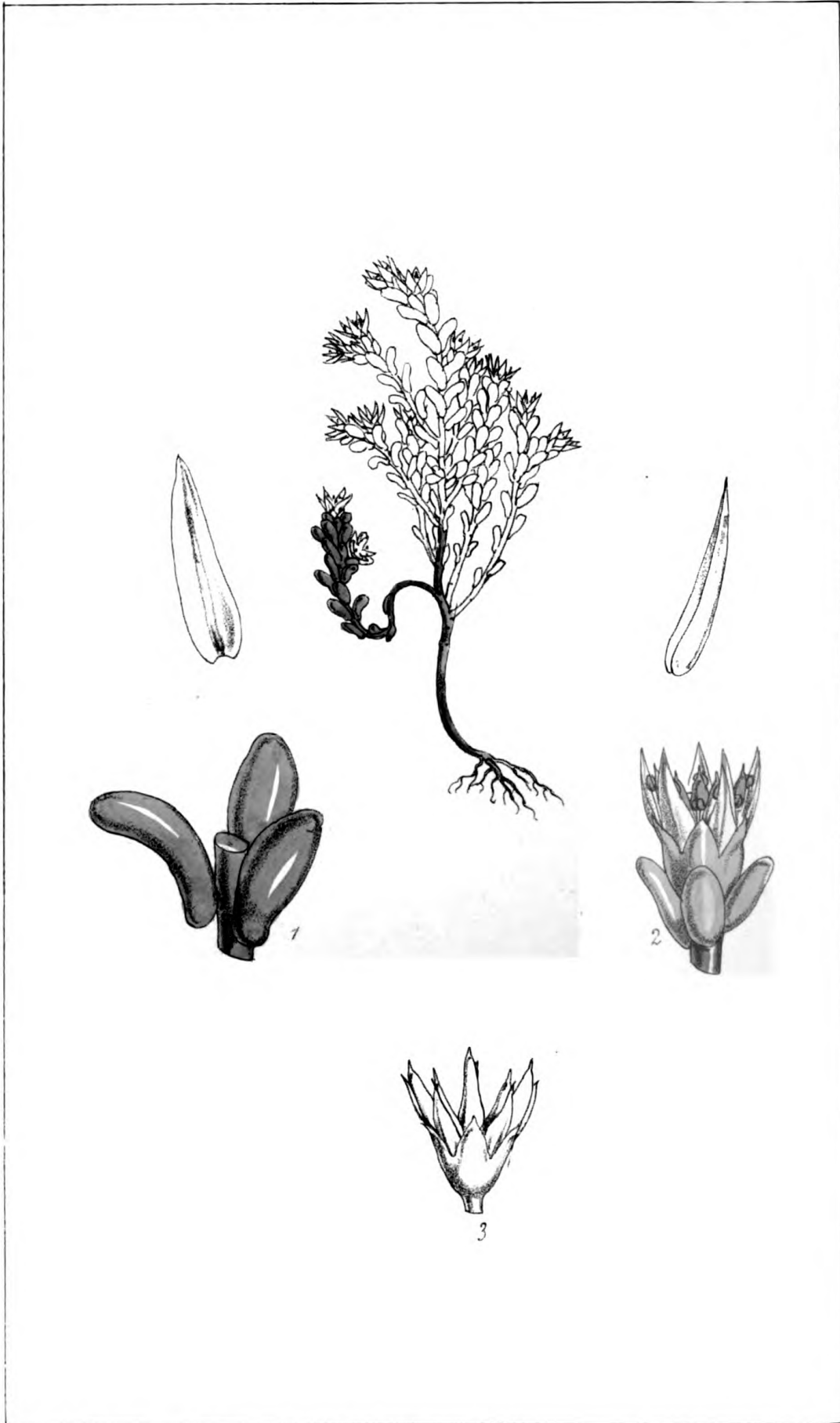
A copiously branched shrub, with long straight *branches* and finely downy *branchlets*. *Stipules* lanceolate, acute, scariose, persistent, striated, a line and a half to two lines. *Leaves* short-stalked, abruptly bipinnate; *pinnæ* two- to three-jugate, erecto-patent; *leaflets* in four to six pairs, nine to fifteen lines long, obovate-oblong, unequal-sided, blunt, with a small mucro, finely persistently pubescent on both sides, dull apple-green above, paler beneath. *Heads* twenty- to thirty-flowered, on erecto-patent downy axillary *peduncles* two to four inches long. *Flowers* sessile. *Calyx* one line long, glabrous, the lanceolate *teeth* about equalling the *tube*. *Corolla* yellowish, nearly twice the calyx. *Stamens* thirty to forty, six or eight times the length of the calyx. *Pod* glabrous, compressed, slightly falcate, two and a half to three inches long, ten- to twelve-seeded.

TAB. 294.—1, single flower, magnified.—*J. G. B.*

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For an opportunity of figuring this interesting species of *Calliandra* I am indebted to the national establishment at Kew, where, in the stove, it forms a shrub with many branches, and when in flower has an elegant appearance, the ball-like pale cream-coloured flowers contrasting well with the dark pinnated foliage.—*W. W. S.*





W.W.S. del. W.H. Fitch lith

J.N. Fitch imp

*Sedum caespitosum*, D.C.

## TAB. 295.

Natural Order CRASSULACEÆ.

Genus SEDUM, *Linn.*Section PROCRASSULA, *Griseb.*

*C. cæspitosum* (*D.C. Prodr.* iii. 405). *Annua glabra pusilla caulibus rubentibus erectis sæpissime ramosis, foliis confertis oblongis obtusis parvis teretiuseulis, cymarum ramis brevibus paucifloris, pedicellis subnullis, calycis dentibus deltoideis tubo æquilongis, petalis albidis rubro tinctis lanceolatis calyce duplo superantibus, staminibus epipetalis abortivis, carpellis stellatim arcuato-patentibus petalis vix longioribus.* — *Crassula cæspitosa*, *Cav. Ic.* t. 69, fig. 2. *C. Magnolii*, *D.C. Fl. Franc.* v. 522.

All round the shores of the Mediterranean, from France eastward to Asia Minor and the Crimea.

Annual, erect, an inch to three inches high; the stem usually furnished with a few short flexuose ascending branches; the whole plant glabrous, often, in exposure, tinged with red. Leaves close, oblong, obtuse, sessile, ascending, bluntly spurred, one-eighth of an inch long, rounded on both faces. Flowers few together in lax scorpioid cymes with bracts similar to the leaves and scarcely smaller. Pedicels none or very short. Calyx a line deep at the flowering time, the deltoid teeth equalling the tube. Petals lanceolate, twice as long as the calyx, white tinged with red. Inner row of stamens entirely absent, just as in *S. rubens* (Tab. 242). Carpels spreading like a star when mature, scarcely exceeding the petals.

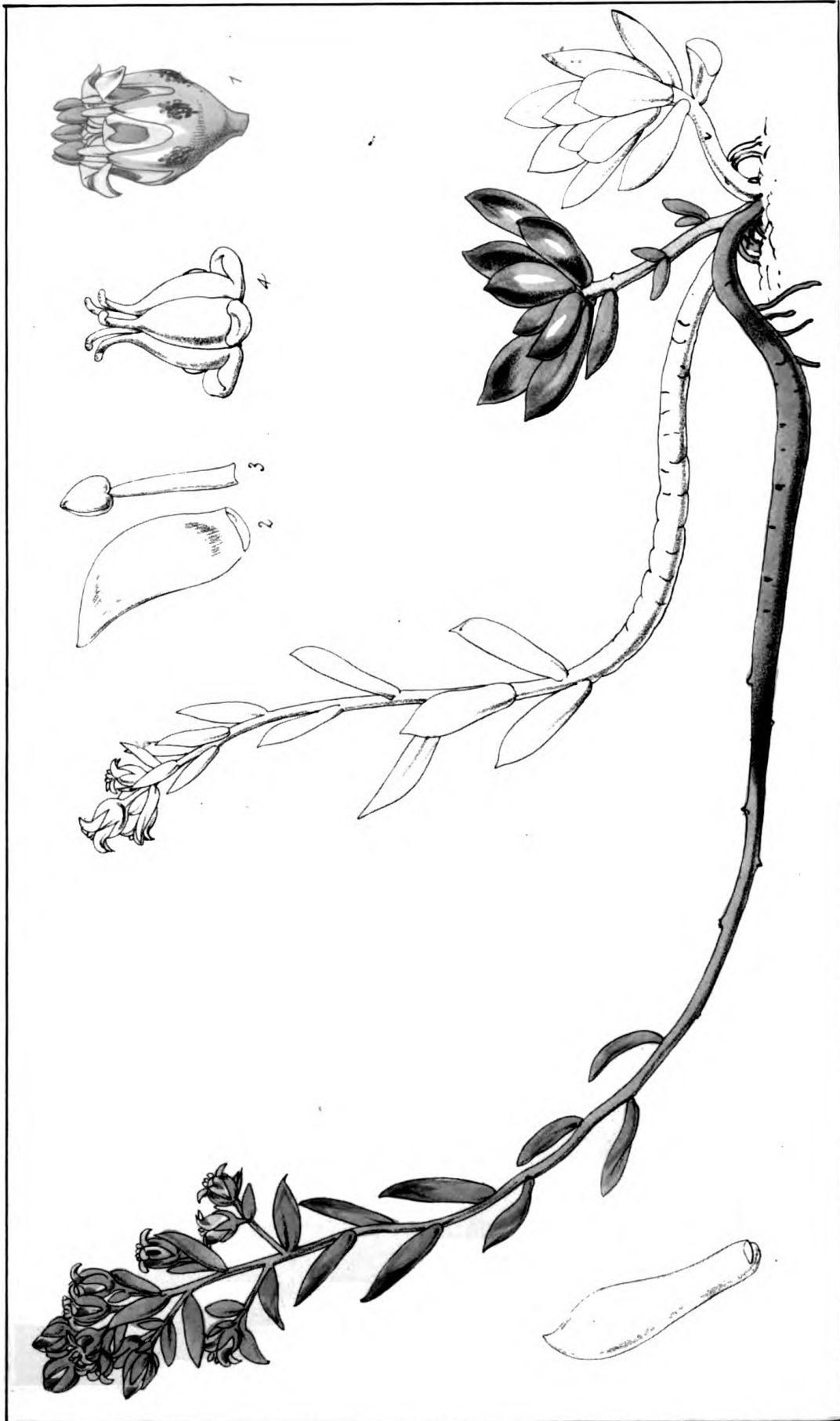
TAB. 295. — 1, portion of stem with two leaves; 2, entire flower with bracts; 3, calyx and carpels: all magnified.—*J. G. B.*

A small annual species of *Sedum*, quite hardy, and of no other than botanical interest. If allowed to sow itself on the rock-work it is very liable to be lost, and it is therefore best grown in shallow pots, well drained and placed in an airy sunny situation. I obtained seeds of this plant, which came from Corsica, from my friend Daniel Hanbury, Esq., F.R.S.—*W. W. S.*









W.H. Fitch del. et lith.

J.N. Fitch imp.

*Sedum adenotrichum*, Wall.

## TAB. 296.

## Natural Order CRASSULACEÆ.

## Genus SEDUM, Linn.

## Section PLANIFOLIA.

- S. ADENOTRICHUM (*Wall. Cat. No. 7231*). Herba carnosâ perennis glanduloso-pubescentis vel glabra foliis oblanceolatis acutis appianatis mediocribus ramorum steriliû rosulatis, ramorum fertiliû sparsis, floribus 12—20 corymbosis vel thyrsoido-paniculatis pedicellatis, calycis dentibus lanceolatis tubo superantibus, petalis lanceolatis calyce superantibus flore expanso falcatis, staminibus 10 petalis brevioribus, carpellis diutine conniventibus, squamulis hypogynis parvis rotundis.—*Hook. fil. et Thoms. Linn. Trans. ii. 101.*

A native of the temperate region of the Eastern Himalayas.

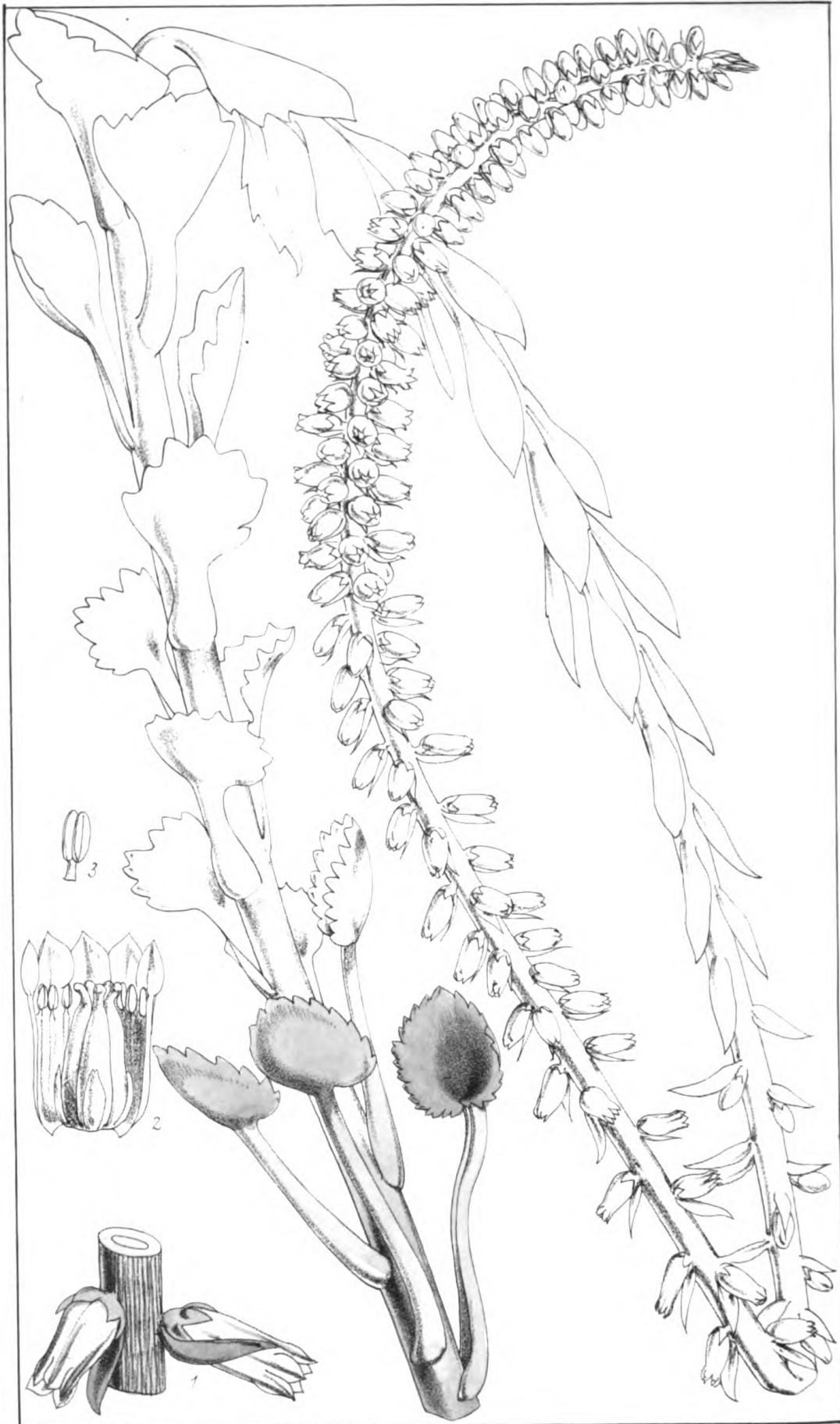
A wide-spreading fleshy perennial herb, usually more or less downy, but the specimens drawn nearly glabrous. *Barren shoots* short, suberect, with about a dozen leaves in a terminal *rosette* like that of an *Echeveria*. *Leaves* oblanceolate, one-eighth of an inch thick, flattened on both faces, eight to ten lines long, acute, dull green mottled with red. *Flowering shoots* ascending from a decumbent base, scattered, ascending, with leaves similar to those of the rosettes in size, but narrower in proportion to the length. *Flowers* twelve to twenty, corymbose or thyrsoido-paniculate, pedicellate, the branches bracteate by reduced leaves. *Calyx* turbinate, one-eighth of an inch deep, the lanceolate *teeth* exceeding the *tube*. *Corolla* two lines deep, yellowish white, tinged on the outside with red; *petals* lanceolate, falcately recurved when fully expanded. *Stamens* ten, shorter than the petals. *Carpels* white, permanently connivent. *Hypogynous scales* minute, ear-shaped.

TAB. 296. — 1, single flower; 2, a petal; 3, a stamen; 4, pistils and hypogynous scales: all magnified.—*J. G. B.*

An interesting *Sedum*, native of the Eastern Himalayas, of rather straggling habit. It requires the temperature of a cool greenhouse, and should have plenty of air and light. My plants were originally obtained from the Oxford Botanic Garden, to which establishment I am indebted for this and many other plants of great interest.—*W. W. S.*







W.H. Fitch del et lith

J.N. Fitch imp

*Cotyledon horizontalis*, Gussone.

## TAB. 297.

Natural Order CRASSULACEÆ.

Genus COTYLEDON, Linn.

Section UMBILICUS, D. C.

C. HORIZONTALIS (*Gussone, Ind. Sem. Hort. Pan. 1826, p. 4*). Foliis inferioribus petiolatis rotundatis cordatis crenatis supremis lanceolatis acutis integris sessilibus, floribus dense spicatis horizontalibus vel leviter deflexis, bracteis linearibus, calycis lobis brevibus deltoideis, corollæ tubo cylindrico segmentis deltoideis 3—4-plo superante, filamentis brevibus in tubo alte insertis, carpellis tubo æquilongis, squamulis hypogynis lanceolatis emarginatis.—*Umbilicus horizontalis, D. C. Prodr. iii. 400.*

A native of walls and rocks in the South of Europe, from Spain eastward to Greece.

Perennial, the whole plant glabrous. *Stems* about a foot long, closely leafy throughout, bright red in exposure. *Leaves* thick, fleshy, pale green, not at all glaucous; the lowest rotundato-cordate, conspicuously crenate, on erecto-patent *petioles* exceeding the *blade*; the uppermost lanceolate, sessile, acute, entire, with every intermediate gradation. *Flowers* very numerous (often 100 or more), in a dense spike reaching a foot in length, five-eighths to three-fourths of an inch in thickness, the upper ones horizontal, the lower rather deflexed. *Bracts* fleshy, green, linear, one-fourth to half an inch long. *Calyx* very short, its *teeth* deltoid. *Corolla* four lines long, tubular, greenish yellow tinged with red, the deltoid *teeth* one-third to one-fourth as long as the *tube*. *Filaments* short, inserted high up in the tube. *Carpels* as long as the tube. *Hypogynous scales* lanceolate, emarginate.

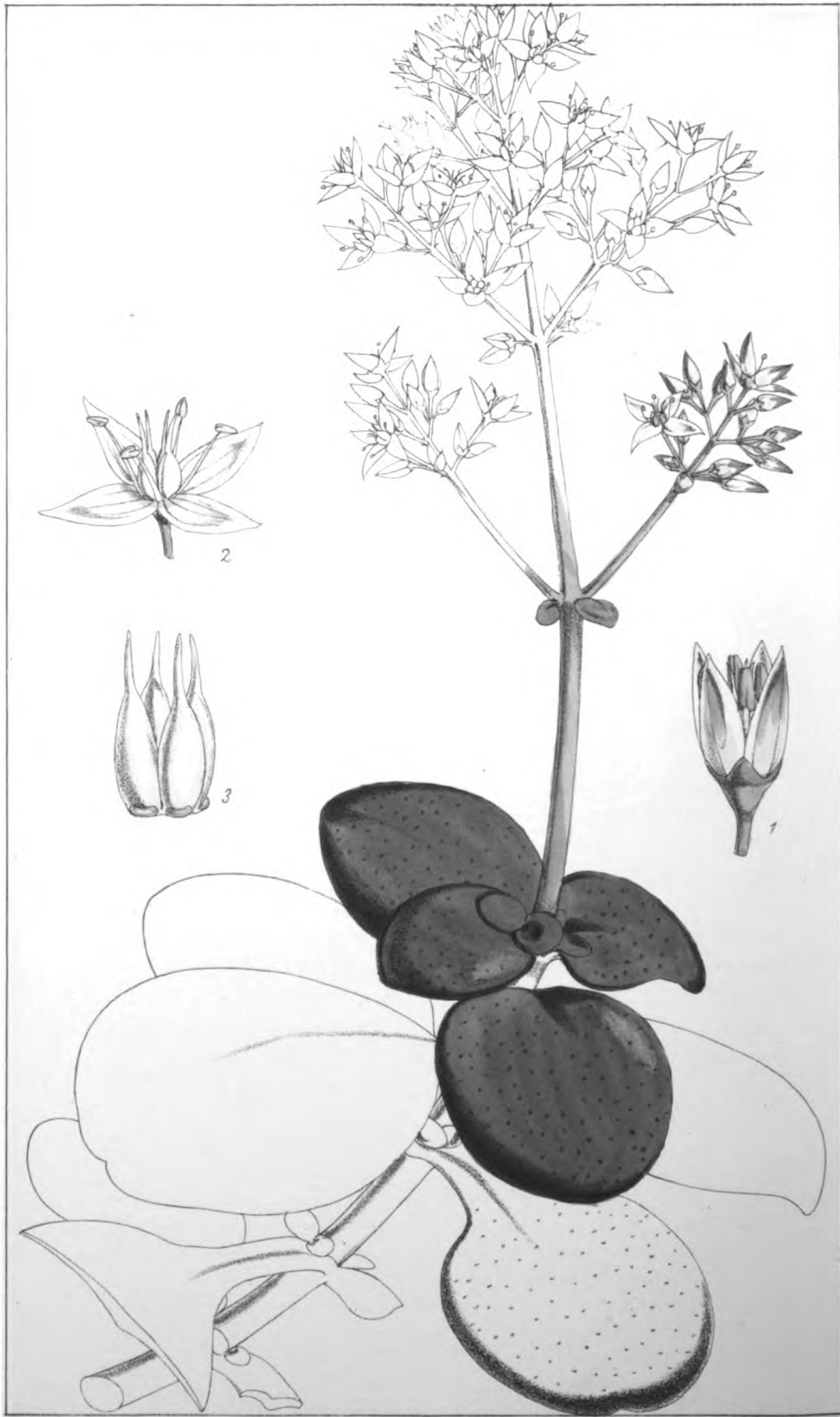
TAB. 297.—1, pair of flowers; 2, corolla cut open; 3, an anther: all magnified.—*J. G. B.*

This fine species of *Cotyledon*, known in collections as *Umbilicus horizontalis*, I received from Mons. Van Houtte, of Ghent. It seems to grow freely in any light soil; and although it is treated at Hillfield as a cool-frame plant, it would probably stand the cold of our winters well without protection.—*W. W. S.*









W.H. Fitch del. et lith.

J.N. Fitch imp.

*Crassula quadrifida*, Baker.

## TAB. 298.

## Natural Order CRASSULACEÆ.

## Genus CRASSULA, Linn.

*C. QUADRIFIDA* (*Baker*). Glabra robusta perennis carnosae pedalis-sesquipedalis, foliis oppositis decussatis horizontalibus crassissimis utrinque viridibus conspicue punctatis plerisque petiolatis oblongo-spathulatis supremis rotundatis subsessilibus, floribus quadrifidis thyrsoideo-paniculatis, petalis lanceolatis albis rubello tinctis flore expanso stellatis, calyce 5—6-plo longioribus, carpellis et filamentis albis petalis paulo brevioribus.

A native of the Cape of Good Hope.

Glabrous, perennial, a foot and a half to two feet high, very fleshy. *Leaves* opposite, decussate, horizontal, the lower ones oblong-spathulate, two to three inches long, entire, often emarginate at the point, narrowed suddenly into a flattened *petiole*, the upper surface apple-green, not at all glaucous, scattered over with numerous conspicuous pitted pustular dots, the lower surface paler; the uppermost leaves roundish, subsessile, placed some distance from the panicle. *Flowers* 100 or more in a moderately close thyrsoid *panicle* with erecto-patent branches. *Pedicels* one to three lines long, with a pair of minute lanceolate bracts at the base. *Calyx* very minute, with four deltoid lobes. *Corolla* tetramerous, star-like when expanded, four and a half to five lines across; the *petals* lanceolate, white, tinged with red on the outside. *Stamens* and *carpels* four each, equal, rather shorter than the petals.

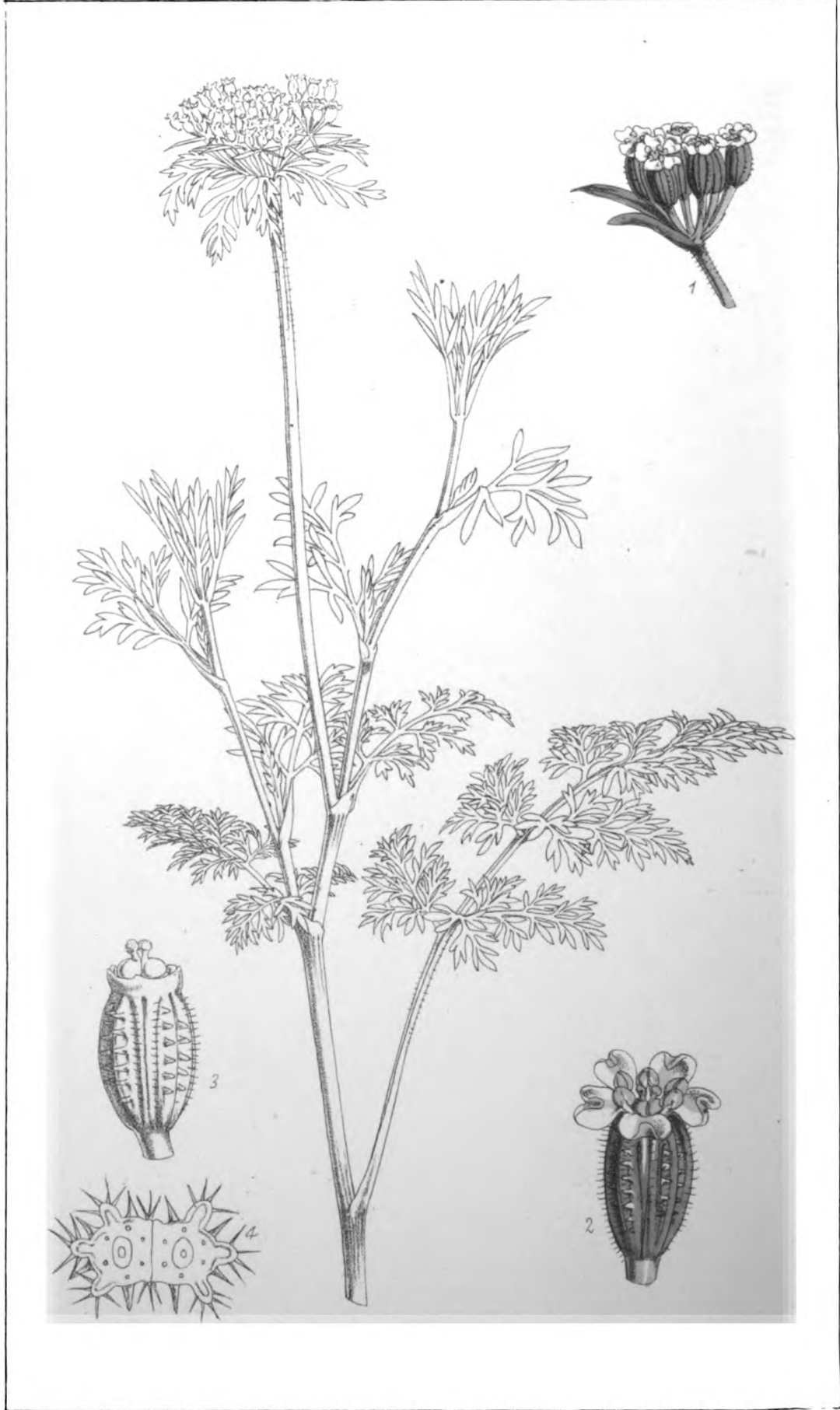
This is a plant quite exceptional in the genus *Crassula* by its constantly tetramerous flowers. Of the quinquefid species, it has the leaves and general habit of *C. cordata*, Aiton, Hort. Kew, iii. 196, but differs in the inflorescence.

TAB. 298.—1, a closed flower; 2, an opened flower; 3, pistils: all magnified.—*J. G. B.*

This pretty new *Crassula*, much resembling an allied species, *cordata*, I obtained from my friend the Rev. H. N. Ellacombe, of Bitton, so well known for his fine collection of hardy herbaceous and other plants. The plant is of easy culture, flowers freely, and continues for a long time in blossom, making it very useful for conservatory or greenhouse decoration.—*W. W. S.*







W.H. Fitch. del. et lith.

J. N. Fitch imp.

*Daucus montanus*. Willd.

## TAB. 299.

Natural Order UMBELLIFERÆ.

Tribe DAUCINÆ.

Genus DAUCUS, *Linn.*

D. MONTANUS (*Willd. in Schultes Syst. Veg. vi. 482*). Annuæ vel biennis, pedalis vel ultra, copiose ramosa caulibus retrorsum hispidis, foliis petiolatis decompositis segmentis ultimis parvis linearibus vel subspathulatis acutis, umbellis 9—12 longe inæqualiter pedunculatis foliis multis reductis 2—3-pinnatifidis bracteatis, umbellulis 9—12-floris pedicellatis bracteolis multis sæpissime simplicibus linearibus, fructibus oblongis lateraliter subcompressis oblongis jugis primariis dense muricatis setis uncinatis.—*D. toriloides*, *D. C. Prodr. iv. 214*.

Stretches from Mexico southward along the Andes to Chili and Patagonia.

An annual or biennial herb, reaching a foot or more in height, copiously branched at the crown of the root; the stems rather thickly clothed with deflexed gray bristles. Petioles an inch to three inches long, dilated gradually to a clasping base. Leaves decomposed (four to five times pinnatifid), with opposite stalked ascending pinnæ, and linear or subspathulate acute ultimate segments half a line to a line and a half long; herbaceous in texture, green on both sides, slightly pubescent, the lowest three to four inches long. Umbels up to a dozen, on long nearly equal peduncles bracteated by a whorl of two to three times pinnatifid reduced leaves. Umbellules eight- to twelve-flowered, with a whorl of simple linear casually compound bracteoles. Pedicels unequal, two to six lines long. Petals subequal, very minute, much incurved at the tip. Fruit oblong, one-eighth of an inch long, slightly compressed from the side, the primary ridges copiously muricated with hooked prickles as long as the thickness of the mericarp.

TAB. 299.—1, an umbel; 2, a single flower; 3, fruit; 4, horizontal section of fruit: all magnified.—*J. G. B.*

A small annual species of carrot, interesting only to the botanist. I raised it from seeds sent me by Mr. C. Reed, who collected them at Mendoza, Chili. The plant requires only the open air, where its seeds ripen freely.—*W. W. S.*









W.H. Fitch del. et lith.

J.N. Fitch int.

*Carissa grandiflora*, A.D.C.

## TAB. 300.

Natural Order APOCYNACEÆ.

Tribe CARISSEÆ.

Genus CARISSA, Linn.

C. GRANDIFLORA (*A. D. C. Prodr.* viii. 335). Arbuscula erecta glabra copiose dichotomiter ramosa spinis duris dichotomiter furcatis magnis armata, foliis breviter petiolatis oblongo-rotundatis obtusis mucronatis integerrimis rigide coriaceis, utrinque viridibus, floribus terminalibus solitariis vel parce corymbosis breviter pedicellatis, calycis lobis lanceolatis tubo longioribus, corollæ tubo calyce duplo superante, limbi lobis horizontaliter patulis latis obtusis, baccis ovoideis violaceis.—*Arduina grandiflora*, *E. Meyer, Comm.* p. 190.

A native of Natal, gathered by Drege, Gerrard, and others.

A dichotomously-branched erect low shrub, glabrous in all its parts, copiously armed with curious large dichotomously forked sharp woody spines. *Leaves* shortly petiolate, roundish or broad-oblong, quite entire, rigidly coriaceous, an inch and a half to two inches long, bluntish with a minute *mucro*, broadly rounded or even slightly cordate at the base, green on both sides, all the lateral veins immersed. *Flowers* fragrant, pure white, solitary or in sparse corymbs on very short pedicels. *Calyx* one-fourth of an inch deep, the lanceolate lobes exceeding the tube. *Corolla-tube* greenish, twice as long as the calyx; *limb* spreading horizontally when the flower is fully expanded, fifteen to eighteen lines across; the lobes oblique, broad-oblong, blunt. *Fruit* an ovoid violet-coloured many-seeded berry.

TAB. 300.—1, flower viewed from below; 2, flower viewed laterally; 3, corolla opened out; 4, pistil: all magnified.—*J. G. B.*

A dwarf somewhat showy shrub, reared from seed sent from Natal by Mr. Thos. Cooper. Like most plants from the same locality, it requires a warm dry greenhouse in winter, but will bear the open air well in summer. The plant thrives when grown in a mixture of loam and peat.—*W. W. S.*







*Lavandula lanata*, Boiss

## TAB. 301.

Natural Order LABIATÆ.

Tribe OCIMOIDEÆ.

Genus LAVANDULA, *Linn.*Section SPICA, *Benth.*

- L. LANATA (*Boiss. Voy. Esp. t. 135*). Suffruticosa dense ramosa foliis oblanceolatis subspathulatis obtusis integerrimis margine revolutis utrinque dense persistenter albido-incanis, pedunculis elongatis strictis sæpissime simplicibus foliis 2 reductis prope medium instructis, verticillastris densis vel sublaxis, bracteis linearibus ascendentibus infimis calyce æquilongis, calycibus tubulosis pubescentibus dente supremo producto, corollæ tubo puberulo dentibus rotundatis, genitalibus inclusis. — *Benth. in D. C. Prodr. xii. 146.*

A native of the cool region of the Sierra Nevada, at an elevation of 4000 to 6500 feet above the sea-level.

An undershrub, a foot and a half to two feet high, with exactly the general habit of the common garden lavender (*L. Spica*). *Leaves* closely placed on the barren *stems* and base of the flowering ones, ascending, oblanceolate, slightly spathulate, fifteen to twenty-one lines long, bluntish, entire, the edges slightly revolute, the texture thick and soft, both sides permanently matted with dense short whitish cottony tomentum. *Peduncle* a foot or more high, with a pair of reduced leaves about the middle. *Whorls* close or the lower remote, forming a *spike* three to four inches long, with six to twelve *flowers* in each. *Bracts* linear, ascending, two to four lines long. *Calyx* one-fourth of an inch long, soft and woolly, membranous, with eight dark ribs, the upper *tooth* produced beyond the others. *Corolla* bright violet, the *tube* puberulent, four lines long, distinctly ribbed, all the five *teeth* short and rounded. *Stamens* and *style* included.

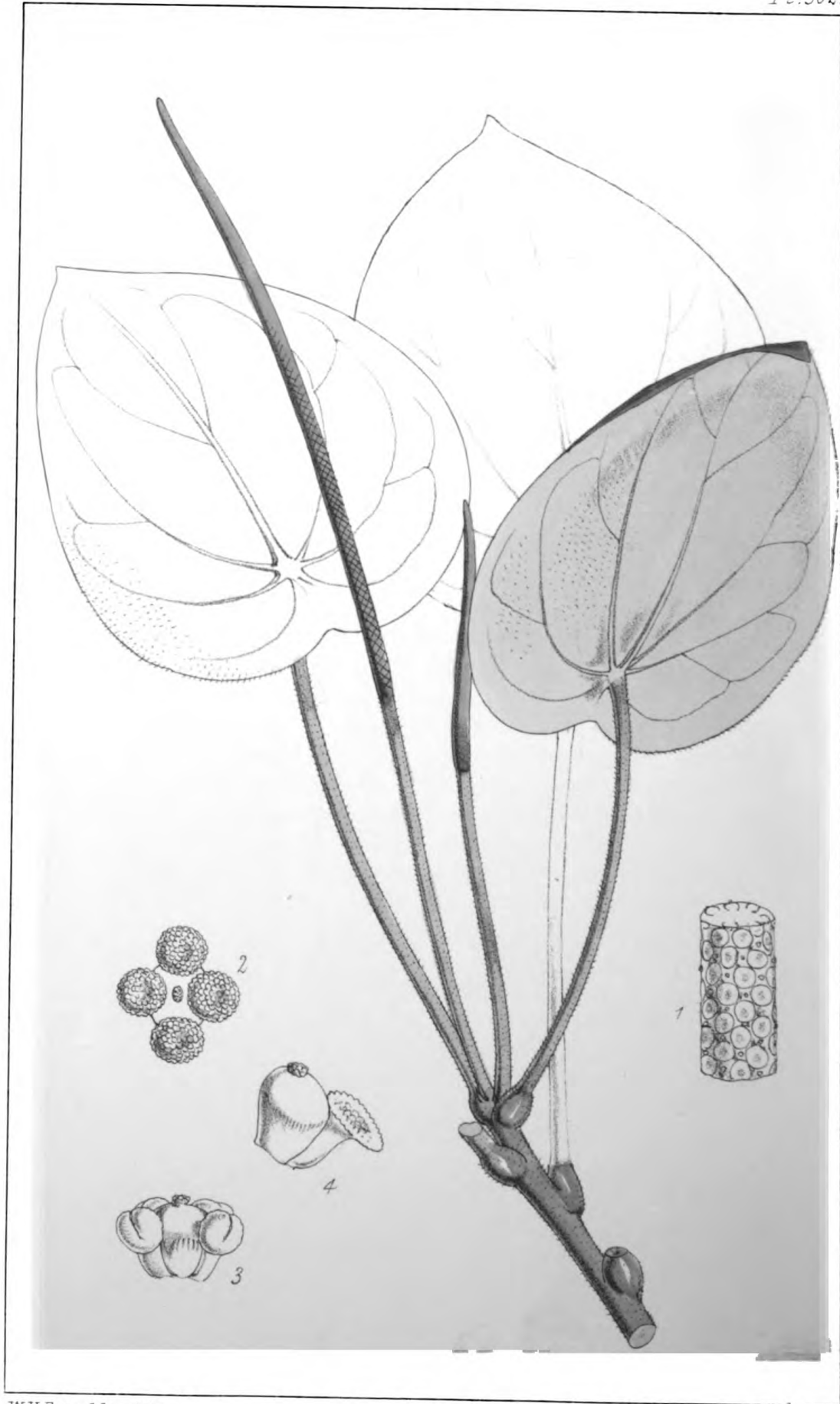
TAB. 301.—1, flower viewed from below; 2, flower viewed laterally; 3, corolla opened out; 4, pistil: all magnified.—*J. G. B.*

I procured this pretty species of Lavender from Mr. R. Stark, of Edinburgh. Its white woolly leaves and compact habit of growth render it a very desirable plant for the cool greenhouse. It grows freely in the open air during the summer months, and may probably prove hardy. Its fragrance is much the same as the common Lavender, from which it seems chiefly to differ in the thick wool-like coating of the leaves.—*W. W. S.*









W H Fitch del. et lith

J N Fitch imp

*Peperomia puberula*, Baker.

## TAB. 302.

Natural Order PIPERACEÆ.

Genus PEPEROMIA, *R. & P.*

*P. PUBERULA* (*Baker*). Breviter caulescens suberecta minute puberula foliis longe petiolatis paulo supra basin peltatis late ovatis acutis basi leviter cordatis carnosis modice crassis supra obscure viridibus subtus pallidis nervis 7 ex apice petioli radiantibus prope marginem evanescentibus, spicis gracillimis simplicibus longe pedunculatis, floribus confertis, bracteis peltatis, ovariis obovoideis sessilibus stigmatibus parvo sessili subcentrali capitellatis.

Imported from Vera Paz with Orchids.

Shortly caulescent, suberect, the whole plant rather densely puberulent. *Petioles* ascending, two to three inches long, inserted a little above the base of the leaf. *Leaves* broad-ovate, acute, slightly cordate-emarginate at the base, moderately fleshy, dull green on the upper surface, whitish and laxly cellular beneath; seven *veins*, three on each side of the *midrib* radiating from the insertion of the petiole, remaining distinct nearly to the edge. *Peduncles* erect, nearly as long as the petioles. *Spike* very slender, simple, reaching three to four inches long. *Flowers* minute, very tightly packed. *Bract* peltate, with a central *pedicel* nearly as long as the depth of the ovary. *Ovary* obovoid, sessile, with a subcentral capitellate sessile *stigma*.

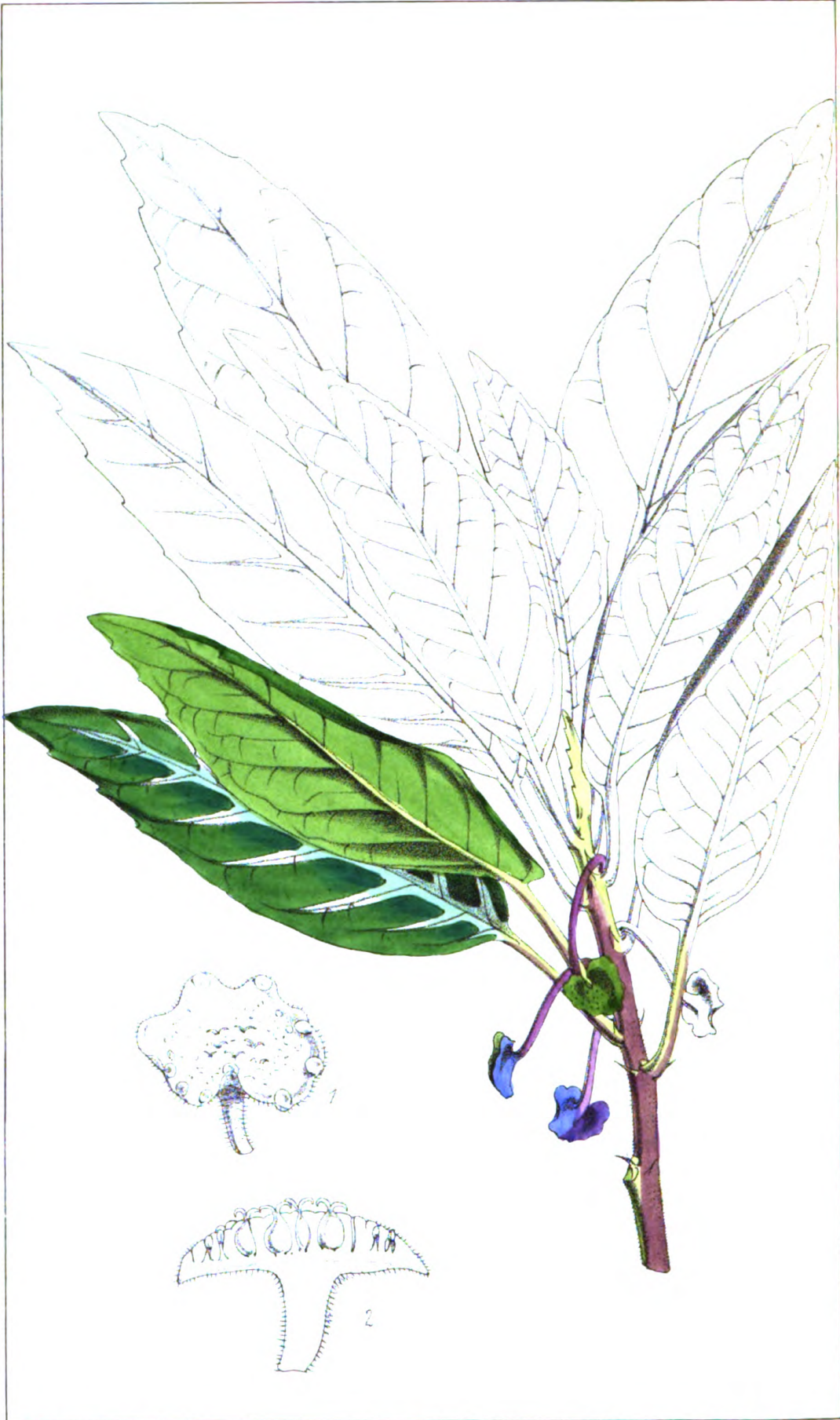
Closely allied to the well-known *P. arifolia* and to *P. Saundersii*, C. D. C., and *P. hydrocotyloides*, Miquel, Linnæa, xx. t. 1, fig. 1, but a much less handsome species, easily distinguished from them by its pubescent leaves and stems.

TAB. 302. — 1, portion of spike; 2, flower viewed from above; 3, pistil and four stamens; 4, pistil and peltate bract: all magnified. —*J. G. B.*

This undescribed species of *Peperomia* I obtained by mere chance, it springing up at the base of an Orchid I obtained of Mr. Hague, and sent from Vera Paz. It grows freely in a moderately warm but damp stove, and a light turfy soil, or moss and decaying vegetable matter combined, suits it well.—*W. W. S.*







W.H. Fitch del et lith.

J.N. Fitch imp.

*Dorstenia Bowmanniana*, Baker.

## TAB. 303.

Natural Order MOREÆ.

Genus DORSTENIA, Plum.

- D. BOWMANNIANA (*Baker*). Caulibus ascendentibus semipedalibus foliosis puberulis purpureo-viridibus, stipulis linearibus minutis, foliis distincte petiolatis lanceolatis acutis obscure dentatis subcoriaceis supra viridibus secus costam et venas primarias albo variegatis subtus scabris minute pubescentibus, pedunculis axillaribus brevibus deflexis purpureis, synanthiis parvis rotundis repandis puberulis convexis extus purpureis floribus centralibus multis fœmineis exterioribus masculis.

A native of the neighbourhood of Rio Janeiro, whence our specimens were sent by Mr. Bowman.

*Stems* half a foot high, ascending, leafy, purplish, minutely downy. *Stipules* linear, minute, persistent. *Petioles* one-half to three-fourths of an inch long, erecto-patent. *Leaves* lanceolate, three to five inches long, fifteen to eighteen lines broad, acute, obscurely toothed, rounded at the base, bright green and smooth above, variegated with a white border to the *midrib* and lower half of the principal *veins*; the under surface subscabrous with minute pubescence. *Peduncles* copious, axillary, deflexed, purplish, half to three-fourths of an inch long. *Receptacle* round, irregularly lobed, finely downy, half an inch broad, purple beneath, the face slightly convex; the outer rows of *flowers* male, the central ones female.

Allied to *D. argentata*, Hook. fil. Bot. Mag. t. 5795, from which it differs by its broader, shorter leaves, more coriaceous in texture; and receptacle destitute of the curious capitellate marginal processes of that species.

TAB. 303.—1, receptacle viewed from above; 2, vertical section of the same: both magnified,—*J. G. B.*

A new and very pretty species of a very interesting genus. The leaves are beautifully variegated with white on the upper side, the variegation following the midrib and principal veins. The late Mr. D. Bowman sent me the plant from the neighbourhood of Rio Janeiro. It thrives with a moist stove treatment, producing freely its curious heads of flowers.—*W. W. S.*









W.H. Fitch del. et lith.

J.N. Fitch imp.

*Nothoscordum striatum*, Kunth.

## TAB. 304.

## Natural Order LILIACEÆ.

## Tribe ALLIÆÆ.

Genus *NOTHOSCORDUM* (*Kunth Enum.* iv. 457). Perianthium albidum segmentis æqualibus oblanceolato-spathulatis ima basi solum connatis, flore expanso falcato-patentibus. Stamina 6 perigyna filamentis æqualibus leviter appianatis segmentis brevioribus antheris oblongis versatilibus. Ovarium sessile oblongum trisulcatum, ovulis in loculo 6—12; stylus terminalis rectus filiformis; stigma capitatum. Capsula sessilis membranacea loculicide trivalvis, seminibus paucis triquetris, testa nigra. Herbæ bulbosæ scapigeræ foliis angustissimis carnis floribus umbellatis odore nullo modo alliaceo.—*Hesperodes et Oligosma*, *Salisb. Gen.* p. 85.

*N. STRIATUM* (*Kunth Enum.* iv. 459). Foliis 3—4 synanthiis angustissime linearibus carnosio-herbaceis dorso convexis, scapis foliis paulo brevioribus, spathæ valvis lanceolatis pedicellis 2—3-plo brevioribus, umbellis 4—8-floris, perianthii segmentis oblanceolatis albis dorso purpureo-viridi vittatis, filamentis leviter appianatis segmentis distincte brevioribus, ovarii loculis 5—6-ovulatis, stylo ovario longiore.—*Allium striatum*, *Jacq. Ic.* t. 366; *Redouté, Lil.* t. 50. *Ornithogalum bivalve*, *Linn. Sp. Plant.* p. 306.

Widely dispersed in tropical and subtemperate America, and introduced thence to other regions.

*Bulb* ovoid, half an inch thick. *Leaves* three or four to a bulb, cotemporary with the leaves, suberect, fleshy in texture, light green, convex on the back, six to nine inches long, a line and a half to two lines broad. *Scape* slightly compressed, nearly as long as the leaves. *Valves* of the *spathe* two, membranous, one-quarter to half an inch long. *Flowers* four to eight to an *umbel*. *Pedicels* about an inch long. *Perianth* six to eight lines deep, the pure white *segments* oblanceolate-spathulate, subacute, with a purplish green *keel* on the outside, united at the base in a *cup* one-half to three-fourths of a line deep. *Filaments* slightly flattened, a quarter of an inch long. *Ovary* oblong; *ovules* five or six in each *cell*; *style* filiform, two to two and a half lines long.

TAB. 304.—1, half a flower ; 2, stamen ; 3, pistil ; 4, horizontal section of ovary : all magnified.—*J. G. B.*

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This is another of Mr. Thos. Cooper's plants, collected in South Africa. It is a small, free-flowering, but not showy bulb, easy of cultivation in a cool pit or frame, grown in light sandy soil.—*W. W. S.*





W.H.Fitch del et lith

J N Fitch scap

*Scilla versicolor*, Baker.

## TAB. 305.

Natural Order LILLIACEÆ.

Tribe SCILLEÆ.

Genus SCILLA, Linn.

Sub-genus EUSCILLA, Baker.

*S. VERSICOLOR* (Baker). Foliis 6—8 synanthiis lineari-loratis pedem longitudine vix attingentibus carnosio-herbaceis utrinque viridibus venis immersis, scapis foliis subæquantibus, racemis conicis modice densis 50—80-floris, pedicellis inferioribus patulis 1½—2 poll. longis bracteis solitariis linearibus 6—8-plo superantibus, floribus mediocribus albidis extrorsum viridi tinctis, filamentis filiformibus segmentis distincte brevioribus, antheris cæruleis, ovarii cærulei loculis 5—6 ovulatis, stylo filiformi ovario æquilongo.

A native of Cape Colony, gathered by Mr. Cooper.

*Bulb* roundish, immersed. *Leaves* six to eight to a bulb, cotemporary with the flowers, suberect, linear-lorate, six to nine inches long at the flowering time, four to six lines broad at the middle, narrowed gradually to the point, green on both sides, fleshy in texture, the *veins* not prominent. *Scape* green, terete, nearly as long as the leaves. *Raceme* conical, moderately close, fifty- to eighty-flowered, half a foot long when expanded, three and a half to four inches broad, the axis incrassated and irregularly furrowed. *Bracts* linear, solitary, a quarter of an inch long. *Pedicels* finally patent, the lower ones an inch and a half to two inches long. *Perianth* scarcely a quarter of an inch deep, white tinged externally with green, broadly funnel-shaped when expanded. *Filaments* filiform, distinctly shorter than the *segments*; *anthers* blue before the pollen is shed. *Ovary* bright blue, deeply grooved, its *cells* with five or six *ovules* in each. *Style* filiform.

Allied to *S. pallidiflora* (tabula nostra 179), and to *S. natalensis* of Planchon.

TAB. 305.—1, a single flower; 2, pistil; 3, horizontal section of ovary: all magnified.—*J. G. B.*

Another of the numerous species of *Scilla*, from South Africa, formerly placed in the genus *Drimia*. The leaves have few, if any, markings on the under side. It requires the same treatment as other *Scillas*, from the same country, previously figured in the REFUGIUM.—*W. W. S.*

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## TAB. 306.

## Natural Order AMARYLLIDACEÆ.

Genus AGAVE, *Linn.*

- A. **VERSCHAFFELTII** (*Lemaire, Ill. Hort. t. 564*). Acaulis foliis rigidis crassissimis 30—40 dense rosulatis oblanceolato-spathulatis pedem longis supra medium  $3\frac{1}{2}$ —4 poll. latis glauco-viridibus facie planiusculis apice spinâ valida rubro-brunnea facie canaliculata margine spinis multis ascendentibus corneis armatis, scapo (paniculâ inclusa) 12—14-pedali, floribus thyrsoides ad apicem ramorum horizontalium confertis breviter pedicellatis, perianthii infundibuliformis  $2\frac{1}{4}$ — $2\frac{1}{2}$  pollicaris segmentis lanceolatis diutine ascendentibus flavo-viridibus tubo longioribus, staminibus cum stylo longe exsertis.—*Jacobi, Hamb. Gartenzeit.* 1865, p. 122.

A native of Mexico.

Acaulescent. *Leaves* thirty to forty in a dense *rosette*, oblanceolate-spathulate, about a foot long, three and a half to four inches broad two-thirds of the way up, narrowed to two and a quarter to two and a half inches above the dilated base, amongst the thickest and most rigid in texture of the plants of the genus, pale glaucous-green, nearly flat on the face, rounded on the back, armed at the subobtuse point with a strong pungent reddish brown *spine* nearly an inch long, the upper *prickles* of the margin deltoid-falcate, two to three lines long, those of the lower half of the leaf much smaller. *Scape*, including the panicle, twelve to fourteen feet high. *Panicle* lax, thyrsoid, the *flowers* in dense clusters at the end of the spreading flexuose *branches*. *Perianth* narrowly funnel-shaped, shortly pedicellate, two and a quarter to two and a half inches deep, the permanently ascending lanceolate yellowish green *divisions* exceeding the *tube*. *Anthers* an inch long, quite exserted.

Closely allied to *A. Scolymus*, *amæna*, and *Saundersii*.

TAB. 306. — 1, the whole plant, much reduced. 2, leaf; 3, fascicle of flowers: both natural size. 4, horizontal section of ovary, magnified.—*J. G. B.*

This is a noble species of the genus *Agave*, which runs into many varieties, some of which at present rank as species, but,



when flowered and better understood, I feel convinced they will prove to be mere variations of *A. Verschaffeltii*. The number of so-called species of *Agave* in cultivation is now great; and as they are beginning to be favourites with plant-growers, there will probably be means of determining, within a few years, what are their real characters, and so arriving at a correct nomenclature of the species, now so much wanted. The plant from which the figure is taken I obtained, many years since, of the Messrs. Lea, of Hammersmith. After flowering the leaves of the plant withered considerably, but still retained a green colour, and I looked for some signs of returning vitality, either as a shoot from the stem or in the way of a sucker. This dormant state went on for nearly two years, when I determined to try an experiment. I divided the plant into several pieces, keeping a portion of the stem attached to several of the larger and most green-looking leaves. These were allowed to dry for some time in a cool place, and then a gentle heat was applied to them. Several began to show in a short time green buds on the portion of the stem to which the leaf was left attached; and I have now plants of this species obtained by this method of treatment. A cool greenhouse temperature seems to suit the generality of *Agaves*. They like a light, rich, loamy soil, plenty of fresh air, and when growing they should be liberally supplied with water.—  
W. W. S.



PL. 306.





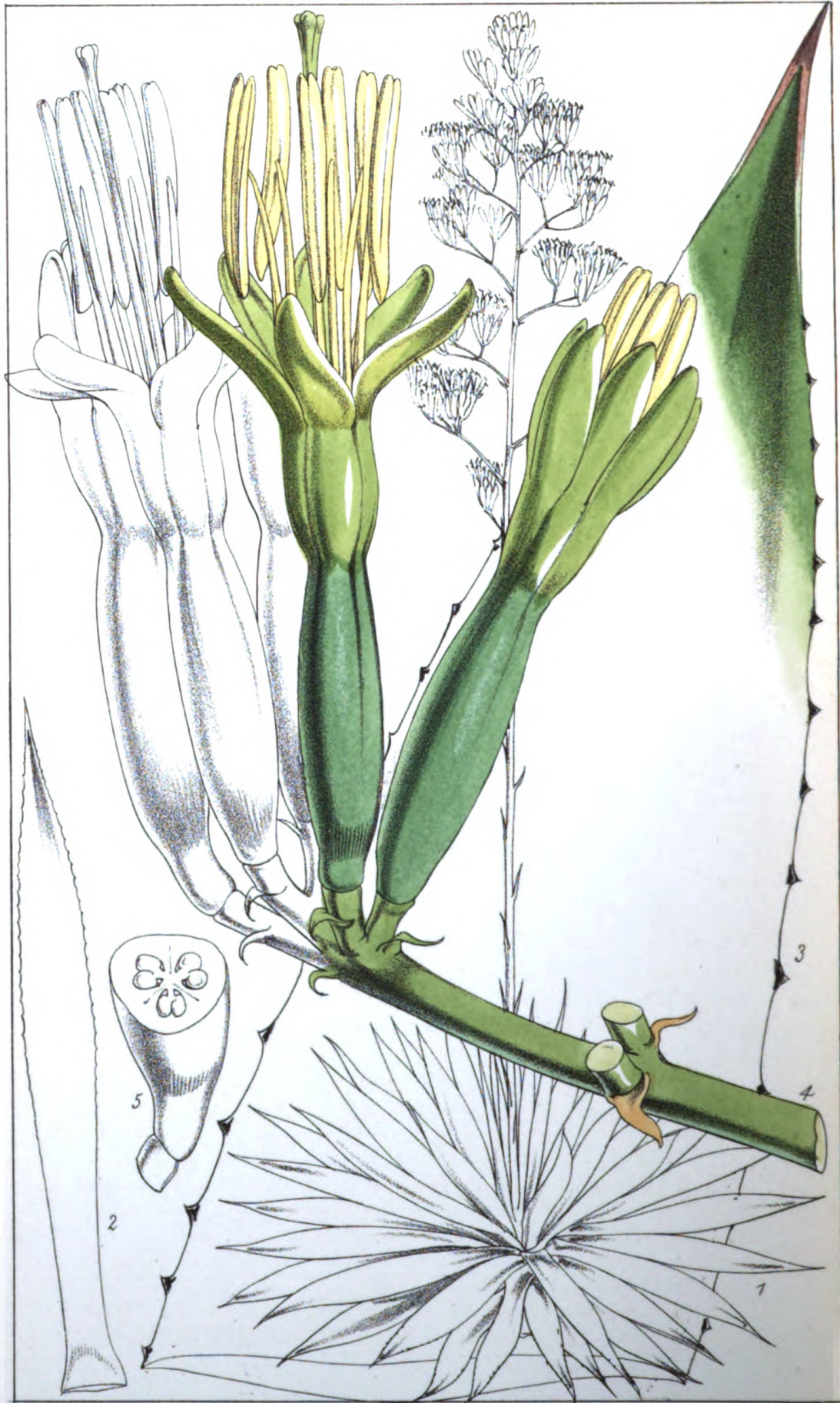
J.N.Fitch imp

*Agave Verschaffeltii, Lemaire.*

W.H.Fitch. del et lith.







W.H. Fitch. del. et lith.

J.N. Fitch imp.

*Agave lurida*, Ait.

## TAB. 307.

## Natural Order AMARYLLIDACEÆ.

Genus AGAVE, *Linn.*

A. LURIDA (*Ait. Hort. Kew*, i. 472). Breviter caulescens, foliis 30—40 dense rosulatis ensiformi-spathulatis 2—2½ pedes longis medio 3—3½ poll. latis firmis modice crassis glauco-viridibus facie planiusculis in apicem spinosam pungentem canaliculatam sensim angustatis margine dentibus corneis rufo-brunneis parvis deltoideis patentibus armatis, scapo (panicula inclusa) 12—15-pedali, floribus thyrsoides ad apicem ramorum erectopatentium confertis breviter pedicellatis, perianthii anguste infundibuliformis 3½—4-pollicaris segmentis lanceolatis flavo-viridibus tubo triplo brevioribus, staminibus cum stylo longe exsertis. — *Bot. Mag.* t. 1522; *Kunth Enum.* v. 825; *Jacobi, Hamb. Gartenzeit.* 1865, 169.

A native of Mexico.

Shortly caulescent or sessile. *Leaves* thirty to forty in a dense rosette, ensiform-spathulate, two to two and a half feet long, three to three and a half inches broad at the middle, narrowed to two to two and a half inches above the dilated base, firm in texture, moderately thick, scarcely curving, the face nearly flat, both sides glaucous-green, narrowed gradually into a point tipped by a pungent channelled red-brown *spine*, the *prickles* of the margin small, deltoid, subpatent, a quarter to half an inch apart. *Scape*, including the panicle, twelve to fifteen feet high, its lower bracteiform leaves reaching a foot long. *Panicle* a foot and a half broad, with several rather close erectopatent *branches* bearing the *flowers* in dense ascending terminal clusters. *Perianth* three and a half to four inches deep, narrowly funnel-shaped, the cylindrical *ovary* half its length, the lanceolate permanently ascending yellowish green *divisions* about an inch long. *Anthers* about an inch long, quite exserted.

TAB. 307. — 1, the whole plant; 2, a single leaf: both much reduced. 3, upper half of leaf; 4, fascicle of flowers: both natural size. 5, horizontal section of ovary, magnified.—*J. G. B.*

Another species of *Agave*—an old inhabitant of our greenhouses—which has recently flowered at Hillfield. Under this



name an *Agave* was figured in the ' Botanical Magazine ' (pl. 1522), which appears to be the same as my plant, although the filaments are very much more exserted, and the shape and colour of the corolla and anthers are different, and the apex of the leaves much more attenuated. Under these circumstances I thought it desirable to give a figure of my plant, and particularly point out its habit of growth when in flower. This plant is probably of Mexican origin. For treatment see Tab. 306.—*W. W. S.*





W.H.Fitch del. et. lith.

J.N.Fitch imp.

*Stenomesson Pearcei* Baker.

## TAB. 308.

## Natural Order AMARYLLIDACEÆ.

## Tribe PANCRATIÆ.

Genus STENOMESSON (*Herb. App.* 40). Perianthium infundibuliforme tubo infundibuliformi supra ovarium longe producto curvato segmentis oblongis vel oblongo-lanceolatis subæqualibus tubo 2—4-plo brevioribus. Corona prope faucem tubi inserta inter filamentis varie dentata vel truncata. Ovarium 3-loculare, ovulis in loculo multis biseriatis; stylus filiformis subrectus vel cum tubo sæpe curvatus, sæpe demum exsertus; stigma punctiforme. Stamina 6 filamentis filiformibus ex ore coronæ egredientibus inclusis vel leviter exsertis, antheris oblongis versatilibus. Capsula oblongo-triquetra loculicide trivalvis; seminibus multis oblongis subcompressis; testa nigra. Herbæ bulbosæ scaposæ Andinæ foliis synanthiis linearibus vel lorato-lanceolatis floribus umbellatis. — *Chrysiphiala*, Ker, et Endl. *Coburgia*, Sweet et Endlich.

- S. PEARCEI (*Baker*). Foliis synanthiis lorato-lanceolatis sesquipedalibus longis 14—15 lin. latis e medio ad apicem acutum et petiolum brevem sensim angustatis margine leviter revolutis, scapo 2½—3-pedali, umbellis 6—8-floris, bracteis multis inæqualibus, pedicellis elongatis, perianthii pallide flavi segmentis oblongis acutis tubo æquilongis, coronâ inter filamentos dentibus bifidis instructâ, staminibus cum stylo vix vel haud exsertis.

A native of the Andes of Bolivia, gathered and distributed by Lobb (230), and recently by Mandon (No. 1198), introduced into England in a living state by the late Mr. Pearce.

*Bulb* ovoid, two inches thick, three to four inches deep, coated up to the neck by copious bright brown membranous tunics. *Leaves* cotemporary with the flowers, lorato-lanceolate, a foot and a half long, fourteen to fifteen lines broad at the middle, narrowed gradually upwards to an acute point, and downwards into a flattened *petiole* two to three inches long, not very fleshy in texture, glabrous, the edge rather revolute, the upper side bright green, the lower paler, laxly cellular. *Scape* two and a half to three feet high, firm, slightly compressed, subglaucous. *Flowers* six to eight in an *umbel*. *Bracts* several, membranous, linear and lanceolate, an inch and a half to two

inches long. *Pedicels* slender, erecto-patent, two to four inches long. *Perianth* cernuous, funnel-shaped; the green, obtusely-angled *ovary* one-fourth of an inch deep; the *tube* and *limb* together fifteen to eighteen lines long; the erecto-patent oblong acute *divisions* primrose-yellow, tinged externally with green. *Crown* with a distinct bifid *tooth* between each of the filiform *filaments*. *Stamens* as long as the *perianth*. *Style* sometimes slightly exserted.

After an examination of all the material at our command, it seems to us quite clear that there is no character by which *Coburgia* can be distinguished as a genus from *Stenomesson*, and equally clear that the species have been multiplied unduly; and that the best character for classifying them in groups is that furnished by the presence or absence, and by the nature, of the teeth of the corona. The following is an attempt at an enumeration and classification of all the known species that come under the genus as above described.

GROUP 1.—Corona with distinct bifid teeth between the filiform filaments.

1. *S. INCARNATUM*, Baker = *Pancratium incarnatum*, H. B. K. Nov. Gen. i. 280. *Coburgia incarnata*, Sweet, Brit. Flow. Gard. ser. ii. t. 17; Kunth Enum. v. 646; of which *C. splendens*, *trichoma*, *variegata*, *chacopoyensis*, *versicolor*, *fulva* and *læta* of Herbert and Kunth, are apparently only, in a broad sense, varieties, differing principally in the colour of the flower.
2. *S. ACUTUM*, Baker = *Coburgia acuta*, Herbert, Kunth Enum. iv. 647.
3. *S. OBRAGILLENsis*, Baker = *Coburgia obragillensis* of Herbert and Kunth, of which *S. angusta* of Herbert and Kunth is only a variety.
4. *S. CURVIDENTATUM*, Herbert, Bot. Mag. t. 2640; Kunth Enum. v. 640.
5. *S. PAUCIFLORUM*, Herbert, Kunth Enum. v. 641 = *Chrysiophiala pauciflora*, Lindley in Hooker's Exotic Flora, t. 132.
6. *S. PEARCEI*, Baker. *Vide supra*.
7. *S. COCCINEUM*, Herb. App. 40, Tab. nostr. 309.
8. *S. BREVIFLORUM*, Herb. Kunth Enum. v. 643.

GROUP 2.—Corona with a distinct simple tooth between each of the filaments.

9. *S. LATIFOLIUM*, Herb. Bot. Mag. t. 3803; Kunth Enum. v. 641.
10. *S. VITELLINUM*, Lindl. Bot. Reg. 1843, t. 2; Kunth Enum. v. 642.

11. *S. RECURVATUM*, Baker = *Chrysiphiala recurvata*, Lindl.  
*Coburgia recurvata*, Herbert et Kunth.

GROUP 3.—Corona truncate between the filaments, but not distinctly toothed.

12. *S. CROCEUM*, Herb. = *Pancratium croceum*, Savigny in  
Lam. Encyc. iv. 735; Red. Lil. t. 187. *S. flavum*, Herb.  
Bot. Mag. t. 2641. *Chrysiphiala flava*, Gawl. Bot. Reg.  
t. 778.
13. *S. LUTEUM*, Baker = *Coburgia lutea*, Herb. Kunth Enum.  
v. 651. *Clinanthus luteus*, Herb. App. 40. *Chlidanthus*  
*luteus*, Dietr., of which *Coburgia Macleanica*, Herb. and  
Kunth, is probably a variety.

GROUP 4.—Corona with no space or teeth between the filaments, which are a little  
dilated towards the base.

14. *S. AURANTIACUM*, Herb. Kunth Enum. iv. 639 = *Pan-*  
*cratium aurantiacum*, H. B. K. Nov. Gen. i. 286. *Chry-*  
*siphiala aurantiaca*, Schultes Syst. vii. 904. *S. Hartwegii*,  
Lindley Bot. Reg. 1844, t. 42; Kunth Enum. v. 642.
15. *S. SUSPENSUM*, Baker, tab. nostra, 22.
16. *S. HUMILIS*, Baker = *Coburgia humilis*, Herb. Bot. Reg.  
1842, t. 46.

Imperfectly-known Species.

17. *S. RUIZIANUM*, Kunth = *Pancratium flavum*, Ruiz. & Pavon.  
t. 284, fig. A.
18. *S. DISCOLOR*, Baker = *Coburgia discolor*, Herbert, Kunth  
Enum. iv. 651.
19. *S. EUSTEPHIODES*, Herb. Kunth Enum. v. 643.

TAB. 308.—1, flower with segments cut away; 2, stamen; 3, pistil;  
4, horizontal section of ovary: all magnified.—*J. G. B.*

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A remarkable species of *Stenomesson*, obtained by Mr. Pearce from the Andes of Bolivia, and sent in a living state to the well-known and energetic firm, Messrs. Veitch, of the King's Road, Chelsea. The canary-coloured flowers, with green linear markings on the outer side of the segments of the corolla, give the plant a very peculiar appearance. The figure was drawn from a specimen which flowered in Messrs. Veitch's establishment. It requires the same treatment as recommended for *Stenomesson coccineum* (see Tab. 309).—*W. W. S.*

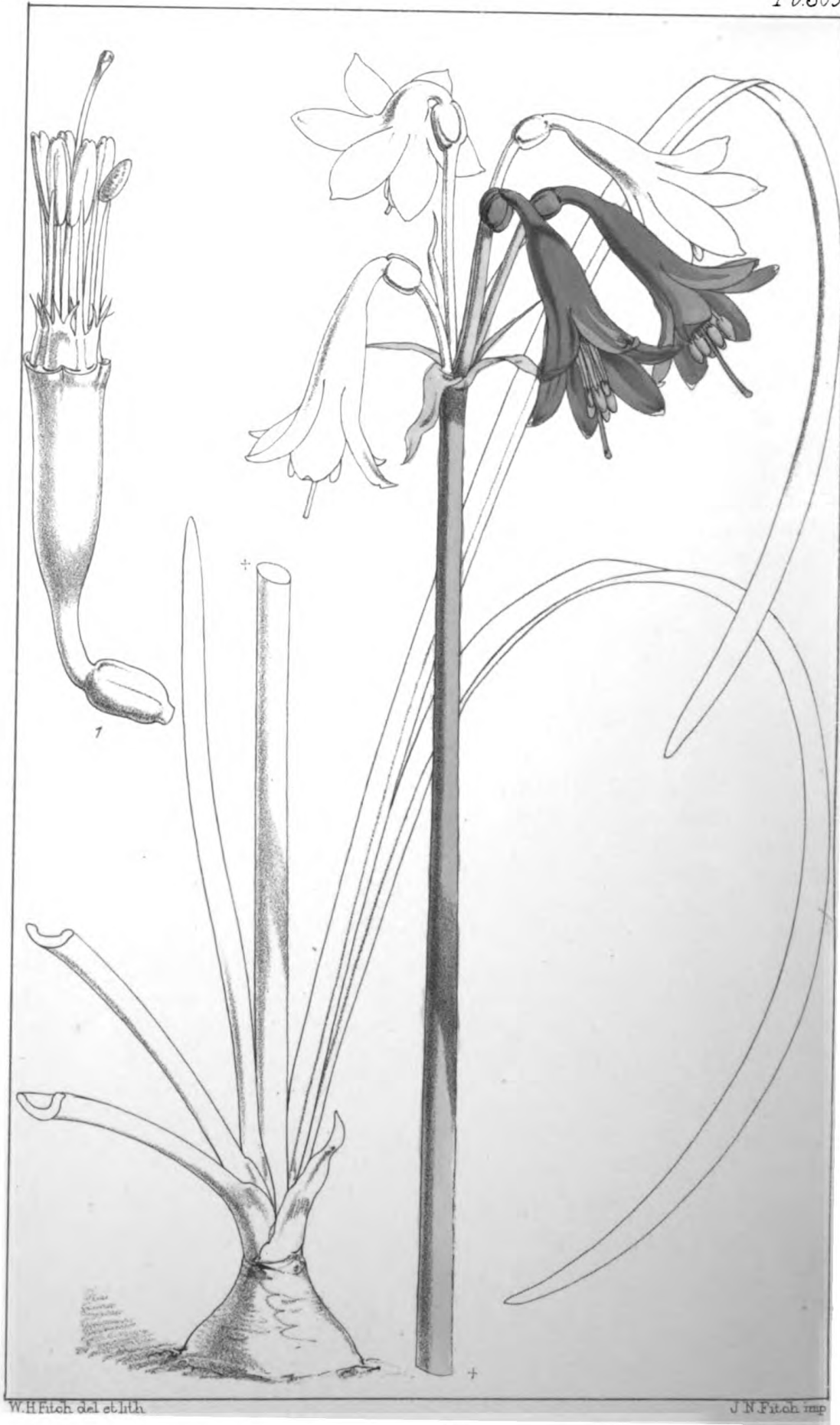












*Stenomesson coccineum*, Herbert

## TAB. 309.

Natural Order AMARYLLIDACEÆ.

Tribe PANCRATIEÆ.

Genus STENOMESSON, *Herbert*.

- S. COCCINEUM (*Herbert, App.* 40). Foliis subsynanthiis linearibus pedalis vel ultra 4—6 lin. latis modice crassis utrinque viridibus, scapis teretibus foliis subæquilongis, umbellis 4—8-floris, bracteis multis linearibus et lanceolatis, pedicellis erectis 1—1½-uncialibus, perianthii coccinei segmentis oblongo-lanceolatis acutis tubo cernuo infundibuliformi cite constricto duplo brevioribus, coronâ inter filamentos dentibus bifidis instructa, staminibus inclusis, stylo demum leviter exserto. — *Coburgia coccinea*, *Herbert, Bot. Mag.* t. 3865. *C. præcipitata*, *Herb. Bot. Reg.* 1842, misc. p. 54; *Kunth, Enum.* v. 649. *Panocratium coccineum*, *Ruiz et Pavon, Fl. Peruv.* iii. p. 54, t. 285, fig. 5.

A native of the Peruvian Andes. Our plant sent to Europe by Mr. Farris.

*Bulb* ovoid, an inch and a half thick, clothed up to the neck with brown membranous coats. *Leaves* four or five, not fully developed till after the flowers fade, a foot or more long, three-eighths to half an inch broad, moderately fleshy in texture, concave down the face, bright green on both sides. *Scape* a foot or more long, firm, terete, slightly glaucous. *Bracts* several, membranous, linear and lanceolate. *Flowers* four to eight in an umbel. *Pedicels* erect, an inch to an inch and a half long. *Perianth* an inch and a half long, including the ovary, bright crimson; the oblong-lanceolate divisions half as long as the abruptly drooping funnel-shaped tube, which is suddenly constricted two-thirds of the way down. *Crown* with a distinct bifid tooth between each of the filiform filaments. *Stamens* reaching the mouth of the flower. *Style* finally a little exserted.

As will be seen by the synonyms given, I have identified the plant figured by Herbert in the 'Botanical Magazine' as *Coburgia coccinea* with the *Panocratium coccineum* of the 'Flora Peruviana,' thus following his earlier in preference to his later opinion on the subject. Whether his imperfectly described *Stenomesson breviflorum* be anything more than a broad-leaved variety of the

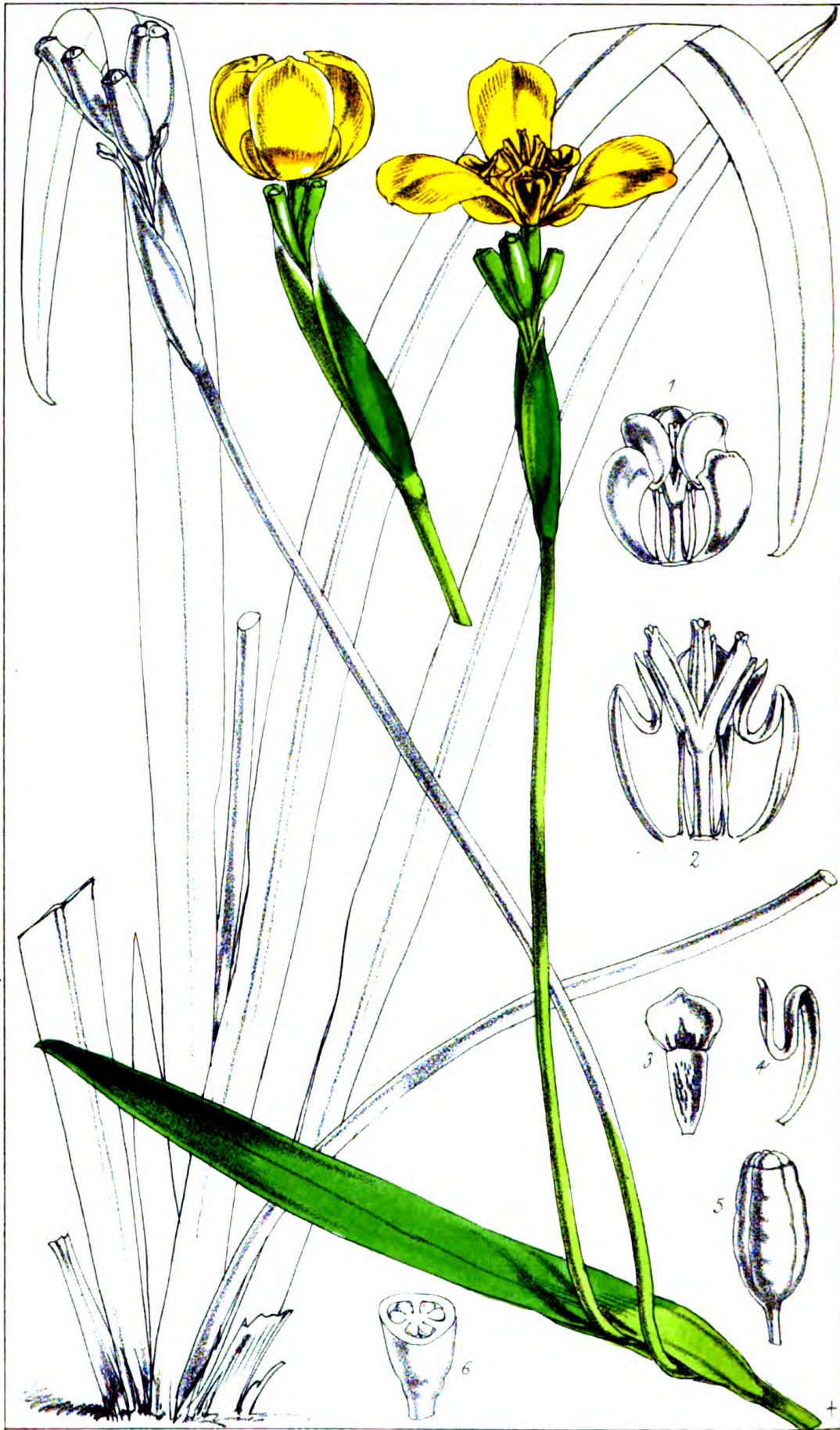
same species, I doubt very much, after examining the original specimens.

Tab. 309.—1, flower with segments cut away, magnified.—*J. G. B.*

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This very free-flowering and ornamental species of *Stenomesson* was sent to me from Peru by Mr. Farris. It requires a cool greenhouse or pit, and should be potted in light sandy loam and peat. The figure of this plant under the name of *Coburgia coccinea*, Bot. Mag. 3865, not sufficiently expressing the character of the corolla or its colour, I have thought it desirable to refigure it in the REFUGIUM.—*W. W. S.*





W.W.S. del. W.H. Fitch lith.

J.N. Fitch imp.

*Cipura martinicensis* H.B.K.

## TAB. 310.

Natural Order IRIDACEÆ.

Tribe IRIDEÆ.

Genus CIPURA, Aublet.

C. MARTINICENSIS (H. B. K. Nov. Gen. i. 320). Radice tuberoso vaginis exterioribus longe productis in fibros demum solutis, foliis circiter 6 radicalibus erectis subpedalibus anguste linearibus, caulibus flexuosis sæpissime simplicibus foliis radicalibus subæquilongis prope medium folio unico instructis, spathæ valvis duobus lanceolatis pedicellis 4—6 arcte vaginantibus, limbi flavi corollæ fugacis segmentis 3 exterioribus subpatulis obovato-oblongis, interioribus minoribus dimidio superiore abrupte persistenter incurvis, capsulis oblongo-clavatis obtuse angulatis. — *Iris martinicensis*, Linn. Sp. Plant. p. 58; Bot. Mag. t. 416.

A native of the West Indies and Central America.

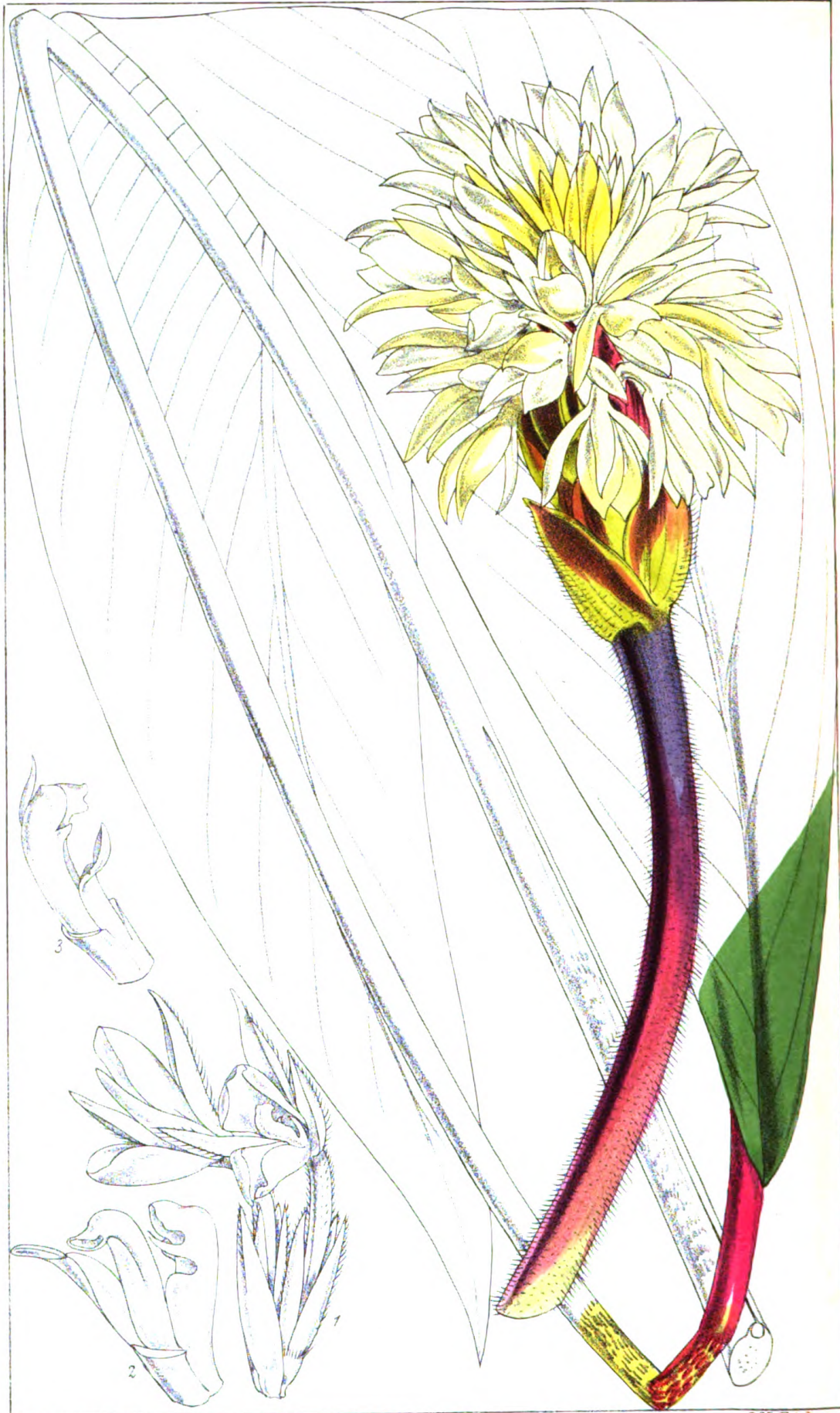
*Root* a solid firm tuber, with copious fleshy *rootlets*, the produced persistent outer *sheaths* splitting up into fibres. *Radical leaves* about half-a-dozen, erect, narrow-linear, reaching a foot long, three to four lines broad, narrowed gradually to a point, firm-reedy in texture, a pale rather glaucous-green on both sides, the *midrib* raised beneath, the other *veins* immersed. *Stem* about equalling the leaves, flexuose, terete, with a single reduced clasping *leaf* placed about the middle. *Valves* of the *spathe* two, lanceolate, acutely keeled on the back, clasping tightly the slightly exerted *pedicels*. *Flowers* four to six in a cluster. *Ovary* green, cylindrical; *corolla-limb* very fugacious, bright yellow; three *outer divisions* subpatulous, obovate-oblong, blunt, with a small *mucro*, five-eighths to three-fourths of an inch long, mottled at the throat; three *inner* much smaller, the upper half persistently incurved against the petaloid *stigma*. *Anthers* basifixed on filiform *filaments*. *Capsule* oblong-clavate, nearly an inch long, obtusely angled, with a double row of numerous *seeds* in each of the three *cells*.

TAB. 310. — 1, inner segment of perianth; 2, two stigmas; 3, 4, side and back views of inner segment of perianth; 5, fruit; 6, horizontal section of the same: all magnified.—J. G. B.



This plant is figured at fol. 416 of the 'Botanical Magazine,' under the name of *Iris martinicensis*, and the figure is good as far as it goes, but is wanting in dissections. I have therefore refigured the species, with a view to give those details and the character of the plant. With me the flowers are bright canary-yellow, with but little darkening at the base of the outer segments of the corolla. It flowers most freely in a moist stove, potted in turfy loam, well supplied with water. The flowers are of very short duration, opening early in the day, and closing soon after noon. Mr. Hahn sent me the plant from Martinica.—  
W. W. S.





W. H. Fitch, del. et lith.

J. N. Fitch imp.

*Calathea vestita*, Baker.

## TAB. 311.

Natural Order MARANTACEÆ.  
Genus CALATHEA, *G. F. Meyer.*

*C. VESTITA* (*Baker*). Acaulis foliis longe petiolatis late lanceolatis glabris 12—15 poll. longis ad apicem acutum et basin cuneatam sensim angustatis supra viridibus subtus rubro-purpureis, pedunculis brevibus radicalibus pubescentibus, floribus in spicam oblongam congestis, bracteis deltoideis pubescentibus rubro-viridibus arcte imbricatis, floribus geminis, perianthii segmentis exterioribus parvis calycinis linearibus, interioribus flavidis lanceolatis dimidio inferiore in tubum cylindricum connatis, staminodiis 2 exterioribus obovato-navicularibus segmentis corollinis æquilongis, tertio interiore cucullato brevioribus.

Sent from Bahia by Mr. Reed.

Acaulescent. *Petioles* fifteen to eighteen inches long, glabrous, subterete, green mottled with purple. *Leaf* broad-lanceolate, twelve to fifteen inches long, three to four inches broad below the middle, narrowed gradually to an acute point and a cuneate base, moderately firm in texture, bright green above, a uniform bright reddish purple on the under surface, with numerous erecto-patent translucent *veins*. *Flowers* in dense oblong *heads* on stout hairy radical *peduncles* three to four inches long. *Bracts* closely imbricated, lanceolate-deltoid, purplish green, densely pubescent, each holding two flowers. *Outer divisions* linear, small, equal. *Corolla* pale yellow, with a long *tube*, its three *divisions* lanceolate, exerted from the bract when the flower is expanded. *Staminodia* three, the *labellum* and *staminode* opposite to it as long as the *corolla-segments*, broader than they are and quite like them in colour and texture; the *inner staminode* which holds the *style* cucullate and auricled on one side as in the other species. Anther-bearing *filament* connate with the style and one of the outer staminodes. *Ovary* three-celled.

TAB. 311.—1, pair of flowers with bract; 2, cucullate inner staminode, stigma and anther; 3, cucullate inner staminode, enclosing the style: all magnified.—*J. G. B.*

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This ornamental plant should be grown in a moist stove, liberally supplied with water at the roots, and allowed plenty of pot-room. The soil should be loam with a little peat. I received the plant from Mr. C. Reed, who obtained it in the neighbourhood of Bahia. The yellow-green leaf-stalk, spotted minutely with purple, and the rich purple of the under side of the leaves, make the plant one of ornament and worthy of cultivation.—  
*W. W. S.*





W.H. Eitch. del. et lith.

J.N. Fitch. imp.

*Phrynium unilaterale*, Baker.

## TAB. 312.

## Natural Order MARANTACEÆ.

## Genus PHRYNIUM, Willd.

- P. UNILATERALE (*Baker*). Acaulis, foliis distichis longe petiolatis oblongo-lanceolatis ultra pedem longis cuspidatis papyraceis utrinque glabris pallide viridibus, pedunculis radicalibus brevibus robustis pubescentibus dichotomiter furcatis bractea magna spathiformi instructis, crurâ laterali geniculatim decurvata, floribus geminis biseriatis in spicas unilaterales dispositis, bracteis exterioribus late navicularibus chartaceis albidis dense imbricatis, interioribus pellucidis, perianthii breviter pedicellati segmentis calycinis parvis lanceolatis, interioribus petaloideis albis oblongis deorsum in tubum connatis, staminodiis late petaloideis, stylo sursum libero, seminibus in fructu solitariis.

A native of Madagascar, sent by Mr. Plant.

Acaulescent. *Leaves* distichous, half a dozen to a stem, on pubescent *petioles* fifteen to eighteen inches long, concave down the face in the lower part, with a distinct *phyllopode* nearly an inch long at the top. *Blade* oblong-lanceolate, papyraceous in texture, curling up very soon like that of a *Maranta* when the plant is gathered, twelve to fifteen inches long, four to five inches broad, rounded at the base, abruptly acute at the apex, glabrous and pale green on both sides, with close distinct erecto-patent *veins*. *Peduncles* radical, stout, pubescent, three to four inches long, dichotomously forked, with a large clasping spathe-like *bract* at the division, the lateral branch geniculately decurved. *Flowers* in dense unilateral *spikes* consisting of two close rows, with tightly-packed *bracts* enclosing two flowers each, the general habit of the *inflorescence* just like that of the American *Calathea Myrosma* (Roscoe, Scit. t. 39). *Outer bract* of each cluster tough, whitish, broadly boat-shaped, half an inch broad, wrapped tightly round the axis; *inner one* hidden, membranous. *Flowers* each on a very short *pedicel*; *ovary* orange; *sepals* lanceolate, equal, minute; *petals* oblong, white, minutely mucronate, united in a *tube* as long as the *limb*. *Staminodia* as long as and broader than the petals, just like them in texture, the lower one bearing a *lobe* coloured yellow from its side just opposite the *stigma*; *anther* terminal, on a short petaloid *filament*. *Style* free and



filiform some distance below the bend. *Capsule* subbaccate, orange, one-seeded.

TAB. 312.—1, pair of flowers, with bracts, unexpanded; 2, the same expanded, with bracts taken away; 3, flower with sepals and petals cut away; 4, three staminodia with anther: all magnified.—*J. G. B.*

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This remarkable *Phrynium*, which has little beauty to recommend it, should have the same treatment as *Calathea vestita*, Tab. 311. The plant was sent to me from Madagascar by Mr. Plant.—*W. W. S.*







W.E. Fitch del et lith.

*Vanilla planifolia* L.

J.N. Fitch imp.



## TAB. 313.

Natural Order LILIACEÆ.

Tribe YUCCOIDEÆ.

Genus YUCCA, *Linn.*

Y. GUATEMALENSIS (*Hort. Angl.*) Longe caulescens, foliis 30—50 pro genere laxè dispositis lanceolatis  $2\frac{1}{2}$ —3 pedes longis ad medium  $2\frac{1}{2}$ —3 poll. latis carnosocoriaceis nitide viridibus planiusculis apice vix pungentibus marginibus albido-cartilagineis minute serrulatis inferioribus patentibus vel leviter recurvatis, floribus in paniculam congestam dispositis, perianthii anguste campanulati tripollicaris segmentis albis lanceolatis 3—4-plo longioribus quam latis, filamentis puberulis semipollicaribus apice clavatis uncinatis, ovario oblongo perianthio quadruplo breviorè, stigmatibus latis profunde bicuspatis cum stylo ovario 6-plo brevioribus.

A native of Mexico and Guatemala.

*Trunk* reaching five to six feet in height below the leaves, three to four inches thick in the specimen drawn, slightly swollen at the base. *Leaves* thirty to fifty spread over a space of a foot and a half to two feet or more of the trunk, lanceolate, reaching two and a half to three feet in length when fully developed, two and a half to three inches broad at the middle, narrowed gradually downwards to an inch above the base, and upwards to a scarcely pungent concolorous point, the colour a bright shining not at all glaucous green, the texture much more fleshy and less rigid than in *aloifolia*, only the lowest quarter concave on the face, the rest flat except the very point, the innermost ascending, the rest spreading, many slightly recurved, the edge horny and scabrous, seen only under a lens to be minutely serrulate, the centre two to three lines thick towards the base. *Peduncle* under a foot long. *Panicle* close, ovoid, two to three feet long, with several close erecto-patent *branches*. *Pedicels* cernuous, the lowest an inch long. *Perianth* narrowly bell-shaped, three inches deep, pure white, only slightly tinged with greenish yellow towards the base on the outside; the *divisions* lanceolate, narrowed gradually from three-quarters of the way down to an acute point, the inner eight to nine lines, the outer an inch, broad. *Filaments* five to six lines long, slender, puberulent, curved and

abruptly thickened at the apex. *Ovary* oblong, half as long again as the filaments, four to five lines thick before the flower begins to fade. *Stigmas* deltoid, deeply bifid and bicuspidate. *Style* and stigmas together an eighth of an inch long.

This is a very handsome form of the *aloifolia* group, which is by no means uncommon in greenhouses, but which appears never to have been described or figured. It is sometimes called *Draconis*, but differs widely from the plant figured by Dillenius at tab. 324 of the 'Hortus Elthamensis,' which is the authority for the application of that name by Linneus. The plant called *Yucca Roezlii* in gardens is very nearly identical with ours.

TAB. 313.—1, whole plant, reduced; 2, leaf, and 3, branch with flowers, natural size; 4, portion of leaf, magnified; 5, stamens and ovary, natural size.—*J. G. B.*

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I have had this plant under cultivation for many years. It grows freely, and is a fine tall effective species. It has never flowered with me, and for my illustrations I am indebted to the Royal collection at Kew.

For several years I have been cultivating a large number of the so-called species of *Yucca*, both hardy and requiring protection during the winter. My object has been to unravel, if possible, the great confusion which prevails in their nomenclature. Several have flowered with me, and this enables me to give a series of plates in the REFUGIUM of these very interesting plants. The series commences in the present number, and will be continued as I have opportunities of procuring good figures from *Yuccas* flowering in my own collection or in the collections of my friends. This series I hope will give a good foundation for working the subject systematically, and tend to clear up partly the confusion in nomenclature I have alluded to.

The *Yuccas* I cultivate arrange themselves into two sections as regards treatment—hardy, and those requiring protection from cold during the winter.

The hardy kinds will thrive in almost any good garden soil, if planted fully exposed to the sun and somewhat screened from the cold winter winds. They are easily increased by suckers or portions of the thick roots. Many flower freely, and the whole are well worthy of cultivation, producing a fine bold effect in the borders, both from their foliage and fine tall spikes of flowers, particularly where care has been taken to combine the plants with other vegetation.

The kinds requiring protection during the winter will grow well with a cool greenhouse treatment, and, to induce a proper development of their fine foliage, it is necessary to allow them plenty of light and air when practicable. They should also have

plenty of pot room, and, when growing vigorously, plenty of water. They seem to like, as a soil, turfy loam and sand well mixed, and the pots should be well drained by a liberal supply of crocks. They are increased in the same way as the hardy kinds.

In the present Part will be found the following hardy kinds:—

Tab. 314.	<i>Yucca exigua</i> ,	<i>Baker.</i>
„ 315.	„ <i>glauca</i> ,	<i>Sims.</i>
„ 316.	„ <i>acuminata</i> ,	<i>Sweet.</i>
„ 317.	„ <i>Ellacombei</i> ,	<i>Baker.</i>
„ 319.	„ <i>gloriosa minor</i> ,	<i>Baker.</i>
„ 320.	„ <i>gloriosa</i> ,	<i>Linn.</i>
„ 321.	„ <i>recurvifolia</i> ,	<i>Salisb.</i>
„ 322.	„ <i>puberula</i> ,	<i>Haworth.</i>
„ 323.	„ <i>flaccida</i> ,	<i>Haworth.</i>
„ 324.	„ <i>filamentosa</i> ,	<i>Linn.</i>

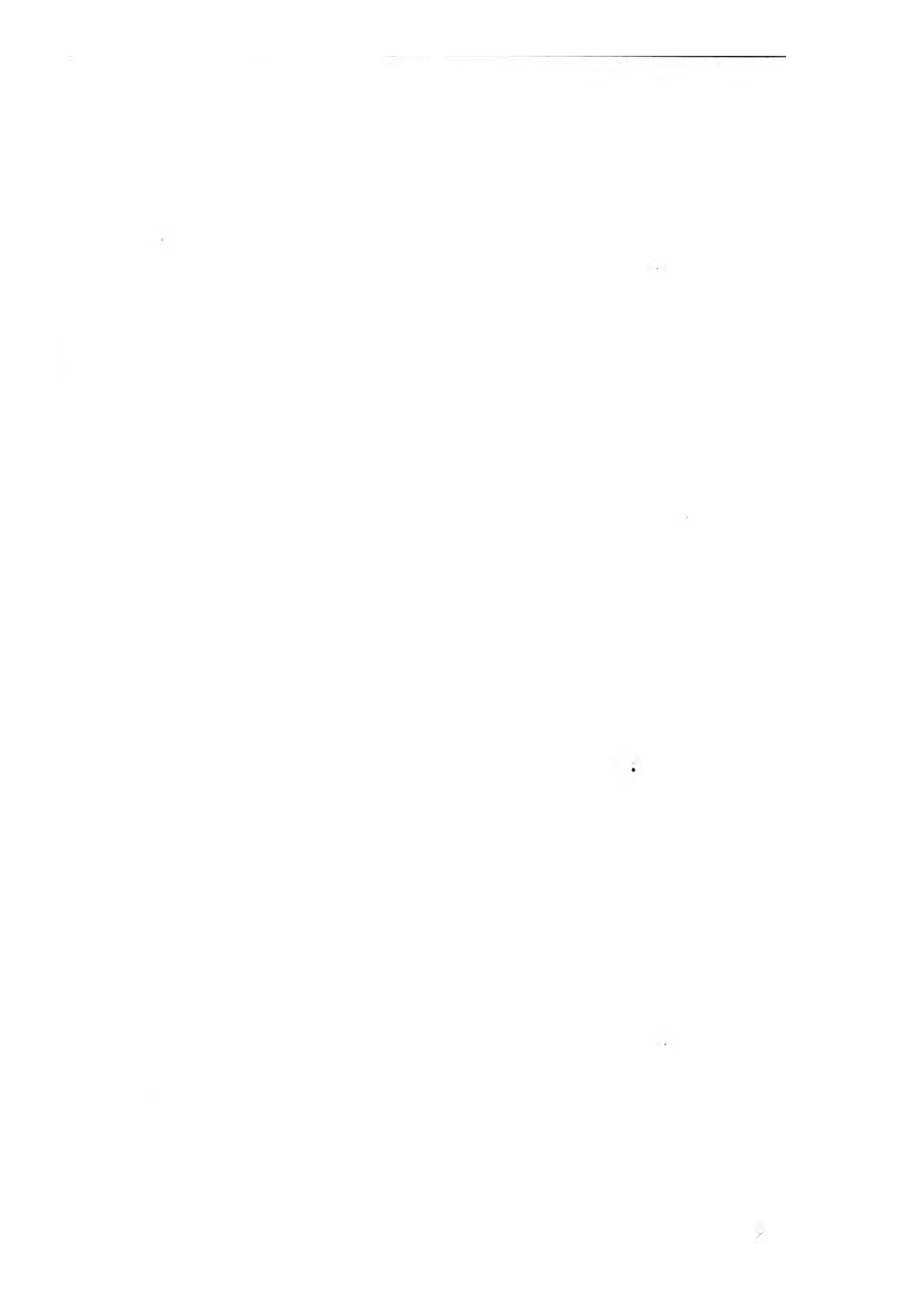
And the following requiring protection during the winter:—

Tab. 313.	<i>Yucca guatemalensis</i> ,	<i>Baker.</i>
„ 318.	„ <i>ensifolia</i> ,	<i>Baker.</i>

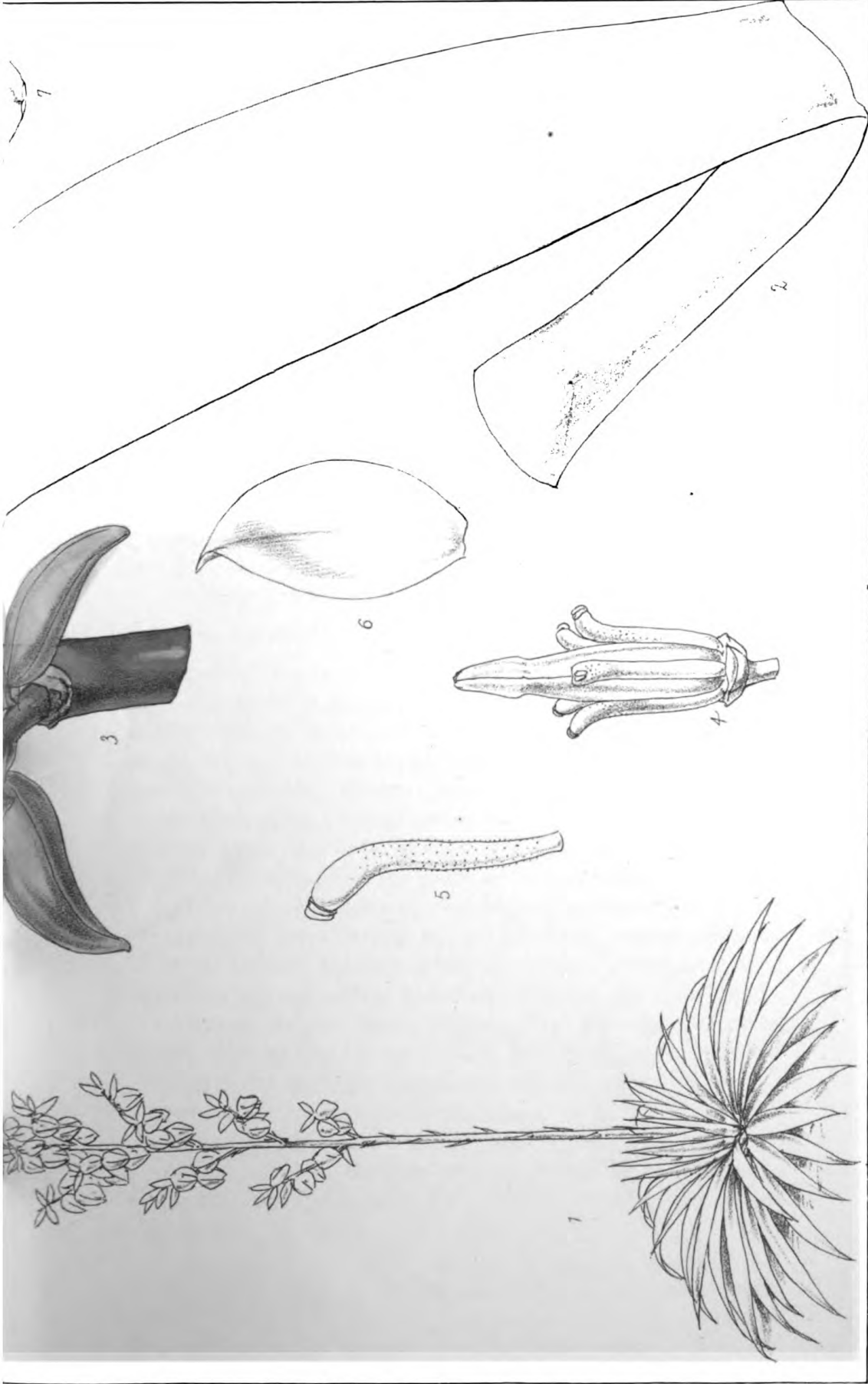
—*W. W. S.*







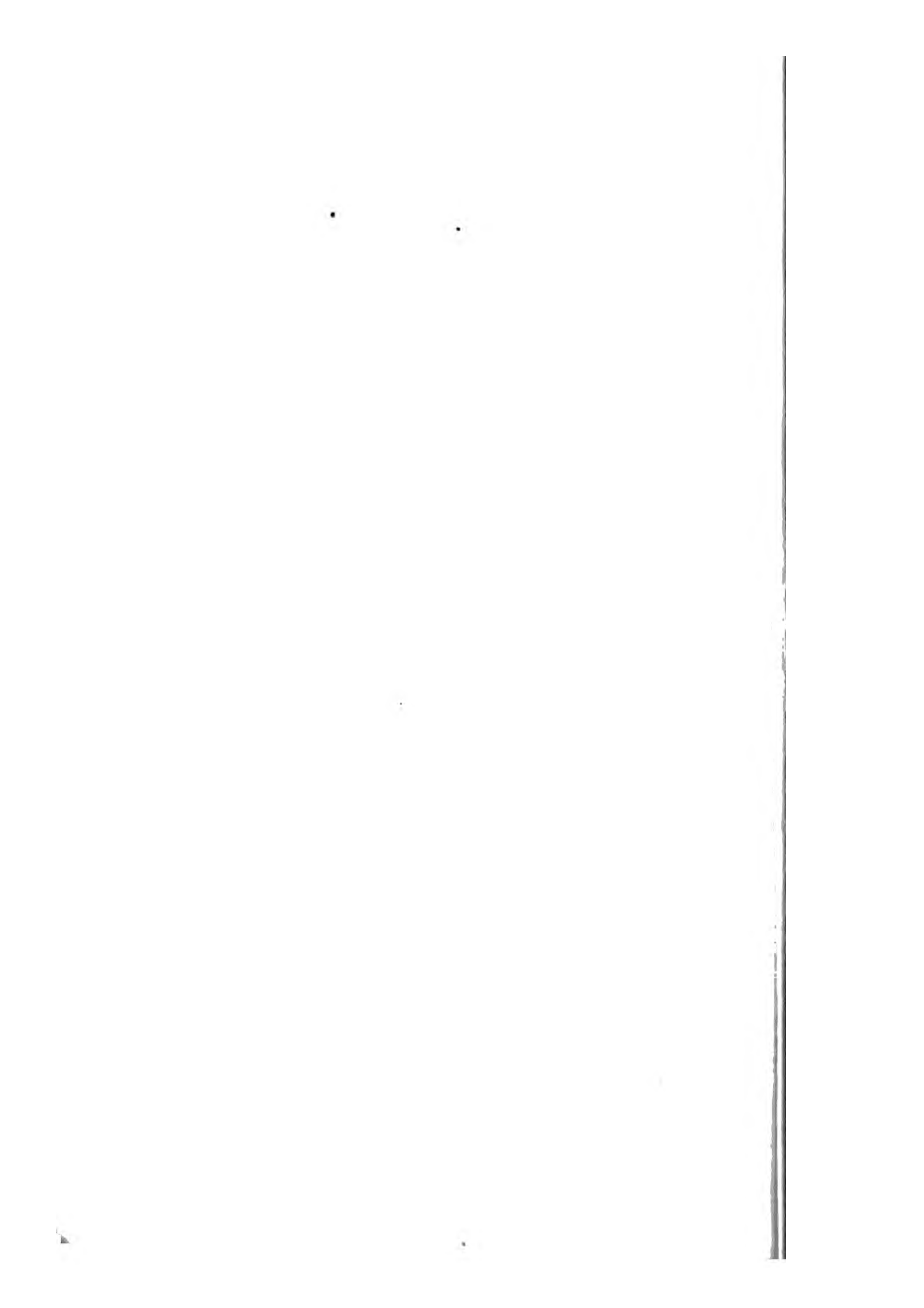




J. N. Fitch 1866

*Yucca exigua*, Baker.

W. S. del. W. H. Fitch 1866



## TAB. 314.

Natural Order LILIACEÆ.

TRIBE YUCCOIDEÆ.

Genus YUCCA, *Linn.*

**Y. EXIGUA** (*Baker*). Acaulescens, foliis 30—40 dense rosulatis anguste oblanceolatis 18—20 poll. longis supra medium 13—14 lin. latis arundinaceo-coriaceis viridibus junioribus leviter glaucis apice subpungentibus, marginibus integris concoloribus, facie subconcavis, exterioribus recurvatis, scapo foliis duplo longiore, floribus pro genere laxè dispositis, perianthii campanulati albi sesquipollicaris segmentis oblongis cuspidatis duplo longioribus quam latis, filamentis puberulis 7—8 lin. longis apice clavatis uncinatis, ovario ampulliformi perianthio duplo brevioribus, stigmatibus ligulatis apice emarginatis ovario triplo brevioribus.

Probably a native of the Southern United States.

Acaulescent, hardy in the neighbourhood of London. *Leaves* thirty to forty in a dense basal rosette, narrowly oblanceolate, reaching eighteen to twenty inches long when fully developed, thirteen to fourteen lines broad two-thirds of the way up, rather firmer in texture than those of *filamentosa*, narrowed upwards to a brownish slightly pungent point, and downwards to three to four lines above the base, the colour a dull green which at first is slightly glaucous, the face more or less concave all through, the back convex and scabrous, the edge concolorous and entire, the outer ones more or less recurved. *Scape* robust, twice as long as the leaves. *Panicle* oblong-lanceolate, a yard long, with several downy erecto-patent *branches*. *Flowers* few to a branch, the cernuous *pedicels* much shorter than the scariose *bracts*. *Perianth* pure white, an inch and a half deep, when fully expanded as broad as deep; the oblong cuspidate *segments* nine to ten lines broad. *Filaments* five-eighths of an inch long, puberulent, curved and thickened at the apex. *Ovary* ampullæform, half as long again as the filaments, one-fourth of an inch thick. *Stigmas* one-fourth of an inch deep, ligulate, connate, emarginate at the apex.

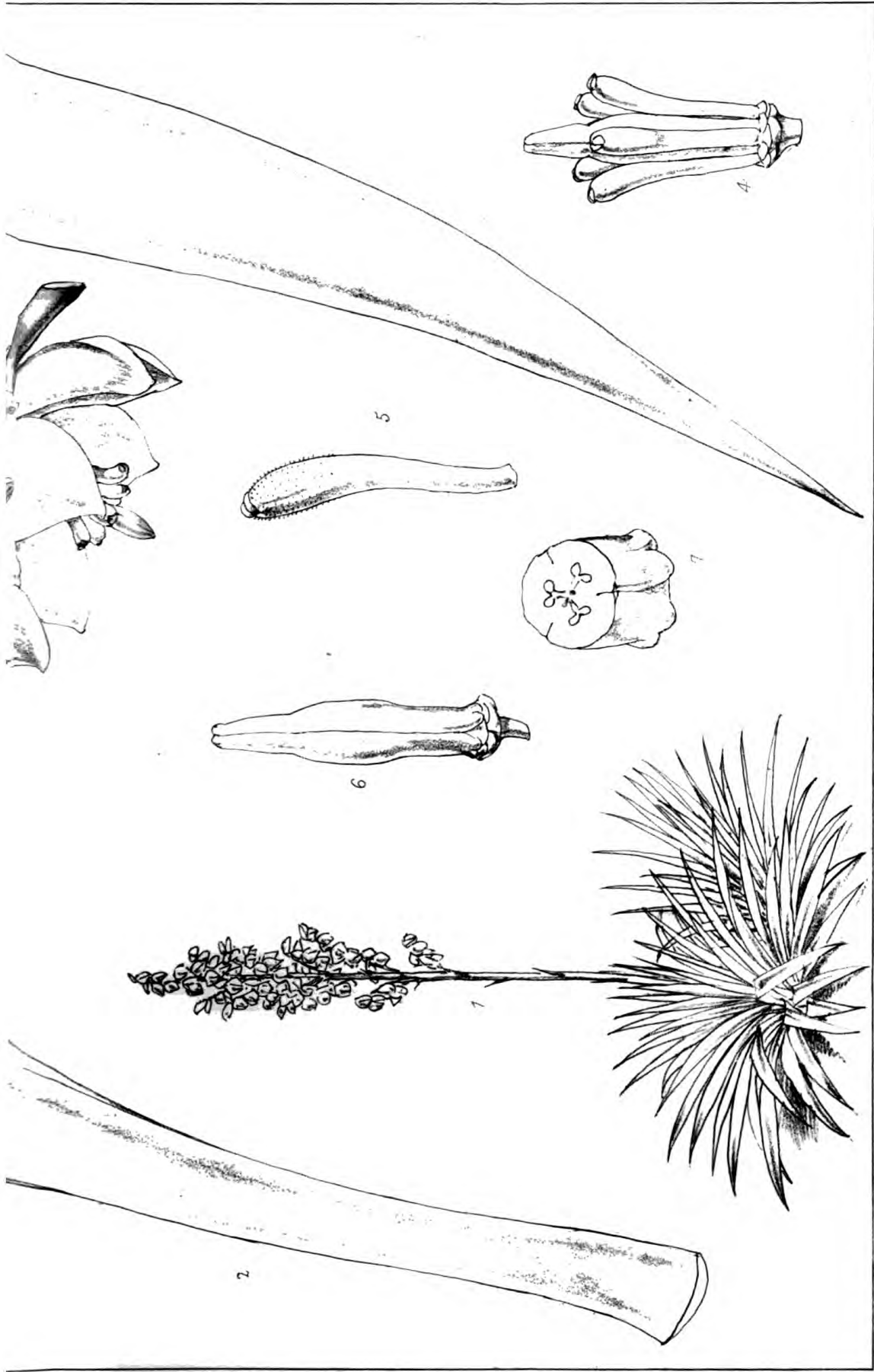
TAB. 314.—1, whole plant, reduced; 2, leaf; 3, branches with flowers, natural size. 4, stamens and ovary; 5, a single stamen: both magnified.—*J. G. B.*

This fine-flowered *Yucca* is a close ally of *Y. filamentosa*, under which name I obtained it many years since. It flowers freely, and appears quite hardy. I know nothing of its history. For treatment see observations on culture, &c., Tab. 313. —  
*W. W. S.*









J. N. Fitch imp.

W. W. S. del. W. H. Fitch lith.

*Yucca glauca*, Sims.



## TAB. 315.

Natural Order LILIACEÆ.

Tribe YUCCOIDEÆ.

Genus YUCCA, Linn.

Y. GLAUCA (*Sims Bot. Mag.* t. 2662). Acaulescens, foliis circiter 30 dense rosulatis anguste oblanceolatis 18—20 poll. longis supra medium 14—16 lin. latis arundinaceo-coriaceis pallide glaucescenti-viridibus faciei medio planiusculis, marginibus concoloribus integris, apice haud pungentibus, exterioribus leviter recurvatis, scapo foliis duplo longiore, perianthii albidilate campanulati sesquipollicaris segmentis oblongis subduplo longioribus quam latis, filamentis puberulis 8—9 lin. longis apice curvatis incrassatis, ovario ampullæformi perianthio duplo brevioribus, stigmatibus ligulatis apice emarginatis ovario triplo brevioribus.—*Kunth, Enum.* iv. p. 274.

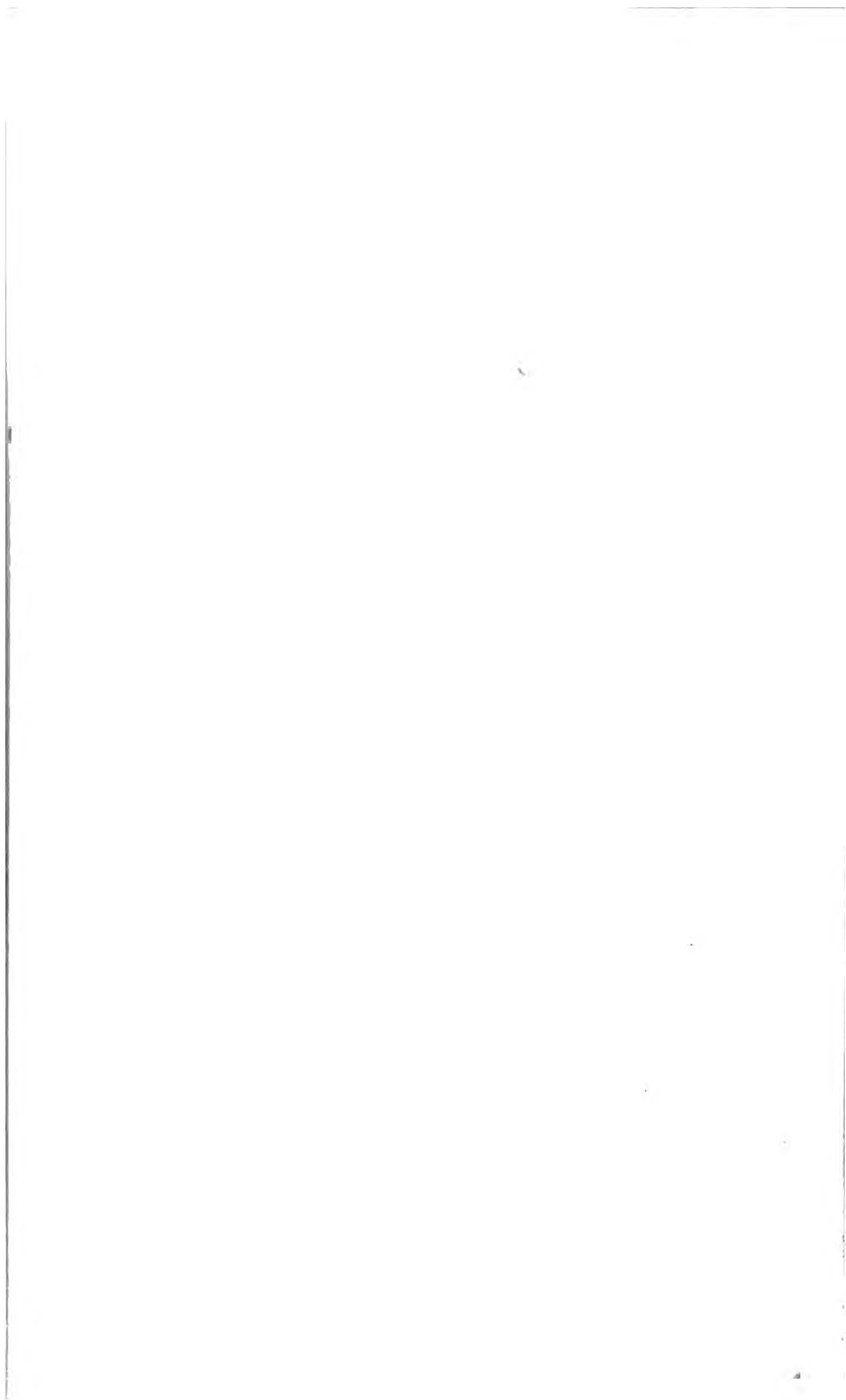
A native of the Southern United States; first grown in England by Dean Herbert.

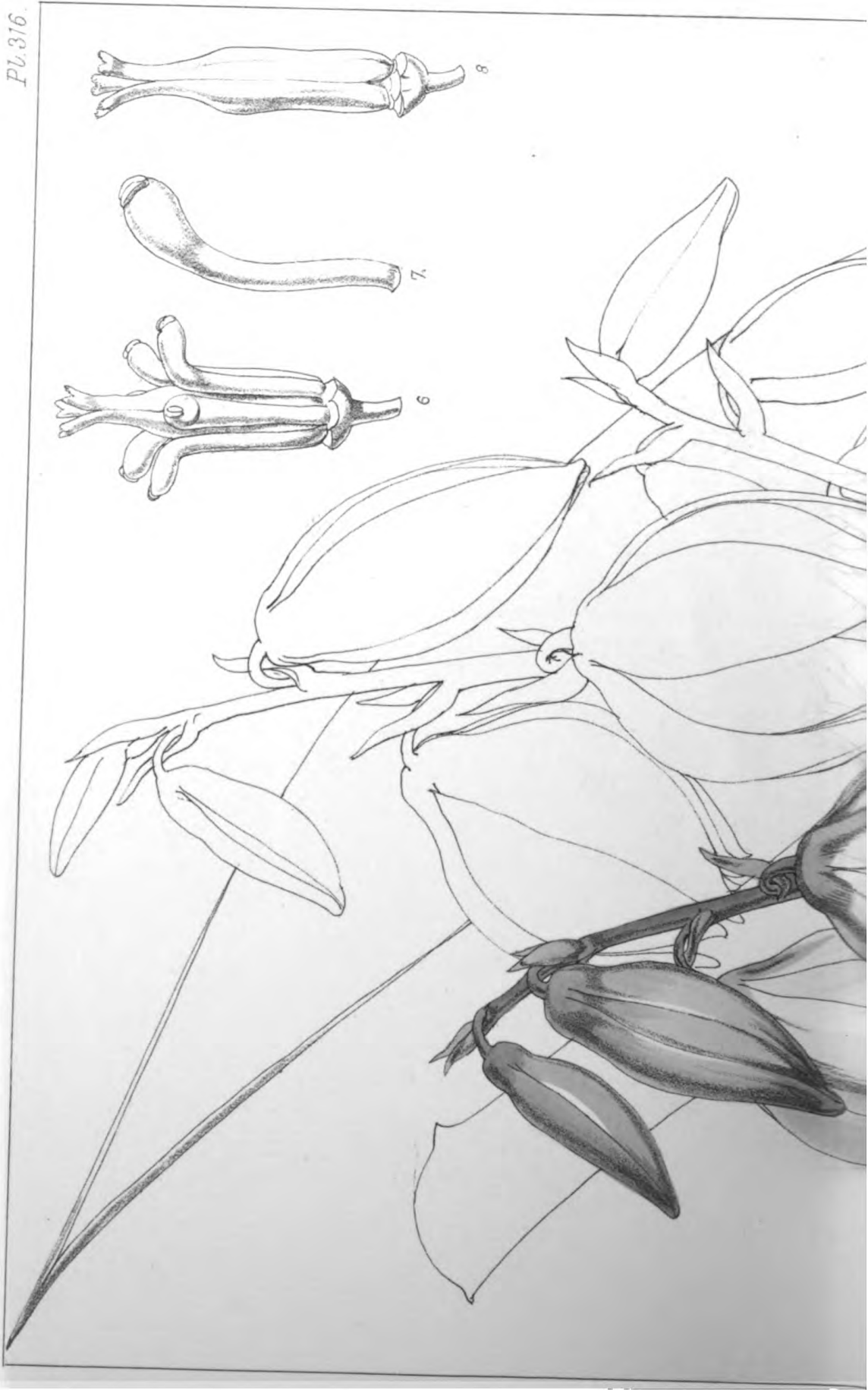
Acaulescent, quite hardy in the neighbourhood of London. *Leaves* about thirty in a dense basal rosette, narrowly oblanceolate, reaching eighteen to twenty inches long when fully developed, by fourteen to sixteen lines broad above the middle, narrowed upwards to a non-pungent point, and downwards to four to five lines broad above the base, the edge entire and concolorous, the texture not thicker than in *filamentosa*, the face flat in the middle half, the outer ones a little recurved. *Scape* robust, twice as long as the leaves. *Panicle* oblong-lanceolate, a yard deep, moderately close. *Perianth* whitish, twice as broad as deep when fully expanded; the *divisions* oblong, acute, eighteen to twenty lines long, the inner three-fourths of an inch, the outer ten to eleven lines, broad. *Filaments* puberulent, three-fourths of an inch long, thickened and curved at the apex. *Ovary* flask-shaped, scarcely longer than the *stamens*. *Stigmas* ligulate, one-fourth of an inch deep, emarginate at the apex.

TAB. 315.—1, whole plant, reduced; 2, leaf; 3, branch with flowers; 4, ovary and stamens: all natural size. 5, a stamen, magnified; 6, pistil, natural size; 7, horizontal section of ovary, magnified.—*J. G. B.*

A well-known and old inhabitant of our gardens, free-flowering and easy of cultivation. The figure is from a plant in the Hillfield garden. For treatment, &c., see observations on culture, &c., Tab. 313.—*W. W. S.*









WWS. del W. H. Fitch lith.

J. N. Fitch imp.

*Yucca acuminata*, Sweet.





## TAB. 316.

Natural Order LILIACEÆ.

Tribe YUCCOIDEÆ.

Genus YUCCA, *Linn.*

Y. ACUMINATA (*Sweet, Brit. Flow. Gard. t. 195*). Vix caulescens, foliis 50—60 dense rosulatis anguste lanceolatis rigide coriaceis facie prorsus concavis nullo modo recurvatis 18—24 poll. longis medio 18—24 lin. latis apice pungentibus marginibus integris brunneo-lineatis, perianthii albidii purpureo tincti globoso-campanulati segmentis exterioribus lanceolatis, interioribus oblongis duplo longioribus quam latis, filamentis puberulis apice incrassatis uncinatis ovario ampullæformi subæquilongis, stigmatibus ligulatis apice emarginatis ovario duplo brevioribus.—*Kunth, Enum. iv. 274.*

A native of the Southern United States.

Scarcely caulescent, quite hardy in the neighbourhood of London. *Leaves* fifty to sixty in a dense rosette, reaching eighteen to twenty-four inches long, eighteen to twenty-one lines broad near the middle, narrowed gradually upwards to a hard brown pungent point, and downwards to one-half to five-eighths of an inch above the base, as rigid in texture as those of *gloriosa*, deep green, with a slight glaucous tinge when young, the face more or less concave throughout, the entire edge marked with a distinct brown line, all ascending or spreading, none recurved. *Panicle* oblong-lanceolate, with several short ascending *branches*. *Perianth* two inches deep, cream-white, tinged with purple towards the tip, rather longer than broad when fully expanded; the *outer segments* lanceolate, five-eighths to three-fourths of an inch broad, the *inner* oblong, seven-eighths to one inch broad at the middle. *Filaments* three-fourths of an inch long, puberulent, hooked and thickened at the tip. *Ovary* flask-shaped, scarcely as long as the filaments. *Stigmas* three-eighths of an inch long, ligulate, emarginate at the apex.

TAB. 316.—1, whole plant, reduced. 2, leaf; 3, branches with flowers; 4 and 5, segments of perianth; 6, ovary and stamens: all natural size. 7, stamen, magnified.—*J. G. B.*

This *Yucca*, which is rare in collections, I obtained many years since from a nurseryman at Chelsea, whose name I have unfortunately forgotten. The figure is from a plant which flowered in the Hillfield garden. It is slow of growth, and not free to flower. For treatment see observations on culture, &c., Tab. 313.—*W. W. S.*







W. H. Fitch. del. et. lith.

*Yucca filamentosa* Haw.

J. N. Fitch imp.



## TAB. 317.

Natural Order LILIACEÆ.

Tribe YUCCOIDEÆ.

Genus YUCCA, Linn.

Y. ELLACOMBEI (*Hort.*) Brevis caulescens, foliis 40—50 dense rosulatis anguste lanceolatis subrigide coriaceis glauco-viridibus facie prorsus concavis nullis recurvatis 27—30 poll. longis medio 18—21 lin. latis apice pungentibus marginibus integris brunneo-lineatis, perianthii albi subgloboso-campanulati 2½—3-pollicaris segmentis exterioribus oblongo-lanceolatis dorso rubro tinctis, interioribus oblongis, filamentis puberulis apice uncinatis incrassatis ovario unciali paulo brevioribus, stigmatibus ligulatis apice emarginatis ovario triplo brevioribus.

Probably a native of the Southern United States.

Shortly caulescent, quite hardy in the South of England. *Leaves* forty to fifty in a dense rosette, narrow-lanceolate, reaching twenty-seven to thirty inches long, eighteen to twenty-one lines broad at the middle, narrowed upwards to a brown pungent point, and downwards to one-half to five-eighths of an inch broad above the base, somewhat thinner than those of *gloriosa* in texture, all spreading or ascending, permanently glaucous, the face more or less concave throughout, not plicate, the entire edge marked with a distinct brown line. *Scape* equalling the leaves. *Panicle* a yard long by half as broad, moderately close; the lower *pedicels* an inch long. *Perianth* pure white, two and a half to three inches deep, rather longer than broad when fully expanded; the *outer divisions* oblong-lanceolate, tinged with bright red on the back, an inch broad; the *inner* oblong, fourteen to fifteen lines broad at the middle. *Filaments* puberulent, nine to ten lines long, thickened and curved at the apex. *Ovary* flask-shaped, nearly or quite an inch long. *Stigmas* ligulate, three to four lines long, emarginate at the apex.

TAB. 317. — 1, whole plant, reduced. 2, leaf; 3, branch with flowers; 4, pistil: all natural size.—J. G. B.

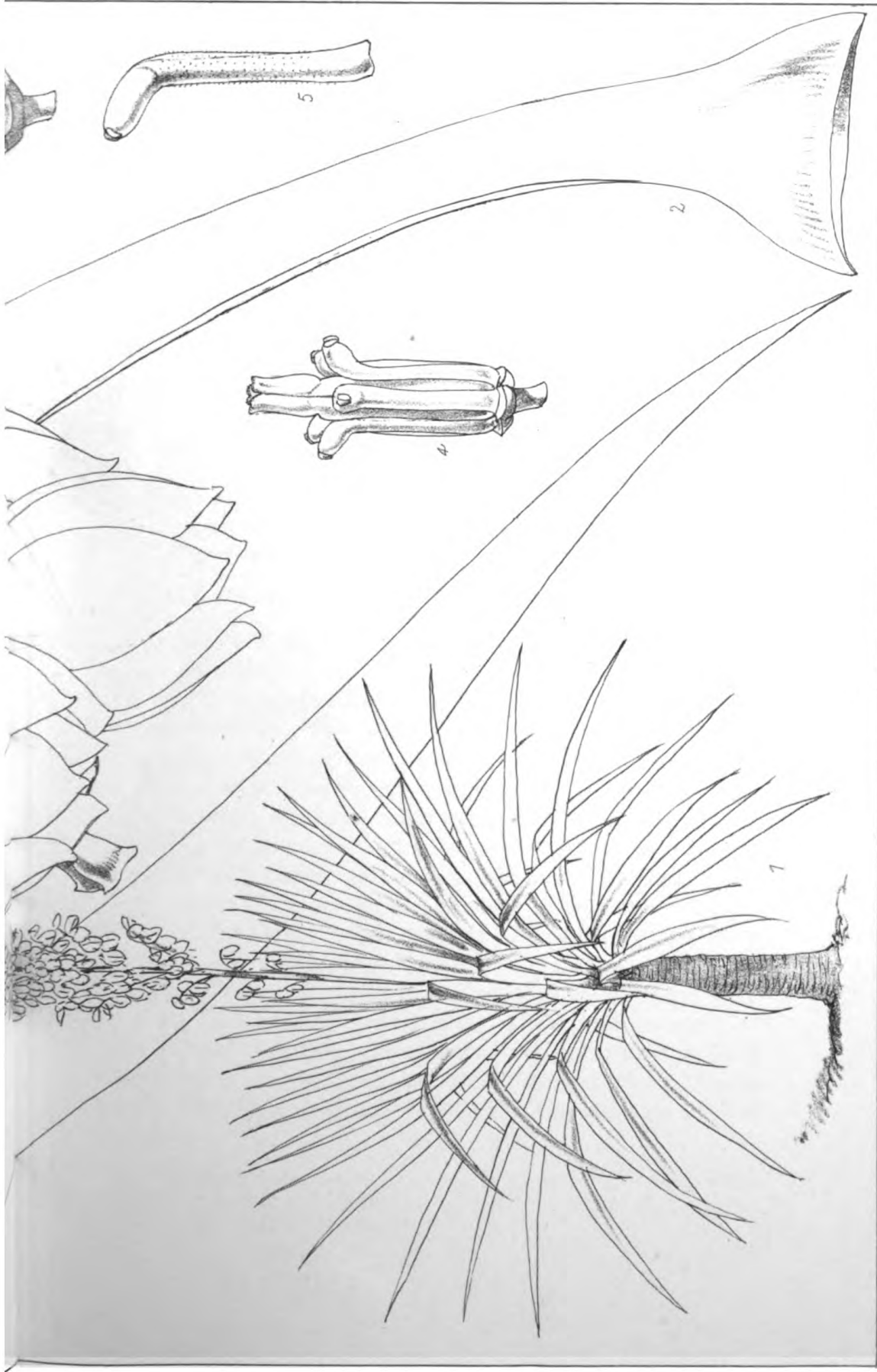


I am indebted to my friend the Rev. H. N. Ellacombe, of Bitton, for this interesting *Yucca*, which grows freely with me, but has not yet flowered at Hillfield. The figure is from a fine specimen in the garden of the gentleman above named, who has a very rich collection of *Yuccas*, and a far-famed collection of hardy plants. Mr. Ellacombe informs me that this plant was obtained by his late father from the Messrs. Loddiges. It first received the name *Ellacombei* from the Messrs. Osborne, to whom the plant had been communicated. For treatment see observations on culture, &c., Tab. 313.—*W. W. S.*



Pl. 318.



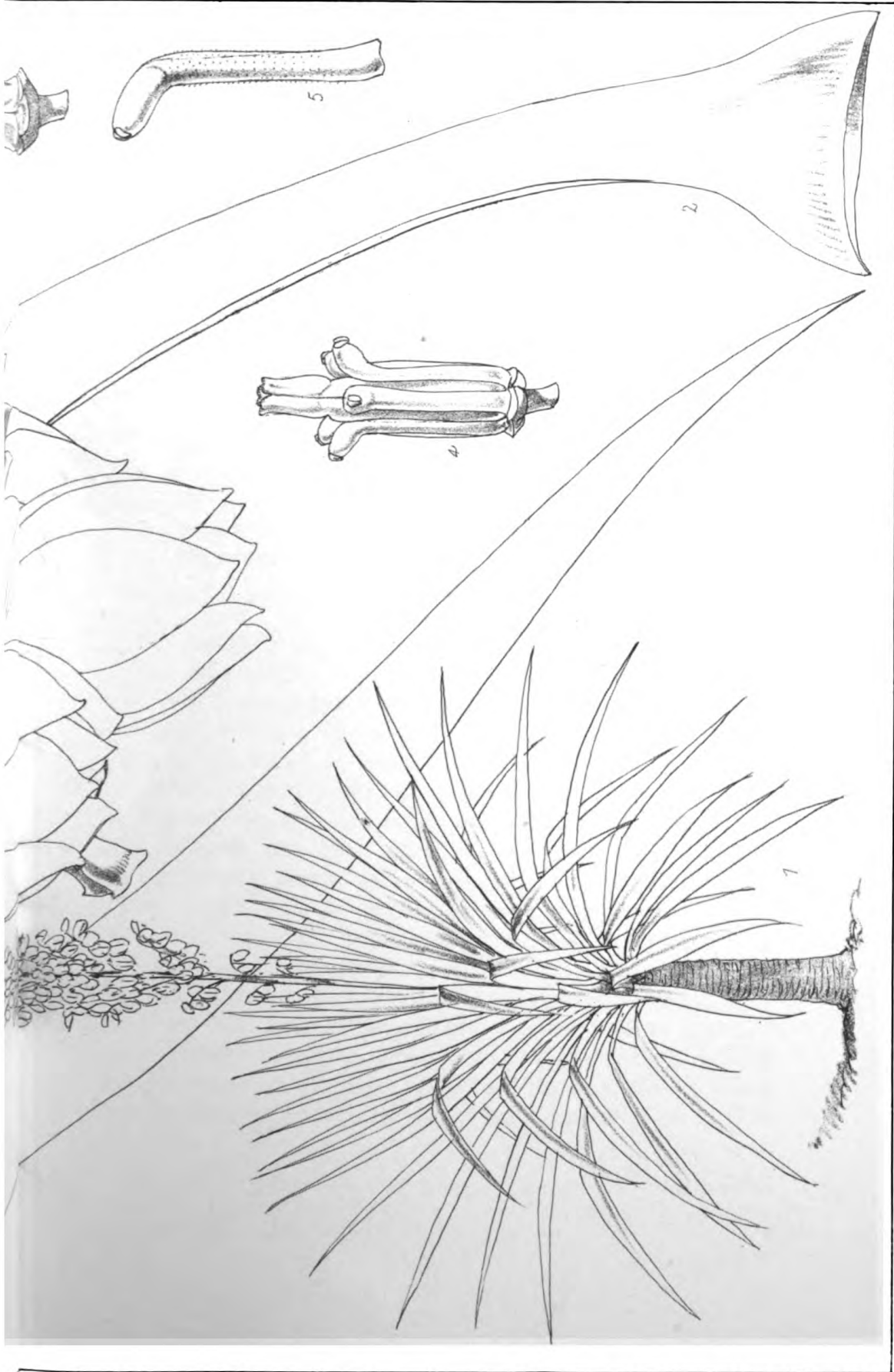


W. W. S. del. Fitch. lith.

*Yucca ensifolia*, Hort.

J. N. Fitch. imp.

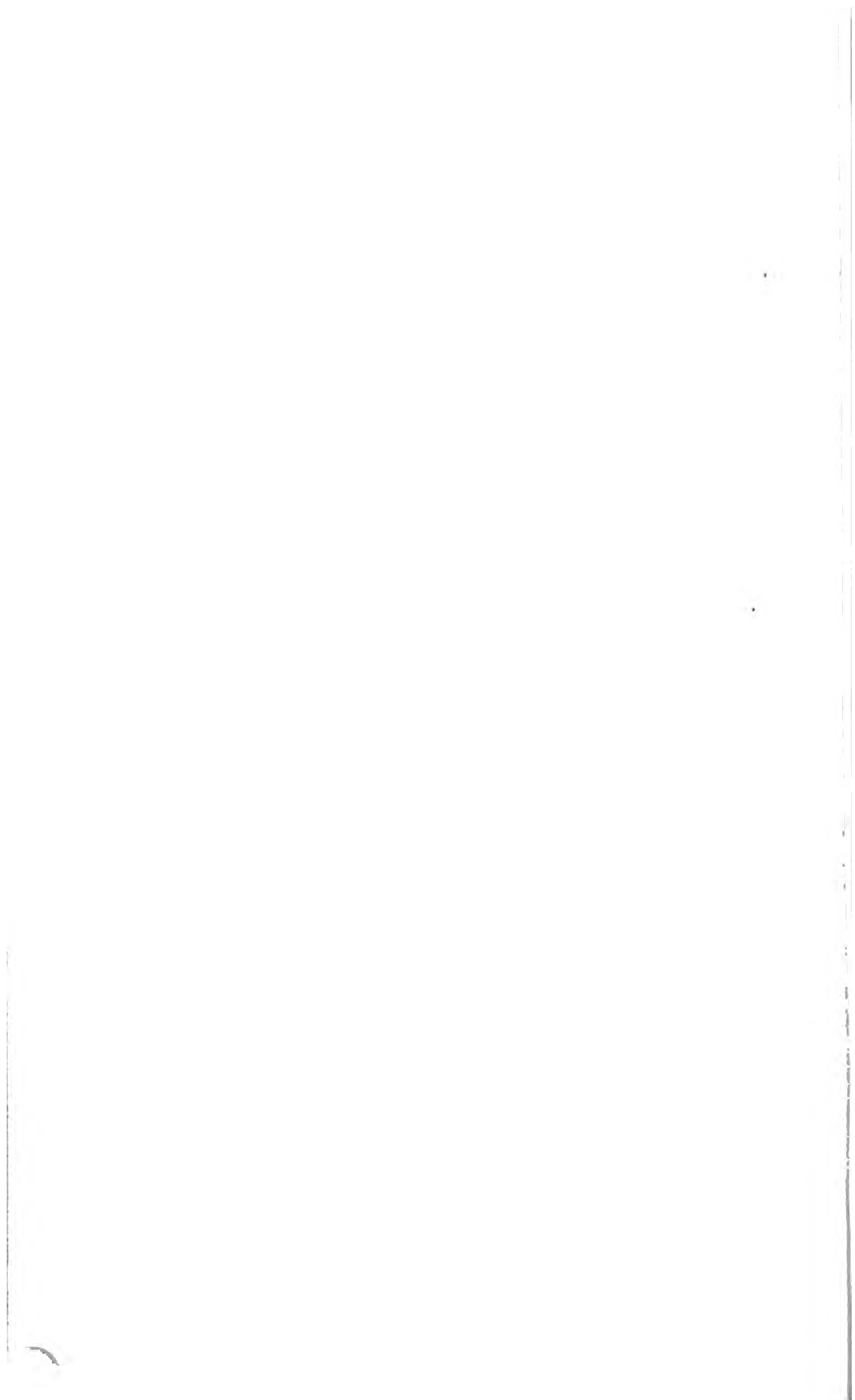




W. W. S. del. Fitch. lith.

*Yucca ensifolia, Hort.*

J. N. Fitch. imp.



## TAB. 318.

Natural Order LILIACEÆ.

Tribe YUCCOIDEÆ.

Genus YUCCA, *Linn.*

*Y. ENSIFOLIA* (*Hort.*) Breviter caulescens, foliis 35—40 densis anguste lanceolatis 2—2½ pedes longis medio 15—18 lin. latis glauco-viridibus facie prorsus concavis apice pungentibus nullis recurvatis marginibus integris brunneo-lineatis, perianthii globoso-campanulati 18—21 lin. longi segmentis oblongis dorso purpureo tinctis duplo longioribus quam latis, filamentis puberulis apice incrassatis uncinatis ovario ampullæformi æquilongis, stigmatibus ligulatis apice emarginatis ovario triplo brevioribus.

Probably a native of Mexico.

Not hardy in the South of England. *Stem* a foot below the leaves in the specimen drawn, much swollen at the base. *Leaves* thirty-five to forty, spread over about a foot of the stem, narrow-lanceolate, reaching two to two and a half feet long, fifteen to eighteen lines broad at the middle, narrowed gradually upwards to a brown pungent point, and downwards to half an inch above the dilated base, pale glaucous-green, similar to those of *gloriosa* in texture, the face more or less concave throughout, not at all plicate, the edge entire, marked with a distinct brown line. *Scape* rather shorter than the leaves. *Panicle* oblong-lanceolate, two feet long, the lower *pedicels* fifteen to eighteen lines long. *Perianth* globoso-campanulate, cream-white, faintly tinged on the outside with red, eighteen to twenty-one lines long; both the inner and outer *divisions* oblong, about half as broad as long. *Filaments* ten to eleven lines long, puberulent, hooked and thickened at the apex, equalling the flask-shaped *ovary*. *Stigmas* ligulate, emarginate at the apex, one-third as long as the ovary.

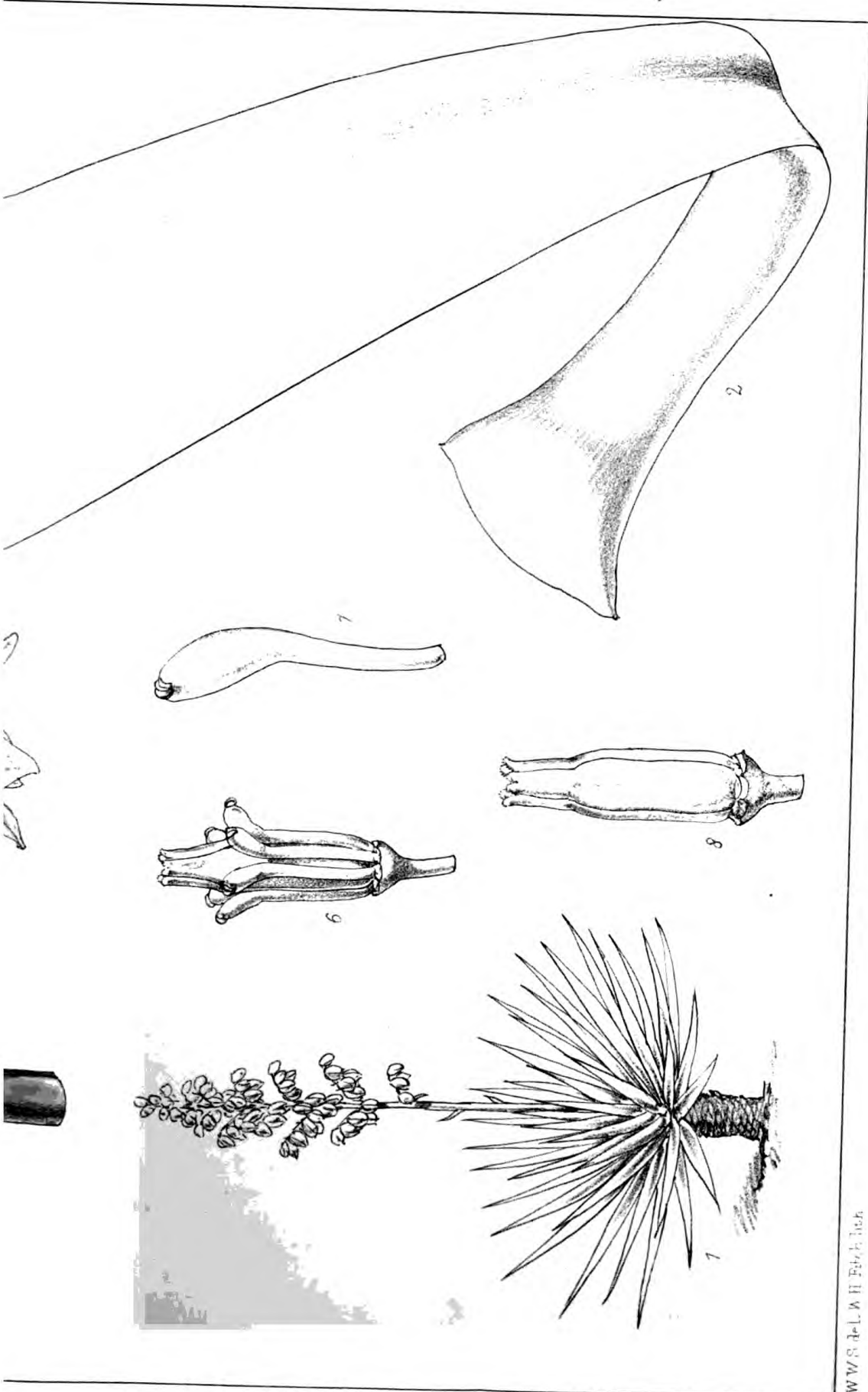
TAB. 318.—1, whole plant, reduced. 2, leaf; 3, branch with flowers; 4, ovary and stamens: all natural size. 5, stamen; 6, pistil: both magnified.—*J. G. B.*



This fine species flowered with me finely last autumn. I received it a few years since from Mr. De Smet, of Ghent, who has provided me with many interesting plants among the *Yuccas* and *Agaves*. When in full flower the plant had a very fine effect, the branched spike of flowers being well thrown up among the leaves. For treatment see observations on culture, &c., Tab. 313.  
— *W. W. S.*







J N Fitch imp

V. - 17

WWS del L H Fitch lith



## TAB. 319.

## Natural Order LILIACEÆ.

## Tribe YUCCOIDEÆ.

## Genus YUCCA, Linn.

**Y. GLORIOSA** var. **MINOR** (*Carriere, Rev. Hort.* ix. 361). Breviter caulescens, foliis 35—40 densis anguste lanceolatis rigide coriaceis rectis 15—18 poll. longis medio 15—18 lin. latis glaucoviridibus facie prorsus concavis apice brunneo-pungentibus marginibus integris brunneo-lineatis, perianthii globoso-campulati 18—21 lin longi segmentis oblongis, filamentis ovario æquilongis, stigmatibus ovario triplo brevioribus.—*Y. rubra et superba, Hort.*

A native of the Southern United States.

*Stem* about a foot long below the tuft of leaves when developed. *Leaves* thirty-five to forty in a close rosette, narrow-lanceolate, fifteen to eighteen inches long, fifteen to eighteen lines broad at the middle, a bright rather glaucous green, a little thinner in texture than in typical *gloriosa*, narrowed upwards to a brown pungent point and downwards to half an inch broad above the base, the face more or less concave throughout, the entire edge marked by a distinct brown line. *Scape* slightly exceeding the leaves, the oblong-lanceolate moderately close *panicle* about two feet deep. *Perianth* eighteen to twenty-one lines long, rather longer than broad when expanded, tinged with red on the outside; both rows of *segments* oblong, the inner ones an inch broad. *Filaments* nine to ten lines long, equalling the flask-shaped *ovary*. *Stigmas* ligulate, one-third as long as the ovary.

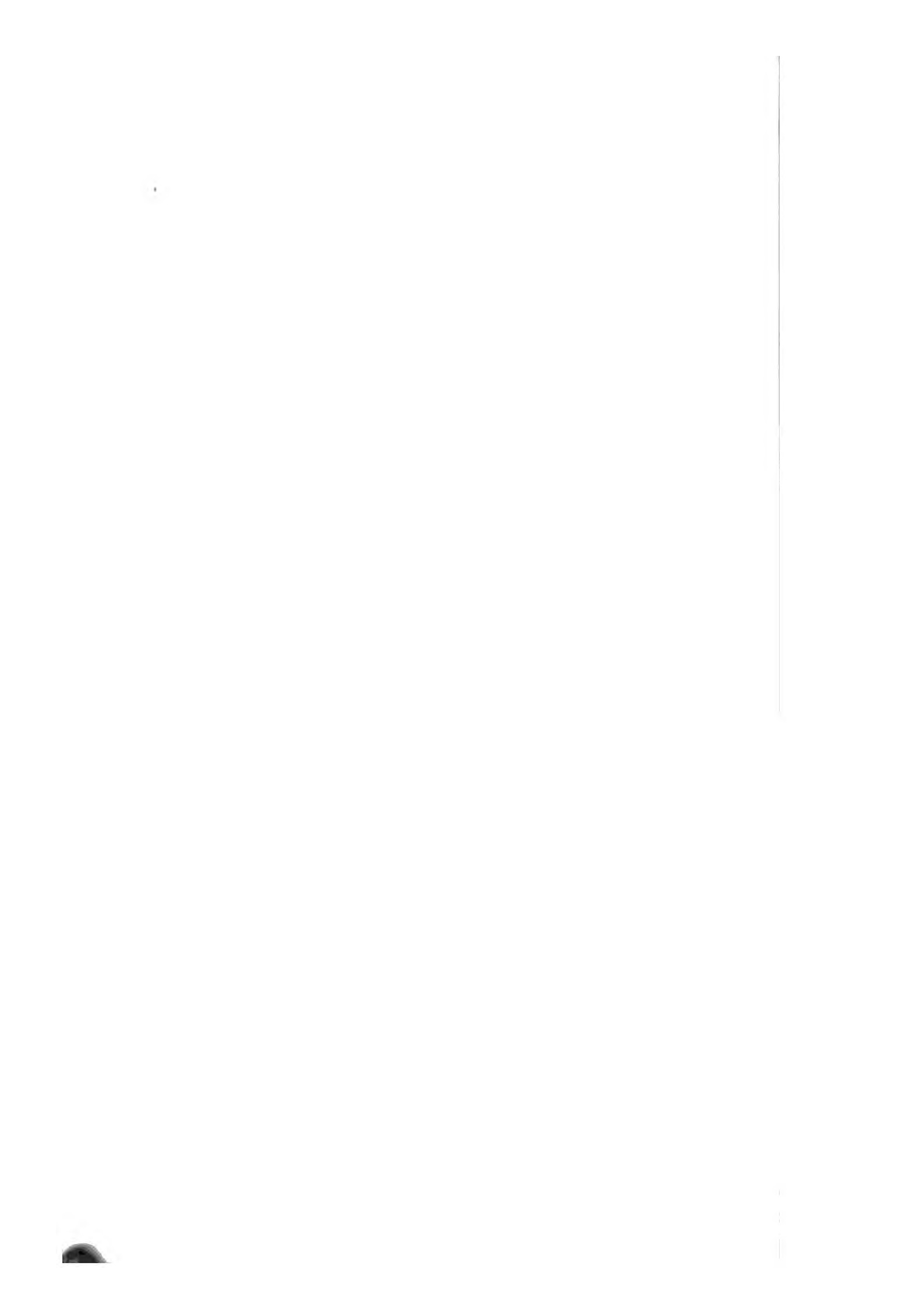
TAB. 319. — 1, whole plant, reduced. 2, leaf; 3, branch with flowers; 4 and 5, segments of perianth; 6, stamens and pistil: all natural size. 7, stamen; 8, pistil: both magnified.—*J. G. B.*

This dwarf variety of *Yucca gloriosa* I found growing and flowering beautifully, in the open border, in the garden of Sir Benjamin Brodie, Bart., at Brockham Warren, Surrey, who kindly allowed me to make the figure now given. For treatment see observations on culture, &c., Tab. 313.—*W. W. S.*





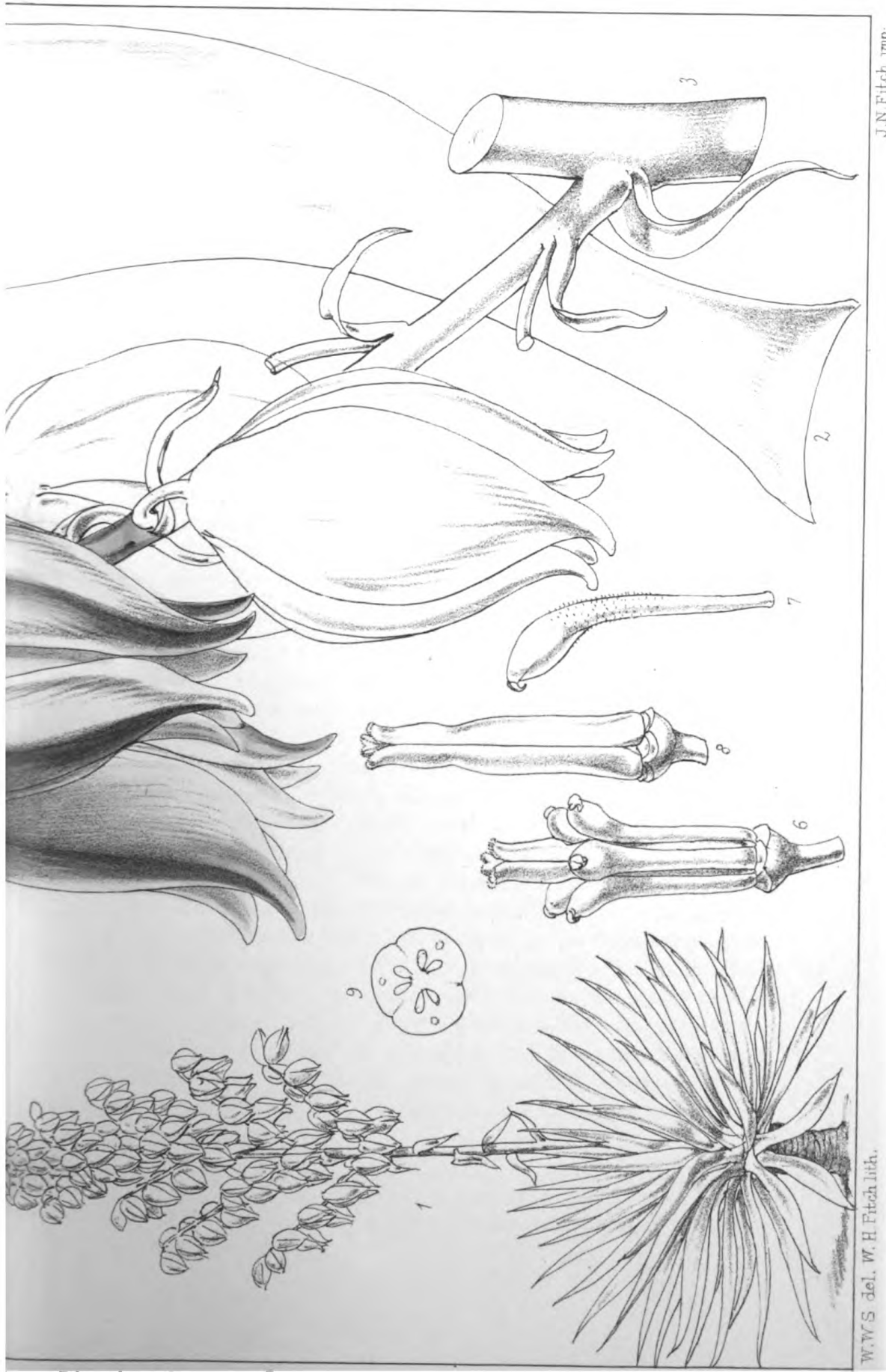






Pl 320





J.N.Fitch imp.

*Yucca alopecuroides* Linn.

W.H.Fitch lith.



## TAB. 320.

## Natural Order LILIACEÆ.

## Tribe YUCCOIDEÆ.

Genus YUCCA, *Linn.*

*Y. GLORIOSA* (*Linn. Sp. Plant.* p. 456). Longe caulescens caule sæpe ramoso, foliis 100 vel ultra dense rosulatis lanceolatis rigide coriaceis rectis facie prorsus concavis superne plicatis viridibus junioribus glauco tinctis 2—2½ pedes longis medio 2½—3 poll. latis apice brunneo-pungentibus marginibus integris brunneo-lineatis, perianthii subgloboso-campanulati extorsum rubro tincti 2½—3 pollicaris segmentis oblongis cuspidatis, filamentis puberulis apice incrassatis uncinatis ovario ampullæformi superantibus, stigmatibus ligulatis apice emarginatis ovario triplo brevioribus.—*Redouté, Lil. t.* 326—7; *Bot. Mag. t.* 1260; *Kunth, Enum.* iv. 273.

A native of the Southern United States.

*Stem* reaching many feet in height below the leaves, often branched. *Leaves* a hundred or more in a close tuft, lanceolate-lorate, two to two and a quarter feet long, two and a half to three inches broad at the middle, narrowed gradually upwards to a brown pungent point, and downwards to fifteen to eighteen lines above the base, vertically plicate in the upper part, rigidly coriaceous, all straight, the face more or less concave throughout, the entire edge marked by a distinct brown line. *Scape* much longer than the leaves. *Panicle* subdeltoid, four to five feet deep, the *branches* not downy, the lower *pedicels* twelve to fifteen lines long. *Perianth* two and a half to three inches deep, longer than broad when expanded; both sets of *segments* oblong-cuspidate, the inner fourteen to sixteen lines broad, the outer rather narrower, tinged with red down the back. *Filaments* puberulent, curved and thickened at the apex, ten to twelve lines long, exceeding the flask-shaped *ovary*, sometimes overtopping the *stigmas*, which are ligulate, three to four lines long, emarginate only at the apex.

TAB. 320. — 1, whole plant, reduced. 2, leaf; 3, branch with flowers; 4 and 5, segments of perianth; 6, pistil and stamens: all natural size. 7, stamen; 8, pistil; 9, horizontal section of ovary: all magnified.—*J. G. B.*

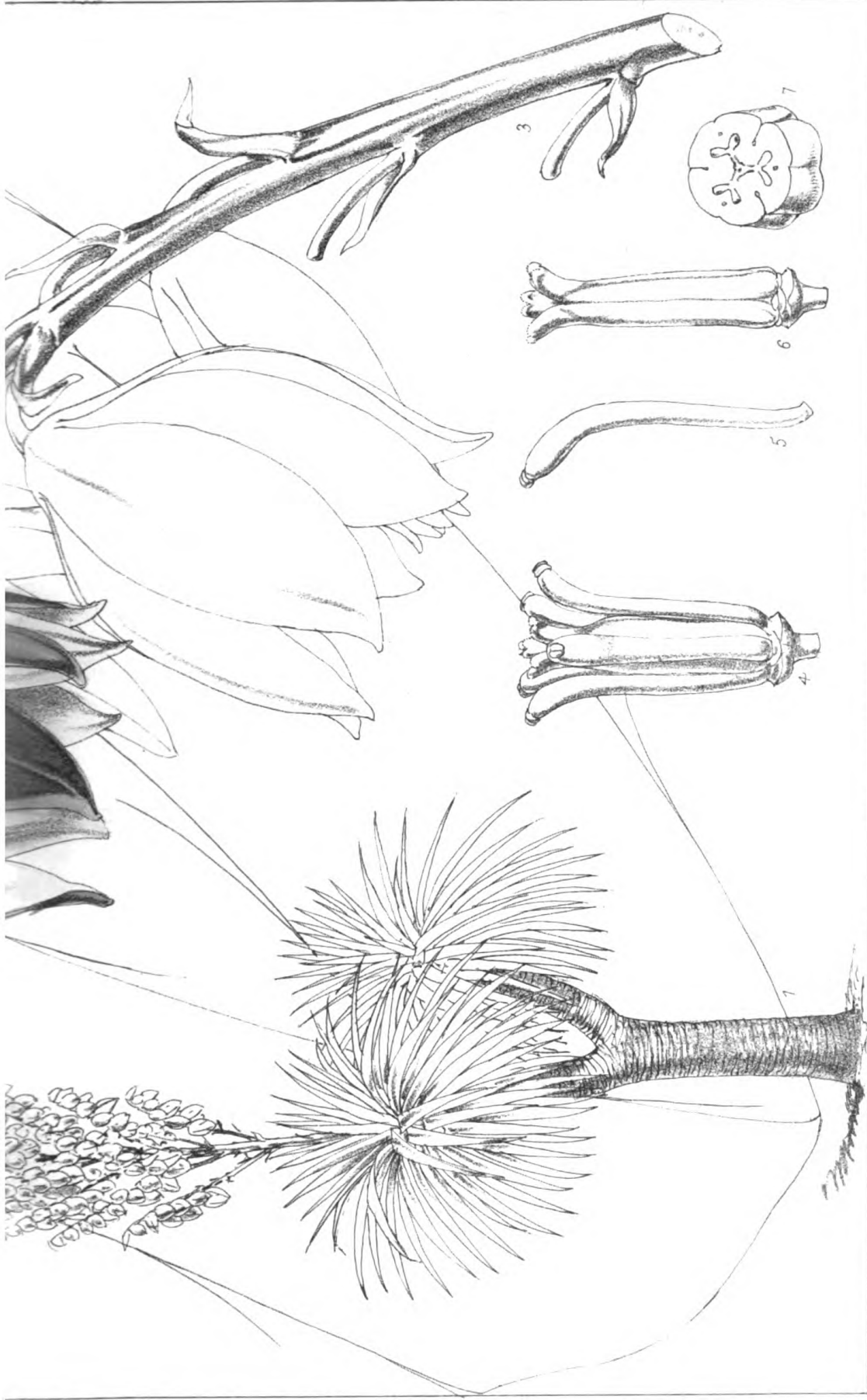
A very effective and well-known *Yucca*, long grown in our gardens, and in good situations rising to a height of eight feet or more. The stems have but little strength, and most of the large plants require some support to keep them from breaking under the effects of high winds or when heavily capped with snow. When the plant attains a certain age, and is in a good sunny situation, it is free to flower. With me, on two large plants I get flower-spikes every season. My figure is from a large plant in the Hillfield garden. For treatment see observations on culture, &c., Tab. 313.—*W. W. S.*







2



W.W.S. del. W.H. Fitch lith.

J.N. Fitch imp.

*Yucca recurvifolia*, Salsb.



## TAB. 321.

Natural Order LILIACEÆ.

Tribe YUCCOIDEÆ.

Genus YUCCA, Linn.

Y. RECURVIFOLIA (*Salisb. Parad. Lond. t. 31*). Longe caulescens caule sæpe ramoso, foliis 100—150 dense rosulatis lanceolatis rigide coriaceis exterioribus reflexis faciei medio planis viridibus junioribus glauco tinctis  $2\frac{1}{2}$ —3 pedes longis medio 2— $2\frac{1}{2}$  poll. latis apice pungentibus marginibus subintegris brunneo-lineatis, perianthii subgloboso-campanulati extrorsum rubro tincti 2— $2\frac{1}{2}$  pollicaris segmentis oblongo-lanceolatis, filamentis puberulis apice incrassatis uncinatis ovario ampullæformi æquilongis, stigmatibus ligulatis apice emarginatis ovario triplo brevioribus.—*Kunth Enum. iv. 272*. *Y. recurva*, *Haworth Synops. 69*. *Y. pendula*, *Siebold, Carriere Revue Hort. viii. t. 104*. *Y. japonica*, *Hortorum*.

A native of the Southern United States.

*Stem* reaching several feet high below the leaves, often branched. *Leaves* a hundred to a hundred and fifty or more in a dense rosette, lanceolate, thinner and more flexible in texture than in *gloriosa*, two and a half to three feet long, two to two and a half inches broad at the middle, narrowed to an inch and a quarter to an inch and a half above the base, more or less glaucous when young, the middle half flat on the face, the point subpungent, the edge entire or nearly so, marked with a brown line. *Scape* about equalling the leaves. *Panicle* ovate-deltoid, three to four feet deep; the lower *branches* a foot or more long. *Perianth* two to two and a half inches deep, tinged with red on the outside; the *segments* oblong-lanceolate, the inner ten to twelve lines, the outer nine to ten lines, broad at the middle. *Filaments* puberulent, ten to twelve lines long, hooked and thickened at the point, equalling the flask-shaped *ovary*. *Stigmas* ligulate, three to four lines long, emarginate only at the apex.

In a broad sense not more than a variety of *gloriosa*, with which it is connected by intermediate stages.

TAB. 321.—1, whole plant, reduced. 2, leaf; 3, branch with flowers; 4, stamens and pistil: all natural size. 5, stamen, slightly magnified; 6, pistil, natural size; 7, horizontal section of ovary, magnified.—*J. G. B.*

This is another tall-growing *Yucca*, but with me it does not get to the height of *Yucca gloriosa*. The plant has, however, a more graceful habit, the very numerous long leaves gently curving downwards and hiding more of the bare stems. It is not a free-flowering species, but from its beautiful habit it is well worthy of cultivation. The figure is from a plant in my collection. For treatment see observations on culture, &c., Tab. 313.—*W. W. S.*







J. N. Fitch imp.

V. ... .. 17

W. W. S. del. Fitch lib.





## TAB. 322.

## Natural Order LILIACEÆ.

## Tribe YUCCOIDEÆ.

## Genus YUCCA, Linn.

**Y. PUBERULA** (*Haworth, Phil. Mag. March, 1828, p. 186*). Acaulis, foliis 30—40 dense rosulatis anguste lanceolatis arundinaceo-coriaceis diutine glauco-viridibus 12—15 poll. longis 12—15 lin. latis facie prorsus leviter concavis apice haud pungentibus omnibus rectis marginibus parce filiferis, perianthii lacteo-albidi late campanulati 18—21 lin. longi segmentis oblongis, filamentis puberulis apice uncinatis incrassatis ovario ampullæformi longioribus, stigmatibus ligulatis apice emarginatis ovario duplo brevioribus. — *Sweet, Brit. Flow. Gard. t. 251. Kunth, Enum. iv. 272.*

A native of the Southern United States.

Acaulescent, quite hardy in England. *Leaves* thirty to forty in a dense rosette, narrow-lanceolate, reaching twelve to fifteen inches long, twelve to fifteen lines broad above the middle, permanently glaucous-green, similar to those of *filamentosa* in texture, the face slightly concave throughout, all straight, the point not pungent, the edge slightly filiferous. *Scape* exceeding the leaves. *Panicle* oblong-lanceolate, two feet long, moderately close, with densely pubescent *rachis* and *branches*. *Perianth* eighteen to twenty-one lines deep, cream-coloured, tinged with green towards the base, broader than deep when expanded; both rows of *segments* oblong, the inner ones an inch broad. *Filaments* ten to twelve lines long, puberulent, thickened and curved at the apex, slightly exceeding the flask-shaped *ovary*. *Stigmas* ligulate, half as long as the ovary, emarginate at the apex.

TAB. 322. — 1, whole plant, reduced. 2, leaf; 3, branch with flowers; 4, stamens and pistil: all natural size. 5, stamen; 6, pistil: both magnified.—*J. G. B.*

One of the smaller stemless species of *Yucca*, long since introduced to this country, but not often met with. After flowering the plant seems much exhausted, and the portion which flowers dies, generally leaving side shoots, which require two or more years before they have strength to produce flower-spikes. The figure is from a fine plant grown in the Castle Garden, Reigate. For treatment see observations on culture, &c., Tab. 313.—*W. W. S.*





Pl 323

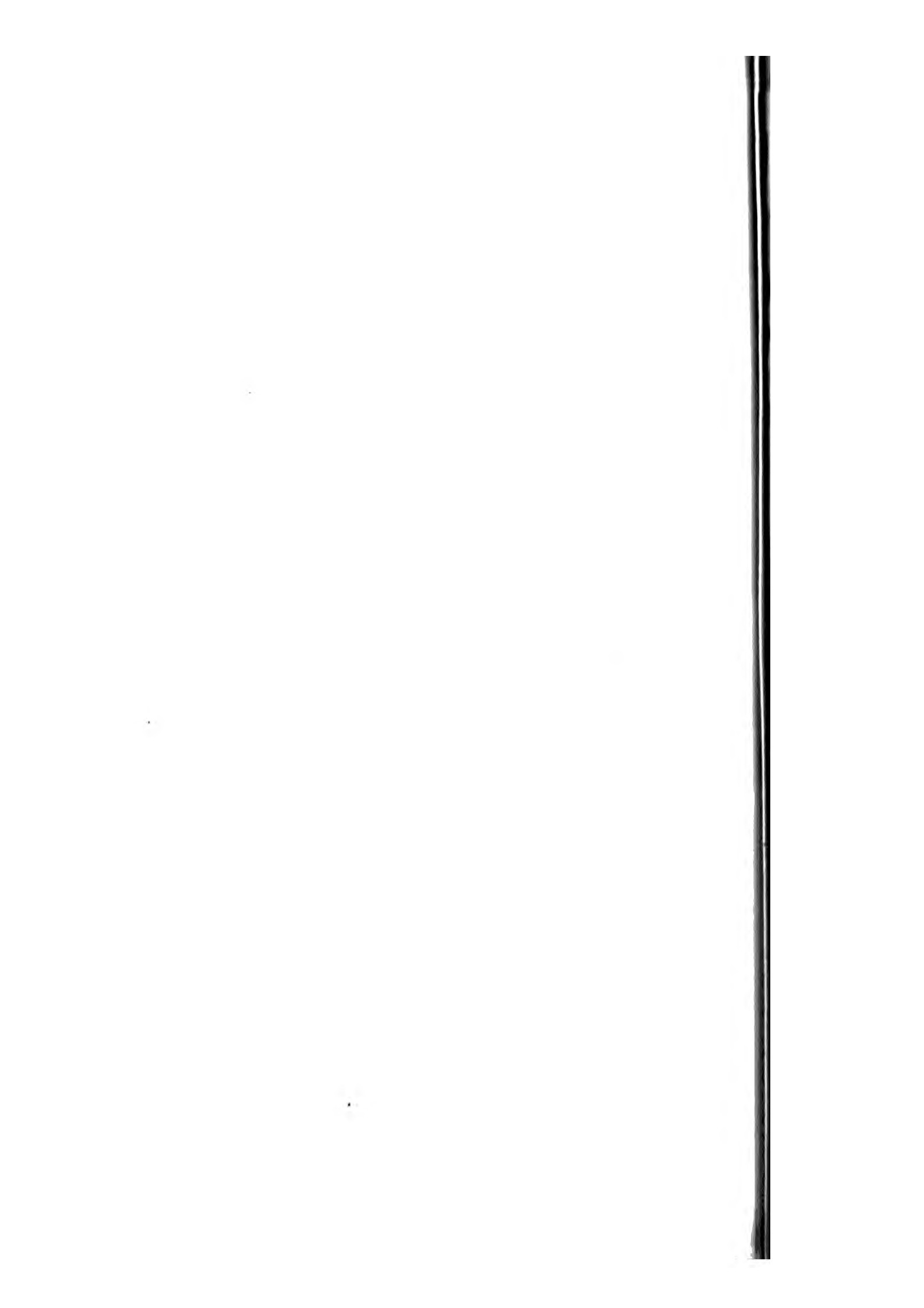




J.N.Fitch. imp

V P 1 17 17

W.H.Fitch. del. et. lith.



## TAB. 323.

Natural Order LILIACEÆ.

Tribe YUCCOIDEÆ.

Genus YUCCA, Linn.

Y. FLACCIDA (*Haworth, Pl. Suc. Suppl. p. 34*). Acaulis, foliis 20—30 dense rosulatis anguste lanceolatis arundinaceo-coriaceis viridibus junioribus glauco tinctis 18—21 poll, longis 15—18 lin. latis planiusculis apice haud pungentibus marginibus copiose filiferis exterioribus cite recurvatis, perianthii late campanulati 18—21 lin. longi segmentis oblongis, filamentis puberulis apice incrassatis uncinatis ovario ampullæformi æquilongis, stigmatibus ligulatis apice emarginatis ovario duplo brevioribus.—*Bot. Reg. t. 1895. Kunth, Enum. iv. 272.*

A native of the Southern United States.

Acaulescent, quite hardy in England. *Leaves* twenty to thirty in a dense rosette, lanceolate, eighteen to twenty-one inches long, fifteen to eighteen lines broad above the middle, narrowed gradually to half an inch broad above the base, thinner in texture than those of *filamentosa*, slightly glaucous when young, the face flattened except near the non-pungent point, the edge detaching copious gray threads, many of the outer ones becoming abruptly decurved, so that the rosette has an irregular untidy appearance. *Scape* many times exceeding the leaves. *Panicle* oblong-lanceolate, a yard long, not very close. *Perianth* eighteen to twenty-one lines long, cream-coloured, tinged with green towards the base, broader than deep when expanded; both sets of *segments* oblong, the inner ones nine to ten lines broad. *Filaments* nine to ten lines long, curved and thickened at the point, equalling the flask-shaped *ovary*. *Stigmas* ligulate, emarginate at the tip, half as long as the ovary.

In a broad sense both this and the preceding are evidently only varieties of *filamentosa*.

TAB. 323.—1, whole plant, reduced. 2, leaf; 3, branch with flower; 4, stamens and pistil: all natural size.—*J. G. B.*

This old inhabitant of our gardens is well known by cultivators of *Yuccas*, and, flowering freely, is commonly grown, although



the plant has very irregularly disposed leaves, bending in various directions from their want of rigidity, and looking very untidy. The figure is taken from a plant which flowered in the Royal collection at Kew. For treatment see observations on culture, &c., Tab. 313.—*W. W. S.*

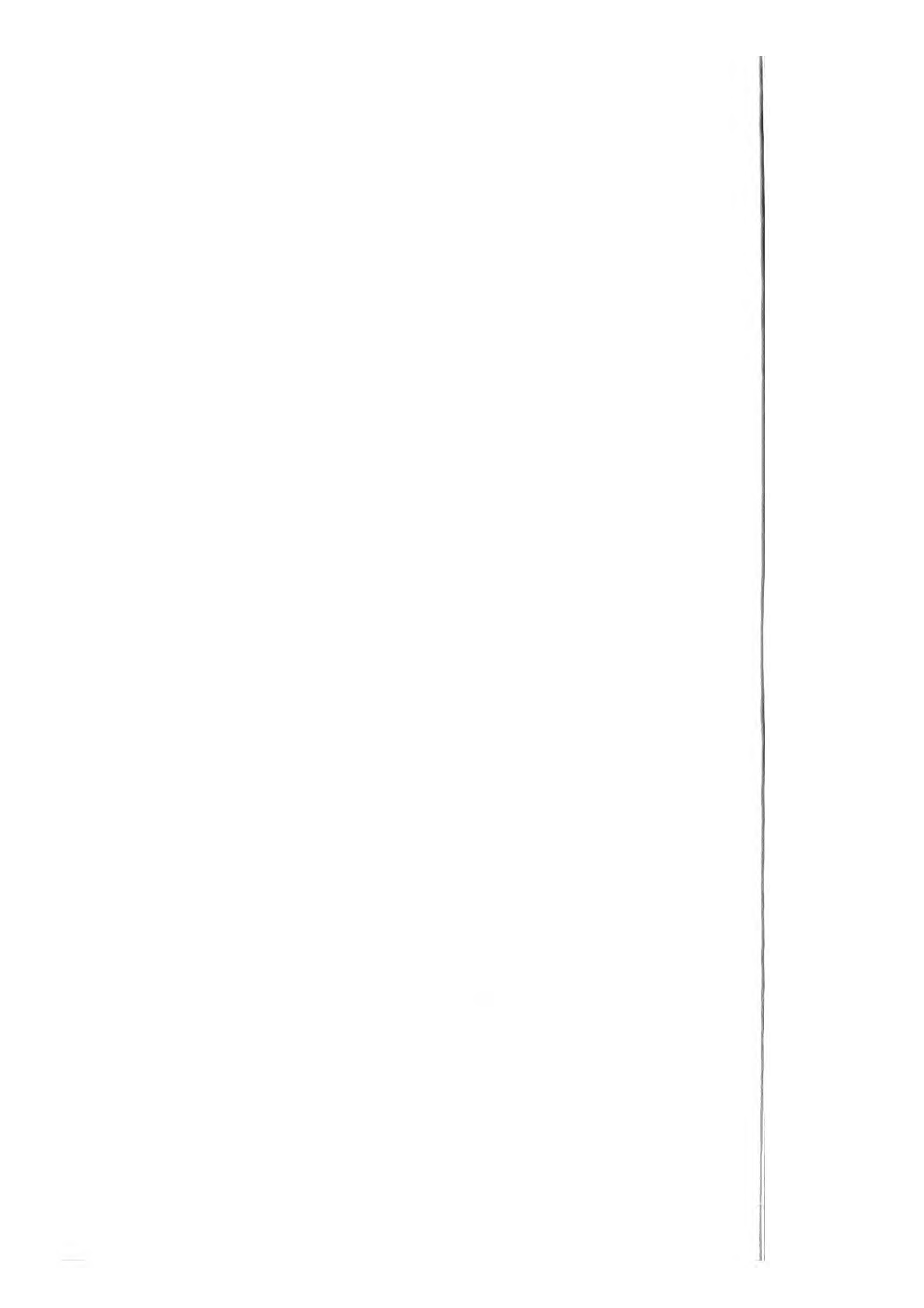






J.N. Fitch imp

W.H. Fitch del et hch.



## TAB. 324.

## Natural Order LILIACEÆ.

## Tribe YUCCOIDEÆ.

## Genus YUCCA, Linn.

Y. FILAMENTOSA (Linn. *Sp. Plant.* p. 457). Acaulis, foliis 30—50 dense rosulatis anguste lanceolatis  $1\frac{1}{2}$ —2 pedes longis 21—24 lin. latis arundinaceo-coriaceis glauco-viridibus facie planiusculis apice haud pungentibus marginibus copiose filiferis nullis recurvatis, perianthii albi globoso-campanulati 21—24 lin. longi segmentis interioribus oblongis exterioribus oblongo-lanceolatis, filamentis puberulis apice uncinatis incrassatis ovario ampullæformi æquilongis, stigmatibus ligulatis apice emarginatis ovario duplo brevioribus.—*Bot. Mag.* t. 900; *Redonté, Lil.* t. 277—8; *Kunth, Enum.* iv. 271.

A native of the Southern United States.

Acaulescent, quite hardy in England. *Leaves* thirty to fifty in a dense rosette, narrow-lanceolate, a foot and a half to two feet long, twenty-one to twenty-four lines broad above the middle, narrowed to half an inch above the base, reedy and pliable in texture, not recurved, the point not pungent, the face flattish in the middle half, the edge detaching copious gray threads three to four lines long. *Scape* purplish, much exceeding the leaves. *Panicle* three feet long, oblong-lanceolate, moderately dense. *Pedicels* cernuous, one-fourth to half an inch long. *Perianth* a purer white than in the two last, tinged with green towards the base, twenty-one to twenty-four lines long, about as broad as deep when expanded; the *inner segments* oblong, an inch broad, the *outer* oblong-lanceolate, nine to ten lines broad. *Filaments* nine to ten lines long, puberulent, thickened and curved at the tip, equalling in length the flask-shaped *ovary*. *Stigmas* ligulate, emarginate at the tip, half as long as the ovary.

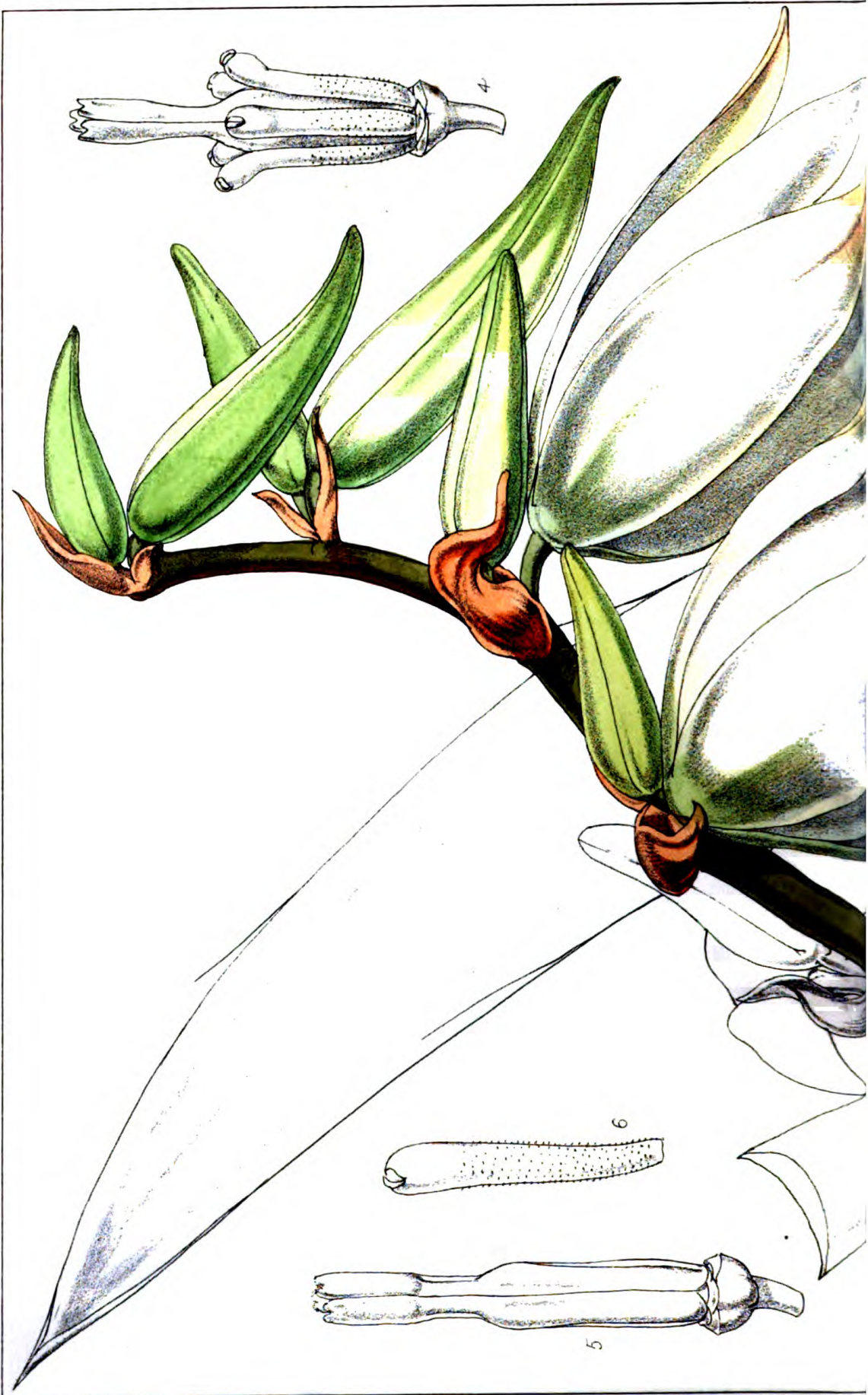
TAB. 324.—1, whole plant, reduced. 2, leaf; 3, branch with flowers: both natural size. 3, stamens and pistil, magnified.—*J. G. B.*

Another species of *Yucca* commonly cultivated, and long since introduced into our gardens. When in a good situation it flowers freely. The figure is from a specimen which flowered in the Royal collection at Kew. I have grown it for many years, and find it quite hardy. For treatment see observations on culture, &c., Tab. 313.—*W. W. S.*







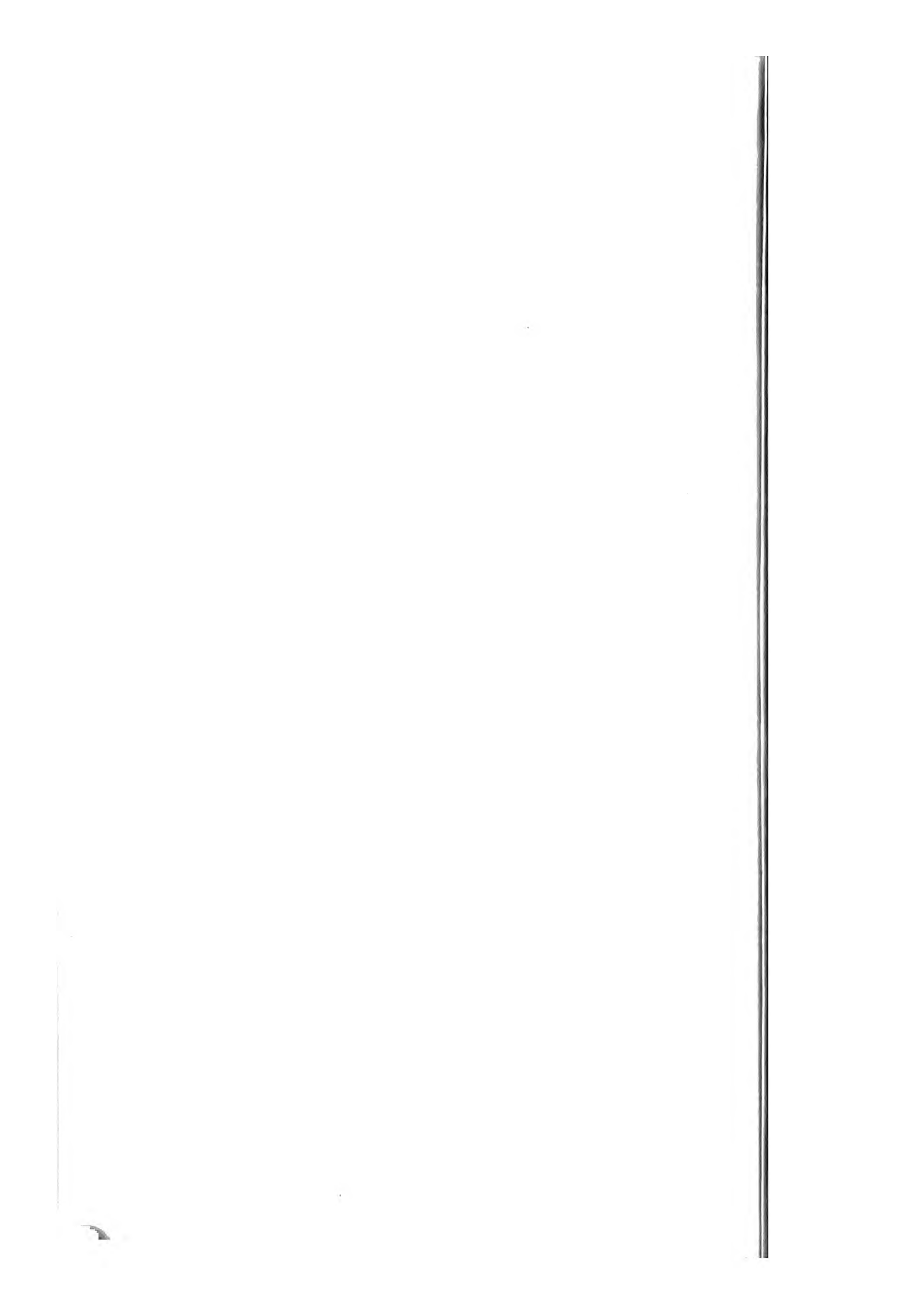




J. H. Fitch. imp.

*Yucca filamentosa* var. *grandiflora*. *Baker.*

W. S. del. W. H. Fitch. lith.



## TAB. 325.

## Natural Order LILIACEÆ.

## Tribe YUCCOIDEÆ.

Genus YUCCA, *Linn.*

- Y. FILAMENTOSA *var.* GRANDIFLORA (*Baker*). Acaulis foliis 30—40 dense rosulatis anguste lanceolatis 18—21 poll. longis 18—21 lin. latis arundinaceo-coriaceis glauco-viridibus apice haud pungentibus nullis recurvatis marginibus copiose filiferis, perianthii albi oblongo-campanulati 2½—3 poll. longi segmentis omnibus oblongo-lanceolatis, filamentis puberulis apice incrassatis uncinatis ovario ampullæformi æquilongis, stigmatibus ligulatis apice emarginatis ovario sesqui brevioribus.

A native of the Southern United States.

Acaulescent, quite hardy in England. *Leaves* narrow-lanceolate, thirty to forty in a dense rosette, eighteen to twenty-one inches long, eighteen to twenty-one lines broad above the middle, narrowed to half an inch above the base, similar in texture, point and edge, to those of the type, very glaucous when young. *Panicle* laxer than in the type, when well developed reaching four or five feet in length by a foot and a half in breadth. *Perianth* similar in colour to that of the type, two and a half to three inches deep; both rows of *segments* oblong-lanceolate, narrowed gradually from below the middle to an acute point, the outer ones ten to twelve lines broad. *Filaments* and *ovary* as in the type, but the *stigmas* considerably longer in proportion.

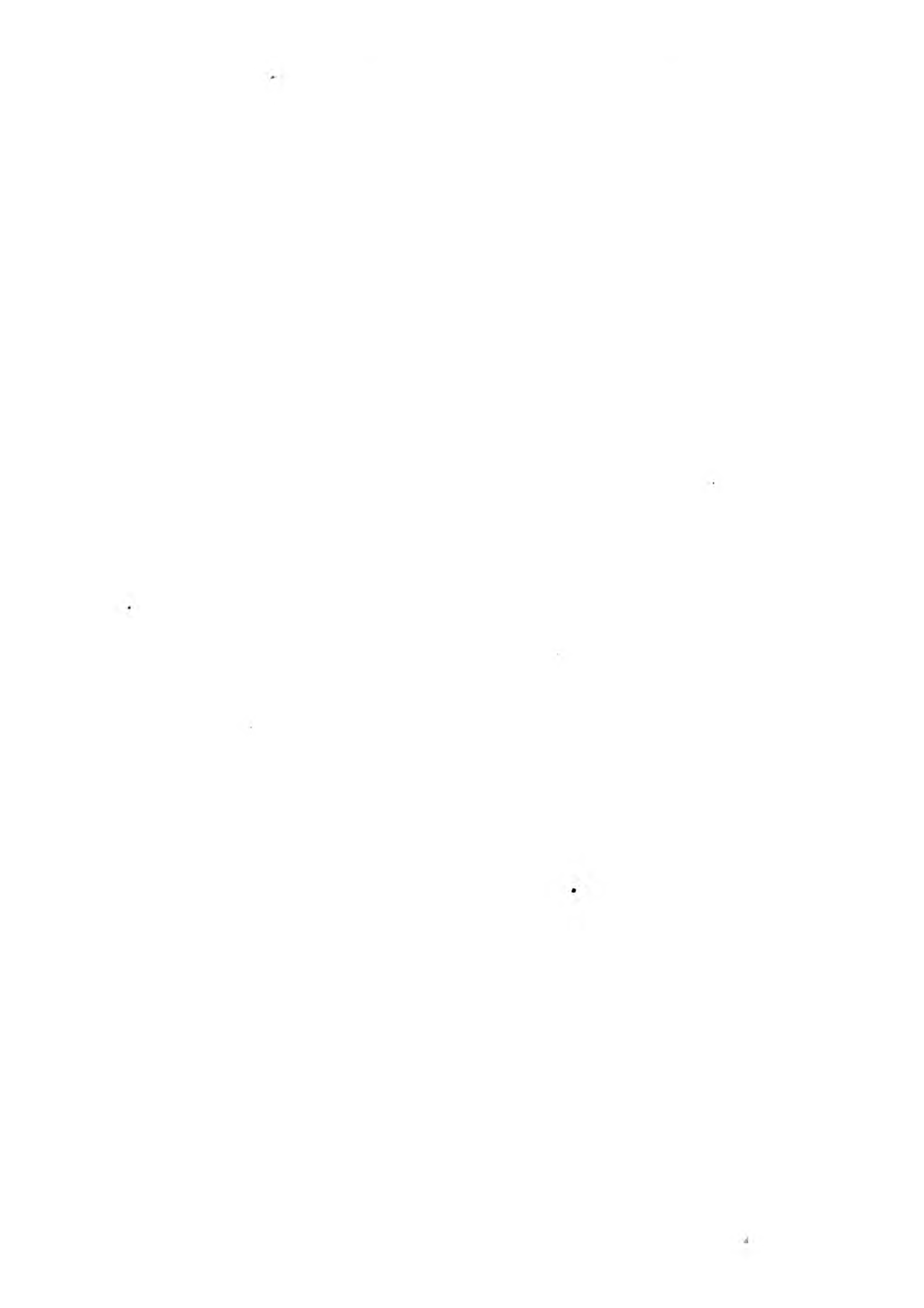
The handsomest form of the *filamentosa* group.

TAB. 325.—1, whole plant, reduced. 2, leaf; 3, branch with flowers; 4, stamens and pistil: all natural size. 5, pistil; 6, stamen; 8, horizontal section of ovary: all magnified.—*J. G. B.*

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This variety of *Yucca filamentosa* appears distinct from the usual form, being larger in all its parts, and producing a handsome effect. I have had it in cultivation for several years, and received it as *Yucca filamentosa*. Its history is unknown to me. For treatment see observations on culture, &c., Tab. 313.—*W. W. S.*







WWS del. W.H. Fitch lit.

J. N. Fitch imp.

*Agave variegata*, Jacobi.

## TAB. 326.

Natural Order AMARYLLIDACEÆ.

Genus AGAVE, Linn.

- A. VARIEGATA (*Jacobi, Hamb. Gartenzeit. xxi. 459*). Acaulis foliis 15—18 dense rosulatis carnosis lorato-lanceolatis medio pollicem latis viridibus leviter glauco tinctis maculis luridis adspersis ad apicem haud pungentem sensim attenuatis facie carinato-concavis dorsò convexis marginibus cartilagineis obscure crenulato-denticulatis exterioribus recurvatis, scapo bipedali, floribus 15—20 viridibus solitariis laxè spicatis, perianthio 14—15 lin. longo, ovario oblongo, tubo anguste infundibuliformi segmentis rubro-brunneis oblongo-lanceolatis flore expanso reflexis æquilongo, filamentis rubescentibus bipollicaribus.

Probably a native of Mexico.

Acaulescent. *Leaves* fifteen to eighteen in a dense rosette, lorate-lanceolate, fleshy, not coriaceous in texture, finally twelve to fifteen inches long, an inch broad at the middle, narrowed slightly to the base, and gradually upwards to a non-pungent point, a slightly glaucous-green, with numerous faint lurid blotches, the innermost erect, the rest recurved, the face concave, the back rounded, the horny edge obscurely denticulate. *Flower-stem* two feet long without the inflorescence, bearing more than a dozen bract-like leaves. *Flowers* about twenty, with a strong smell of honey, lax, quite sessile, solitary, with two to three minute membranous lanceolate *bracts* at the base. *Perianth* green on the outside, fourteen to fifteen lines long; the *ovary, tube* and *segments* all about equal in length, the ovary oblong, the tube narrowly funnel-shaped, the segments oblong-lanceolate, reddish brown on the inside, reflexed when the flower is fully expanded. *Filaments* two inches long, reddish brown, at first ascending, finally drooping. *Anthers* linear-oblong, three-eighths of an inch long.

TAB. 326.—1, whole plant, reduced. 2, leaf; 3, raceme: both natural size.—*J. G. B.*

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This small, soft-leaved, interesting *Agave* I obtained from Mons. L. de Smet, of Ghent, under the name of *maculata*. It requires the protection of a warm greenhouse, and should not be



too much exposed to the sun, as its leaves are apt to turn brown when so treated. It grows freely when potted in an equal mixture of sandy loam and peat. The pots should be well drained.—*W. W. S.*





*Agave micracantha*, Salm-dyck.

## TAB. 327.

Natural Order AMARYLLIDACEÆ.

Genus AGAVE, *Linn.*

- A. MICRACANTHA (*Salmdyck, Bonpl. vii. p. 93*). Brevis caulescens foliis 20—30 modice crassis coriaceo-carnosis 15—18 poll. longis supra medium 3—4 poll. latis viridibus leviter glauco tinctis spina semiunciali terminatis facie planiusculis dorso convexis dentibus parvis confertis corneis rubro-brunneis deltoideis ascendentibus marginatis, exterioribus leviter recurvatis, scapo tripedali, spica 3—4-pedali, floribus geminatis confertis, perianthio extrorsum viridi 18—20 lin. longo, ovario oblongo, tubo anguste infundibuliformi segmentis flavidis oblongo-deltoides flore expanso reflexis æquilongo, filamentis bipollicaribus rubescentibus, antheris magnis linearibus.

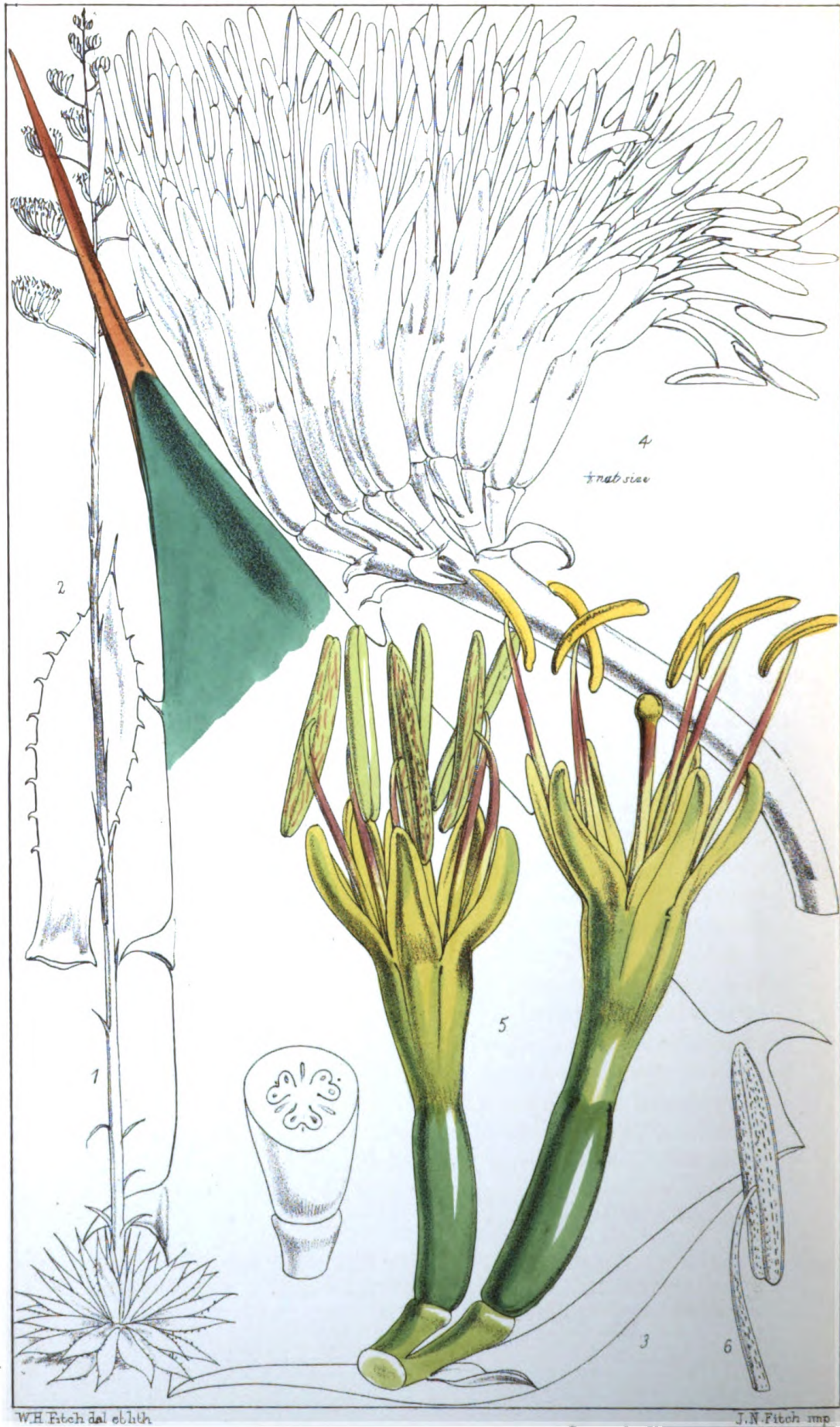
A native of Mexico.

Shortly caulescent. *Leaves* twenty to thirty in a dense rosette, lanceolate, fifteen to eighteen inches long, three to four inches broad above the middle, narrowed gradually to a brown pungent spine half an inch long, and downwards to an inch and a half to two inches above the base, about two lines thick in the middle, the colour a slightly glaucous-green, the face flattish in the middle, the back convex, the outer ones slightly recurved, the edge margined with copious close reddish-brown horny deltoid ascending *teeth* not more than half a line deep. *Scape* twice as long as the leaves. *Inflorescence* dense, subspicate, the *spike* three to four feet deep by seven to eight inches broad when fully expanded. *Flowers* in subsessile pairs, subtended by purplish membranous *bracts* with a long cusp. *Perianth* eighteen to twenty lines long, green, passing upwards into greenish yellow; *ovary* oblong, half an inch deep; *tube* narrowly funnel-shaped, as long as the ovary; *segments* half an inch long, oblong-deltoid, recurved when fully expanded. *Filaments* two inches long, inserted low down in the tube; *anthers* linear, eight to nine lines long. *Style* three inches long.

TAB. 327. — 1, whole plant; 2, leaf: both much reduced. 3, apex of leaf; 4, two pairs of flowers: both natural size.—*J. G. B.*

One of my plants of *Agave micracantha* has flowered three times within the last few years, dividing itself into several heads after flowering in the way *A. densiflora* is accustomed to do. It is a free-growing species when potted in good sandy-turfy loam, with plenty of pot-room when young. The plants should be allowed a free supply of water during the season of growth, and the pots they grow in should be carefully drained. The temperature of a cool airy greenhouse suits them well. I have grown this *Agave* for many years. I think I originally obtained it from Belgium.—  
W. W. S.





*Agave Scolymus*, Karw.

## TAB. 328.

Natural Order AMARYLLIDACEÆ.

Genus AGAVE, Linn.

- A. SCOLYMUS (*Karwinski in Salmdyck Hort.* 1834, p. 307). Acaulis, foliis circiter 30 dense rosulatis crassissimis rectis glaucoviridibus oblongo-lanceolatis 18—21 poll. longis supra medium 4—4½ poll. latis spina valida brunnea canaliculata biunciali terminatis facie planis dorso convexis marginibus dentibus corneis validis uncinatis subdistantibus semipollicem longis armatis, scapo 12-pedali, floribus thyrsoido-paniculatis ad apicem ramorum fasciculatis geminatis breviter pedicellatis, perianthio triunciali viridi-flavido, ovario oblongo-clavato, segmentis oblongo-lanceolatis tubo infundibuliformi æquilongis, filamentis leviter exsertis, antheris magnis linearibus.—*Kunth, Enum.* iv. 824.

A native of Mexico.

Acaulescent. *Leaves* about thirty, densely rosulate, oblong-lanceolate, reaching eighteen to twenty-one inches long, four to four and a half inches broad above the middle, terminated by a channelled hard brown *spine* two inches long, a pale permanently glaucous-green, half an inch thick in the middle, an inch and a half to two inches at the base, the face flat, the back convex, the edge margined by strong hard pungent hooked subdistant *spines* three-eighths to half an inch long. *Scape* twelve feet high in the specimen drawn, exclusive of the inflorescence, two and a half to three inches thick at the base. *Panicle* four feet long by half as broad, regularly thyrsoid; the *branches* with only dense bundles of short-stalked geminate *flowers* clustered at the apex. *Perianth* three inches long, green, passing upwards into yellow; *ovary* green, oblong-cylindrical, fourteen to fifteen lines long; *segments* oblong-lanceolate, equalling the funnel-shaped *tube*. *Filaments* three-fourths of an inch longer than the segments; *anthers* linear, an inch long. *Style* falling a little short of the filaments.

TAB. 328. — 1, whole plant; 2, leaf: both much reduced. 3, apex of leaf, natural size. 4, cluster of flowers, reduced. 5, pair of flowers; 6, stamen: both natural size.—*J. G. B.*



This *Agave* was some years in my collection before it flowered. I know nothing positive of its history, but I believe I am indebted to the Royal collection at Kew for the plant I possessed. When in flower it had a fine imposing effect. The plant soon withered and died after flowering, producing no suckers and not perfecting seeds. It was treated in the same way as recommended for *A. micracantha*, Tab. 327.—*W. W. S.*





W.H. Fitch del. et lith.

J.N. Fitch imp.

*Nerine pulchella* Herb. var. *angustifolia*, Baker.

## TAB. 329.

Natural Order AMARYLLIDACEÆ.

Tribe AMARYLLEÆ.

Genus NERINE, *Herbert*.

N. PULCHELLA (*Herbert, App. 19*), var. ANGUSTIFOLIA (*Baker*). Bulbo ovoideo, foliis 3—4 glauco-viridibus carnosio-herbaceis anguste ligulatis pedibus 3—4 lin. latis, scapo  $1\frac{1}{2}$ —2-pedali, spathæ valvis 2 magnis lanceolatis multis filiformibus, umbellis 10—12-floris, pedicellis  $1\frac{1}{2}$ —2-uncialibus, perianthii segmentis uncialibus æqualibus oblanceolatis 2— $2\frac{1}{2}$  lin. latis leviter undulato-crispatis, genitalibus perianthio brevioribus.

A native of Cape Colony, gathered by Mr. Cooper.

*Bulb* ovoid, two inches thick. *Leaves* three to four, cotemporary with the flowers, glaucous-green, narrow-ligulate, reaching a foot long, three to four lines broad, fleshy in texture, with immersed veins. *Scape* a foot and a half to two feet high, firm, erect, terete. *Spathe* with two opposite coloured membranous lanceolate reflexed valves an inch long, and, inside these, many which are small and thread-like. *Ovary* green, globose, deeply trisulcate. *Limb of the perianth* an inch long, rose-pink; the segments equal, oblanceolate, slightly crisped, two to two and a half lines broad two-thirds of the way up, rotato-reflexed when expanded. *Genitalia* a little shorter than the segments; the style and filaments close in the lower, reflexed and divergent in the upper half.

This form has exactly the flowers of *Herbert's Nerine pulchella*, as figured Bot. Mag. t. 2407, but approaches the better-known *N. undulata* (Bot. Mag. t. 369) by its narrower leaves.

TAB. 329. — 1, ovary, with style, stigma and base of filaments; 2, horizontal section of ovary: both magnified.—*J. G. B.*

An interesting species of *Nerine*, which I owe to the exertions of Mr. Thos. Cooper while my collector in South Africa. It requires the same treatment as other species of the genus, and, when well taken care of, flowers freely.—*W. W. S.*





PL 330.





J.N.Pitch imp

F . C . 7 7

W.H.Fitch del et lith



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TAB. 330.

Natural Order AMARYLLIDACEÆ.

Tribe AMARYLLEÆ.

Genus BRUNSVIGIA, *Gawl.*

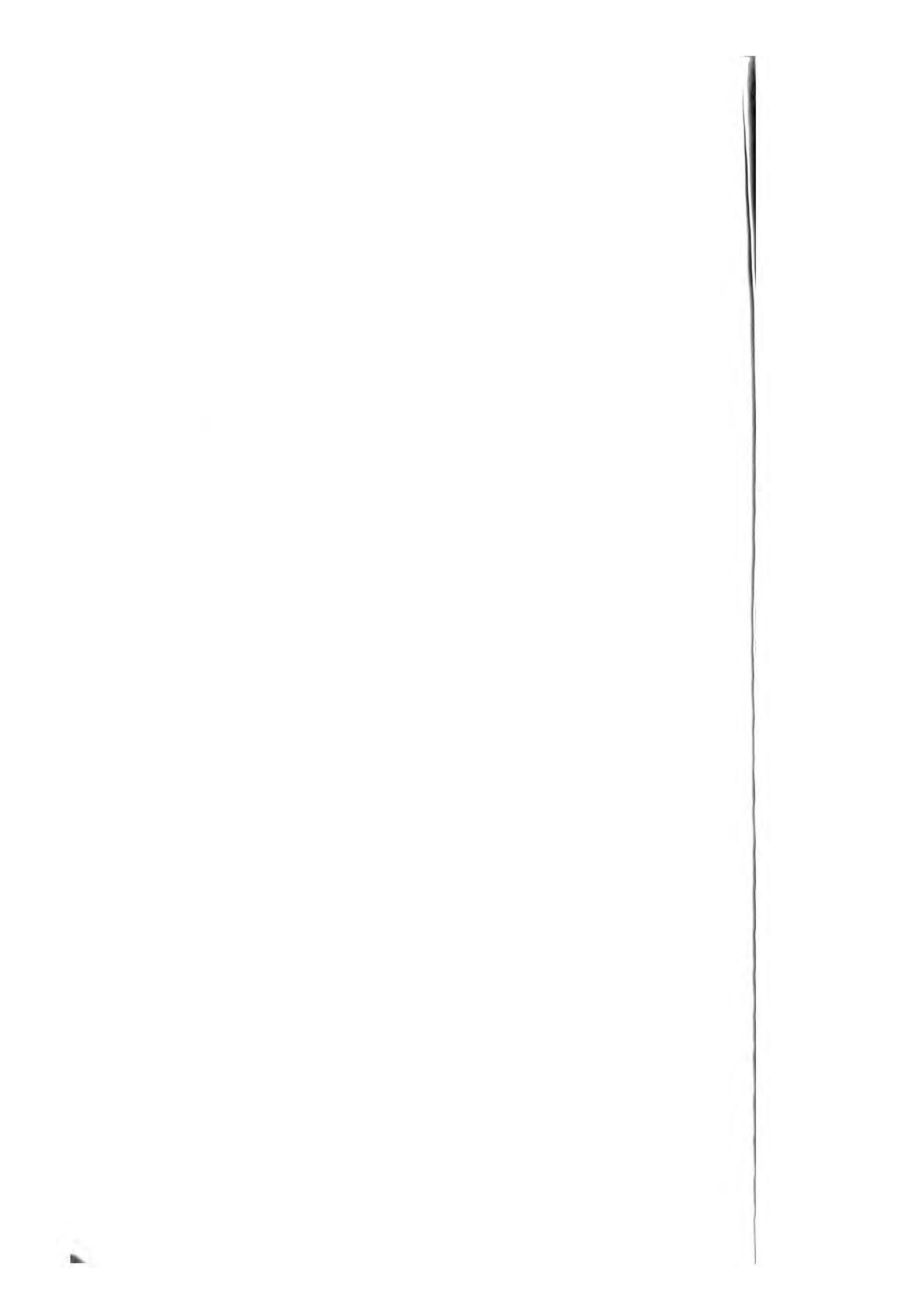
COOPERI (*Baker*). Bulbo ovoideo 3—4-poll. crasso, foliis 4—6 distichis patulis lingulatis obtusis carnosis 10—12 poll. longis 3½—4 poll. latis carnosis facie granulosis margine cartilagineis minute ciliatis, scapo valido sesquipedali, spathæ valvis 2 magnis ovato-lanceolatis et multis filiformibus, umbellis 12—16-floris, pedicellis validis sulcatis 3—4 poll. longis, ovario obovoideo profunde sulcato, limbi segmentis lanceolatis rubris imbricatis 3 poll. longis basi connatis, genitalibus inclusis.

A native of Cape Colony, gathered by Mr. Cooper.

*Bulb* ovoid, gray-tunicated, three to four inches thick. *Leaves* 6 to three on each side, spreading bifariously, almost horizontally, ligulate, obtuse, ten to twelve inches long, three and a half to four inches broad, granular on the face, thick and fleshy texture, with sixty to eighty fine immersed parallel veins, the edges subcartilaginous, minutely ciliated. *Scape* terete, more than half an inch thick at the base, a foot and a half high. *Spathe* with the two main outside opposite valves ovate-lanceolate, reflexed, an inch and a half to two inches long, and small filiform ones subtending the pedicels. *Umbels* twelve- to sixteen-flowered. *Pedicels* three to four inches long, stout, deeply sulcate. *Ovary* green, obovoid, deeply sulcate, five-eighths to three-fourths of an inch deep. *Limb* of the perianth three inches deep; the divisions lanceolate, imbricated in the lower half, one-half to five-eighths of an inch broad, reflexed towards the tip in the expanded flower. *Stamens* declinate, unequal, the longest, like the style, rather shorter than the flower. *Capsule* obovoid, deeply sulcate, acutely angled, eighteen to twenty-four lines deep.

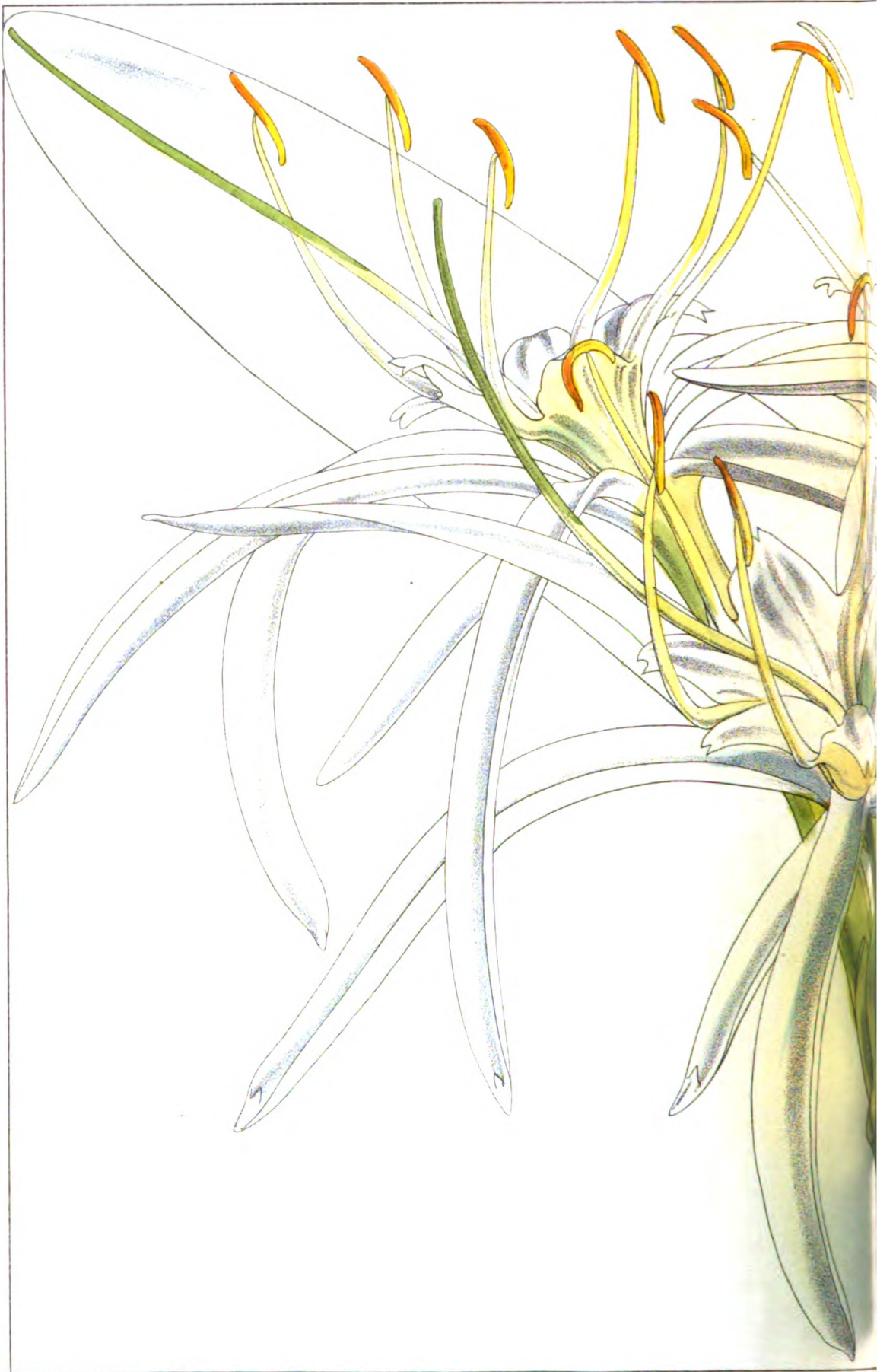
TAB. 330.—1, bulb with leaves; 2, bulb with base of scape; 3, pistil; 4, horizontal section of ovary; 5, capsule: all natural size.—*J. G. B.*

A remarkable and interesting species of *Brunsvigia*, sent to me from South Africa by Mr. Thos. Cooper. It is a shy-flowering bulb, but well worthy of cultivation. It thrives when grown in a warm airy greenhouse, with plenty of sunlight, during the growing season. It should be potted in sandy loam, and when at rest it should have but little water. This, like many other large South African bulbs, does not like to be frequently disturbed when once it has made a good healthy lot of roots.—*W. W. S.*





Pl. 331

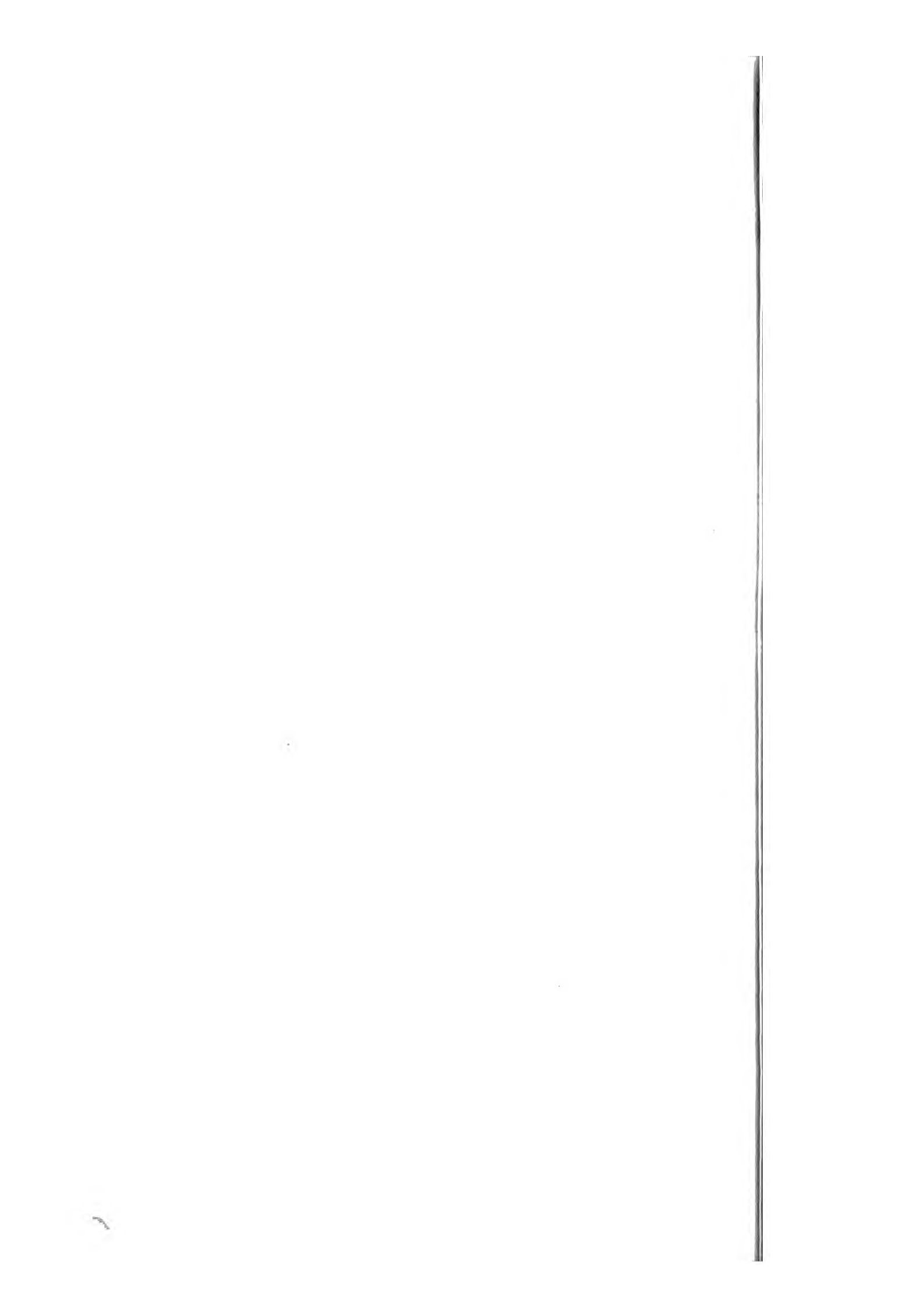




W.H. Rch. del. et lith.

J.N. Pritch imp

*Desmodium maculatum* D. L.



## TAB. 331.

Natural Order AMARYLLIDACEÆ.

Tribe PANCRATIÆ.

Genus PANCRATIUM, Linn.

Sub-genus HYMENOCALLIS, Salisb.

P. CRASSIFOLIUM (*Baker*). Foliis circiter 6 firmis crassis suberectis loratis viridibus 2 pedes vel ultra longis supra medium  $1\frac{1}{2}$ —2 poll. latis dimidio inferiori sensim attenuatis, scapo ancipito acute angulato, umbellis 4—5-floris, ovario sessili, tubo 3—4 poll. longo, limbi segmentis rotato-recurvatis ligulatis tubo æquilongis, coronâ infundibuliformi unciali, dentibus deltoideis emarginatis, filamentis coronâ  $1\frac{1}{2}$ —2-plo excedentibus, stylo segmentis æquilongo.—*Hymenocallis crassifolium*, *Herbert, Amary.* p. 215. *H. crassiflora*, *Kunth, Enum. v. 677.*

A native of Florida.

*Bulb* ovoid, three and a half to four inches thick, tunicated, with lax brownish coats. *Leaves* about six, stiffly suberect, lorate, two feet or more long, an inch and a half to two inches broad above the middle, narrowed gradually to a broad base, bluntish, as thick in texture as in any of the genus, with twenty-five to thirty fine immersed *veins*, bright green, not at all glaucous. *Scape* acutely two-edged, three-quarters of an inch thick one way, not more than half as much the other. *Valves* of the *spathe* oblong-lanceolate, erect, two to two and a half inches long. *Flowers* four to five in an umbel, fragrant, pure white; *ovary* sessile; *tube* three to four inches long; *segments* ligulate, rotato-recurved, three to four inches long, one-fourth to three-eighths of an inch broad. *Crown* funnel-shaped, an inch deep exclusive of the *teeth*, which are deltoid, produced between the base of the stamens, bifid at the apex. *Filaments* an inch and a half to two inches long; *anthers* linear. *Style* declinate, overtopping the stamens.

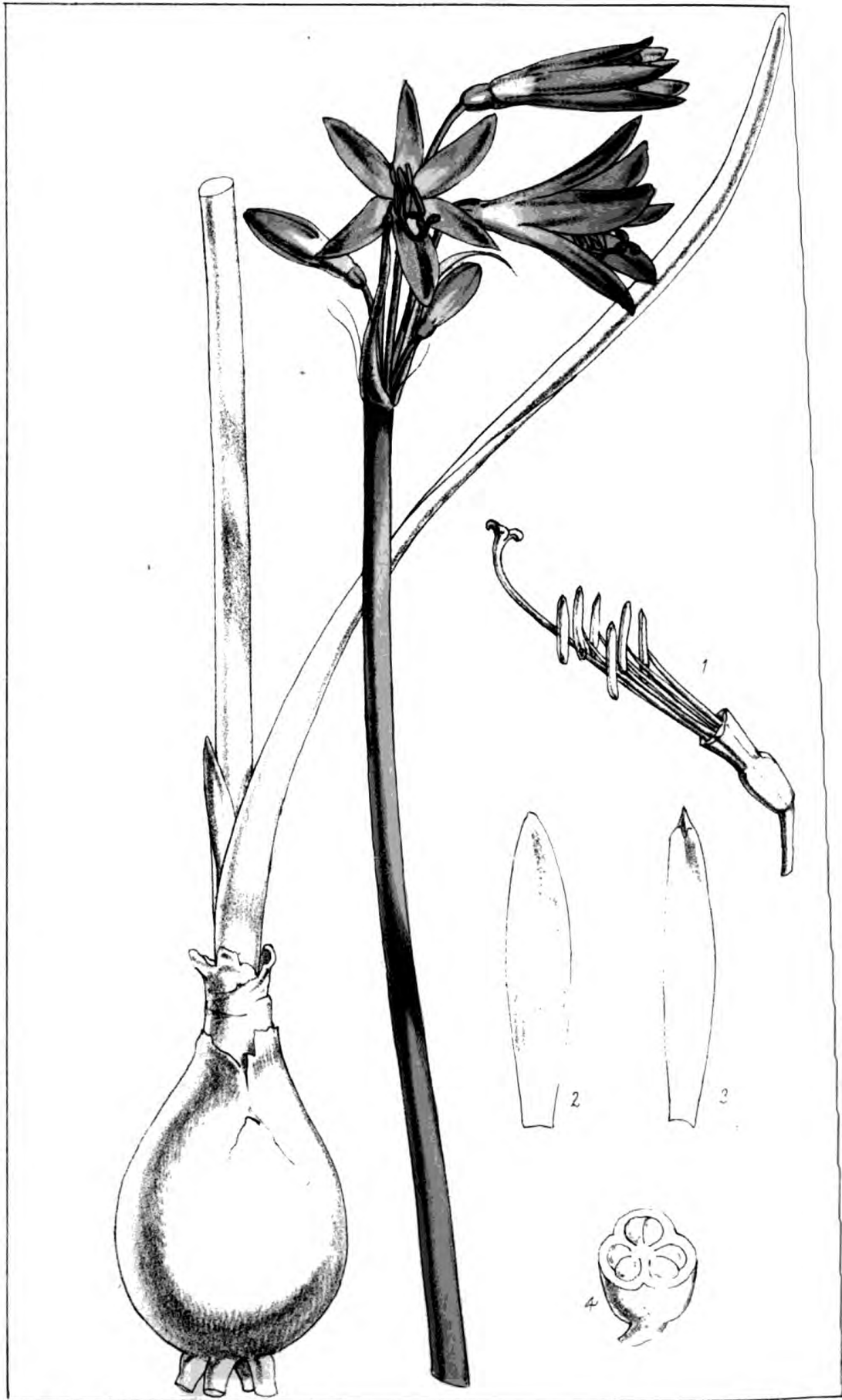
TAB. 331.—1, leaf; 2, umbel of flowers: both natural size.—*J. G. B.*

This is a very showy plant when in flower, and well worth a place in any collection of bulbs. It thrives in a warm damp pit or stove when in the growing state, but when at rest it may be moved into a cooler and more airy situation, and supplied with less water: this treatment is necessary to mature the bulb. I procured my specimens from a sale at Mr. Stevens' Rooms. They were said to be from the Bahamas.—*W. W. S.*









W.W.B. del. W.A. Fitch. J.N.

J.N. Fitch imp.

*Phycella macleanica*, Baker.

## TAB. 332.

Natural Order AMARYLLIDACEÆ.

Tribe AMARYLLIÆ.

Genus PHYCELLA, *Lindley*.

- P. MACLEANICA (*Baker*). Bulbo ovoideo, foliis 2 anguste ligulatis scapo brevioribus carnosis glauco-viridibus 2—3 lin. latis facie canaliculatis, scapo tereti subpedali, spathæ valvis linearibus, umbellis 4—6-floris, pedicellis 1—1½ poll. longis, floribus rubris horizontalibus anguste infundibuliformibus, ovario turbinato, limbi 13—14 lin. longi segmentis oblanceolatis basi connatis, flore expanso dimidio superiore falcatis, staminibus inæqualibus 3 longioribus perianthio demum æquilongis, stylo exserto. — *Eustephia macleanica*, *Herbert*, in *Bot. Mag.* sub. t. 3865 (*nomen solum*).

A native of Chili, imported to England long ago by Mr. Maclean, and now again lately from the Province of Mendoza by Mr. Reed.

*Bulb* ovoid, an inch and a half thick, with dark brown tunicated coats. *Leaves* two, one only fully developed with the flowers, shorter than the scape, fleshy, suberect, glaucous-green, two to three lines broad, bluntish, channelled down the face, rounded on the back. *Scape* terete, glaucous, about a foot high. *Spathe* with two outer linear *valves* and inner filiform ones at the base of each pedicel. *Pedicels* slender, an inch to an inch and a half long. *Flowers* horizontal, red, narrowly funnel-shaped, fourteen to fifteen lines long; *ovary* turbinate; *segments* oblanceolate, distinctly eight- to ten-nerved, connate at the base, connivent in the lower half, falcate in the upper half in the expanded flower. *Stamens* unequal, the three longest finally as long as the segments. *Style* slightly declinate, finally a little exserted.

TAB. 332.—1, pistil and stamens, natural size. 2, inner segment of perianth; 3, outer segment of perianth; 4, horizontal section of ovary: all magnified.—*J. G. B.*

This *Phycella* will probably prove as hardy as *P. ignea*, which will thrive in a damp sheltered border in the open garden. I have as yet grown it in good turfy loam, in a pit just protected from severe frosts. Mr. E. C. Reed sent me bulbs of this plant from Mendoza, about three years since.—*W. W. S.*







W.H. Fitch. del. et lith.

J.N. Fitch. imp.

*Chlorophytum falcatum*, Baker

## TAB. 333.

Natural Order LILIACEÆ.

Tribe ANTHERICEÆ.

Genus CHLOROPHYTUM, *R. Br.*

*C. FALCATUM* (*Baker*). Foliis 6—8 arundinaceis anguste ligulatis erecto-falcatis 6—9 poll. longis  $\frac{1}{8}$ — $\frac{1}{4}$  poll. latis glabris persistentibus, scapo gracillimo nudo 1—3 poll. longo, racemis laxissimis 6—12-floris plerisque simplicibus, floribus infimis geminatis, pedicellis medio articulatis demum cernuis, bracteis parvis duris lanceolato-cuspidatis, perianthio albido 2—2½ lin. longo, segmentis albis oblongo-lanceolatis flore expanso reflexis, genitalibus perianthio paulo brevioribus, capsulis obovoideo-quadratis acute angulatis, seminibus in loculo 3—6.—*Phalangium falcatum*, *Wall. Cat. No. 5057*. *P. parviflorum*, *Wight Icones*, t. 2039.

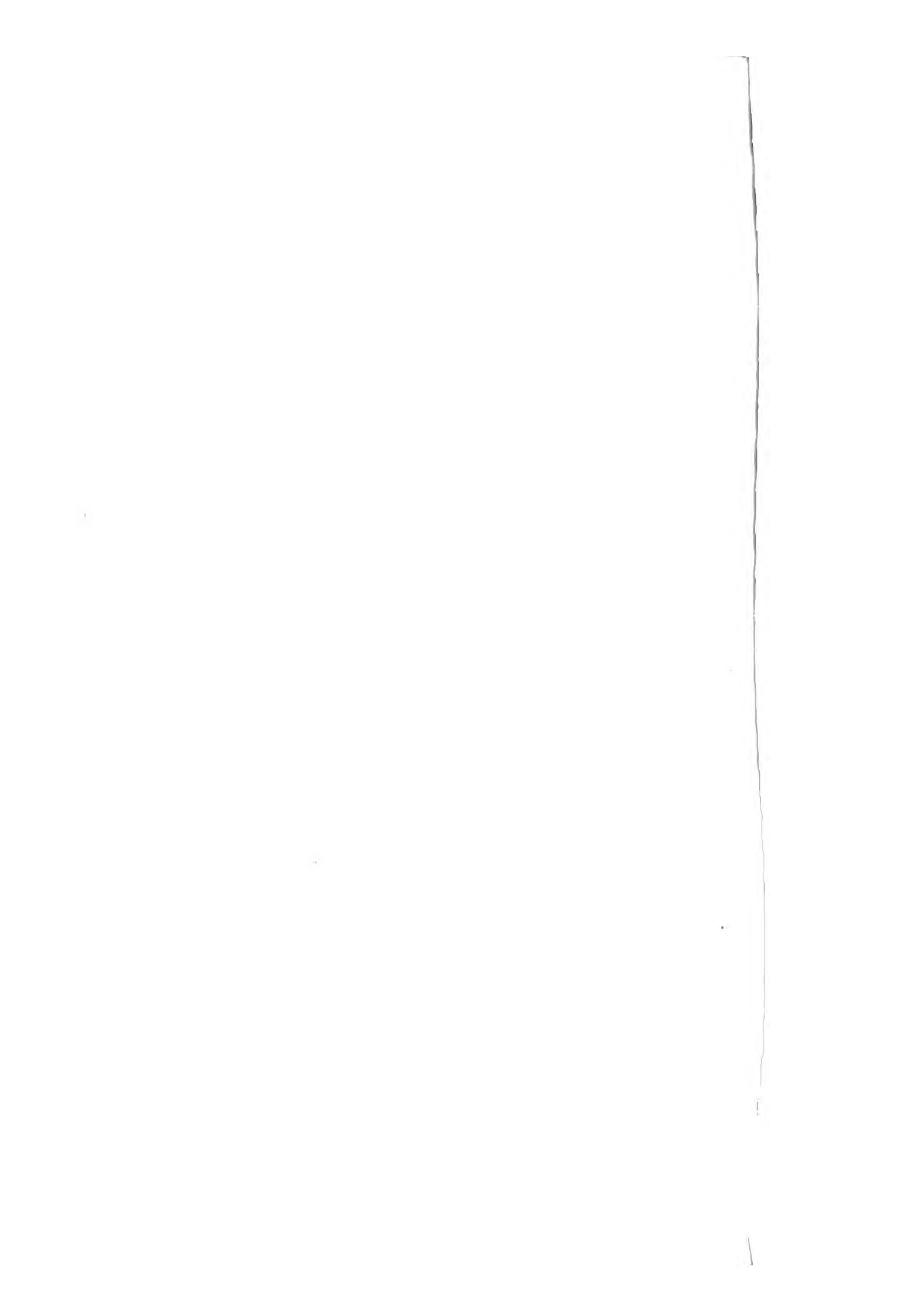
Extends from Guinea, whence the specimen drawn was procured, through Tropical Asia to Hong Kong and Borneo.

*Root* of numerous whitish fleshy fibres reaching three to four inches long. *Leaves* six to eight to a scape, grass-like in texture, narrow-ligulate, six to nine inches long, one-eighth to one-fourth of an inch broad at the middle, narrowed gradually to the point, erecto-falcate, quite glabrous, persistent, with six to eight fine immersed *veins* on each side of the midrib. *Scape* leafless, very slender, an inch to three inches long. *Racemes* very lax, six- to twelve-flowered, four to six or even twelve inches long, very rarely compound, the lowest flowers geminate. *Bracts* lanceolate-cuspidate, persistent, a line and a half to two lines long. *Pedicels* two to three lines long, articulated at the middle, finally cernuous. *Flower* evanescent, white, two to two and a half lines deep; the *divisions* oblong-lanceolate, reflexed when fully expanded. *Stamens* and filiform *style* falling a little short of the divisions. *Capsule* obovoid-quadrate, one-fourth of an inch broad and deep, membranous, deeply lobed horizontally, the angles acute. *Seeds* three to six in a cell, round, discoid, a line broad.

TAB. 333.—1, flower complete; 2, a stamen; 3, pistil; 4, horizontal section of ovary: all magnified.—*J. G. B.*

The figure of this plant was taken from a specimen which flowered in the Royal collection at Kew. It requires a stove treatment.—*W. W. S.*









W.W.S. del W.H. Eitch lith.

J.N. Fitch imp.

*Albuca flaccida*, Jacq.

## TAB. 334.

Natural Order LILIACEÆ.

Tribe SCILLEÆ.

Genus ALBUCA, *Linn.*

- A. FLACCIDA (*Jacq. Coll.* iv. p. 201; *Icones*, ii. 21, t. 444). Bulbo globoso fibris setosis copiosis coronato, foliis 5—6 linearibus glauco-viridibus 6—12 poll. longis primum suberectis demum flaccidis recurvatis, scapo flexuoso subpedali, racemo subsecundo laxe 6—8-floro, pedicellis 1—1½ poll. longis floriferis patentibus apice cernuis, floribus inodoris segmentis 9—10 lin. longis flavis dorso late viridibus, filamentis alternis sterilibus, stylo prismatico obverse pyramidato ovario subæquilongo, seminibus in loculo circiter 20.—*Kunth, Enum.* iv. 374.

A native of Cape Colony, extending northward to Delagoa Bay; our specimen gathered by Mr. Cooper.

*Bulb* globose, six to nine lines thick, crowned at the apex by a ring of persistent fibres. *Leaves* five to six, linear, glaucous-green, one-fourth to half an inch broad, narrowed gradually to the point, reaching a foot long, at first suberect, but soon becoming flaccid and recurved from low down. *Scape* flexuose, reaching a foot long. *Raceme* laxly six- to eight-flowered, subsecund; the lower *pedicels* an inch to an inch and a half long, spreading at the flowering time, cernuous at the point, afterwards erecto-patent. *Bracts* lanceolate, half to three-fourths of an inch long. *Flowers* inodorous, nutant, nine to ten lines long; the outer *divisions* pale yellow towards the edge, green down the back, slightly exceeding the inner ones. Alternate *filaments* sterile. *Style* obversely pyramidal, about as long as the *ovary*. *Capsule* ovoid, seven to eight lines long, with about twenty *seeds* in each cell.

TAB. 334.—1, whole plant, reduced; 2, leaves and raceme, natural size. 3, outer segment of perianth; 4, inner segment with stamen; 5, pistil and two castrate stamens; 6, fertile stamen; 7, barren stamen; 8, pistil: all magnified.—*J. G. B.*

This, like most other species of the genus *Albuca*, will thrive in a sheltered border, with slight protection in very severe weather, or a cool pit. Sandy loam and peat form a soil which suits the plant well, and, if kept moderately dry during the winter season, it will flower freely. I received my specimens from South Africa, collected by Mr. Thos. Cooper.—*W. W. S.*







W. H. Fitch, del. et lith.

J. N. Fitch, imp.

*Albuca tenuifolia*, Baker.

## TAB. 335.

Natural Order LILIACEÆ.

Tribe SCILLEÆ.

Genus ALBUCA, *Linn.*

A. TENUIFOLIA (*Baker*). Bulbo parvo ovoideo membranaceo-tunicato, foliis 6—9 filiformibus gracillimis saturate viridibus carnosoherbaceis inconspicue glanduloso-punctatis dorso rotundatis facie canaliculatis, scapo foliis æquilongo, floribus 3—4 erectis laxo corymbosis, bracteis parvis lanceolatis, pedicellis erecto-patentibus 2—3 poll. longis, perianthii 8—9 lin. longi segmentis flavis dorso late viridibus, filamentis omnibus fertilibus, stylo prismatico obverse pyramidato ovario æquilongo.

A native of Cape Colony, discovered by Mr. M'Owan.

*Bulb* ovoid, half an inch thick, membranaceo-tunicated, not crowned with setose fibres. *Leaves* six to nine to a scape, filiform, half a foot long, scarcely more than half a line thick, suberect, round on the back, channelled on the face, bright green, glanduloso-papillose under a lens. *Scape* slender, four to six inches long. *Flowers* three to four in a lax corymb, erect. *Pedicels* erecto-patent, the lowest reaching three inches long. *Bracts* lanceolate, six to eight lines long. *Perianth* eight to nine lines deep; the *divisions* yellow, with a broad green band, the outer rather exceeding the connivent inner three. *Stamens* all fertile, but the alternate *anthers* much smaller. *Style* obversely pyramidal, equalling the *ovary*; the *stigma* just on a level with the top of the anthers.

TAB. 335. — 1, portion of leaf; 2, pistil and stamens: both magnified. 3, capsule, natural size.—*J. G. B.*

This species of *Albuca* was sent to me by Mr. M'Owan, of Gill College, Somerset East, Cape of Good Hope, to whom I am very greatly indebted for this and many other very interesting South-African plants. It requires the same treatment as recommended for *Albuca flaccida*, Tab. 334.—*W. W. S.*









WWS del WH Fitch lith

JN Pritch imp

*Albuca angolensis*. Welw.

## TAB. 336.

Natural Order LILIACEÆ.

Tribe SCILLEÆ.

Genus ALBUCA, *Linn.*Sub-genus PALLASTEMA, *Salisb.*

A. ANGOLENSIS (*Welwitsch, Apont. Angol. p. 591.*) Bulbo ovoideo magno membranaceo-tunicato, foliis pluribus suberectis lineari-loratis carnosis pallide viridibus  $1\frac{1}{2}$ —2 pedes longis ad apicem acutum attenuatis, scapo 4—6-pedali, racemo subdenso multifloro cylindrico pedali-sesquipedali, pedicellis 3—6 lin. longis, bracteis lineari-lanceolatis floribus æquilongis vel excedentibus, perianthii 10—14 lin. longi segmentis flavis dorso viridibus æquilongis, staminibus omnibus fertilibus, filamentis filiformibus basi lanceolatis, stylo filiformi ovario ovoideo triplo longiori, stigmate capitato.

A native of Angola, discovered by Dr. Welwitsch, and, as will be seen from the plate and description, one of the most valuable additions that have been made for a long time to our stock of cultivated bulbous plants.

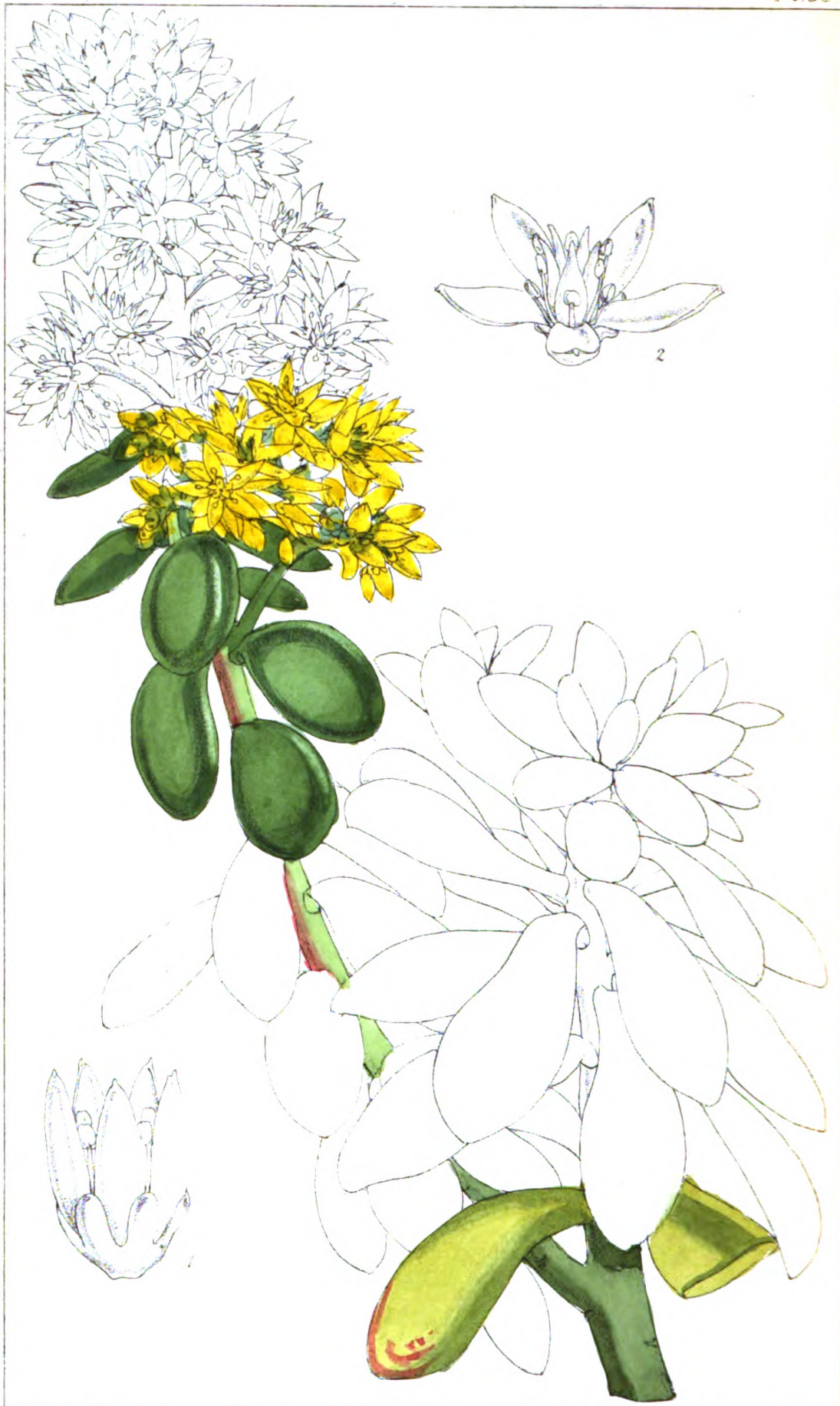
*Bulb* large, ovoid, coated with membranous tunics. *Leaves* about half a dozen to a scape, suberect, fleshy, pale green, reaching a foot and a half to two feet in length, an inch broad low down, narrowed gradually to an acute point. *Scape* terete, the height of a man in the wild plant, so that, Dr. Welwitsch says, walking in the wooded meadows where it grows, you have to look up to see the flowers. *Racemes* moderately close, cylindrical, a foot or even a foot and a half in length, three inches broad when expanded. *Pedicels* one-fourth to half an inch long. *Bracts* linear or lanceolate-cuspidate, equalling or protruding beyond the flowers. *Lower flowers* twelve to fourteen lines deep; the *segments* yellow, with a broad green keel, all about equal in length, three to four lines broad; the *upper flowers* growing gradually smaller down to nine to ten lines. *Stamens* all fertile, the *filaments* filiform in the upper half, lanceolate in the lower half, valvately connivent at the base. *Ovary* ovoid, narrowed gradually into a filiform *style* half to five-eighths of an inch long. *Stigma* capitate.

TAB. 336.—1, pistil and stamens, natural size. 2, pistil, magnified.—*J. G. B.*

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This remarkable plant is the discovery of the well-known traveller and botanist, Dr. F. Welwitsch, who kindly presented me with bulbs after his return from Angola. The plant is exceedingly interesting in a botanical point of view, and is also a tall and fine species of the genus *Albuca*. It thrives when treated as recommended for *A. flaccida*, Tab. 334.—*W. W. S.*





W.H.Pitch lith

Humbert sculp

*Sedum spathulifolium*, Hook.

## TAB. 337.

## Natural Order CRASSULACEÆ.

## Genus SEDUM, Linn.

**S. SPATHULIFOLIUM** (*Hook. Flor. Bor. Amer. i. 227*). Breviter caulescens, ramis sterilibus dense foliatis, foliis oblongo-spathulatis sessilibus planis glabris subobtusis nitide viridibus, ramorum floriferorum similibus laxioribus, floribus scorpioideo-cymosis in paniculam thyrsoidream vel corymbosam dispositis, sepalis ligulatis obtusis basi in cupulam connatis, petalis luteis lanceolatis calyce triplo longioribus, staminibus 10 carpellis æquilongis petalis distincte brevioribus.—*Torrey & Gray, Flor. N. Amer. i. 559.*

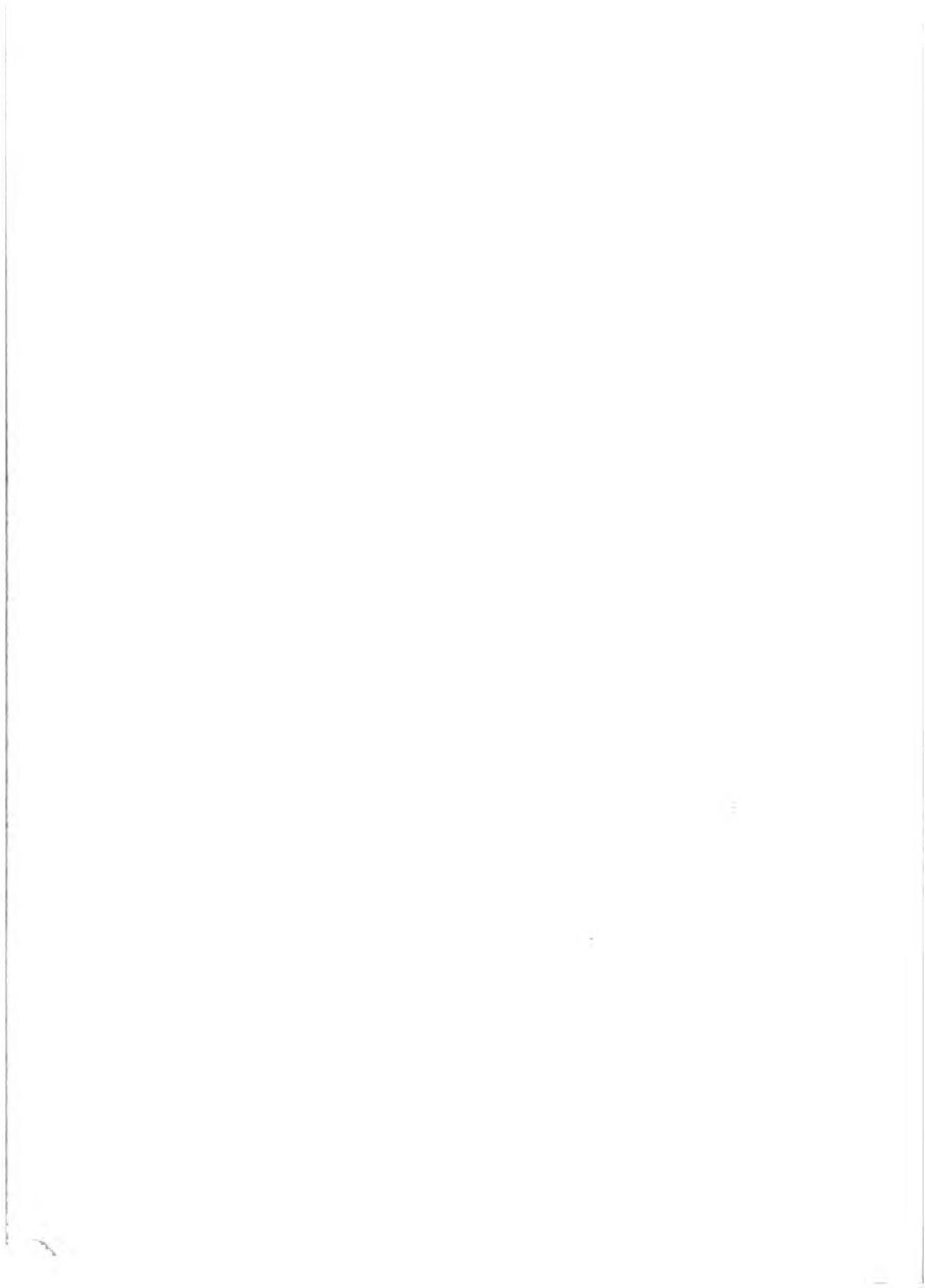
A native of Oregon and California.

Shortly caulescent, the whole plant quite glabrous. *Stems* terete, the old ones half an inch thick, marked with the scars of the fallen leaves. *Leaves* crowded on the barren shoots, laxer but quite similar on the fertile ones, oblong-spathulate, an inch to an inch and a half long, bluntish, bright green, half to five-eighths of an inch broad above the middle, flattish on the face and back, narrowed into a distinct haft like those of an *Echeveria*, the young ones spreading, the old ones recurved. *Flowers* sessile, a quarter of an inch deep, arranged in copious close scorpioid cymes forming a corymbose thyrsoid panicle. *Calyx* a third as long as the petals, the blunt ligulate lobes united into a distinct cup at the base. *Petals* lanceolate, bright yellow. *Stamens* 10, like the *carpels* one-third shorter than the petals.

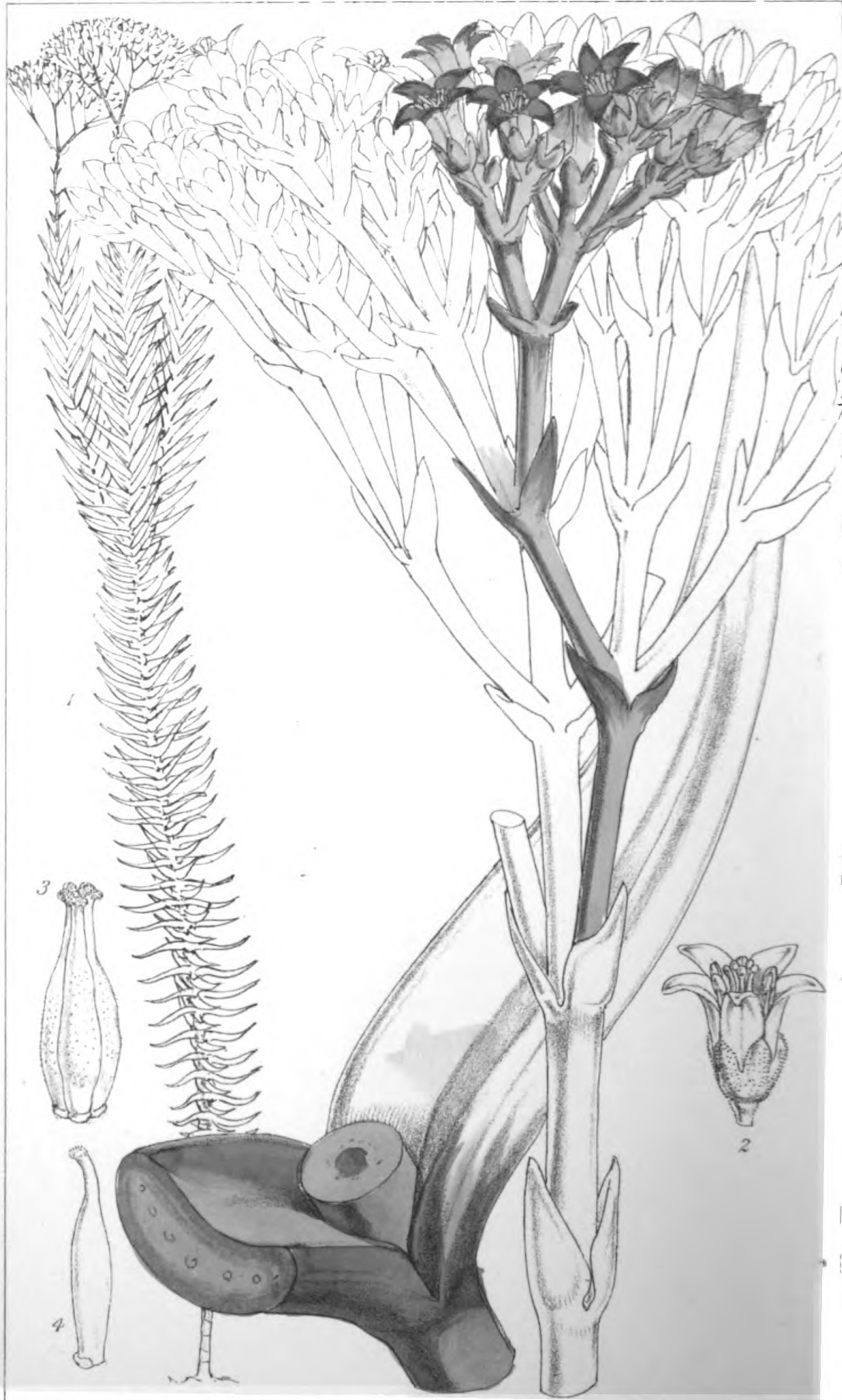
TAB. 337.—1, a single flower closed; 2, one opened: both magnified.—*J. G. B.*

This *Sedum* is an old inhabitant of the garden, and has much the appearance of a species of *Echeveria*. I do not know the source from which my plants were obtained. We treat it as a cool greenhouse plant. It grows freely in a light sandy soil, and should have but little water in the winter season.—*W. W. S.*









WHFitch lith

Hanhart sculp

*Crassula perfoliata*, Linn.

## TAB. 338.

Natural Order CRASSULACEÆ.

Genus CRASSULA, *Linn.*

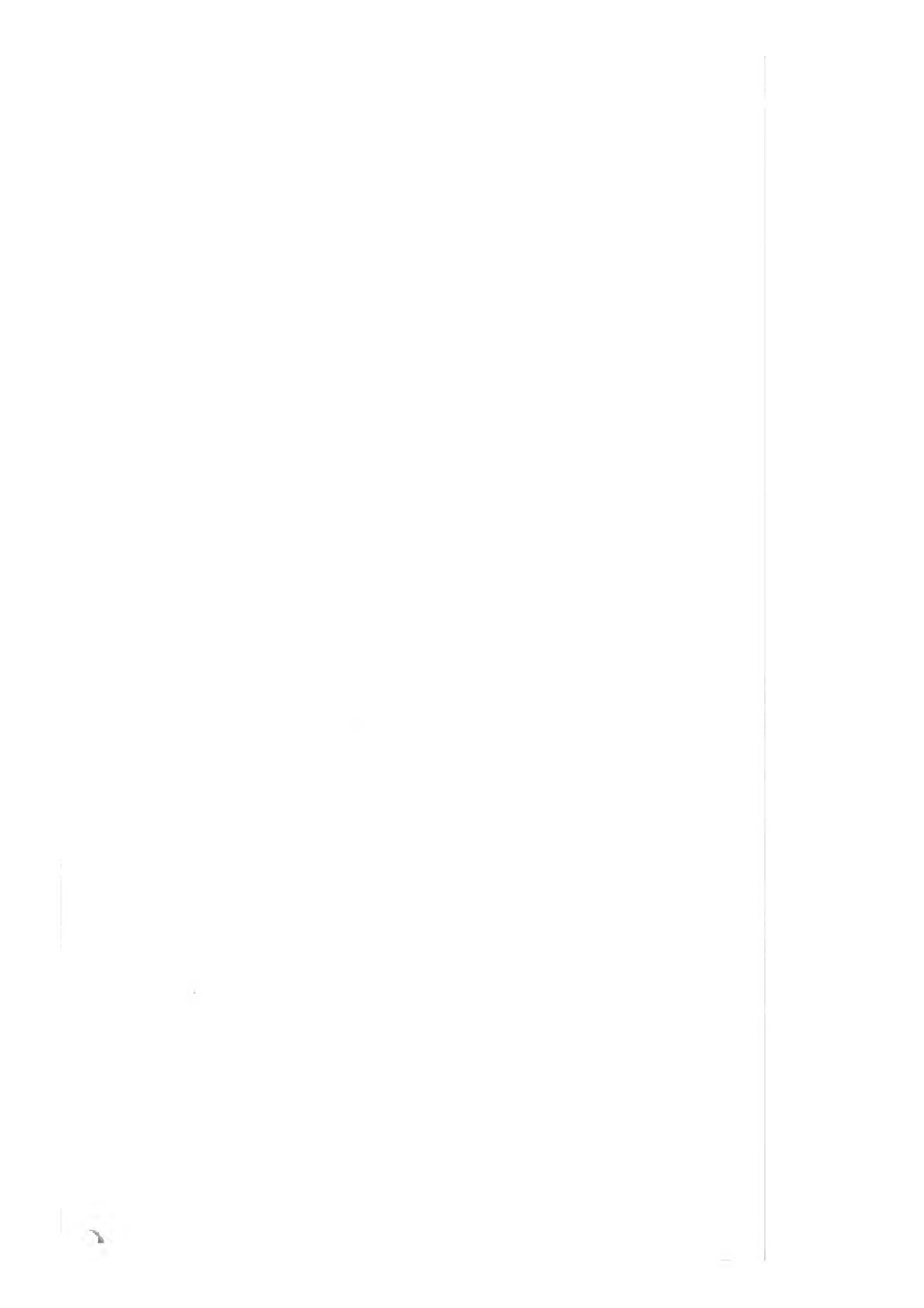
*C. PERFOLIATA* (*Linn. Sp. Plant.* 404). Caule valido erecto simplici vel furcato, foliis crassis oppositis decussatis lanceolatis acuminatis griseis glabris ascendentibus rectis dorso teretibus facie leviter concavis, floribus pedicellatis in cymam magnam terminalem corymbosam trichotomiter furcatam dispositis, sepalis lanceolatis erectis pubescentibus basi connatis, petalis rubris lanceolatis calyce triplo longioribus, genitalibus inclusis. —*Harv. Fl. Cap.* ii. 338. *Rochea perfoliata*, *DC. Prod.* iii. 393.

A native of the Cape of Good Hope.

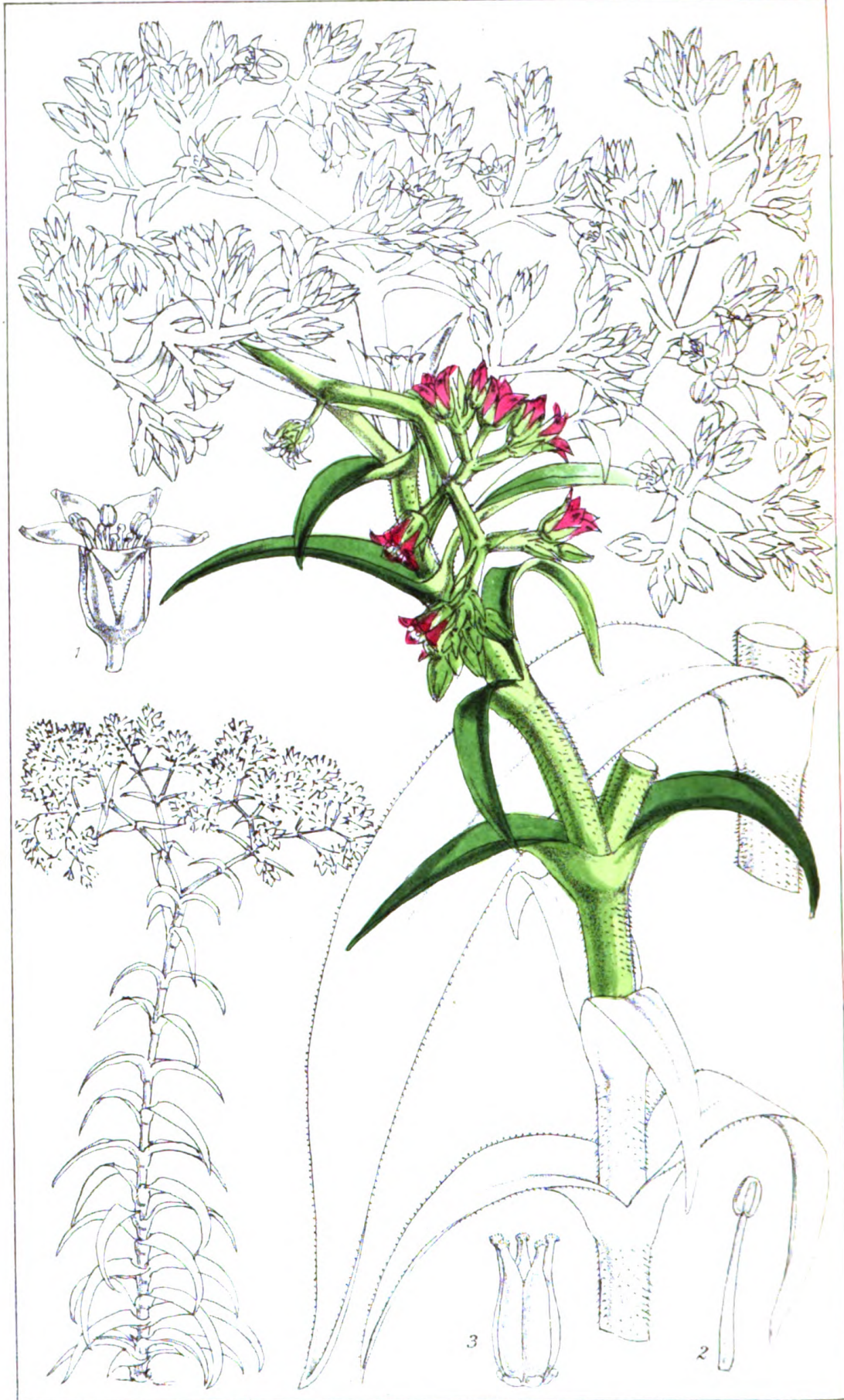
*Stems* terete, three to five feet high, simple or forked, leafy down nearly to the base, woody and reaching an inch in thickness in the lower part. *Leaves* in moderately close decussate pairs, distinctly connate at the base, lanceolate, narrowed gradually to a point, not at all oblique, five to six inches long, three-fourths to an inch broad, the upper ascending, one-fourth to three-eighths of an inch thick, dull gray-green, glabrous, rounded on the back, slightly concave on the face, with a raised rib down the middle. *Flowers* erect, shortly pedicellate, arranged in a close trichotomous corymbose *cyme* half a foot broad. *Calyx* one-eighth of an inch deep, densely pubescent; the *divisions* lanceolate, united in a distinct *cup* at the base. *Petals* bright red, lanceolate, three times as long as the calyx. *Stamens* and *pistils* both rather shorter than the petals.

TAB. 338. — 1, the whole plant, reduced. 2, single flower; 3, the five carpels; 4, a single carpel: all magnified.—*J. G. B.*

—  
This is another old inhabitant of my succulent house, growing several feet in height, and when in flower is a fine effective plant. It is not difficult to grow, if carefully treated and allowed light and air, and not too much water in the winter season. Leaves of the plant, laid on sand and kept moderately dry, soon show roots, and the plant can be easily increased in this manner.—*W. W. S.*







W.H. Pritch del et lith

Hanhart imp

*Crassula rubicunda*, E. Meyer.

## TAB. 339.

## Natural Order CRASSULACEÆ.

Genus CRASSULA, *Linn.*

*C. RUBICUNDA* (*E. Meyer*). Caule valido erecto simplici tripedali pubescente, foliis oppositis decussatis basi connatis lanceolatis acuminatis reflexis ciliatis, floribus pedicellatis in cymam dichotomam magnam terminalem sublaxam dispositis, sepalis lanceolatis ciliatis diutine ascendentibus, petalis lanceolatis rubris calyce sesqui longioribus, staminibus cum carpellis petalis distincte brevioribus, squamulis hypogymis minutis subquadratis.—*Harv. Fl. Cap.* ii. 341.

A native of Cape Colony, gathered by Mr. Cooper.

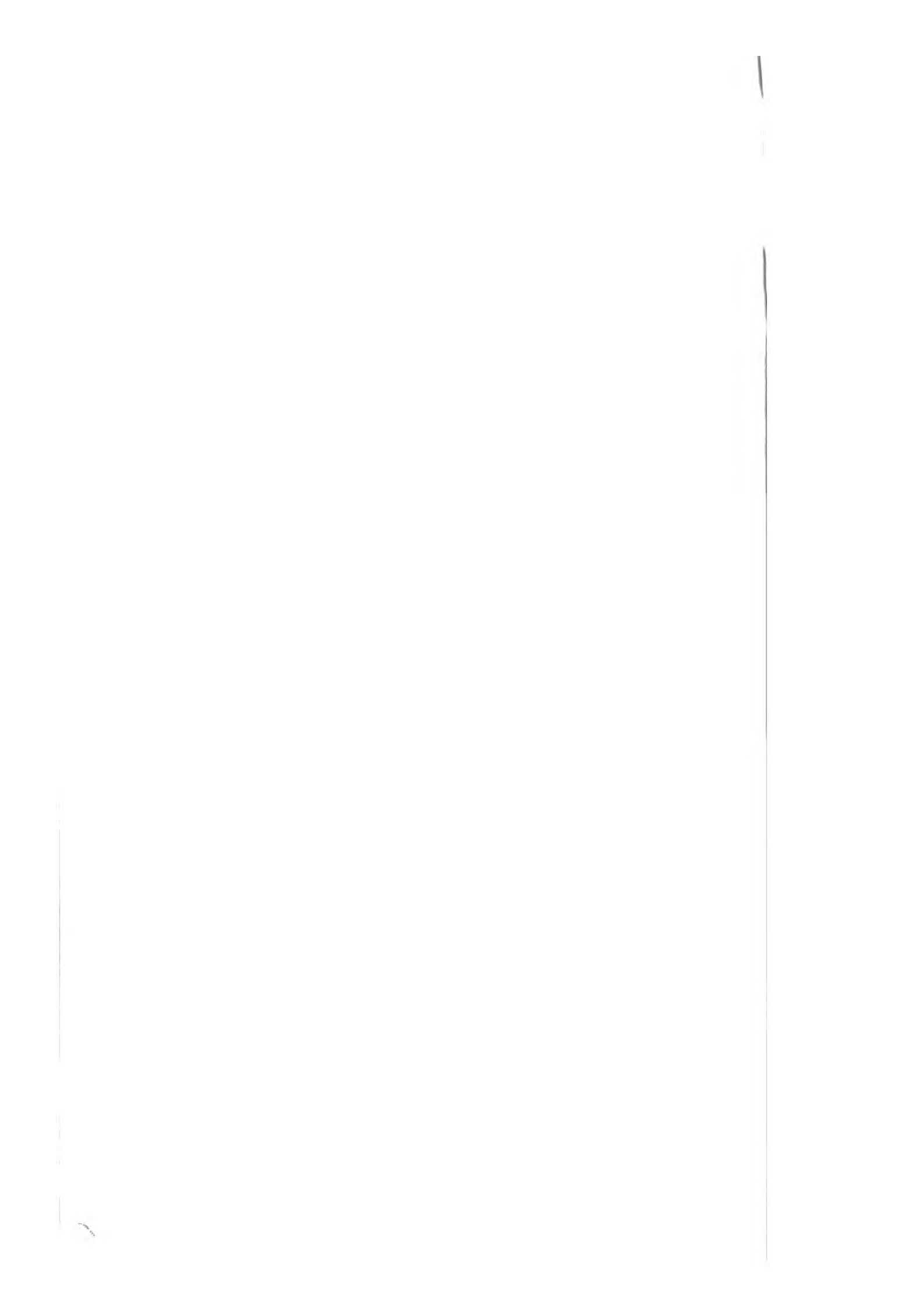
*Stems* terete, erect, pubescent, simple, reaching a height of three feet, leafy down to the base. *Leaves* in opposite pairs, clasping the stem and broadly connate at the base, lanceolate, green, reflexed, not thick for the genus, narrowed very gradually to a point, minutely ciliated, the lower ones six to eight inches long, the upper ones growing gradually laxer and smaller. *Flowers* one-fourth of an inch deep, pedicellate, forming a moderately close terminal dichotomous *cyme* half a foot to a foot across. *Sepals* lanceolate, distinctly ciliated, free to the base, permanently ascending in a *cup*. *Petals* lanceolate, bright red, half as long again as the *calyx*. *Stamens* and *carpels* nearly equal to one another, rather shorter than the *corolla*. *Hypogynous scales* minute, subquadrate.

TAB. 339.—1, the whole plant, reduced. 2, single flower; 3, a stamen; 4, the carpels: all magnified.—*J. G. B.*

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Mr. Thos. Cooper sent me this plant from South Africa. It produces a large straggling head of crimson flowers. It will thrive, if treated as recommended for *Crassula perfoliata* (Tab. 338).—*W. W. S.*









W.H. Fitch lith.

Hanhart 1897

*Begonia sparsipila*, Baker

## TAB. 340.

Natural Order BEGONIACEÆ.

Genus BEGONIA, *Linn.*Section GIREOUDIA, *A. DC.*

*B. SPARSIPIILA* (*Baker*). Caulibus crassis elongatis cum petiolis pedunculis et facie inferiori foliorum pilis ferrugineis sparsis vestitis, petiolis crassis foliis brevioribus, foliis peltatis inæquilateraliter ovatis acutis subangulatis denticulatis carnosis modice crassis supra glabris viridibus, nervis 7—8 ex apice petioli radiantibus, floribus rubellis in corymbis bisexualibus dispositis, pedicellis cernuis elongatis, bracteis deciduis, floribus masculis segmentis 2 rotundatis, femineis segmentis 2 similibus, ovario angulis omnibus late alatis.

Probably a native of Central America.

A close ally of *B. pruinata* (Tab. 247), but the leaves not nearly so thick, the flowers smaller, and the petiole, peduncle, and leaves below thinly coated with adpressed ferruginous hairs. *Petiole* a quarter of an inch thick. *Leaves* peltate, obliquely ovate, slightly angulato-repand, acute, eight to nine inches long, five to six inches broad, the petiole inserted below the middle and much nearer one side than the other, the seven to eight main *veins* radiating from the apex of the petiole, the texture fleshy and moderately thick, the upper surface glabrous and bright green, the lower glaucous with very minute close *papillæ*. *Flowers* thirty to forty in lax terminal dichotomous bisexual *corymbs* half a foot across. *Pedicels* drooping, half to three-fourths of an inch long. *Female flower* with two roundish blunt pink *sepals* four to five lines long; *style* three-cleft nearly to the base; *ovary* three-fourths of an inch deep, with three subequal broad *wings*. *Male flower* with two precisely similar *segments*, the free *stamens* in a laterally flattened cluster.

TAB. 340.—1, male flower; 2, a single stamen; 3, a female flower; 4, horizontal section of ovary: all magnified.—*J. G. B.*

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This is a free-flowering and handsome-leaved species of *Begonia*. I am indebted to the Royal Gardens at Kew for my stock of this plant. It requires similar treatment to that recommended for *Begonia conchifolia* (Tab. 246).—*W. W. S.*







WHFitch del. et lith.

Hanhart imp.

*Begonia Hookeriana*, *Gardn.*

## TAB. 341.

Natural Order BEGONIACEÆ.

Genus BEGONIA, *Linn.*Sub-genus STEINERIA, *A. DC.*

**B. HOOKERIANA** (*Gardn. in Hook. Journ. iv. 135*). Ramis lignosis petiolis pedunculis nervisque foliorum subtus pulvere brunneo vestitis, foliis breviter petiolatis subcoriaceis magnis acutis crenatis inæquilateraliter oblongis basi uno latere breviter cordatis altero truncato-cuneatis supra viridibus glabrescentibus, floribus copiosis minimis in cymas longe pedunculatas pluries dichotomiter furcatas sæpius unisexuales dispositis, floribus masculis sepalis 2 obovatis albidis reflexis, petalis 2 angustioribus, floribus fœmineis petalis et sepalis similibus ovario tomentello, capsula angulis tribus late subæqualiter alatis.—*A. DC. Prod. xv. 377.*

A native of the Organ Mountains, gathered by Gardner, Burchell, and others.

*Stems* woody, subscandent, reaching a height of five or six feet, angular, sulcate, clothed—like the petioles, pedicels, ovary and veins of the leaf beneath—with fine mealy cinnamon-brown tomentum. *Stipules* deciduous, ovate-lanceolate. *Petiole* an inch or less long. *Leaves* reaching a couple of feet long by a third as broad, subcoriaceous, scarcely at all fleshy, a rather dull green on the upper surface, free from tomentum when mature, pulverulent especially on the copious *veins* below, oblique-oblong narrowed suddenly to an acute point, crenate, cuneately cut away at the base on one side, shallowly cordate and produced on the other. *Cymes* long-stalked, usually unisexual, many times dichotomously forked, half a foot to a foot broad. *Petals* and *sepals* of male and female *flowers* similar, in both two in number, not more than one-eighth of an inch deep, obovate, milk-white, reflexed. *Capsule* under half an inch deep, the membranous veined subequal rounded *wings* a line and a half to two lines broad.

TAB. 341.—1, branch, natural size; 2, male flower, magnified; 3, corymb of female flowers, natural size. 4, simple female flower; 5, horizontal section of ovary: both magnified. 6, fruit, natural size.—*J. G. B.*

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This plant has fine and peculiar foliage, but the flowers are very small for a *Begonia*, and most difficult to produce. Mr. D. Bowman sent it from Brazil, some years since ; and although the plant grew freely, yet it has only quite recently flowered. It requires abundance of heat and moisture, and to be kept from the mid-day sun.—*W. W. S.*





W.H. Fitch del.

Hauhart sculp.

*Aster hispidus*, Baker.

## TAB. 342.

Natural Order COMPOSITÆ.

Sub-order ASTEROIDEÆ.

Genus ASTER, *Linn.*Sub-genus DIPLOPAPPUS, *Cass.*

A. HISPIDUS (*Baker, non Thunb. Fl. Jap. 315*). Caule herbaceo angulato scabro sæpissime monocephalo, foliis ad tertiam inferiorem caulis aggregatis linearibus vel lanceolatis acutis dentatis triplinervis rigide subcoriaceis sessilibus ascendentibus utrinque scaberrimis, involucri squamis firmis linearibus acuminatis scabris, acheniis appianatis marginatis scabris, pappo duplici, setis exterioribus minutis, interioribus elongatis ciliatis floribus tubulosis æquilongis. — *Calendula hispida, Thunb. Fl. Cap. 704. Diplopappus asper, Less. Syn. 163; DC. Prodr. v. 276.*

A native of Cape Colony and Natal.

A herbaceous perennial, with a wide-creeping rhizome. *Stems* half to one and a half foot high, ascending, angular, firm, sulcate, scabrous, usually with one head, rarely with two to four. *Leaves* aggregated upon the lower third of the stem, sessile, ascending, linear or lanceolate, two to four inches long, acute, distantly toothed, rigidly subcoriaceous, distinctly triplinerved, very rough on both sides, with raised points and short bristly hairs; upper half of stem with only two or three much reduced linear bract-like leaves. *Involucre* campanulate, composed of two or three rows of firm linear acuminate scabrous subequal phyllaries. *Heads* an inch and a half to two inches broad, all the *florets* hermaphrodite and perfect. *Achenes* gray, flattened, scabrous, margined with a distinct border. *Disk-florets* yellow; *ray-florets* twenty to thirty, purple. *Pappus* double, the *bristles* of the outer row very minute, of the inner rigid, elongated, distinctly ciliated.

TAB. 342.—1, disk-flower; 2, single stamen; 3, stigmas of disk-flower; 4, ray-flower; 5, its stigmas; 6, bristle of pappus: all magnified.—*J. G. B.*

A somewhat peculiar and straggling species of *Aster*. It is treated as a cool greenhouse plant in my garden, but it will stand the climate of a mild winter in this country out of doors, as I have ascertained by occasionally leaving a plant or two in the open borders. I am indebted to Mr. Daniel Hanbury for my stock of this plant.—*W. W. S.*







D. Hanbury del. Fitch lith.

Hanhart imp.

*Kleinia neriifolia*, Haw.

## TAB. 343.

Natural Order COMPOSITÆ.

Sub-order SENECEIONIDÆÆ.

Genus KLEINIA, Linn.

- K. NERIIFOLIA (Haworth, *Pl. Succ.* 312). Frutex orgyalis erecta glaberrima dichotomiter ramosa, ramulis crassis teretibus carnosis albo-pruinosis cicatricosis, foliis prope apicem ramulorum sublaxe spiraliter dispositis oblanceolatis integerrimis carnosis pallide viridibus subpetiolatis, pedunculis ex apice ramulorum brevibus pluribus strictis, capitulis 6—8-floris corymbosis, involucri cylindrici squamis 5 coriaceis ligulatis valvatis paucis minutis basalibus, acheniis glaberrimis, pappo longissimo. — *DC. Prodr.* vi. 338. *Cacalia Kleinia*, Linn. *Sp. Plant.* 1168; *DC. Plant. Grass.* t. 12. *Senecio Kleinia*, Schultz, *Bip. Phyt. Can.* ii. 321.

A native of the Canaries.

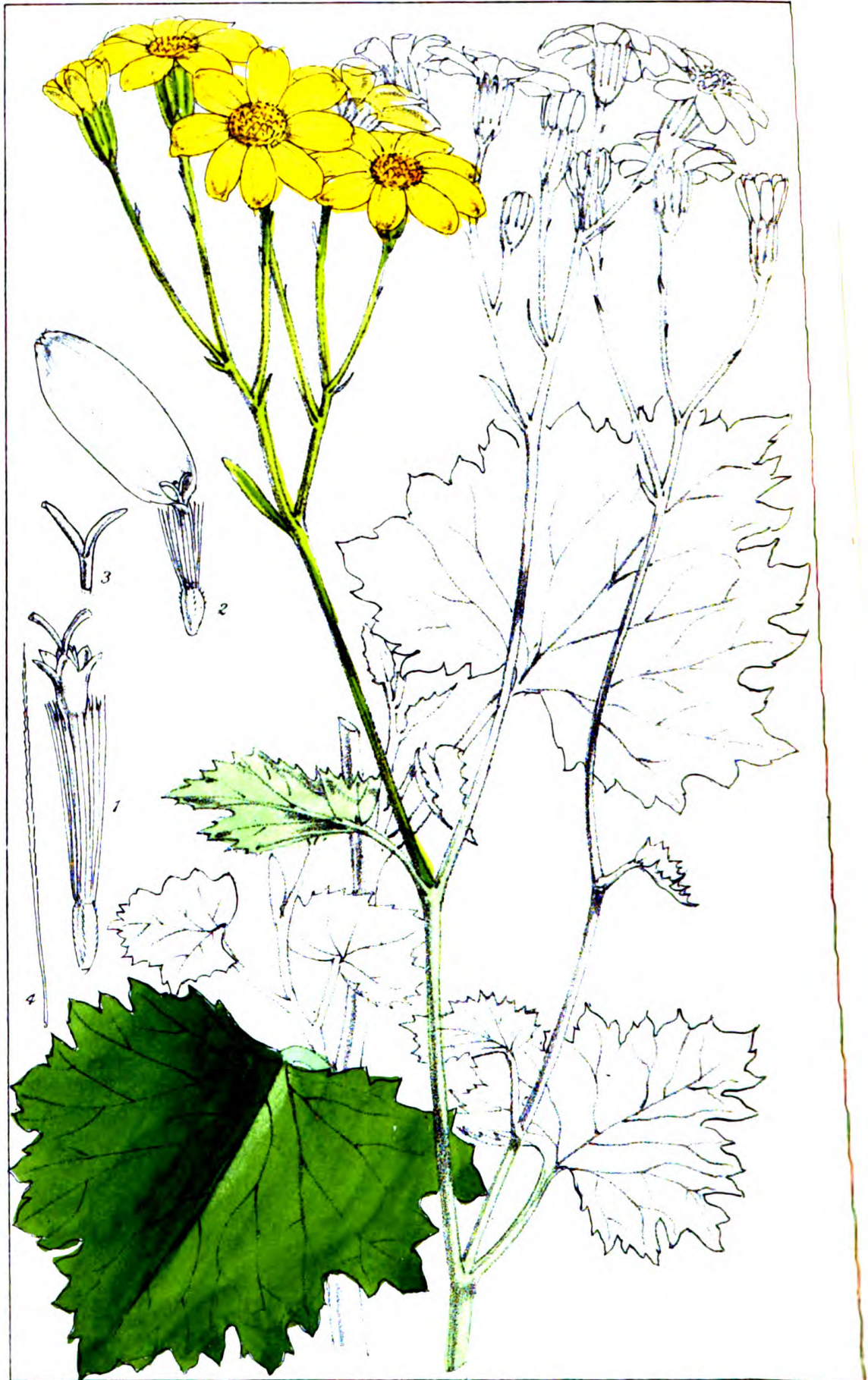
*Stem* shrubby, dichotomously branched from the very base, reaching the height of man or more. *Branches* terete, the main ones two to three inches in diameter, marked with the round or oblong scars of the fallen leaves; the ultimate *branchlets* rather fleshy, very glaucous, half an inch thick. *Leaves* thirty to forty, placed spirally upon the top three or four inches of the branches, oblanceolate, entire, fleshy, pale green, subacute, four to eight inches long, half to three-fourths of an inch broad above the middle, subacute, narrowed gradually downwards into a sort of petiole, paler and subglaucous below, the *veins* immersed. *Flowers* in dense corymbs on short stiff *peduncles*, several of which issue from the tip of each branch. *Involucre* cylindrical, half to five-eighths of an inch long, composed of five ligulate coriaceous *scales*, with a few minute ones external to these at the very base. *Corolla* three-fourths of an inch long, with a long slender *tube*, expanded at the apex into a shortly-toothed funnel-shaped *limb*. *Achenes* cylindrical, four to four and a half lines long, vertically ribbed, glabrous. *Pappus* five-eighths of an inch long, of very numerous subrigid slender white *bristles* easily breaking off at the base.

TAB. 343.—1, disk-flower; 2, ray-flower; 3, stigmas; 4, bristle of pappus: all magnified.—J. G. B.



I have grown this plant for many years, giving it cool greenhouse treatment. If allowed plenty of pot-room, or, if planted in the border, it soon grows rapidly, and eventually becomes a large rather compact shrub, very remarkable in appearance on account of its thick succulent vertical branches. I have never succeeded in flowering the plant, and I am indebted to Mr. D. Hanbury for an opportunity of figuring it in the flowering state.  
—*W. W. S.*





W.H. Pitts del. et lith.

Hornhart sculp.

*Cineraria alchemilloides*, D.C.

## TAB. 344.

Natural Order COMPOSITÆ.

Sub-order SENECONIDÆÆ.

Genus CINERARIA, Linn.

C. *ALCHEMILLOIDES* (DC. *Prod.* vi. 307). Caulibus erectis debilibus furcatis cum pedunculis petiolis et facie inferiori foliorum albo-araneoso-canescens, foliis petiolatis reniformibus cordatis teneris leviter palmatis 5—9-fidis dentatis supra viridibus glabris, corymbo laxo polycephalo pedicellis elongatis, involucri squamis 9—10 ligulatis acutis dorso glabrescentibus, ligulis 7—8 flavis, acheniis applanatis glabris papilloso-ciliatis, pappi setis albis mollibus elongatis.—*Harv. Fl. Cap.* iii. 310.

A native of Cape Colony, sent by Dr. Callaway to Mr. D. Hanbury.

An erect herbaceous perennial, two to three feet high, with slender forked stems thinly coated with white floccose pubescence. *Stipules* in our plant abortive. *Petioles* half an inch to two inches long. *Leaves* cordate-reniform, with five to nine shallow palmate lobes which are furnished with irregular broad teeth; the texture thin and flaccid; the upper surface green, glabrescent; the lower side densely at first, thinly when mature, coated with white floccose hairs like those of the stem. *Heads* numerous, laxly corymbose, on weak cottony peduncles, furnished with one or two minute linear adpressed bracts. *Involucral scales* nine to ten, placed edge to edge, green, glabrescent on the back, with a distinct pale border. *Expanded heads* nearly an inch across. *Ray-florets* female, only seven to eight, bright yellow. *Achenia* flattened, brown, glabrous, ciliated with white papillose hairs. *Pappus* a tuft of soft pure white ciliated hairs as long as the florets of the disk.

Our plant differs from *C. alchemilloides* by the absence of stipules, but it is likely that this is accidental only, and that *C. erodioides*, DC., is simply another state of the same species.

TAB. 344.—1, single flower; 2, stamen; 3, portion of receptacle; 4, stigmas: all magnified. 5, fruit, natural size. 6, bristle of pappus; 7, fruit: both magnified.—J. G. B.

I am indebted to Mr. D. Hanbury for this interesting South African plant. It requires the greenhouse, and is of very easy culture, requiring only to be liberally supplied with water and kept from the frost. It should be potted in good turfy loam. It flowers freely, but has no claim to be an ornamental plant.  
*W. W. S.*





W. Fitch del et lith

HANDART 1885

*Embeha Kraussii*, Harv.

## TAB. 345.

## Natural Order MYRSINÆÆ.

Genus EMBELIA, *Burm.*

**E. KRAUSSII**, *Harv. Thes. Cap. ii. p. 17, t. 127 (1868)!* Frutex glaber, subscandens; foliis obovato-ellipticis, duplo longioribus quam latis, apice breviter et abrupte acuminatis, basi angustatis, integerrimis, submembranaceis, breviter petiolatis; floribus 4—5-(sæpius 5)-meris, hermaphroditis seu polygamis, in racemis lateralibus densioribus foliis multo brevioribus dispositis; lobis calycinis deltoideis, acutis; petalis oblongis vel oblanceolatis, patentibus, æstivatione imbricatis nec contortis. — *Celastrus oleoides*, *Hochst. in pl. Krauss, n. 407, non Lam.* *Choripetali spec., Harv. in Hook. Lond. Journ. Bot. i. p. 22.*

A native of Natal, *Dr. Krauss.*

A lax semi-scandent shrub, with smooth terete branches, glabrous all over except the inflorescence. *Leaves* obovate-elliptic, suddenly and shortly acuminate, narrowed from above the middle gradually towards the base, quite entire, firmly submembranous, spreading, of a bright green colour on both sides, an inch and a half to three inches long by three-fourths to an inch and a quarter wide; *petiole* one-sixth to one-third of an inch long; *lateral veins* obscure, pellucid, making an acute angle with the midrib. *Flowers* hermaphrodite or polygamous, four to five (usually five)-merous, tinged with pale green, about a quarter of an inch across, glandular, arranged in short rather dense lateral *racemes*; *calyx* small, with deltoid acute lobes; *petals* oblong or oblanceolate, spreading, imbricated (quincuncial when five) but not contorted; *stamens* adnate to the petals below the middle, glabrous; *filaments* erect-patent, rather shorter than the petals; *ovary* one-celled, with one or two basal *ovules*, frequently abortive.—*W. P. Hiern.*

TAB. 345. — 1, flower closed; 2, flower opened; 3, single petal, with stamens; 4, pistil; 5, section of ovary: all magnified.—*J. G. B.*

I received the seeds of this plant, many years since, from Natal; I think from Mr. Plant, but I am not certain. The only specimen I have, which is a very inconspicuous half-climbing shrub, came from this seed. It seems to thrive in a warm greenhouse, training the branches near the glass.—*W. W. S.*









W.E. Fitch lith.

Hanhart

*Gamochlamys heterandra*, Baker.

THE ...

GENUS GAMBELLA

LOCUS

SESSILE

LOOSE

STIPULE

PER ...

AD ...

COR ...

SEP ...

G. HYPERANTH

A ...

LOCUS

SPERM ...

UPPER ...

GREEN ...

INDIC ...

PRIMA ...

SECUN ...

THE ...

SINGU ...

PERMAN ...

SPERM ...

THIR ...

IMPET ...

EAC ...

THE ...

CELL ...

FLOW ...

FRE ...

LONG ...

CONNE ...

ovary: all ...

stamen: 3 ...

staminod: 3 ...

ovary: all ...



W.H. Fitch lith.

Humbert sc.

*Gamochlamys heterandra*, Baker.

## TAB. 346.

Natural Order AROIDEÆ.

Sub-order DICLINES.

Tribe SPATHICARPEÆ.

Genus GAMOCHLAMYS (*Baker*). Spadix ad spatham dorso per totam longitudinem adnatus. Flores fœminei exteriores. Ovarium sessile infundibuliforme 4—7-loculare staminodiis cinctum, loculis uniovulatis, ovulis ascendentibus, stigmate peltato stellatim 4—7-lobato. Stamina fertilia inter flores fœmineos per dimidiam superiorem spadicis imposita, antherarum loculis longitudinaliter dehiscentibus connectivo carnosio producto coronatis, filamentis crassis carnosissimis liberis vel pluribus inter sese connatis.

G. HETERANDRA (*Baker*). Species sola.

A native of Africa.

*Rootstock* bearing a solitary *leaf* which is developed before the spathe. *Petiole* two feet long, channelled down the face in the upper part, rounded on the back. *Blade* cordate-ovate, bright green, glabrous, rather fleshy in texture, a foot long, eight to nine inches broad, deeply pinnatifid; the *divisions* acute; the *veining* pinnate, without any intramarginal line; both primary and secondary *branches* erecto-patent. *Peduncle* rather shorter than the petiole, firm, erect, subterete. *Spathe* green, fleshy, boat-shaped, acute, four to five inches long, the margins edge to edge permanently in the lower part. *Spadix* half as long as the spathe, adnate to it through its whole length, bearing about thirty female *flowers*, which consist of an ovary surrounded by imperfect stamens. *Ovary* flask-shaped, with four to seven *cells*, each containing a single *ovule* ascending from the inner side at the base; the peltate *stigma* with as many *lobes* as the ovary has cells. Fertile *stamens* placed in a row in the midst of the female flowers on the upper half of the spadix; the *filaments* of some free to the base, of others confluent, four or five together; the longitudinally dehiscent *anthers* crowned by the produced fleshy *connective*.

TAB. 346.—1, vertical section of inflorescence, natural size. 2, free stamen; 3, bundle of connate stamens; 4, pistils surrounded by staminodia; 5, vertical section of ovary; 6, horizontal section of ovary: all magnified.—*J. G. B.*

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I am indebted to Major Trever Clarke for this remarkable new *Aroid*. It is said to be from Africa, but from what part I do not know. The plant thrives when placed in quite a cool house during the winter, when it should have but little water. The soil should be turfy loam. It has not perfected seeds with me, but produces offsets from the root, by which it can be freely propagated.—*W. W. S.*







*Gasteria variolosa*, Baker.

## TAB. 347.

## Natural Order LILLIACEÆ.

## Tribe ALOINEÆ.

## Genus GASTERIA, Duval.

*G. VARIOLOSA* (Baker). Foliis 15—18 congestis spiraliter distichis obliquis ligulato-lanceolatis 8—9 poll. longis 15—18 lin. latis subobtusè cuspidatis utrinque lævibus obscure viridibus maculis immersis copiosis parvis oblongis albidis confluentibus instructis marginibus sursum albo-cartilagineis leviter erosis, scapo cum racemo simplici æquilaterali 2½—3-pedali, bracteis linearibus pedicellis infimis æquilongis, perianthio 9-lineari valde curvato tubo cylindrico globo oblongo æquilongo.

A native of Algoa Bay, gathered by Mr. Cooper.

*Leaves* fifteen to eighteen in a congested sessile spirally distichous rosette, ligulate-lanceolate, eight to nine inches long, an inch and a half broad above the dilated base, narrowed gradually to an inch a little below the bluntly cuspidate tip, three-eighths to half an inch thick, obliquely twisted, the edge white and horny in the upper half, slightly eroded, the surfaces smooth, dull green, densely spotted with copious immersed small oblong whitish green blotches; the inner leaves ascending, the outer spreading. *Scape* simple, two and a half to three feet long inclusive of the raceme. *Raceme* equilateral, moderately close. Lower *pedicels* drooping, one-fourth to three-eighths of an inch long. *Bracts* linear, as long as the lower pedicels. *Perianth* three-fourths of an inch long, much curved; *ball* oblong, four lines thick; *tube* as long as the ball, with blunt *segments* reaching a third of the way down.

Closely allied to *G. maculata*, with which it agrees in inflorescence and perianth, but differing in the shape and arrangement of the leaves.

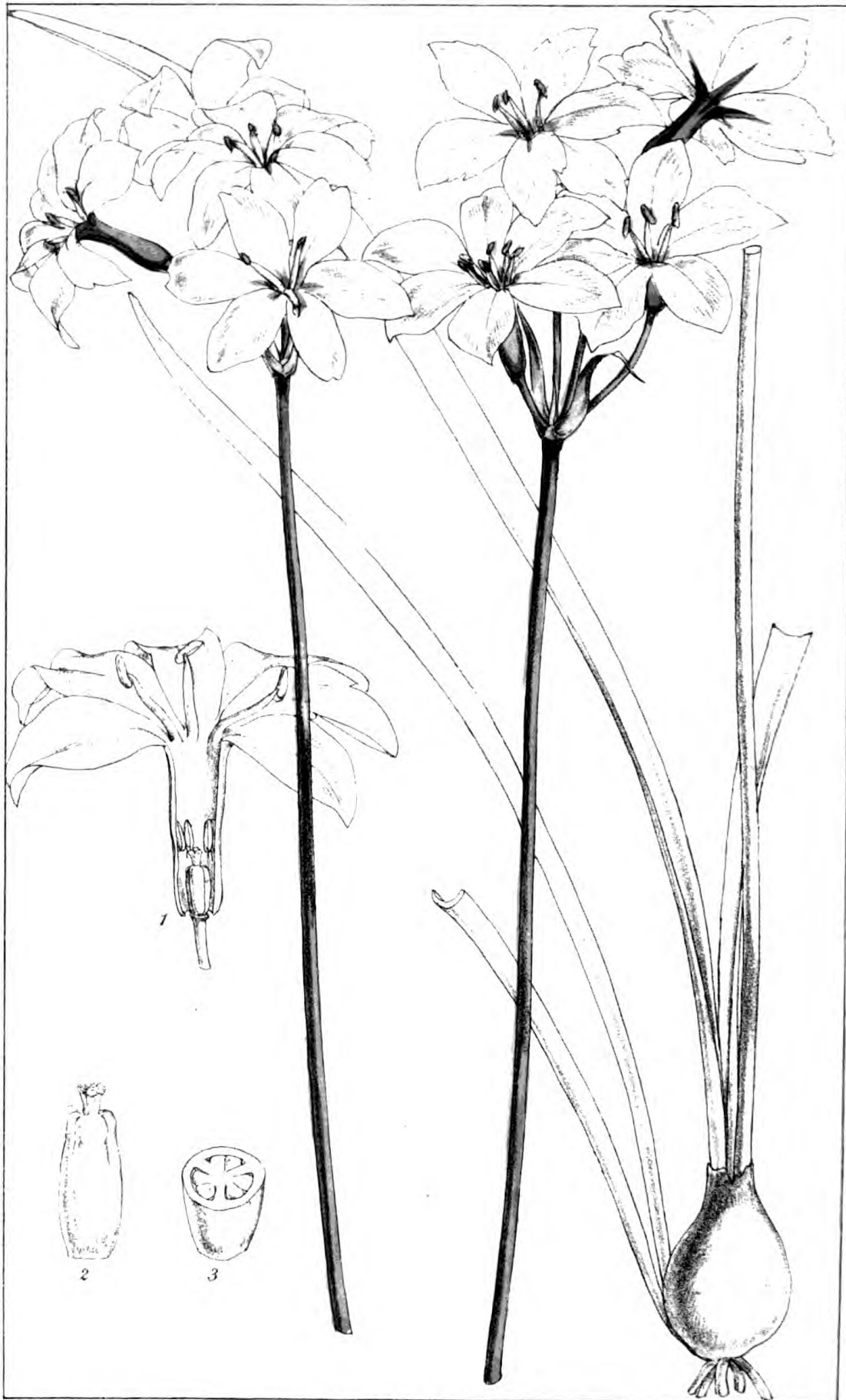
TAB. 347.—1, whole plant, reduced.—*J. G. B.*

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This is a distinct species of *Gasteria*, although much resembling other species of the genus. I obtained it from South Africa, through the exertions of Mr. Thos. Cooper. It should be treated as recommended for *Gasteria planifolia* (Tab. 162).—*W. W. S.*







WR. Ditch del et lith.

Hanhart imp.

*Leucocoryne ixioides*, Lindl.

## TAB. 348.

## Natural Order LILIACEÆ.

## Tribe MILLEÆ.

## Genus LEUCOCORYNE, Lindl.

*L. IXIODES* (Lindley, Bot. Reg. sub. t. 1293). Bulbo ovoideo, foliis paucis synanthiis anguste lorato-linearibus 9—12 poll. longis  $1\frac{1}{2}$ —2 lin. latis, scapo fragili tereti 1— $1\frac{1}{2}$ -pedali, umbellis 8—12-floris, pedicellis spathæ valvis linearibus longioribus, perianthio 12—15 lin. longo, segmentis oblongis acutis albis purpureo tinctis tubo æquilongis, staminodiis segmentis 2—3-plo brevioribus.—Baker, Linn. Journ. xi. 374. *L. odorata*, Lindl. Bot. Reg. t. 1293.

A native of Chili and the mountains of Peru.

*Bulb* ovoid, brown-tunicated, half to three-fourths of an inch thick. *Leaves* three to four, cotemporary with the flowers, linear-lorate, three-fourths of a foot to a foot long, a line and a half to two lines broad, acute, channelled down the face, evanescent. *Scape* terete, slender, erect, a foot to a foot and a half high. *Valves* of the *spathe* linear, membranous. *Umbels* three- to twelve-flowered. *Pedicels* ascending, an inch to an inch and a half long. *Perianth* an inch to an inch and a quarter long, the *tube* as long as the *divisions*, which are white more or less tinged with purple, oblong, acute, two and a half to three lines broad, spreading horizontally, or rather reflexed when fully expanded. *Stamens* three, with very short *filaments*, inserted below the middle of the tube. *Staminodia* spur-like, inserted at the throat of the tube, much shorter than the *segments*, sometimes—as in the specimens drawn—abnormally bearing *anthers* and sometimes six in number. *Ovary* sessile, with a very short *style*; the stigma on a level with the anthers down in the perianth-tube.

TAB. 348. — 1, section of abnormal flower, with the staminodia-producing anthers; 2, pistil; 3, horizontal section of ovary: all magnified.—J. G. B.

A free-flowering bulb, producing white flowers tinged with purple. It requires the same treatment as *Triteleia conspicua* (Tab. 43). I received the plant from Mr. E. Reed, procured by him near Santiago de Chili.—W. W. S.









W.H. Fitch del et lith.

Hanhart imp.

*Tulbaghia alliacea*, Thunb.

## TAB. 349.

Natural Order LILIACEÆ.

Tribe AGAPANTHEÆ.

Genus TULBAGHIA, *Linn.*

T. ALLIACEA (*Thunb. Prodr. Fl. Cap.* 60). Foliis 5—6 glaucoviridibus suberectis linearibus 12—18 poll. longis 4—6 lin. latis, scapo tereti foliis longiori, umbellis 6—10-floris, spathæ valvis lanceolatis pedicellis cernuis brevioribus, perianthio viridi 6—7 lin. longo, segmentis lanceolatis reflexis tubo æquilongis, coronâ rubro-brunnea 2 lin. longa apice erosa-dentata, antheris ad dimidiam inferiorem coronæ sessilibus biseriatis, ovario cum stylo tubo æquilongo. — *Baker, Linn. Journ.* xi. 371.

A native of Cape Colony and Natal.

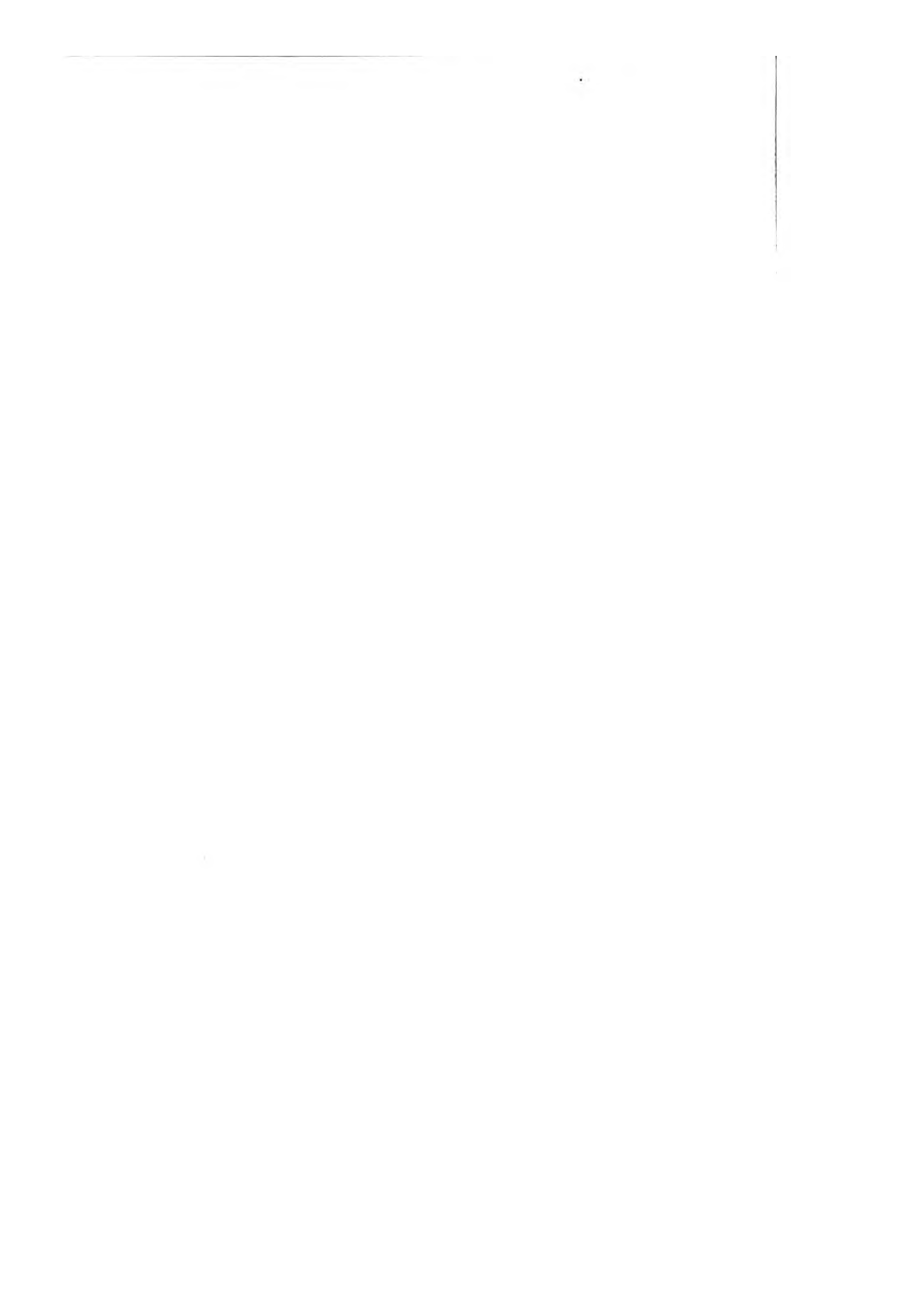
*Root* of fleshy fibres. *Leaves* about half a dozen, suberect, fleshy, glaucous-green, linear, twelve to eighteen inches long, three-eighths to half an inch broad, narrowed to a point, channelled down the face. *Scape* terete, exceeding the leaves, mottled with purple near the base. *Valves* of the *spathe* lanceolate, an inch long. *Flowers* six to ten to an umbel, on cernuous *pedicels* an inch to an inch and a half long. *Perianth* green, half to five-eighths of an inch long; the *tube* two to two and half lines thick; the lanceolate *segments* nearly or quite as long as the tube, reflexed when fully expanded. *Corona* fleshy, red-brown, two lines deep, faintly toothed at the top. *Anthers* sessile, in a double row inside the lower half of the crown. *Ovary* with *style* and capitate *stigma* not exerted beyond the perianth-tube.

TAB. 349.—1, single flower; 2, section of flower; 3, horizontal section of ovary: all magnified.—*J. G. B.*

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This is an interesting species, with flowers well marked by having the coronal cup crimson-brown. It grows freely and flowers well, planted in light sandy soil, and only requires the protection of a cool greenhouse or frame. It is easily increased by offsets. My stock of this plant I obtained from South Africa, through the exertions of Mr. Thos. Cooper.—*W. W. S.*











W.H. Fitch del. et lith.

Hanhart imp.

*Ornithogalum scilloides*, Jacq.

## TAB. 350.

Natural Order LILLIACEÆ.

Tribe SCILLEÆ.

Genus ORNITHOGALUM, *Linn.*Sub-genus UROPHYLLON, *Salisb.*

O. SCILLOIDES (*Jacq. Hort. Schoen. t. 88*). Bulbo magno globoso, foliis 5—6 synanthiis lorato-lanceolatis pedalis vel sesquipedalibus viridibus carnosis ad apicem sensim angustatis, scapo valido tereti  $1\frac{1}{2}$ —2-pedali, racemo denso  $\frac{1}{2}$ —1-pedali, pedicellis ascendentibus 5—6 lin. longis, bracteis linearibus ante anthesin comosis, perianthio  $\frac{1}{2}$ —unciali segmentis oblongis subacutis albis anguste distincte viridi vittatis, filamentis subæqualibus linearibus perianthio subduplo brevioribus, stylo ovario æquilongo.—*Kunth, Enum. iv. 358.*

A native of Cape Colony, gathered by Mr. Cooper.

*Bulb* globose, brown-tunicated, two to three inches thick. *Leaves* five or six, cotemporary with the raceme, lorate-lanceolate, a foot to a foot and a half long, an inch and a quarter to an inch and a half broad, clasping round the scape at the base, nearly flat in the upper half, bright green, fleshy, falcate, narrowed gradually to an acute point. *Scape* firm, terete, a foot and a half to two feet long. *Raceme* dense, half a foot to a foot long, eighteen to twenty-one lines broad when expanded. *Pedicels* ascending, the lower ones three-eighths to half an inch long. *Bracts* linear, exceeding the pedicels, protruded beyond the buds before the racemes expand. *Perianth* half an inch long, the *divisions* oblong, subacute, white, with a distinct few-nerved narrow green *keel*. *Filaments* subequal, rather flattened, half as long as the *segments*. *Style* as long as the oblong deeply sulcate sessile *ovary*.

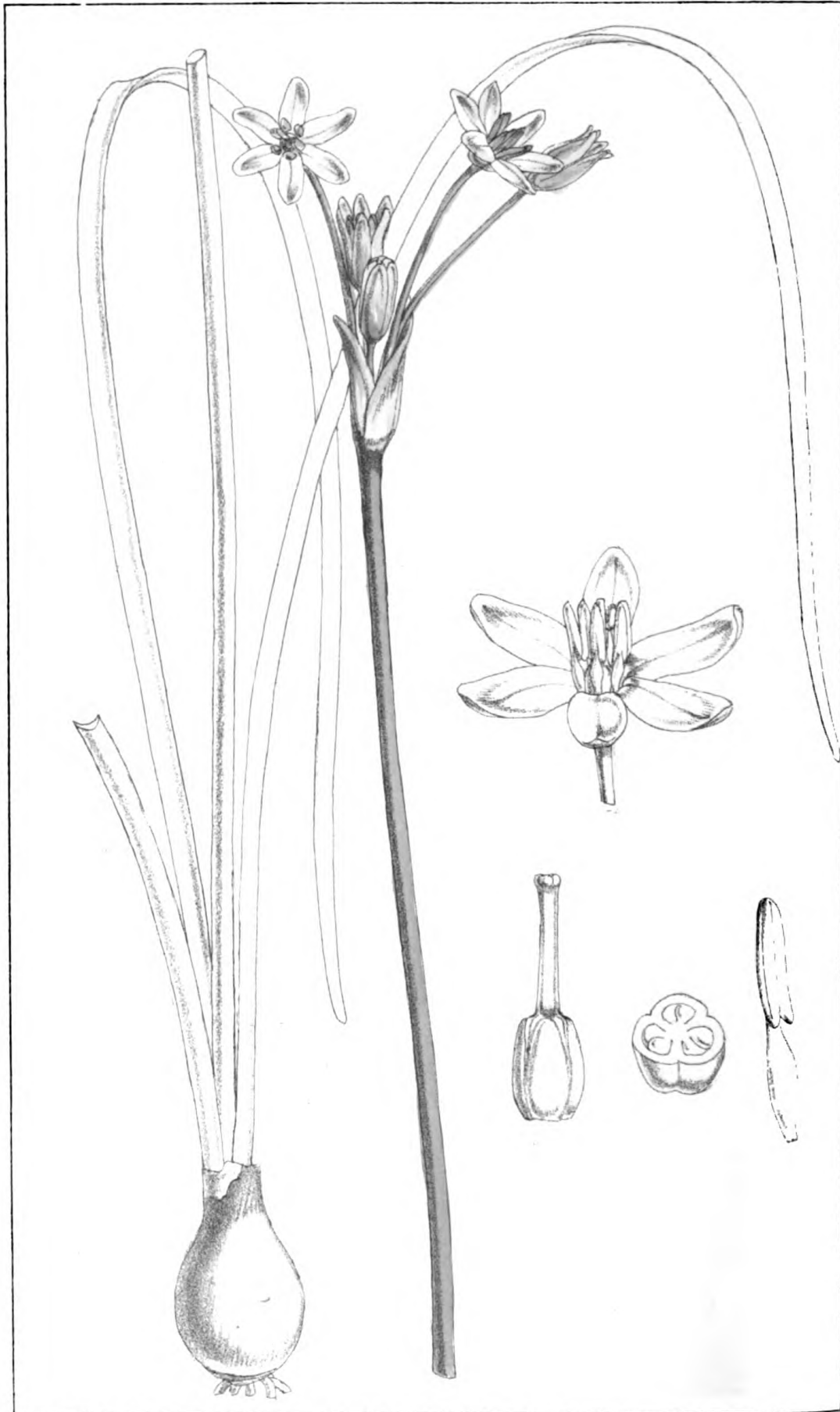
TAB. 350.—1, stamens and pistil; 2, pistil: both magnified.—*J. G. B.*

This plant has spikes of greenish white flowers, which are very freely produced. It requires similar treatment to *Ornithogalum caudatum* (Tab. 262).—*W. W. S.*









V. d. H. E. del. et lith.

Hanhart. imp.

*Nothoscordum flavescens*, Kunth.

## TAB. 351.

Natural Order LILIACEÆ.

Tribe ALLIÆ.

Genus NOTHOSCORDUM, *Kunth*.

*N. FLAVESCENS* (*Kunth, Enum. iv. 459*). Bulbo ovoideo, foliis 3—4 synanthiis anguste linearibus viridibus dorso convexis subpedalibus  $1\frac{1}{2}$  lin. latis, scapo foliis æquilongo vel superante, umbellis 6—8-floris, spathæ valvis linearibus pedicellis multo brevioribus, perianthio semiunciali, segmentis oblongis subobtusis sulphureis distincte viridi vittatis basi breviter connatis, filamentis cylindricis perianthio triplo brevioribus, stylo ovario æquilongo, loculis 5—6-ovulatis.

A native of Chili, sent to England in a living state by Mr. Reed.

*Bulb* ovoid, tunicated, under an inch thick. *Leaves* three or four, developed with the flowers, soon fading, bright green, fleshy, a foot long, one-eighth of an inch broad, convex down the back. *Scape* slender, terete, equalling or overtopping the leaves. *Flowers* six to eight in an umbel. *Spathe* of two lanceolate membranous *valves* under an inch long. *Pedicels* one-fourth of an inch to an inch and a half long, suberect. *Perianth* half an inch deep, the *divisions* united in a short *cup* at the base, spreading from the top of this nearly horizontally when fully expanded, oblong, bluntish, one-eighth of an inch broad, sulphur-coloured, with a distinct green *keel*. *Filaments* distinctly perigynous, uniseriate, one-eighth of an inch long. *Ovary* sessile, oblong, deeply trisulcate; *ovules* five or six in a cell; *style* filiform, one-eighth of an inch long.

TAB. 351.—1, a single flower; 2, single stamen; 3, pistil; 4, horizontal section of ovary: all magnified.—*J. G. B.*

A species producing small pale cream-coloured flowers of no great beauty. It thrives in a cool pit or greenhouse, when potted in a light sandy soil. Mr. C. Reed sent me this plant from Chili.—*W. W. S.*







*Chlorogalum Bowkeri*, Baker.

## TAB. 352.

Natural Order LILIACEÆ.

Tribe ANTHERICEÆ.

Genus CHLOROPHYTUM, *R. Br.*

- C. BOWKERI (*Baker*). Foliis radicalibus 6—8 lorato-lanceolatis ultra pedem longis  $1\frac{1}{2}$  poll. latis viridibus carnosis falcatis ad apicem angustatis, caule subpedali foliis 1—2 bracteiformibus instructo, racemo simplici denso subpedali, pedicellis ascendentibus brevibus medio articulatis sæpe geminatis, bracteis lineari-subulatis, perianthio semiunciali segmentis albis late vittatis, carinâ nervis 4—5 parallelis instructa, filamentis filiformibus perianthio triplo brevioribus, ovarii loculis 20—30-ovulatis, stylo declinato ovario duplo longiore.

A native of the North-eastern district of Cape Colony, sent to England in a living state by Mr. Bowker.

*Root* of thick fleshy fibres. *Leaves* six to eight in a basal rosette, lorate-lanceolate, a foot to a foot and a quarter long, an inch and a half broad at the base, narrowed gradually to the point, channelled down the face in the lower half, fleshy, bright green, recurved, the *veins* immersed. *Stem* terete, a foot high, bearing one or two much-reduced bract-like leaves. *Raceme* simple, close, a foot long, an inch and a quarter broad when expanded. *Pedicels* much ascending, articulated at the middle, the lower in pairs, a quarter of an inch long. *Bracts* linear-subulate, scarious, half to three-fourths of an inch long. *Perianth* tender, pure white, half an inch long; the *segments* spreading horizontally when expanded, oblong, bluntish, with a broad *keel* down the centre containing four or five close distinct parallel *nerves*. *Stamens* hypogynous; *filaments* filiform, two lines long; *anthers* basifixed. *Ovary* oblong, sessile, with twenty to thirty *ovules* in each cell; *style* very declinate, filiform, twice as long as the ovary.

TAB. 352. — 1, a single flower; 2, pistil; 3, horizontal section of ovary: all magnified.—*J. G. B.*

The figure of this plant is taken from a specimen which flowered in the Royal Gardens at Kew. I am indebted to my friend Dr. Hooker, the Director of that noble establishment, for the opportunity of placing this interesting plant, and the *Dracæna latifolia*, which immediately follows, in the 'Refugium.'—*W. W. S.*









W.H. Fitch del. et lith.

Hanhart imp.

*Dracæna latifolia*, Regel.

## TAB. 353.

Natural Order LILIACEÆ.

Tribe ASPARAGÆÆ.

Genus DRACENA, *Vand.*

*D. LATIFOLIA* (*Regel, Revis. p. 41*). Caule fruticoso simplici, foliis 40—50 dense rosulatis ligulatis coriaceo-carnosis reflexis bipedalibus sessilibus 3—4 poll. latis viridibus obscure maculatis distincte hyalino marginatis carinâ lata ab dorso solum perspicua, floribus geminatis vel ternatis pedicellatis in paniculam amplam deltoideam dispositis, perianthio viridi 12—15 lin. longo, segmentis tubo æquilongis, staminibus inclusis, stigmate exserto.

A native of South Africa.

*Stem* erect, simple, reaching the height of a yard in the finest specimen seen, and a thickness of three inches. *Leaves* forty to fifty in a dense rosette at the summit of the stem, ligulate, coriaceo-carnose, acute, much recurved, two feet long, three to four inches broad at the middle, narrowed to two inches above the base, bright green faintly mottled with paler spots, bordered by a distinct hyaline margin, the broad *midrib* distinctly visible only from below. *Flowers* very fragrant, in a sessile deltoid *panicle* two feet high, with ten or a dozen erecto-patent *branches* subtended by reduced leaves, in twos or threes together, on *pedicels* one-eighth to one-fourth of an inch long, subtended by small lanceolate membranous *bracts*. *Perianth* tubular, green, an inch to an inch and a quarter long; *divisions* ligulate, as long as the *tube*. *Stamens* uniseriate, from the throat of the tube, rather shorter than the segments. *Ovary* with three uniovulate *cells*; *style* filiform; *stigma* capitate, three-lobed, slightly exserted. *Fruit* a large deeply three-lobed *berry*.

TAB. 353.—1, whole plant, much reduced. 2, leaf; 3, portion of panicle: both natural size. 4, single flower; 5, pistil: both magnified.—*J. G. B.*

This fine plant has flowered at Hillfield, and I have grown it for some years. The figure, however, is from a plant in the Royal Gardens at Kew. A warm greenhouse treatment, with a liberal supply of water, and not exposed to the sun, suits the plant well. It should be potted in good loam and leaf-mould, and, as it ripens its seeds freely, there is no difficulty in propagating it. Mr. Thos. Cooper sent me this plant from South Africa, where he states it is found in shady woods, and in no other situation.—*W. W. S.*







W.H. Fitch del. et lith.

Hartshorn imp.

*Anticlea Fremontii*, Torrey.

## TAB. 354.

Natural Order LILIACEÆ.

Sub-order MELANTHACEÆ.

Genus ANTICLEA, Kunth.

- A. FREMONTII (Torrey, *Pac. R. R. Surv.* iv. 149). Bulbo ovoideo tunicato, foliis linearibus viridibus arundinaceo-carnosis glabris 1—2 pedes longis 3—4 lin. latis, caule 1—2-pedali parce foliato, racemis dense 12—50-floris simplicibus vel compositis, pedicellis ascendentibus infimis 1—2 poll. longis bracteis superantibus, perianthii segmentis lanceolatis acutis unguiculatis 5—6 lin. longis supra unguem glandulâ magna flavo-viridi apice dentata præditis, genitalibus perianthio distincte brevioribus. — *Zygadenus Fremontii*, Torrey, *Bot.* 40 *Parall.* p. 843.

A native of California, reaching as far east as Utah.

*Rootstock* a large ovoid *bulb* with brown tunics. *Leaves* mostly basal, bright green, glabrous, arundinaceo-carnose, a foot to two feet long, three to four lines broad, recurved, persistent, narrowed to a point. *Stem* a foot to two feet high, furnished with two or three reduced leaves. *Racemes* densely twelve- to fifty-flowered, simple or paniced. *Pedicels* erecto-patent, the lower ones an inch to two inches long. *Bracts* membranous, lanceolate, persistent, as long as the upper, shorter than the lower pedicels. *Perianth* cream-white, the *divisions* equal, lanceolate above a distinct claw, narrowed gradually to a point, spreading from the top of the claw when expanded, distinctly many-nerved, vertically plicate, furnished at the top of a claw with a large viscid greenish yellow *gland* which is toothed on the upper side. *Filaments* filiform, shorter than the segments. *Styles* distinctly separated. *Fruit* a dry coriaceous three-lobed many-seeded *capsule* three-fourths of an inch to an inch long, surrounded by the marcescent perianth.

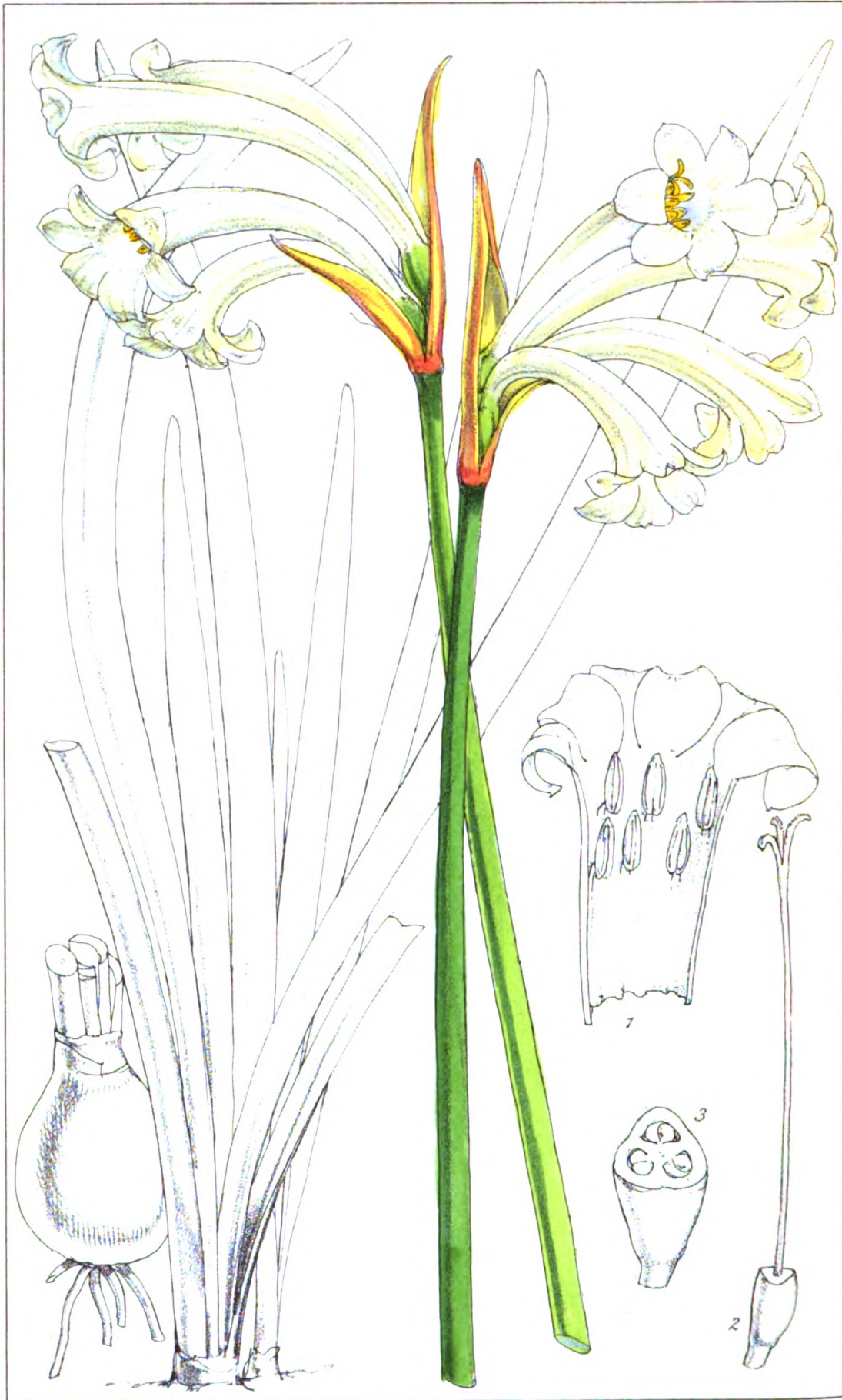
TAB. 354. — 1, a single segment of the perianth; 2, stamens and pistils; 3, pistils alone; 4, horizontal section of ovary: all magnified. — J. G. B.

This plant produces a branched flower-spike, and pale straw-coloured flowers. I am indebted to Mr. Bull, of Chelsea, for the opportunity of figuring this interesting bulb, which will probably be as hardy as *Triteleia conspicua* (Tab. 43), and may be treated in the same way. — W. W. S.









W.H. Fitch del. et hth

Hanhart imp

*Cyrtanthus Mackenii*, Hook fil.

## TAB. 355.

Natural Order AMARYLLIDACEÆ.

Tribe AMARYLLEÆ.

Genus CYRTANTHUS, *Aiton.*

C. MACKENII (*Hook. fil., Gard. Chron.* 1869, p. 641). Bulbo ovoideo tunicato, foliis 4—6 synanthiis linearibus viridibus carnosis suberectis 9—12 poll. longis 3—4 lin. latis, scapo subtereti foliis æquilongo, umbellis 3—4-floris, spathæ valvis lanceolatis pedicellis multoties longioribus, perianthio albo odoro, tubo curvato 21—24 lin. longo cylindrico sursum sensim ampliato, segmentis oblongo-deltoideis falcatis 3—4 lin. longis, stylo ex tubo haud exserto.

A native of Natal, gathered by Mr. McKen and others.

*Bulb* ovoid, brown-tunicated, an inch to an inch and a quarter thick. *Leaves* four to six, contemporaneous with the *flowers*, green, fleshy, suberect, nine to twelve inches long, three to four lines broad, narrowed to a point, flattish in the upper, channelled down the face in the lower half, mottled near the base with purple. *Scape* subterete, twelve to fifteen inches long, with a faint glaucous tinge. *Umbels* three- or four-flowered. *Valves* of the *spathe* lanceolate, an inch and a half to two inches long. *Pedicels* very short. *Perianth* pure white, fragrant; *tube* much curved, an inch and three-fourths to two inches long, cylindrical, dilated slightly gradually upwards; *segments* oblong-deltoid, three to four lines long, falcate when expanded. *Stamens* biseriate, placed near the top of the tube, with very short *filaments*. *Style* as long as the tube, distinctly trifid at the tip.

TAB. 355.—1, free portion of perianth cut away from the ovary; 2, pistil; 3, horizontal section of ovary: all magnified.—*J. G. B.*

A very pretty bulb, easy to flower, if grown freely in light sandy loam, and well supplied with water. It requires the protection of a cool greenhouse or pit. I have received this plant from several sources.—*W. W. S.*







WWSaunders del Fitch lith

Hanhart sculp

*Zephyranthes verecunda*, Herbert

## TAB. 356.

Natural Order AMARYLLIDACEÆ.

Tribe AMARYLLEÆ.

Genus ZEPHYRANTHES, *Herbert*.

Z. VERECUNDA (*Herbert, Bot. Mag. t. 2583*). Bulbo ovoideo, foliis 3—4 synanthiis suberectis viridibus planiusculis 8—12 poll. longis  $1\frac{1}{2}$ —2 lin. latis, spathæ valvis linearibus deorsum connatis, floribus sessilibus infundibuliformibus albis roseo tinctis 18—21 lin. longis, segmentis oblongo-ob lanceolatis acutis diutine ascendentibus tubo duplo longioribus, interioribus paulo minoribus, genitalibus inclusis. — *Zephyranthes sessilis* var. *verecunda*, *Herbert, Amaryll. 175*.

A native of Mexico and Guatemala.

*Bulb* ovoid, brown-tunicated, an inch thick. *Leaves* three or four to a bulb, contemporary with the flower, green, fleshy, sub-erect, nearly flat, eight to twelve inches long, a line and a half to two lines broad, the *veins* immersed. *Spathe* of two linear membranous *valves* connate downwards, tightly adpressed to the flower. *Flower* solitary, erect, quite sessile inside the *spathe*, an inch and a half to an inch and three-fourths long, white more or less deeply tinged with pink. *Tube* funnel-shaped, half to five-eighths of an inch deep. *Segments* twice as long as the tube, ascending, oblanceolate-oblong, acute, the inner three rather smaller than the outer ones. *Filaments* from the throat of the tube, much shorter than the segments; *anthers* linear. *Stigma* distinctly trifid, placed on a level with the anthers.

TAB. 356.—1, vertical section of ovary, and portion of perianth, to show the attachment of the stamens; 2, apex of style, with stigmas; 3, stamen; 4, pollen-grains: all magnified.—*J. G. B.*

A pretty species of *Zephyranthes*, which I received from Mexico, through Mons. Boucard. It requires the same treatment as recommended for *Zephyranthes sessilis*, Tab. 212 of this work.—*W. W. S.*













W.H. Fitch del. et lith.

Hanhart imp.

*Pancratium rotatum*, Ker

## TAB. 357.

Natural Order AMARYLLIDACEÆ.

Tribe PANCRATIEÆ.

Genus PANCRATIUM, Linn.

Sub-genus HYMENOCALLIS, Herbert.

- P. ROTATUM (Ker, Bot. Mag. t. 827). Bulbo ovoideo stolonifero, foliis circiter 6 carnosis viridibus suberectis pedibus vel sesquipedalibus anguste loratis supra medium pollicem latis dimidio inferiore leviter angustatis, scapo 2—3-pedali, umbellis 2—6-floris, floribus odoris niveis sessilibus tubo gracillimo 4—4½ poll. longo, segmentis linearibus falcatis tubo brevioribus, coronâ subpatula 2—2½ poll. lata inter filamentos leviter dentata, genitalibus segmentis paulo brevioribus. — *Hymenocallis rotata*, Herbert, *Amaryll.* 217.

A native of the Southern United States, Mexico, and the West Indies.

*Bulb* ovoid, an inch and a half to two inches thick, stoloniferous, the tunics much produced about the base of the leaves. *Leaves* usually half a dozen to a bulb, cotemporary with the flowers, suberect, bright green, fleshy, narrow lorate, a foot or a foot and a half long, an inch broad above the middle, narrowed to a point, and downwards to half an inch above the base, the broad *midrib* conspicuous on the back in the lower half. *Scape* two to three feet high, ancipitous, two- to six-flowered. *Spathe* of several short lanceolate membranous *valves*. *Flowers* subsessile, pure white, fragrant; *tube* very slender, four to four and a half inches long, a line and a half to two lines thick, tinged with green; *segments* linear, reflexed, about three inches long; *crown* subpatulous, two to two and a half inches across, slightly equally toothed between the filaments. *Filaments* an inch to two inches long after leaving the crown; *anthers* linear. *Style* sometimes exceeding, sometimes falling short of the filaments.

TAB. 357.—1, tip of style and stigmas, magnified.—J. G. B.

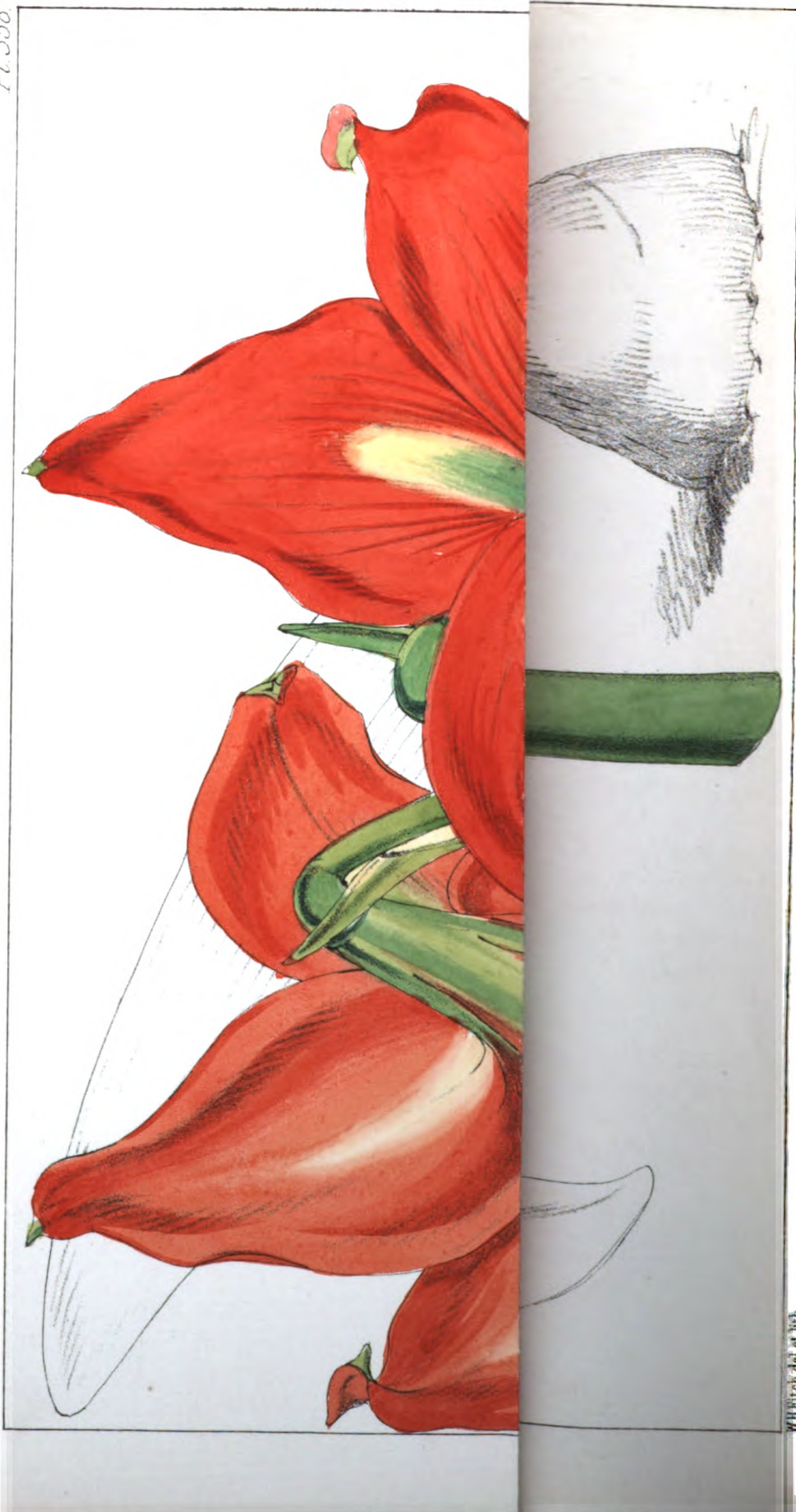
This fine species should be potted in good turfy loam, with plenty of drainage. It delights in a damp, shady, warm greenhouse or stove, while growing. It should have a season of rest by keeping it moderately cool, but not very dry. I am indebted to Mr. Dan. Hanbury for my stock of this plant — W. W. S.







Pl. 358.



Handaert imp.

*Amaryllis crocata*, Gaml.

W. H. Pritchard del. et lith.

## TAB. 358.

Natural Order AMARYLLIDACEÆ.

Tribe AMARYLLEÆ.

Genus AMARYLLIS, Linn.

Sub-genus HIPPEASTRUM, Herbert.

- A. CROCATA (*Gawl., Bot. Reg. t. 38*). Bulbo magno ovoideo, foliis 4—6 bifariis loratis viridibus sesquipedalibus carnosis reflexis, scapo valido tereti glauco 2—3-pedali, umbellis 2—4-floris, spathæ valvis lanceolatis pedicellis erectis æquilongis, perianthio inodoro 5-pollicari cernuo fauce haud coronulato segmentis supra ovarium in tubum semipollicem longum coalitis saturate miniatis dorso et fundo viridibus flore expanso dimidio superiore falcatis, exterioribus  $1\frac{1}{2}$  poll. latis, interioribus 2 superioribus pollicem latis, infimi angustiori, genitalibus perianthio distincte brevioribus. — *Hippeastrum bulbosum* var. *crocatum*, *Herb. Amaryll.* 139; *Kunth, Enum. v.* 529.

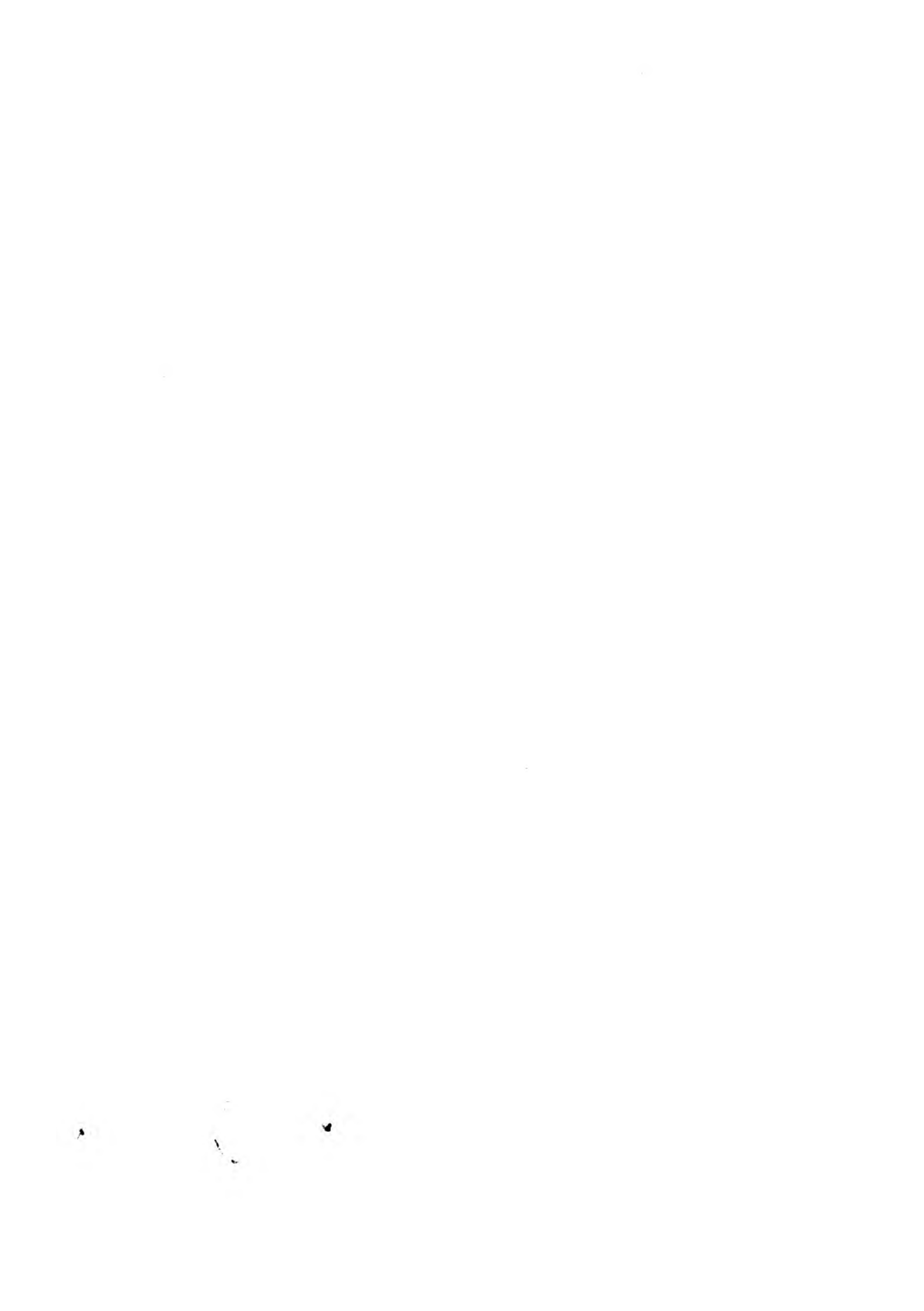
A native of Brazil, long known in cultivation.

*Bulb* ovoid, brown-tunicated, two to three inches thick. *Leaves* four to six, bifarious, lorate, green, sessile, a foot and a half long, an inch and a half to two inches broad, bluntish, recurved, narrowed to a broad base, fleshy, obscurely keeled down the face and back. *Spathes* two to three feet high, strong, erect, glaucous, subterete, half to three-fourths of an inch thick. *Flowers* two to four, inodorous. *Spathes* two, lanceolate, two to three inches long. *Pedicels* erect, as long as the spathes. *Perianth* cernuous, funnel-shaped, five inches deep, not produced at the throat, bright red tinged with green down the back, and with yellow-green in the throat; the *segments* united for half an inch above the ovary, falcate in the outer half in the expanded flower, the outer ones an inch and a half broad, the two upper inner ones an inch broad, the lowest inner one still narrower, all undulated towards the edges and narrowed to an acute point. *Style* and much incurved *stamens* considerably shorter than the perianth.

---

I obtained this beautiful species of *Amaryllis* from Mr. E. Reed. The bulbs were collected by him in the neighbourhood of Bahia, and, coming to hand in good condition, flowers were soon produced, by potting them in good turfy loam and sand, and

placing them in a warm greenhouse or stove. The bulbs require a season of rest after the active time of growth, and should then be kept moderately dry. I find that the species of *Amaryllis* with large permanent roots, like the present, do not like to have the bulbs disturbed during the season of rest. It is very important to keep these roots in good condition, as they aid very materially in throwing the plant into a natural healthy growing state. If permanent roots are dried up, much injury is done to the bulb, as others must be formed before the plant can be got into growth again.—*W. W. S.*





W.H. Fitch del. et lith.

Hartman imp.

*Pellaea Stelleri*, Baker

## TAB. 359.

Natural Order FILICES.

Sub-order POLYPODIACEÆ.

Genus PELLÆA, *Link.*

P. STELLERI (*Baker, Syn. Fil.* 453). Rhizomate gracili repente emerso paleis paucis minutissimis instructo, stipitibus segregatis nudis nitidis castaneis gracillimis fragilibus, frondibus parvis teneris oblongo-lanceolatis bipinnatis glabris pallide viridibus, pinnis paucis distantibus deltoideis infimis haud reductis, pinnulis frondium fertilium ligulato-lanceolatis subacutis maximis interdum lobatis, frondium sterilium obovatis obtusis, venis liberis immersis perspicuis, involucre lato subcontinuo membranaceo.—*Pteris Stelleri, S. G. Gmel. Nova Com. Act. Petrop.* xii. 519, tab. 12, fig. 1. *Pellæa gracilis, Hook. Sp. Fil.* 2, p. 188, t. 188 B.

A native of Siberia, the Himalayas, Canada, Newfoundland, and the Northern United States.

*Rhizome* slender, wide-creeping, clothed, when it emerges from the ground, with a very few minute pale brown *scales*. *Stipes* castaneous, naked, two to four inches long, slender, fragile. *Fronde*s membranous, pale green, glabrous, very tender, three to four inches long, oblong-lanceolate, bipinnate, the fertile and barren ones usually dissimilar, the former the most numerous. *Pinnæ* few, distant, the upper ones of the fertile frond simple, ligulate, the lower compound, deltoid, the lowest pair at least as large as the central ones. *Pinnules* of the lower pinnæ one- to three-jugate, ascending; of the fertile frond ligulate-lanceolate, subacute; of the barren frond shorter, broader, obovate, blunt. *Veins* free, slender, distinct, pinnate. *Involucre* broad, subcontinuous, glabrous, membranous.

TAB. 359.—1, barren pinnule; 2, fertile pinnule: both magnified.—*J. G. B.*

This is an interesting fern, figured from a specimen in the Royal collection at Kew.—*W. W. S.*

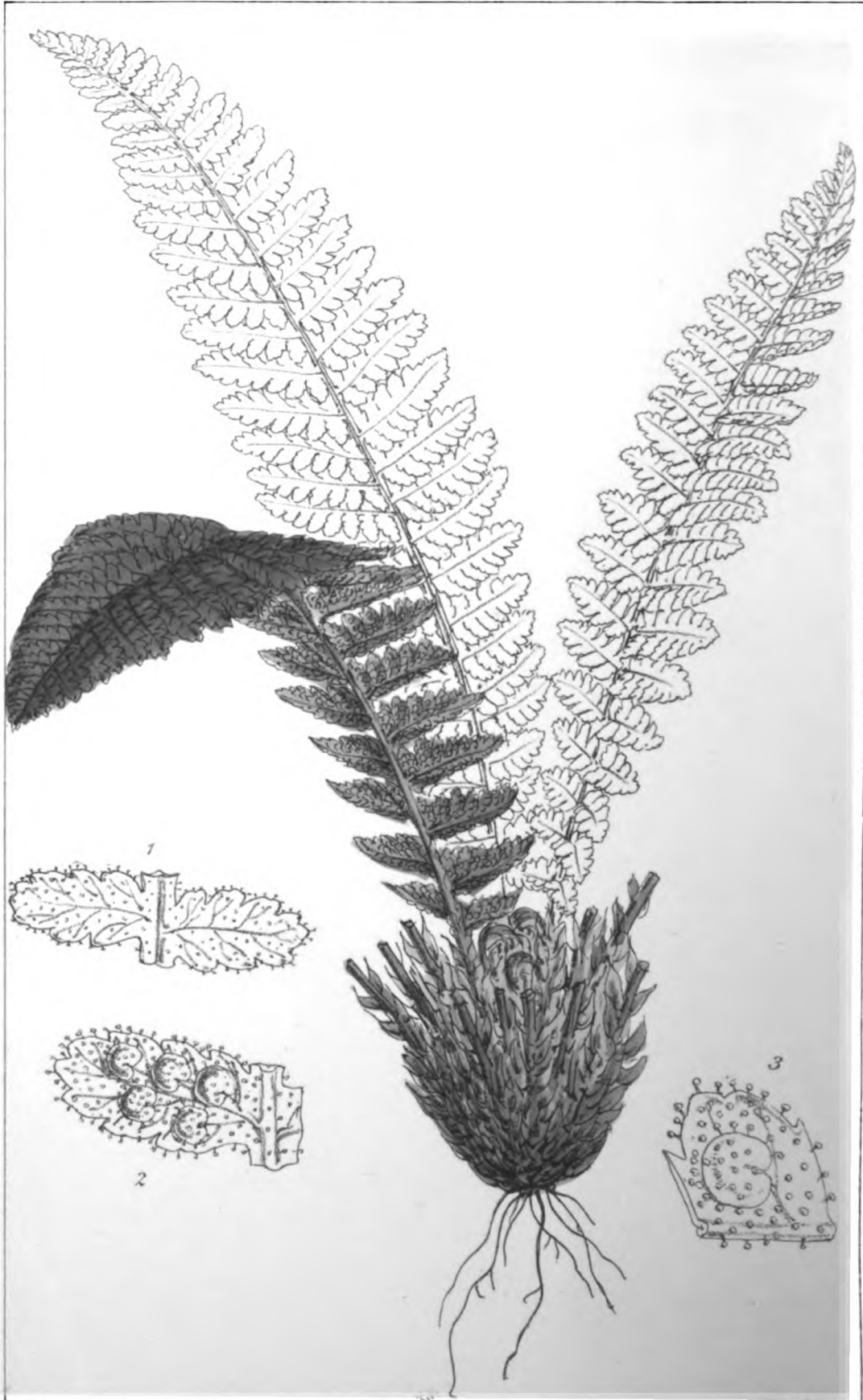












W.H. Fitch del et lith.

Hanhart imp.

*Nephrodium fragrans*, Richards.

## TAB. 360.

Natural Order FILICES.

Sub-order POLYPODIACEÆ.

Genus NEPHRODIUM, *Rich.*Sub-genus LASTREA, *Presl.*

**N. FRAGRANS** (*Richards. Append. Franklin, p. 788*). Caudice erecto, stipitibus brevibus cæspitosis paleis magnis brunneis lanceolatis dense vestitis, frondibus oblanceolatis parvis concinnis tripinnatifidis subcoriaceis supra viridibus glabris subtus pallidioribus glandulosis ad costas paleaceis, rachibus stramineis antice sulcatis dorso dense paleaceis, pinnis patentibus lanceolatis confertis inferioribus laxioribus sensim minoribus, pinnulis oblongis obtusis liberis pinnatifidis, venis liberis in segmentis tertiariis furcatis, soris in segmentis solitariis, involucro magno glanduloso.—*Hook. et Græv. Ic. Fil. t. 70*; *Hook. et Baker, Syn. Fil. 275*.

A native of Siberia from the Caucasus to Kamschatka, and of North America as far south as Wisconsin.

*Caudex* erect, woody. *Stems* densely tufted, an inch to three inches long, clothed with large bright brown lanceolate acute membranous *scales*. *Fronde*s with a distinct scent like that of violets, oblanceolate, four to nine inches long, an inch to two inches broad at the middle, narrowed gradually to both ends, subcoriaceous in texture, bright green and glabrous above, paler, glandular, with abundant adpressed *scales*, especially on the midribs of the pinnæ below. *Main rachis* stramineous, deeply sulcate down the face, abundantly scaly on the under side, especially in the lower part. *Pinnæ* close, lanceolate, blunt, the lower laxer and dwindling down gradually to a very small size. *Pinnules* oblong, blunt, pinnatifid, nearly or quite free. *Veins* forked or subpinnate in the tertiary segments, each of which, except the uppermost, in the fertile fronds, bears a single *sorus*, which covers all except the tip. *Involucres* large, glandular, distinctly reniform.

TAB. 360.—1, barren pinnules; 2, fertile pinnules; 3, portion of the same: all magnified.—*J. G. B.*

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A very interesting fern, well worth growing on account of the pleasant perfume, something like violets, given out by the fronds. The plant grows freely, if planted in turfy peat, well-drained, placed in a cool frame, and liberally supplied with water. I received my stock of this fern from Mr. Stark, of Edinburgh.—  
*W. W. S.*

# INDEX

	PLATE		PLATE
Agave lurida, Ait. . . . .	307	Leucocoryne ixioidea, Lindl. . . . .	348
„ micracantha, Salmdyck . . . . .	327	Nephradium fragrans, Richards. . . . .	360
„ Scolymus, Karw. . . . .	328	Nerine pulchella var. angustifolia, )	329
„ variegata, Jacobi . . . . .	326	Baker	
„ Verschaffeltii, Lemaire . . . . .	306	Nothoscordum flavescens, Kunth . . . . .	351
Albuca angolensis, Welw. . . . .	336	„ striatum, Kunth . . . . .	304
„ flaccida, Jacq. . . . .	334	Ornithogalum scilloides, Jacq. . . . .	350
„ tenuifolia, Baker . . . . .	335	Oxalis Newi var. glabrata, Baker . . . . .	292
Amaryllis crocata, Gawl. . . . .	358	Pancratium crassifolium, Baker . . . . .	331
Anticlea Fremontii, Torrey . . . . .	354	„ rotatum, Ker. . . . .	357
Aster hispidus, Baker . . . . .	342	Pellaea Stelleri, Baker . . . . .	359
Begonia Hookeriana, Gard. . . . .	341	Peperomia puberula, Baker . . . . .	302
„ sparsipila, Baker . . . . .	340	Phycella Macleanica, Baker . . . . .	332
Brunsvigia Cooperi, Baker . . . . .	330	Phrynium unilaterale, Baker . . . . .	312
Calathea vestita, Baker . . . . .	311	Scilla versicolor, Baker . . . . .	305
Calliandra gracilis, Klotzsch . . . . .	294	Sedum adenotrichum, Wall. . . . .	296
Carissa grandiflora, A. DC. . . . .	300	„ caespitosum, DC. . . . .	295
Chlorophytum Bowkeri, Baker . . . . .	352	„ spathulifolium, Hook. . . . .	337
„ falcatum, Baker . . . . .	333	Stenomesson coccineum, Herb. . . . .	309
Cineraria alchemilloides, DC. . . . .	344	„ Pearcei, Baker . . . . .	308
Cipura martinicensis, H. B. K. . . . .	310	Trichilia spondioides, Swartz . . . . .	293
Cotyledon horizontalis, Guss. . . . .	297	Tulbaghia alliacea, Thunb. . . . .	349
Crassula perfoliata, Linn. . . . .	338	Yucca acuminata, Sweet. . . . .	316
„ quadrifida, Baker . . . . .	298	„ Ellacombei, Hort. . . . .	317
„ rubicunda, E. Meyer . . . . .	339	„ ensifolia, Hort. . . . .	318
Cyrtanthus Mackenii, Hook. fil. . . . .	355	„ exigua, Baker . . . . .	314
Daucus montanus, Willd. . . . .	299	„ filamentosa, Linn. . . . .	324
Dorstenia Bowmanniana, Baker . . . . .	303	„ filamentosa var. grandiflora, )	325
Dracæna latifolia, Regel . . . . .	353	Baker	
Embelia Kraussii, Harv. . . . .	345	„ flaccida, Haw. . . . .	323
Erodium Munbyanum, Boiss. . . . .	291	„ glauca, Sims. . . . .	315
Gamoehlamys heterandra, Baker . . . . .	346	„ gloriosa, Linn. . . . .	320
Gasteria variolosa, Baker . . . . .	347	„ gloriosa var. minor, Carriere . . . . .	319
Geranium ornithopodum, E. & Z. . . . .	290	„ guatemalensis, Hort. . . . .	313
Hermannia fasciculata, Baker . . . . .	289	„ puberula, Haw. . . . .	322
Kleinia neriifolia, Haw. . . . .	343	„ recurvifolia, Salisb. . . . .	321
Lavandula lanata, Boiss. . . . .	301	Zephyranthes verecunda, Herb. . . . .	356

X

